Escuela Técnica Superior de Ingenieros de Caminos, Canales y Puertos.
UNIVERSIDAD DE CANTABRIA

PROYECTO DE CONSTRUCCIÓN: Puente de acceso a la isla de Zorrotzaurre

TRABAJO FINAL DE MASTER

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DOCUMENTO Nº1:

MEMORIA

MEMORIA

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1. INTRODUCCION

La peninsula de Zorrozaurre era protagonista por su pujanza industrial, pero poco a poco la crisis que sobrevino a principios de los setenta fue apagando sus tiempos dorados. En la actualidad, las más de 80 hectáreas del ámbito que un día se convirtieron en península verán una última transformación, pues se finalizará el Canal de Deusto y Zorrotzaurre se erigirá como una isla en la Ría de Bilbao.

Este renovado espacio en el centro de la ciudad acogerá viviendas, comercios, centros educativos, deportivos y culturales, servicios, oficinas y zonas verdes. Además, luchará por dar continuidad a la cultura que en la actualidad se desarrolla en las naves industriales e integrará las casas de los vecinos actuales. Este proyecto cuenta con una firma de primer nivel, la de Zaha Hadid, la arquitecta angloiraquí recientemente fallecida que obtuvo el Premio Pritzker (considerado el Nobel de la arquitectura) en 2004.. Zaha Hadid elaboró su Master Plan inicial y lo revisó hasta en dos ocasiones, desarrollandose finalmente entre 2003 y 2007.

2. OBJETO DEL PROYECTO

El objeto de proyecto es el diseño "Puente de Acceso a la isla de Zorrotzaurre" situado en la capital vizcaina en la rivera del Nervión.

Se trata de un puente doble arco atirantado por su tablero mixto

Dará continuidad al tráfico procedente de la Calle Julio Urquijo hacia el interior de la isla. Para ello constará de cuatro carriles para el tráfico rodado y dos aceras de 5m de ancho cada una donde convivirán peatones y ciclistas amplias para el tráfico peatonal y ciclista.

3. SOLUCIÓN ADOPTADA

El diseño de este puente estaba tremendamente condicionado desde el principio. La longitud venia definida por el proyecto del canal, 75m. El ancho también era una imposición administrativa a la par que urbanística pues llegado el momento el único nexo entre la isla y Bilbao será este puente. Los 4 carriles, dos por sentido era una obligación funcional que junto con las aceras nos llevaban a un ancho de no menos de 25m

Mas Complicado que esto, era la problemática con el margen existente entre el fondo del tablero y la lámina de agua en la máxima avenida. La necesidad de un tablero esbelto unido y la proximidad de la cota de la lámina obligo llevo a optar desde un principio por estructuras cuyo fenómeno resistente se desarrollase por encima de la rasante. Incluso el trazado de la propia rasante se ha visto modificado con respecto al proyecto base, por este motivo

La decisión final del arco atirantado por tablero además de por motivos estéticos se eligió porque permitía liberar al terreno de escasa capacidad portante de cargas horizontales de tracción .

Las opciones atirantadas además de forzadas para esta pequeña luz apenas aportaban esbeltez al tablero, introducía elementos en el cauce del rio y resultaba menos económica

4. DESCRIPCIÓN DEL PROYECTO

4.1. CARTOGRAFÍA

Para el encaje global de la geometría del Puente de Acceso a la Isla de Zorrotzaurre se ha empleado la siguiente información:

- Plano topográfico de base del Plan Especial de Ordenación Urbana del Área de Zorrotzaurre.
- Plano topográfico elaborado a partir del levantamiento taquimétrico realizado por Typsa para el
- Proyecto Constructivo de la Apertura del Canal de Deusto.

Para el encaje de detalle del puente y su subestructura se ha realizado un levantamiento taquimétrico detallado del terreno en esa zona que complementa a la cartografía.

En el levantamiento taquimétrico realizado se ha leído la información correspondiente a 309 puntos, cantidad de datos suficiente para la obtención de la información cartográfica necesaria.

4.2. GEOTECNIA

Los registros de los 4 sondeos realizados en las zonas de estribos han permitido elaborar el perfil estratigráfico de la alineación del puente. En dicho perfil, y de techo a muro, se registra la secuencia estratigráfica siguiente:

- Rellenos antrópicos superiores
- Fangos: Arcillas limosas con algo de arena
- Depósitos aluviales gruesos
- Eluvial de alteración del sustrato rocoso limolítico
- Sustrato rocoso

La importancia de estos sondeo radicaba también en determinación de la profundidad del sustrato rocoso lo cual permitió asegurar la viabilidad de una cimentación profunda puesto que los materiales que hay sobre la roca presentan capacidades portantes cuestionables incluso para cargas verticales

En base al perfil estratigráfico deducido de la investigación realizada, se optó por una cimentación pilotada para cuyo diseño se consideraron los siguientes parámetros

Resistencia por punta: qp,c = 30 kg/cm2

Resistencia por fuste: tf,c = 3 kg/cm2

Asegurando siempre un empotramiento mínimo en roca de 2,5 D

En el diseño del pilotaje frente a esfuerzos transversales sólo puede contarse únicamente con la resistencia lateral en el empotramiento rocoso.

4.3. TRAZADO

Se respeta la cota 6,10 m en los extremos del viaducto recogida en el Plan Especial .El trazado tendrá una pendiente longitudinal máxima del 3 %, que garantiza una adecuada visibilidad y una inclinación acceptable para el peaton. La pendiente longitudinal media del total del puente es de aproximadamente 2% manteniéndose en todo el trazado una rasante parabólica.

Respecto a la planta, por ser un vial urbano la velocidad máxima genérica es de 50 km/h ya que la calle tiene más de un carril por sentido. El eje del puente se enlazará con el resto de viales mediante acuerdos circulares. La parte del eje por la que discurre el puente es recta.

La sección tipo considerada consta de:

- Dos aceras de 5 m de ancho cada una
- Calzada: Consta de 4 carriles de 3,25 m cada uno flanqueados por 2 arcenes de 1 m.
- Barreras: entre el arcén y los anclajes de las péndolas se ha dispuesto una barrera de protección de tubo de acero. Las aceras cuentan con barandilla acristalado del lado de la ría.

4.4. TRÁFICO

Se realiza un estudio detallado del tráfico, evaluándolo tanto para el presente como para un horizonte acorde con el tiempo de vida de la estructura, de 100 años. Sin embargo, la vida útil de los firmes será menor.

Según la normativa de firmes del País Vasco el periodo de proyecto para el dimensionamiento de las estructuras de firme será de 20 años. Por tanto el estudio realizado en el correspondiente Anejo se basa en el cálculo de la IMD futura estimándola a partir de la variación a lo largo de los últimos años. Las fuentes empleadas para dicho estudio serán estaciones de aforo estatales. Los cálculos realizados en el anejo tienen como fin el posterior dimensionamiento del pavimento y la comprobación de sus prestaciones de cara a su vida útil.

Se considera como año de puesta en servicio de la carretera el 2018. Los resultados del estudio son: IMD2020 = 8858 vehículos/día

IMD2040 = 12656 vehículos/día.

Y en vehículos pesados:

IMDp2020 = 869 vehículos/día.

IMDp2040 = 1241 vehículos/día

Según la Normativa de firmes del País Vasco, **la categoría de tráfico de proyecto es T2A.**

En cuanto al tráfico durante las obras se ha incluido un anejo analizando las posibilidades de entrada y de salida de la península así como la señalización a disponer

4.5. FISMES Y PAVIMENTOS

Siguiendo la Normativa de firmes del País Vasco, con tráfico T2 ó superior, se proyectará una mezcla bituminosa en caliente de 10 cm de espesor, en dos capas, una intermedia, formada por una mezcla bituminosa de tipo denso o semidenso (según art. 542 del PG-3) de tamaño máximo nominal de árido no superior a 12 mm, y una capa de rodadura formada por mezcla bituminosa de tipo denso o semidenso (según art. 542 del PG-3) o bien de tipo discontinuo (según art. 543 del PG-3). La capa intermedia no será necesaria cuando se haya regularizado el tablero directamente sobre el riego de imprimación.

Se prescindirá de capa intermedia ya que se regularizará el tablero directamente sobre el riego de imprimación. La capa de rodadura estará formada por mezcla bituminosa de tipo denso o semidenso (según art. 542 del PG-3). Se evitan las mezclas discontinuas para evitar emplazar la capa de 5 cm de mezcla bituminosa bajo la capa de rodadura.

En base a la citada normativas vasca y al PG-3, los firmes dimensionados tendrán un espesor total de 8 cm. Constarán de los siguientes componentes:

- Capa de rodadura de 7,5 cm de espesor con mezcla: AC22 surf 50/70 D.
- 0,5 cm de mástic bituminoso como capa impermeabilizante

Respecto a las aceras, se empleará un pavimento de madera.

4.6. SEÑALIZACIÓN Y BALIZAMIENTO

Para la definición de la señalización horizontal se ha aplicado la Norma de Carreteras 8.2-IC. Marcas Viales aprobada por Orden Ministerial de 16 de Julio de 1987. También son de aplicación apartados específicos de las Recomendaciones para el Proyecto de Enlaces de la Dirección General de Carreteras del año 1968.

Para la definición de las dimensiones geométricas de las señales se han utilizado los criterios recogidos en la Instrucción 8.1-IC. Señalización Vertical para carreteras convencionales.

Se entiende por balizamiento el conjunto de elementos capaces de producir una ayuda visual a los conductores, especialmente de noche y en condiciones de baja visibilidad, formando un sistema óptico continúo de guía, coordinado con la señalización horizontal. Los viales estarán suficientemente iluminados, por lo que no se dispondrá ningún sistema adicional de balizamiento.

Se situarán barreras en los arcenes para la protección de la estructura del puente (péndolas y arco) del impacto directo de vehículos.

Las barandillas irán en los extremos del voladizo y constarán de una viga inferior de atado que aportará continuidad visual al alzado.

4.7. SERVICIOS AFECTADOS

Una vez realizado el análisis de los servicios que resultan afectados por la nueva construcción, se plantea su reposición. Por el tablero del nuevo Puente de acceso a la isla de Zorrotzaurre, en el interior de sus vigas longitudinales, se ha proyectado el cruce de varios servicios de interés público para dar servicio a la futura isla ue son los siguientes:

- Canalización Eléctrica de Iberdrola
- Canalización de Telefonía
  - Euskaltel
  - Movistar
- Canalizaciones de Abastecimiento
  - Ur Agentzia/Agencia vasca de Agua (URA)
- Canalizaciones de Gas
  - Naturgás

5. ESTRUCTURAS

La estructura la componen dos arcos de hormigón armado HA-50 de dimensiones de sección aproximadas 0.8x1,2m

Ambos arcos paralelos separados por la calzada de 15m de ancho son “atados” por dos vigas cajón longitudinales de acero S-355 ancho de 1,2m canto de 1,5m y espesores de chapa de 20mm.

Entre ambas vigas longitudinales se disponen unas vigas metálicas transversales doble T de 1,2 m de canto, alas de 0,5m separadas entre si 4.4m coincidiendo con las péndolas que unen tablero y arcos. Estas vigas metálicas trabajan de forma mixta con la losa de hormigón de 25 cm de espesor.

Las aceras son sustentadas por vigas voladizo que nacen de las vigas longitudinales.

5.1. PROCESO CONSTRUCTIVO

El proceso constructivo será el siguiente

- Se excavarán los pilotes de las cimentaciones en cada extremo del puente simultáneamente.

-Sobre Castilletes provisionales se ubicarán las piezas metálicas del tablero y se soldarán.

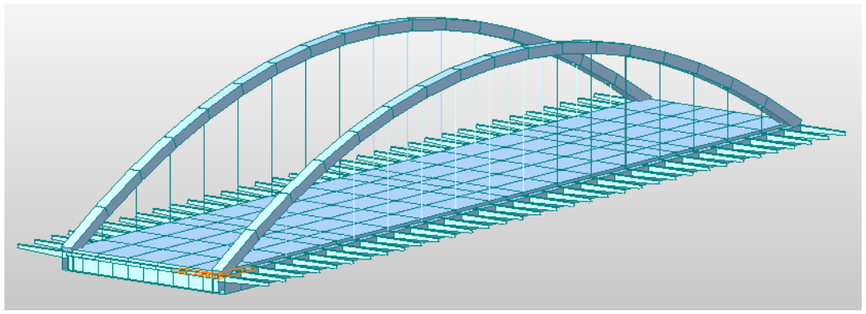
-Sobre una cimbra se encofrará hormigonará y ferrallará el arco.

-Sobre una cimbra cuajada se encofrará hormigonará y ferrallará la losa de 25 cm de hormigón que una vez fraguada habrá de trabajar como sección mixta conjuntamente a las vigas transversales

- La construcción de la losa dará un plazo razonable al arco para ganar resistencia. Fraguada la losa se conectará las péndolas al arco y tras tesarlas esta quedará despegada del encofrado y podrá retirarse la cimbra.

-El tesado será simétrico y desde el centro de luz hacia los estribos. Y se realizarán simultáneamente en ambos arcos.

5.2. MODELO DIGITAL



Para el cálculo de la estructura se emplea el software "MIDAS" para el modelo general, realizándose un modelo de barras de emparrillado plano. Se verifica el buen funcionamiento del modelo al analizar los esfuerzos axiles que se presentan similares a los esperados.

En este modelo se han tenido en cuenta los efectos de arrastre por cortante no asi los efectos de fluencia.

Por simplicidad las vigas mixtas del tablero se han homogeneizado y asi utilizar un único material

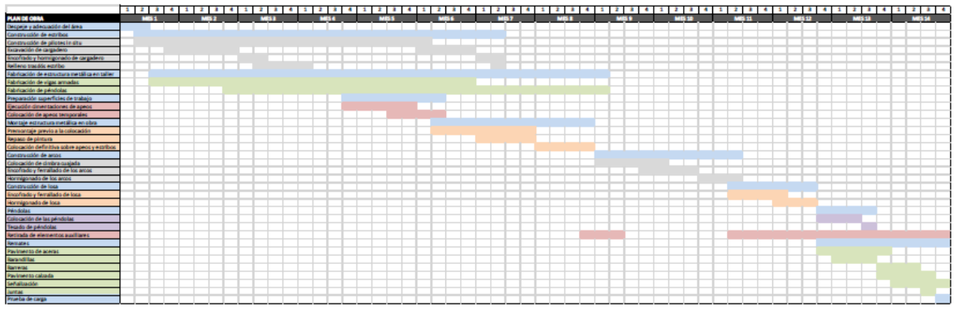
Las cargas introducidas han sido las estipuladas en la IAP-2011

Se han llevado a cabo análisis de estados limite ultimo y de servicio en secciones de

- Centro luz, riñones y estribos del arco
- Centro luz y empotramiento de las vigas transversales que componen el tablero
- Centro de luz y 205% de la luz en la viga longitudinal

6. PLAN DE OBRAS

La duración estimada de la obra será de 14 meses



7. PRESUPUESTO Y CONTRATISTA

El presupuesto de ejecución material asciende a **3.189.756,79 Euros**

01	EXPLANACIONES	124.507,09	3,90
02	FIRMES	734.401,85	23,02
03	ESTRUCTURAS	2.177.098,90	68,25
04	SEÑALIZACIÓN Y BALIZAMIENTO	23.873,07	0,75
06	VARIOS	19.976,88	0,63
05	PARTIDAS ALZADAS	109.899,00	3,45
	PRESUPUESTO DE EJECUCIÓN MATERIAL	**3.189.756,79**	

El presupuesto base de licitación se obtiene aplicando al PBL los porcentajes de gastos generales y del beneficio industrial

	PRESUPUESTO DE EJECUCIÓN MATERIAL		**3.189.756,79**
13,00	% Gastos generales	414.668,38	
6,00	% Beneficio industrial	191.385,41	
	Suma		606.053,79
	PRESUPUESTO BASE DE LICITACIÓN SIN IVA		**3.795.810,58**

La clasificación del contratista en base a este presupuesto será:

Grupo B. Puentes, viaductos y grandes estructuras.

Subgrupo 4. De estructura metálica.

Categoría F.

8. ESTUDIO DE SEGURIDAD Y SALUD

Se realiza en cumplimiento de lo dispuesto en el Real Decreto 1627/1.997, de 24 de octubre, sobre disposiciones mínimas de seguridad y salud en las obras de construcción, teniendo como objetivos la prevención de accidentes laborales, enfermedades profesionales y daños a terceros que las actividades y medios materiales previstos puedan ocasionar durante la ejecución del presente proyecto constructivo.

Por ser el presupuesto base de licitación superior al mínimo según el artículo 4 de dicho Real Decreto, el presente proyecto ha de incluir un "Estudio de seguridad y salud". Dicho Estudio de seguridad y salud tiene por objeto establecer las directrices que habrán de regir durante la ejecución de las mencionadas obras, en relación con la prevención y evitación de riesgos de accidentes laborales, enfermedades profesionales y daños a terceros.

También se recogen en este estudio las características que habrán de reunir las instalaciones y atenciones de sanidad y bienestar a disposición de los trabajadores afectos a las obras, durante la ejecución de las mismas.

9. DOCUMENTOS QUE INTEGRAN EL PROYECTO

Documento Nº1: Memoria

- Memoria
- Anejos a la Memoria:

Anejo Nº1: Antecedentes históricos y administrativos

Anejo Nº2: Cartografía y topografía

Anejo Nº3: Geología y geotecnia

Anejo Nº4: Estudio hidrológico e hidráulico

Anejo Nº5: Climatología y drenaje

Anejo Nº6: Tráfico

Anejo Nº7: Firmes y Pavimentos

Anejo Nº8: Trazado

Anejo Nº9: Señalización y balizamiento

Anejo Nº10: Soluciones al tráfico durante las obras

Anejo Nº11: Proceso constructivo

Anejo Nº12: Plan de obra

Anejo Nº13: Clasificación del contratista

Anejo Nº14: servicios afectados

Anejo Nº15: Gestión de residuos

Anejo Nº16: Calculo de estructura

Anejo Nº17: Revisión de precios

Anejo Nº18: Justificación de precios

Anejo Nº19: Estudio de seguridad y Salud

Anejo Nº20: Presupuesto de inversión

Documento Nº2: Planos

- 1. Situación
- 2. Plano de conjunto
- 3.1. Trazado-Alzado
- 3.2. Trazado-Planta
- 4. Plantas
- 5.1. Alzado 1
- 5.2. Alzado 2
- 6. Perfil
- 7. Seccion stribo
- 8. Sección 1/6 de la luz
- 9. Sección intermedia
- 10. Sección centro luz
- 11. Secciones
- 12. Detalle encuentro arco con tirantes
- 13. Detalle gancho péndola-viga longitudinal
- 14. Detalle gancho péndola-arco
- 15. Detalle encuentro viga longitudinal-péndola
- 16. Proceso constructivo
- 17.1. Señalización 1
- 17.2. Señalización 2
- 17.3. Señalización 3
- 18. Servicios afectados
- 19. Gestión de residuos

Documento Nº3: Pliego de Prescripciones Técnicas Particulares

- Parte 0: Consideraciones previas
- Parte 1: Introducción y generalidades
- Parte 2: Materiales
- Parte 3: Explanaciones
- Parte 4: Excavaciones
- Parte 5: Rellenos
- Parte 6: Firmes
- Parte 7: Estructuras
- Parte 8: Elementos Auxiliares
- Parte 9: Obras Varias
- Parte 10: Partidas Alzadas

Documento Nº4: Presupuesto

- Mediciones
- Cuadro de precios nº1
- Cuadro de precios nº2
- Presupuesto por capítulos
- Resumen del presupuesto

ANEJOS A LA MEMORIA

ANEJO Nº1.-

ANTECEDENTES HISTÓRICOS Y ADMINISTRATIVOS

Contenido

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1. INTRODUCCIÓN

El presente anejo tiene como objetivo contextualizar el proyecto “Puente de Zorrotzaurre”.

La península de Zorrotzaurre ubicada en la margen derecha de la ría del Nervión a la altura de Deusto es un accidente geográfico artificial, originado tras la excavación del canal de Deusto en el año 1968 con el objetivo de descongestionar el tráfico del puerto de Bilbao. La superficie de la península es de 601.433 m^2 y cuenta con una población cercana al medio millar de habitantes.

2. HISTORIA

El canal de Deusto se trata de un brazo de agua artificial con orientación noroeste-sudeste y que casi divide el distrito completamente

2.1. AÑOS 20

Durante el primer tercio de la década de los veinte, España entera se vio sumida en una profunda recesión. Tras los buenos años de la Guerra Mundial (desde el punto de vista económico para la industria española), se produjo una contracción de los principales mercados internacionales. Obviamente una de las más afectadas fue la economía vizcaína, sustentada sobre el poderío industrial de la ría. Pero si hubo un sector en el que la recesión se cebó de un modo más cruel, ése fue el de la industria naval.

La depresión del comercio mundial, la baja del mercado de fletes, el atraque forzado de un buen número de barcos, la casi paralización de la actividad en los astilleros y los conflictos laborales subsiguientes fueron los eslabones de una cadena que evidenciaba la recesión económica que amenazaba con pulverizar la potente y febril actividad de la ría.

Uno de los aspectos considerados urgentes era la modernización del Puerto y de la ría de Bilbao. Era necesario acometer profundas reformas que dotaran a todo el eje fluvial del Nervión de los elementos necesarios para mejorar la navegabilidad y agilizar las labores de carga y descarga .Uno de los proyectos con los que se pretendía lograr estos objetivos fue el canal de Deusto. La idea surgió de la Junta de Obras del Puerto y en 1929 quedó reflejada en el 'Proyecto de Extensión Urbana de la I. Villa de Bilbao con las anexiones de Begoña, Deusto y parte de Erandio'

Las razones de abrir un canal que se apuntan en el informe fueron las mismas que, en su día, expuso la Junta de Obras del Puerto: mejorar el servicio marítimo y comercial de la ría. La propia Cámara de Comercio de Bilbao también juzgó el proyecto como muy interesante por lo que recomendó que se prestase todo el apoyo necesario, tanto a las instituciones privadas como a las públicas. «También se acordó realizar en su día todas aquellas gestiones que se estimen convenientes para la rápida tramitación de los oportunos expedientes y autorizaciones». Sin embargo, si de algo careció este proyecto fue, precisamente, de urgencia. Todo en él estuvo marcado por un ritmo totalmente opuesto a lo mucho que se podía ganar con su rápida construcción, ya que lo que se pretendía con el canal era eliminar las dificultades que para los buques de cierto tonelaje entrañaba la curva de Olabeaga y crear nuevas zonas comerciales de mayor calado que el que, por entonces, ofrecía la ría en Deusto.

2.2. AÑOS 30

El primer paso -culminado poco antes de 1936- fue la adquisición de terrenos, que supuso un desembolso de ocho millones de pesetas. El 22 de abril de 1936, se aprobó un proyecto de obra parcial del canal -sólo comprendía la apertura del tramo central-, cuyo importe ascendía a casi 25 millones. Desgraciadamente, la Guerra Civil detuvo las obras y la idea de construir un canal en Deusto se quedó «dormida» durante más de un cuarto de siglo.

2.3. AÑOS 40-50

A finales de 1948 se redactó un nuevo proyecto que establecía dos fases de ejecución y que fue aprobado en mayo de 1949. Las obras de la primera fase comenzaron el 11 de agosto de 1950. Un año más tarde se dio inicio a las de la segunda. «La obra consistía en la apertura de un canal con un corte total de aguas debajo de Euskalduna -señala Iñaki Uriarte en su artículo 'La Ría y el Canal de Deusto'-, hasta la vuelta de Elorrieta, de 100 metros de anchura y 130 en la curva de amplio radio con la que se iniciaba, creándose dos márgenes de 2.936 metros en la izquierda y 2.409 en la derecha con un calado de 7 metros por debajo de la bajamar equinoccial». De esta forma surgieron dos amplios muelles que ayudaron a descongestionar el tráfico fluvial de la ría al mismo tiempo que mejoraron las labores de carga y descarga

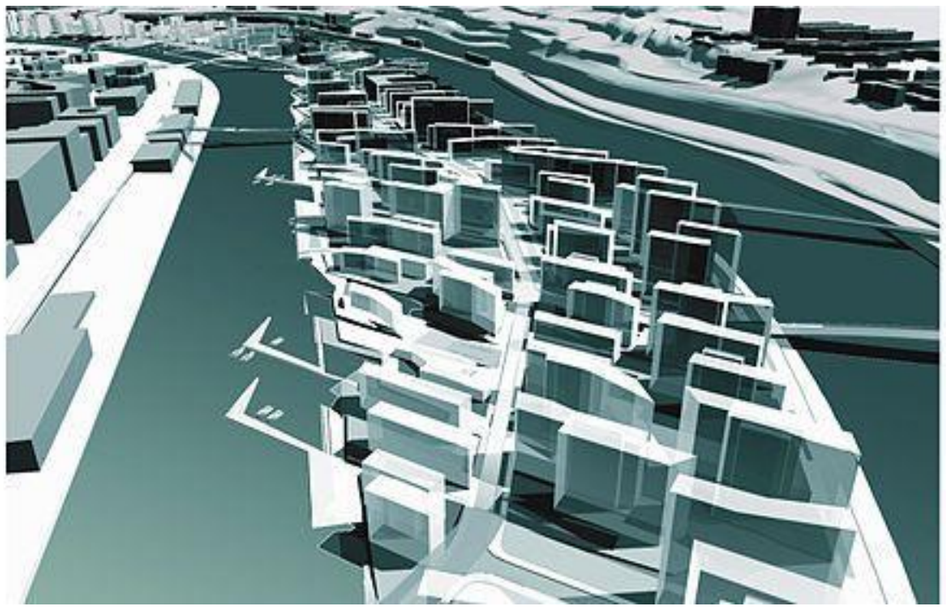
2.4. AÑOS 60-70

A mediados de los años sesenta Zorrotzaurre se vio inmersa en una época de pujanza industrial potenciada por la apertura inconclusa del canal de Deusto por parte del Puerto de Bilbao. En este escenario fueron consolidándose diversas actividades industriales, sobre todo aquellas vinculadas a la actividad portuaria de ambos lados del canal, así como otros usos productivos en la antigua Ribera de Deusto. Sin embargo, la crisis económica de los años setenta afectó a todo el desarrollo industrial previo provocando su declive. Parte de la actividad industrial fue abandonada y en consecuencia el nivel de vida fue menoscabado por el envejecimiento de edificaciones y espacios públicos y privados.

3. NUEVO PLANEAMIENTO URBANÍSTCO

A raíz de la aprobación del Plan General de Ordenación Urbana de Bilbao en 1995, el uso industrial de Zorrotzaurre pasó a ser residencial. La redacción de un Plan Especial se encargaría a posteriori del diseño urbano del área.

En 2001, propietarios públicos y privados de Zorrotzaurre constituyen la Comisión Gestora para el Desarrollo Urbanístico de Zorrotzaurre, a fin de impulsar y ejecutar el plan de regeneración urbana de la zona. El Master Plan del proyecto ha sido diseñado por la arquitecta angloiraquí Zaha Hadid. Elaborado en 2004 y revisado en 2007, incluye la apertura completa del Canal de Deusto, transformando Zorrotzaurre de península en isla.



En noviembre de 2012 el Ayuntamiento de Bilbao aprobó definitivamente el Plan Especial de Zorrotzaurre.

El 16 de diciembre de 2015 fue aprobada la reparcelación de la zona 1 de Zorrotzaurre, la cual representa cerca de la mitad de la península. El siguiente paso de regeneración será la redacción y aprobación del proyecto de urbanización de la unidad 1 y el inicio de las obras, a partir del último trimestre de 2017.

El 27 de julio de 2016, el Ayuntamiento de Bilbao aprobó el proyecto de urbanización de Zorrotzaurre en el que se describe con detalle los espacios y las oportunidades para la ciudad

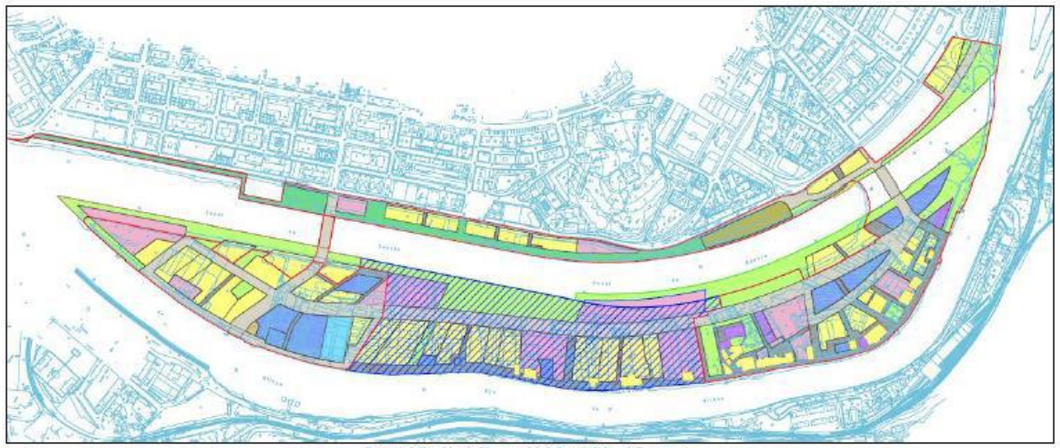


Ilustración 3. Usos del suelo (Plan especial de Ordenación Urbana de Zorrotzaurre)



ANEJO Nº2.-

CARTOGRAFÍA Y TOPOGRAFÍA

Contenido

1. INTRODUCCION 1

2. CARTOGRAFÍA 1

3. TOPOGRAFÍA 1

3.1. BASES DE REPLANTEO 1

3.2. CARACTERÍSTICAS DEL EQUIPO EMPLEADO 4

3.3. SIGNIFICADO DE LOS CÓDIGOS 4

4. ORTOFOTO 5

1. INTRODUCCIÓN:

El objeto del presente Anejo es documentar la información cartográfica de base empleada para el Proyecto del Puente de Acceso a la Isla de Zorrotzaurre y describir el levantamiento taquimétrico realizado para el correcto encaje del vial al que da continuidad el puente con el viario existente.

2. CARTOGRAFÍA:

Respecto a la cartografía, se procede a seleccionar en principio una cartografía básica que, encontrándose entre las disponibles editadas por diversos organismos existentes, fuese adecuada en escala y características al objeto de dar comienzo al estudio del proyecto. El puente objeto de proyecto precisa de un levantamiento taquimétrico auxiliar debido al nuevo proyecto constructivo de apertura del Canal de Deusto.

Por tanto, para el encaje global de la geometría del Puente de Acceso a la Isla de Zorrotzaurre se ha empleado la siguiente información que se adjunta como Apéndice a este Anejo:

- Plano topográfico de base del *Plan Especial de Ordenación Urbana del Área de Zorrotzaurre*.
- Plano topográfico elaborado a partir del levantamiento taquimétrico realizado por Typsa para el *Proyecto Constructivo de la Apertura del Canal de Deusto*.

Para el encaje de detalle del puente y su subestructura y en el viario de la Margen de Deusto (derecha) y el proyecto de las conducciones que deben cruzar el canal a través del puente, se ha realizado un levantamiento taquimétrico detallado del terreno en esa zona que complementa a la cartografía.

3. TOPOGRAFÍA:

3.1. BASES DE REPLANTEO

El levantamiento topográfico de detalle de la zona de desembarco en la margen derecha del Puente de Zorrotzaurre se ha realizado tomando como referencia los vértices D222, D223, D251 y DT-2 de la Red Topográfica Municipal del Ayuntamiento de Bilbao:

- **D222** X = 504347.598 Y = 4790806.073 Z = 3.772
- **D223** X = 504605.927 Y = 4790871.242 Z = 4.510
- **D251** X = 504225.351 Y = 4790782.833 Z = 3.971
- **DT-2** X = 504117.530 Y = 4790707.176 Z = 3.805

Para el estacionamiento se han empleado además, las siguientes bases, dispuestas específicamente para este trabajo y determinadas a partir de las anteriores:

- **BR-10002** X= 503798.512 Y= 4790760.041 Z= 3.502
- **BR-10007** X= 503906.914 Y= 4790713.282 Z= 4.460
- **BR-10008** X= 503871.984 Y= 4790744.842 Z= 4.074
- **BR-10009** X= 504100.629 Y= 4790734.187 Z= 3.902
- **BR-10010** X= 504103.688 Y= 4790714.996 Z= 3.882

Las siguientes imagenes representan la información contenida en los vértices:

BILBOko UDALA — **AYTO. DE BILBAO**

Hiriginza eta Ingurumen Saila — **Area de Urbanismo y Medio Ambiente**

Hiri Plano Sekzioa — *Sección de Plano Ciudad*

Topografia Arloa — *Negociado de Topografía*

RED TOPOGRÁFICA MUNICIPAL — ***RESEÑA DE VERTICES***

Nº Cálculo 4222 — **ERPINA/VERTICE:** D222

TIPO DE OBSERVACION: G.P.S., COTA GEOMETRICA — **TIPO DE SEÑAL:** CLAVO LATON DORADO

KOORDENADAK / COORDENADAS :

	X =	504347.598		X = 4645467.047
U.T.M :	Y =	4790806.073	WGS84:	Y = -239209.126
	Z =	3.772		Z = 4349280.377

Coeficiente de anamorfosis: K= **0.999600**

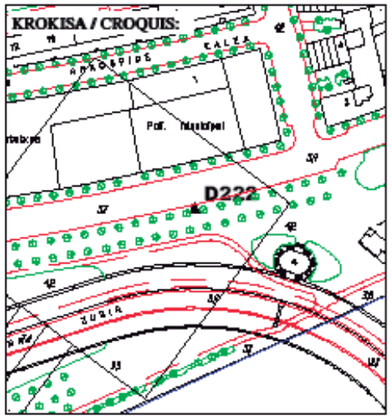
Elipsoide Internacional Hayford. ED-50. Huso 30

Altitudes referidas al nivel medio del mar en Alicante — Hoja del M.T.N. nº 61

Orientacion	Azimut (gon)	Distancia (m.)
D221	295.5127	297.998
D223	84.2682	266.529

ARGAZKIA / FOTOGRAFÍA:

KROKISA / CROQUIS:



KOKAPENA / SITUACIÓN: EN C/ MORGAN , CERCA DE COLEGIO PUBLICO, POLIDEPORTIVO Y PUENTE EUSKALDUNA

agrocim

DATA / FECHA: 15/6/2005 — **ORRIA / PAGINA:** 168 de 368

BILBOko UDALA — **AYTO. DE BILBAO**

Hiriginza eta Ingurumen Saila — **Area de Urbanismo y Medio Ambiente**

Hiri Plano Sekzioa — *Sección de Plano Ciudad*

Topografia Arloa — *Negociado de Topografía*

RED TOPOGRÁFICA MUNICIPAL — ***RESEÑA DE VERTICES***

Nº Cálculo 4223 — **ERPINA/VERTICE:** D223

TIPO DE OBSERVACION: G.P.S., COTA GEOMETRICA — **TIPO DE SEÑAL:** CLAVO LATON DORADO

KOORDENADAK / COORDENADAS :

	X =	504605.927		X = 4645436.355
U.T.M :	Y =	4790871.242	WGS84:	Y = -238948.724
	Z =	4.510		Z = 4349328.231

Coeficiente de anamorfosis: K= **0.999600**

Elipsoide Internacional Hayford. ED-50. Huso 30

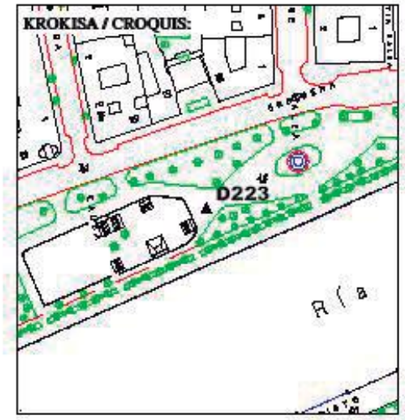
Altitudes referidas al nivel medio del mar en Alicante — Hoja del M.T.N. nº 61

Orientacion	Azimut (gon)	Distancia (m.)
D222	284.2682	266.529
D224	78.1253	208.674

ARGAZKIA / FOTOGRAFÍA:



KROKISA / CROQUIS:



KOKAPENA / SITUACIÓN: EN JARDINES DE LA RIBERA DE LA BOTICA VIEJA

agrocim

DATA / FECHA: 15/6/2005 — **ORRIA / PAGINA:** 169 de 368

BILBOko UDALA — **AYTO. DE BILBAO**
Hirigintza eta Ingurumen Saila — Area de Urbanismo y Medio Ambiente
Hiri Plano Sekzioa — Sección de Plano Ciudad
Topografía Arloa — Negociado de Topografía

RED TOPOGRÁFICA MUNICIPAL — **RESEÑA DE VERTICES**

ERPINA/VERTICE: **D251**

TIPO DE OBSERVACION: CLASICA **TIPO DE SEÑAL:** CLAVO LATON

KOORDENADAK / COORDENADAS :

	X =	504225.351		X =	4645476.771
U.T.M :	Y =	4790782.833	WGS84:	Y =	-239332.089
	Z =	3.971		Z =	4349263.662

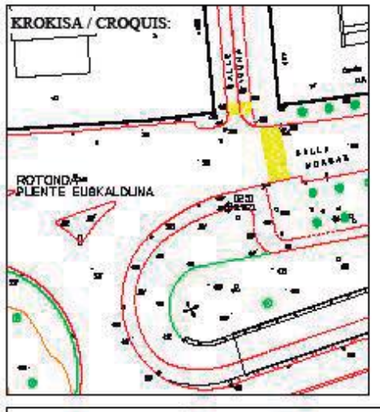
Coeficiente de anamorfosis: K= **0.99960022**
Elipsoide Internacional Hayford. ED-50. Huso : **30**
Altitudes referidas al nivel medio del mar en Alicante — Hoja del plano escala 1/500 = 045050

Orientacion	Azimut (gon)	Distancia (m.)
D250	257.5823	330.463
D221	300.8230	174.977
D222	88.0401	124.486

ARGAZKIA / FOTOGRAFÍA:



KROKISA / CROQUIS:



KOKAPENA / SITUACIÓN: En Bidegorri de la rotonda junto al Puente de Euskalduna

DATA / FECHA: 02-oct-09 **ORRIA / PAGINA:** 1 de 1

BILBOko UDALA — **AYTO. DE BILBAO**
Hirigintza eta Ingurumen Saila — Area de Urbanismo y Medio Ambiente
Hiri Plano Sekzioa — Sección de Plano Ciudad
Topografía Arloa — Negociado de Topografía

RED TOPOGRÁFICA MUNICIPAL — **RESEÑA DE VERTICES**

ERPINA/VERTICE: **DT2**

TIPO DE OBSERVACION: CLASICA **TIPO DE SEÑAL:** GEOPUN

KOORDENADAK / COORDENADAS :

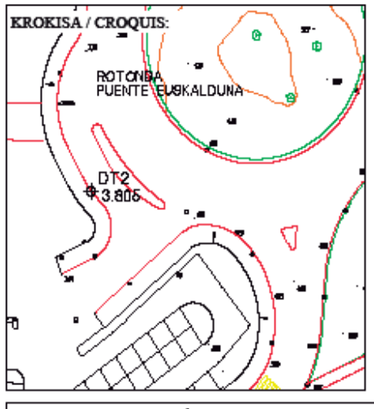
	X =	504117.53		X =	4645522.863
U.T.M :	Y =	4790707.176	WGS84:	Y =	-239442.518
	Z =	3.805		Z =	4349208.489

Coeficiente de anamorfosis: K= **0.99960021**
Elipsoide Internacional Hayford. ED-50. Huso : **30**
Altitudes referidas al nivel medio del mar en Alicante — Hoja del plano escala 1/500 = 040055

Orientacion	Azimut (gon)	Distancia (m.)
D250	255.2884	199.017
D251	61.0478	131.770

ARGAZKIA / FOTOGRAFÍA:

KROKISA / CROQUIS:



KOKAPENA / SITUACIÓN: En rotonda junto al Puente de Euskalduna

DATA / FECHA: 02-oct-09 **ORRIA / PAGINA:** 1 de 1

En el levantamiento taquimétrico realizado se ha leído la información correspondiente a 309 puntos, cantidad de datos suficiente para la obtención de la información cartográfica necesaria.

El software utilizado para la transferencia de datos ha sido el LGO de la firma LEICA, que permite la exportación de un fichero de coordenadas X,Y,Z procesadas a posteriori mediante triangulación y curvado con el programa MDT V4 obteniendo el siguiente plano topográfico, que se adjunta como apéndice a este Anejo:

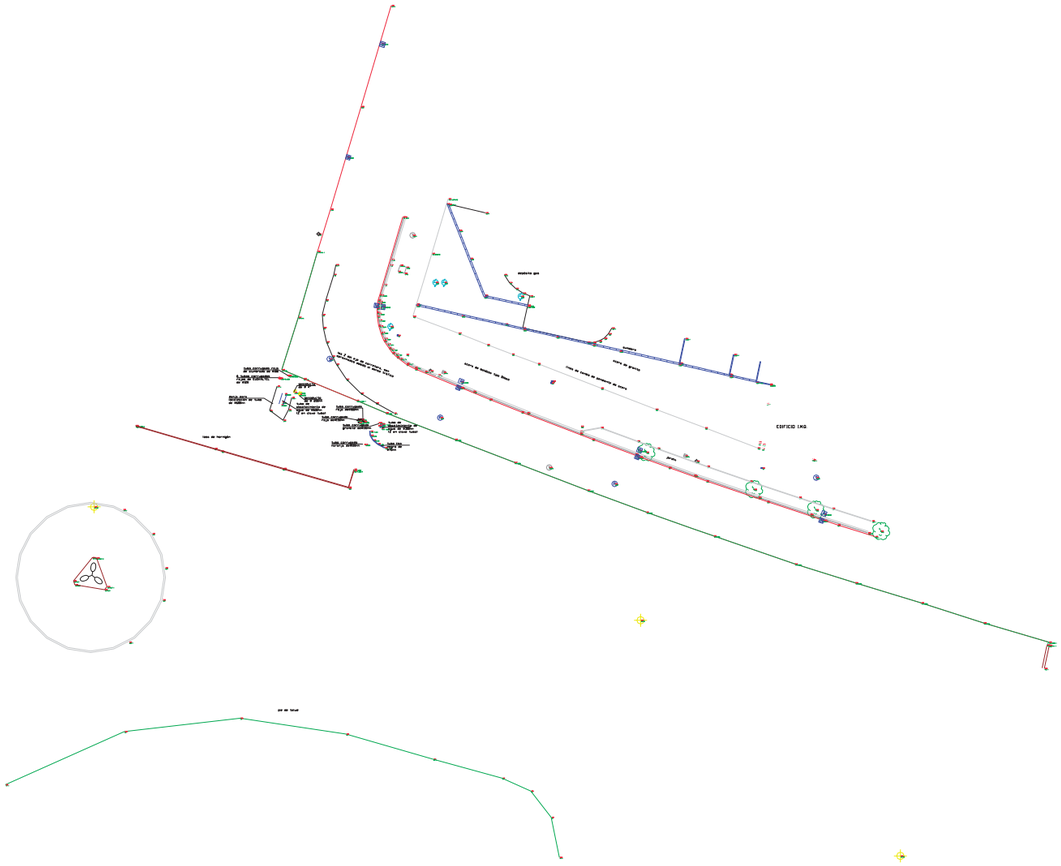


Ilustración 1: Detalle plano topográfico

3.2. CARACTERÍSTICAS DEL EQUIPO EMPLEADO:

El modelo de estación total empleado es el Leica 1203 Robotizada. Sus características técnicas son las siguientes:

- Aumentos: 30 X
- Medida Distancias: Con prisma y sin prisma
- Alcance sin prisma: 400 m
- Alcance con prisma: 3000 m
- Precisión Distancia: +/-(2+2ppm x D) mm
- Precisión Angular: 15cc / 3
- Compensador automático: Doble eje
- Comunicaciones: USB, RS-232
- Memoria Externa: Compact Flash
- Sistema Operativo: Leica
- Pantalla: Táctil color QVGA 3.5
- Accesorios incluidos: 2 Baterías, Cargador, Maleta, Cable USB

3.3. SIGNIFICADO DE LOS CÓDIGOS:

En la siguiente tabla se indica el significado de los códigos empleados en el levantamiento taquimétrico y contenidos en el plano topográfico.

ACE	Acera
AP	Registro de agua potable
ARB	Arbol
ARQ	Arqueta indeterminada
ARQAL	Arqueta alumbrado
ARQE	Arqueta electricidad
ARQP	Arqueta pluviales
ARQS	Arqueta saneamiento
ARQTE	Arqueta telecom. Euskaltel
ARQTT	Arqueta telecom. Telefónica
BAR	Barandilla
BOR	Bordillo
BR	Boca de riego
CRA	Carretera
CUNH	Cuneta de hormigón
EDI	Edificio
ESTAC	Base Topográfica
ESTRUCT	Estructura
FAR	Farola
JAR	Jardinera
LOSA	Losa
LSUM	Línea de sumidero
MUH	Muro de hormigón
MUL	Muro de Ladrillo
PT	Borde inferior de talud
RB	Línea blanca de cebrado
SENAL	Señal de tráfico
SUM	Sumidero
VAL	Valla
ZAN	Zanja
ZTUBO	Cota en clave de tubo

4. ORTOFOTO:

Se presenta a continuación un detalle de la ortofoto de la zona del nuevo proyecto de construcción del puente de Acceso a la isla de Zorrotzaurre. La ortofoto completa se adjunta en el apéndice.



ANEJO Nº3.-

GEOLOGÍA Y GEOTECNIA

Contenido

1. INTRODUCÓN 2

2. RECONOCIMIENTO Y ENSAYOS 2

2.1. CAMPAÑA DE CAMPO 2

2.2. TRABAJOS EN LABORATORIO 2

3. MARCO GEOLOGICO 3

3.1. RIESGO SISMICO 3

4. GEOTECNIA DE LOS PERFILES 4

5. CONDICIONES DE CIMENTACIÓN 7

5.1. CARGA DE HUNDIMIENTO DE UN PILOTE AISLADO SOMETIDO A CARGA VERTICAL 7

1. INTRODUCÓN

Es objeto de este anejo el caracterizar geológica y geotécnicamente el terreno que servirá de apoyo al puente de Zorrotzaurre con la intención de utilizar esta información en la determinación de los parámetros geotécnicos necesarios en el diseño de su cimentación.

Aquí se describen las tareas de investigación realizas tanto en la campaña de campo cuyo objetivo era la recopilación de muestras e información, como la llevada a cabo posteriormente en laboratorio para analizar dichas muestras e información y obtener los parámetros resistentes y deformacionales del terreno.

2. RECONOCIMIENTO Y ENSAYOS

2.1. CAMPAÑA DE CAMPO

Esta campaña se lleva a cabo con el fin de conocer el perfil de los terrenos afectados por la obra así como la ubicación del sustrato rocoso. Como la obtención de muestras se realiza de forma puntual, estos perfiles solo representarán de forma segura la estructura del suelo en los puntos de donde han sido extraídas. Es por esto que la labor se ha centrado en las zonas donde se presupone se ubicaran los estribos del puente.

Por ese motivo, y como puede verse en el plano de planta adjunto, los reconocimientos se concentran en estas dos zonas. se han realizado cuatro sondeos a rotación, con recuperación de testigo continuo: S-1 y S- 2, en el estribo E-2, y S-3 y S-4, en el estribo E-1. La profundidad alcanzada, en cada uno de ellos, ha sido de 27,00 - 27,90 - 30,20 y 37,50 m., respectivamente

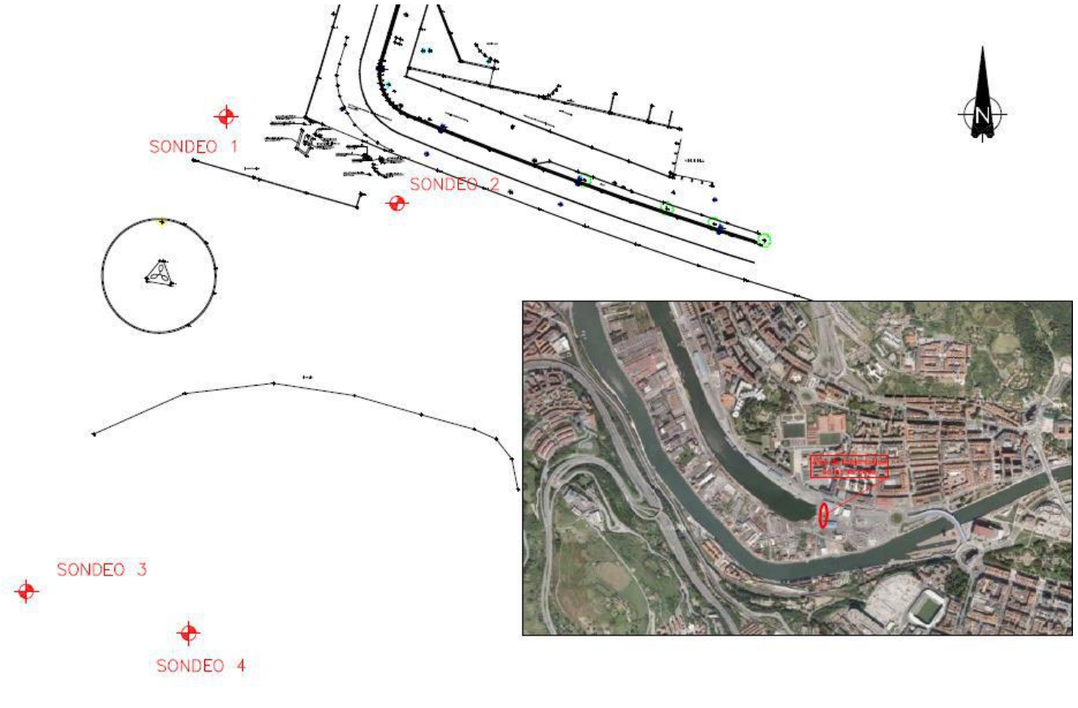
Las coordenadas UTM de los distintos sondeos son:

Sondeo 1: X = 503813,14 Y = 4790776,48

Sondeo 2: X = 503838,91 Y = 4790765,04

Sondeo 3: X = 503778,37 Y = 4790695,51

Sondeo 4: X = 503802,14 Y = 4790684,96



De estos sondeos se tomaron muestras inalteradas y testigos parafinados, y se llevaron a cabo ensayos de penetración dinámica estándar, SPT, de forma sistemática.

Una vez realizados los sondeos, en todos ellos se dejó embebida tubería piezométrica para medida del nivel freático.

En los sondeos S-1 a S-3, se llevaron a cabo ensayos presiométricos en el sustrato rocoso. Concretamente, dos en cada uno de ellos, a las profundidades de 21,00 y 26,50 m. (S-1); 22,00 y 25,50 m. (S-2), y 27,00 y 30,00 m. (S-3).

2.2. TRABAJOS EN LABORATORIO

Con las muestras y testigos tomados durante la ejecución de los sondeos, en el laboratorio, se han llevado a cabo ensayos de identificación (granulometría y límites de Atterberg), estado (humedad natural y densidad seca), agresividad del suelo al hormigón, resistentes (ensayos de compresión simple

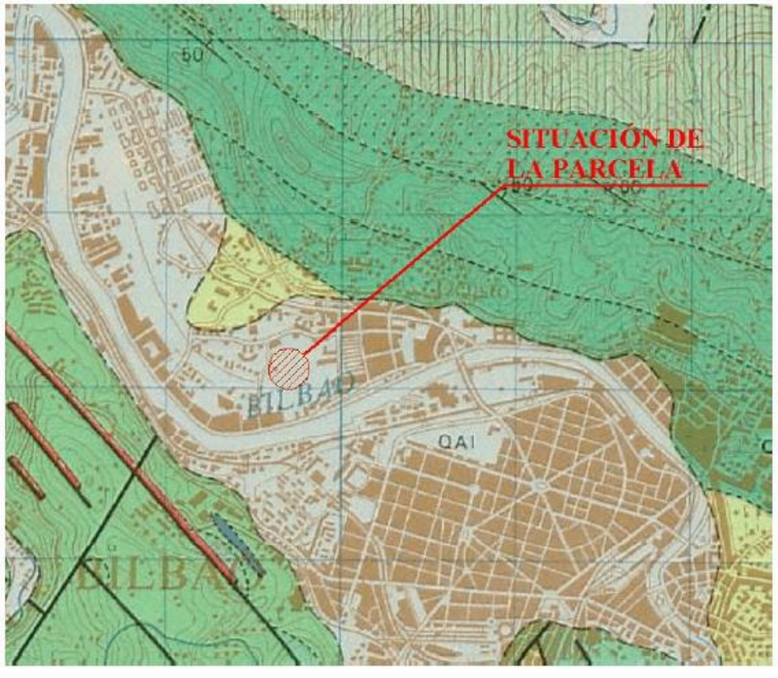
en roca, con y sin galgas extensométricas; ensayos triaxiales CD y CU, con medida de presiones intersticiales; ensayos de corte directo lento CD, y determinaciones resistentes mediante torvane y penetrómetro de mano en suelos) y ensayos de deformabilidad (edómetros).

3. MARCO GEOLOGICO

El canal de Deusto, donde se prevé implantar el puente, se encuentra sobre materiales del Sector Durango, perteneciente a la Unidad de Oiz. Presenta términos litológicos que abarcan desde el Aptiense Medio al Albiense Inferior (Cretácico Inferior), sobre los cuales se depositan los diferentes sedimentos cuaternarios, como depósitos aluviales y rellenos antrópicos.

En la zona del emplazamiento, la litología predominante la constituyen limolitas calcáreas con pasadas areniscosas. Se trata de limolitas calcáreas oscuras, más o menos arenosas, con fractura concoide y aspecto masivo, sin estratificación aparente, entre las que se intercalan esporádicos niveles de areniscas calcáreas con estructura turbidítica.

En los sondeos llevados a cabo en ambos estribos, esta litología se detecta a profundidades de entre 18 y 21 m.



3.1. RIESGO SISMICO

Es de aplicación la Norma de Construcción Sismorresistente: Parte General y Edificación (NCSE-02). dentro de la catalogación de infraestructuras básicas, como puentes y principales vías de comunicación de las poblaciones.

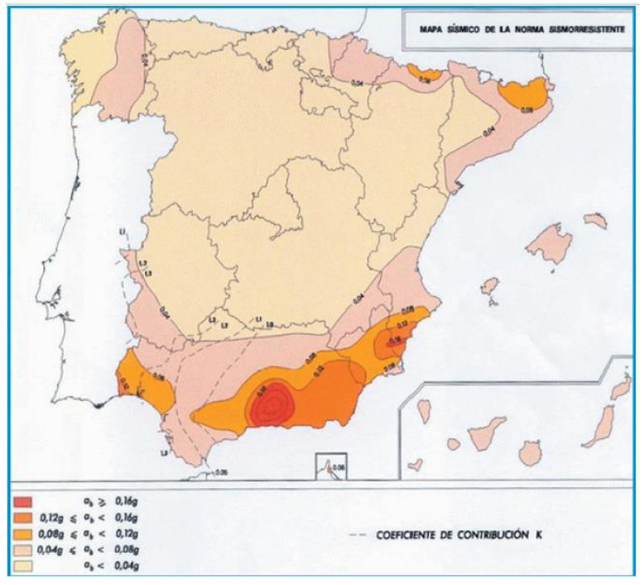
Para ellas, no es obligatoria la aplicación de la norma, siempre y cuando la aceleración sísmica de cálculo, ac , sea inferior a 0,06 g; siendo g , la aceleración de la gravedad.

Según el Mapa de Peligrosidad Sísmica del Territorio Español, la obra se encontraría en una zona con un valor de la aceleración sísmica básica ab menor de 0,04 g

La aceleración sísmica de cálculo se define como el producto de la aceleración básica por el coeficiente de riesgo, función del periodo de vida en años, para el que se proyecta la construcción (r = (t/50)0,37).

A efectos del cálculo, se considera un periodo de vida de 100 años, para construcciones de especial importancia, lo que supone un valor del factor de riesgo de 1,30.

De ambos valores, se deduce una aceleración de cálculo, ac = 0,04 g.1,30 = 0,052 g., inferior a la requerida para la obligatoriedad en la aplicación de la norma sismorresistente.



4. GEOTECNIA DE LOS PERFILES

PERFILES ESTATIGRAFICOS

Los registros de los sondeos realizados han permitido elaborar el perfil estratigráfico que se acompaña, siguiendo la alineación del puente. Dicho perfil sólo puede considerarse real en el punto concreto de ejecución de la actuación de campo correspondiente siendo, en el resto, una extrapolación razonada de los datos disponibles.

En dicho perfil, y de techo a muro, se registra la secuencia estratigráfica siguiente:

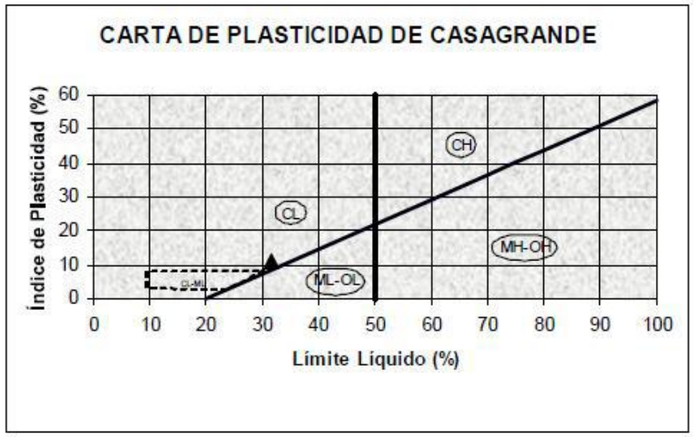
- Rellenos antrópicos superiores:

Aglomerado o losa, sobre zahorras artificiales y capas de gravas margo-calizas grises, en matriz de arcillas gris-negruzcas y marrón amarillentas. Se observan restos de ladrillería e interestratos de limos con arenas.

Su espesor es variable: 6 m. en el sondeo S-1, 3,30 m. en el S-2, 4,50 m. (S-3 y, accidentalmente, 15,10 m. en el S-4 (por situarse su boca a un nivel superior que el resto, sobre depósitos localizados de rellenos).

Sobre muestras de este nivel se han llevado a cabo una serie de ensayos de laboratorio y campo, cuyos resultados se resumen en las siguientes tablas:

Sondeo	Profundidad	#100%	#10	#200	Límites	w_n (%)	γ_d (T/m^3)	N_{SPT}
S-1	2,00-2,60							76
	4,60-5,20	40 mm.	29,14	14,59	31,7/20,6/11,1	9,39	2,24	8
S-2	2,00-2,60	20 mm.	59,02	14,26	No plástico	18,74		10



Según estos resultados, se trataría de gravas y arenas con algo de limo o arcilla poco o nada plásticos, poco a medianamente compactos (NSPT = 8-10)

Sobre la muestra del sondeo S-1, se ha realizado un ensayo de agresividad, con el resultado siguiente:

Acidez Baumann Gully: 0 ml/kg. Contenido en sulfatos: 240 mg/kg.

De donde se deduce que se trataría de un nivel no agresivo.

En base a los resultados anteriores, para este nivel se proponen los parámetros geotécnicos siguientes:

Υ_{nat} = 2 T/m3

c´ = 1 T/m2

Ø´ = 35°

E´ = 1500 T/m2

μ´= 0,30

$K_v = 10^{-3}$ cm/seg

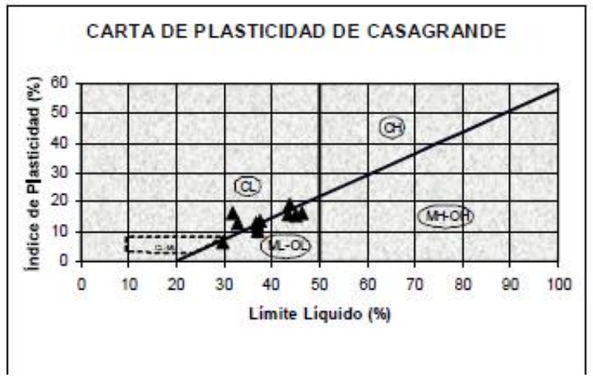
- Fangos:

Arcillas limosas con algo de arena, gris negruzcas, con vegetales y abundantes conchas centimétricas.

Olor fétido. Consistencia muy blanda a blanda. Se detectan bajo los rellenos anteriores, y con espesores 11,40 m. (S-1), 14,50 m. (S-2), 15,20 m. (S-3) y 13,40 m. (S-4).

Sobre muestras analizadas de este nivel se han obtenido los resultados que se resumen en las siguientes tablas:

Sondeo	Profundidad	#100%	#10	#200	Límites	w_n (%)	γ_d (T/m^3)
S-1	8,00-8,60	2 mm.	100	90,70	43,9/24,8/19,1	32,38	1,481
	11,20-11,80	10 mm.	96,94	90,45	43,5/27,4/16,0	45,59	1,185
S-2	4,50-5,10	20 mm.	88,59	76,38	37,6/24,0/13,6	39,19	1,373
	7,30-7,80	2 mm.	100	98,46	31,9/15,8/16,1	46,17	---
	10,00-10,60	2 mm.	100	86,20	37,0/26,7/10,3	37,56	1,306
S-3	7,10-7,70	20 mm.	86,54	74,71	45,1/29,5/15,6	46,89	1,224
	13,50-14,10	6,3 mm.	99,11	90,40	46,5/30,2/16,2	---	---
	16,70-17,30	10 mm.	99,24	70,91	32,8/20,1/12,7	35,15	1,421
S-4	17,10-17,70	12,5 mm.	96,44	82,74	36,7/24,0/12,7	41,51	1,289
	20,30-20,90	1,25 mm.	100	91,29	37,1/24,9/12,2	35,51	1,394
	23,50-24,10	1,25 mm.	100	87,87	29,9/21,6/6,3	35,9	1,396



Según estos resultados, se trataría de arcillas y limos de baja a media plasticidad con indicios de arenay gravillas.

W_n (media) = 40,40%, entre el 32,38% y el 46,89%

γ_d (T/m3) (media) = 1,33, entre 1,185 y 1,481

γ_{nat} (media) = 1,85 T/m3

Los parámetros resistentes obtenidos en base a ensayos se reflejan en la siguiente tabla:

Sondeo	Profundidad	Cu(PM)	Cu(T)	Ensayo de corte directo CD		Ensayo triaxial CD		Ensayo triaxial CU (con p.inters)		N_{SPT}
				c´ (T/m^2)	φ(°)	c´ (T/m^2)	φ(°)	c´ (T/m^2)	φ(°)	
S-1	8,00-8,60	0,33	0,30	0	30					6
	11,20-11,80	0,20	0,40					0,35	28	1
	15,00-15,60									3
S-2	4,50-5,10	0,52	0,52							0
	7,30-7,80	---	---			0,50	26,5			0
	10,00-10,60	0,19	---	1,05	30					1
	13,60-14,20									4
	16,60-17,20									7
S-3	4,50-5,10									3
	7,10-7,70	0,10	0,25	0	29					0
	10,90-11,50									1
	13,50-14,10	---	---					0,80	28	2
	16,70-17,30	0,35	0,28							4
S-4	17,10-17,70	0,51	0,55					0,85	32	3
	20,30-20,90	0,35	0,46	0,50	31					4
	23,50-24,10	0,43	0,44							5

Cu(PM) y Cu(T), resistencia al corte sin drenaje, en kg/cm^2, obtenida mediante penetrómetro de mano y torvane, respectivamente.

NSPT = 0 a 7, con un valor medio de NSPT = 2-3.

Cu = 0,10 a 0,52 kg/cm2, con un valor medio de Cu = 0,30 kg/cm2.

Estos valores indicarían una consistencia muy blanda a blanda.

Con respecto a los parámetros resistentes a largo plazo del modelo de Mohr - Coulomb:

c´ = 0 - 1,05 T/m2

Ø ´ = 29° - 30°

Los parámetros deformacionales aparecen reflejados en la siguiente tabla:

Sondeo	Profundidad	Cc	Cs	γ_s	e_0	Em (T/m²)		Cv.10⁻⁴ (cm²/seg)	
						0,5-1	1-2	0,5-1	1-2
S-1	8,00-8,60	0,33	0,065	2,677	1,18	132	203	---	1,75
S-2	4,50-5,10	0,23	0,025	2,687	0,81	295	218	---	4,62
	10,00-10,60	0,33	0,05	2,691	1,22	134	294		
S-3	13,50-14,10	0,28	0,035	2,691	1,05	141	229		

En base a estos resultados y en correlación con los parámetros resistentes, puede establecerse que:

E_m = 200 T/m2

Lo que supondría un valor del módulo de elasticidad drenado de:

E´ = 125 T/m2, para μ' = 0,35

$C_v = 3 \cdot 10^{-4}$ cm2/seg

C_c = 0,29

C_s = 0,044

e_0 = 1,065

$K_v = 1{,}50 \cdot 10^{-8}$ cm/s

- Depósitos aluviales gruesos:

De escasa entidad, se registran a muro del nivel fangoso. En los sondeos S-1 y S-4, se describen 0,40 m. y 1,15 m. de gravas subredondeadas silíceas, centimétricas, en matriz arcillosa marrón verdoso.

En este nivel del sondeo S-4, se tomó una muestra en la cuchara del SPT que, analizada en el laboratorio, proporcionó los resultados siguientes:

Sondeo	Profundidad	#100%	#10	#200	Límites	w_n (%)	γ_d (T/m³)	N_{SPT}
S-4	29,30-29,65	40 mm.	49,18	20,42	37,7/28,5/9,2	7,15	---	Rech.

En los sondeos S-2 y S-3, se detectan arcillas con algo de arena gris negruzco, con gravas silíceas de color gris y marrón amarillento, de consistencia media a dura. En este caso, con espesores de 1 m y 0,60 m, respectivamente.

- Eluvial de alteración del sustrato rocoso limolítico:

Se detecta en los sondeos S-2 a S-4, por encima del sustrato rocoso, con espesores muy reducidos (30 cm, 20 cm y 85 cm, respectivamente). Estaría compuesto por arcilla margosa, con estructura interna, GM: IV-V.

- Sustrato rocoso:

Limolitas carbonatadas grises, con abundantes venas de calcita. GM: I

En la tabla adjunta se recogen algunos resultados de ensayos de compresión simple realizados sobre testigos parafinados de este nivel.

Sondeo	Profundidad	w_n (%)	γ_d (T/m^3)	q_u (kg/cm^2)
S-1	19,70,20,10	1,37	2,635	252,47
S-2	21,10-21,40	1,91	2,709	108,64
	22,40-22,70	1,85	2,679	107,24
S-4	33,40-33,60	1,86	2,738	48,76 (*)

(*) rotura por plano de debilidad

(S-1): RQD = 60-95% Juntas con buzamientos subverticales y a entre 50-55º. JRC = 2-4

(S-2): RQD = 60-90% Juntas con buzamientos a 70-75º y a 50º. JRC = 2-4 a 4-6

(S-3): RQD = 90-100% Juntas con buzamientos a 75º - 50º y 20º. JRC = 2-4 a 4-6

(S-4): RQD = 40-50% Juntas con buzamientos subverticales, a 75º y 60-65º. JRC = 2-4

γ_{nat} (medio) 2,70 T/m3

q_u = en el rango de 100 a 250 kg/cm2

Resultado de los ensayos presiométricos realizados:

Sondeo	Profundidad (m.)	Ep (kg/cm^2)	p_L (kg/cm^2)	p_f (kg/cm^2)
S-1	21,00 26,50	45.315,69 351.738,72	> 350 >> 500	144,51 148,22
S-2	22,00 25,50	7.210,67 102.257,72	> 300 > 300	145,25 148,27
S-3	27,00 30,00	119.791,24 17.799,68	> 300 > 300	146,27 134,96

E_p (medio) = 71291 kg/cm2

Otros parámetros geotécnicos a utilizar en los cálculos:

c´ = 3 kg/cm2 ´ = 45°

K_v = 10^{-8} cm/seg

Respecto a la situación del nivel freático:

Día	S-1	S-2	S-3	S-4
9-8-2012	11:30 h. 5,30 m. Se agota hasta 7,25 m. 14:00 h. 5,10 m.	11:30 h. 4,00 m. Se agota hasta 8,30 m. 14:00 h. 6,50 m.	11:30 h. 4,00 m. Se agota hasta 6,15 m. 14:00 h. 4,00 m.	11:30 h. 13,30 m. Se agota hasta 15,16 m. 14:00 h. 13,30 m.
10-8-2012	4,50	6,40	4,00	13,00

PMVE = +3 BMVE = -1,50 (ver perfil estratigráfico, para situar cotas)

5. CONDICIONES DE CIMENTACIÓN

En base a los perfiles estratigráficos deducidos de la investigación realizada, y a la tipología proyectada del puente, es evidente la necesidad de transferir las cargas de ambos estribos al sustrato limolítico inferior, mediante cimentaciones profundas (pilotes).

Dentro de las tipologías disponibles, posiblemente, la más adecuada sea la de pilotes ejecutados in situ, al amparo de entubación recuperable.

Para su diseño, es necesario conocer las tensiones admisibles por punta y fuste en su empotramiento en roca, así como los coeficientes de balasto laterales de los materiales atravesados.

En este caso, en base a los terrenos afectados, y al procedimiento constructivo previsto, se considera importante establecer los efectos de acciones internas como el rozamiento negativo y los empujes laterales internos. Este efecto se incluye en el apartado siguiente.

5.1. CARGA DE HUNDIMIENTO DE UN PILOTE AISLADO SOMETIDO A CARGA VERTICAL

- **Pilotes empotrados en roca**

La carga de hundimiento *Qh* de los pilotes empotrados en roca tiene dos componentes: la resistencia por punta *Qp* y la debida a la parte del fuste que se encuentra en contacto con la roca *Qf*.

La resistencia por punta se estima como el producto del área de la punta *Ap* por la resistencia unitaria por punta *qp*, y la del fuste como el área lateral del fuste del pilote empotrado en roca, por la resistencia unitaria por el fuste τ_f

$$Q_p = A_p * q_p \qquad Q_f = A_L * \tau_f$$

- Según la Guía de Cimentaciones del Ministerio de Fomento:

Según la Guía de Cimentaciones en Obras de Carreteras, editada por el Ministerio, el valor de la resistencia unitaria por punta para pilotes en roca es:

$$q_p = 2 * \ p_{v,adm}$$

Donde $p_{v,adm}$ es la presión admisible para cimentación superficial en roca.

$$p_{v,adm} = p_0 * \alpha_1 * \alpha_2 * \alpha_3 * (q_u/p_0)^{1/2}$$

En este caso

$$p_{v,adm} = 0.6 * 1 * 0.8 * \sqrt{19.5} = 2.12\ Mpa$$

Siempre y cuando se asegure el empotramiento.

Asi la resistencia unitaria por punta de la roca vale $q_p = 42\ Kg/cm^2$

Si el empotramiento del pilote en la roca es importante, se le aplica el siguiente factor multiplicador a la carga de hundimiento por punta:

$$d_f = 1 + 0.4\ (L_r/D) \leq 2$$

Donde, D es el diámetro del pilote y L_r el empotramiento en roca.

Para un empotramiento en roca de, al menos, dos veces y media el diámetro del pilote, 2,5·D, la resistencia unitaria por punta resulta

$$q_p = 42 * 2 = 84\ Kg/cm^2$$

Para estimar la resistencia por fuste del pilote empotrado en roca, únicamente se contabilizará la longitud de empotramiento en roca sana, o a lo sumo, con un grado de alteración II y III.

Dentro de la zona de empotramiento, la resistencia unitaria por fuste a considerar será:

$$\tau_f = 0.1 * q_p = 4.2\ Kg/cm^2$$

Donde q_p, es la resistencia unitaria por punta antes de afectarla por el factor d_f.

La GCOC limita los valores máximos de ambos parámetros a:

$$\tau_f = 2\ Mpa \qquad q_p = 20\ Mpa$$

La GCOC, recomienda aplicar en ambos casos un coeficiente de seguridad de F = 3, para situación de carga permanente.

- Según el Código Técnico de Edificación (CTE):

La resistencia unitaria de cálculo por punta viene dada por la expresión:

$$q_{p,d} = K_{sp} * q_u * d_f$$

Donde:

$$K_{sp} = \frac{(3 + s/B)}{10} * (1 + 300 * a/s)^{1/2}$$

s espaciamiento entre discontinuidades

B diámetro de los pilotes

A apertura de las discontinuidades

q_u resistencia a comprensión simple de la roca

$d_f = 1 + 0.4 * L_r/D \leq 3$

L_r profundidad del empotramiento en roca y D diámetro del pilote

La aplicación de las valoraciones de estos parámetros a este caso, con empotramiento de 2,50D, proporcionaría un valor de la resistencia unitaria por punta, de cálculo:

$$q_{p,d} = K_{sp} * q_u * d_f = 45\ Kg/cm^2$$

Con respecto al valor de la resistencia unitaria por el fuste, también de cálculo, en el CTE, se sugiere adoptar:

$$\tau_{f,d} = 0.2 * (q_u)^{1/2} \approx 2.65\ Kg/cm^2$$

Estos valores ya serían de cálculo y, por lo tanto, no deben afectarse de coeficiente de seguridad alguno.

- Según Jiménez Salas:

$$q_p = a * q_u$$

$a = \beta * \left(0.5 + (L_r/6D)\right)$ (en empotramientos de 2,5 D $a \approx 0.46$)

Es decir: $q_p \approx 80\ Kg/cm^2$

$$\tau_f = el\ menor\ valor\ de\ 0.5q_p, ó, la\ resistencia\ a\ cortante\ del\ hormión$$

En este caso, sería este último valor, que podría estimarse entre 8 y 10 kg/cm2. Valor similar al obtenido mediante expresiones manejadas habitualmente, como:

$$\tau_f = 0.66\sqrt{q_u}$$

A estas valoraciones debería aplicarse un coeficiente de seguridad de F=3.

Teniendo en cuenta, todas las valoraciones anteriores, se sugiere tomar los parámetros de cálculo siguientes, siempre y cuando el empotramiento en roca sana sea de, al menos, 2,50D:

$$q_{p,c} = 30\frac{Kg}{cm^2}$$

$$\tau_{f,c} = 3\ kg/cm^2$$

ANEJO Nº4.-

ESTUDIO HIDROLÓGICO E HIDRÁULICO

Contenido

1. *INTRODUCÓN* 2

2. *INUNDABILIDAD* 2

3. *SOLUCIÓN ADOPTADA* 3

1. INTRODUCÓN

El objeto del presente anejo es el estudio de las afecciones hidráulicas que supone el Proyecto de Construcción del Puente de Acceso a la Isla de Zorrotzaurre (Bilbao).

La hidrología del canal de Deusto se presenta como uno de los factores clave de cara al diseño del proyecto ya que de esta dependerá en buena medida la tipología elegida para el puente y su trazado.

2. INUNDABILIDAD

Las rasantes de los puentes que cruzarán el Canal de Deusto se han definido en el *Plan Especial de Ordenación Urbana del Área de Zorrotzaurre* teniendo en cuenta los niveles de inundabilidad y las superficies de resguardo sobre la cota máxima de inundabilidad que es preciso respetar por el intradós de sus tableros, según las recomendaciones emitidas por la UR Agentzia / Agencia Vasca del Agua (URA).

Así, según se indica en el punto *A.3.2. Resumen de las principales acomodaciones y precisiones realizadas en relación al Master Plan*, perteneciente al *Documento A. Memoria Informativa y Justificativa* del mencionado Plan Especial: *"Se definen los perfiles y rasantes de los puentes establecidos en el Master Plan, teniendo en cuenta los niveles de inundabilidad y las superficies de resguardo sobre la cota máxima de inundabilidad que es preciso respetar por el intradós de los tableros de los puentes, según las recomendaciones emitidas por los servicios técnicos de la Delegación en Bizkaia del Departamento de Medio Ambiente y Ordenación del Territorio del Gobierno Vasco, hoy integrados en URA".*

En el punto *A.7.9. Concreción del diseño y de las rasantes del viario público y de las plataformas peatonales y de espacios libres* se indica: *"Las rasantes de los puentes de conexión con Deusto y San Ignacio se han definido utilizando su enlace con los puntos fijos de la vialidad existente prolongación del puente Euskalduna, y de las rasantes de la calle Morgan y de la Avenida de Zarandoa en la margen derecha del canal y utilizando, en su inicio, la mínima pendiente posible al objeto de lograr por un lado la mayor comodidad posible para los futuros peatones y además situar lo más bajo posible el intradós de la losa de los futuros puentes, con el cuidado de cumplir también las condiciones y características de altura y dimensión de la superficie de resguardo sobre la cota más alta de inundabilidad, establecida por los servicios técnicos de la Agencia Vasca del Agua, URA.*

Se definen en detalle la totalidad de las rasantes de la vialidad rodada, peatonal y mixta, de conformidad con los trazados corregidos y los establecidos por las secciones de los nuevos puentes, atendiendo a los criterios de procurar establecer, al máximo posible, la vialidad rodada sobre los niveles de inundabilidad definidos por el estudio hidráulico de SAITEC Ingenieros. Dichas rasantes sustituyen en su totalidad a las contenidas en el Master Plan."

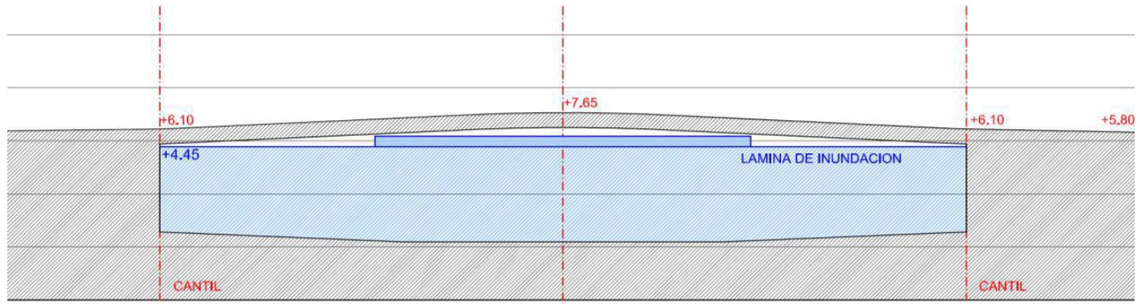
Para el proyecto del Puente de Acceso a la Isla de Zorrotzaurre objeto del presente documento, que se corresponde con el denominado "Puente de conexión con Deusto" en el citado Plan Especial, se ha respetado la luz libre y el resguardo sobre la cota más alta de inundabilidad establecida por los Servicios Técnicos de URA y recogidas en el Plan Especial (ver imágenes extraídas del plano *O-6.1 Perfiles Longitudinales, Secciones de los Puentes* del mencionado Plan así como imagen de alzado del puente proyectado):

El estudio hidráulico de la península de Zorrotzaurre establece las dimensiones mínimas de cara a la avenida de 500años. Los modelos hidráulicos realizados por Saitec y tomados por la Comisión Gestora de Zorrotzaurre, definían como mínima una sección hidráulica en el tramo de nueva apertura de 75 metros de ancho.

Con objeto de garantizar la no inundabilidad de los nuevos edificios se precisa subir la rasante actual de la isla 1,5 metros, como mínimo.

La sección descrita en este Anteproyecto está formada por un rectángulo de 75 metros de ancho y una altura que va desde la cota +5 (NMMA) hasta la -2,016 (correspondiente con el cero del Puerto de Bilbao). Por debajo de esta última cota la sección pasa a ser trapecial con el fondo situado aproximadamente a la cota –5.00.

Respecto al gálibo hidráulico, la cara inferior de tablero del puente proyectado se situará en todos los casos por encima de la cota +4.45 m y contará con un resguardo en los 40 m centrales del canal. Por otro lado, la actuación no crea ningún tipo de afección al cauce durante la ejecución de las obras ya que se construirá en seco sobre la zona de tierra que actualmente conecta con la futura isla, y que habrá que excavar para finalizar la apertura del canal, una vez completado el puente y garantizado el acceso a Zorrotzaurre.



3. SOLUCIÓN ADOPTADA

Respecto a la rasante, se respeta la cota +6.10 m en los extremos del viaducto recogida en el Plan Especial y, buscando la mayor funcionalidad, se establece que el trazado en alzado deba garantizar que no exista en ningún momento pérdida de visibilidad por parte de los vehículos que cruzan el puente.

De este trazado en alzado resulta una pendiente longitudinal máxima del 3 %, también muy adecuada para garantizar la accesibilidad en lo que a tráfico peatonal se refiere. La pendiente máxima estará situada al comienzo del puente en ambos estribos. Progresivamente irá disminuyendo. La pendiente longitudinal media del total del puente es de aproximadamente 2% manteniéndose en todo el trazado una rasante parabólica.

El desarrollo estructural del puente se da prácticamente en su totalidad por encima de la rasante del tablero, consiguiendo así una alteración prácticamente nula del libre discurrir de las aguas de la ría del Nervión.

La tipología bow-string permite diseñar un tablero esbelto que cumpla con las limitaciones que imponía la altura de lámina libre en avenida, así como el salvar la luz de 75m del canal sin necesidad de pilas intermedias en el cauce de la ría y una cimentación que únicamente debe responder frente esfuerzos verticales.

ANEJO Nº5.-

CLIMATOLOGÍA Y DRENAJE

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3.1.1. TABLERO 5

1. INTRODUCÓN

El objeto del presente anejo es diseñar la red de drenaje del puente que incluye el dimensionamiento de las obras de drenaje y la justificación de los sistemas de evacuación de las aguas de las obras proyectadas.

En primer lugar, se realiza un estudio de la climatología de la zona haciendo mención a los diferentes agentes atmosféricos.

Tras el estudio de las precipitaciones se debe calcular el caudal máximo previsto para diseñar las obras de drenaje con el propósito de dar salida al agua sin el colapso de las mismas

2. CLIMATOLOGIA

La provincia de Vizcaya es una región con un clima Oceánico húmedo que se caracteriza por tener temperaturas moderadas y suaves durante todo el año, debido a la aportación del Cantábrico lo cual genera lluvias abundantes.

El factor geográfico que más condiciona el clima del País Vasco, es la Latitud. El papel que juega en el clima de una región es doble: en primer lugar, determina la cantidad de energía solar incidente y sus variaciones estacionales a lo largo del año; en segundo lugar, determina la dirección general y más frecuente de los vientos que la afectan.

En rasgos generales, determina que la inclinación solar sobre la zona varíe a mediodía entre un máximo de 70º en el solsticio de verano (21 de junio) y un mínimo de 25º en el solsticio de invierno (21 de Diciembre), y que la duración del día, oscile entre las 16 horas del máximo en verano y las 9 horas aproximadamente del mínimo invernal.

2.1. ASPECTOS GENERALES

La vertiente atlántica, en la que se encuentra el municipio de Bilbao y comprende la totalidad de las provincias de Vizcaya, Guipúzcoa y el norte de Álava, presenta un tipo de clima mesotérmico, moderado en cuanto a las temperaturas, y muy lluvioso.

Se caracteriza por un clima templado húmedo sin estación seca, o clima atlántico. En este clima el Cantábrico ejerce una influencia notoria. Las masas de aire, cuyas temperaturas se han suavizado al contacto con las aguas, templadas llegan a la costa y hacen que las oscilaciones térmicas entre la noche y el día, o entre el verano y el invierno, sean poco acusadas.

El factor orográfico explica la gran cantidad de lluvias de toda la vertiente atlántica del País Vasco, entre 1.200 y más de 2.000 mm de precipitación media anual.

En cuanto a las temperaturas es de destacar una cierta moderación, que se expresa fundamentalmente en la suavidad de los inviernos. De esta forma, a pesar de que los veranos son también suaves, las temperaturas medias anuales registran en la costa los valores más altos del País Vasco, unos 14ºC. Aunque los veranos sean frescos, son posibles, sin embargo, episodios cortos de fuerte calor, con subidas de temperatura de hasta 40ºC, especialmente durante el verano.

2.2. ANALISIS DE FENOMENOS CLIMATICOS

2.2.1. TEMPERATURAS

Las oscilaciones de las temperaturas medias mensuales son bastante importantes y significativas. En la costa, las diferencias entre los meses más cálidos y los más fríos son de tan sólo unos 11ºC o 12ºC aproximadamente, mientras que en el interior aumentan sensiblemente, hasta llegar a ser de unos 17ºC ó18ºC.

	ENE	FEBR	MARZO	ABRIL	MAYO	JUNIO	JULIO	AGOS	SEPT	OCT	NOV	DIC
T° MAX	13.2	14.5	15.9	16.8	20.1	22.6	25.2	25.5	24.4	20.8	16.4	14.0
T° MIN	4.7	5.1	5.7	7.1	10.1	12.6	14.8	15.2	13.2	10.8	7.6	6.0

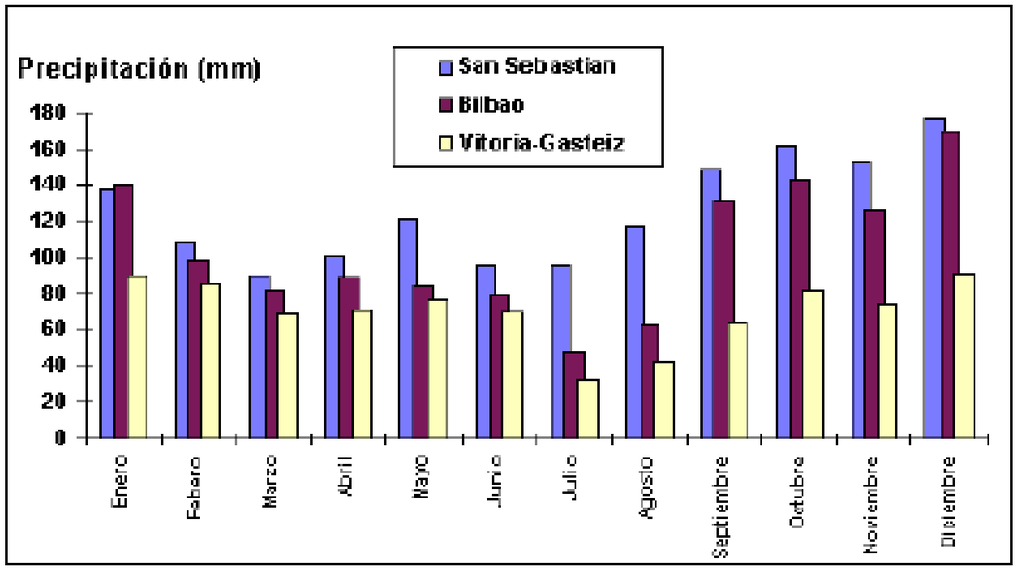
2.2.2. PRECIPITACIONES

La importante pluviosidad y la fuerte intensidad de las precipitaciones en toda la comunidad Autónoma Vasca se explica fundamentalmente por el factor orográfico.

La orientación oeste-este de las sierras y el hecho de que las montañas vascas sean más bajas que la Cordillera Cantábrica y los Pirineos, unida al efecto de succión de aire producido por la Región

Ciclogenética del Mediterráneo Occidental, es la causa de que, con frecuencia el flujo general del oeste se tuerza hacia la cuenca mediterránea, a través de toda la Comunidad Autónoma Vasca.

La mayor o menor pluviosidad de este clima viene definido no sólo por la cuantía de las precipitaciones sino también por su duración. Produciéndose períodos de ausencia de estas, sequías, y fenómenos extraños como lluvias torrenciales, siendo el tipo de precipitación más común el sirimiri.



2.2.3. NIEVE

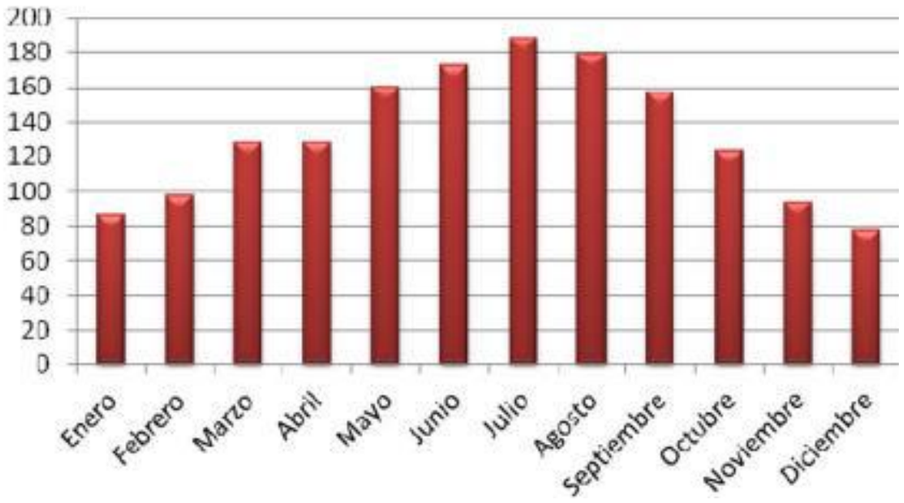
Los datos de nevadas del País Vasco señalan que al nivel del mar y en la costa, se trata de un fenómeno raro. Llegando a producirse en ciertas ocasiones, pero de muy corta duración, haciendo que sus efectos resulten algo anecdótico y no afecten lo más mismo a las infraestructuras de la zona.

Estas nevadas son únicamente esperable en los meses más fríos que se desarrollan de noviembre a marzo cuando alguna profunda borrasca que avanza con trayectoria meridiana llega desde latitudes polares.

2.2.4. INSOLACIÓN

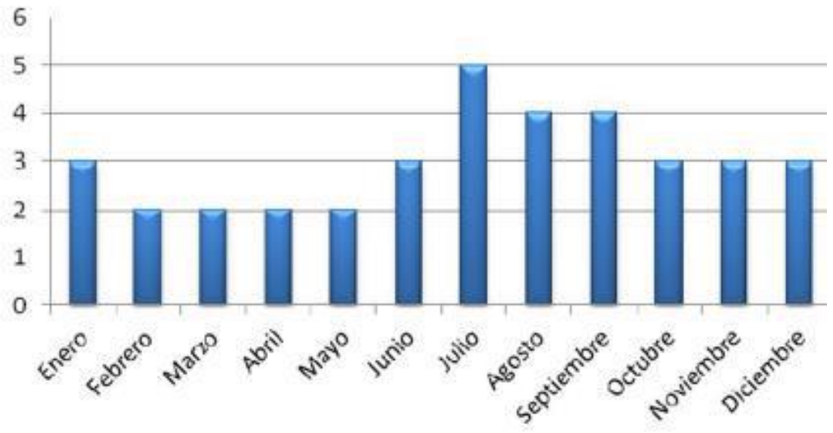
El número de horas de sol da una idea tan sólo aproximada de la cantidad de energía recibida ya que sólo tiene en cuenta la radiación solar directa y no la difusa, y porque, además, el total de energía recibida en un lugar depende también de su orientación y de su pendiente, así como de los relieves del entorno que le pueden hacer sombra.

Con esto se llega a la conclusión de que el municipio de Bilbao cuenta con un alto número de horas de sol a consecuencia de su orientación y su pendiente casi nula.



2.2.5. NUBOSIDAD

Las observaciones suelen realizarse de forma subjetiva, siendo el observador el que, en determinados momentos del día determina si está cubierto, nuboso o despejado. En una observación se considera que el cielo está despejado cuando la nubosidad cubre menos de las 2 octavas partes del cielo; nuboso si está comprendido entre 2 y 6 octavas; y cubierto cuando la nubosidad es superior a 6 octavas.



2.2.6. NIEBLAS

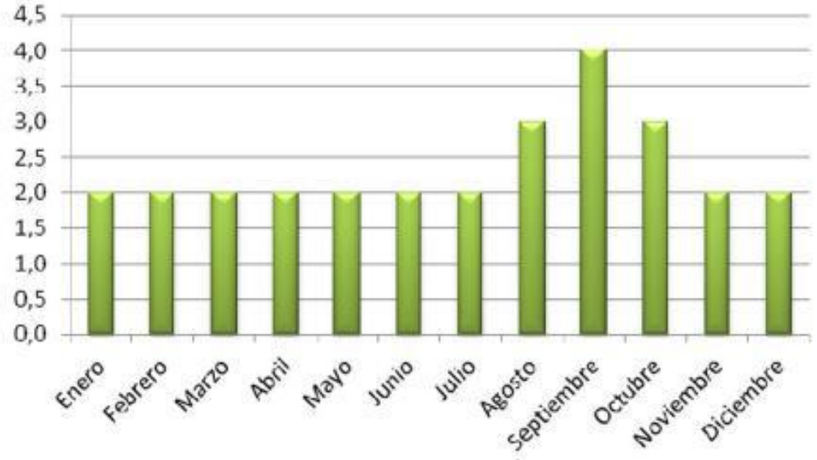
Los tipos de nieblas que se producen en País Vasco, tienen muy diferentes génesis, que son principalmente tres: las nieblas costeras, las nieblas de montaña y las nieblas de valle.

De esta manera toda la comunidad se ve afectada por uno u otro tipo de niebla, si bien con una frecuencia relativamente moderada. Es importante aclarar que las observaciones de niebla, al igual que las de nubes, tienen un cierto grado de subjetividad.

Por lo tanto, el fenómeno de la niebla que se pueda dar en el municipio de Bilbao será una niebla de valle.

Este tipo de niebla se produce cuando, al final de las noches frescas y húmedas, favorecidas por situaciones de tiempo estable y cielos estrellados, el aire frío y denso desciende hacia el fondo, en donde se estanca y condensa su humedad. Al amanecer, es frecuente la formación de inversiones térmicas, aire frío abajo y aire más caliente encima, que impiden las turbulencias y el intercambio vertical de calor, con lo que las nieblas de esta zona pueden persistir muchas horas diurnas

Desde un punto de vista meteorológico un observador considera que existe niebla cuando la visibilidad es inferior a los 1.000 metros no es necesario que la niebla persista durante todo el día para considerarlo como tal.



2.2.7. VIENTO

Son frecuentes los vientos fuertes y a temporaleados, que son los que suben el nivel de la velocidad media. Así, estos vientos, superiores a los 50km/h se alcanzan con una frecuencia de casi el 4%, superior al de clima oceánico. Los vientos en invierno, tanto del sector norte, son mucho más fuertes que los del verano.

Dividiendo la rosa de vientos en ocho sectores, es el viento del norte el más frecuente, 21.4%, seguido del viento del noroeste, 17.6%. Sin embargo, el viento del noroeste es bastante superior en fuerza al del norte, 20.4km/h frente a 11.4 km/h. El viento del noroeste es un viento sinóptico, movido por el flujo general, mientras que el viento del norte es frecuentemente debido a las brisas locales. En la costa son los meses de la mitad invernal los que tienen vientos más fuertes.

El viento sur es el viento más veloz: 22.1 km/h de velocidad media. Puede ocasionar destrozos importantes y además con relativa frecuencia sopla atemporalado.

2.3. REGISTROS CLIMATICOS DE BILBAO

Los datos que a continuación se muestran han sido registrados en el Aeropuerto de Loiu, que por cercanía y similitud de altitud se asimilan al municipio de Bilbao

MES	Tª	TªM	Tªm	R	H	DR	DN	DT	DF	DH	DD	I
ENERO	9.0	13.2	4.7	126	72	13	1	1	2	4	3	86
FEBRERO	9.8	14.5	5.1	97	70	11	1	1	2	2	2	97
MARZO	10.8	15.9	5.7	94	70	11	0	1	2	2	2	128
ABRIL	11.9	16.8	7.1	124	71	13	0	2	2	0	2	128
MAYO	15.1	20.1	10.1	90	71	12	0	3	2	0	2	160
JUNIO	17.6	22.6	12.6	64	72	8	0	2	2	0	3	173
JULIO	20.0	25.2	14.8	62	73	7	0	3	2	0	5	188
AGOSTO	20.3	25.5	15.2	82	74	8	0	3	3	0	4	179
SEPTIEMBRE	18.8	24.4	13.2	74	73	9	0	2	4	0	4	157
OCTUBRE	15.8	20.8	10.8	121	73	11	0	2	3	0	3	123
NOVIEMBRE	12.0	16.4	7.6	141	74	12	0	1	2	1	3	93
DICIEMBRE	10.0	14.0	6.0	116	73	12	0	1	2	3	3	78
AÑO	14.3	19.1	9.4	1195	72	128	2	24	29	11	35	1584

Tª	Temperatura media mensual/anual (°C)
TªM	Media mensual/anual de las temperaturas máximas diarias (°C)
Tªm	Media mensual/anual de las temperaturas mínimas diarias (°C)
R	Precipitación mensual/anual media (mm)
H	Humedad relativa media (%)
DR	Número medio mensual/anual de días de precipitación superior o igual a 1 mm
DN	Número medio mensual/anual de días de nieve
DT	Número medio mensual/anual de días de tormenta
DF	Número medio mensual/anual de días de niebla
DH	Número medio mensual/anual de días de helada
DD	Número medio mensual/anual de días despejados
I	Número medio mensual/anual de horas de sol

3. ASPECTOS HIDRÁULICOS

El proyecto de los puentes debe incluir los elementos de impermeabilización, drenaje y protección frente a la acción del agua que contribuyan a su durabilidad, su funcionalidad y al cumplimiento de las hipótesis de cálculo durante su vida útil. En particular, se deben disponer elementos de:

*Impermeabilización, que eviten la entrada de agua a elementos estructurales a través de superficies que vayan a permanecer prolongadamente en contacto con agua, como caras superiores de tableros o paramentos de trasdoses de muros.

*Drenaje, que permitan:

- Evitar que lleguen a las estructuras y túneles, caudales de plataforma y márgenes externos a ellas mismas, siempre que sea posible.

- Recoger, conducir y desaguar los caudales provenientes de escorrentía, vertidos accidentales y de filtraciones.

- Proteger la propia estructura de la acción del agua, de forma que se evite la formación de humedades y otras acumulaciones de agua.

- Protección, como encachados en los taludes de estribos de pasos superiores o escolleras en cimentaciones en cauces.

Tomando información de otros proyectos y basándonos en experiencias anteriores en trabajos en la zona de Bilbao, puede estimarse un caudal total de unos 50l/s que representa toda el agua pluvial de la plataforma del puente.

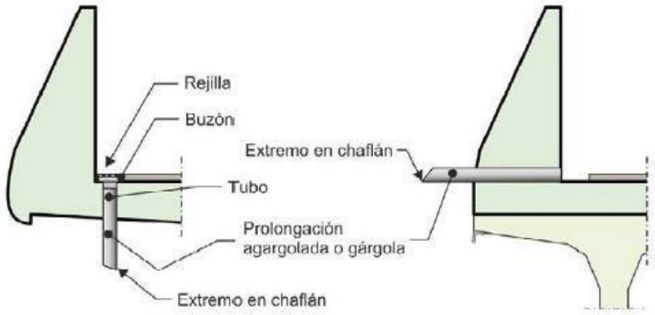
3.1. MEDIDAS DE DRENAJE

Con estos datos las medidas a tomar en el diseño del puente serán

3.1.1. TABLERO

La escorrentía del tablero se de dirigir fuera de la calzada mediante una adecuada disposición de las pendientes a ambas aguas de la superficie pavimentada del 2%, recogiéndola mediante rigolas con vertido a imbornales dispuestos de forma que se cumplan las condiciones de resguardo de la calzada.

Los imbornales constan de un elemento de captación y un tubo de PVC de diámetro 160 mm y se hallarán ubicados cada 25 metros.



ANEJO Nº6.-

TRÁFICO

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1. INTRODUCÓN

En el presente anejo se realiza un análisis del tráfico actual en la zona de ubicación de proyecto, así como su evolución durante los próximos 100 años, periodo para el cual se ha diseñado la estructura de este proyecto.

La primera parte del informe pretende calcular la IMD futura extrapolando los datos de la evolución reciente del tráfico.

El fin último del estudio es obtener la información necesaria para el dimensionamiento del pavimento y su comportamiento de cara a la vida útil.

2. ANALISIS DEL TRÁFICO

2.1. ESTACIÓNES DE AFORO

La información aquí expuesta ha sido obtenida del documento "Evolución de tráfico en las carreteras de Bizkaia".

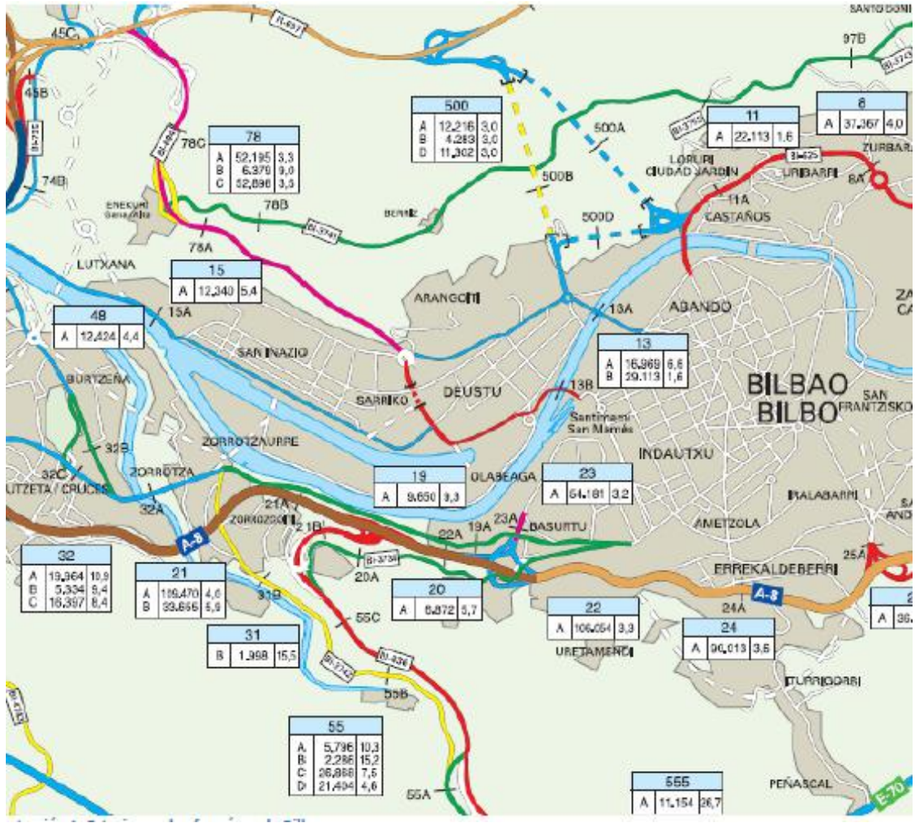
Se muestra en la siguiente imagen las estaciones de aforo permanentes del área de Bilbao.

De la situación de los puentes puede deducirse que tan solo circularán de paso por el puente de Frank Gehry aquellos vehículos cuyo destino final sea Zorrotza y ocasionalmente a Basurto, ya que los restantes tráficos con destino al centro urbano o Basurto fluirán más rápido por el Puente Euskaldunay los tráficos con destino la zona Oeste de Zorrotza, Barakaldo o Lutxana-Enekuri, discurrirán por el cercano puente de Róntegui.

Por tanto, como estación de aforo representativa del tráfico que discurrirá por el puente de Frank Gehry se considera la estación 19, representativa del tráfico que discurre por el barrio de Zorrotza, ya que este barrio y sus proximidades serán el destino del tráfico de paso como se ha explicado previamente.

La estación de aforo apenas recoge tráfico en otras direcciones que no sea comparable con el que discurre por el puente. El tráfico en la dirección Este-Oeste fluye por la A-8, sin ninguna interferencia a la estación de estudio.

La única interferencia del tráfico recogido por la estación con el que circulará por el puente será el tráfico que discurre desde el barrio de Zorrotza al hospital de Cruces, ya que es más rápido el tramo a través de la N-634 en este caso que llegar mediante el desvío desde la A-8. Aún así este exceso de tráfico en la estación se compensa con el defecto del tráfico recogido que refleje el que discurra por el puente para tomar la dirección Sur desde el Este de la ciudad para los vehículos que opten por no emplear el puente Euskalduna.



1.1. INTENSIDAD MEDIA DIARIA DE VEHICULOS TOTALES

La estación de Basurto-Zorrotza es una estación permanente. Permite obtener información horaria durante todos los días del año. En base al documento "Evolución del tráfico en las carreteras de Bizkaia

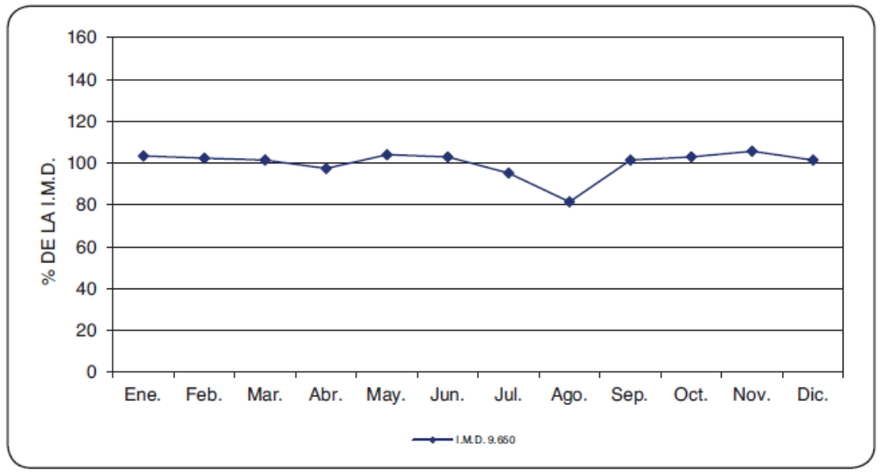
2015" se consiguen los datos requeridos para el estudio del tráfico
En general, no existe una gran variación estacional del tráfico, como corresponde a una zona en donde la mayor parte del tráfico generado obedece a relaciones, domicilio-trabajo o de carácter

principalmente laboral. Puede entenderse así el descenso del tráfico en el mes de agosto.

INTENSIDAD MEDIA MENSUAL DEL TRÁFICO

Estación 19A: Basurto - Zorrotza **Carretera: N-634**

REFERENCIA	MESES												MEDIA ANUAL
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	
DÍA MEDIO	9.982	9.880	9.785	9.405	10.038	9.934	9.190	7.863	9.794	9.939	10.201	9.790	9.650
DÍA LABORABLE	11.104	10.957	10.776	10.410	11.102	11.109	10.409	8.671	10.973	11.004	11.269	10.698	10.707
SÁBADO	7.860	7.884	8.284	7.675	8.093	7.797	6.586	6.264	7.481	8.180	8.436	8.239	7.731
DOMINGO	6.492	6.489	6.330	6.112	6.667	6.194	5.697	5.420	6.214	6.375	6.624	6.801	6.284

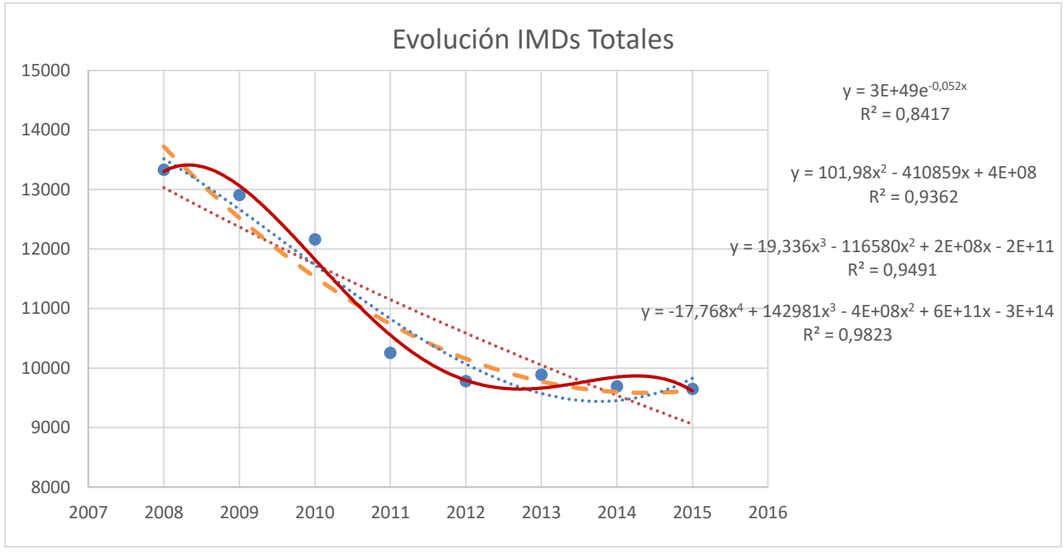


El tráfico en Bilbao ha cambiado su tendencia creciente de la década de los 90 (no analizada en el presente proyecto) debido a la apertura de nuevas vías de comunicación, la mejora del transporte público (construcción del METRO, principalmente) y las medidas disuasorias para el aparcamiento en el centro urbano de Bilbao aplicadas en los últimos años.

Estos factores se traducen en un estancamiento del tráfico en los accesos de Bilbao entre los años 2003 y 2007 y en una desaceleración del crecimiento en el tráfico metropolitano.

La crisis económica iniciada en el año 2008 ha tenido una repercusión importante en la evolución del tráfico en el período 2009-2013, alcanzándose como pueden verse en la tabla tasas negativas de crecimiento.

Año	IMD Totales	IMD Pesados	% Pesados	Razón de crecimientos (%)
2008	13330	1353	10.15	-
2009	12909	1164	9.02	-3.26
2010	12161	1080	8.88	-6.15
2011	10254	1033	10.07	-18.60
2012	9782	1005	10.27	-4.83
2013	9888	1009	10.20	1.07
2014	9691	1010	10.42	-2.03
2015	9650	901	9.34	-0.42



El gráfico muestra la evolución de la IMD total, así como las líneas de tendencia que mejor se aproximan. Como puede verse es la función polinómica de grado 4 la que mejor se aproxima. Sin embargo, con la función de segundo orden el grado de aproximación es muy semejante y las operaciones se ven muy simplificadas así que se tomará la polinómica de grado 2 para los calculo que se desarrollaran a continuación.

Para poder realizar una previsión acorde a la realidad las previsiones se dividirán en dos etapas. Una primera, cercana, que transcurrirá del 2016 al 2020, año aproximado de puesta en marcha de la carretera y la segunda que transcurrirá desde este último año hasta el 2040, momento en el que finaliza la vida útil para el proyecto de firmes de carreteras según la normativa del País Vasco.

Esta forma de proceder está recogida en las “Recomendaciones para la evaluación económica, coste beneficio de estudios y proyectos de carretera del ministerio de fomento” en que se indica la posibilidad de establecer un crecimiento en franjas.

Tomando los datos analizados y la tendencia obtenida, se calcula una razón de crecimiento del -5.4%. Si componemos esta razón con la previsión de crecimiento media entre el año 2013 y 2016 del documento” Evolución del tráfico en las carreteras de Bizkaia" que estima un crecimiento positivo del 2% para este periodo, la razón resultante será del -1.7%.

Para el periodo del 2020 al 2040 se empleará la razón recomendada del 1,8% positivo.

De este modo la IMD del año 2020 queda

$$IMD_{2020} = 9650\langle IMD_{2015}\rangle * (1-0.017)^5 = 8858\ vehivulos$$

Y la IMD del de año horizonte 2040

$$IMD_{2040} = 8858\ \langle IMD_{2020}\rangle * (1+0.018)^{20} = 12656\ vehiculos$$

1.2. INTENSIDAD MEDIA DIARIA DE VEHÍCULOS PESADOS

Tomando los datos de la tabla anterior donde se recogían las características del tráfico en los últimos 8 años, puede estimarse un promedia de vehículos pesado, que este caso es del 9,8%. No sería equivocado incluso aumentar este valor puesto que, durante el proceso de construcción y desarrollo urbano de la isla, el puente objeto de proyecto será la única vía de acceso. Pese a eso vamos a aplicar el valor obtenido.

$$IMD_{p2020} = 8858 * 0.098 = 869\ vehiculos\ pesados$$

$$IMD_{p2040} = 12656 * 0.098 = 1241\ vehiculos\ pesados$$

1.3. CATEGORIA DEL TRÁFICO

La categoría del tráfico se obtiene como el número acumulado de vehículos pesados que circularan por el carril de proyecto durante el periodo de proyecto. Se entiende por carril de proyecto aquel con mayor tráfico de pesados. Se entiendo como periodo de proyecto un espacio de tiempo igual a 20 años

La categoría del tráfico se obtendrá siguiendo el método simplificado de la normativa de firmes del País Vasco, que no es otra cosa que emplear la tabla A1.4 donde se puede calcular la categoría del tráfico conociendo la intensidad media diaria de vehículos pesados en el año de puesta en marcha de la obra.

$$IMD_P^{APS} = IMD_P * \gamma_T$$

γ_T es el índice de ponderación que se obtiene como el producto de 3 factores

$$\gamma_T = \gamma_c * \gamma_L * \gamma_{\text{a}}$$

γ_c se utiliza para asignar al carril de proyecto un porcentaje estimado del total de vehículos pesados. Su valor se obtendrá de la Tabla A1.1. Resultando igual a $\gamma_c = 0.5$

γ_L se utiliza para tener en cuenta en el dimensionamiento la disminución de la rigidez que se produce en los materiales bituminosos en las zonas en rampa como consecuencia de la reducción de la velocidad de los vehículos pesados. Su valor será igual a la unidad puesto que la pendiente del proyecto es menor del 5%.

Tabla A1.1 Estimación del coeficiente γ_C

TIPO DE VÍA	DESCRIPCIÓN		γ_C
DE CALZADA ÚNICA	ANCHURA DE CALZADA	≥ 6 m	0,50
		≥ 5 y < 6 m	0,75
		< 5 m	1,00
DE DOBLE CALZADA	CARRILES POR SENTIDO(*)	2	0,50
		3 ó más	0,45

(*) En la asignación de carriles por sentido no se tendrán en cuenta los carriles lentos, de aceleración o deceleración, ramales, etc.

γ_R se utiliza para asumir en el dimensionamiento un nivel de riesgo en la estimación de las cargas de tráfico. El nivel de riesgo será función del tipo de red y de la intensidad de tráfico según se indica en la Tabla A1.2. Su valor será de 1.2

Tabla A1.2 Estimación del coeficiente γ_R

TIPO DE RED	IMD de la carretera en el año puesta en servicio	γ_R
PRINCIPAL(*)	≥ 20.000	1,4
	10.000 – 20.000	1,3
	< 10.000	1,2
RESTO	≥ 2.000	1,1
	< 2.000	1,0

(*) Compuesta por todas las carreteras de la red de interés preferente, la red básica y la red complementaria.

De esto resulta que

$$\gamma_T = 0.5 * 1 * 1.2 = 0.6$$

$$IMD_P^{APS} = 869 * 0.6 = 522\ vehiculos$$

Para poder emplear la tabla A1.4. falta por estimar el Factor de crecimiento F que puede estimarse con la tabla A1.3.

Tabla A1.3 Tasa anual media de crecimiento del tráfico de vehículos pesados (periodo de proyecto: 20 años)

r (%)	F
4,0	30
2,0	25

Tomaremos una tasa de crecimiento posiblemente de 4, por tanto, F será igual a 30

Acudiendo ahora si a la tabla A1.4. obtenemos un tráfico de **categoría T2A**

Tabla A1.4 Categorías de tráfico de proyecto. Método simplificado

CATEGORÍA DE TRÁFICO	(IMD_P^{APS})*	
	(F=30)	(F=25)
T00	4.000 – 8.000	4.800 – 9.600
T0	2.000 – 4.000	2.400 – 4.800
T1A	1.400 – 2.000	1.680 – 2.400
T1B	800 – 1.400	960 – 1.680
T2A	400 – 800	480 – 960
T2B	200 – 400	240 – 480
T3A	100 – 200	120 – 240
T3B	50 – 100	60 – 120
T4A	25 – 50	30 – 60
T4B	< 25	< 30

ANEJO Nº7.-

FIRMES Y PAVIMENTOS

Contenido

1. INTRODUCCION 2

2. FIRMES 2

2.1. Actuaciones previas al firme 2

2.2. Dimensionamiento del firme 2

2.3. Materiales 3

2.3.1. Ligante Bituminoso 3

2.3.2. Impermeabilización 4

3. ACERAS 4

1. INTRODUCCION

El objetivo de este anejo es la justificación, explicación y descripción detalla de los firmes empleados en el puente de Zorrotzaurre tanto en el tablero como en las aceras.

Todo lo aquí incluido se ha redactado conforme a la normativa vasca de dimensionamiento de firmes "Norma para el dimensionamiento de firmes de la red de carreteras del País Vasco", aprobada el 12 de julio de 2007 por la Consejería de Transportes y Obras Públicas, en el marco del convenio de colaboración entre el Gobierno Vasco y el Centro de Estudios de Carreteras CEDEX y la Norma 6.1-IC "Secciones de Firme" del Ministerio de Fomento.

2. FIRMES

2.1. ACTUACIONES PREVIAS AL FIRME

Conforme a la normativa anteriormente citada, en obras de paso el pavimento debe desarrollar una doble función, proporcionar una adecuada superficie de rodadura a los vehículos y proteger e impermeabilizar el tablero de cara a la acción del tráfico y el clima, lo que obligan a tomar una serie de medidas previas a la disposición de este sobre el tablero que son:

- Preparación del tablero.
- Riego de imprimación del tablero, en su caso.
- Regularización del tablero, en su caso.
- Capa o sistema de impermeabilización.
- Tratamiento de protección de la impermeabilización, en su caso.

La capa o sistema de impermeabilización puede estar formado por láminas de sistemas poliméricos o polimérico-bituminosos fabricadas in situ, por másticos bituminosos fabricados en frío o en caliente o por láminas asfálticas prefabricadas, de comportamiento debidamente contrastado

Categoría del tráfico

El dimensionamiento del pavimento sobre la impermeabilización del tablero deberá adecuarse a la categoría del tráfico, fundamentalmente el más pesado, que este vaya a soportar a lo largo de su vida útil. Esta categoría viene representada mediante la IMDp (Intensidad Media Diaria de vehículos Pesados). La relación entre este indicador y la categoría del tráfico se encuentra en la tabla 1.A y 1.B de la Norma 6.1-IC "Secciones de firme".

TABLA 1.A. CATEGORÍAS DE TRÁFICO PESADO T00 A T2

CATEGORÍA DE TRÁFICO PESADO	T00	T0	T1	T2
IMDp (vehículos pesados/día)	≥ 4 000	< 4 000 ≥ 2 000	< 2 000 ≥ 800	< 800 ≥ 200

TABLA 1.B. CATEGORÍAS DE TRÁFICO PESADO T3 Y T4

CATEGORÍA DE TRÁFICO PESADO	T31	T32	T41	T42
IMDp (vehículos pesados/día)	< 200 ≥ 100	< 100 ≥ 50	< 50 ≥ 25	< 25

Para el Proyecto de puente de Zorrotzaurre tal como se indica en el correspondiente anejo "06_TRÁFICO" se clasifica este como T2A.

2.2. DIMENSIONAMIENTO DEL FIRME

Para esta categoría, la propia norma indica en su Capítulo 11

"Con tráfico T2 o superior, se proyectará una mezcla bituminosa en caliente de 10 cm de espesor, en dos capas, una intermedia, formada por una mezcla bituminosa de tipo denso o semidenso (según art. 542 del PG-3) de tamaño máximo nominal de árido no superior a 12 mm, y una capa de rodadura formada por mezcla bituminosa de tipo denso o semidenso (según art. 542 del PG-3) o bien de tipo discontinuo (según art. 543 del PG-3) La capa intermedia no será necesaria cuando se haya regularizado el tablero directamente sobre el riego de imprimación."

"En caso de proyectar rodaduras de mezcla drenante o discontinua, se dispondrá bajo las mismas una capa de 5 cm de mezcla bituminosa en caliente de tipo denso o semidenso."

Se descarta la opción de mezclas drenantes. Si bien es cierto que la obra se encuentra en una zona de fuertes y frecuentes lluvias, la reducida velocidad de paso de los vehículos (que reduce el efecto "spray") así como la pendiente del trazado de puente tanto lateral como longitudinal y las demás medidas de canalización y evacuación de aguas hace que este tipo de capa de rodadura no sea especialmente necesaria. Además, la posibilidad de poder eliminar la capa intermedia debido a la regularización directa del tablero sobre el riego de imprimación, hace que la opción drenante se descarte.

2.3. MATERIALES

A la hora de seleccionar los materiales se seguirán las recomendaciones de los artículos citados de PG3.

2.3.1. LIGANTE BITUMINOSO

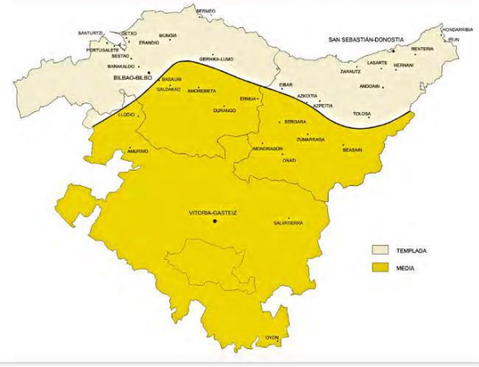
Será el que marque si la mezcla es densa o semidensa. Para su eleccion se empleara la tabla 542.1.a del PG-3 en función de la zona térmica estival, el trafico y la capa en la que vaya a emplearse.

TABLA 542.1.a - TIPO DE LIGANTE HIDROCARBONADO A EMPLEAR EN CAPA DE RODADURA Y SIGUIENTE (*) (Artículos 211 y 212 de este Pliego, y reglamentación específica vigente DGC)

ZONA TÉRMICA ESTIVAL	CATEGORÍA DE TRÁFICO PESADO					
	T00	T0	T1	T2 y T31	T32 y ARCENES	T4
CÁLIDA	35/50 BC35/50 PMB 25/55-65 PMB 45/80-65		35/50 BC35/50 PMB 25/55-65 PMB 45/80-60 PMB 45/80-65	35/50 50/70 BC35/50 BC50/70 PMB 45/80-60	50/70 BC50/70	50/70 70/100 BC50/70
MEDIA	35/50 BC35/50 PMB 45/80-60 PMB 45/80-65		35/50 50/70 BC35/50 BC50/70 PMB 45/80-60	50/70 BC50/70 PMB 45/80-60	50/70 70/100 BC50/70	
TEMPLADA	50/70 BC50/70 PMB 45/80-60 PMB 45/80-65		50/70 70/100 BC50/70 PMB 45/80-60			

La zona térmica estival de la obra la obtenemos de la Norma Vasca, concretamente de la figura 8.1. Vemos que el proyecto se emplaza en zona templada. En vista a todo esto se escoje un ligante hidrocarbonado 50/70 ya que es durable y resitente al envejecimiento.

Figura 8.1. Definición de Zonas Térmicas Estivales*



Utilizando la tabla 542.9 del PG-3 se decide emplear una mezcla AC22 surf D de 7,5 cm de espesor. Resultando finalmente la denominación de la mezcla AC 22 surf 50/70 D.

La dotación mínima de ligante deberá cumplir con lo indicado en la tabla 542.10

TABLA 542.9 - TIPO DE MEZCLA EN FUNCIÓN DEL TIPO Y ESPESOR DE LA CAPA

TIPO DE CAPA	TIPO DE MEZCLA **DENOMINACIÓN.** NORMA UNE-EN 13108-1**(*)**	ESPESOR (cm)
RODADURA	AC16 surf D AC16 surf S	4 – 5
	AC22 surf D AC22 surf S	> 5

Utilizando la tabla 542.9 del PG-3 se decide emplear una mezcla AC22 surf D de 7,5 cm de espesor. Resultando finalmente la denominación de la mezcla AC 22 surf 50/70 D.

La dotación mínima de ligante deberá cumplir con lo indicado en la tabla 542.10

TABLA 542.10 - DOTACIÓN MÍNIMA (*) DE LIGANTE HIDROCARBONADO
(% en masa sobre el total de la mezcla bituminosa, incluido el polvo mineral)

TIPO DE CAPA	TIPO DE MEZCLA	DOTACIÓN MÍNIMA (%)
RODADURA	densa y semidensa	4,50
INTERMEDIA	densa y semidensa	4,00
	alto módulo	4,50
BASE	semidensa y gruesa	4,00
	alto módulo	4,75

2.3.2. IMPERMEABILIZACIÓN

Respecto a la impermeabilización se empleará:

- 0,5 cm de mástic bituminoso como capa impermeabilizante, con una mezcla a base de betún (28,5%), caucho (1,5%) y fíller calizo (70%).

- Riego de curado con emulsión ECR con 220 g/m2 de betún residual de dotación mínima.

3. ACERAS

Las aceras se llevarán a cabo mediante carpintería de madera. Todos los detalles se desarrollan en los planos, pliego de prescripciones particulares y cuadros de materiales del presupuesto.

ANEJO Nº8.-

TRAZADO

Contenido

1. *INTRODUCCION* 2

2. *TRAZADO EN PLANTA* 3

3. *TRAZADO EN AlZADO* 3

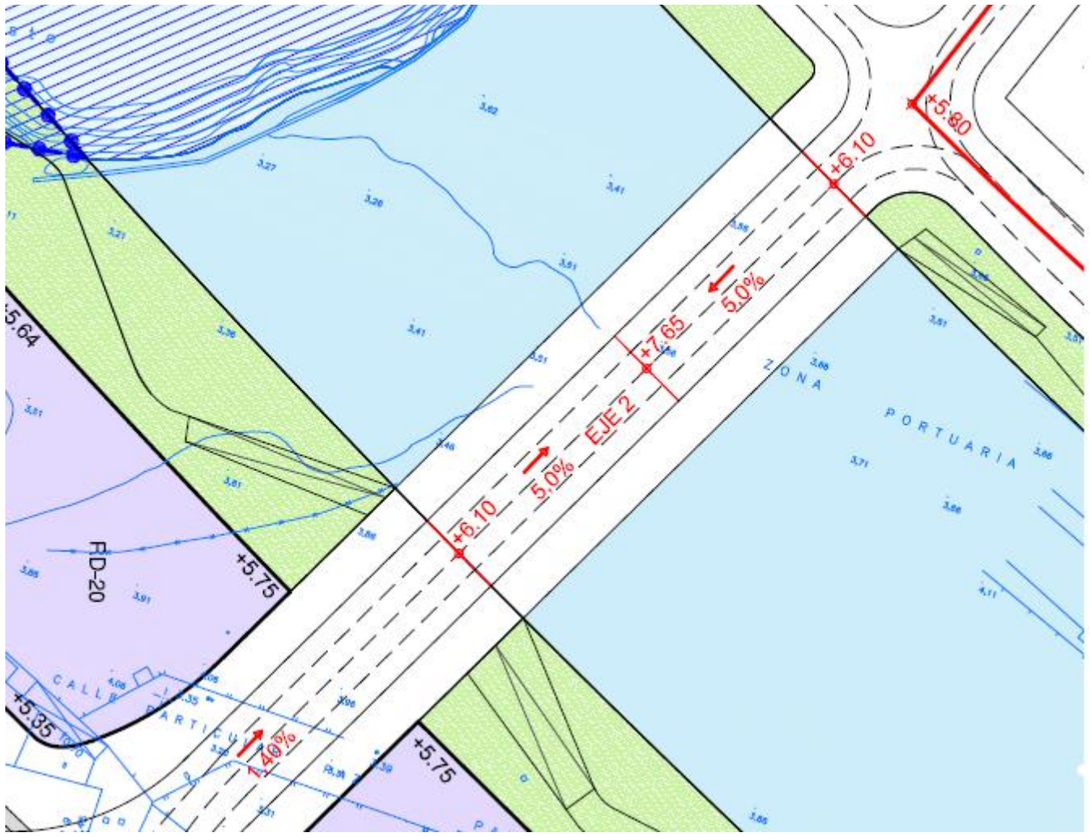
4. *SECCIÓN TIPO* 3

1. INTRODUCCION

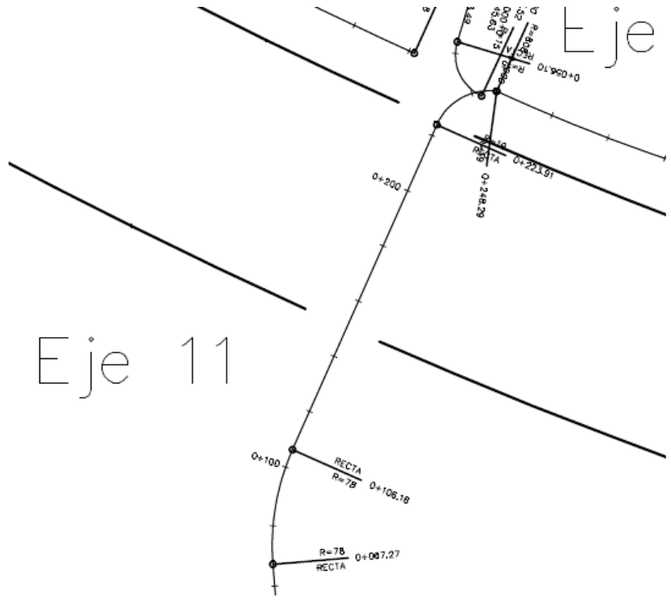
En el presente anejo se presenta y define el trazado del puente , así como los tramos de aproximación tanto en planta como en alzado, siguiendo la normativa vigente de trazado Norma 3.1-I.C.

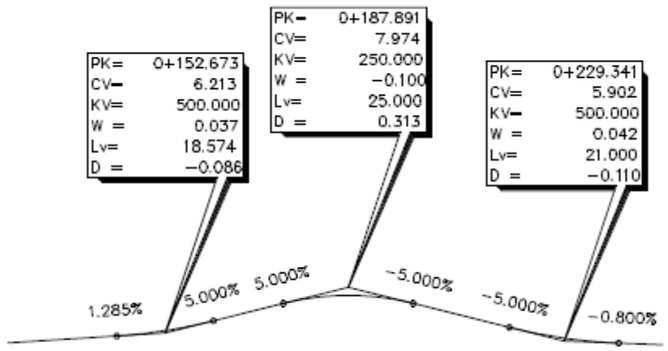
Para la elaboración de este documento se han tenido en cuenta los siguientes documentos

- Plan Especial de Ordenación Urbana del Área de Zorrotzaurre: El Puente de Acceso a la Isla de Zorrotzaurre está incluido en el Eje 2.



- Anteproyecto de Urbanización de Zorrotzaurre: Ha sido redactado por Idom para la Comisión Gestora de Zorrotzaurre. El Puente de Acceso a la Isla de Zorrotzaurre está incluido en el Eje 11.





2. TRAZADO EN PLANTA

Definiéndose la velocidad de proyecto como la especifica mínima del conjunto de tramos que forman la obra, la de este proyecto será de 50 km/h, al ser este un puente dentro de un núcleo urbano en una zona eminentemente comercial y peatonal y tener la calle doble sentido y más de un carril por sentido.

El eje del puente es recto, y su enlace con los tramos de aproximación se han llevado a cabo mediante acuerdos circulares.

El primero en el extremo de la isla de Zorrotzaurre con un radio de 78 km y el segundo en el extremo de Deusto con un radio de 14.75 m.

Las coordenadas UTM y la cota de los puntos que marcan el inicio y final del eje del puente son

	P.K	X	y	Z
INICIO DEL EJE DEL PUENTE	0+151.07	503793.0363	4790696.4949	6.1
FIN DEL EJE DEL PUENTE	0+226.07	503823.4884	4790765.0462	6.1

El trazado en planta se presenta con mayor profusión en los planos de trazado del **“DOCUMENTO 2 PLANOS”**

3. TRAZADO EN ALZADO

Se han realizado variación con respecto a los trazados en alzado propuestos por PEOU y en el anteproyecto de Idom. Las pendientes máximas que se barajaban en ambas propuestas eran del 5% pero en la propuesta del proyecto que nos atañe la ha logrado una pendiente máxima del 3% Esto ha traído una mejora en lo relativo a visibilidad para los vehículos y la accesibilidad para peatones
Por otro lado, se sigue manteniendo una pendiente adecuada para la evacuación de escorrentía de lluvia y se alcanza un resguardo suficiente con la superficie libre de la avenida de 500 años.
La cota máxima en los extremos es de 6,10m respecto al cero del puerto den Bilbao tan como recoge el Plan Especial lo mismo que ocurre como ya se ha indicado con la cota máxima.

4. SECCIÓN TIPO

La sección que se desarrollará a lo largo del trazado descrito, será constante a lo largo de los 75m de puente y constará de:

-Aceras de 5 m de anchura a ambos lados del puente. En este espacio convivirán los peatones y tráfico ciclista. La ciudad de Bilbao lleva años apostando por el uso de la bicicleta y sus ciudadanos están sobradamente habituados a convivir con ellas.

--Calzada con 4 carriles de 3,25m cada uno y 1 m de arcén para cada sentido de circulación

-Vilas longitudinales, están compuestas por las piezas metálicas que actúan de tirante del arco. Sirven además de punto de agarre entre las péndolas y el tablero. Generan una separación física fundamental entre el área del tráfico y el área peatonal.

ANEJO Nº9.-

SEÑALIZACIÓN, BALIZAMIENTO Y DEFENSA

Contenido

1. *INTRODUCCION* 2

2. *SEÑALIZACIÓN VERTICAL* 2

3. *SEÑALIZACIÓN HORIZONTAL* 2

4. *BALIZAMIENTO* 3

5. *DEFENSA* 3

6. *BARANDILLA* 3

1. INTRODUCCION

El presente anejo define las características de las marcas viales (horizontales y verticales) de la señalización y de los elementos de defensa necesarios en el puente para conseguir el máximo grado de seguridad, comodidad y eficacia en la circulación de vehículos sobre la plataforma.

2. SEÑALIZACIÓN VERTICAL

Para la señalización vertical del tramo objeto se ha tenido en cuenta la Norma de Carreteras 8.1-IC "Señalización de carreteras", publicada por la Dirección General de Carreteras.

Se colocará en las incorporaciones desde el puente a la Isla de Zorrotzaurre y calle Ballets Olaeta Kalea una señal de Ceda al Paso (R-1) y en el mismo poste una señal de obligatoriedad de giro a la derecha (R-400a). Ambas señales tendrán un diámetro de 600 mm.

Además de la señalización anterior, se dispondrá en la parte de Deusto, un poste con unos carteles de indicativos de lugares de interés e indicación de salida a la autopista A-8. La designación de las señales es:

- S-760 (Salida a la A-8)

- S-710 (Estación de autobuses)

- S-720 (Estadio San Mamés)

Situación:

La altura de las señales verticales de circulación, entre el borde inferior de la placa y el nivel de borde de calzada, será de un metro y ochenta centímetros en el Tronco (1.5 m). En los casos de la señalización vertical se sitúe en aceras, la distancia entre el borde inferior de la placa y dicha acera no será inferior a 2.2 m.

La distancia entre borde de la calzada y el borde de la señal más próxima será igual a 2.5 m en el tronco.

3. SEÑALIZACIÓN HORIZONTAL

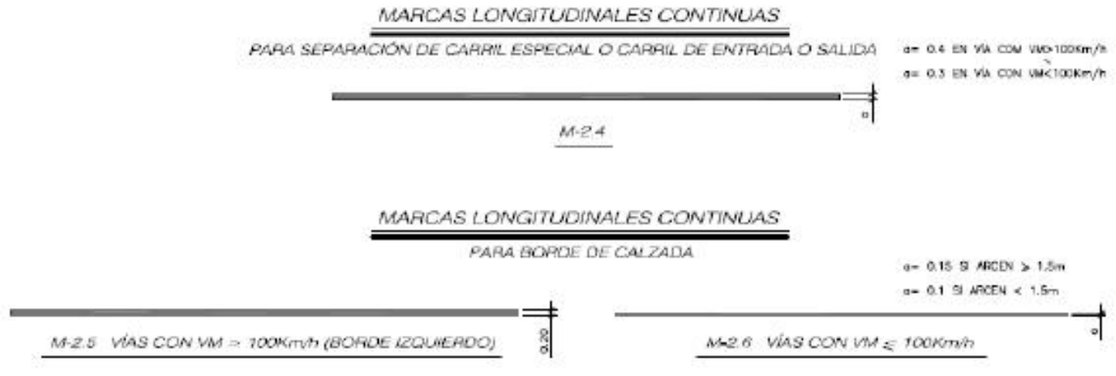
Para la señalización horizontal del tramo objeto se ha tenido en cuenta la Norma de Carreteras 8.2-IC

Se dispondrán de marcas viales reflectantes de color blanco. Longitudinalmente se dispondrán las siguientes marcas viales:

- Marcas viales continúas de 10 cm de ancho delimitando el arcén de los carriles extremos (M- 2.6).

- En el centro de la calzada se dispondrá doble línea continua de 10 cm de ancho cada una, con una separación entre ellas de otros 10 cm. (M-2.3).

- Para la delimitación de carriles de un mismo sentido se dispondrán de marcas viales discontinuas (M-1.3).



Se utilizarán los siguientes tipos de pinturas en las marcas viales anteriormente descritas.

- Pintura acrílica autorreticulable, de color blanco en todos los símbolos e inscripciones (apartados de "Flechas", "Inscripciones" y "Otras Marcas").

- Pintura termoplástica en caliente para el resto de marcas viales.

En ambos casos el carácter retrorrefectante de las marcas viales se conseguirá mediante la incorporación, por premezclado y/o postmezclado, de microesferas de vidrio a los materiales anteriormente citados.

Las proporciones de la mezcla, así como la calidad de los materiales utilizados en la aplicación de las marcas viales, serán las utilizadas para esos materiales en el ensayo de la durabilidad, realizado según lo especificado en el método "B" de la norma UNE 135 200.

4. BALIZAMIENTO

Se entiende por balizamiento la utilización de determinados elementos fácilmente perceptibles por el conductor, con objeto de destacar determinadas características de la vía.

Es conocido que, como consecuencia de la lluvia, las marcas viales de la carretera pierden parte de su efectividad, quedando recubiertas por una capa de agua. Este efecto impide que se produzca la retroreflexión, por lo cual se debe recurrir a dispositivos que no sean afectados por el agua, como pueden ser los captafaros en el caso del puente objeto del presente proyecto.

5. DEFENSA

Los requisitos considerados para adoptar los sistemas de defensa implantados se han basado en la Orden Circular 23/2008 sobre "criterios de aplicación de pretiles metálicos en carretera" del ministerio de fomento.

Los sistemas de defensa adoptados tienen la categoría de contención N1.

Para la separación entre la parte rodada y las otras partes del puente se ha adoptado por un sistema de defensa a los dos lados de un Barrera de protección consistente en tubo de acero de 122 mm de diámetro y espesor de 11mm con báculos y chapas de fijación cada 2m según detalle de planos con calidad de acero S355 J2+N.

6. BARANDILLA

En los laterales del puente se dispondrá de una barandilla expresamente diseñada para este proyecto cuya descripción geométrica viene recogida en el "DOCUMENTO 2 PLANOS"

ANEJO Nº10.-

SOLUCIONES AL TRÁFICO DURANTE LAS OBRAS

Contenido

1. *INTRODUCCION* 2

2. *SITUACIÓN PREVIA* 2

3. *SITUACIÓN DE LAS OBRAS* 2

4. *SITUACIÓN DURANTE LAS OBRAS* 3

5. *SEÑALIZACIÓN* 3

1. INTRODUCCION

En el presente anejo se analizan y se justifican las posibles medidas a tomar para solucionar el correcto flujo del tráfico durante la construcción del puente. Para ello se estudia la circulación antes de la construcción del puente y se trata de conseguir que la circulación provisional sea semejante. También se recoge en el anejo la señalización a emplear durante las obras.

2. SITUACIÓN PREVIA

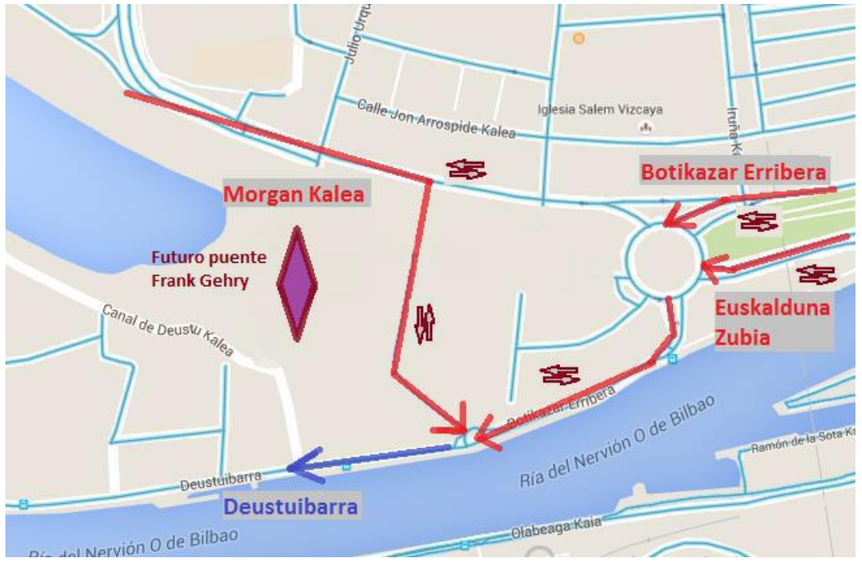
El área de la zona objeto del proyecto es el itsmo de la península de Zorrotzaurre. El área ha sufrido grandes cambios en el marco de una década. Remontándonos al 2008: La zona en la que se ubica el puente, Julio Urquijo Kalea, estaba inutilizada. El acceso a la península se realizaba por dos vías:

- A través de la glorieta situada en la zona Oeste se recoge el tráfico procedente del Sur, a través del puente Euskalduna (construído en 1997) y del Oeste a través de Botikazar Erribea.

- A través de una calle perpendicular a Morgan Kalea, se recoge el tráfico procedente de ésta que su vez recoge el correspondiente a la zona Oeste y Norte. Morgan Kalea en esta época tenía doble sentido.

Las vías que desembocan en la glorieta para introducir el tráfico en la península continúan por el ramal inferior de Botikazar Erribea. El tráfico procedente de este ramal inferior de Botikazar Erribea y el procedente de la perpendicular a Morgan Kalea desembocan en Deustuibarra, arteria principal del tráfico en la península. Desde ella se vertebra hacia el interior.

El siguiente esquema aclara la situación.



En el 2008 en la zona comprendida entre la perpendicular a Morgan Kalea y la glorieta existía una explanada vacía en la que en el futuro se construyó un parking.

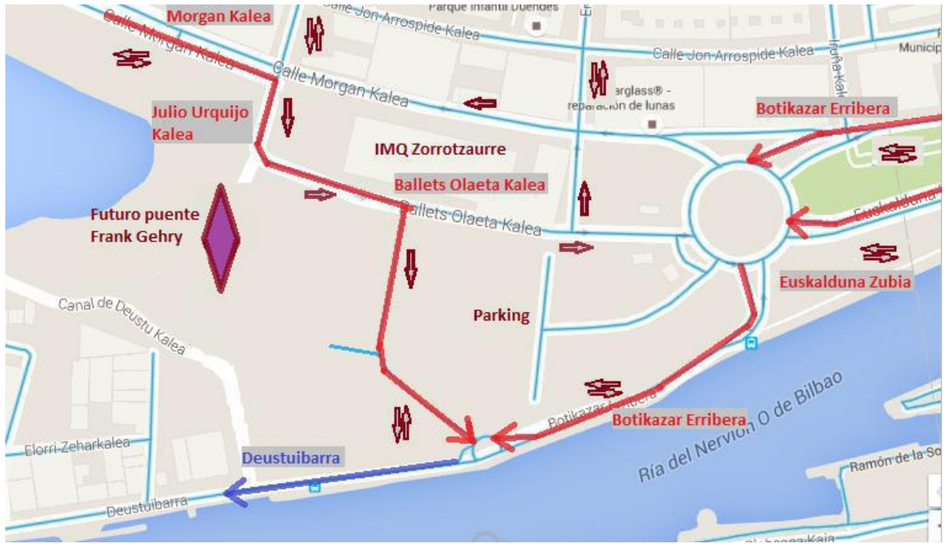
3. SITUACIÓN DE LAS OBRAS

Se da inicio a la construcción de la clínica IMQ Zorrotzaurre en 2009. Finalmente, la clínica se inaugura en 2012. A su vez se preveía que las obras de apertura del canal de Deusto se comenzasen en 2010 aunque finalmente se inician más tarde. La inauguración de la clínica da lugar a la creación de la Ballets Olaeta Kalea, paralela a la existente Morgan Kalea. Morgan Kalea pasa de ser una calle de doble sentido y cuatro carriles a tener sentido único en dirección Este-Oeste y dos carriles. Mientras tanto, Ballets Olaeta Kalea posee sentido único en dirección Oeste-Este y también dos carriles consiguiéndose abarcar todo el tráfico de la situación anteriormente planteada.

El párking entre la glorieta y la antigua perpendicular a Morgan Kalea se convierte en una realidad. Se le da acceso desde la glorieta o desde Deustuibarra.

Puede accederse a la zona cerrada de Julio Urquijo Kalea en la que en el futuro se ubicará el puente a través de un ramal existente en la perpendicular a Ballets Olaeta Kalea que conecta esta con Deustuibarra. (Marcado en azul en el esquema).

Julio Urquijo Kalea se prolonga respecto a la situación anterior para conseguir enlazar con Ballets Olaeta Kalea. La situación del tráfico planteada se recoge en el siguiente esquema. Al igual que en la situación anterior, todo el tráfico que se introduce en la isla lo hace a través de Deustuibarra.



4. SITUACIÓN DURANTE LAS OBRAS

Dado que la construcción del puente se realiza en seco, excavándose tan solo el área afectada por el puente y no el total del istmo de la península, puede accederse a Zorrotzaurre a través de otras vías.

Las obras para la apertura del canal de Deusto se iniciarán antes de las obras de construcción del puente de Acceso a la isla de Zorrotzaurre. La construcción está planteada que se inicie a finales de 2016.

Se pretende mantener el tráfico en una situación similar a la existente.

Ballets Olaeta Kalea se reduce a un carril en las proximidades del puente por efectuarse obras inmediatamente a ella. Posteriormente mantiene los dos carriles en único sentido Oeste-Este.

Morgan Kalea, en el tramo comprendido entre Julio Urquijo Kalea y Eraso Jeneralaren Kalea, pasa de tener dos carriles en sentido Este-Oeste a tener tres carriles, dos de ellos en sentido Este-Oeste y uno en el contrario. En la parte de la calle anterior a Julio Urquijo Kalea también mantiene esta distribución de tres carriles.

El parking se mantiene cerrado por emplearse para zona de obras.

La calle transversal a Ballets Olaeta Kalea no puede emplearse pues también es zona de obras.

El tráfico procedente de Euskalduna Zubia, al igual que el de Botikazar Erribea siguen mantiendo la misma configuración que anteriormente. Doble sentido y finalizan en la glorieta.

Todo el tráfico confluye en la glorieta y posteriormente se introduce en Zorrotzaurre a través de la continuación de Botikazar Erribea y posteriormente Deustuibarra.

La distribución del tráfico durante la construcción del puente mantiene el siguiente esquema:



Para indicar el sentido de las calles se emplea señalización horizontal en el correspondiente color amarillo correspondiente a obras.

5. SEÑALIZACIÓN

Respecto a la señalización vertical, desde Morgan Kalea a Julio Urquijo Kalea se utiliza señalización de obligatorio circular a 30 km/h. También se plantea en Balets Olaeta Kalea, en el ramal inferior de Botikazar Kalea y en Deustuibarra.

ANEJO Nº11.-

PROCESO CONSTRUCTIVO

Contenido

1. INTRODUCCION 2

2. ejecución por fases 2

1.1. fase 0 2

1.2. FASE 1 2

1.3. fase 2 2

1.4. FASE 3 3

1.5. fase 4 3

1.6. FASE 5 3

1.7. Fase 6 3

1. INRODUCCION

Este anejo tiene como objetivo la definición del proceso constructive del puentee objeto de Proyecto, las considerciones tenidas en cuenta a la hora de selccionarlo han sido: seguridad structural, eficiencia a nivel de plazos, máximo ahorro de materiales y reducción al mínimo de los impactos ambientales teniendo en cuenta que la obra se desarrolla en un ámbito urbano.

2. EJECUCIÓN POR FASES

1.1. FASE 0

Esta fase consiste en la preparación y adecuación del terreno sobre el cual se van a ejecutar las obras. Puesto que será el lugar donde numeroso equipo humano y maquinaria de cierto volumen realicen su labor diaria este espacio deberá presentar unas condiciones mínimas de seguridad, y, que además, permita el correcto desarrollo de las labores a realizar.

Por esto, si bien la excavación del canal, no corresponde a este proyecto, si es de obligada necesidad llevar a cabo tareas de desbroce entendidas estas como la eliminación de cualquier objeto indeseado en la zona, así como la preparación en la medida de lo posible del área de trabajo para facilitar la entrada y salida maquinaria, materiales y trabajadores.

1.2. FASE 1

Se comenzará con la realización de la cimentación del puente, en este caso particular la cimentación actuará a su vez, en cierto modo, de estribo abierto. Para esto, se realizarán las siguientes tareas:

- Excavación, ferrallado y hormigonado de los pilotes hasta el sustrato rocoso dando lugar a pilotes de unos 25 metros.
- Seguidamente, se excavará la zona del canal ocupada por los estribos para posteriormente rellenarla con materiales seleccionados con los ángulos de inclinación y niveles de compactación establecidos en el proyecto.
- Tras esto, se encofrará, ferrallará y hormigonará el encepado de los pilotes que tendrá una doble función, por un lado repartir las cargas de los apoyos del puente entre los pilotes y además sustentará la losa de transición.

Estas tareas se realizarán simultáneamente en ambas márgenes.

1.3. FASE 2

Esta fase es en la que se lleva a cabo el montaje de la estructura metálica del tablero. Si bien las frases previas son relativamente breves, dan margen suficiente para que simultáneamente se lleve a cabo la elaboración en taller de las piezas metálicas que componen el tablero.

Dada la proximidad de talleres siderúrgicos a la zona de la obra de la obra y la fácil accesibilidad a la obra hará que el transporte de las mismas no presente ningún tipo de inconveniente y la calidad de la misma este prácticamente asegurada.

Ya en obra y simultáneamente también con las labores de la fase 1, se llevarán a cabo todas las tareas necesarias para poder realizar el montaje de las piezas metálicas una vez sean recibidas en el tajo. Estas labores consistirán en la preparación de los apoyos sobre el terreno (ya despejado en la fase 0) de los castilletes metálicos que sustentarán las piezas en que llegue dividida la estructura.

Esas piezas, si bien, podrían presentar tamaño considerables dada la ya mencionada buena accesibilidad de la obra, es preferible evitar la necesidad de grandes equipos para la colocación de dichas piezas sobre los castilletes dado su coste elevado y las complicaciones que suele presentarse en los izados complejos.

Con las piezas ya en obra se elevará mediante grúas y equipos auxiliares, comenzándose por los tramos que apoyan sobre los estribos. Una vez con todas las piezas apoyadas sobre los apoyos y castilletes auxiliares se llevará a cabo su replanteo y su soldadura en obra.

Con las piezas que transmiten las cargas a los apoyos ya replanteadas, podrá fijarse definitivamente la ubicación de los mismos.

1.4. FASE 3

De esta fase en adelante se procede a trabajar con el hormigón. Se inicia construcción de los arcos, levantándose una cimbra cuajada desde el terreno hasta la cota establecida, sobre la que se ubicará el encofrado.

Ya en el proceso de cálculo se han tenido en cuenta las flechas elásticas producidas en el arco por el peso propio de la estructura más un cálculo aproximado de las producidas por efectos reológicos, principalmente fluencia. Es por esto, que a la hora de ubicar el encofrado se le dé una contra flecha que contrarreste dichos ejemplo y que haga que el tablero mantenga el trazado en alzado del proyecto y se pueda llevar a cabo fácilmente la labor de descimbrado de la losa del tablero.

Colocado el encofrado se ferralla y se hormigona mediante bombeo los arcos. Pasado el tiempo de fraguado adecuado, se restirará la cimbra y el hormigón ira paulatinamente ganando resistencia hasta el moemento de que se le ponga en carga a través de las pendolas.

1.5. FASE 4

En esta fase se llevará a cabo la losa de hormigón del tablero que habrá de trabajar conjuntamente con las vigas doble T transversales. Para esto se levantará una cimbra cuajada bajo el tablero que sustentará el encofrado recto sobre el que se colocarán las armaduras de la losa y de los bordillos sobre los que se anclarán las barreras para vehículos.

No se establece ningún orden específico para el hormigonado de esta losa puesto que será la cimbra y no el arco quien soportará su carga en estado fluido. De no haber sido así se debería haber optado por un hormigonado simétrico.

1.6. FASE 5

Pasado el tiempo necesario para que el hormigón adquiera la resistencia adecuada se llevará a cabo la colocación y tesado de las péndolas. Este tesado se hará de forma simétrica comenzando por las péndolas del centro del tablero y en ambos arcos simultáneamente. El tesado de las péndolas se llevará a cabo mediante el girado de tuerca o mediante un gato de barra que acortará las barras que atraviesan las vigas cajón longitudinales a la altura de los agarres de las péndolas.

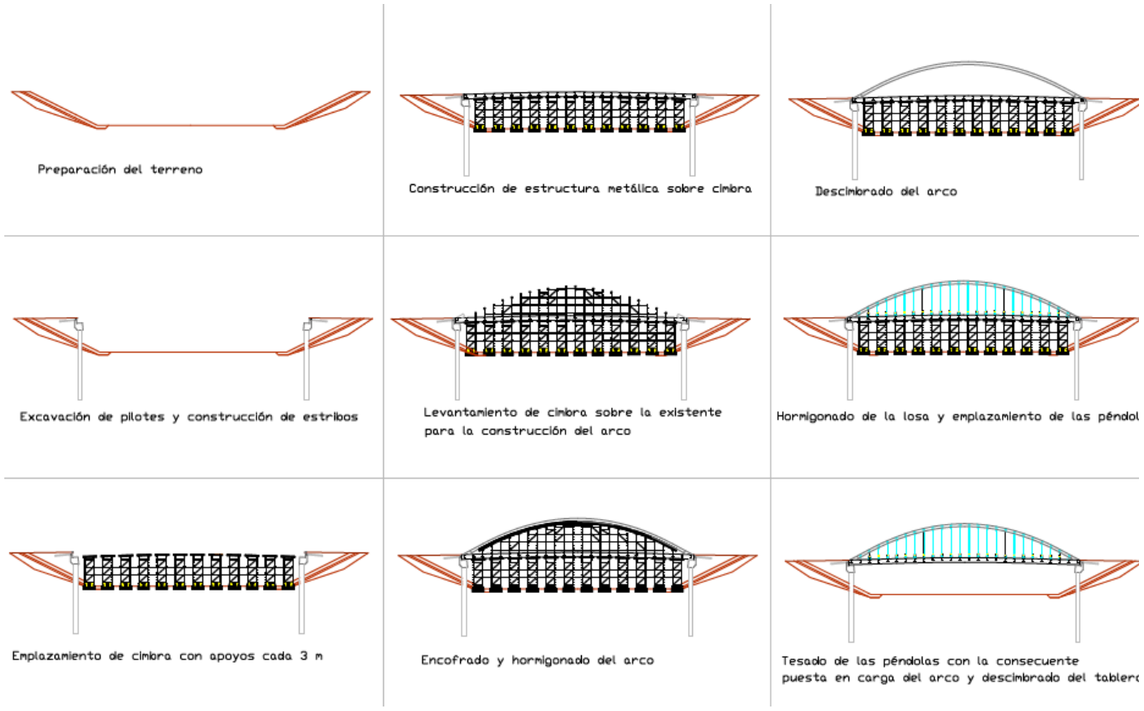
A la hora de tesar habrá que tener en cuenta la deformación de la viga Cajón, el alargamiento de la péndola y el descenso elástico del arco. De ahí la importancia de la contraflecha introducida a la hora de colocar el encofrado del arco.

Con el tesado introducido en las péndolas similar a la reacción soportada por cada uno de los puntos de apoyo de los castilletes el tablero quedará suspendido del arco pudiéndose eliminar todos los elementos auxiliares de sustentación.

1.7. FASE 6

En esta fase se llevarán a cabo las labores de remate de la obra como:

- Impermeabilización de tablero
- Colocado de firmes y aceras
- Barandillas
- Señalización
- Barreras de seguridad
- Instalación de luminarias y sistema eléctrico
- Instalación de juntas calzada
- Pintado de marcas viales
- Finalización y remate de las conducciones que cruzan a través del nuevo puente
- Restantes remates a ejecutar


Preparación del terreno
Construcción de estructura metálica sobre cimbra
Descimbrado del arco
Excavación de pilotes y construcción de estribos
Levantamiento de cimbra sobre la existente para la construcción del arco
Hormigonado de la losa y emplazamiento de las pêndol
Emplazamiento de cimbra con apoyos cada 3 m
Encofrado y hormigonado del arco
Tesado de las péndolas con la consecuente puesta en carga del arco y descimbrado del tablero

ANEJO Nº12.-

PLAN DE OBRA

Contenido

1. *INTRODUCCION* 2

2. *DIAGRAMA DE GANTT* 2

1. INTRODUCCION

El objeto del presente anejo es proponer la planificación de las diferentes actividades, o plan de obra, de obra, necesarias para llevar a cabo las obras incluidas en el presente proyecto.

El plan de obra tiene un carácter indicativo, con previsión del tiempo y coste, según se indica en el apartado e) del Artículo 107. *Contenido de los proyectos y responsabilidad derivada de su elaboración* de la Ley 30/07, de 30 de Octubre, de Contratos del Sector Público.

Según se recoge en el Artículo 132 del *Reglamento General de la Ley de Contratos de las Administraciones Públicas* (Real Decreto 1098/2001, de 12 de octubre, BOE 26/10/2001), el programa de desarrollo de los trabajos, "*entre otras especificaciones, contendrá, debidamente justificados, la previsible financiación de la obra durante el período de ejecución y los plazos en los que deberán ser ejecutadas las distintas partes fundamentales en que pueda descomponerse la obra, determinándose los importes que corresponderá abonar durante cada uno de ellos*".

El plan de obra establecerá un programa de trabajos en el que se han estructurado las actividades en de obra más importantes, estableciendo su sucesión y duración en el tiempo de cara a evaluar el plazo completo de ejecución de los trabajos. La representación de estas actividades se realiza mediante un diagrama de barras que representa el plan de obra previsto de acuerdo al proyecto y proceso constructivo definido en él.

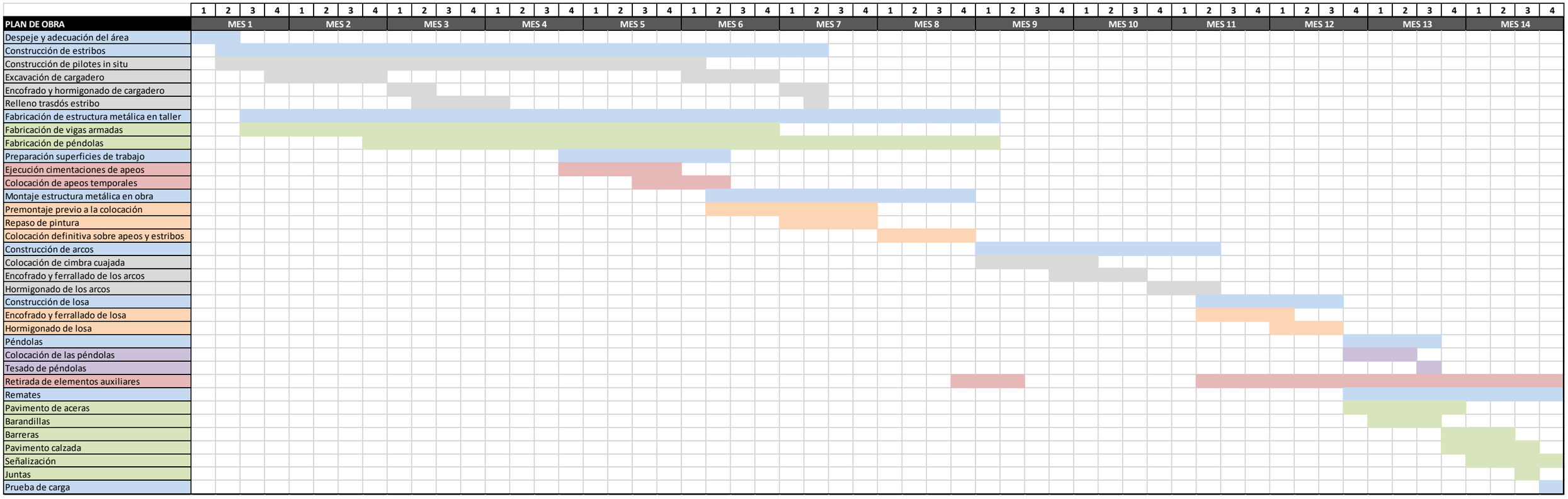
Se considera que en la construcción del Puente de acceso a la Isla de Zorrotzaurre se realizará utilizando de forma lo más eficiente posible los equipos de trabajo. De esa forma el plazo de ejecución del total de las obras se ha valorado en 14 meses.

No obstante, debido a la dificultad de la estructura metálica del puente, es necesario que el taller encargado de su ejecución comience inmediatamente después de la adjudicación de la obra el análisis y estudio técnico necesario para llevarla a cabo dentro de los plazos estipulados.

Para el cálculo de los plazos parciales de cada una de las actividades se ha tenido en cuenta:

- Rendimientos medios por equipo de trabajo para cada actividad.
- Coeficientes de reducción de días trabajables.
- Volúmenes de obra a realizar
- Relación entre las diferentes actividades

2. DIAGRAMA DE GANTT


1 2 3 4 1 2 3 4 1 2 3 4 1 2 3 4 1 2 3 4 1 2 3 4 1 2 3 4 1 2 3 4 1 2 3 4 1 2 3 4 1 2 3 4 1 2 3 4 1 2 3 4 1 2 3 4 1 2 3 4 1 2 3 4
PLAN DE OBRA
MES 1
MES 2
MES 3
MES 4
MES 5
MES 6
MES 7
MES 8
MES 9
MES 10
MES 11
MES 12
MES 13
MES 14
Despeje y adecuación del área
Construcción de estribos
Construcción de pilotes in situ
Excavación de cargadero
Encofrado y hormigonado de cargadero
Relleno trasdós estribo
Fabricación de estructura metálica en taller
Fabricación de vigas armadas
Fabricación de péndolas
Preparación superficies de trabajo
Ejecución cimentaciones de apeos
Colocación de apeos temporales
Montaje estructura metálica en obra
Premontaje previo a la colocación
Repaso de pintura
Colocación definitiva sobre apeos y estribos
Construcción de arcos
Colocación de cimbra cuajada
Encofrado y ferrallado de los arcos
Hormigonado de los arcos
Construcción de losa
Encofrado y ferrallado de losa
Hormigonado de losa
Péndolas
Colocación de las péndolas
Tesado de péndolas
Retirada de elementos auxiliares
Remates
Pavimento de aceras
Barandillas
Barreras
Pavimento calzada
Señalización
Juntas
Prueba de carga

ANEJO Nº13.-

CLASIFICACIÓN DEL CONTRATISTA

Contenido

1. *INTRODUCCION* 2

2. *PROCEDIMIENTO* 2

3. *GRUPOS Y SUBGRUPOS A CONSIDERAR* 2

4. *RESUMEN* 4

1. INTRODUCCION

El objeto del presente anejo es justificar según los artículos 54 al 60 inclusive, de La Ley 30/2007 de 30 de octubre, de *Contratos del Sector Público y en base al Reglamento General de la Ley de Contratos de las Administraciones Públicas* (R.D. 1.098/2.001 de 12 de Octubre), la clasificación que debe ostentar el Contratista para llevar a cabo las obras que se definen en este proyecto, al tener éste un presupuesto mayor de 350.000 euros.

2. PROCEDIMIENTO

La categoría a exigir en cada grupo y subgrupo se determina según los artículos 25 a 36 del mencionado *Reglamento General de la Ley de Contratos de las Administraciones Públicas*. El procedimiento para determinar la clasificación exigible al contratista se establece en el artículo 36, que se cita íntegro a continuación:

1. En aquellas obras cuya naturaleza se corresponda con algunos de los tipos establecidos como subgrupo y no presenten singularidades diferentes a las normales y generales a su clase, se exigirá solamente la clasificación en el subgrupo genérico correspondiente.

2. Cuando en el caso anterior, las obras presenten singularidades no normales o generales a las de su clase y sí, en cambio, asimilables a tipos de obras correspondientes a otros subgrupos diferentes del principal, la exigencia de clasificación se extenderá también a estos subgrupos con las limitaciones siguientes:

a) El número de subgrupos exigibles, salvo casos excepcionales, no podrá ser superior a cuatro.

b) El importe de la obra parcial que por su singularidad dé lugar a la exigencia de clasificación en el subgrupo correspondiente deberá ser superior al 20 por 100 del precio total del contrato, salvo casos excepcionales.

3. Cuando en el conjunto de las obras se dé la circunstancia de que una parte de ellas tenga que ser realizada por casas especializadas, como es el caso de determinadas instalaciones, podrá establecerse en el pliego de cláusulas administrativas particulares la obligación al contratista, salvo que estuviera clasificado en la especialidad de que se trate, de subcontratar esta parte de la obra con otro u otros clasificados en el subgrupo o subgrupos correspondientes y no le será exigible al principal la clasificación en ellos. El importe de todas las obras sujetas a esta obligación de subcontratar no podrá exceder del 50 por 100 del precio del contrato.

4. Cuando las obras presenten partes fundamentalmente diferenciadas que cada una de ellas corresponda a tipos de obra de distinto subgrupo, será exigida la clasificación en todos ellos con la misma limitación señalada en el apartado 2, en cuanto a su número y con la posibilidad de proceder como se indica en el apartado 3.

5. La clasificación en un grupo solamente podrá ser exigida cuando por la naturaleza de la obra resulte necesario que el contratista se encuentre clasificado en todos los subgrupos básicos del mismo.

6. Cuando solamente se exija la clasificación en un grupo o subgrupo, la categoría exigible será la que corresponda a la anualidad media del contrato, obtenida dividiendo su precio total por el número de meses de su plazo de ejecución y multiplicando por 12 el cociente resultante.

7. En los casos en que sea exigida la clasificación en varios subgrupos se fijará la categoría en cada uno de ellos teniendo en cuenta los importes parciales y los plazos también parciales que correspondan a cada una de las partes de obra originaria de los diversos subgrupos.

8. En los casos en que se imponga la obligación de subcontratar a que se refiere el apartado 3, la categoría exigible al subcontratista será la que corresponda a la vista del importe de la obra a subcontratar y de su plazo parcial de ejecución.

3. GRUPOS Y SUBGRUPOS A CONSIDERAR

- **Grupo A. Movimiento de tierras y perforaciones**
  - o Subgrupo 1. Desmontes y vaciados.
  - o Subgrupo 2. Explanaciones.
  - o Subgrupo 3. Canteras.
  - o Subgrupo 4. Pozos y galerías.
  - o Subgrupo 5. Túneles.

-Grupo B. Puentes, viaductos y grandes estructuras
- o Subgrupo 1. De fábrica u hormigón en masa.
- o Subgrupo 2. De hormigón armado.
- o Subgrupo 3. De hormigón pretensado.
- o Subgrupo 4. Metálicos.

-**Grupo C. Edificaciones**
- o Subgrupo 1. Demoliciones.
- o Subgrupo 2. Estructuras de fábrica u hormigón.

o Subgrupo 3. Estructuras metálicas.
o Subgrupo 4. Albañilería, revocos y revestidos.
o Subgrupo 5. Cantería y marmolería.
o Subgrupo 6. Pavimentos, solados y alicatados.
o Subgrupo 7. Aislamientos e impermeabilizaciones.
o Subgrupo 8. Carpintería de madera.
o Subgrupo 9. Carpintería metálica.

- **Grupo D. Ferrocarriles**
o Subgrupo 1. Tendido de vías.
o Subgrupo 2. Elevados sobre carril o cable.
o Subgrupo 3. Señalizaciones y enclavamientos.
o Subgrupo 4. Electrificación de ferrocarriles.
o Subgrupo 5. Obras de ferrocarriles sin cualificación específica.

- **Grupo E. Hidráulicas**
o Subgrupo 1. Abastecimientos y saneamientos.
o Subgrupo 2. Presas.
o Subgrupo 3. Canales.
o Subgrupo 4. Acequias y desagües.
o Subgrupo 5. Defensas de márgenes y encauzamientos.
o Subgrupo 6. Conducciones con tubería de presión de gran diámetro.
o Subgrupo 7. Obras hidráulicas sin cualificación específica.

- **Grupo F. Marítimas**
o Subgrupo 1. Dragados.
o Subgrupo 2. Escolleras.
o Subgrupo 3. Con bloques de hormigón.
o Subgrupo 4. Con cajones de hormigón armado.
o Subgrupo 5. Con pilotes y tablestacas.
o Subgrupo 6. Faros, radiofaros y señalizaciones marítimas.
o Subgrupo 7. Obras marítimas sin cualificación específica.
o Subgrupo 8. Emisarios submarinos.

-**Grupo G. Viales y pistas**
o Subgrupo 1. Autopistas, autovías.
o Subgrupo 2. Pistas de aterrizaje.
o Subgrupo 3. Con firmes de hormigón hidráulico.
o Subgrupo 4. Con firmes de mezclas bituminosas.
o Subgrupo 5. Señalizaciones y balizamientos viales.
o Subgrupo 6. Obras viales sin cualificación específica.

- **Grupo H. Transportes de productos petrolíferos y gaseosos**
o Subgrupo 1. Oleoductos.
o Subgrupo 2. Gasoductos.

- **Grupo I. Instalaciones eléctricas**
o Subgrupo 1. Alumbrados, iluminaciones y balizamientos luminosos.
o Subgrupo 2. Centrales de producción de energía.
o Subgrupo 3. Líneas eléctricas de transporte.
o Subgrupo 4. Subestaciones.
o Subgrupo 5. Centros de transformación y distribución en alta tensión.
o Subgrupo 6. Distribución en baja tensión.
o Subgrupo 7. Telecomunicaciones e instalaciones radioeléctricas.
o Subgrupo 8. Instalaciones electrónicas.
o Subgrupo 9. Instalaciones eléctricas sin cualificación específica.

-**Grupo J. Instalaciones mecánicas**
o Subgrupo 1. Elevadoras o transportadoras.
o Subgrupo 2. De ventilación, calefacción y climatización.
o Subgrupo 3. Frigoríficas.
o Subgrupo 4. De fontanería y sanitarias.
o Subgrupo 5. Instalaciones mecánicas sin cualificación específica.

-**Grupo K. Especiales**
o Subgrupo 1. Cimentaciones especiales.
o Subgrupo 2. Sondeos, inyecciones y pilotajes.
o Subgrupo 3. Tablestacados.
o Subgrupo 4. Pinturas y metalizaciones.
o Subgrupo 5. Ornamentaciones y decoraciones.
o Subgrupo 6. Jardinería y plantaciones.
o Subgrupo 7. Restauración de bienes inmuebles histórico-artísticos.
o Subgrupo 8. Estaciones de tratamiento de aguas.
o Subgrupo 9. Instalaciones contra incendios.

Clasificación:

Dentro del presupuesto total, el porcentaje correspondiente a la estructura es de:

2.156.530,11 / 3.078.481,04 = 70%

Sería el grupo más relevante por lo que podría clasificarse la obra dentro de:

Grupo B. Puentes, viaductos y grandes estructuras

Habría que determinar el subgrupo. Considerando el tablero como estructura metálica y los arcos y el estribo como de hormigón se comprueba que:

Hormigón: (493.827,27 + 172.502,03) / 2.156.530,11 = 31%

Metálica: 1.456.921,21 / 2.156.530,11 = 67,6%

Por tanto se clasificaría la estructura como **Grupo B. Subgrupo 4. De estructura metálica**.

Presupuesto de Base de Licitación = 4.432.704,85

Tiempo de ejecución: 12 meses

Anualidad Media =4.432.704,85 x 12/12 = 4.432.704,85

Por tanto, al exceder de 2.400.000 €, se exige la **categoría *f* para el contratista.**

4. RESUMEN

El contratista se clasifica como:

Grupo B. Subgrupo 4. Categoría F.

ANEJO Nº14.-

SERVIVICIOS AFECTADOS

Contenido

1. *INTRODUCCION* 2

2. *SERVICIOS AFECTADOS* 2

3. *REPOSICIÓN DE SERVICIOS* 2

1. INTRODUCCION

A continuación, se numeran los servicios afectados por la construcción del puente. En el diseño de este proyecto se ha mantenido un intercambio continuo de información con las empresas y entidades afectadas, así como también se han planteado posibles soluciones a las afecciones que puedan surgir.

Dichas soluciones no son objeto de este proyecto y su grado de desarrollo es aún muy básico.

2. SERVICIOS AFECTADOS

Se han realizado reuniones de coordinación regulares entre el equipo de Proyecto, ETS (Euskal Trenbide Sarea), el Ayuntamiento de Bilbao, Typsa (como equipo redactor del Proyecto de Apertura del Canal) y la Comision Gestora de Zorrotzaurre.

Por medio de alguno de los miembros integrantes de estas reuniones, se ha establecido contacto con los siguientes organismos o empresas:

- Ur Agentzia / Agencia Vasca del Agua (URA)

- Servicios Municipales del Ayuntamiento de Bilbao.

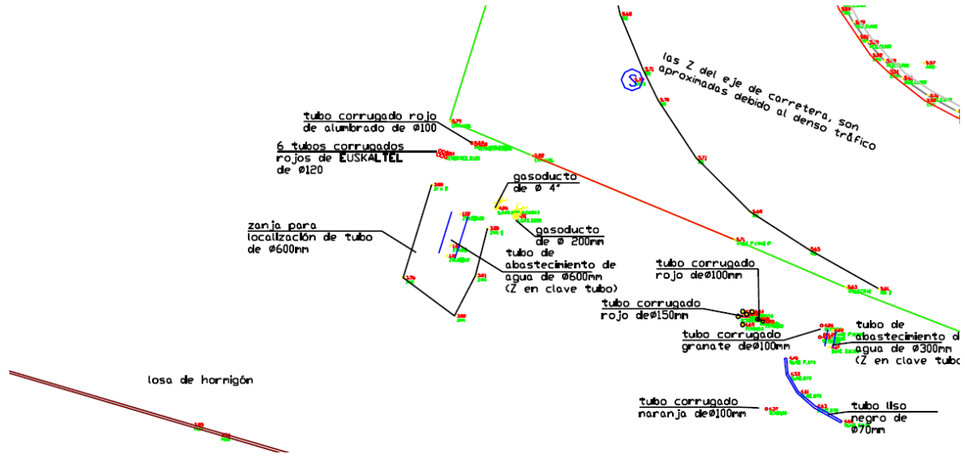
- Iberdrola

- Naturgás

- Telefónica

- Euskaltel

- Vodafone



Durante la realización de las obras, el Contratista estará obligado a mantener informados a cada uno de estos organismos y empresas de todas las actuaciones que les puedan afectar y a obtener los permisos pertinentes en caso necesario, observando las prescripciones que al respecto puedan indicarles.

Se ha obtenido información referente a los diferentes servicios existentes y que pueden verse afectados por la ejecución de las obras, así como las previsiones de estos organismos sobre futuras actuaciones.

3. REPOSICIÓN DE SERVICIOS

Por el tablero del nuevo Puente de acceso a la isla de Zorrotzaurre, por el interior de sus vigas longitudinales, se ha proyectado el cruce de varios servicios de interés público para dar servicio a la futura isla.

- Canalización Eléctrica de Iberdrola, 6x Ø160 mm (PVC corrugado rojo)

- Canalización de Euskaltel, 6x Ø125 mm (PVC corrugado rojo)

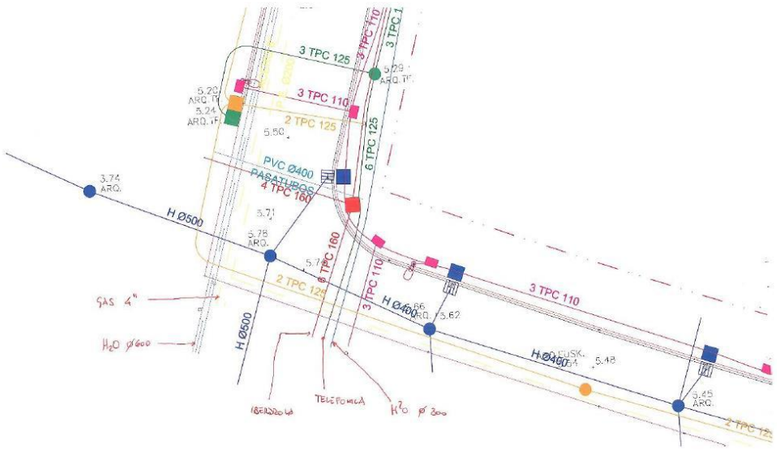
- Canalización de Telefónica, 6x Ø125 mm (PVC corrugado rojo)

- Canalización de Abastecimiento, Ø600-400 mm (Acero con revestimiento de PE)

- Canalización de Abastecimiento, Ø300 mm (Acero con revestimiento de PE)

- Canalización de Gas, Ø4” (Acero)

- Canalización de Gas, Ø200 mm (PEAD)



ANEJO Nº15.-

GESTIÓN DE RESIDUOS

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1. INTRODUCCION

El presente anejo tiene como objetivo el estudio de la gestión de residuos del proyecto del puente de Acceso a la Isla de Zorrotzaurre.

Los residuos de construcción y demolición de las obras (RCD) forman parte del cuerpo normativo del medio ambiente con cuatro administraciones competentes en esta materia: la Unión Europea (UE), el Estado español, las comunidades autónomas y los ayuntamientos.

Los residuos que se generan en las obras de construcción o demolición están regulados inicialmente por la ley 10/1998 de 21 de abril, de Residuos. También será de aplicación el Real Decreto 105/2008 en aquellos aspectos no contemplados en aquella legislación.

En función de la tipología de residuo, podrá ser de aplicación otra normativa específica como la relativa a envases y residuos de envases, residuos peligrosos, residuos de aparatos eléctricos y electrónicos, aceites usados, etc.

De acuerdo con el RD 105/2008 por el que se regula la gestión de los residuos de construcción y demolición, se presenta el siguiente Estudio de Gestión de Residuos de Construcción y Demolición, conforme a lo dispuesto en el art. 4, con el siguiente contenido:

- Identificación de los residuos (según OMAM/304/2002).

- Estimación de la cantidad que se generará (en Toneladas y m3).

- Identificación de suelos potencialmente peligrosos.

- Medidas para la prevención de residuos.

- Operaciones de reutilización.

- Medidas para la separación de residuos.

- Destino previsto para los residuos.

- Instalaciones para el almacenamiento, manejo u otras operaciones de gestión.

- Prescripciones del Pliego de Prescripciones Técnicas Particulares del proyecto.

- Valoración del coste previsto para la correcta gestión de los RCDs, que formará parte del presupuesto del proyecto.

2. PLAN DE GESTIÓN DE RESIDUOS

2.1. POSIBLES RESIDUOS A GENERAR

Se identifican dos categorías de Residuos de Construcción y Demolición (RCD), codificados con arreglo a la lista europea de residuos publicada por orden MAM/304/2002 de 8 de febrero o sus modificaciones exteriores.

- RCDs de Nivel I: Residuos generados por el desarrollo de las obras de infraestructura de ámbito localo supramunicipal contenidas en los diferentes planes de actuación urbanística o planes de desarrollo de carácter regional, siendo resultado de los excedentes de excavación de los movimientos de tierra generados en el transcurso de dichas obras. Se trata, por tanto, de las tierras y materiales pétreos, no contaminados, procedentes de la excavación.

- RCDs de Nivel II: Residuos generados principalmente en las actividades propias del sector de la construcción, de la demolición, de la reparación domiciliaria y de la implantación de servicios. Son residuos no peligrosos que no experimentan transformaciones físicas, químicas o biológicas significativas.

Los residuos inertes no solubles ni combustibles, ni reaccionan física ni químicamente ni de ninguna otra manera, ni son biodegradables, ni afectan negativamente a otras materias con las que entran en contacto de forma que puedan dar lugar a contaminación del medio ambiente o perjudicar a la salud humana. Se contemplan los residuos inertes procedentes de obras de construcción y demolición, incluidos los de obras menores de construcción y reparación domiciliaria sometidas a licencia municipal o no.

Los residuos generados serán recogidos a continuación en una lista basada en la Lista europea establecida en la Orden MAM/304/2002. No se considerarán incluidos en el cómputo general los materiales que no superen 1 m3 de aporte y no sean considerados peligrosos y requieran un tratamiento especial

2.2. ESTIMACIÓN DE LA CANTIDAD DE CADA TIPO DE RESIDUO

La estimación de la cantidad de cada tipo de residuo que se generará en obra se realizará en función de las categorías antes mencionadas, y se medirá en toneladas y metros cúbicos.

La estimación de los residuos de construcción y demolición del nivel II, en ausencia de datos más contrastados, se realiza en base a parámetros estimados por m2 de superficie de obra, con una densidad tipo entre 0,5 y 1,5 t/m3.

La proporción volumen de residuos/superficie es: 17,75%

En base a este criterio, la estimación total de residuos en obra es:

ESTIMACIÓN DE RESIDUOS EN OBRA	
SUPERFICIE CONSTRUIDA TOTAL	2500 m2
VOÑUMEN DE RESIDUOS	443.75 m3
DENSIDAD TIPO	1.1 t/m3
TONELADAS DE RESIDUOS	488.125 t
ESTIMACIÓN DE VOLUMEN DE TIERRAS	3200 m3

	PESO (%)	PESO (T)	DENSIDAD (T/m3)	VOLUMEN (m3)
A.1: RCDs Nivel I				
Tierras y pétreos de la excavación	-	480	1.5	3200

	PESO (%)	PESO (T)	DENSIDAD (T/m3)	VOLUMEN (m3)
A.2: RCDs Nivel II				
RCD: Naturaleza no pétrea				
1 Asfalto	21.5	107.5	1.3	82.69
2 Madera	2	10	0.6	16.67
3 Metales	25.5	127.5	1.5	85.00
4 Papel	1	5	0.9	5.56
5 Plástico	2	10	0.9	11.11
Total estimación de naturaleza no pétrea	**52**	**260**		**201.03**
RCD: Naturaleza pétrea				
1 Arena, grava y otros áridos	27.5	137.5	1.5	91.67
2 Hormigón	12.5	62.5	0.8	78.1327.5
Total estimación de naturaleza pétrea	**40**	**200**	-	**169.79**
RCD: Potencialmente peligrosos y otros				
1 Basuras	8	40	0.9	44.44
2 Potencialmente peligrosos y otros	0	0	1	0.00
Total estimación potencialmente peligrosos y otros	**8**	**40**		**44.44**

2.3. MEDIDAS DE SEPARACIÓN “IN SITU” PREVISTAS

En base al artículo 5.5 del Real Decreto 105/2008, los residuos de construcción y demolición deberán separarse en fracciones cuando, de forma individualizada para cada una de dichas fracciones, la cantidad prevista de generación para el total de la obra supere las siguientes cantidades:

- Hormigón: 80.0 toneladas

- Ladrillos, tejas y cerámicos: 40.0 toneladas

- Metales: 2.0 toneladas

- Madera: 1.0 tonelada

- Vidrio: 1.0 tonelada

- Plásticos: 0.5 toneladas

- Papel y cartón: 0.5 toneladas

Vidrios, plásticos, papel y cartón, serán llevados al punto de recogida selectiva de Bilbao, ya que la generación, a lo largo del tiempo de ejecución de la obra así lo permite, pues no llega a los 2 m3 al mes de residuos de cada tipo generados.

Las demoliciones de firme que habrá que acometer en el entronque con el nuevo trazado proyectado implicará disponer de camiones de carga para evacuar inmediatamente los residuos generados.

No se considera necesario un plano para la segregación de los residuos y su almacenamiento. Por su homogeneidad y su inmediata retirada de obra. Además, en opinión de los redactores del Proyecto, corresponderá al Contratista presentar la ubicación de los puntos de selección de residuos, adecuándolos con las casetas e instalaciones de obra necesarias. Aun así, se recomienda un emplazamiento sobre la plataforma de trabajo en la península de Zorrotzaurre lo más alejado posible del cauce del canal y lo más cercano posible al camino provisional de acceso a las obras.

Finalmente, y desde el punto de vista de valoración de la gestión de los residuos, cabe decir que en el Documento nº 4, Presupuesto, se establece la cantidad correspondiente al 0,2% del presupuesto de obra, mínimo establecido en la Orden 2690/2006, considerándose además como medida cautelar, la mitad del volumen como residuo homogéneo y la otra como heterogéneo.

2.4. MEIDAS DE SEGREGACIÓN “IN SITU” PREVISTAS

En base al artículo 5.5 del Real Decreto 105/2008, los residuos de construcción y demolición deberán separarse en fracciones cuando, de forma individualizada para cada una de dichas fracciones, la cantidad prevista de generación para el total de la obra supere las siguientes cantidades:

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- Vidrio: 1.0 tonelada

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2.5. PREVISIÓN DE OPERACIONES DE REUTILIZACIÓN

Se podrán reutilizar:

-Las tierras procedentes de excavación cuya reutilización se llevará a cabo en la propia obra

-Los residuos minerales o pétreos en áridos reciclados o en urbanización que lo realizará un agente externo

-Los materiales metálicos cuya reutilización será llevada a cabo por un agente externo

2.6. PREVISIÓN DE DESTINO PARA LOS RESIDUOS

RCD: Naturaleza no pétrea	Tratamiento	Destino
Mezclas Bituminosas distintas a las del código 17 03 01	Reciclado	Planta de Reciclaje RCD
Madera	Reciclado	Gestor autorizado RNPs
Metales: cobre, bronce, latón, hierro, acero,..., mezclados o sin mezclar	Reciclado	Gestor autorizado Residuos No Peligrosos
Papel , plástico, vidrio	Reciclado	Gestor autorizado RNPs
Yeso		Gestor autorizado RNPs
RCD: Naturaleza pétrea		
Residuos pétreos trituradas distintos del código 01 04 07		Planta de Reciclaje RCD
Residuos de arena, arcilla, hormigón,...	Reciclado	Planta de Reciclaje RCD
RCDs mezclados distintos de los códigos 17 09 01, 02 y 03	Reciclado	Planta de Reciclaje RCD
RCD: Potencialmente peligrosos y otros		
Mezcla de materiales con sustancias peligrosas ó contaminados	Depósito Seguridad	Gestor autorizado de Residuos Peligrosos (RPs)
Materiales de aislamiento que contienen Amianto	Depósito Seguridad	
Residuos de construcción y demolición que contienen Mercurio	Depósito Seguridad	Gestor autorizado RPs
Residuos de construcción y demolición que contienen PCB´s	Depósito Seguridad	
Otros residuos de construcción y demolición que contienen SP´s	Depósito Seguridad	
Materiales de aislamiento distintos de los 17 06 01 y 17 06 03	Reciclado	Gestor autorizado RNPs

Se recomienda llevar los residuos no peligros al vertedero de RCDs de la Orconera en Ortuella (Vizcaya) situado a 21,4 km de la situación del proyecto en cuestión

EUSKO JAURLARITZA GOBIERNO VASCO
INGURUMEN ETA LURRALDE ANTOLAMENDU SAILA
Ingurumen Sailordetza
Ingurumenaren Kalitatearen Zuzendaritza
DEPARTAMENTO DE MEDIO AMBIENTE Y ORDENACIÓN DEL TERRITORIO
Viceconsejería de Medio Ambiente
Dirección de Calidad Ambiental

LISTADO DE VERTEDEROS AUTORIZADOS PARA RECIBIR RESIDUOS NO PELIGROSOS:

UBICACIÓN	EMPRESA	RAZÓN SOCIAL	TELÉFONO	FAX	RESPONSABLE
Lurpe (Mutiloa)	Cespa Conten	Henao, 20 48009 Bilbao	943 16 17 09	943 16 17 09	Roberto Manterola
Araso, Alto de Gaintxurizketa (Irún-Oiartzun)	Vascontainer, S.A.	Camino Portuetxe, 18- Bajo 20008 Donostia	943 31 66 77	943 32 64 65	Juan Etxeberria
Aizmendi Camino Basozabal (Donostia)	Manc. San Marcos	Vitoria-Gasteiz, 10 20018 Donostia	943 21 49 77	943 21 89 83	Elena Egurrola
Epele (Bergara)	Manc. Alto Deba	Arrasate-Pasealekua, 5 bajo 20500 Arrasate	943 79 33 99	943 77 08 54	Germán Berecibar
Orconera (Ortuella)	Garbiker, A.B. (S.A.)	Gran Vía, 44-1º Izda 48011 Bilbao	94 403 40 91	94 403 40 85	Miguel Angel Gómez
Las Lagunas (Zalla)	Cespa Conten	Henao, 20 48009 Bilbao	94 480 58 70	94 443 78 89	Roberto Manterola

Nota: Estos vertederos pueden recibir todo tipo de residuos inertes, tanto residuos industriales inertes como residuos de construcción inertes.No se incluyen en este listado aquellos vertederos que **sólo** pueden recibir residuos de construcción inertes (que están listados en la Hoja 1), tampoco se incluyen aquellos vertederos que **sólo** reciben residuos generados por la empresa propietaria.

Los residuos que contiene **amianto aglomerado** son residuos peligrosos. No obstante, de acuerdo con la *Decisión del Consejo de 19 de diciembre de 2002, por la que se establecen los criterios y procedimientos de admisión de residuos en los vertederos con arreglo al artículo 16 y al anexo II de la Directiva 1999/31/CE*, estos residuos pueden depositarse en vertederos para residuos no peligrosos que cumplan determinados requisitos. En este sentido, los vertederos listados en esta hoja ubicados en Larrabetzu, Mutiloa e Irun-Oiartzun, así como el vertedero de Bisitibieta en Lemoa (ver hoja 3) están autorizados para recibir dichos residuos. Debiendo ponerse en contacto con los mismos para conocer las condiciones de aceptación de dichos residuos. La retirada de residuos que contienen amianto debe seguir un plan de trabajo autorizado por Osalan ya que dicha operación supone un riesgo para la salud de los trabajadores que la realizan. Consúltese en: http://www.osalan.net y el *Registro de empresas con riesgo de amianto* en http://www.juslan.ej-gv.net. Para obtener más información al respecto diríjanse a las direcciones de los centro territoriales de Osalan en http://www.juslan.ej-gv.net/o53/visualizador/o53vispagina.jsp?cod=6013&lenguaje=1&por=12.

2.7. PRESCRIPCIONES PARA LA CORRECTA GESTION DE LOS RESIDUOS DE LA CONSTRUCCIÓN Y LA DEMOLICIÓN (RCD)

2.7.1. CON CARÁCTER GENERAL

Prescripciones a incluir en el Pliego de Prescripciones Técnicas del proyecto, en relación con el almacenamiento, manejo y, en su caso, otras operaciones de gestión de los residuos de construcción y demolición en obra.

Gestión de residuos de construcción y demolición:

Gestión de residuos según RD 105/2008, realizándose su identificación con arreglo a la Lista Europea de Residuos publicada por Orden MAM/304/2002 de 8 de febrero o sus modificaciones posteriores.

La segregación, tratamiento y gestión de residuos se realizará mediante el tratamiento correspondiente por parte de empresas homologadas mediante contenedores o sacos industriales que cumplirán las especificaciones del RD 105/2008 de 1 de febrero, por el que se regula la producción y gestión de los residuos de construcción y demolición.

Certificación de los medios empleados:

Es obligación del contratista proporcionar a la Dirección Facultativa de la obra y a la Propiedad los certificados de los contenedores empleados, así como de los puntos de vertido final, ambos emitidos por entidades autorizadas y homologadas por la Comunidad de Cantabria.

Limpieza de las obras:

Es obligación del Contratista mantener limpias las obras y sus alrededores tanto de escombros como de materiales sobrantes, retirar las instalaciones provisionales que no sean necesarias, así como ejecutar todos los trabajos y adoptar las medidas que sean apropiadas para que la obra presente buen aspecto.

2.7.2. CON CARÁCTER PARTICULAR

A continuación, se incluyen las prescripciones a incluir en el Pliego de Prescripciones Técnicas del proyecto. Se marcan con una x las que tienen aplicación en el presente proyecto.

X	El depósito temporal de los escombros, se realizará bien en sacos industriales iguales o inferiores a 1m³, contadores metálicos específicos con la ubicación y condicionado que establezcan las ordenanzas municipales. Dicho depósito en acopios, también deberá estar en lugares debidamente señalizados y segregados del resto de residuos
X	El depósito temporal para RCDs valorizables (maderas, plásticos, metales, chatarra…) que se realice en contenedores o acopios, se deberá señalizar y segregar del resto de residuos de un modo adecuado.
X	Los contenedores deberán estar pintados en colores que destaquen su visibilidad, especialmente durante la noche, y contar con una banda de material reflectante de al menos 15cm a lo largo de todo su perímetro. En los mismos deberá figurar la siguiente información: Razón social, CIF, teléfono del titular del contenedor / envase y el número de inscripción en el registro de transportistas de residuos, creado en el art. 43 de la Ley 5/2003 de 20 de marzo de Residuos de la CAM. Esta información también deberá quedar reflejada en los sacos industriales y otros medios de contención y almacenaje de residuos.
X	El responsable de la obra a la que presta servicio el contenedor adoptará las medidas necesarias para evitar el depósito de residuos ajenos a la mismo. Los contadores permanecerán cerrados, o cubiertos al menos, fuera del horario de trabajo, para evitar el depósito de residuos ajenos a la obra depósito de residuos
X	En el equipo de obra deberán establecerse los medios humanos, técnicos y procedimientos para la separación d cada tipo de RCD.
X	Se atenderán los criterios municipales establecidos (ordenanzas, condiciones de licencia de obras…), especialmente si obligan a la separación en origen de determinadas materias objeto de reciclaje o deposición. En este último caso se deberá asegurar por parte del contratista realizar una evaluación económica de las condiciones en las que es viable esta operación, tanto por las posibilidades reales de ejecutarla como por disponer de plantas de reciclaje o gestores de RCDs adecuados. La Dirección de Obra será la responsable de tomar la última decisión y de su justificación ante las autoridades locales o autonómicas pertinentes.
X	Se deberá asegurar en la contratación de la gestión de los RCDs que el destino final (planta de reciclaje, vertedero, cantera, incineradora…) son centros con la autorización autonómica de la Consejería de Medio Ambiente, así mismo se deberá contratar sólo transportistas o gestores autorizados por dicha Consejería e inscritos en el registro pertinente. Se llevará a cabo un control documental en el que quedarán reflejados los avales de retirada y entrega final de cada transporte de residuos

X	La gestión tanto documental como operativa de los residuos peligrosos que se hallen en una obra de derribo o de nueva planta se regirán conforme a la legislación nacional y Autonómica vigente y a los requisitos de las ordenanzas municipales. Asimismo los residuos de carácter urbano generados en las obras (restos de comidas, envases…) serán gestionados acorde con los preceptos marcados por la legislación y autoridad municipal correspondiente.
X	Para el caso de los residuos con amianto se seguirán los pasos marcados por la Orden MAM/304/2002 de 8 de febrero por la que se publican las operaciones de valorización y eliminación de residuos y la lista europea de residuos para poder considerarlos como peligroso o no peligrosos. En cualquier caso siempre se cumplirán los preceptos dictados por el RD 108/1991 de 1 de febrero sobre la prevención y reducción de la contaminación del medio ambiente producida por el amianto, así como la legislación laboral al respecto.
X	Los restos de lavado de canaletas/cubas de hormigón serán tratadas como escombros.
X	Se evitará en todo momento la contaminación con productos tóxicos o peligrosos de los plásticos y restos de madera para su adecuada segregación, así como la contaminación de los acopios o contenedores de escombros con componentes peligrosos
X	Las tierras superficiales que pueden tener un uso posterior para jardinería o recuperación de los suelos degradados será retirada y almacenada durante el menor tiempo posible en cabellones de altura no superior a 2 metros. Se evitará la humedad excesiva, la manipulación y la contaminación con otros materiales.
	Otros (indicar)

2.8. IDENTIFICACIÓN DE SUELOS POTENCIALMENTE CONTAMINADOS

El Real Decreto 9/2005, de 14 de enero, establece la relación de actividades potencialmente contaminantes del suelo y los criterios y estándares para la declaración de suelos contaminados.

De acuerdo con este Decreto, son actividades e instalaciones potencialmente contaminantes de suelos aquellas que produzcan, manejen o almacenen sustancias peligrosas o almacenen combustible por encima de determinados umbrales.

En el presente proyecto no se localizan suelos potencialmente peligrosos.

ANEJO Nº16.-

CÁLCULO DE ESTRUCTURAS

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1. INTRODUCCION

El objetivo de este anejo es la descripción y justificación completa de los modelos de cálculo desarrollados para este proyecto, así como la comprobación frente a los estados límite de todos los elementos estructurales del puente.

Para la elaboración de este documento se ha empleado la siguiente normativa:

- IAP 11, Instrucción sobre Acciones a considerar sobre Puentes de carretera del Ministerio de Fomento. Todo lo referente a las cargas y sus combinaciones de cara a la comprobación de los estados limite se han obtenido de esta norma.

- RPX-95, Recomendaciones para el Proyecto de puentes Mixtos para carretera del Ministerio de Fomento. Todo lo relaciones con el trabajo conjunto de los elementos metálicos y los de hormigón, así como fenómenos propios de las estructuras mixtas, han sido analizados según los artículos de estas recomendaciones.

- EAE 2011, Instrucción de Acero Estructural del Ministerio de Fomento. Lo referente a las comprobaciones de las secciones metálicas, sus uniones y los estados limites que las caracterizan se han llevado a cabo según el criterio de esta normativa.

- EHE-08, Instrucción de Hormigón Estructural, del Ministerio de Fomento. Los armados y comprobaciones de las secciones de los elementos de hormigón frente a los estados limites propios de este material, se ha llevado a cabo según lo establecido en este documento.

1.1. DESCRIPCIÓN

Para el diseño de la estructura de se han tenido en cuenta una serie de requisitos que han sido los que, verdaderamente, han decantado la balanza del lado de la solución adoptada.

El primer condicionante fue de tipo hidráulico, la posible cota de la lámina de agua extrema, próxima a la rasante del puente, obligaba a optar por tipologías estructurales que desarrollasen el fenómeno resistente por encima del tablero.

Evitar las pilas en el cauce de la ría fue otro de los objetivos. Los 75m del puente no es lo que podría considerarse una gran luz, la pretensión de prescindir de los apoyos intermedios y desvincular así la estructura, casi por completo, del devenir de las aguas de la ría era algo técnicamente al alcance de la mano sin necesidad de aumentar en exceso el precio de la obra.

El gran ancho requerido dada la necesidad de disponer de cuatro carriles para el tráfico de vehículos hacia que el comportamiento transversal del puente jugara un papel tanto o más importante que el longitudinal.

El terreno sobre el que se emplaza la obra presenta unas capacidades resistentes más bien discretas. La estructura debía gestionar las cargas contando lo menos posible con la colaboración del terreno.

Por último, es necesario tener en cuenta en papel clave que jugara la estructura en el futuro desarrollo urbano de la ciudad en la isla de Zorrotzaurre. El planeamiento urbanístico desarrollado por el estudio de la arquitecta iraní Zaha Hadid obligaba a que la obra cumpliese con unos requisitos estéticos que exigían de un cuidadoso detalle en el diseño de todos los elementos del puente.

La tipología estructural que se ha adoptado es un arco tipo bow-string, en la que los empujes horizontales no son absorbidos por la cimentación, sino que son soportados por el tablero, el cual actúa como tirante delegando en el terreno únicamente la responsabilidad de las cargas verticales.

La estructura se compone de dos arcos paralelos de hormigón, de 75m de luz y una flecha máxima de 12m lo que deja una relación flecha/luz de 1/6,25 que asegura el buen comportamiento de la estructura como antifunicular de las cargas permanentes. Dos vigas longitudinales, de sección cajón unen los extremos de cada arco, actuando como tirantes, a la vez que ejercen de interface entre estos y las vigas transversales, que forman el tablero de 16m de ancho, transmitiendo a los arcos las cargas del tablero a través de las péndolas. Las aceras se sustentan mediante vigas voladizo doble T de sección variable.

1.1.1. TABLERO

El tablero de 75m de largo lo forman dos vigas cajón dispuestas longitudinalmente. El canto de estas vigas es de 1,5m, su anchura es de 1,2m y los espesores de las chapas son de 20mm. Estas vigas presentan una curvatura idéntica a la del trazado de la rasante en alzado.

Las vigas transversales doble T de 1,2 m de canto y 0,5m de ancho de ala y espesores de 20mm en alas y 15 mm en alma.

Las aceras de 5 m de ancho cada una son sustentadas por unas vigas voladizo metálicas en doble T de sección variable

1.1.2. ARCO

El arco presenta una sección algo compleja con rehundidos que tienen una función estética. Al ser el arco de hormigón esta peculiaridad no presenta una gran dificultas constructiva. La longitud desarrollada de arco es de 80.65m

FOTO

Las péndolas, 16 en total presentan una separación constante de 4.4m exceptuando las péndolas próximas a los apoyos 3,26 m

2. PROCESO CONSTRUCTIVO

El proceso constructivo será el siguiente

Se excavarán los pilotes de las cimentaciones en cada extremo del puente simultáneamente.

Sobre Castilletes provisionales se ubicarán las piezas metálicas del tablero.

Sobre una cimbra se encofrará hormigonará y ferrallará el arco.

Sobre una cimbra cuajada se encofrará hormigonará y ferrallará la losa de 25 cm de hormigón que una vez fraguada habrá de trabajar como sección mixta conjuntamente a las vigas transversales.

La construcción de la losa dará un plazo razonable al arco para ganar resistencia. Fraguada la losa se conectará las péndolas al arco y tras tesarlas esta quedará despegada del encofrado y podrá retirarse la cimbra.

El tesado será simétrico y desde el centro de luz hacia los estribos. Y se realizarán simultáneamente en ambos arcos.

Como puede verse el proceso constructivo no introducirá situaciones de mayor exigencia estructural que las que se encontrará el puente en servicio, por esto las etapas de construcción no se han simulado ni calculado en este anejo.

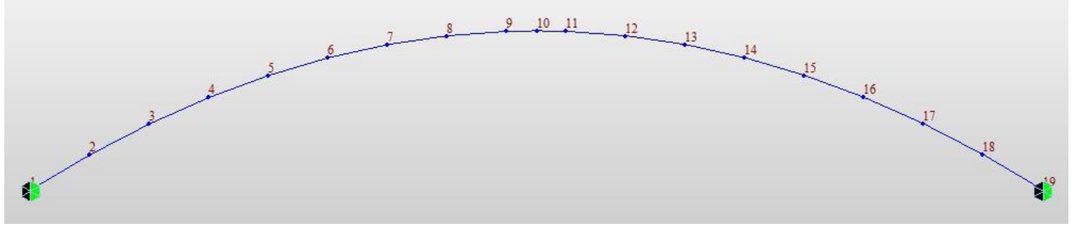
2.1. CONTRAFLECHA DEL ARCO

Como es de esperar con la entrada en carga del arco este irá adquiriendo una cierta flecha. El problema que esto presenta además de estético es que si no se tienen en cuenta estas deformaciones verticales a la hora de tesar las péndolas el arco se “hundirá” y el cable no entrará en carga, dificultando el descimbrado y variando el trazado en alzado de la rasante.

Se ha realizado un pequeño modelo del arco para obtener las contraflechas necesarias bajo las acciones de las cargas de peso propio de la estructura.

	Node	Load	DX (m)	DY (m)	DZ (m)	RX ([rad])	RY ([rad])	RZ ([rad])
▶	1	total	0.000000	0.000000	0.000000	0.000000	0.005113	0.000000
	2	total	0.010072	0.000000	-0.021077	0.000000	0.003774	0.000000
	3	total	0.014816	0.000000	-0.034419	0.000000	0.001834	0.000000
	4	total	0.014899	0.000000	-0.039045	0.000000	-0.000015	0.000000
	5	total	0.012082	0.000000	-0.036328	0.000000	-0.001377	0.000000
	6	total	0.008194	0.000000	-0.028908	0.000000	-0.002070	0.000000
	7	total	0.004572	0.000000	-0.019826	0.000000	-0.002083	0.000000
	8	total	0.001849	0.000000	-0.011882	0.000000	-0.001529	0.000000
	9	total	-0.000012	0.000000	-0.007171	0.000000	-0.000611	0.000000
	10	total	-0.000776	0.000000	-0.006657	0.000000	0.000137	0.000000
	11	total	-0.001546	0.000000	-0.007767	0.000000	0.000879	0.000000
	12	total	-0.003492	0.000000	-0.013621	0.000000	0.001776	0.000000
	13	total	-0.006363	0.000000	-0.022568	0.000000	0.002287	0.000000
	14	total	-0.010152	0.000000	-0.032411	0.000000	0.002207	0.000000
	15	total	-0.014164	0.000000	-0.040249	0.000000	0.001425	0.000000
	16	total	-0.016969	0.000000	-0.042935	0.000000	-0.000051	0.000000
	17	total	-0.016623	0.000000	-0.037716	0.000000	-0.002041	0.000000
	18	total	-0.011221	0.000000	-0.023098	0.000000	-0.004150	0.000000
	19	total	0.000000	0.000000	0.000000	0.000000	-0.005589	0.000000

La columna que hay que fijarse en la DZ donde se muestran las flechas verticales totales. Los nodos 1 y 19 corresponde con los arranques y 9, 10 y 11 con la zona d la clave.

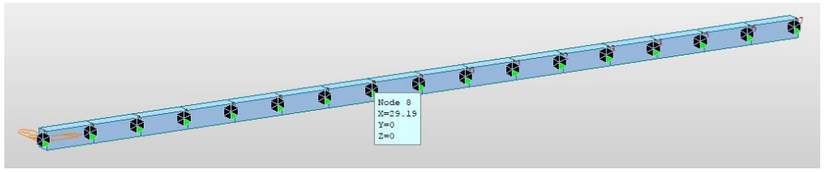


La fluencia es otro factor a tener en cuenta será la fluencia. Este efecto no se ha tenido en cuenta puesto que las hipótesis de carga han sido lo suficientemente pesimistas como para estar del lado de la seguridad en ese sentido.

2.2. TESADO DE PENDOLAS

Para poder descimbrar la losa de hormigón, el peso de la estructura deberá recaer sobre el arco y dejar ya libres los castilletes sobre los que se apoya hasta ese momento la estructura metálica y la losa ya fraguada. Esta transmisión de cargas se llevará a cabo mediante el tesado de las péndolas.

Como modelo aproximado de la carga a introducir en cada péndola se ha realizado un modelo simple de la viga cajón longitudinal apoyada sobre los castilletes rígidos y que soportando su peso propio, el del resto de la estructura metálica y el peso de la losa.



Node	Load	FX (kN)	FY (kN)	FZ (kN)	MX (kN*m)	MY (kN*m)	MZ (kN*m)
1	total	0.000000	0.000000	93.957919	0.000000	0.000000	0.000000
2	total	0.000000	0.000000	252.309408	0.000000	0.000000	0.000000
3	total	0.000000	0.000000	227.573695	0.000000	0.000000	0.000000
4	total	0.000000	0.000000	229.784365	0.000000	0.000000	0.000000
5	total	0.000000	0.000000	229.586794	0.000000	0.000000	0.000000
6	total	0.000000	0.000000	229.604451	0.000000	0.000000	0.000000
7	total	0.000000	0.000000	229.602872	0.000000	0.000000	0.000000
8	total	0.000000	0.000000	229.603019	0.000000	0.000000	0.000000
9	total	0.000000	0.000000	229.602940	0.000000	0.000000	0.000000
10	total	0.000000	0.000000	229.603686	0.000000	0.000000	0.000000
11	total	0.000000	0.000000	229.595352	0.000000	0.000000	0.000000
12	total	0.000000	0.000000	229.688601	0.000000	0.000000	0.000000
13	total	0.000000	0.000000	228.645214	0.000000	0.000000	0.000000
14	total	0.000000	0.000000	240.319928	0.000000	0.000000	0.000000
15	total	0.000000	0.000000	120.101323	0.000000	0.000000	0.000000
16	total	0.000000	0.000000	145.862034	0.000000	0.000000	0.000000
17	total	0.000000	0.000000	102.758535	0.000000	0.000000	0.000000

Los nodos 1 y 17 representan los extremos de la viga mientras que 8,9 y 10 corresponden con la zona de la clave.

3. MATERIALES DE LA ESTRUCTURA

Hormigón del arco HA-50

Hormigón de la losa HA-35

Acero de estructural S-355-J2

Acero de armaduras B-500-S

Péndolas : Acero de alta resistencia Fu= 3020 KN

4. MODELOS DE CÁLCULO

4.1. PRORAMACIÓN EMPLEADA

A parte de un pequeño modelo calculado a mano, el resto del análisis estructural se ha realizado mediante el uso de diversos programas informáticos

El programa principal ha sido MIDAS CIVIL. Con él el se han desarrollado la totalidad de los modelos empleados.

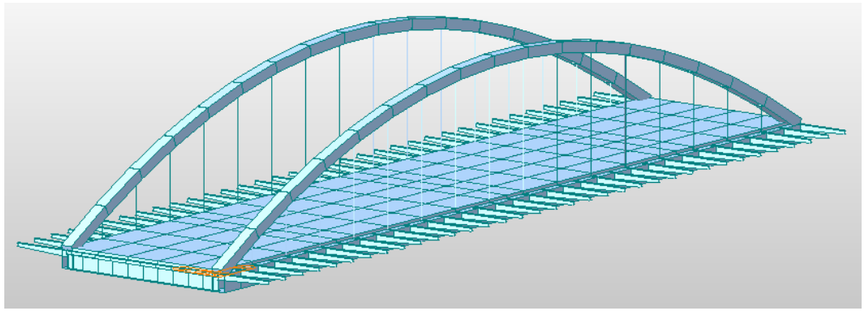
Las hojas de cálculo de Excel han servido para el predimensionamiento de la estructura, así como el análisis de los datos obtenidos del modelo principal de MIDAS obteniéndose por ejemplo los esfuerzos resultantes de las combinaciones propuestas por la norma, así como cierta asistencia a la hora de la verificación de los estados límite de servicio.

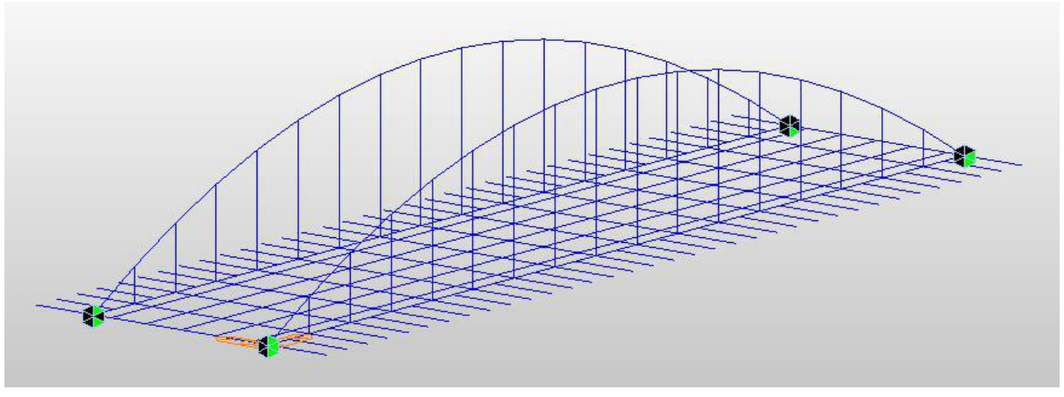
El Prontuario informático de estructuras metálicas y Mixtas de APTA ha servido para la comprobación de las secciones metálicas y mixtas tanto en servicio como estados últimos.

El prontuario informático del Hormigón ha servido para determinar las cuantías de la armadura y su comprobación.

4.2. COMPOSICIÓN DEL MODELO DIGITAL

Se ha realizado un único modelo de cálculo digital con el programa MIDAS CIVIL. En este modelo se ha introducido las cargas establecidas en la IAP-11 y se han tenido en cuenta las consideraciones geométricas establecidas por la RPX-95



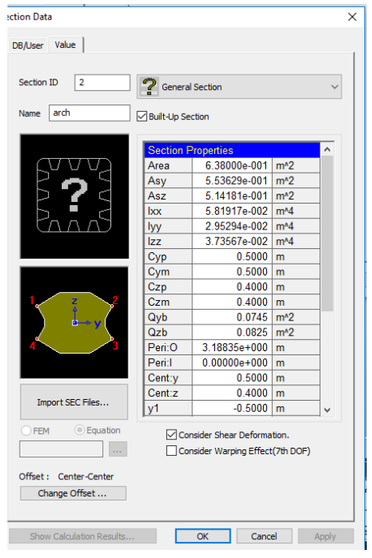


En modelo es un modelo de barras. El arco es biarticulado y el tablero se ha modelizado mediante un emparrillado plano.

4.2.1. SECCIONES EMPLEADAS Y SU JUSTIFICACIÓN

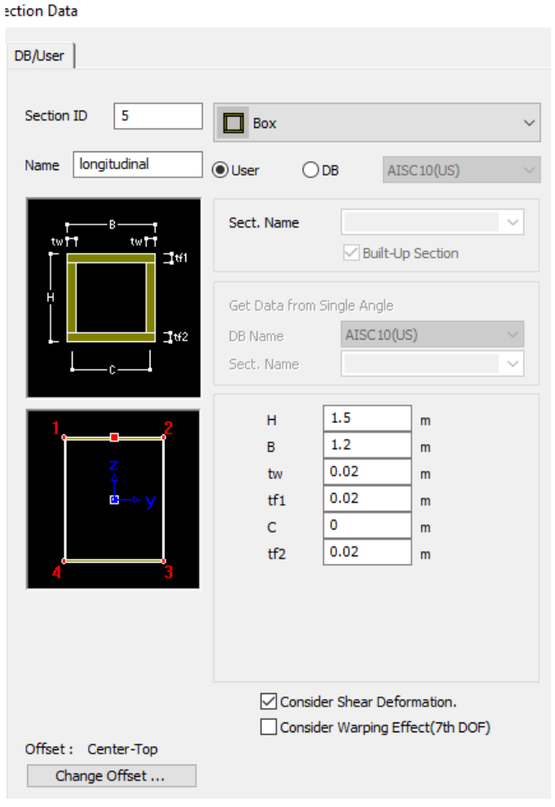
A continuación, se presentan las secciones que componen el modelo y la forma en que se han obtenido.

4.2.1.1. SECCIÓN DE ARCO



4.2.1.2. SECCIÓN CAJÓN LONGITUDINAL

Este elemento actuará de tirante para el arco



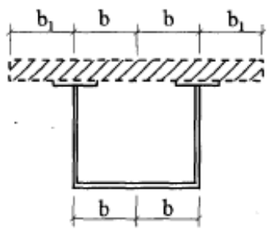
4.2.1.3. VIGAS MIXTAS TRANSVERSALES

La vigas transversales actuarán como una estructura mixta dada el comportamiento conjunto del perfil metálico y las losa superior de hormigón.

Se ha llevado primeramente una reducción del ancho de la parte de hormigón por efecto de arrastre por cortante y posteriormente se ha procedido a la hogeneización de la sección

	A	B	C	D	E	F	G
1							
2							
3	E acero (KN/m2)	210000000			2.1E+08		
4	E hormigon (KN/m2)	37277000			37277000		
5	Relación Es/Ec	5.6335005			5.633501		
6	long tablero	75					
7	Anchura calzada	16.2					
8	long volado	5.6					
9	espesor losa	0.25					
10	N0 Pendolas	17					
11	Distancia entre pendolas	4.4117647					
12	b	2.2058824		b/L	1/(20)		
13	Lψ2	11.2		0.196953782	0.05		
14	Lψ1	11.34		0.194522253	0.05		
15	ψ1	0.8050434					
16	ψ2	0.4456749					
17							
18	Ancho centro Luz	3.5516622					
19	ancho empotramiento	1.9662128		Durante	4.05	0.81	esto es un carril virtual
20							
21	Homogeneizado						
22	Ancho centro luz	0.6304539			0.489738		
23	ancho empotramiento	0.3490215					
24							
25							

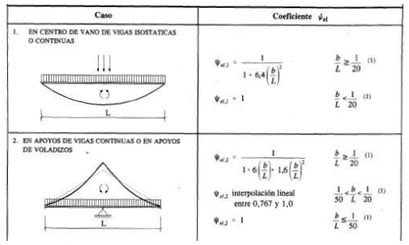
La reducción por cortante se ha llevado a cabo siguiendo las formulación de la RPX-95



El valor de la anchura eficaz elástica será (figura 4.5.1.a):

$$b_e = \psi_{el}\, b$$
$$b_{1e} = \psi_{el}\, b_1$$

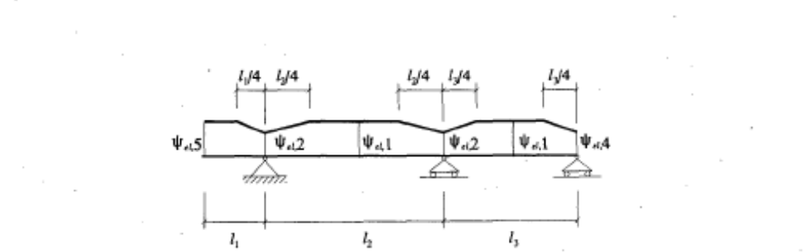
siendo los valores de ψ_{el} los especificados en la tabla 4.5, y la distribución de anchuras eficaces a lo largo de la viga, la representada en la figura 4.5.1.c). Para L se toma la distancia entre puntos de momento

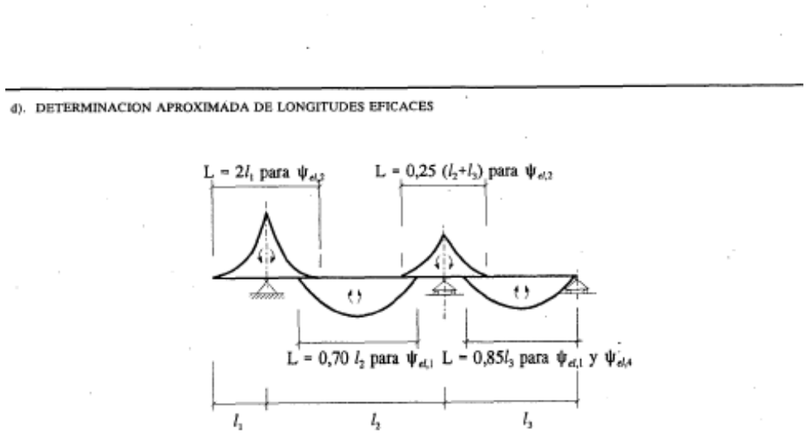


Tendremos dos anchos diferentes de la parte de hormigón a lo largo de la viga.

Mas ancha en la zona de centro luz y más estrecha en la zona del encuentro con la viga longitudinal.

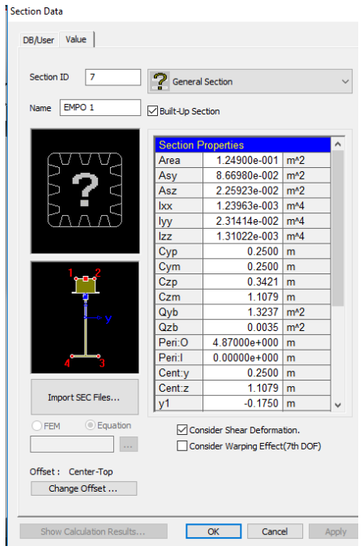
La transición se llevará a cabo según lo indicado en la gráfica siguiente



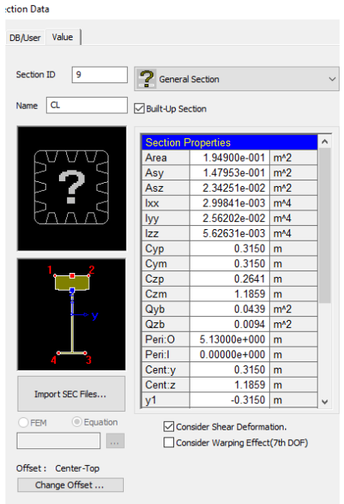


La tabla anterior representa la hoja Excel con la que se calcularon estos anchos eficaces. Finalmente las secciones a introducir en el modelo serán las siguientes.

Para la zona de encuentro entre la viga transversal y la longitudinal será



Para la zona de centro de luz emplearemos la siguiente sección



Se han empleado además unas secciones para representar la rigidez transversal de la losa de hormigón pero que a penas han tenido importancia en el calculo al comparar los resultados con un modelo que no las contenia.

5. CARGAS

5.1. CARGAS PERMANENTES

En cuanto a los pesos propios de los elementos estructurales el modelo calculará automáticamente sus valores

Para los pesos de barandillas impostas y barreras se ha introducido una carga lineal de 5KN/m

Para el peso del pavimento se ha introducido una carga de 3100 KN a repartir entre los elementos del emparrillado.

5.2. ACCIONES VARIABLES

5.2.1 SOBRECARGA DE USO

Se comienza dividiendo la plataforma en carriles virtuales según lo establecido en la IAP-11. El ancho de la plataforma se va a considerar de 15m, aunque en el proyecto real esta sea de 14m al existir una zona en los arcenes ocupado por la base de la barrera de protección por la cual los vehículos no pueden circular. Según la tabla 4.1-a para de plataforma mayores de 6m cada carril virtual tendrá un ancho de 3m. La parte que la plataforma que no quede incluida en ningún carril virtual será considera como área remanente. En este proyecto tendremos 5 carriles (n=15/3=5) virtuales sin área remanente.

TABLA 4.1-a **DEFINICIÓN DE LOS CARRILES VIRTUALES**

ANCHURA DE LA PLATAFORMA (w)	NÚMERO DE CARRILES VIRTUALES (n_l)	ANCHURA DEL CARRIL VIRTUAL (w_l)	ANCHURA DEL ÁREA REMANENTE
$w < 5{,}4$ m	$n_l = 1$	3 m	$w - 3$ m
$5{,}4\ \text{m} \le w < 6$ m	$n_l = 2$	$\frac{w}{2}$	0
$w \ge 6$ m	$n_l = ent\left(\frac{w}{3}\right)$	3 m	$w - 3n_l$

5.2.1.1 CARGAS VERTICALES

Debidas al tráfico de vehículos, se considerará simultáneamente:

- Uno o más vehículos pesados, dependiendo del número de carriles virtuales constituidos según lo establecido en la tabla 4.1-b. En cada carril habrá como máximo un único vehículo pesado.

- Una sobre carga uniforme de valor q_{ik} según la tabla 4.1-b y extendida a todo el largo y ancho del carril.

TABLA 4.1-b **VALOR CARACTERÍSTICO DE LA SOBRECARGA DE USO**

SITUACIÓN	VEHÍCULO PESADO $2Q_{ik}$ [kN]	SOBRECARGA UNIFORME q_{ik} (ó q_{rk}) [kN/m²]
Carril virtual 1	2 · 300	9,0
Carril virtual 2	2 · 200	2,5
Carril virtual 3	2 · 100	2,5
Otros carriles virtuales	0	2,5
Área remanente (q_{rk})	0	2,5

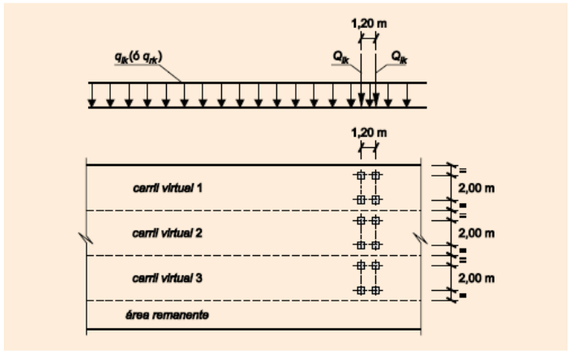


FIGURA 4.1-b DISTRIBUCIÓN DE VEHÍCULOS PESADOS Y SOBRECARGA UNIFORME

En modelo de cálculo computacional se introducirán las cargas puntuales que representan los vehículos pesados en tres secciones consideradas como críticas: centro de luz, 1/6 y un 5/6. Esta decisión viene determinada porque son las cargas asimétricas las que más afectan a una estructura cuya forma responde principalmente a la resistencia de cargas uniformemente distribuidas a lo largo de toda luz.

En el carril 1 la fuerza distribuida se introducirá en el modelo de cálculo como una carga transversal, uniformemente distribuida que concentre la carga de los 3 m longitudinales de área tributaria de cada viga transversal.

Así tendremos una carga de

$$9\frac{KN}{m^2} * 3m\ area\ tributaria = 27\frac{KN}{m\ tranversal\ de\ carril}$$

En carril 2 y sucesivos la carga a introducir será de

$$2{,}5\frac{KN}{m^2} * 3m\ de\ area\ tributaria = 7{,}5\frac{KN}{m\ tranversal\ de\ carril}$$

5.2.1.2 CARGAS EN ZONAS DE USO PEATONAL

Se considerará en las aceras una carga uniformemente distribuida de valor 5KN/m^2 en las zonas más desfavorables para en caso de estudio.

$$\frac{5KN}{m^2} * 3m\ de\ area\ tributaria = 15\frac{KN}{m}\ tranversal\ de\ voladizo$$

5.2.1.3 FUERZAS HORIZONTALES. FRENADO Y ARRANQUE

Dara lugar a una fuerza horizontal uniformemente distribuida en dirección longitudinal y se supondrá aplicada a nivel del pavimento, su valor característico (previo a la aplicación de cualquier factor corrector) será igual a una fracción de la carga aplicada en el carril virtual 1.

$$Q_{ik} = 0.6 * 2Q_{1k} + 0{,}1 * q_{1k} * w_1 * L$$

Para el caso de carril virtual de 3m de ancho, la expresión a emplear es:

$$Q_{lk} = 360 + 2.7\ L$$

$$Q_{ik} = 360 + 2.7 * 75 = 562.5\ KN$$

Este valor cumple con la limitación de la norma $180\ KN\ \leq Q_{ik} \leq 900\ KN$

Siendo Q_{1k} y q_{1k} las cargas verticales puntuales y repartidas del carril 1 respectivamente, w1 la anchura del carril 1 y L la distancia total del puente al no existir juntas intermedias.

$$Q_{ik} = 0{,}6 * 2 * 300 + 0{,}1 * 9 * 3 * 75 = 562{,}5\ KN$$

El valor como carga distribuida será

$$q_{ik} = \frac{562.5\ KN}{75m\ longitudinales\ de\ puente} = 7{,}5\frac{KN}{m} de\ puente$$

Como cada viga tiene un área de tributaria de 3 m en el modelo se introduce

$$h_{ik} = 7{,}5 * 3 = 22{,}5\ KN\ en\ cada\ viga\ y\ por\ carril$$

Se considerará que todos los carriles tienen el mismo sentido de circulación.

No serán tenidas en cuenta acciones horizontales transversales debidas al cambio de dirección de los vehículos o a las fuerzas de frenado en curva al tratarse en este caso de un puente con trazado en planta rectilíneo.

5.2.1.4 GRUPOS DE CARGAS DE TRÁFICO

La concomitancia de las cargas anteriores, así como su valor de combinación, se determinará según los grupos establecidos en la tabla 4.1-c. Cada uno de los grupos son excluyentes entre sí para el caso de combinaciones con el resto de acciones.

TABLA 4.1-c GRUPOS DE CARGAS DE TRÁFICO. CONCOMITANCIA DE LAS DIFERENTES COMPONENTES DE LA SOBRECARGA DE USO

	PLATAFORMA					ACERAS
	CARGAS VERTICALES			FUERZAS HORIZONTALES		CARGAS VERTICALES
GRUPOS DE CARGAS[1]	VEHÍCULOS PESADOS	SOBRECARGA UNIFORME	AGLOMERACIÓN DE PERSONAS	FRENADO Y ARRANQUE	FUERZA CENTRÍFUGA Y TRANSVERSAL	
gr 1 (Cargas verticales)	Valor característico *(apartado 4.1.2.1)*	Valor característico *(apartado 4.1.2.1)*	–	–	–	Valor reducido: 2,5 kN/m²
gr 2 (Fuerzas horizontales)	Valor reducido[2]: $\psi_1 Q_k$	Valor reducido[2]: $\psi_1 q_k$	–	Valor característico *(apartado 4.1.3.1)*	Valor característico *(apartado 4.1.3.2)*	–
gr 3 (Peatones)	–	–	–	–	–	Valor característico *(apartado 4.1.2.2)*
gr 4 (Aglomeraciones)	–	–	Valor característico *(apartado 4.1.2.2)*	–	–	Valor característico *(apartado 4.1.2.2)*

(1) La denominación de los grupos de cargas hace referencia a la componente dominante del grupo
(2) Se define como valor reducido el que corresponde al valor frecuente que figura en la *tabla 6.1-a*, es decir:
$\psi_1 = 0{,}75$ para los vehículos pesados
$\psi_1 = 0{,}40$ para la sobrecarga uniforme

5.2.1.5 TREN DE CARGAS

Para la comprobación de estado limite ultimo de fatiga.

Se considerarán las acciones variables repetidas producidas por el tráfico que se prevé que actúen a lo largo de la vida útil del puente, que será de 100años. La carga a considerar será de 4 ejes con 120 KN cada uno y con una geometría y disposición como la que se indican en la figura 4.1-d. Solo se considerará la actuación de un tren como el definido y actuará en el carril 1.

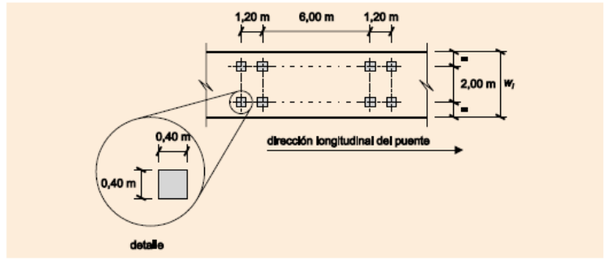


FIGURA 4.1-d TREN DE CARGAS PARA LA COMPROBACIÓN DEL ESTADO LÍMITE DE FATIGA

El modelo definido incluye un coeficiente de impacto correspondiente a una superficie de rodadura de buena calidad (según ISO 8608). Para aquellos elementos estructurales ubicados a más de 6 m de una junta de calzada deberá tomarse un factor de amplificación dinámico de 1,3 para su comprobación.

5.2.1.6 SOBRECARGAS DE USO DE TERRAPLENES ADYACENTES A LA ESTRUCTURA

En el diseño de los estribos se tendrá en cuenta, actuando en la parte superior del terraplén, una sobrecarga uniforme de 10 KN/m^2 tal como establece el método simplificado.

5.2.1.7 EMPUJES SOBRE BARANDILLA

Las fuerzas transmitidas por la barandilla al tablero dependerán de la *clase de carga* de la barandilla proyectada, según la EN 1317-6. En puentes y pasarelas, se adoptará una *clase de carga* tal que la fuerza horizontal perpendicular al elemento superior de la barandilla sea como mínimo 1,5 kN/m.

5.3 VIENTO

Puesto que no es necesario considerar efectos aeroelásticos, según lo establecido en el artículo 4.2.9 de la IAP-11, la acción del viento podrá asemejarse a una carga estática equivalente.

5.3.1.1 VELOCIDAD BÁSICA DEL VEINTO

La *velocidad básica fundamental* del viento $V_{b,0}$es la velocidad media a lo largo de un periodo de 10 minutos, con un periodo de retorno *T* de 50 años, medida con independencia de la dirección del viento y de la época del año en una zona plana y desprotegida frente al viento, a una altura de 10 m sobre el suelo.

A partir de la *velocidad básica fundamental* del viento $V_{b,0}$ se obtendrá la *velocidad básica* V_b mediante la expresión:

$$V_b = C_{dir} * C_{season} * V_{b,0}$$

Los factores direccional C_{dir} y estacional C_{season} se consideras iguales a 1

El valor de la velocidad básica fundamental $V_{b,0}$ se obtiene de la figura 4.2-a. Para el caso de Bilbao corresponde con un valor de 29m/s al pertenecer a la zona C.

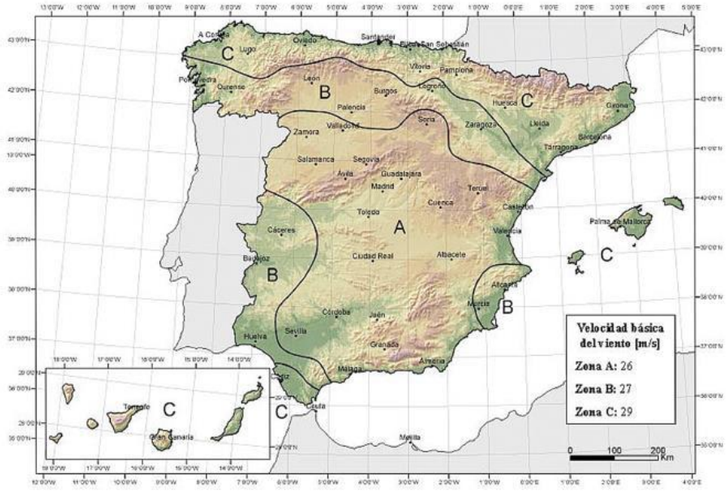


FIGURA 4.2-a MAPA DE ISOTACAS PARA LA OBTENCIÓN DE LA VELOCIDAD BÁSICA FUNDAMENTAL DEL VIENTO $v_{b,0}$
(Coincide con el mapa correspondiente del Código Técnico de la Edificación)

Como el periodo de retorno para este proyecto es de 100 en lugar de 50, habrá que aplicar un factor de probabilidad c_{prob}, que a falta de estudios específicos para situaciones persistentes se tomará un valor de 1,04.

$$V_b(100) = 29 * 1{,}04 = 30{,}16\ m/s$$

5.3.1.2 VELOCIDAD MEDIA DEL VIENTO

Se determinará según la expresión siguiente:

$$V_m(Z) = C_r(Z) * C_o * V_b(T)$$

Como valor de $V_b(T)$ tomaremos el ya calculado $V_b(100)$, el factor de topografía, C_o, se toma igual 1 y el valor del factor de rugosidad se obtiene considerando la ubicación del puente como tipo IV, zona urbana con al menos un 15% de superficie edificada y la altura media de dicha edificación excede los 15m y los datos de la tabla 4.2-b.

TABLA 4.2-b COEFICIENTES k_r, z_0, Y z_{min} SEGÚN EL TIPO DE ENTORNO

TIPO DE ENTORNO	k_r	z_0 [m]	z_{min} [m]
0	0,156	0,003	1
I	0,170	0,01	1
II	0,190	0,05	2
III	0,216	0,30	5
IV	0,235	1,00	10

Como la altura del punto de aplicación del empuje del viento respecto al nivel mínimo del agua bajo el puente es menor que la z_{min} establecida en la tabla, el valor de c_r será

$$c_z(z) = C_r(z_{min})$$

$$c_r(z) = k_r * \ln\frac{z}{z_0}$$

$$c_r(10) = 0{,}235 * \ln\frac{10}{1} = 0{,}5411$$

Recapitulando, el valor de la velocidad media queda como sigue

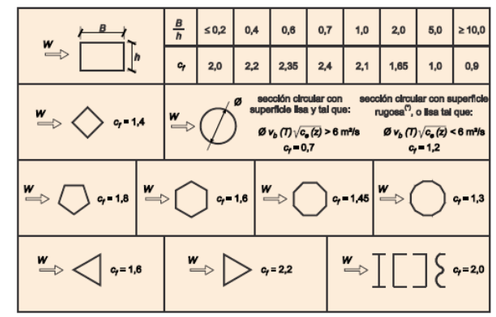
$$V_m(10) = 0{,}5411 * 1 * 30{,}16 = 16{,}32\ m/s$$

5.3.1.3 EMPUJE DEL VIENTO

Se calculará por separado para cada uno de los elementos del puente. La expresión a emplear para calcular ese empuje será:

$$F_w = \left[\frac{1}{2}\rho V_b^2(T)\right] C_e(z) * C_f * A_{ref}$$

El primer factor de la expresión representa la presión de la velocidad básica del viento, en donde ρ representa la densidad del aire que se tomara igual a 1,25 kg/m^3. C_f es el coeficiente de fuerza, su valor se obtiene de la tabla 4.2-b y será diferente en cada elemento estructural al depender de su geometría.



*) Se tomará siempre superficie rugosa excepto si la rugosidad superficial equivalente resulta menor de $\phi \cdot 10^{-6}$ m

FIGURA 4.2-b **COEFICIENTE DE FUERZA c_f PARA LAS SECCIONES MÁS HABITUALES**

$C_e(z)$ es el coeficiente de exposición, en función de la altura z y se calcula como

$$C_e(Z) = C_e(Z_{min}) \qquad para\ z < z_{min}$$

$$C_e(Z) = k_r^2\left[c_0^2\ ln^2\left(\frac{Z}{z_0}\right) + 7\ k_I\ c_0\ ln\left(\frac{Z}{z_0}\right)\right]$$

$$C_e(10) = 0{,}235^2\left[1^2 * ln^2\left(\frac{10}{1}\right) + 7 * 1 * 1 * ln\left(\frac{10}{1}\right)\right]$$

$$C_e(10) = 1{,}1829$$

Finalmente A_{ref} representa, en el cálculo del empuje, el área sobre la que actúa y se obtiene como la proyección del área expuesta al viento sobre el plano perpendicular a la dirección de este. Este factor también será propio de cada elemento estructural.

5.3.1.4 EFECTO DEL VEINTO EN ELEMENTOS ESTRUCTURALES

ARCO

Consideraremos el viento transversal. Su valor será de:

Coeficiente de forma C_f lo obtenemos por interpolación de los valores de la tabla, con una relación B/h en su sección transversal de 0,8/1=0,8 el valor dE

$$C_{fx}=2{,}3.$$

Area de referencia A_{ref} toma el siguiente valor

$$A_{ref} = Canto\ del\ arco * Longitud\ de\ la\ directriz\ del\ arco$$

$$A_{ref} = 0{,}8 * 79{,}1 = 63{,}28\ m^2$$

El empuje queda:

$$F_{arch,x} = 568{,}516 * 1{,}1829 * 2{,}3 * 63{,}28 = 97878\ N$$

En el modelo informático la carga repartida a lo largo de toda la directriz del arco será igual a

$$\frac{97878}{79{,}1} = 1{,}237\ KN/m$$

TABLERO

Considerando el viento transversal las formulas a emplear serán las especificadas en la IAP para tableros de alma llena.

El coeficiente de fuerza se obtiene como:

$$C_{f,x} = 2{,}5 - 0{,}3\ (B/h_{eq})$$

B es la anchura total del tablero

h_{eq} es la altura equivalente que será igual al elemento de mayor canto del tablero y que en caso de considerarse sobrecargas de uso tendrá un valor de

$$h_{eq} = 1{,}5 + 2 = 3{,}5\ m$$

En caso de existir sobrecargas de uso

El valor de $C_{f,x}$ será

$$C_{f,x} = 2{,}5 - 0{,}3\left(\frac{28}{3.5}\right) = 0{,}1$$

Por las limitaciones de la norma con respecto a $C_{f,x}$

$$1{,}3 \leq C_{f,x} \leq 2{,}4$$

Tomaremos como valor de $C_{f,x}$ 1,3

$$A_{ref,z} = 75 * 3{,}5 = 262.5\ m^2$$

$$F_{w,x} = \left[\frac{1}{2}\rho * v_b^2(T)\right] * C_e(Z) * C_{f,x} * A_{ref,x}$$

$$F_{w,x} = 568{,}516 * 1.1829 * 1.3 * 262.5 = 229489{,}798\ N$$

En midas la carga a introducir será de

$$\frac{229489{,}798}{75} = 3059.86\ \frac{N}{m} = 3.06\ {}^{KN}/_{m}$$

En caso de no considerarse sobrecargas de uso

h_{eq}= 1,5m

$C_{f,x}$= 2,5 - 0,3 x (28/1,5) = -3,1

Tomaremos una vez más un valor comprendido dentro del rango establecido por la norma es decir

$C_{f,x}$= 1,3.

El área de referencia será:

$A_{ref,x}$= 75 · 1,5 = 112,5 m2

El empuje horizontal será:

$F_{w,x}$= 568,516 · 1,1829 · 1,3 · 112,5 = 98352,77 N

En el modelo de cálculo la carga a introducir será:

98352,77/75 = **1,312 kN/m**

5.3.1.5 EMPUJE VERTICAL

$$F_{w,z} = \left[\frac{1}{2}\rho * v_b^2(T)\right] * C_e(Z) * C_{f,z} * A_{ref,z}$$

Como novedad aparece el coeficiente $C_{f,z}$ en la dirección z que se toma igual a $\pm 0{,}9$

$A_{ref,z}$ es el área de referencia que según el eje z es de

$$A_{ref,z} = 28 * 75 = 2100\ m^2$$

$$F_{w,z} = 568{,}516 * 1.1829 * 0.9 * 2100 = 1271020{,}419\ N$$

La carga a introducir en el modelo como empuje vertical será de

$$1271020.419 \frac{N}{tablero} * \frac{1\ tablero}{20\ vigas} * \frac{1\ KN}{1000N} = \pm 63.55\ {}^{KN}/_{viga}$$

5.3.1.6 MOMENTO DE VUELCO SOBRE EL TABLERO

De cara a la cuantificación del momento producido por el viento transversal y el vertical se hacen las siguientes suposiciones:

- La altura de aplicación del viento transversal se hará a un 60% de la altura del primer frente tenido en cuenta en el cálculo del área de referencia, incluyéndose la altura que corresponde a la sobrecarga de uso.

$$H_{aplicación,Sobrecarga} = 0.6 * h_{eq} = 0.6 * 3.5 = 2.1m$$

$$H_{aplicación,\sin S} = 0.6 * h_{eq} = 0.6 * 1.5 = 0{,}9m$$

- El empuje vertical se aplicará a una distancia de un cuarto de la anchura del tablero respecto al borde de barlovento.

$$d_{aplicación} = \frac{28}{4} = 7m$$

La carga de viento se aplicará a 2m del borde de la plataforma.

5.3.1.7 VIENTO LONGITUNIDAL

El empuje longitudinal del puente será una fracción del empuje transversal multiplicado por un factor reductor.

La fracción del empuje transversal será de un 25%.

El coeficiente reductor

$$1 - \left[\frac{7}{C_o \ln\left(\frac{z}{z_0}\right) + 7}\right] \phi[L/L(z)]$$

C_o factor topográfico de valor 1

L es la longitud total del puente en este caso 75m

L(z) longitud integral de la turbulencia definida por:

$$L(z) = \begin{cases} 300(Z_{min}/200)^{\alpha} & \text{para } z < z_{min} \\ 300(z/200)^{\alpha} & \text{para } z_{min} \le z \le 200 \\ 300 & \text{para } z > 200 \end{cases}$$

Z es el la cota de aplicación del empuje con respecto al terreno o la lámina de agua.En este caso como Z es menor que z_{min} tomaremos como expresión de L(z)

$$L(z) = 300\ (10/200)^{0.67} = 40.31\ m$$

El valor del exponente α se ha obtenido de tabla 4.2-d

TABLA 4.2-d COEFICIENTE α SEGÚN EL TIPO DE ENTORNO

TIPO DE ENTORNO	α
0	0,38
I	0,44
II	0,52
III	0,61
IV	0,67

La función $\phi[L/L(z)]$ tiene la siguiente expresión

$$\phi[L/L(z)] = 0{,}230 + 0{,}182\ \ln[L/L(z)]$$

$$\phi[L/L(z)] = 0{,}230 + 0{,}182 * \ln[75/40{,}31] = 0.343$$

El coeficiente reductor queda definitivamente como

$$1 - \left[\frac{7}{1 * \ln\left(\frac{5}{1}\right) + 7}\right] * 0.343 = 0.72$$

El empuje longitudinal será de

$$F_{w,y} = 0{,}25 * 0.72 * F_{w,x} = 41308{,}16\ N$$

Y en el modelo se introducirán como una carga uniformemente repartida longitudinalmente entre las dos vigas principales de valor

$$41308{,}16 * \frac{0.5}{75} = 275{,}38\frac{N}{m} = 0.275\ KN/m$$

Si tomamos como valor de $F_{w,x}$ el obtenido al no considerar sobrecargas, el empuje de viento longitudinal queda como

$$F_{w,y} = 0{,}25 * 0.72 * F_{w,x} = 17703.5\ N$$

Que en el modelo de cálculo se introducirán como

$$17703.5 * \frac{0.5}{75} = 118\frac{N}{m} = 0.118\ KN/m$$

5.4 ACCIÓN TÉRMICA

De cara a la acción térmica este proyecto se encuadra dentro del Tipo 2 establecido por la IAP-11, al tratarse de un puente mixto acero-hormigón trabajando de forma solidaria.

5.4.1.1 COMPONENTE UNIFORME DE TEMPERATURA DEL TABLERO

TEMPERATURA MÁXIMA Y MÍNIMA DEL AIRE

La T_{max} dependerá del clima y de la altitud del emplazamiento del proyecto. El periodo de retorno se toma de 50 años. Tomaremos los valores indicados en la tabla 4.3-a. A Bilbao le corresponde una T_{max} de 44-46°C.

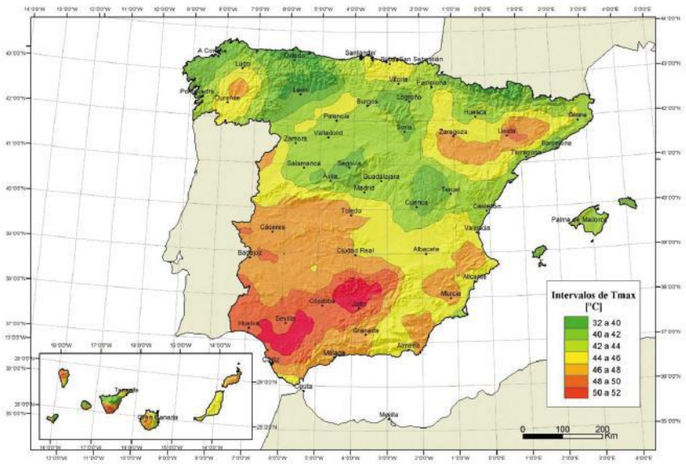


FIGURA 4.3-a ISOTERMAS DE LA TEMPERATURA MÁXIMA ANUAL DEL AIRE, T_{max} [°C]
(Coincide con el mapa correspondiente del Código Técnico de la Edificación)

Como valor característico de la T_{min} se tomará un periodo de retorno de 50 años y su valor se obtendrá de la tabla 4.3-a en función de la altitud del emplazamiento y la zona climática invernal que se deduce del mapa de figura 4.3-b

TABLA 4.3-a TEMPERATURA MÍNIMA ANUAL DEL AIRE, T_{min} [°C]
(Coincide con la tabla correspondiente del Código Técnico de la Edificación)

ALTITUD [m]	ZONA DE CLIMA INVERNAL (SEGÚN FIGURA 4.3-b)						
	1	2	3	4	5	6	7
0	-7	-11	-11	-6	-5	-6	6
200	-10	-13	-12	-8	-8	-8	5
400	-12	-15	-14	-10	-11	-9	3
600	-15	-16	-15	-12	-14	-11	2
800	-18	-18	-17	-14	-17	-13	0
1000	-20	-20	-19	-16	-20	-14	-2
1200	-23	-21	-20	-18	-23	-16	-3
1400	-26	-23	-22	-20	-26	-17	-5
1600	-28	-25	-23	-22	-29	-19	-7
1800	-31	-26	-25	-24	-32	-21	-8
2000	-33	-28	-27	-26	-35	-22	-10



FIGURA 4.3-b ZONAS CLIMÁTICAS DE INVIERNO
(Coincide con el mapa correspondiente del Código Técnico de la Edificación)

TABLA 4.3-b VALORES DE $\Delta T_{e,min}$ Y $\Delta T_{e,max}$ PARA EL CÁLCULO DE LA COMPONENTE UNIFORME DE TEMPERATURA

TIPO DE TABLERO	$\Delta T_{e,min}$ [°C]	$\Delta T_{e,max}$ [°C]
Tipo 1: Tablero de acero	-3	+16
Tipo 2: Tablero mixto	+4	+4
Tipo 3: Tablero de hormigón	+8	+2

Bilbao se encuentra en zona invernal 1 y altitud prácticamente a nivel del mar así que la Tmin es de -7°C

Como el periodo d retorno de las situaciones persistentes es de 100 años deberemos adaptar los valores obtenidos.

$$T_{max,p} = T_{max}\{K_1 - K_2 \ln[-\ln(1-p)]\}$$

$$T_{min,p} = T_{min}\{K_3 - K_4 \ln[-\ln(1-p)]\}$$

Siendo p el inverso del periodo de retorno, que para el caso de 100 años su valor es de 0,01 y los valores de los coeficientes k1=0,781; k2=0,056; k3=0,393; y k4=-0,156.

$$T_{max,0,01} = 46 * \{0,781 - 0,056 * \ln[-\ln(1-0,01)]\} = 47,77°C$$

$$T_{min,0,01} = -7 * \{0,393 - 0,156 * \ln[-\ln(1-0,01)]\} = -7,77°C$$

COMPONENTE UNIFORME DE LA TEMPERATURA

Temperatura media de la sección transversal.

$$T_{e,min} = T_{min} + \Delta T_{e,min}$$

$$T_{e,max} = T_{max} + \Delta T_{e,max} + \Delta T_{e,min}$$

$T_{max}\ y\ T_{min}$ son los valores antes calculado para un periodo de retorno de 100 años. Los valores de $\Delta T_{e,min}\ \ y\ \ \Delta T_{e,max}$ se obtienen de la tabla 4.3-b.

En el caso de tablero mixto los valores serán +4°C y +4°C respectivamente. Así la temperatura media máxima y mínima queda

$$T_{e,min} = -7,77 + 4 = -3,77°C$$

$$T_{e,max} = 47,77 + 4 = 51,77°C$$

Para determinar los efectos de la componente uniforme se tomarán los valores del coeficiente de dilatación indicados en la tabla 4.3-c que para el caso de estructuras mixtas es de $\alpha_T = 10x10^{-6}$ ºC^{-1}

TABLA 4.3-c VALORES DEL COEFICIENTE DE DILATACIÓN TÉRMICA LINEAL α_T (x10^{-6} ºC^{-1})

MATERIAL	α_T (x10^{-6} ºC^{-1})
Acero inoxidable	16
Acero estructural, hierro dulce o fundición(1)	12
Hormigón(2)	10

(1) En estructuras mixtas, el coeficiente de dilatación lineal del acero estructural puede tomarse igual al del hormigón: α_T =10x10^{-6} ºC^{-1}
(2) En el caso de hormigón con áridos ligeros: α_T =7x10^{-6} ºC^{-1}

Rango de la componente uniforme de temperatura

$$\Delta T_N = T_{e,max} - T_{e,min}$$

$$\Delta T_N = 51{,}77 - (-3{,}77) = 55.54℃$$

Para determinar los rangos de temperatura con los que calcular la dilatación y contracción máxima del tablero se emplean las siguientes formulas donde T_0 representa la temperatura media del tablero en el momento en que se coacciona su movimiento y que a falta de más información se tomara igual a 15℃

$$\Delta T_{N,con} = T_0 - T_{e,min}$$

$$\Delta T_{N,con} = 15 - (-3.77) = 18{,}77℃$$

$$\Delta T_{N,exp} = T_{e,max} - T_o$$

$$\Delta T_{N,exp} = 51{,}77 - 15 = 37{,}77℃$$

En el dimensionamiento de los aparatos de apoyo y juntas de dilatación se tomará como máxima variación de contracción y de retracción un valor de 15℃.

COMPONENTE DE DIFERENCIA DE TEMPERATURA

Diferencia vertical

En puentes mixtos se considerará una diferencia de temperatura en las secciones parciales de acero y hormigón. Por normal general durante el día el acero presentara mayor temperatura que el hormigón y por la noche presentara menor temperatura que este. En situaciones de calentamiento la sección de acero tendrá un incremento de $\Delta T_{M,heat} = +18℃$ con respecto al hormigón. En condiciones de enfriamiento $\Delta T_{M,cool} = -10℃$. Con estos valores se establecerá una diferencia vertical de temperatura de tipo lineal.

Diferencia horizontal

No se tendrá en cuenta en el cálculo ya que los grandes voladizos de suponen las aceras peatonales ejercen de sombrilla no dando lugar a diferencias de temperatura que deban ser tenidas en cuenta.

Simultaneidad de la componente uniforme y de la diferencia de temperatura.

En caso de que se tenga que considerar una posible actuación simultanea de la variación de la componente uniforme y la diferencia de temperatura, estas se combinaran de la siguiente forma

$$\Delta T_M + \omega_N \Delta T_N$$

$$\omega_M \Delta T_M + \Delta T_N$$

Con $\omega_N = 0{,}35$ y $\omega_M = 0{,}75$

Estas expresiones darás lugar a 8 posibles concomitancias de las que habrán de escogerse la más desfavorables para el elemento de estudio.

5.4.1.2 DIFERENCIA DE TEMPERATURA UNIFORME ENTRE ELEMENTOS ESTRUCTURALES

Estas diferencias de temperatura pueden tener efectos adversos y se considerarán simultáneamente con los producidos por la variación de la componente uniforme de temperatura de todos los elementos.

DIFERENCIA EN PUENTES CON TIRANTES

Se tomará para el cálculo de la diferencia la temperatura media de las péndolas y la del hormigón del tablero

-Diferencia positiva: $T_{tirantes} - T_{resto\ del\ puente} = +20℃$

-Diferencia negativa: $T_{tirantes} - T_{resto\ del\ puente} = -10℃$

De esta forma obtenemos como resultado

$$T_{e,max,pendolas} = 51{,}77 + 20 = 71{,}77℃$$

$$T_{e,min,pendolas} = -3{,}77 - 10 = -13.77℃$$

DIFERENCIA EN PUENTES CON ARCOS

Se establece que la diferencia de temperatura será de 15°C calculado la temperatura del arco como un tablero de hormigón según la tabla 4.3-b.

$$\Delta T_{e,min} + 8℃ \quad y \quad \Delta T_{e,max} + 2℃$$

$$T_{e,min,arco} = -7{,}77 + 8 = 1{,}77℃$$

$$T_{e,max,arco} = 47{,}77 + 2 = 49{,}77℃$$

Recordamos que

$$|T_{arco} - T_{tablero}| \geq 15℃$$

$$T_{e,min,arco} = 15 + 3{,}77 = -18{,}77℃$$

$$T_{e,max,arco} = 51.77 + 15 = 66{,}77℃$$

5.4.2 NIEVE

Se toman los datos de la Tabla 4.4-b que establece los valores característicos de las sobrecargas por nieve en un terreno horizontal en las capitales de provincia.

TABLA 4.4-b SOBRECARGA DE NIEVE SOBRE UN TERRENO HORIZONTAL EN LAS CAPITALES DE PROVINCIA Y CIUDADES AUTÓNOMAS
(Coincide con la tabla correspondiente del Código Técnico de la Edificación)

CAPITAL	ALTITUD [m]	s_k [kN/m²]	CAPITAL	ALTITUD [m]	s_k [kN/m²]	CAPITAL	ALTITUD [m]	s_k [kN/m²]
Albacete	690	0,6	Guadalajara	680	0,6	Pontevedra	0	0,3
Alicante	0	0,2	Huelva	0	0,2	Salamanca	780	0,5
Almería	0	0,2	Huesca	470	0,7	San Sebastián	0	0,3
Ávila	1130	1,0	Jaén	570	0,4	Santander	0	0,3
Badajoz	180	0,2	León	820	1,2	Segovia	1000	0,7
Barcelona	0	0,4	Lleida	150	0,5	Sevilla	10	0,2
Bilbao	0	0,3	Logroño	380	0,6	Soria	1090	0,9
Burgos	860	0,6	Lugo	470	0,7	Tarragona	0	0,4
Cáceres	440	0,4	Madrid	660	0,6	Tenerife	0	0,2
Cádiz	0	0,2	Málaga	0	0,2	Teruel	950	0,9
Castellón	0	0,2	Murcia	40	0,2	Toledo	550	0,5
Ciudad Real	640	0,6	Ourense	130	0,4	Valencia	0	0,2
Córdoba	100	0,2	Oviedo	230	0,5	Valladolid	690	0,4
A Coruña	0	0,3	Palencia	740	0,4	Vitoria	520	0,7
Cuenca	1010	1,0	Palma de Mallorca	0	0,2	Zamora	650	0,4
Girona	70	0,4	Palmas, Las	0	0,2	Zaragoza	210	0,5
Granada	690	0,5	Pamplona	450	0,7	Ceuta y Melilla	0	0,2

A Bilbao le corresponde una $s_k = 0{,}3\ KN/m^2$

5.4.3 SOBRECARGA DE NIEVE EN TABLEROS

El valor de sobrecarga característica sobre un tablero se obtiene con la siguiente expresión

$$q_k = 0{,}8 s_k$$

$$q_k = 0{,}8 * 0{,}3 = 0{,}24\ KN/m^2$$

5.5 ACCIONES ACCIDENTALES

5.5.1 IMPACTO DE VEHÍCULOS DE CARRETERA CONTRA ELEMENTO ESTRUCTURAL DEL PUENTE O PASARELA

No será necesario considerar la acción del impacto de vehículos contra un elemento de sustentación del puente cuando la distancia entre éste y el borde de la calzada sea superior a lo indicado al respecto en la reglamentación relativa a barreras de seguridad de la Dirección General de Carreteras, o cuando, de acuerdo con esta misma reglamentación, se disponga la protección adecuada.

No será necesario considerar el impacto de un vehículo contra el tablero si la altura libre bajo el mismo es mayor o igual que el gálibo vertical mínimo reglamentario o si se disponen elementos de protección dimensionados para soportar las cargas del párrafo anterior sin que se produzca afección al tablero.

5.5.2 IMPACTO CONTRA SISTEMAS DE CONTENCIÓN DE VEHÍCULOS

Se tomará para esta acción el valor nominal de las fuerzas y momentos máximos, que facilitará a estos efectos el fabricante del sistema de contención determinados, mediante cálculos o mediante ensayos específicos, de acuerdo con la normativa correspondiente.

Para el dimensionamiento transversal del tablero, se considerará que, simultáneamente con esta acción accidental, actúa una fuerza vertical debida a la presencia del vehículo de valor igual a 0,75 *Q*1*k*, situada próxima a los anclajes del sistema de contención en la posición más desfavorable, siendo *Q*1*k* la carga por eje del vehículo pesado correspondiente al *carril virtual 1*, indicada en la *tabla 4.1-b*. Estas acciones no se combinarán con ninguna otra acción variable.

5.5.3 ACCIÓN SÍSMICA

No será tenido en cuenta dada la baja peligrosidad sísmica en la zona de ubicación del proyecto.

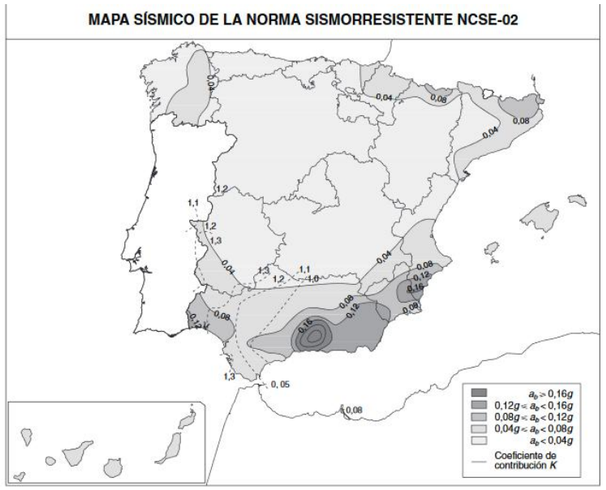


Figura 3.1 Mapa de peligrosidad sísmica (según NCSE-02)

6 COMBINACIÓN DE ACCIONES

6.1 VALORES REPRESENTATIVOS

El valor representativo de una acción es el valor de la misma para la verificación de los estados limite.

El principal valor representativo es el característico menos para las acciones variables para las cuales se considerarán además otros valores representativos.

6.1.1 VALOR REPRESENTATIVO DE LAS ACCIONES PERMANENTES

Para las acciones permanentes se considerará un único valor presentativo que coincide con los valores característicos

Para el caso partículas del peso propio del asfalto, se toman dos valores característicos, uno superior $G_{k,sup}$ en el que el espesor de la capa de asfalto se ha incrementado un 50% y un $G_{k,inf}$ en el que se tiene en cuenta únicamente el espesor definido en proyecto.

6.1.2 VALOR REPRESENTATIVO DE LAS ACCIONES VARIABLES

Además de su valor característico se tendrán en cuentan los siguientes valores:

-Valor de combinación $\psi_0 Q_k$: Será el valor de la acción cuando actúa con otra acción variable y tener en cuenta la probabilidad de que se den simultáneamente los valores más desfavorables de varias acciones independientes. Se utilizará en situaciones ELU persistentes o transitorias y el ELS irreversible.

-Valor frecuente $\psi_1 Q_k$: Será el valor sobrepasado durante un periodo corto de duración respecto a la vida útil del puente. Se utilizará en ELU en situaciones accidentales y ELS reversibles.

-Valor casi-permanente $\psi_2 Q_k$: Valor de la acción sobrepasado durante gran parte de la vida útil del puente. Se empleara este valor en ELU de situación accidental, ELS reversibles y en la evaluación de efectos diferidos.

El valor del coeficiente de simultaneidad ψ tendrá valores distintos según la acción que se trate. Se adoptarán los valores de la tabla 6.1-a.

TABLA 6.1-a **FACTORES DE SIMULTANEIDAD ψ**

ACCIÓN			ψ_0	ψ_1	ψ_2
Sobrecarga de uso	gr 1, Cargas verticales	Vehículos pesados	0,75	0,75	0
		Sobrecarga uniforme	0,4	0,4	0 / 0,2[1]
		Carga en aceras	0,4	0,4	0
	gr 2, Fuerzas horizontales		0	0	0
	gr 3, Peatones		0	0	0
	gr 4, Aglomeraciones		0	0	0
	Sobrecarga de uso en pasarelas		0,4	0,4	0
Viento	F_{wk}	En situación persistente	0,6	0,2	0
		En construcción	0,8	0	0
		En pasarelas	0,3	0,2	0
Acción térmica	T_k		0,6	0,6	0,5
Nieve	$Q_{Sn,k}$	En construcción	0,8	0	0
Acción del agua	W_k	Empuje hidrostático	1,0	1,0	1,0
		Empuje hidrodinámico	1,0	1,0	1,0
Sobrecargas de construcción	Q_c		1,0	0	1,0

(1) El factor de simultaneidad ψ_2 correspondiente a la sobrecarga uniforme se tomará igual a 0, salvo en el caso de la combinación de acciones en situación sísmica (*apartado 6.3.1.3*), para la cual se tomará igual a 0,2.

6.1.3 VALOR REPRESENTATIVO DE LAS ACCIONES ACCIDENTALES

Se considerará un único valor coincidente con el definido en el apartado anterior referente a este tipo de cargas.

6.2 VALOR DE CÁCULO PARA LAS ACCIONES

Se obtiene de multiplicar su valor representativo por el correspondiente coeficiente parcial γ_F. Su valor dependerá de la situación de proyecto que se esté considerando y del estado limite objeto de comprobación.

6.2.1 VALORES DE CÁLCULO PARA COMPROBACIONES ELU

6.2.1.1 SITUACIÓN PERSISTENTE O TRANSITORIA

COMPROBACIONES RESISTENTES

TABLA 6.2-b COEFICIENTES PARCIALES PARA LAS ACCIONES γ_F (PARA LAS COMPROBACIONES RESISTENTES)

ACCIÓN		EFECTO	
		FAVORABLE	DESFAVORABLE
Permanente de valor constante (G)	Peso propio	1,0	1,35
	Carga muerta	1,0	1,35
Permanente de valor no constante (G^*)	Pretensado P_1	1,0	1,0 / 1,2[1] / 1,3[2]
	Pretensado P_2	1,0	1,35
	Otras presolicitaciones	1,0	1,0
	Reológicas	1,0	1,35
	Empuje del terreno	1,0	1,5
	Asientos	0	1,2 / 1,35[3]
	Rozamiento de apoyos deslizantes	1,0	1,35
Variable (Q)	Sobrecarga de uso	0	1,35
	Sobrecarga de uso en terraplenes	0	1,5
	Acciones climáticas	0	1,5
	Empuje hidrostático	0	1,5
	Empuje hidrodinámico	0	1,5
	Sobrecargas de construcción	0	1,35

(1) El coeficiente $\gamma_{G^*} = 1,2$ será de aplicación al pretensado P_1 en el caso de verificaciones locales tales como la transmisión de la fuerza de pretensado al hormigón en zonas de anclajes, cuando se toma como valor de la acción el que corresponde a la carga máxima (tensión de rotura) del elemento a tesar.
(2) El coeficiente $\gamma_{G^*} = 1,3$ se aplicará al pretensado P_1 en casos de inestabilidad (pandeo) cuando ésta pueda ser inducida por el axil debido a un pretensado exterior.
(3) El coeficiente $\gamma_{G^*} = 1,35$ corresponde a una evaluación de los efectos de los asientos mediante un cálculo elasto-plástico, mientras que el valor $\gamma_{G^*} = 1,2$ corresponde a un cálculo elástico de esfuerzos.

COMPROBACIONES EN FATIGA

Dado que está profundamente vinculada con el material estructural, los coeficientes parciales serán los recogidos en la normativa específica en este caso es la RPX-95.

6.2.2 VALOR DE CÁLCULO PARA COMPROBACIONES ELS

TABLA 6.2-c COEFICIENTES PARCIALES PARA LAS ACCIONES γ_F (ELS)

ACCIÓN		EFECTO	
		FAVORABLE	DESFAVORABLE
Permanente de valor constante (G)	Peso propio	1,0	1,0
	Carga muerta	1,0	1,0
Permanente de valor no constante (G^*)	Pretensado P_1	0,9[1]	1,1[1]
	Pretensado P_2	1,0	1,0
	Otras presolicitaciones	1,0	1,0
	Reológicas	1,0	1,0
	Empuje del terreno	1,0	1,0
	Asientos	0	1,0
	Rozamiento de apoyos deslizantes	1,0	1,0
Variable (Q)	Sobrecarga de uso	0	1,0
	Sobrecarga de uso en terraplenes	0	1,0
	Acciones climáticas	0	1,0
	Empuje hidrostático	0	1,0
	Empuje hidrodinámico	0	1,0
	Sobrecargas de construcción	0	1,0

(1) Para la acción del pretensado se tomarán los coeficientes que indique la EHE-08 o normativa que la sustituya. En la tabla figuran los valores que la EHE-08 recoge para el caso de estructuras postesas. En el caso de estructuras pretesas, los coeficientes parciales son 0,95 y 1,05 para efecto favorable y desfavorable, respectivamente.

6.3 COMBINACIONES PARA COMPROBACIONES EN ELU

La combinación de acciones se hará de acuerdo con la expresión siguiente (*combinación fundamental*):

$$\sum_{j\geq 1} \gamma_{G,j}\, G_{k,j} + \sum_{m\geq 1} \gamma_{G,m}\, G^{*}_{k,m} + \gamma_{Q,1}\, Q_{k,1} + \sum_{i>1} \gamma_{Q,i}\, \psi_{0,i}\, Q_{k,i}$$

donde:

$G_{k,j}$ valor característico de cada acción permanente
$G^{*}_{k,m}$ valor característico de cada acción permanente de valor no constante
$Q_{k,1}$ valor característico de la acción variable dominante
$\psi_{0,i}\, Q_{k,i}$ valor de combinación de las acciones variables concomitantes con la acción variable dominante
γ_G, γ_Q coeficientes parciales

Deberán realizarse tantas hipótesis o combinaciones como sea necesario, considerando, en cada una de ellas, una de las acciones variables como dominante y el resto como concomitantes.

6.3.1 COMBINACIÓN PARA LA COMPROBACIÓN DE ELS

Según el estado límite de servicio que se vaya a verificar, se adoptará uno de los tres tipos de combinación de acciones indicados a continuación.

- Combinación característica (poco probable o rara):

$$\sum_{j\geq 1}\gamma_{G,j}\,G_{k,j} + \sum_{m\geq 1}\gamma_{G,m}\,G^{*}_{k,m} + \gamma_{Q,1}\,Q_{k,1} + \sum_{i>1}\gamma_{Q,i}\,\psi_{0,i}\,Q_{k,i}$$

  Esta combinación, que coincide formalmente con la combinación fundamental de ELU, se utiliza en general para la verificación de ELS irreversibles.

- Combinación frecuente:

$$\sum_{j\geq 1}\gamma_{G,j}\,G_{k,j} + \sum_{m\geq 1}\gamma_{G,m}\,G^{*}_{k,m} + \gamma_{Q,1}\psi_{1,1}\,Q_{k,1} + \sum_{i>1}\gamma_{Q,i}\,\psi_{2,i}\,Q_{k,i}$$

  Esta combinación se utiliza en general para la verificación de ELS reversibles.

- Combinación casi-permanente:

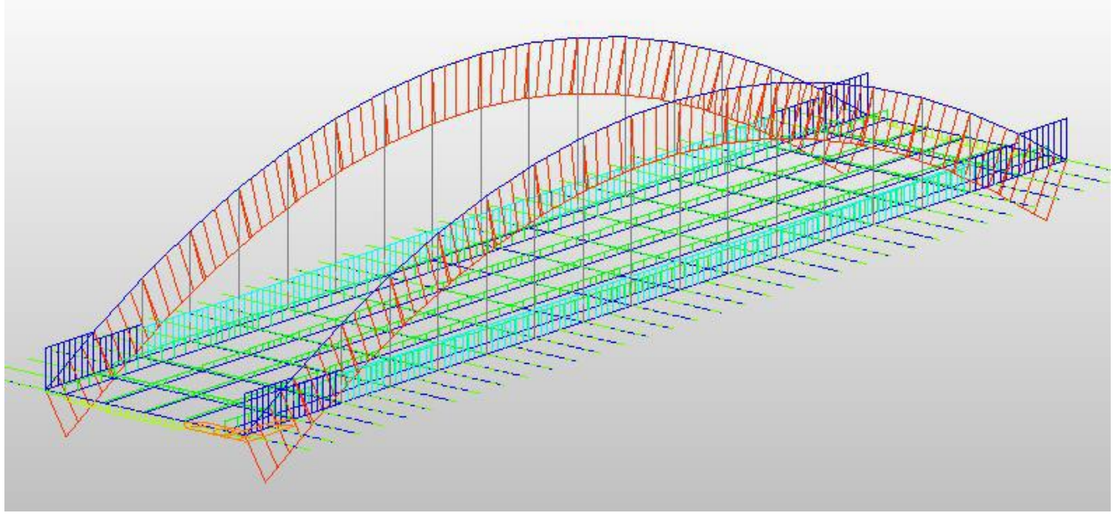
$$\sum_{j\geq 1}\gamma_{G,j}\,G_{k,j} + \sum_{m\geq 1}\gamma_{G,m}\,G^{*}_{k,m} + \sum_{i>1}\gamma_{Q,i}\,\psi_{2,i}\,Q_{k,i}$$

  Esta combinación se utiliza también para la verificación de algunos ELS reversibles y para la evaluación de los efectos diferidos.

Serán también de aplicación las prescripciones recogidas en el *apartado 6.3.1.1.*

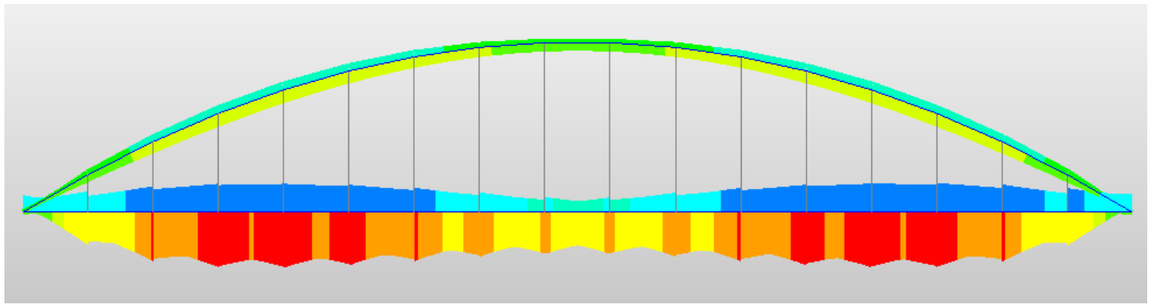
7 RESULTADOS

Con todo esto se ha llevado a cabo el modelo de calculo. Los resultados de los esfuerzos se incluyen en las tablas del final del anejo. Existen ciertos casos de carga que nos pueden indicar el buen funcionamiento de modelo. Un ejemplo puede ser el gráfico de esfuerzos axiles bajo la acción de peso propio



Vemos como el arco actúa a compresión y el tirante a tracción anulando las reacciones horizontales en los apoyos

Otro buen ejemplo de esto puede ser la envolvente de momentos de las acciones del tráfico



Se ve como claramente las situaciones más difíciles de manejar para el arco las de cargas asimétricas

8 VERIFICACIONES

8.2 ESTADOS LIMITE DE SERVICIO

8.2.1 ESTADO LIMITE DE DEFORMACIÓN DE LA ESTRUCTURA

La normativa permite como máximo una flecha de valor L/1200 unos 6 cm

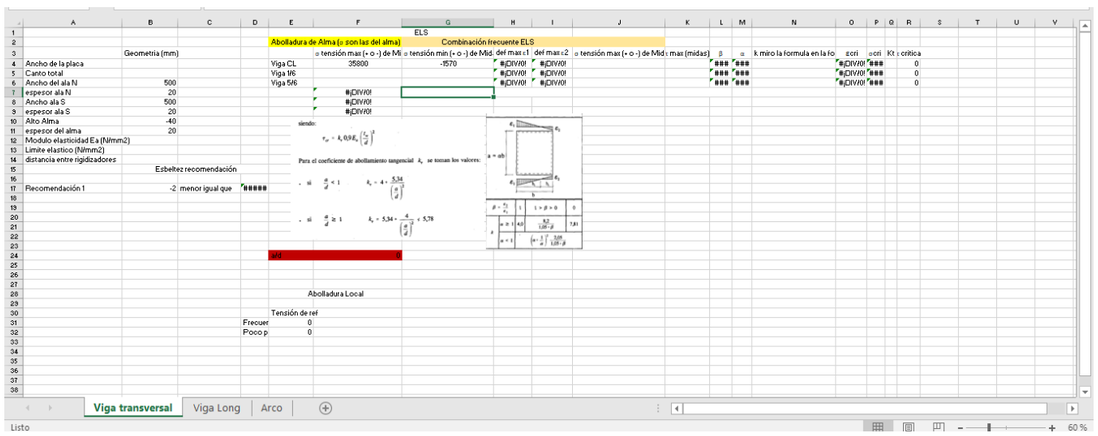
En ningún punto y bajo ninguna combinación esta situación llega a alcanzarse.

8.2.2 ESTADO LIMITE DE DEFORMACIÓN DEL ALMA

Se han analizado las vigas metálicas transversales únicamente puesto que las vigas cajón cuentan con rigidizadores cada 3,5m aproximadamente y son las transversales las que verdaderamente estarán mas expuestas a este fenómeno.

Se pretende que las deformaciones transversales que se produzcan no provoquen apariencia inaceptable de la obra, inquietud respecto a la seguridad de la estructura, un cambio brusco en la configuración del equilibrio o riesgo de fisuración por fatiga del encuentro alma-ala del elemento

Mediante una hoja de Excel y los resultados de Midas (para las tensiones tangenciales) se han obtenido las tensiones en las almas bajo las combinaciones de servicio frecuente. Y se han calculado las tensiones críticas que en ningún caso son alcanzadas por ninguna de las vigas transversales que son aquellas que se presentan sin rigidizadores.



8.2.3 ESTADOS LIMITE DE PLASTIFICACIONES LOCALES

El modelo empleado es un modelo general que no permite analizar con detalle este estado límite de servicio

8.2.4 ESTADO LIMITE DE FISURACIÓN DEL ARCO

En todas las situaciones persistentes y en las situaciones transitorias bajo la combinación más desfavorable de acciones correspondiente a la fase de estudio, las tensiones de compresión en el hormigón deben cumplir:
$\varsigma_c \leq 0{,}6 \cdot f_{ck}$
Para el axil máximo de cálculo en combinación característica, N = 10000000
σ= 7 MPa
0,6 · 50 = 30 MPa

Luego se verifica que no presenta problemas de fisuración a compresión.

8.3 ESTADOS LIMITE ULTIMO

8.3.1 ESTADO LIMITE DE ROTURA

8.3.1.1 TABLERO

Vigas transversales mixtas doble T de 1,2 m de canto y una losa superior de 25 cm

Se han analizado dos secciones de estos elementos:

- La sección de empotramiento con la viga longitudinal
- La sección centro de luz

A la vez de todas las vigas transversales del tablero se han analizado dos:

- La coincidente con el centro luz del tablero
- La ubicada a un 20% de la luz total desde el extremo del puente.

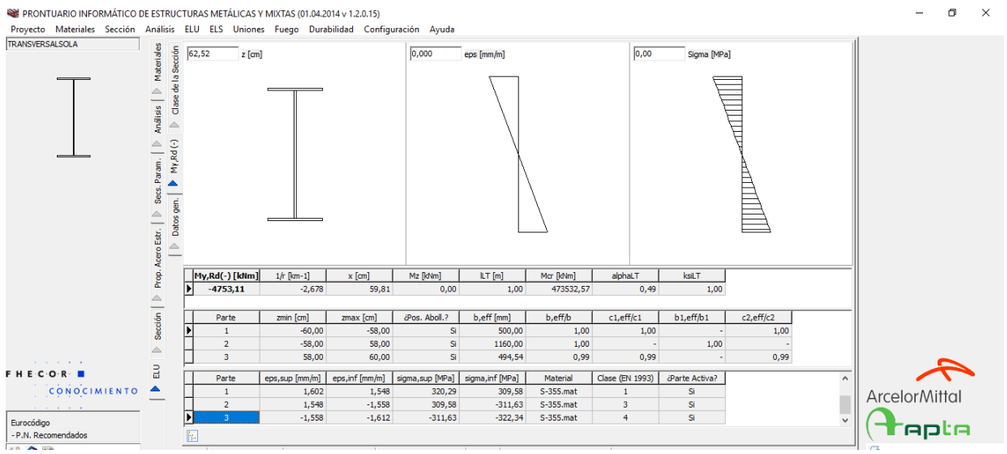
Las comprobaciones frente a estados limite últimos se han llevado a cabo empleando el “Prontuario de estructuras metálicas y mixtas” y los esfuerzos obtenidos del modelo informático, cuyos resultados se

han procesado en Excel para obtener los esfuerzos pésimos y sus concomitantes siguiendo los criterios de combinación anteriormente expuestos. Estos esfuerzos se exponen más adelante.

Las primeras secciones a analizar serán las de los empotramientos.

En estas secciones los efectos dominantes son la flexión, tanto positiva como negativa cuyos flectores son de ordenes de magnitud muy similares. El cortante en esta sección será también el de mayor importancia en toda la viga.

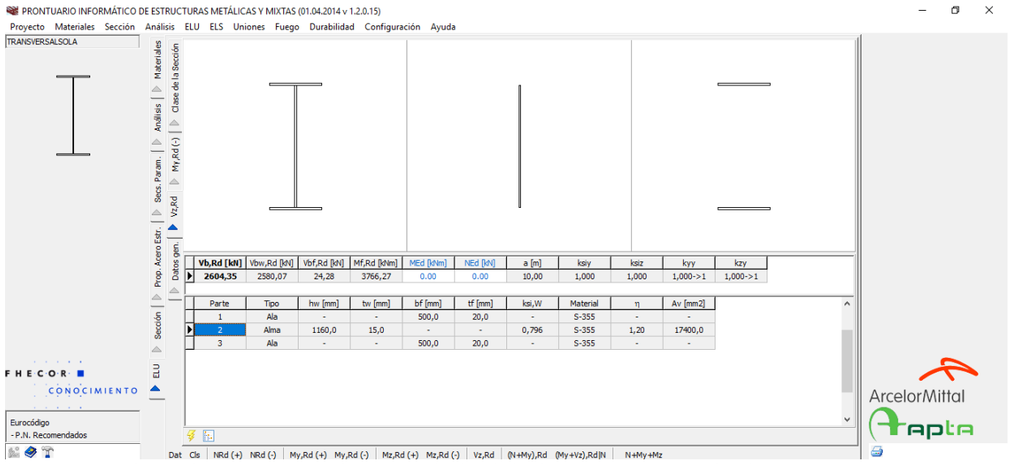
Frente a los flectores negativos la cabeza de hormigón no colaborará en la resistencia, y será la sección metálica quien deba hacer frente, ella sola, a estos esfuerzos y sus concomitantes.



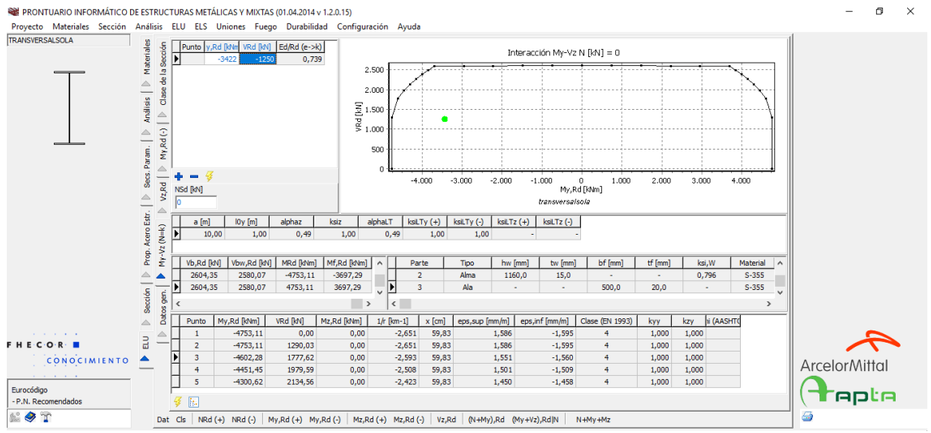
La secciones metálicas, tanto la de la viga de CL como la de la situada a un 20%L desde el apoyo, son capaces de soportar holgadamente el momento negativo al que están sometidas. (-4750 KN*m flector máximo resistido)

El cortante también es soportado perfectamente por las secciones (2605 KN cortante máximo resistido)

En cuanto a la interacción de ambos esfuerzos también se ha llevado a cabo la comprobación y todas las

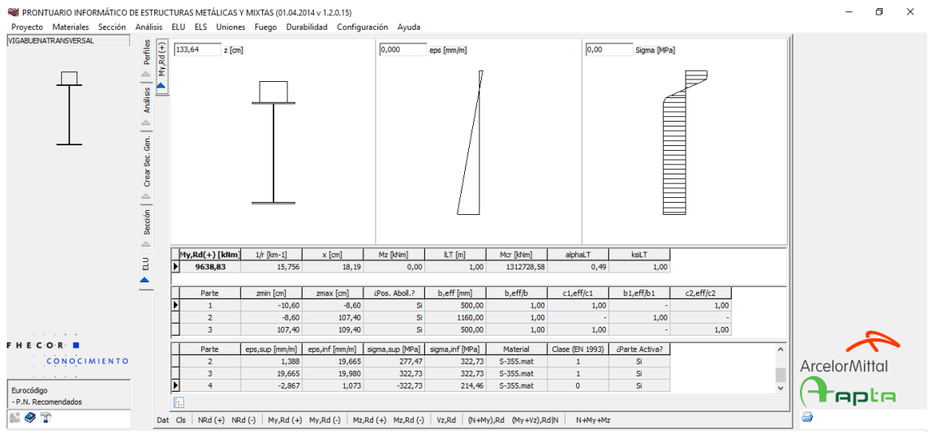


combinaciones de ambas secciones han quedado debidamente comprobadas.



Las siguientes secciones a analizar serán esas mismas frente a flectores positivo donde el comportamiento de la misma será de estructura mixta y no solamente metálica. Viendo el comportamiento como simple sección metálica es evidente que frente a flectores positivos cuyo valor es de un orden de magnitud inferior la seguridad estará garantizada.

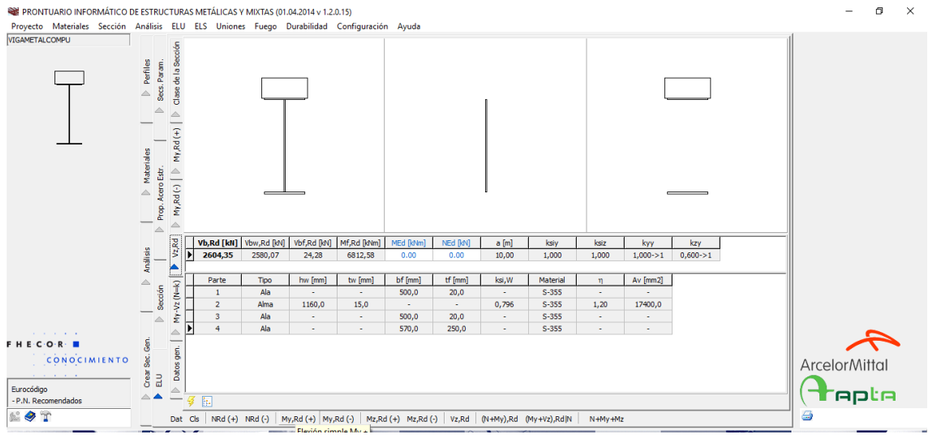
Pasamos ahora a analizar las secciones de centro de luz de las vigas transversales. De nuevo son los esfuerzos asociados a la flexión los que predominan en esta sección.



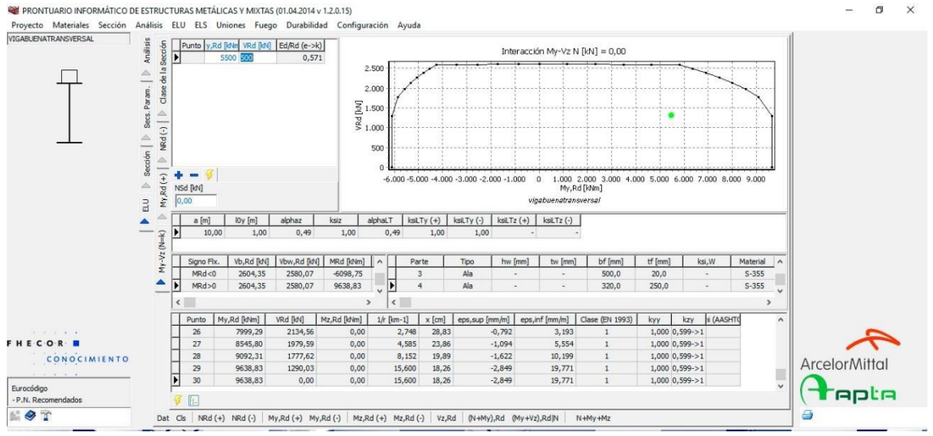
Los esfuerzos de flexión quedan sobradamente asegurados

En cuanto al cortante

Este también queda asegurado (máximo 2600 KN)

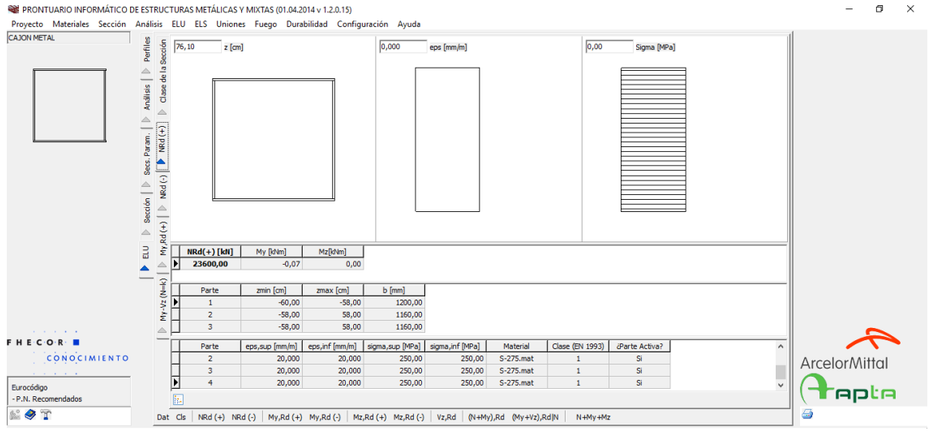


Y en cuanto a la interacción flector cortante vemos que también la cumple perfectamente

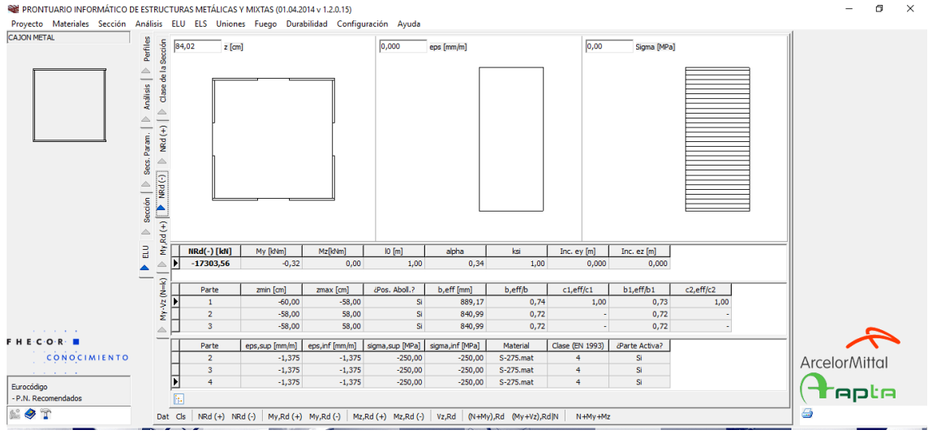


Se analizan a continuación las secciones cajón de la viga longitudinal metálica. Se recogen aquí los resultados para la sección ubicada a un 20% de la luz total al ser esta la que presenta los mayores esfuerzos.

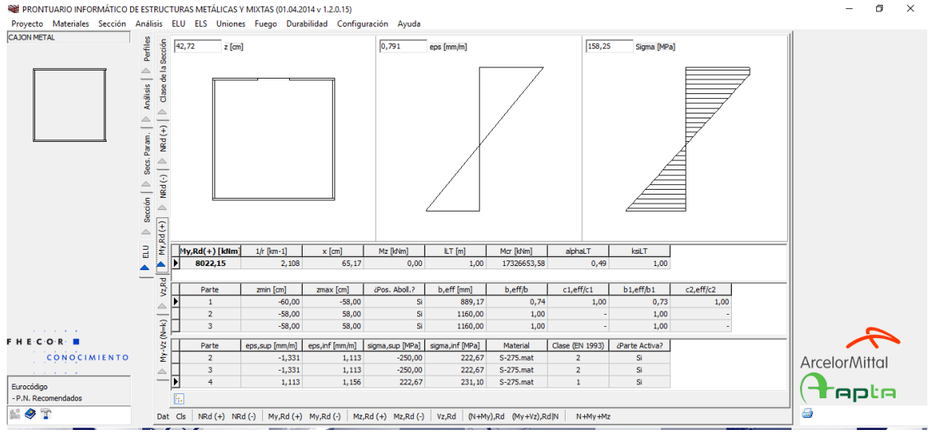
Como puede verse en el grafico inferior de cara a la tracción la sección está mas que cubierta (máximo axil soportable 23000 KN)



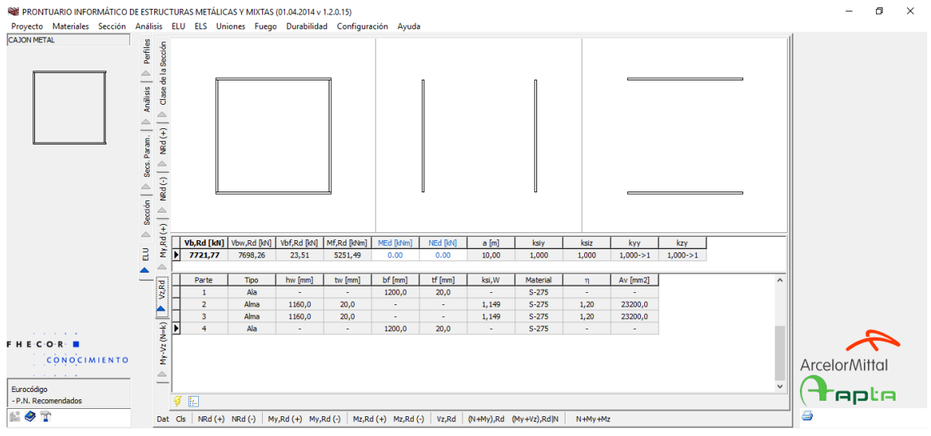
En cuanto al axil de compresión vemos que también cumple sobradamente (17000 KN axil máximo soportable)



El máximo flector soportable es el que se muestra en la gráfica inferior (8000KNm)

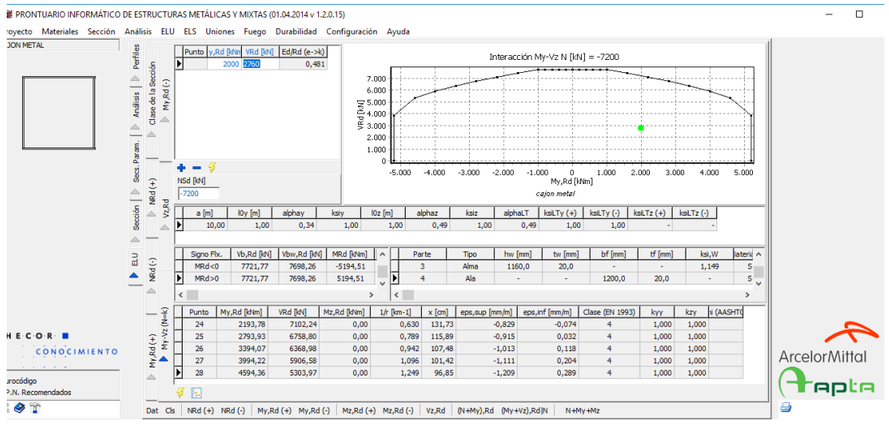


En lo referido al cortante vemos como se cumple sobradamente (7700 KN máximo soportable)



El cuanto al máximo flector negativo la situación es la misma al ser esta una sección simétrica.

En cuanto a las interacciones de axil, flector y cortante que son los esfuerzos predominantes en esta sección obtenemos lo siguiente. Es bajo la condición de axil máximo negativo y sus concomitantes lo que nos pone ante la situación de mayor solicitud.



Si estos resultados se traducen en tensiones se verifica que en todo momento la sección estará comprimida y en ningún caso se supera la compresión máxima admisible en el hormigón en las fibras más solicitadas

Tensión flector	tension axil	T total fibra mas traccionada	Fibra mas comprimida
12.1589465	-13.72940156	-1.57045506	-25.88834806
2.021354167	-11.3975	-9.376145833	-13.41885417
7.0903125	-15.28284375	-8.19253125	-22.37315625
6.322395833	-11.99375	-5.671354167	-18.31614583
6.460020119	-8.188490234	-1.728470115	-14.64851035
7.362703125	-16.92320625	-9.560503125	-24.28590938

8.3.1.2 EN CUANTO A LA SECCIÓN DE HORMIGÓN DEL ARCO

Se han analizado las secciones de Cl, “riñones” y arranques.

A continuación, se exponen los esfuerzos máximos que van a soportar y sus concomitantes.

CL (Fuerzas en KN y momentos en KN*m)

		cortante	axil
M+	1661.976	104.679	-8786.817
M-	-194.05	21.3125	-7294.4
		flector	axil
C+	141.75	680.67	-9781.02
C-	-23.305	606.95	-7676
		flector	cortante
N+	-5240.63375	883.004	50
N-	-10830.852	706.8195	51.543

La misma situación se da en las secciones situadas a un 20% de luz respecto del extremo del tablero

Tensión flector	tension axil	T total	Fibra mas comprimida
14.8384375	-16.76202292	-1.92358542	-31.60046042
9.738541667	-10.60982813	-0.87128646	-20.34836979
10.67864583	-14.41335938	-3.73471354	-25.09200521
3.13296875	-15.57539063	-12.4424219	-18.70835938
3.904924479	-8.259705469	-4.35478099	-12.16462995
1.06859375	-18.66398438	-17.5953906	-19.73257813

Y en las secciones situadas en los arranques.

Tensión flector	tension axil	T total	Fibra mas comprimida
3.913838542	-14.3323984	-10.4185599	-18.24623698
13.442375	-15.1263844	-1.68400938	-28.56875938
9.52021875	-18.8547047	-9.33448594	-28.37492344
7.139583333	-10.2892188	-3.14963542	-17.42880208
-0.322351563	-13.8253672	-14.1477188	-13.50301563
4.238140625	-22.1520703	-17.9139297	-26.39021094

Esto implica que la armadura a flexión a lo largo de todo el arco será la establecida en la norma EHE-08 como armadura mínima.

Emplearemos la fórmula para compresión compuesta

$$A_{s1}^{'} f_{yc,d} \geq 0.05 N_d$$

$$A_{s1}^{'} \geq 0.05 N_d / f_{yc,d} = 0.05 * \frac{14177}{4000} * 1000 = 1772\ mm2$$

Para flexión compuesta

$$A_s * f_{yd} \geq \frac{W_1}{z} * f_{ct,m,fl}$$

$$As = 2242.41\ mm2$$

Se comprueba también lo indicado en la tabla 42.3.5 de la misma norma

Tabla 42.3.5
Cuantías geométricas mínimas, en tanto por 1.000, referidas a la sección total de hormigón [6]

Tipo de elemento estructural		Tipo de acero: Aceros con f_y = 400 N/mm²	Tipo de acero: Aceros con f_y = 500 N/mm²
Pilares		4,0	4,0
Losas [1]		2,0	1,8
Forjados unidireccionales	Nervios [2]	4,0	3,0
	Armadura de reparto perpendicular a los nervios [3]	1,4	1,1
	Armadura de reparto paralela a los nervios [3]	0,7	0,6
Vigas [4]		3,3	2,8
Muros [5]	Armadura horizontal	4,0	3,2
	Armadura vertical	1,2	0,9

[1] Cuantía mínima de cada una de las armaduras, longitudinal y transversal repartida en las dos caras. Para losas

Cuantía = volumen acero / volumen hormigón

$$\frac{2.8}{1000} = \frac{Vol\ acero}{Vol\ Hormigon} = \frac{Area\ acero * L}{Area\ Hormigon * L}$$

$$Area\ de\ Acero = \frac{2.8}{1000} * Area\ Hormigón = 2016mm2$$

El área de acero que debemos disponer es 2242.41 mm2

Si se emplean barras Ø 20 se necesitarán 8 barras, que se dispondrán 4 en la cara superior y otras 4 en la cara inferior.

En cuanto al cortante

Aun combinando los esfuerzos pésimos de axil, flector y cortante (que no son concomitantes ni coincidentes en la misma sección) la armadura de cortante no es necesaria.

RESULTADOS

Resultados previos

M_{fis}	162.14	mkN
La sección fisura		
V_{U1}	***6982.30***	kN
La sección cumple a compresión oblicua		
V_{U2}	***1198.58***	kN
V_{CU}	1148.82	kN
V_{SU}	0.00	kN

No requiere Armadura

Cortante que la sección puede resistir:

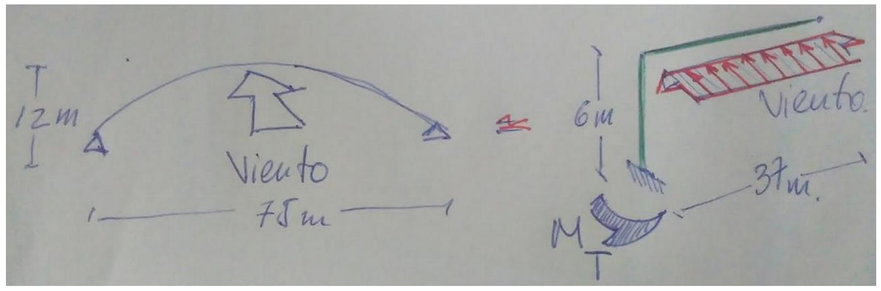
V_U	***1198.58***	kN

Interpretación de resultados

Cumple, no es necesario aumentar ni armadura ni sección

Esfuerzos de cálculo

V_{rd}	420	kN
N_d	5200	kN
M_d	1420	m·kN



En cuanto a la torsión

En cuanto al torsor se duda de la validez del modelo general. En el modelo el arco es considerado libre frente a la torsión. Sin embargo, creemos que el encuentro entre la estructura metálica y el arco de hormigón si es capaz de ejercer sobre este la coacción necesaria.

Para solucionar esta situación vamos a realizar un modelo estructural muy simple. Supondremos que es la acción del viento transversal la que introduce los esfuerzos de torsión en el arco. La geometría del arco se simplificará como se muestra en la imagen siguiente.

Asi el esfuerzo torsor máximo en el extremo del arco quedara como:

$$MT = 1.2 * 40 * 6 = 288\ KN * m$$

En el agotamiento frente a torsor puede alcanzarse ya sea por agotamiento de la resistencia a compresión del hormigón, la resistencia a tracción de las armaduras dispuestas. Deberá cumplirse

$$T_d \leqslant T_{u1}$$
$$T_d \leqslant T_{u2}$$
$$T_d \leqslant T_{u3}$$

T_{u1} es el máximo momento torsor que pueden resistir las bielas comprimidas de hormigón.

$$T_{u1} = 2K\alpha f_{1cd} A_e h_e \frac{\cot\theta}{1+\cot\theta^2}$$

$$T_{u1} = 1635\ KNm$$

Cumple

T_{u3} maximo momento torsor que pueden resistir las armaduras

$$T_{u3} = \frac{2A_e}{u_e} A_l f_{y1,d} \tan\theta$$

$$T_{u3} = 424.75\ KNm$$

Cumple

$$T_{u2} = \frac{2A_e A_t}{s_t} f_{yt,d} \cot\theta$$

$$\frac{A_t}{s_t} \geq \frac{T_d}{2A_e f_{yt,d} \cot\theta}$$

$$\frac{A_t}{s_t} = 5.91 * 10^{-4} m^2/m$$

Calculamos primero la separación entre cercos para que posteriormente resulte más sencillo obtener el área necesaria.

La separación no excederá $S_t \leq \frac{u_e}{8} = 37.5\ cm$

Como $T_d \leq \frac{1}{5} T_{u1}$

$$s_t \leq 0{,}75a(1 + \cot\alpha) \leq a \nrightarrow 600mm$$

$$s_t \leq 37.5\ cm \leq 50cm$$

$$A_t = 5.91 * 10^{-4} * 0.375$$

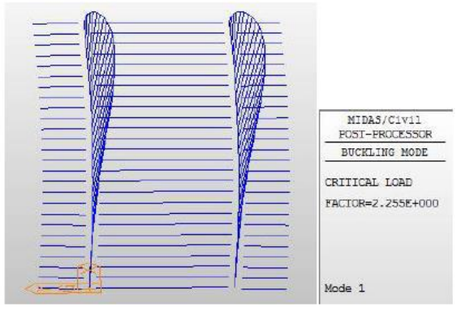
Si aplicamos este diámetro estricto los diámetros de barra serian de 3 mm^2.

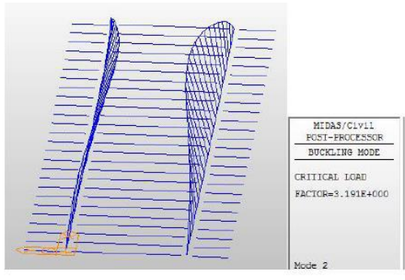
Dispondremos de $cercos\ \emptyset\ 16\ cada\ 30\ cm\ \frac{A_t}{S_t} = \frac{4*10^{-4}}{0.3} = 1.34 * 10^{-3}$m^2/m

8.3.2 INESTABILIDAD POR PANDEO DE ARCO

Se ha analizado el pandeo lateral del arco al no existir vinculación entre ambos arcos paralelos. Se ha realizado un pequeño modelo en el que la geometría del arco se ha deformado ligeramente, concretamente los 37,5cm que representan el L/200 que recomienda la normativa a modo de imperfecciones geométricas.

Analizados los 6 primeros modos de pandeo todos ellos cumplen al presentar un factor de seguridad superior a la unidad





9 DIMENSIONADO DE OTROS ELEMENTOS

9.1 APOYOS

Como elemento intermedio entre el tablero y la cimentación se encuentran los apoyos.

Las cargas que tendrá que soportar cada uno de los 4 apoyos en la situación pésima será:

PP= 3300 KN

SC= 3447 KN (coches + peatones+ Viento vertical)

CP = 976 KN (PP asfalto + barandillas y barreras de 5 KN/m)

Reacción vertical total Máxima =7723 KN

La reacción mínima sería la de peso propio menos la reacción negativa producida por las cargas asimétricas, sin embargo, los valores de estas reacciones son muy reducidas dado en gran ancho del tablero. Por eso la reacción mínima será la debida al peso propio.

Reacción vertical Mínima =3300 KN

En cuanto a las reacciones horizontales

En sentido longitudinal al tablero únicamente las fuerzas de arranque y frenado y las debidas al viento longitudinal. Todo las demás serán absorbidas por el par de vigas cajón longitudinales.

Reacción horizontal longitudinal = 650 KN

En sentido transversal al tablero únicamente las fuerzas de viento transversal generarán reacción en esa dirección

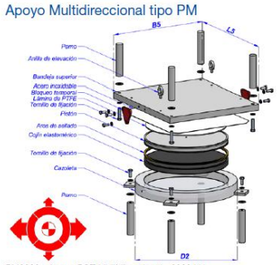
Reacción horizontal transversal = 165 KN

Con los datos obtenidos se opta por unos apoyos tipo POT del fabricante MK4 de dimensiones aproximadas 572x651x572 mm que aseguran la transmisión de la carga al encepado con una tensión aproximada 20 MPa algo admisible para el hormigón. Bajo la carga mínima, los apoyos sigues transmitiendo la tensión mínima establecida por la norma.

En cuanto a la capacidad para resistir cargas horizontales, en los casos de apoyos coaccionados, estos son capaces de soportas hasta un 10% de su capacidad de carga vertical que es de 8000 KN. Para nuestro caso es más que suficiente.

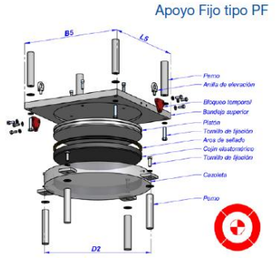
PG6000	534	621	534	115	207
PG7000	572	651	572	116	232
PG8000	606	681	606	128	297

Apoyo Multidireccional tipo PM



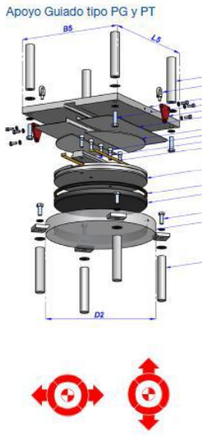
PM8000 - Apoyo POT Multidireccional - 8000 kN
Carga Vertical Máxima : 8000 kN (ELU)
Rotación: 0,01 rad (ELU)
Desplazamiento Longitudinal : ±50 mm
Desplazamiento Transversal: ±20 mm

Apoyo Fijo tipo PF



PF8000 - Apoyo POT Fijo - 8000 kN
Carga Vertical Máxima : 8000 kN (ELU)
Carga Horizontal Máxima : 10% Vmax
Rotación: 0,01 rad (ELU)

Apoyo Guiado tipo PG y PT



9.2 CIMENTACIÓN

La cimentación será de tipo profunda. Con pilares que debido a la escasa capacidad portante del lecho del rio deberán empotrarse en roca cuya profundidad aproximada es de unos 23m en los 4 sondeos realizados.

Esta cimentación pilotada ejercerá a la vez de estribo abierto. Recibirá las cargas de los apoyos situados sobre unos encepados que serán los encargados de repartir las cargas entre los diferentes pilotes.

Bajo cada apoyo se situarán 3 pilote

La tensión máxima admisible en cada pilote será de 5 Mpa

Con un radio de 1,5m la tensión que soportará cada pilote será la debida a la parte proporcional de la reacción del apoyo mas la de su peso propio que será el debido a una longitud de 25 m de pilote.

$$N = \frac{7750}{3} + \frac{1.5^2\pi}{4} * 25 * 25 = 3687\ KN = 368700\ Kg$$

$$\sigma_{pilote} = \frac{3687000}{\frac{1500^2\pi}{4}} = 2.1\ MPa\ \leq\ \sigma_{adm} = 5\ MPa$$

$$Q_p = Area\ del\ pilote *\ q_{p,c} = \frac{150^2\pi}{4} * 30\frac{Kg}{cm^2} = 530143.76\ Kg$$

$$Q_f = \tau_f * Area\ Lateral = 3\frac{kg}{cm^2} * 150 * \pi * Lr = 1413.7Lr\ Kg$$

3 veces la carga a transmitir al terreno, debe ser soportada por la capacidad portante en punta y en fuste de terreno.

$$3 * 368700 \leq\ Q_p +\ Q_f$$

$$Lr = \frac{3 * 368700 - 530143.76}{1413.7} = 4m$$

Se añaden dos pilotes más en el diseño final para colaborar en la sujeción de la losa de transición.

9.3 PENDOLAS

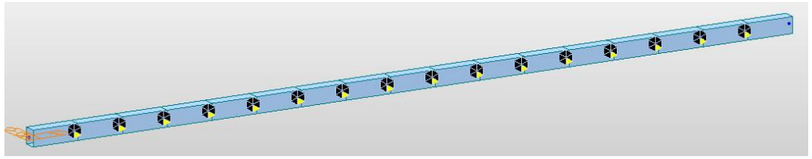
Para el dimensionado de las péndolas se han empleado los modelos auxiliares ya mencionados anteriormente del arco y la viga metálica.

Por una lado se carga de manera uniforme el arco con una carga unidad y se obtienen sus flechas.

Posteriormente se carga la viga longitudinal rígidamente apoyada n veces (18 en este caso) y se obtienen las reacciones de cada apoyo.

Con ambos datos se puede obtener la rigidez de sistema pendolar. Si bien no es del todo preciso puesto que además del arco la péndola también sufrirá un alargamiento.

Se modeliza de nuevo la viga pero esta vez con apoyos elásticos cuya rigidez ya hemos hallado aproximadamente



Se carga esta viga con la carga d predimensionamiento de 250 KN/m. Las reacciones serán las cargas que tengan que transmitir las pendolas

Reaction(Global)

Node	Load	FX (kN)	FY (kN)	FZ (kN)	MX (kN*m)	MY (kN*m)	MZ (kN*m)
1	carga pr	0	0	1059.091596	0	0	0
2	carga pr	0	0	909.023926	0	0	0
3	carga pr	0	0	840.756495	0	0	0
4	carga pr	0	0	879.760321	0	0	0
5	carga pr	0	0	944.389655	0	0	0
6	carga pr	0	0	994.963556	0	0	0
7	carga pr	0	0	1056.966398	0	0	0
8	carga pr	0	0	1077.661007	0	0	0
9	carga pr	0	0	1608.637046	0	0	0
10	carga pr	0	0	1608.637046	0	0	0
11	carga pr	0	0	1077.661007	0	0	0
12	carga pr	0	0	1056.966398	0	0	0
13	carga pr	0	0	994.963556	0	0	0
14	carga pr	0	0	944.389655	0	0	0
15	carga pr	0	0	879.760321	0	0	0
16	carga pr	0	0	840.756495	0	0	0
17	carga pr	0	0	909.023926	0	0	0
18	carga pr	0	0	1059.091596	0	0	0

SUMMATION OF REACTION FORCES PRINTOUT

Load	FX (kN)	FY (kN)	FZ (kN)
carga pr	0	0	18742.5

A la vista de estos resultados se opta por una péndola del catálogo Pfeifer PV300 de 55mm de diámetro y tensión limite de 1830 KN

Die Seilsysteme – Datenblätter
The Cable Systems – Data Sheets

Vollverschlossenes Seil – GALFAN
Full Locked Cable – GALFAN

CE 0769 EOTA ETA-11/0160

PV

VVS-1 VVS-2 VVS-3



Technische Daten	*Technical Data*
Material: unlegierter Qualitätsstahl	*Material:* *unalloyed quality steel*
Elastizitätsmodul: 160 ± 10 kN/mm²	*Modulus of Elasticity:* *160 ± 10 kN/mm²*
Toleranz d_Z: + 3%	*Tolerance d_Z:* *+ 3%*
Korrosionsschutz: innere Lagen: feuerverzinkt mit Innenverfüllung äußere Lagen: GALFAN verzinkt ohne Innenverfüllung	*Corrosion Protection:* *inner layers: Hot dip galvanized* *with inner filling* *outer layers: GALFAN coated* *without inner filling*

Größe *size*	Charakt. Bruchkraft *charact. breaking load* $F_{R,K}$ DIN 18800* kN	Grenzzugkraft *limit tension* $Z_{R,K}$ DIN 18800 kN	Metall. Querschnitt *metallic cross section* ca. / *approx.* mm²	Gewicht* *weight** ca. / *approx.* kg	Konstruktion *construction* **	Seil-Nenndurchmesser *nomin. strand dia.* d_S mm
PV 40	405	245	281	2.4	VVS-1	21
PV 50	621	376	430	3.6	VVS-1	26
PV 90	916	555	634	5.3	VVS-2	31
PV 110	1170	709	806	6.8	VVS-2	35
PV 150	1520	921	1060	8.9	VVS-2	40
PV 195	1930	1170	1340	11.2	VVS-2	45
PV 240	2380	1442	1650	13.8	VVS-2	50
PV 300	3000	1830	2090	17.2	VVS-3	55
PV 360	3590	2176	2490	20.5	VVS-3	60
PV 420	4200	2556	2920	24.1	VVS-3	65
PV 490	4850	2964	3390	27.9	VVS-3	70
PV 560	5620	3405	3890	32.1	VVS-3	75
PV 640	6390	3873	4420	36.4	VVS-3	80
PV 720	7210	4370	4990	41.1	VVS-3	85
PV 810	8090	4903	5600	46.2	VVS-3	90
PV 910	9110	5521	6310	52.0	VVS-3	95
PV 1010	10100	6121	6990	57.6	VVS-3	100
PV 1110	11100	6727	7710	63.5	VVS-3	105
PV 1220	12200	7394	8460	69.7	VVS-3	110
PV 1340	13400	8121	9240	76.2	VVS-3	115
PV 1480	14500	8788	10100	83.2	VVS-3	120
PV 1580	15800	9576	10900	89.8	VVS-3	125
PV 1730	17300	10485	11900	96.7	VVS-3	130
PV 1860	18600	11273	12800	104.8	VVS-3	135
PV 2000	20000	12121	13800	112.9	VVS-3	140

APÉNDICE 1.

ESFUERZOS MODELO DE CÁLCULO

1. PESO PROPIO

Elem	Load	Part	Axial (kN)	Shear-y (kN)	Shear-z (kN)	Torsion (kN*m)	Moment-y (kN*m)	Moment-z (kN*m)
1	peso propio	I[1]	-6999.36	0	-33.38	12.66	-348.56	21.94
1	peso propio	J[2]	-6942.05	0	65.89	12.66	-431.38	21.94
2	peso propio	I[2]	-6816.81	0	-87.6	11.42	-431.38	22.61
2	peso propio	J[3]	-6766.67	0	11.67	11.42	-243.73	22.61
3	peso propio	I[3]	-6624.1	0	-84.73	10.06	-243.73	23.24
3	peso propio	J[4]	-6581.12	0	14.54	10.06	-75.02	23.24
4	peso propio	I[4]	-6453.21	0	-73.79	8.6	-75.02	23.83
4	peso propio	J[5]	-6417.4	0	25.48	8.6	38.27	23.83
5	peso propio	I[5]	-6310.79	0	-65.27	7.02	38.27	24.34
5	peso propio	J[6]	-6282.13	0	34	7.02	110.06	24.34
6	peso propio	I[6]	-6198.11	0	-59.64	5.36	110.06	24.76
6	peso propio	J[7]	-6176.62	0	39.62	5.36	155.25	24.76
7	peso propio	I[7]	-6115.85	0	-55.71	3.62	155.25	25.07
7	peso propio	J[8]	-6101.52	0	43.56	3.62	182.33	25.07
8	peso propio	I[8]	-6064.69	0	-52.54	1.82	182.33	25.26
8	peso propio	J[9]	-6057.53	0	46.73	1.82	195.17	25.26
9	peso propio	I[9]	-6045.18	0	-49.63	0	195.17	25.33
9	peso propio	J[10]	-6045.18	0	49.63	0	195.17	25.33
10	peso propio	I[10]	-6057.53	0	-46.73	-1.82	195.17	25.26
10	peso propio	J[11]	-6064.69	0	52.54	-1.82	182.33	25.26
11	peso propio	I[11]	-6101.52	0	-43.56	-3.62	182.33	25.07
11	peso propio	J[12]	-6115.85	0	55.71	-3.62	155.25	25.07
12	peso propio	I[12]	-6176.62	0	-39.62	-5.36	155.25	24.76
12	peso propio	J[13]	-6198.11	0	59.64	-5.36	110.06	24.76
13	peso propio	I[13]	-6282.13	0	-34	-7.02	110.06	24.34
13	peso propio	J[14]	-6310.79	0	65.27	-7.02	38.27	24.34
14	peso propio	I[14]	-6417.4	0	-25.48	-8.6	38.27	23.83
14	peso propio	J[15]	-6453.21	0	73.79	-8.6	-75.02	23.83
15	peso propio	I[15]	-6581.12	0	-14.54	-10.06	-75.02	23.24
15	peso propio	J[16]	-6624.1	0	84.73	-10.06	-243.73	23.24
16	peso propio	I[16]	-6766.67	0	-11.67	-11.42	-243.73	22.61
16	peso propio	J[17]	-6816.81	0	87.6	-11.42	-431.38	22.61
17	peso propio	I[17]	-6942.05	0	-65.89	-12.66	-431.38	21.94
17	peso propio	J[18]	-6999.36	0	33.38	-12.66	-348.56	21.94
18	peso propio	I[19]	-6999.36	0	-33.38	-12.66	-348.56	-21.94
18	peso propio	J[20]	-6942.05	0	65.89	-12.66	-431.38	-21.94
19	peso propio	I[20]	-6816.81	0	-87.6	-11.42	-431.38	-22.61
19	peso propio	J[21]	-6766.67	0	11.67	-11.42	-243.73	-22.61
20	peso propio	I[21]	-6624.1	0	-84.73	-10.06	-243.73	-23.24
20	peso propio	J[22]	-6581.12	0	14.54	-10.06	-75.02	-23.24
21	peso propio	I[22]	-6453.21	0	-73.79	-8.6	-75.02	-23.83
21	peso propio	J[23]	-6417.4	0	25.48	-8.6	38.27	-23.83
22	peso propio	I[23]	-6310.79	0	-65.27	-7.02	38.27	-24.34
22	peso propio	J[24]	-6282.13	0	34	-7.02	110.06	-24.34
23	peso propio	I[24]	-6198.11	0	-59.64	-5.36	110.06	-24.76
23	peso propio	J[25]	-6176.62	0	39.62	-5.36	155.25	-24.76
24	peso propio	I[25]	-6115.85	0	-55.71	-3.62	155.25	-25.07
24	peso propio	J[26]	-6101.52	0	43.56	-3.62	182.33	-25.07
25	peso propio	I[26]	-6064.69	0	-52.54	-1.82	182.33	-25.26
25	peso propio	J[27]	-6057.53	0	46.73	-1.82	195.17	-25.26
26	peso propio	I[27]	-6045.18	0	-49.63	0	195.17	-25.33
26	peso propio	J[28]	-6045.18	0	49.63	0	195.17	-25.33
27	peso propio	I[28]	-6057.53	0	-46.73	1.82	195.17	-25.26
27	peso propio	J[29]	-6064.69	0	52.54	1.82	182.33	-25.26
28	peso propio	I[29]	-6101.52	0	-43.56	3.62	182.33	-25.07
28	peso propio	J[30]	-6115.85	0	55.71	3.62	155.25	-25.07

29	peso propio	I[30]	-6176.62	0	-39.62	5.36	155.25	-24.76
29	peso propio	J[31]	-6198.11	0	59.64	5.36	110.06	-24.76
30	peso propio	I[31]	-6282.13	0	-34	7.02	110.06	-24.34
30	peso propio	J[32]	-6310.79	0	65.27	7.02	38.27	-24.34
31	peso propio	I[32]	-6417.4	0	-25.48	8.6	38.27	-23.83
31	peso propio	J[33]	-6453.21	0	73.79	8.6	-75.02	-23.83
32	peso propio	I[33]	-6581.12	0	-14.54	10.06	-75.02	-23.24
32	peso propio	J[34]	-6624.1	0	84.73	10.06	-243.73	-23.24
33	peso propio	I[34]	-6766.67	0	-11.67	11.42	-243.73	-22.61
33	peso propio	J[35]	-6816.81	0	87.6	11.42	-431.38	-22.61
34	peso propio	I[35]	-6942.05	0	-65.89	12.66	-431.38	-21.94
34	peso propio	J[36]	-6999.36	0	33.38	12.66	-348.56	-21.94
67	peso propio	I[1]	-281.06	-1360.43	-7.32	209.11	175.29	-976.86
67	peso propio	J[335]	-281.06	-1360.43	-2.52	209.11	177.75	-296.64
68	peso propio	I[18]	-281.06	1360.43	-7.32	-209.11	175.29	976.86
68	peso propio	J[352]	-281.06	1360.43	-2.52	-209.11	177.75	296.64
69	peso propio	I[37]	145.71	-951.24	-451.3	32.19	-248.37	-700.14
69	peso propio	J[336]	145.71	-951.24	-446.49	32.19	-23.92	-224.52
70	peso propio	I[38]	96.09	-393.58	-329.03	12.94	-28.67	-293.52
70	peso propio	J[337]	96.09	-393.58	-324.22	12.94	134.64	-96.73
71	peso propio	I[39]	29.31	-131.39	-318.29	-1.03	-26.52	-98.71
71	peso propio	J[338]	29.31	-131.39	-313.49	-1.03	131.42	-33.02
72	peso propio	I[40]	13.21	-8.29	-309.68	-6.01	-27.08	-7.41
72	peso propio	J[339]	13.21	-8.29	-304.87	-6.01	126.56	-3.27
73	peso propio	I[41]	4.29	39.22	-304.98	-6.91	-28.11	28.07
73	peso propio	J[340]	4.29	39.22	-300.17	-6.91	123.17	8.46
74	peso propio	I[42]	-0.55	47.08	-302.47	-5.79	-29.78	34.21
74	peso propio	J[341]	-0.55	47.08	-297.67	-5.79	120.26	10.67
75	peso propio	I[43]	-3	34.53	-301.24	-3.73	-31.12	25.2
75	peso propio	J[342]	-3	34.53	-296.43	-3.73	118.3	7.94
76	peso propio	I[44]	-4	12.43	-300.73	-1.28	-31.8	9.09
76	peso propio	J[343]	-4	12.43	-295.93	-1.28	117.36	2.87
77	peso propio	I[45]	-4	-12.43	-300.73	1.28	-31.8	-9.09
77	peso propio	J[344]	-4	-12.43	-295.93	1.28	117.36	-2.87
78	peso propio	I[46]	-3	-34.53	-301.24	3.73	-31.12	-25.2
78	peso propio	J[345]	-3	-34.53	-296.43	3.73	118.3	-7.94
79	peso propio	I[47]	-0.55	-47.08	-302.47	5.79	-29.78	-34.21
79	peso propio	J[346]	-0.55	-47.08	-297.67	5.79	120.26	-10.67
80	peso propio	I[48]	4.29	-39.22	-304.98	6.91	-28.11	-28.07
80	peso propio	J[347]	4.29	-39.22	-300.17	6.91	123.17	-8.46
81	peso propio	I[49]	13.21	8.29	-309.68	6.01	-27.08	7.41
81	peso propio	J[348]	13.21	8.29	-304.87	6.01	126.56	3.27
82	peso propio	I[50]	29.31	131.39	-318.29	1.03	-26.52	98.71
82	peso propio	J[349]	29.31	131.39	-313.49	1.03	131.42	33.02
83	peso propio	I[51]	96.09	393.58	-329.03	-12.94	-28.67	293.52
83	peso propio	J[350]	96.09	393.58	-324.22	-12.94	134.64	96.73
84	peso propio	I[52]	145.72	951.24	-451.3	-32.19	-248.37	700.14
84	peso propio	J[351]	145.72	951.24	-446.49	-32.19	-23.92	224.52
85	peso propio	I[69]	-704.6	-316.55	-67.4	-17.36	392.42	-315.64
85	peso propio	J[87]	-704.6	-316.55	-52.98	-17.36	482.7	159.18
86	peso propio	I[70]	-704.6	316.55	-67.4	17.36	392.42	315.64
86	peso propio	J[88]	-704.6	316.55	-52.98	17.36	482.7	-159.18
87	peso propio	I[71]	375.65	-302.13	-261.98	-6.61	291.47	-309.94
87	peso propio	J[89]	375.65	-302.13	-247.56	-6.61	673.62	143.26
88	peso propio	I[72]	202.32	-225.62	-212.11	5.58	404.34	-234.02
88	peso propio	J[90]	202.32	-225.62	-197.69	5.58	711.69	104.42
89	peso propio	I[73]	76.82	-160.75	-210.71	10.49	417.54	-167.22
89	peso propio	J[91]	76.82	-160.75	-196.29	10.49	722.79	73.9
90	peso propio	I[74]	35.08	-112.68	-209.59	10.52	416.32	-117.53
90	peso propio	J[92]	35.08	-112.68	-195.17	10.52	719.89	51.49
91	peso propio	I[75]	15.55	-76.38	-208.43	8.9	413.36	-79.88

91	peso propio	J[93]	15.55	-76.38	-194.01	8.9	715.19	34.69
92	peso propio	I[76]	4.53	-48.75	-207.67	6.56	410.84	-51.1
92	peso propio	J[94]	4.53	-48.75	-193.25	6.56	711.53	22.02
93	peso propio	I[77]	-1.4	-26.98	-207.22	3.97	409.25	-28.33
93	peso propio	J[95]	-1.4	-26.98	-192.8	3.97	709.27	12.15
94	peso propio	I[78]	-3.95	-8.62	-207.01	1.33	408.52	-9.06
94	peso propio	J[96]	-3.95	-8.62	-192.59	1.33	708.23	3.87
95	peso propio	I[79]	-3.95	8.62	-207.01	-1.33	408.52	9.06
95	peso propio	J[97]	-3.95	8.62	-192.59	-1.33	708.23	-3.87
96	peso propio	I[80]	-1.4	26.98	-207.22	-3.97	409.25	28.33
96	peso propio	J[98]	-1.4	26.98	-192.8	-3.97	709.27	-12.15
97	peso propio	I[81]	4.53	48.75	-207.67	-6.56	410.84	51.1
97	peso propio	J[99]	4.53	48.75	-193.25	-6.56	711.53	-22.02
98	peso propio	I[82]	15.55	76.38	-208.43	-8.9	413.36	79.88
98	peso propio	J[100]	15.55	76.38	-194.01	-8.9	715.19	-34.69
99	peso propio	I[83]	35.08	112.68	-209.59	-10.52	416.32	117.53
99	peso propio	J[101]	35.08	112.68	-195.17	-10.52	719.89	-51.49
100	peso propio	I[84]	76.82	160.75	-210.71	-10.49	417.54	167.22
100	peso propio	J[102]	76.82	160.75	-196.29	-10.49	722.79	-73.9
101	peso propio	I[85]	202.32	225.62	-212.11	-5.58	404.34	234.02
101	peso propio	J[103]	202.32	225.62	-197.69	-5.58	711.69	-104.42
102	peso propio	I[86]	375.65	302.13	-261.98	6.61	291.47	309.94
102	peso propio	J[104]	375.65	302.13	-247.56	6.61	673.62	-143.26
103	peso propio	I[87]	-704.6	-316.55	-52.98	-42.04	427.76	159.18
103	peso propio	J[105]	-704.6	-316.55	-30.47	-42.04	490.35	633.99
104	peso propio	I[88]	-704.6	316.55	-52.98	42.04	427.76	-159.18
104	peso propio	J[106]	-704.6	316.55	-30.47	42.04	490.35	-633.99
105	peso propio	I[89]	375.65	-302.13	-247.56	-30.17	702.91	143.26
105	peso propio	J[107]	375.65	-302.13	-225.05	-30.17	1057.37	596.46
106	peso propio	I[90]	202.32	-225.62	-197.69	-12.02	727.46	104.42
106	peso propio	J[108]	202.32	-225.62	-175.18	-12.02	1007.11	442.85
107	peso propio	I[91]	76.82	-160.75	-196.29	-2.04	728.78	73.9
107	peso propio	J[109]	76.82	-160.75	-173.78	-2.04	1006.33	315.03
108	peso propio	I[92]	35.08	-112.68	-195.17	1.73	722.62	51.49
108	peso propio	J[110]	35.08	-112.68	-172.66	1.73	998.49	220.52
109	peso propio	I[93]	15.55	-76.38	-194.01	2.94	716.4	34.69
109	peso propio	J[111]	15.55	-76.38	-171.51	2.94	990.54	149.26
110	peso propio	I[94]	4.53	-48.75	-193.25	2.76	711.88	22.02
110	peso propio	J[112]	4.53	-48.75	-170.74	2.76	984.88	95.15
111	peso propio	I[95]	-1.4	-26.98	-192.8	1.87	709.16	12.15
111	peso propio	J[113]	-1.4	-26.98	-170.3	1.87	981.48	52.62
112	peso propio	I[96]	-3.95	-8.62	-192.59	0.65	707.92	3.87
112	peso propio	J[114]	-3.95	-8.62	-170.09	0.65	979.92	16.81
113	peso propio	I[97]	-3.95	8.62	-192.59	-0.65	707.92	-3.87
113	peso propio	J[115]	-3.95	8.62	-170.09	-0.65	979.92	-16.81
114	peso propio	I[98]	-1.4	26.98	-192.8	-1.87	709.16	-12.15
114	peso propio	J[116]	-1.4	26.98	-170.3	-1.87	981.48	-52.62
115	peso propio	I[99]	4.53	48.75	-193.25	-2.76	711.88	-22.02
115	peso propio	J[117]	4.53	48.75	-170.74	-2.76	984.88	-95.15
116	peso propio	I[100]	15.55	76.38	-194.01	-2.94	716.4	-34.69
116	peso propio	J[118]	15.55	76.38	-171.51	-2.94	990.54	-149.26
117	peso propio	I[101]	35.08	112.68	-195.17	-1.73	722.62	-51.49
117	peso propio	J[119]	35.08	112.68	-172.66	-1.73	998.49	-220.52
118	peso propio	I[102]	76.82	160.75	-196.29	2.04	728.78	-73.9
118	peso propio	J[120]	76.82	160.75	-173.78	2.04	1006.33	-315.03
119	peso propio	I[103]	202.32	225.62	-197.69	12.02	727.46	-104.42
119	peso propio	J[121]	202.32	225.62	-175.18	12.02	1007.11	-442.85
120	peso propio	I[104]	375.65	302.13	-247.56	30.17	702.91	-143.26
120	peso propio	J[122]	375.65	302.13	-225.05	30.17	1057.37	-596.46
121	peso propio	I[105]	-950.99	-75.69	-46	-11.8	599.1	-86.39
121	peso propio	J[123]	-950.99	-75.69	-23.49	-11.8	651.22	27.15

122	peso propio	I[106]	-950.99	75.69	-46	11.8	599.1	86.39
122	peso propio	J[124]	-950.99	75.69	-23.49	11.8	651.22	-27.15
123	peso propio	I[107]	481.71	-79.75	-100.1	-4.15	1002.52	-108.51
123	peso propio	J[125]	481.71	-79.75	-77.59	-4.15	1135.79	11.12
124	peso propio	I[108]	237	-69.46	-87.99	-2.94	994.28	-95.68
124	peso propio	J[126]	237	-69.46	-65.49	-2.94	1109.39	8.51
125	peso propio	I[109]	108.38	-53.52	-87.31	-0.12	993.98	-74.01
125	peso propio	J[127]	108.38	-53.52	-64.81	-0.12	1108.07	6.28
126	peso propio	I[110]	56.94	-40.75	-87.35	0.74	989.93	-56.41
126	peso propio	J[128]	56.94	-40.75	-64.84	0.74	1104.07	4.72
127	peso propio	I[111]	32.5	-29.71	-87.15	1.05	983.99	-41.25
127	peso propio	J[129]	32.5	-29.71	-64.64	1.05	1097.83	3.32
128	peso propio	I[112]	18.18	-20.14	-87	0.97	979.62	-28.06
128	peso propio	J[130]	18.18	-20.14	-64.49	0.97	1093.24	2.15
129	peso propio	I[113]	9.98	-11.64	-86.9	0.66	977.09	-16.26
129	peso propio	J[131]	9.98	-11.64	-64.4	0.66	1090.57	1.2
130	peso propio	I[114]	6.3	-3.81	-86.86	0.23	975.97	-5.32
130	peso propio	J[132]	6.3	-3.81	-64.35	0.23	1089.37	0.39
131	peso propio	I[115]	6.3	3.81	-86.86	-0.23	975.97	5.32
131	peso propio	J[133]	6.3	3.81	-64.35	-0.23	1089.37	-0.39
132	peso propio	I[116]	9.98	11.64	-86.9	-0.66	977.09	16.26
132	peso propio	J[134]	9.98	11.64	-64.4	-0.66	1090.57	-1.2
133	peso propio	I[117]	18.18	20.14	-87	-0.97	979.62	28.06
133	peso propio	J[135]	18.18	20.14	-64.49	-0.97	1093.24	-2.15
134	peso propio	I[118]	32.5	29.71	-87.15	-1.05	983.99	41.25
134	peso propio	J[136]	32.5	29.71	-64.64	-1.05	1097.83	-3.32
135	peso propio	I[119]	56.94	40.75	-87.35	-0.74	989.93	56.41
135	peso propio	J[137]	56.94	40.75	-64.84	-0.74	1104.07	-4.72
136	peso propio	I[120]	108.38	53.52	-87.31	0.12	993.98	74.01
136	peso propio	J[138]	108.38	53.52	-64.81	0.12	1108.07	-6.28
137	peso propio	I[121]	237	69.46	-87.99	2.94	994.28	95.68
137	peso propio	J[139]	237	69.46	-65.49	2.94	1109.39	-8.51
138	peso propio	I[122]	481.71	79.75	-100.1	4.15	1002.52	108.51
138	peso propio	J[140]	481.71	79.75	-77.59	4.15	1135.79	-11.12
139	peso propio	I[123]	-950.99	-75.69	-23.49	-11.8	651.22	27.15
139	peso propio	J[141]	-950.99	-75.69	-0.99	-11.8	669.58	140.69
140	peso propio	I[124]	-950.99	75.69	-23.49	11.8	651.22	-27.15
140	peso propio	J[142]	-950.99	75.69	-0.99	11.8	669.58	-140.69
141	peso propio	I[125]	481.71	-79.75	-77.59	-4.15	1135.79	11.12
141	peso propio	J[143]	481.71	-79.75	-55.09	-4.15	1235.3	130.75
142	peso propio	I[126]	237	-69.46	-65.49	-2.94	1109.39	8.51
142	peso propio	J[144]	237	-69.46	-42.98	-2.94	1190.75	112.7
143	peso propio	I[127]	108.38	-53.52	-64.81	-0.12	1108.07	6.28
143	peso propio	J[145]	108.38	-53.52	-42.3	-0.12	1188.4	86.56
144	peso propio	I[128]	56.94	-40.75	-64.84	0.74	1104.07	4.72
144	peso propio	J[146]	56.94	-40.75	-42.34	0.74	1184.46	65.85
145	peso propio	I[129]	32.5	-29.71	-64.64	1.05	1097.83	3.32
145	peso propio	J[147]	32.5	-29.71	-42.14	1.05	1177.91	47.89
146	peso propio	I[130]	18.18	-20.14	-64.49	0.97	1093.24	2.15
146	peso propio	J[148]	18.18	-20.14	-41.99	0.97	1173.1	32.37
147	peso propio	I[131]	9.98	-11.64	-64.4	0.66	1090.57	1.2
147	peso propio	J[149]	9.98	-11.64	-41.89	0.66	1170.29	18.67
148	peso propio	I[132]	6.3	-3.81	-64.35	0.23	1089.37	0.39
148	peso propio	J[150]	6.3	-3.81	-41.85	0.23	1169.03	6.09
149	peso propio	I[133]	6.3	3.81	-64.35	-0.23	1089.37	-0.39
149	peso propio	J[151]	6.3	3.81	-41.85	-0.23	1169.03	-6.09
150	peso propio	I[134]	9.98	11.64	-64.4	-0.66	1090.57	-1.2
150	peso propio	J[152]	9.98	11.64	-41.89	-0.66	1170.29	-18.67
151	peso propio	I[135]	18.18	20.14	-64.49	-0.97	1093.24	-2.15
151	peso propio	J[153]	18.18	20.14	-41.99	-0.97	1173.1	-32.37
152	peso propio	I[136]	32.5	29.71	-64.64	-1.05	1097.83	-3.32

152	peso propio	J[154]	32.5	29.71	-42.14	-1.05	1177.91	-47.89
153	peso propio	I[137]	56.94	40.75	-64.84	-0.74	1104.07	-4.72
153	peso propio	J[155]	56.94	40.75	-42.34	-0.74	1184.46	-65.85
154	peso propio	I[138]	108.38	53.52	-64.81	0.12	1108.07	-6.28
154	peso propio	J[156]	108.38	53.52	-42.3	0.12	1188.4	-86.56
155	peso propio	I[139]	237	69.46	-65.49	2.94	1109.39	-8.51
155	peso propio	J[157]	237	69.46	-42.98	2.94	1190.75	-112.7
156	peso propio	I[140]	481.71	79.75	-77.59	4.15	1135.79	-11.12
156	peso propio	J[158]	481.71	79.75	-55.09	4.15	1235.3	-130.75
157	peso propio	I[141]	-950.99	75.69	0.99	11.8	669.58	140.69
157	peso propio	J[159]	-950.99	75.69	23.49	11.8	651.22	27.15
158	peso propio	I[142]	-950.99	-75.69	0.99	-11.8	669.58	-140.69
158	peso propio	J[160]	-950.99	-75.69	23.49	-11.8	651.22	-27.15
159	peso propio	I[143]	481.71	79.75	55.09	4.15	1235.3	130.75
159	peso propio	J[161]	481.71	79.75	77.59	4.15	1135.79	11.12
160	peso propio	I[144]	237	69.46	42.98	2.94	1190.75	112.7
160	peso propio	J[162]	237	69.46	65.49	2.94	1109.39	8.51
161	peso propio	I[145]	108.38	53.52	42.3	0.12	1188.4	86.56
161	peso propio	J[163]	108.38	53.52	64.81	0.12	1108.07	6.28
162	peso propio	I[146]	56.94	40.75	42.34	-0.74	1184.46	65.85
162	peso propio	J[164]	56.94	40.75	64.84	-0.74	1104.07	4.72
163	peso propio	I[147]	32.5	29.71	42.14	-1.05	1177.91	47.89
163	peso propio	J[165]	32.5	29.71	64.64	-1.05	1097.83	3.32
164	peso propio	I[148]	18.18	20.14	41.99	-0.97	1173.1	32.37
164	peso propio	J[166]	18.18	20.14	64.49	-0.97	1093.24	2.15
165	peso propio	I[149]	9.98	11.64	41.89	-0.66	1170.29	18.67
165	peso propio	J[167]	9.98	11.64	64.4	-0.66	1090.57	1.2
166	peso propio	I[150]	6.3	3.81	41.85	-0.23	1169.03	6.09
166	peso propio	J[168]	6.3	3.81	64.35	-0.23	1089.37	0.39
167	peso propio	I[151]	6.3	-3.81	41.85	0.23	1169.03	-6.09
167	peso propio	J[169]	6.3	-3.81	64.35	0.23	1089.37	-0.39
168	peso propio	I[152]	9.98	-11.64	41.89	0.66	1170.29	-18.67
168	peso propio	J[170]	9.98	-11.64	64.4	0.66	1090.57	-1.2
169	peso propio	I[153]	18.18	-20.14	41.99	0.97	1173.1	-32.37
169	peso propio	J[171]	18.18	-20.14	64.49	0.97	1093.24	-2.15
170	peso propio	I[154]	32.5	-29.71	42.14	1.05	1177.91	-47.89
170	peso propio	J[172]	32.5	-29.71	64.64	1.05	1097.83	-3.32
171	peso propio	I[155]	56.94	-40.75	42.34	0.74	1184.46	-65.85
171	peso propio	J[173]	56.94	-40.75	64.84	0.74	1104.07	-4.72
172	peso propio	I[156]	108.38	-53.52	42.3	-0.12	1188.4	-86.56
172	peso propio	J[174]	108.38	-53.52	64.81	-0.12	1108.07	-6.28
173	peso propio	I[157]	237	-69.46	42.98	-2.94	1190.75	-112.7
173	peso propio	J[175]	237	-69.46	65.49	-2.94	1109.39	-8.51
174	peso propio	I[158]	481.71	-79.75	55.09	-4.15	1235.3	-130.75
174	peso propio	J[176]	481.71	-79.75	77.59	-4.15	1135.79	-11.12
175	peso propio	I[159]	-950.99	75.69	23.49	11.8	651.22	27.15
175	peso propio	J[177]	-950.99	75.69	46	11.8	599.1	-86.39
176	peso propio	I[160]	-950.99	-75.69	23.49	-11.8	651.22	-27.15
176	peso propio	J[178]	-950.99	-75.69	46	-11.8	599.1	86.39
177	peso propio	I[161]	481.71	79.75	77.59	4.15	1135.79	11.12
177	peso propio	J[179]	481.71	79.75	100.1	4.15	1002.52	-108.51
178	peso propio	I[162]	237	69.46	65.49	2.94	1109.39	8.51
178	peso propio	J[180]	237	69.46	87.99	2.94	994.28	-95.68
179	peso propio	I[163]	108.38	53.52	64.81	0.12	1108.07	6.28
179	peso propio	J[181]	108.38	53.52	87.31	0.12	993.98	-74.01
180	peso propio	I[164]	56.94	40.75	64.84	-0.74	1104.07	4.72
180	peso propio	J[182]	56.94	40.75	87.35	-0.74	989.93	-56.41
181	peso propio	I[165]	32.5	29.71	64.64	-1.05	1097.83	3.32
181	peso propio	J[183]	32.5	29.71	87.15	-1.05	983.99	-41.25
182	peso propio	I[166]	18.18	20.14	64.49	-0.97	1093.24	2.15
182	peso propio	J[184]	18.18	20.14	87	-0.97	979.62	-28.06

183	peso propio	I[167]	9.98	11.64	64.4	-0.66	1090.57	1.2
183	peso propio	J[185]	9.98	11.64	86.9	-0.66	977.09	-16.26
184	peso propio	I[168]	6.3	3.81	64.35	-0.23	1089.37	0.39
184	peso propio	J[186]	6.3	3.81	86.86	-0.23	975.97	-5.32
185	peso propio	I[169]	6.3	-3.81	64.35	0.23	1089.37	-0.39
185	peso propio	J[187]	6.3	-3.81	86.86	0.23	975.97	5.32
186	peso propio	I[170]	9.98	-11.64	64.4	0.66	1090.57	-1.2
186	peso propio	J[188]	9.98	-11.64	86.9	0.66	977.09	16.26
187	peso propio	I[171]	18.18	-20.14	64.49	0.97	1093.24	-2.15
187	peso propio	J[189]	18.18	-20.14	87	0.97	979.62	28.06
188	peso propio	I[172]	32.5	-29.71	64.64	1.05	1097.83	-3.32
188	peso propio	J[190]	32.5	-29.71	87.15	1.05	983.99	41.25
189	peso propio	I[173]	56.94	-40.75	64.84	0.74	1104.07	-4.72
189	peso propio	J[191]	56.94	-40.75	87.35	0.74	989.93	56.41
190	peso propio	I[174]	108.38	-53.52	64.81	-0.12	1108.07	-6.28
190	peso propio	J[192]	108.38	-53.52	87.31	-0.12	993.98	74.01
191	peso propio	I[175]	237	-69.46	65.49	-2.94	1109.39	-8.51
191	peso propio	J[193]	237	-69.46	87.99	-2.94	994.28	95.68
192	peso propio	I[176]	481.71	-79.75	77.59	-4.15	1135.79	-11.12
192	peso propio	J[194]	481.71	-79.75	100.1	-4.15	1002.52	108.51
193	peso propio	I[177]	-704.6	316.55	30.47	42.04	490.35	633.99
193	peso propio	J[195]	-704.6	316.55	52.98	42.04	427.76	159.18
194	peso propio	I[178]	-704.6	-316.55	30.47	-42.04	490.35	-633.99
194	peso propio	J[196]	-704.6	-316.55	52.98	-42.04	427.76	-159.18
195	peso propio	I[179]	375.65	302.13	225.05	30.17	1057.37	596.46
195	peso propio	J[197]	375.65	302.13	247.56	30.17	702.91	143.26
196	peso propio	I[180]	202.32	225.62	175.18	12.02	1007.11	442.85
196	peso propio	J[198]	202.32	225.62	197.69	12.02	727.46	104.42
197	peso propio	I[181]	76.82	160.75	173.78	2.04	1006.33	315.03
197	peso propio	J[199]	76.82	160.75	196.29	2.04	728.78	73.9
198	peso propio	I[182]	35.08	112.68	172.66	-1.73	998.49	220.52
198	peso propio	J[200]	35.08	112.68	195.17	-1.73	722.62	51.49
199	peso propio	I[183]	15.55	76.38	171.51	-2.94	990.54	149.26
199	peso propio	J[201]	15.55	76.38	194.01	-2.94	716.4	34.69
200	peso propio	I[184]	4.53	48.75	170.74	-2.76	984.88	95.15
200	peso propio	J[202]	4.53	48.75	193.25	-2.76	711.88	22.02
201	peso propio	I[185]	-1.4	26.98	170.3	-1.87	981.48	52.62
201	peso propio	J[203]	-1.4	26.98	192.8	-1.87	709.16	12.15
202	peso propio	I[186]	-3.95	8.62	170.09	-0.65	979.92	16.81
202	peso propio	J[204]	-3.95	8.62	192.59	-0.65	707.92	3.87
203	peso propio	I[187]	-3.95	-8.62	170.09	0.65	979.92	-16.81
203	peso propio	J[205]	-3.95	-8.62	192.59	0.65	707.92	-3.87
204	peso propio	I[188]	-1.4	-26.98	170.3	1.87	981.48	-52.62
204	peso propio	J[206]	-1.4	-26.98	192.8	1.87	709.16	-12.15
205	peso propio	I[189]	4.53	-48.75	170.74	2.76	984.88	-95.15
205	peso propio	J[207]	4.53	-48.75	193.25	2.76	711.88	-22.02
206	peso propio	I[190]	15.55	-76.38	171.51	2.94	990.54	-149.26
206	peso propio	J[208]	15.55	-76.38	194.01	2.94	716.4	-34.69
207	peso propio	I[191]	35.08	-112.68	172.66	1.73	998.49	-220.52
207	peso propio	J[209]	35.08	-112.68	195.17	1.73	722.62	-51.49
208	peso propio	I[192]	76.82	-160.75	173.78	-2.04	1006.33	-315.03
208	peso propio	J[210]	76.82	-160.75	196.29	-2.04	728.78	-73.9
209	peso propio	I[193]	202.32	-225.62	175.18	-12.02	1007.11	-442.85
209	peso propio	J[211]	202.32	-225.62	197.69	-12.02	727.46	-104.42
210	peso propio	I[194]	375.65	-302.13	225.05	-30.17	1057.37	-596.46
210	peso propio	J[212]	375.65	-302.13	247.56	-30.17	702.91	-143.26
211	peso propio	I[195]	-704.6	316.55	52.98	17.36	482.7	159.18
211	peso propio	J[213]	-704.6	316.55	67.4	17.36	392.42	-315.64
212	peso propio	I[196]	-704.6	-316.55	52.98	-17.36	482.7	-159.18
212	peso propio	J[214]	-704.6	-316.55	67.4	-17.36	392.42	315.64
213	peso propio	I[197]	375.65	302.13	247.56	6.61	673.62	143.26

213	peso propio	J[215]	375.65	302.13	261.98	6.61	291.47	-309.94
214	peso propio	I[198]	202.32	225.62	197.69	-5.58	711.69	104.42
214	peso propio	J[216]	202.32	225.62	212.11	-5.58	404.34	-234.02
215	peso propio	I[199]	76.82	160.75	196.29	-10.49	722.79	73.9
215	peso propio	J[217]	76.82	160.75	210.71	-10.49	417.54	-167.22
216	peso propio	I[200]	35.08	112.68	195.17	-10.52	719.89	51.49
216	peso propio	J[218]	35.08	112.68	209.59	-10.52	416.32	-117.53
217	peso propio	I[201]	15.55	76.38	194.01	-8.9	715.19	34.69
217	peso propio	J[219]	15.55	76.38	208.43	-8.9	413.36	-79.88
218	peso propio	I[202]	4.53	48.75	193.25	-6.56	711.53	22.02
218	peso propio	J[220]	4.53	48.75	207.67	-6.56	410.84	-51.1
219	peso propio	I[203]	-1.4	26.98	192.8	-3.97	709.27	12.15
219	peso propio	J[221]	-1.4	26.98	207.22	-3.97	409.25	-28.33
220	peso propio	I[204]	-3.95	8.62	192.59	-1.33	708.23	3.87
220	peso propio	J[222]	-3.95	8.62	207.01	-1.33	408.52	-9.06
221	peso propio	I[205]	-3.95	-8.62	192.59	1.33	708.23	-3.87
221	peso propio	J[223]	-3.95	-8.62	207.01	1.33	408.52	9.06
222	peso propio	I[206]	-1.4	-26.98	192.8	3.97	709.27	-12.15
222	peso propio	J[224]	-1.4	-26.98	207.22	3.97	409.25	28.33
223	peso propio	I[207]	4.53	-48.75	193.25	6.56	711.53	-22.02
223	peso propio	J[225]	4.53	-48.75	207.67	6.56	410.84	51.1
224	peso propio	I[208]	15.55	-76.38	194.01	8.9	715.19	-34.69
224	peso propio	J[226]	15.55	-76.38	208.43	8.9	413.36	79.88
225	peso propio	I[209]	35.08	-112.68	195.17	10.52	719.89	-51.49
225	peso propio	J[227]	35.08	-112.68	209.59	10.52	416.32	117.53
226	peso propio	I[210]	76.82	-160.75	196.29	10.49	722.79	-73.9
226	peso propio	J[228]	76.82	-160.75	210.71	10.49	417.54	167.22
227	peso propio	I[211]	202.32	-225.62	197.69	5.58	711.69	-104.42
227	peso propio	J[229]	202.32	-225.62	212.11	5.58	404.34	234.02
228	peso propio	I[212]	375.65	-302.13	247.56	-6.61	673.62	-143.26
228	peso propio	J[230]	375.65	-302.13	261.98	-6.61	291.47	309.94
229	peso propio	I[213]	-281.06	1360.43	-7.1	-209.11	175.46	1063.79
229	peso propio	J[353]	-281.06	1360.43	2.52	-209.11	177.75	-296.64
230	peso propio	I[214]	-281.06	-1360.43	-7.1	209.11	175.46	-1063.79
230	peso propio	J[370]	-281.06	-1360.43	2.52	209.11	177.75	296.64
231	peso propio	I[215]	145.71	951.24	436.88	-32.19	417.77	726.72
231	peso propio	J[354]	145.71	951.24	446.49	-32.19	-23.92	-224.52
232	peso propio	I[216]	96.09	393.58	314.6	-12.94	454.05	296.86
232	peso propio	J[355]	96.09	393.58	324.22	-12.94	134.64	-96.73
233	peso propio	I[217]	29.31	131.39	303.87	1.03	440.1	98.37
233	peso propio	J[356]	29.31	131.39	313.49	1.03	131.42	-33.02
234	peso propio	I[218]	13.21	8.29	295.26	6.01	426.63	5.02
234	peso propio	J[357]	13.21	8.29	304.87	6.01	126.56	-3.27
235	peso propio	I[219]	4.29	-39.22	290.55	6.91	418.53	-30.76
235	peso propio	J[358]	4.29	-39.22	300.17	6.91	123.17	8.46
236	peso propio	I[220]	-0.55	-47.08	288.05	5.79	413.12	-36.41
236	peso propio	J[359]	-0.55	-47.08	297.67	5.79	120.26	10.67
237	peso propio	I[221]	-3	-34.53	286.82	3.73	409.92	-26.59
237	peso propio	J[360]	-3	-34.53	296.43	3.73	118.3	7.94
238	peso propio	I[222]	-4	-12.43	286.31	1.28	408.48	-9.56
238	peso propio	J[361]	-4	-12.43	295.93	1.28	117.36	2.87
239	peso propio	I[223]	-4	12.43	286.31	-1.28	408.48	9.56
239	peso propio	J[362]	-4	12.43	295.93	-1.28	117.36	-2.87
240	peso propio	I[224]	-3	34.53	286.82	-3.73	409.92	26.59
240	peso propio	J[363]	-3	34.53	296.43	-3.73	118.3	-7.94
241	peso propio	I[225]	-0.55	47.08	288.05	-5.79	413.12	36.41
241	peso propio	J[364]	-0.55	47.08	297.67	-5.79	120.26	-10.67
242	peso propio	I[226]	4.29	39.22	290.55	-6.91	418.53	30.76
242	peso propio	J[365]	4.29	39.22	300.17	-6.91	123.17	-8.46
243	peso propio	I[227]	13.21	-8.29	295.26	-6.01	426.63	-5.02
243	peso propio	J[366]	13.21	-8.29	304.87	-6.01	126.56	3.27

244	peso propio	I[228]	29.31	-131.39	303.87	-1.03	440.1	-98.37
244	peso propio	J[367]	29.31	-131.39	313.49	-1.03	131.42	33.02
245	peso propio	I[229]	96.09	-393.58	314.6	12.94	454.05	-296.86
245	peso propio	J[368]	96.09	-393.58	324.22	12.94	134.64	96.73
246	peso propio	I[230]	145.71	-951.24	436.88	32.19	417.77	-726.72
246	peso propio	J[369]	145.71	-951.24	446.49	32.19	-23.92	224.52
247	peso propio	I[1]	4684.75	281.06	-410.81	-305.71	-3421.29	951.53
247	peso propio	J[231]	4684.75	281.06	-392.74	-305.71	-2535.01	331.54
248	peso propio	I[19]	4684.75	-281.06	-410.81	305.71	-3421.29	-951.53
248	peso propio	J[232]	4684.75	-281.06	-392.74	305.71	-2535.01	-331.54
249	peso propio	I[231]	4684.75	281.06	-386.19	-321.49	-2535.01	331.54
249	peso propio	J[37]	4684.75	281.06	-368.12	-321.49	-1703.05	-288.45
250	peso propio	I[232]	4684.75	-281.06	-386.19	321.49	-2535.01	-331.54
250	peso propio	J[53]	4684.75	-281.06	-368.12	321.49	-1703.05	288.45
251	peso propio	I[37]	3733.51	135.35	-171.78	-29.47	-1282.85	411.69
251	peso propio	J[233]	3733.51	135.35	-153.71	-29.47	-923.84	113.12
252	peso propio	I[53]	3733.51	-135.35	-171.78	29.47	-1282.85	-411.69
252	peso propio	J[234]	3733.51	-135.35	-153.71	29.47	-923.84	-113.12
253	peso propio	I[233]	3733.51	135.35	-147.16	-45.25	-923.84	113.12
253	peso propio	J[38]	3733.51	135.35	-129.09	-45.25	-619.15	-185.44
254	peso propio	I[234]	3733.51	-135.35	-147.16	45.25	-923.84	-113.12
254	peso propio	J[54]	3733.51	-135.35	-129.09	45.25	-619.15	185.44
255	peso propio	I[38]	3339.93	39.26	-123.43	6.83	-445.67	108.08
255	peso propio	J[235]	3339.93	39.26	-105.36	6.83	-193.33	21.48
256	peso propio	I[54]	3339.93	-39.26	-123.43	-6.83	-445.67	-108.08
256	peso propio	J[236]	3339.93	-39.26	-105.36	-6.83	-193.33	-21.48
257	peso propio	I[235]	3339.93	39.26	-98.81	-8.95	-193.33	21.48
257	peso propio	J[39]	3339.93	39.26	-80.74	-8.95	4.7	-65.12
258	peso propio	I[236]	3339.93	-39.26	-98.81	8.95	-193.33	-21.48
258	peso propio	J[55]	3339.93	-39.26	-80.74	8.95	4.7	65.12
259	peso propio	I[39]	3208.54	9.95	-96.56	13.75	57.27	33.6
259	peso propio	J[237]	3208.54	9.95	-78.49	13.75	250.34	11.65
260	peso propio	I[55]	3208.54	-9.95	-96.56	-13.75	57.27	-33.6
260	peso propio	J[238]	3208.54	-9.95	-78.49	-13.75	250.34	-11.65
261	peso propio	I[237]	3208.54	9.95	-71.94	-2.03	250.34	11.65
261	peso propio	J[40]	3208.54	9.95	-53.87	-2.03	389.11	-10.29
262	peso propio	I[238]	3208.54	-9.95	-71.94	2.03	250.34	-11.65
262	peso propio	J[56]	3208.54	-9.95	-53.87	2.03	389.11	10.29
263	peso propio	I[40]	3200.25	-3.26	-77.28	14.65	386.48	-2.88
263	peso propio	J[239]	3200.25	-3.26	-59.21	14.65	537.02	4.3
264	peso propio	I[56]	3200.25	3.26	-77.28	-14.65	386.48	2.88
264	peso propio	J[240]	3200.25	3.26	-59.21	-14.65	537.02	-4.3
265	peso propio	I[239]	3200.25	-3.26	-52.66	-1.13	537.02	4.3
265	peso propio	J[41]	3200.25	-3.26	-34.59	-1.13	633.25	11.49
266	peso propio	I[240]	3200.25	3.26	-52.66	1.13	537.02	-4.3
266	peso propio	J[57]	3200.25	3.26	-34.59	1.13	633.25	-11.49
267	peso propio	I[41]	3239.47	-7.55	-61.08	12.95	610.35	-16.58
267	peso propio	J[241]	3239.47	-7.55	-43.01	12.95	725.15	0.07
268	peso propio	I[57]	3239.47	7.55	-61.08	-12.95	610.35	16.58
268	peso propio	J[242]	3239.47	7.55	-43.01	-12.95	725.15	-0.07
269	peso propio	I[241]	3239.47	-7.55	-36.45	-2.83	725.15	0.07
269	peso propio	J[42]	3239.47	-7.55	-18.39	-2.83	785.63	16.73
270	peso propio	I[242]	3239.47	7.55	-36.45	2.83	725.15	-0.07
270	peso propio	J[58]	3239.47	7.55	-18.39	2.83	785.63	-16.73
271	peso propio	I[42]	3286.55	-7	-46.78	10.94	760.64	-17.49
271	peso propio	J[243]	3286.55	-7	-28.71	10.94	843.9	-2.05
272	peso propio	I[58]	3286.55	7	-46.78	-10.94	760.64	17.49
272	peso propio	J[244]	3286.55	7	-28.71	-10.94	843.9	2.05
273	peso propio	I[243]	3286.55	-7	-22.16	-4.84	843.9	-2.05
273	peso propio	J[43]	3286.55	-7	-4.09	-4.84	872.84	13.38
274	peso propio	I[244]	3286.55	7	-22.16	4.84	843.9	2.05

274	peso propio	J[59]	3286.55	7	-4.09	4.84	872.84	-13.38
275	peso propio	I[43]	3321.08	-4	-33.74	9.28	855.03	-11.82
275	peso propio	J[245]	3321.08	-4	-15.67	9.28	909.52	-2.99
276	peso propio	I[59]	3321.08	4	-33.74	-9.28	855.03	11.82
276	peso propio	J[246]	3321.08	4	-15.67	-9.28	909.52	2.99
277	peso propio	I[245]	3321.08	-4	-9.12	-6.5	909.52	-2.99
277	peso propio	J[44]	3321.08	-4	8.95	-6.5	909.71	5.83
278	peso propio	I[246]	3321.08	4	-9.12	6.5	909.52	2.99
278	peso propio	J[60]	3321.08	4	8.95	6.5	909.71	-5.83
279	peso propio	I[44]	3333.51	0	-21.34	7.89	903.36	-3.26
279	peso propio	J[247]	3333.51	0	-3.28	7.89	930.51	-3.26
280	peso propio	I[60]	3333.51	0	-21.34	-7.89	903.36	3.26
280	peso propio	J[248]	3333.51	0	-3.28	-7.89	930.51	3.26
281	peso propio	I[247]	3333.51	0	3.28	-7.89	930.51	-3.26
281	peso propio	J[45]	3333.51	0	21.34	-7.89	903.36	-3.26
282	peso propio	I[248]	3333.51	0	3.28	7.89	930.51	3.26
282	peso propio	J[61]	3333.51	0	21.34	7.89	903.36	3.26
283	peso propio	I[45]	3321.08	4	-8.95	6.5	909.71	5.83
283	peso propio	J[249]	3321.08	4	9.12	6.5	909.52	-2.99
284	peso propio	I[61]	3321.08	-4	-8.95	-6.5	909.71	-5.83
284	peso propio	J[250]	3321.08	-4	9.12	-6.5	909.52	2.99
285	peso propio	I[249]	3321.08	4	15.67	-9.28	909.52	-2.99
285	peso propio	J[46]	3321.08	4	33.74	-9.28	855.03	-11.82
286	peso propio	I[250]	3321.08	-4	15.67	9.28	909.52	2.99
286	peso propio	J[62]	3321.08	-4	33.74	9.28	855.03	11.82
287	peso propio	I[46]	3286.55	7	4.09	4.84	872.84	13.38
287	peso propio	J[251]	3286.55	7	22.16	4.84	843.9	-2.05
288	peso propio	I[62]	3286.55	-7	4.09	-4.84	872.84	-13.38
288	peso propio	J[252]	3286.55	-7	22.16	-4.84	843.9	2.05
289	peso propio	I[251]	3286.55	7	28.71	-10.94	843.9	-2.05
289	peso propio	J[47]	3286.55	7	46.78	-10.94	760.64	-17.49
290	peso propio	I[252]	3286.55	-7	28.71	10.94	843.9	2.05
290	peso propio	J[63]	3286.55	-7	46.78	10.94	760.64	17.49
291	peso propio	I[47]	3239.47	7.55	18.39	2.83	785.63	16.73
291	peso propio	J[253]	3239.47	7.55	36.45	2.83	725.15	0.07
292	peso propio	I[63]	3239.47	-7.55	18.39	-2.83	785.63	-16.73
292	peso propio	J[254]	3239.47	-7.55	36.45	-2.83	725.15	-0.07
293	peso propio	I[253]	3239.47	7.55	43.01	-12.95	725.15	0.07
293	peso propio	J[48]	3239.47	7.55	61.08	-12.95	610.35	-16.58
294	peso propio	I[254]	3239.47	-7.55	43.01	12.95	725.15	-0.07
294	peso propio	J[64]	3239.47	-7.55	61.08	12.95	610.35	16.58
295	peso propio	I[48]	3200.25	3.26	34.59	1.13	633.25	11.49
295	peso propio	J[255]	3200.25	3.26	52.66	1.13	537.02	4.3
296	peso propio	I[64]	3200.25	-3.26	34.59	-1.13	633.25	-11.49
296	peso propio	J[256]	3200.25	-3.26	52.66	-1.13	537.02	-4.3
297	peso propio	I[255]	3200.25	3.26	59.21	-14.65	537.02	4.3
297	peso propio	J[49]	3200.25	3.26	77.28	-14.65	386.48	-2.88
298	peso propio	I[256]	3200.25	-3.26	59.21	14.65	537.02	-4.3
298	peso propio	J[65]	3200.25	-3.26	77.28	14.65	386.48	2.88
299	peso propio	I[49]	3208.54	-9.95	53.87	2.03	389.11	-10.29
299	peso propio	J[257]	3208.54	-9.95	71.94	2.03	250.34	11.65
300	peso propio	I[65]	3208.54	9.95	53.87	-2.03	389.11	10.29
300	peso propio	J[258]	3208.54	9.95	71.94	-2.03	250.34	-11.65
301	peso propio	I[257]	3208.54	-9.95	78.49	-13.75	250.34	11.65
301	peso propio	J[50]	3208.54	-9.95	96.56	-13.75	57.27	33.6
302	peso propio	I[258]	3208.54	9.95	78.49	13.75	250.34	-11.65
302	peso propio	J[66]	3208.54	9.95	96.56	13.75	57.27	-33.6
303	peso propio	I[50]	3339.93	-39.26	80.74	8.95	4.7	-65.12
303	peso propio	J[259]	3339.93	-39.26	98.81	8.95	-193.33	21.48
304	peso propio	I[66]	3339.93	39.26	80.74	-8.95	4.7	65.12
304	peso propio	J[260]	3339.93	39.26	98.81	-8.95	-193.33	-21.48

305	peso propio	I[259]	3339.93	-39.26	105.36	-6.83	-193.33	21.48
305	peso propio	J[51]	3339.93	-39.26	123.43	-6.83	-445.67	108.08
306	peso propio	I[260]	3339.93	39.26	105.36	6.83	-193.33	-21.48
306	peso propio	J[67]	3339.93	39.26	123.43	6.83	-445.67	-108.08
307	peso propio	I[51]	3733.51	-135.35	129.09	45.25	-619.15	-185.44
307	peso propio	J[261]	3733.51	-135.35	147.16	45.25	-923.84	113.12
308	peso propio	I[67]	3733.51	135.35	129.09	-45.25	-619.15	185.44
308	peso propio	J[262]	3733.51	135.35	147.16	-45.25	-923.84	-113.12
309	peso propio	I[261]	3733.51	-135.35	153.71	29.47	-923.84	113.12
309	peso propio	J[52]	3733.51	-135.35	171.78	29.47	-1282.85	411.69
310	peso propio	I[262]	3733.51	135.35	153.71	-29.47	-923.84	-113.12
310	peso propio	J[68]	3733.51	135.35	171.78	-29.47	-1282.85	-411.69
311	peso propio	I[52]	4684.75	-281.06	368.12	321.49	-1703.05	-288.45
311	peso propio	J[263]	4684.75	-281.06	386.19	321.49	-2535.01	331.54
312	peso propio	I[68]	4684.75	281.06	368.12	-321.49	-1703.05	288.45
312	peso propio	J[264]	4684.75	281.06	386.19	-321.49	-2535.01	-331.54
313	peso propio	I[263]	4684.75	-281.06	392.74	305.71	-2535.01	331.54
313	peso propio	J[18]	4684.75	-281.06	410.81	305.71	-3421.29	951.53
314	peso propio	I[264]	4684.75	281.06	392.74	-305.71	-2535.01	-331.54
314	peso propio	J[36]	4684.75	281.06	410.81	-305.71	-3421.29	-951.53
315	peso propio	I[1]	-0.16	0	-6.55	0	-15.78	0
315	peso propio	J[265]	0	0	0	0	0	0
316	peso propio	I[18]	-0.16	0	-6.55	0	-15.78	0
316	peso propio	J[266]	0	0	0	0	0	0
317	peso propio	I[37]	-0.16	0	-6.55	0	-15.78	0
317	peso propio	J[267]	0	0	0	0	0	0
318	peso propio	I[38]	-0.16	0	-6.55	0	-15.78	0
318	peso propio	J[268]	0	0	0	0	0	0
319	peso propio	I[39]	-0.16	0	-6.55	0	-15.78	0
319	peso propio	J[269]	0	0	0	0	0	0
320	peso propio	I[40]	-0.16	0	-6.55	0	-15.78	0
320	peso propio	J[270]	0	0	0	0	0	0
321	peso propio	I[41]	-0.16	0	-6.55	0	-15.78	0
321	peso propio	J[271]	0	0	0	0	0	0
322	peso propio	I[42]	-0.16	0	-6.55	0	-15.78	0
322	peso propio	J[272]	0	0	0	0	0	0
323	peso propio	I[43]	-0.16	0	-6.55	0	-15.78	0
323	peso propio	J[273]	0	0	0	0	0	0
324	peso propio	I[44]	-0.16	0	-6.55	0	-15.78	0
324	peso propio	J[274]	0	0	0	0	0	0
325	peso propio	I[45]	-0.16	0	-6.55	0	-15.78	0
325	peso propio	J[275]	0	0	0	0	0	0
326	peso propio	I[46]	-0.16	0	-6.55	0	-15.78	0
326	peso propio	J[276]	0	0	0	0	0	0
327	peso propio	I[47]	-0.16	0	-6.55	0	-15.78	0
327	peso propio	J[277]	0	0	0	0	0	0
328	peso propio	I[48]	-0.16	0	-6.55	0	-15.78	0
328	peso propio	J[278]	0	0	0	0	0	0
329	peso propio	I[49]	-0.16	0	-6.55	0	-15.78	0
329	peso propio	J[279]	0	0	0	0	0	0
330	peso propio	I[50]	-0.16	0	-6.55	0	-15.78	0
330	peso propio	J[280]	0	0	0	0	0	0
331	peso propio	I[51]	-0.16	0	-6.55	0	-15.78	0
331	peso propio	J[281]	0	0	0	0	0	0
332	peso propio	I[52]	-0.16	0	-6.55	0	-15.78	0
332	peso propio	J[282]	0	0	0	0	0	0
333	peso propio	I[231]	-0.16	0	-6.55	0	-15.78	0
333	peso propio	J[283]	0	0	0	0	0	0
334	peso propio	I[233]	-0.16	0	-6.55	0	-15.78	0
334	peso propio	J[284]	0	0	0	0	0	0
335	peso propio	I[235]	-0.16	0	-6.55	0	-15.78	0

335	peso propio	J[285]	0	0	0	0	0	0
336	peso propio	I[237]	-0.16	0	-6.55	0	-15.78	0
336	peso propio	J[286]	0	0	0	0	0	0
337	peso propio	I[239]	-0.16	0	-6.55	0	-15.78	0
337	peso propio	J[287]	0	0	0	0	0	0
338	peso propio	I[241]	-0.16	0	-6.55	0	-15.78	0
338	peso propio	J[288]	0	0	0	0	0	0
339	peso propio	I[243]	-0.16	0	-6.55	0	-15.78	0
339	peso propio	J[289]	0	0	0	0	0	0
340	peso propio	I[245]	-0.16	0	-6.55	0	-15.78	0
340	peso propio	J[290]	0	0	0	0	0	0
341	peso propio	I[247]	-0.16	0	-6.55	0	-15.78	0
341	peso propio	J[291]	0	0	0	0	0	0
342	peso propio	I[249]	-0.16	0	-6.55	0	-15.78	0
342	peso propio	J[292]	0	0	0	0	0	0
343	peso propio	I[251]	-0.16	0	-6.55	0	-15.78	0
343	peso propio	J[293]	0	0	0	0	0	0
344	peso propio	I[253]	-0.16	0	-6.55	0	-15.78	0
344	peso propio	J[294]	0	0	0	0	0	0
345	peso propio	I[255]	-0.16	0	-6.55	0	-15.78	0
345	peso propio	J[295]	0	0	0	0	0	0
346	peso propio	I[257]	-0.16	0	-6.55	0	-15.78	0
346	peso propio	J[296]	0	0	0	0	0	0
347	peso propio	I[259]	-0.16	0	-6.55	0	-15.78	0
347	peso propio	J[297]	0	0	0	0	0	0
348	peso propio	I[261]	-0.16	0	-6.55	0	-15.78	0
348	peso propio	J[298]	0	0	0	0	0	0
349	peso propio	I[263]	-0.16	0	-6.55	0	-15.78	0
349	peso propio	J[299]	0	0	0	0	0	0
350	peso propio	I[19]	-0.16	0	-6.55	0	-15.78	0
350	peso propio	J[300]	0	0	0	0	0	0
351	peso propio	I[36]	-0.16	0	-6.55	0	-15.78	0
351	peso propio	J[301]	0	0	0	0	0	0
352	peso propio	I[53]	-0.16	0	-6.55	0	-15.78	0
352	peso propio	J[302]	0	0	0	0	0	0
353	peso propio	I[54]	-0.16	0	-6.55	0	-15.78	0
353	peso propio	J[303]	0	0	0	0	0	0
354	peso propio	I[55]	-0.16	0	-6.55	0	-15.78	0
354	peso propio	J[304]	0	0	0	0	0	0
355	peso propio	I[56]	-0.16	0	-6.55	0	-15.78	0
355	peso propio	J[305]	0	0	0	0	0	0
356	peso propio	I[57]	-0.16	0	-6.55	0	-15.78	0
356	peso propio	J[306]	0	0	0	0	0	0
357	peso propio	I[58]	-0.16	0	-6.55	0	-15.78	0
357	peso propio	J[307]	0	0	0	0	0	0
358	peso propio	I[59]	-0.16	0	-6.55	0	-15.78	0
358	peso propio	J[308]	0	0	0	0	0	0
359	peso propio	I[60]	-0.16	0	-6.55	0	-15.78	0
359	peso propio	J[309]	0	0	0	0	0	0
360	peso propio	I[61]	-0.16	0	-6.55	0	-15.78	0
360	peso propio	J[310]	0	0	0	0	0	0
361	peso propio	I[62]	-0.16	0	-6.55	0	-15.78	0
361	peso propio	J[311]	0	0	0	0	0	0
362	peso propio	I[63]	-0.16	0	-6.55	0	-15.78	0
362	peso propio	J[312]	0	0	0	0	0	0
363	peso propio	I[64]	-0.16	0	-6.55	0	-15.78	0
363	peso propio	J[313]	0	0	0	0	0	0
364	peso propio	I[65]	-0.16	0	-6.55	0	-15.78	0
364	peso propio	J[314]	0	0	0	0	0	0
365	peso propio	I[66]	-0.16	0	-6.55	0	-15.78	0
365	peso propio	J[315]	0	0	0	0	0	0

366	peso propio	I[67]	-0.16	0	-6.55	0	-15.78	0
366	peso propio	J[316]	0	0	0	0	0	0
367	peso propio	I[68]	-0.16	0	-6.55	0	-15.78	0
367	peso propio	J[317]	0	0	0	0	0	0
368	peso propio	I[232]	-0.16	0	-6.55	0	-15.78	0
368	peso propio	J[318]	0	0	0	0	0	0
369	peso propio	I[234]	-0.16	0	-6.55	0	-15.78	0
369	peso propio	J[319]	0	0	0	0	0	0
370	peso propio	I[236]	-0.16	0	-6.55	0	-15.78	0
370	peso propio	J[320]	0	0	0	0	0	0
371	peso propio	I[238]	-0.16	0	-6.55	0	-15.78	0
371	peso propio	J[321]	0	0	0	0	0	0
372	peso propio	I[240]	-0.16	0	-6.55	0	-15.78	0
372	peso propio	J[322]	0	0	0	0	0	0
373	peso propio	I[242]	-0.16	0	-6.55	0	-15.78	0
373	peso propio	J[323]	0	0	0	0	0	0
374	peso propio	I[244]	-0.16	0	-6.55	0	-15.78	0
374	peso propio	J[324]	0	0	0	0	0	0
375	peso propio	I[246]	-0.16	0	-6.55	0	-15.78	0
375	peso propio	J[325]	0	0	0	0	0	0
376	peso propio	I[248]	-0.16	0	-6.55	0	-15.78	0
376	peso propio	J[326]	0	0	0	0	0	0
377	peso propio	I[250]	-0.16	0	-6.55	0	-15.78	0
377	peso propio	J[327]	0	0	0	0	0	0
378	peso propio	I[252]	-0.16	0	-6.55	0	-15.78	0
378	peso propio	J[328]	0	0	0	0	0	0
379	peso propio	I[254]	-0.16	0	-6.55	0	-15.78	0
379	peso propio	J[329]	0	0	0	0	0	0
380	peso propio	I[256]	-0.16	0	-6.55	0	-15.78	0
380	peso propio	J[330]	0	0	0	0	0	0
381	peso propio	I[258]	-0.16	0	-6.55	0	-15.78	0
381	peso propio	J[331]	0	0	0	0	0	0
382	peso propio	I[260]	-0.16	0	-6.55	0	-15.78	0
382	peso propio	J[332]	0	0	0	0	0	0
383	peso propio	I[262]	-0.16	0	-6.55	0	-15.78	0
383	peso propio	J[333]	0	0	0	0	0	0
384	peso propio	I[264]	-0.16	0	-6.55	0	-15.78	0
384	peso propio	J[334]	0	0	0	0	0	0
385	peso propio	I[69]	1043.89	423.54	74.5	-19.13	261.12	1379.43
385	peso propio	J[71]	1043.89	423.54	157.22	-19.13	-250.02	-489.11
386	peso propio	I[105]	240.85	246.39	15.52	-12.87	123.96	720.38
386	peso propio	J[107]	240.85	246.39	98.25	-12.87	-127	-366.64
387	peso propio	I[141]	151.39	0	-1.97	0	82.5	0
387	peso propio	J[143]	151.39	0	80.75	0	-91.26	0
388	peso propio	I[177]	240.85	-246.39	15.52	12.87	123.96	-720.38
388	peso propio	J[179]	240.85	-246.39	98.25	12.87	-127	366.64
389	peso propio	I[213]	1043.89	-423.54	74.5	19.13	261.12	-1379.43
389	peso propio	J[215]	1043.89	-423.54	157.22	19.13	-250.02	489.11
390	peso propio	I[71]	1692.99	193.6	-17.68	-0.24	14.38	547.55
390	peso propio	J[72]	1692.99	193.6	65.04	-0.24	-90.1	-306.57
391	peso propio	I[107]	463.23	140.34	-26.71	0.7	-14.45	338.33
391	peso propio	J[108]	463.23	140.34	56.01	0.7	-79.08	-280.81
392	peso propio	I[143]	310.9	0	-29.43	0	-20.89	0
392	peso propio	J[144]	310.9	0	53.29	0	-73.54	0
393	peso propio	I[179]	463.23	-140.34	-26.71	-0.7	-14.45	-338.33
393	peso propio	J[180]	463.23	-140.34	56.01	-0.7	-79.08	280.81
394	peso propio	I[215]	1692.99	-193.6	-17.68	0.24	14.38	-547.55
394	peso propio	J[216]	1692.99	-193.6	65.04	0.24	-90.1	306.57
395	peso propio	I[72]	1860.95	87.37	-37.46	-0.15	-19.01	224.31
395	peso propio	J[73]	1860.95	87.37	45.27	-0.15	-36.23	-161.14
396	peso propio	I[108]	619.39	105.66	-31.18	0.04	-9.24	257.72

396	peso propio	J[109]	619.39	105.66	51.55	0.04	-54.17	-208.41
397	peso propio	I[144]	449.82	0	-32.67	0	-13.6	0
397	peso propio	J[145]	449.82	0	50.05	0	-51.93	0
398	peso propio	I[180]	619.39	-105.66	-31.18	-0.04	-9.24	-257.72
398	peso propio	J[181]	619.39	-105.66	51.55	-0.04	-54.17	208.41
399	peso propio	I[216]	1860.95	-87.37	-37.46	0.15	-19.01	-224.31
399	peso propio	J[217]	1860.95	-87.37	45.27	0.15	-36.23	161.14
400	peso propio	I[73]	1831.6	39.86	-47.9	0.23	-38.42	104.45
400	peso propio	J[376]	1831.6	39.86	-6.54	0.23	21.61	16.53
401	peso propio	I[109]	726.62	74.09	-34.93	0.11	-10.53	180.62
401	peso propio	J[377]	726.62	74.09	6.43	0.11	20.9	17.18
402	peso propio	I[145]	556.86	0	-34.56	0	-10.03	0
402	peso propio	J[378]	556.86	0	6.81	0	20.57	0
403	peso propio	I[181]	726.62	-74.09	-34.93	-0.11	-10.53	-180.62
403	peso propio	J[379]	726.62	-74.09	6.43	-0.11	20.9	-17.18
404	peso propio	I[217]	1831.6	-39.86	-47.9	-0.23	-38.42	-104.45
404	peso propio	J[380]	1831.6	-39.86	-6.54	-0.23	21.61	-16.53
405	peso propio	I[74]	1727.21	17.98	-50.85	0.32	-41.82	51.16
405	peso propio	J[75]	1727.21	17.98	31.87	0.32	0.03	-28.17
406	peso propio	I[110]	798.54	52.24	-37.52	0.17	-11.92	130.66
406	peso propio	J[111]	798.54	52.24	45.2	0.17	-28.87	-99.8
407	peso propio	I[146]	638.37	0	-36.51	0	-9.82	0
407	peso propio	J[147]	638.37	0	46.21	0	-31.2	0
408	peso propio	I[182]	798.54	-52.24	-37.52	-0.17	-11.92	-130.66
408	peso propio	J[183]	798.54	-52.24	45.2	-0.17	-28.87	99.8
409	peso propio	I[218]	1727.21	-17.98	-50.85	-0.32	-41.82	-51.16
409	peso propio	J[219]	1727.21	-17.98	31.87	-0.32	0.03	28.17
410	peso propio	I[75]	1611.61	6.72	-50.25	0.24	-38.16	20.95
410	peso propio	J[76]	1611.61	6.72	32.47	0.24	1.04	-8.71
411	peso propio	I[111]	845.21	35.29	-39.16	0.12	-12.61	90.71
411	peso propio	J[112]	845.21	35.29	43.56	0.12	-22.33	-64.99
412	peso propio	I[147]	697.8	0	-38.06	0	-10.17	0
412	peso propio	J[148]	697.8	0	44.66	0	-24.71	0
413	peso propio	I[183]	845.21	-35.29	-39.16	-0.12	-12.61	-90.71
413	peso propio	J[184]	845.21	-35.29	43.56	-0.12	-22.33	64.99
414	peso propio	I[219]	1611.61	-6.72	-50.25	-0.24	-38.16	-20.95
414	peso propio	J[220]	1611.61	-6.72	32.47	-0.24	1.04	8.71
415	peso propio	I[76]	1515.78	1.64	-47.91	0.14	-31.37	5.98
415	peso propio	J[77]	1515.78	1.64	34.81	0.14	-2.49	-1.26
416	peso propio	I[112]	873.82	21.64	-40.18	0.07	-12.99	58.22
416	peso propio	J[113]	873.82	21.64	42.54	0.07	-18.19	-37.25
417	peso propio	I[148]	738.08	0	-39.32	0	-10.97	0
417	peso propio	J[149]	738.08	0	43.4	0	-19.98	0
418	peso propio	I[184]	873.82	-21.64	-40.18	-0.07	-12.99	-58.22
418	peso propio	J[185]	873.82	-21.64	42.54	-0.07	-18.19	37.25
419	peso propio	I[220]	1515.78	-1.64	-47.91	-0.14	-31.37	-5.98
419	peso propio	J[221]	1515.78	-1.64	34.81	-0.14	-2.49	1.26
420	peso propio	I[77]	1454.26	0.05	-44.78	0.06	-23.52	0.48
420	peso propio	J[78]	1454.26	0.05	37.94	0.06	-8.42	0.27
421	peso propio	I[113]	889.17	10.25	-40.85	0.03	-13.43	31.63
421	peso propio	J[114]	889.17	10.25	41.87	0.03	-15.66	-13.6
422	peso propio	I[149]	761.36	0	-40.39	0	-12.24	0
422	peso propio	J[150]	761.36	0	42.34	0	-16.54	0
423	peso propio	I[185]	889.17	-10.25	-40.85	-0.03	-13.43	-31.63
423	peso propio	J[186]	889.17	-10.25	41.87	-0.03	-15.66	13.6
424	peso propio	I[221]	1454.26	-0.05	-44.78	-0.06	-23.52	-0.48
424	peso propio	J[222]	1454.26	-0.05	37.94	-0.06	-8.42	-0.27
425	peso propio	I[78]	1433.2	0	-41.36	0	-15.66	-0.23
425	peso propio	J[371]	1433.2	0	0	0	29.96	-0.23
426	peso propio	I[114]	893.98	0	-41.36	0	-14.21	8.54
426	peso propio	J[372]	893.98	0	0	0	31.41	8.54

427	peso propio	I[150]	768.97	0	-41.36	0	-14.04	0
427	peso propio	J[373]	768.97	0	0	0	31.58	0
428	peso propio	I[186]	893.98	0	-41.36	0	-14.21	-8.54
428	peso propio	J[374]	893.98	0	0	0	31.41	-8.54
429	peso propio	I[222]	1433.2	0	-41.36	0	-15.66	0.23
429	peso propio	J[375]	1433.2	0	0	0	29.96	0.23
430	peso propio	I[79]	1454.26	-0.05	-37.94	-0.06	-8.42	0.27
430	peso propio	J[80]	1454.26	-0.05	44.78	-0.06	-23.52	0.48
431	peso propio	I[115]	889.17	-10.25	-41.87	-0.03	-15.66	-13.6
431	peso propio	J[116]	889.17	-10.25	40.85	-0.03	-13.43	31.63
432	peso propio	I[151]	761.36	0	-42.34	0	-16.54	0
432	peso propio	J[152]	761.36	0	40.39	0	-12.24	0
433	peso propio	I[187]	889.17	10.25	-41.87	0.03	-15.66	13.6
433	peso propio	J[188]	889.17	10.25	40.85	0.03	-13.43	-31.63
434	peso propio	I[223]	1454.26	0.05	-37.94	0.06	-8.42	-0.27
434	peso propio	J[224]	1454.26	0.05	44.78	0.06	-23.52	-0.48
435	peso propio	I[80]	1515.78	-1.64	-34.81	-0.14	-2.49	-1.26
435	peso propio	J[81]	1515.78	-1.64	47.91	-0.14	-31.37	5.98
436	peso propio	I[116]	873.82	-21.64	-42.54	-0.07	-18.19	-37.25
436	peso propio	J[117]	873.82	-21.64	40.18	-0.07	-12.99	58.22
437	peso propio	I[152]	738.08	0	-43.4	0	-19.98	0
437	peso propio	J[153]	738.08	0	39.32	0	-10.97	0
438	peso propio	I[188]	873.82	21.64	-42.54	0.07	-18.19	37.25
438	peso propio	J[189]	873.82	21.64	40.18	0.07	-12.99	-58.22
439	peso propio	I[224]	1515.78	1.64	-34.81	0.14	-2.49	1.26
439	peso propio	J[225]	1515.78	1.64	47.91	0.14	-31.37	-5.98
440	peso propio	I[81]	1611.61	-6.72	-32.47	-0.24	1.04	-8.71
440	peso propio	J[82]	1611.61	-6.72	50.25	-0.24	-38.16	20.95
441	peso propio	I[117]	845.21	-35.29	-43.56	-0.12	-22.33	-64.99
441	peso propio	J[118]	845.21	-35.29	39.16	-0.12	-12.61	90.71
442	peso propio	I[153]	697.8	0	-44.66	0	-24.71	0
442	peso propio	J[154]	697.8	0	38.06	0	-10.17	0
443	peso propio	I[189]	845.21	35.29	-43.56	0.12	-22.33	64.99
443	peso propio	J[190]	845.21	35.29	39.16	0.12	-12.61	-90.71
444	peso propio	I[225]	1611.61	6.72	-32.47	0.24	1.04	8.71
444	peso propio	J[226]	1611.61	6.72	50.25	0.24	-38.16	-20.95
445	peso propio	I[82]	1727.21	-17.98	-31.87	-0.32	0.03	-28.17
445	peso propio	J[83]	1727.21	-17.98	50.85	-0.32	-41.82	51.16
446	peso propio	I[118]	798.54	-52.24	-45.2	-0.17	-28.87	-99.8
446	peso propio	J[119]	798.54	-52.24	37.52	-0.17	-11.92	130.66
447	peso propio	I[154]	638.37	0	-46.21	0	-31.2	0
447	peso propio	J[155]	638.37	0	36.51	0	-9.82	0
448	peso propio	I[190]	798.54	52.24	-45.2	0.17	-28.87	99.8
448	peso propio	J[191]	798.54	52.24	37.52	0.17	-11.92	-130.66
449	peso propio	I[226]	1727.21	17.98	-31.87	0.32	0.03	28.17
449	peso propio	J[227]	1727.21	17.98	50.85	0.32	-41.82	-51.16
450	peso propio	I[83]	1831.6	-39.86	-34.82	-0.23	-9.59	-71.4
450	peso propio	J[381]	1831.6	-39.86	6.54	-0.23	21.61	16.53
451	peso propio	I[119]	726.62	-74.09	-47.79	-0.11	-38.91	-146.26
451	peso propio	J[382]	726.62	-74.09	-6.43	-0.11	20.9	17.18
452	peso propio	I[155]	556.86	0	-48.17	0	-40.06	0
452	peso propio	J[383]	556.86	0	-6.81	0	20.57	0
453	peso propio	I[191]	726.62	74.09	-47.79	0.11	-38.91	146.26
453	peso propio	J[384]	726.62	74.09	-6.43	0.11	20.9	-17.18
454	peso propio	I[227]	1831.6	39.86	-34.82	0.23	-9.59	71.4
454	peso propio	J[385]	1831.6	39.86	6.54	0.23	21.61	-16.53
455	peso propio	I[84]	1860.95	-87.37	-45.27	0.15	-36.23	-161.14
455	peso propio	J[85]	1860.95	-87.37	37.46	0.15	-19.01	224.31
456	peso propio	I[120]	619.39	-105.66	-51.55	-0.04	-54.17	-208.41
456	peso propio	J[121]	619.39	-105.66	31.18	-0.04	-9.24	257.72
457	peso propio	I[156]	449.82	0	-50.05	0	-51.93	0

457	peso propio	J[157]	449.82	0	32.67	0	-13.6	0
458	peso propio	I[192]	619.39	105.66	-51.55	0.04	-54.17	208.41
458	peso propio	J[193]	619.39	105.66	31.18	0.04	-9.24	-257.72
459	peso propio	I[228]	1860.95	87.37	-45.27	-0.15	-36.23	161.14
459	peso propio	J[229]	1860.95	87.37	37.46	-0.15	-19.01	-224.31
460	peso propio	I[85]	1692.99	-193.6	-65.04	0.24	-90.1	-306.57
460	peso propio	J[86]	1692.99	-193.6	17.68	0.24	14.38	547.55
461	peso propio	I[121]	463.23	-140.34	-56.01	-0.7	-79.08	-280.81
461	peso propio	J[122]	463.23	-140.34	26.71	-0.7	-14.45	338.33
462	peso propio	I[157]	310.9	0	-53.29	0	-73.54	0
462	peso propio	J[158]	310.9	0	29.43	0	-20.89	0
463	peso propio	I[193]	463.23	140.34	-56.01	0.7	-79.08	280.81
463	peso propio	J[194]	463.23	140.34	26.71	0.7	-14.45	-338.33
464	peso propio	I[229]	1692.99	193.6	-65.04	-0.24	-90.1	306.57
464	peso propio	J[230]	1692.99	193.6	17.68	-0.24	14.38	-547.55
465	peso propio	I[86]	1043.89	-423.54	-157.22	19.13	-250.02	-489.11
465	peso propio	J[70]	1043.89	-423.54	-74.5	19.13	261.12	1379.43
466	peso propio	I[122]	240.85	-246.39	-98.25	12.87	-127	-366.64
466	peso propio	J[106]	240.85	-246.39	-15.52	12.87	123.96	720.38
467	peso propio	I[158]	151.39	0	-80.75	0	-91.26	0
467	peso propio	J[142]	151.39	0	1.97	0	82.5	0
468	peso propio	I[194]	240.85	246.39	-98.25	-12.87	-127	366.64
468	peso propio	J[178]	240.85	246.39	-15.52	-12.87	123.96	-720.38
469	peso propio	I[230]	1043.89	423.54	-157.22	-19.13	-250.02	489.11
469	peso propio	J[214]	1043.89	423.54	-74.5	-19.13	261.12	-1379.43
470	peso propio	I[335]	-281.06	-1360.43	-2.52	209.11	177.75	-296.64
470	peso propio	J[69]	-281.06	-1360.43	7.1	209.11	175.46	1063.79
471	peso propio	I[336]	145.71	-951.24	-446.49	32.19	-23.92	-224.52
471	peso propio	J[71]	145.71	-951.24	-436.88	32.19	417.77	726.72
472	peso propio	I[337]	96.09	-393.58	-324.22	12.94	134.64	-96.73
472	peso propio	J[72]	96.09	-393.58	-314.6	12.94	454.05	296.86
473	peso propio	I[338]	29.31	-131.39	-313.49	-1.03	131.42	-33.02
473	peso propio	J[73]	29.31	-131.39	-303.87	-1.03	440.1	98.37
474	peso propio	I[339]	13.21	-8.29	-304.87	-6.01	126.56	-3.27
474	peso propio	J[74]	13.21	-8.29	-295.26	-6.01	426.63	5.02
475	peso propio	I[340]	4.29	39.22	-300.17	-6.91	123.17	8.46
475	peso propio	J[75]	4.29	39.22	-290.55	-6.91	418.53	-30.76
476	peso propio	I[341]	-0.55	47.08	-297.67	-5.79	120.26	10.67
476	peso propio	J[76]	-0.55	47.08	-288.05	-5.79	413.12	-36.41
477	peso propio	I[342]	-3	34.53	-296.43	-3.73	118.3	7.94
477	peso propio	J[77]	-3	34.53	-286.82	-3.73	409.92	-26.59
478	peso propio	I[343]	-4	12.43	-295.93	-1.28	117.36	2.87
478	peso propio	J[78]	-4	12.43	-286.31	-1.28	408.48	-9.56
479	peso propio	I[344]	-4	-12.43	-295.93	1.28	117.36	-2.87
479	peso propio	J[79]	-4	-12.43	-286.31	1.28	408.48	9.56
480	peso propio	I[345]	-3	-34.53	-296.43	3.73	118.3	-7.94
480	peso propio	J[80]	-3	-34.53	-286.82	3.73	409.92	26.59
481	peso propio	I[346]	-0.55	-47.08	-297.67	5.79	120.26	-10.67
481	peso propio	J[81]	-0.55	-47.08	-288.05	5.79	413.12	36.41
482	peso propio	I[347]	4.29	-39.22	-300.17	6.91	123.17	-8.46
482	peso propio	J[82]	4.29	-39.22	-290.55	6.91	418.53	30.76
483	peso propio	I[348]	13.21	8.29	-304.87	6.01	126.56	3.27
483	peso propio	J[83]	13.21	8.29	-295.26	6.01	426.63	-5.02
484	peso propio	I[349]	29.31	131.39	-313.49	1.03	131.42	33.02
484	peso propio	J[84]	29.31	131.39	-303.87	1.03	440.1	-98.37
485	peso propio	I[350]	96.09	393.58	-324.22	-12.94	134.64	96.73
485	peso propio	J[85]	96.09	393.58	-314.6	-12.94	454.05	-296.86
486	peso propio	I[351]	145.71	951.24	-446.49	-32.19	-23.92	224.52
486	peso propio	J[86]	145.71	951.24	-436.88	-32.19	417.77	-726.72
487	peso propio	I[352]	-281.06	1360.43	-2.52	-209.11	177.75	296.64
487	peso propio	J[70]	-281.06	1360.43	7.1	-209.11	175.46	-1063.79

488	peso propio	I[353]	-281.06	1360.43	2.52	-209.11	177.75	-296.64
488	peso propio	J[19]	-281.06	1360.43	7.32	-209.11	175.29	-976.86
489	peso propio	I[354]	145.71	951.24	446.49	-32.19	-23.92	-224.52
489	peso propio	J[53]	145.71	951.24	451.3	-32.19	-248.37	-700.14
490	peso propio	I[355]	96.09	393.58	324.22	-12.94	134.64	-96.73
490	peso propio	J[54]	96.09	393.58	329.03	-12.94	-28.67	-293.52
491	peso propio	I[356]	29.31	131.39	313.49	1.03	131.42	-33.02
491	peso propio	J[55]	29.31	131.39	318.29	1.03	-26.52	-98.71
492	peso propio	I[357]	13.21	8.29	304.87	6.01	126.56	-3.27
492	peso propio	J[56]	13.21	8.29	309.68	6.01	-27.08	-7.41
493	peso propio	I[358]	4.29	-39.22	300.17	6.91	123.17	8.46
493	peso propio	J[57]	4.29	-39.22	304.98	6.91	-28.11	28.07
494	peso propio	I[359]	-0.55	-47.08	297.67	5.79	120.26	10.67
494	peso propio	J[58]	-0.55	-47.08	302.47	5.79	-29.78	34.21
495	peso propio	I[360]	-3	-34.53	296.43	3.73	118.3	7.94
495	peso propio	J[59]	-3	-34.53	301.24	3.73	-31.12	25.2
496	peso propio	I[361]	-4	-12.43	295.93	1.28	117.36	2.87
496	peso propio	J[60]	-4	-12.43	300.73	1.28	-31.8	9.09
497	peso propio	I[362]	-4	12.43	295.93	-1.28	117.36	-2.87
497	peso propio	J[61]	-4	12.43	300.73	-1.28	-31.8	-9.09
498	peso propio	I[363]	-3	34.53	296.43	-3.73	118.3	-7.94
498	peso propio	J[62]	-3	34.53	301.24	-3.73	-31.12	-25.2
499	peso propio	I[364]	-0.55	47.08	297.67	-5.79	120.26	-10.67
499	peso propio	J[63]	-0.55	47.08	302.47	-5.79	-29.78	-34.21
500	peso propio	I[365]	4.29	39.22	300.17	-6.91	123.17	-8.46
500	peso propio	J[64]	4.29	39.22	304.98	-6.91	-28.11	-28.07
501	peso propio	I[366]	13.21	-8.29	304.87	-6.01	126.56	3.27
501	peso propio	J[65]	13.21	-8.29	309.68	-6.01	-27.08	7.41
502	peso propio	I[367]	29.31	-131.39	313.49	-1.03	131.42	33.02
502	peso propio	J[66]	29.31	-131.39	318.29	-1.03	-26.52	98.71
503	peso propio	I[368]	96.09	-393.58	324.22	12.94	134.64	96.73
503	peso propio	J[67]	96.09	-393.58	329.03	12.94	-28.67	293.52
504	peso propio	I[369]	145.72	-951.24	446.49	32.19	-23.92	224.52
504	peso propio	J[68]	145.72	-951.24	451.3	32.19	-248.37	700.14
505	peso propio	I[370]	-281.06	-1360.43	2.52	209.11	177.75	296.64
505	peso propio	J[36]	-281.06	-1360.43	7.32	209.11	175.29	976.86
506	peso propio	I[371]	1433.2	0	0	0	29.96	-0.23
506	peso propio	J[79]	1433.2	0	41.36	0	-15.66	-0.23
507	peso propio	I[372]	893.98	0	0	0	31.41	8.54
507	peso propio	J[115]	893.98	0	41.36	0	-14.21	8.54
508	peso propio	I[373]	768.97	0	0	0	31.58	0
508	peso propio	J[151]	768.97	0	41.36	0	-14.04	0
509	peso propio	I[374]	893.98	0	0	0	31.41	-8.54
509	peso propio	J[187]	893.98	0	41.36	0	-14.21	-8.54
510	peso propio	I[375]	1433.2	0	0	0	29.96	0.23
510	peso propio	J[223]	1433.2	0	41.36	0	-15.66	0.23
511	peso propio	I[376]	1831.6	39.86	-6.54	0.23	21.61	16.53
511	peso propio	J[74]	1831.6	39.86	34.82	0.23	-9.59	-71.4
512	peso propio	I[377]	726.62	74.09	6.43	0.11	20.9	17.18
512	peso propio	J[110]	726.62	74.09	47.79	0.11	-38.91	-146.26
513	peso propio	I[378]	556.86	0	6.81	0	20.57	0
513	peso propio	J[146]	556.86	0	48.17	0	-40.06	0
514	peso propio	I[379]	726.62	-74.09	6.43	-0.11	20.9	-17.18
514	peso propio	J[182]	726.62	-74.09	47.79	-0.11	-38.91	146.26
515	peso propio	I[380]	1831.6	-39.86	-6.54	-0.23	21.61	-16.53
515	peso propio	J[218]	1831.6	-39.86	34.82	-0.23	-9.59	71.4
516	peso propio	I[381]	1831.6	-39.86	6.54	-0.23	21.61	16.53
516	peso propio	J[84]	1831.6	-39.86	47.9	-0.23	-38.42	104.45
517	peso propio	I[382]	726.62	-74.09	-6.43	-0.11	20.9	17.18
517	peso propio	J[120]	726.62	-74.09	34.93	-0.11	-10.53	180.62
518	peso propio	I[383]	556.86	0	-6.81	0	20.57	0

518	peso propio	J[156]	556.86	0	34.56	0	-10.03	0
519	peso propio	I[384]	726.62	74.09	-6.43	0.11	20.9	-17.18
519	peso propio	J[192]	726.62	74.09	34.93	0.11	-10.53	-180.62
520	peso propio	I[385]	1831.6	39.86	6.54	0.23	21.61	-16.53
520	peso propio	J[228]	1831.6	39.86	47.9	0.23	-38.42	-104.45

2. ACCIÓN DE LA TEMPERATURA

2.1. BAJADA DE TEMPERATURA

Elem	Load	Part	Axial (kN)	Shear-y (kN)	Shear-z (kN)	Torsion (kN*m)	Moment-y (kN*m)	Moment-z (kN*m)
1	TempDown	I[1]	42.36	0	3.8	-2.23	-21.98	-3.87
1	TempDown	J[2]	42.36	0	3.8	-2.23	-41.32	-3.87
2	TempDown	I[2]	40.42	0	2.87	-2.01	-41.32	-3.98
2	TempDown	J[3]	40.42	0	2.87	-2.01	-55.51	-3.98
3	TempDown	I[3]	38.58	0	1.56	-1.77	-55.51	-4.1
3	TempDown	J[4]	38.58	0	1.56	-1.77	-63.01	-4.1
4	TempDown	I[4]	37.22	0	0.66	-1.51	-63.01	-4.2
4	TempDown	J[5]	37.22	0	0.66	-1.51	-66.1	-4.2
5	TempDown	I[5]	36.26	0	0.17	-1.24	-66.1	-4.29
5	TempDown	J[6]	36.26	0	0.17	-1.24	-66.9	-4.29
6	TempDown	I[6]	35.58	0	-0.04	-0.94	-66.9	-4.36
6	TempDown	J[7]	35.58	0	-0.04	-0.94	-66.72	-4.36
7	TempDown	I[7]	35.13	0	-0.09	-0.64	-66.72	-4.42
7	TempDown	J[8]	35.13	0	-0.09	-0.64	-66.3	-4.42
8	TempDown	I[8]	34.87	0	-0.06	-0.32	-66.3	-4.45
8	TempDown	J[9]	34.87	0	-0.06	-0.32	-66.02	-4.45
9	TempDown	I[9]	34.79	0	0	0	-66.02	-4.46
9	TempDown	J[10]	34.79	0	0	0	-66.02	-4.46
10	TempDown	I[10]	34.87	0	0.06	0.32	-66.02	-4.45
10	TempDown	J[11]	34.87	0	0.06	0.32	-66.3	-4.45
11	TempDown	I[11]	35.13	0	0.09	0.64	-66.3	-4.42
11	TempDown	J[12]	35.13	0	0.09	0.64	-66.72	-4.42
12	TempDown	I[12]	35.58	0	0.04	0.94	-66.72	-4.36
12	TempDown	J[13]	35.58	0	0.04	0.94	-66.9	-4.36
13	TempDown	I[13]	36.26	0	-0.17	1.24	-66.9	-4.29
13	TempDown	J[14]	36.26	0	-0.17	1.24	-66.1	-4.29
14	TempDown	I[14]	37.22	0	-0.66	1.51	-66.1	-4.2
14	TempDown	J[15]	37.22	0	-0.66	1.51	-63.01	-4.2
15	TempDown	I[15]	38.58	0	-1.56	1.77	-63.01	-4.1
15	TempDown	J[16]	38.58	0	-1.56	1.77	-55.51	-4.1
16	TempDown	I[16]	40.42	0	-2.87	2.01	-55.51	-3.98
16	TempDown	J[17]	40.42	0	-2.87	2.01	-41.32	-3.98
17	TempDown	I[17]	42.36	0	-3.8	2.23	-41.32	-3.87
17	TempDown	J[18]	42.36	0	-3.8	2.23	-21.98	-3.87
18	TempDown	I[19]	42.36	0	3.8	2.23	-21.98	3.87
18	TempDown	J[20]	42.36	0	3.8	2.23	-41.32	3.87
19	TempDown	I[20]	40.42	0	2.87	2.01	-41.32	3.98
19	TempDown	J[21]	40.42	0	2.87	2.01	-55.51	3.98
20	TempDown	I[21]	38.58	0	1.56	1.77	-55.51	4.1
20	TempDown	J[22]	38.58	0	1.56	1.77	-63.01	4.1
21	TempDown	I[22]	37.22	0	0.66	1.51	-63.01	4.2
21	TempDown	J[23]	37.22	0	0.66	1.51	-66.1	4.2
22	TempDown	I[23]	36.26	0	0.17	1.24	-66.1	4.29
22	TempDown	J[24]	36.26	0	0.17	1.24	-66.9	4.29
23	TempDown	I[24]	35.58	0	-0.04	0.94	-66.9	4.36
23	TempDown	J[25]	35.58	0	-0.04	0.94	-66.72	4.36
24	TempDown	I[25]	35.13	0	-0.09	0.64	-66.72	4.42
24	TempDown	J[26]	35.13	0	-0.09	0.64	-66.3	4.42
25	TempDown	I[26]	34.87	0	-0.06	0.32	-66.3	4.45
25	TempDown	J[27]	34.87	0	-0.06	0.32	-66.02	4.45
26	TempDown	I[27]	34.79	0	0	0	-66.02	4.46
26	TempDown	J[28]	34.79	0	0	0	-66.02	4.46
27	TempDown	I[28]	34.87	0	0.06	-0.32	-66.02	4.45
27	TempDown	J[29]	34.87	0	0.06	-0.32	-66.3	4.45

28	TempDown	I[29]	35.13	0	0.09	-0.64	-66.3	4.42
28	TempDown	J[30]	35.13	0	0.09	-0.64	-66.72	4.42
29	TempDown	I[30]	35.58	0	0.04	-0.94	-66.72	4.36
29	TempDown	J[31]	35.58	0	0.04	-0.94	-66.9	4.36
30	TempDown	I[31]	36.26	0	-0.17	-1.24	-66.9	4.29
30	TempDown	J[32]	36.26	0	-0.17	-1.24	-66.1	4.29
31	TempDown	I[32]	37.22	0	-0.66	-1.51	-66.1	4.2
31	TempDown	J[33]	37.22	0	-0.66	-1.51	-63.01	4.2
32	TempDown	I[33]	38.58	0	-1.56	-1.77	-63.01	4.1
32	TempDown	J[34]	38.58	0	-1.56	-1.77	-55.51	4.1
33	TempDown	I[34]	40.42	0	-2.87	-2.01	-55.51	3.98
33	TempDown	J[35]	40.42	0	-2.87	-2.01	-41.32	3.98
34	TempDown	I[35]	42.36	0	-3.8	-2.23	-41.32	3.87
34	TempDown	J[36]	42.36	0	-3.8	-2.23	-21.98	3.87
67	TempDown	I[1]	56.68	255.24	-31.57	-27.02	-7.74	185.01
67	TempDown	J[335]	56.68	255.24	-31.57	-27.02	8.05	57.39
68	TempDown	I[18]	56.68	-255.24	-31.57	27.02	-7.74	-185.01
68	TempDown	J[352]	56.68	-255.24	-31.57	27.02	8.05	-57.39
69	TempDown	I[37]	-24.94	208.69	16.72	-7.8	17.62	154.53
69	TempDown	J[336]	-24.94	208.69	16.72	-7.8	9.26	50.19
70	TempDown	I[38]	-13.83	132.27	4.56	-4.86	-2.63	98.37
70	TempDown	J[337]	-13.83	132.27	4.56	-4.86	-4.9	32.24
71	TempDown	I[39]	-5.78	87.59	3.18	-2.6	-1.61	65.18
71	TempDown	J[338]	-5.78	87.59	3.18	-2.6	-3.2	21.39
72	TempDown	I[40]	-3.77	59.51	2.14	-1.45	-1.41	44.36
72	TempDown	J[339]	-3.77	59.51	2.14	-1.45	-2.48	14.6
73	TempDown	I[41]	-2.72	40.63	1.57	-0.82	-1.31	30.31
73	TempDown	J[340]	-2.72	40.63	1.57	-0.82	-2.09	10
74	TempDown	I[42]	-2.13	26.61	1.26	-0.46	-1.11	19.86
74	TempDown	J[341]	-2.13	26.61	1.26	-0.46	-1.74	6.56
75	TempDown	I[43]	-1.82	15.15	1.1	-0.24	-0.95	11.31
75	TempDown	J[342]	-1.82	15.15	1.1	-0.24	-1.5	3.74
76	TempDown	I[44]	-1.68	4.93	1.04	-0.07	-0.87	3.68
76	TempDown	J[343]	-1.68	4.93	1.04	-0.07	-1.38	1.22
77	TempDown	I[45]	-1.68	-4.93	1.04	0.07	-0.87	-3.68
77	TempDown	J[344]	-1.68	-4.93	1.04	0.07	-1.38	-1.22
78	TempDown	I[46]	-1.82	-15.15	1.1	0.24	-0.95	-11.31
78	TempDown	J[345]	-1.82	-15.15	1.1	0.24	-1.5	-3.74
79	TempDown	I[47]	-2.13	-26.61	1.26	0.46	-1.11	-19.86
79	TempDown	J[346]	-2.13	-26.61	1.26	0.46	-1.74	-6.56
80	TempDown	I[48]	-2.72	-40.63	1.57	0.82	-1.31	-30.31
80	TempDown	J[347]	-2.72	-40.63	1.57	0.82	-2.09	-10
81	TempDown	I[49]	-3.77	-59.51	2.14	1.45	-1.41	-44.36
81	TempDown	J[348]	-3.77	-59.51	2.14	1.45	-2.48	-14.6
82	TempDown	I[50]	-5.78	-87.59	3.18	2.6	-1.61	-65.18
82	TempDown	J[349]	-5.78	-87.59	3.18	2.6	-3.2	-21.39
83	TempDown	I[51]	-13.83	-132.27	4.56	4.86	-2.63	-98.37
83	TempDown	J[350]	-13.83	-132.27	4.56	4.86	-4.9	-32.24
84	TempDown	I[52]	-24.94	-208.69	16.72	7.8	17.62	-154.53
84	TempDown	J[351]	-24.94	-208.69	16.72	7.8	9.26	-50.19
85	TempDown	I[69]	140.14	74.96	-12.36	4.4	-0.95	75.48
85	TempDown	J[87]	140.14	74.96	-12.36	4.4	17.59	-36.95
86	TempDown	I[70]	140.14	-74.96	-12.36	-4.4	-0.95	-75.48
86	TempDown	J[88]	140.14	-74.96	-12.36	-4.4	17.59	36.95
87	TempDown	I[71]	-57.13	72.73	5.56	1.27	9.16	74.62
87	TempDown	J[89]	-57.13	72.73	5.56	1.27	0.82	-34.48
88	TempDown	I[72]	-33.45	61.65	1.28	-0.41	-0.32	63.7
88	TempDown	J[90]	-33.45	61.65	1.28	-0.41	-2.24	-28.78
89	TempDown	I[73]	-15.06	49.79	1.12	-1.16	-2	51.5
89	TempDown	J[91]	-15.06	49.79	1.12	-1.16	-3.68	-23.18
90	TempDown	I[74]	-9.72	39.24	1.03	-1.26	-1.83	40.62

90	TempDown	J[92]	-9.72	39.24	1.03	-1.26	-3.37	-18.25
91	TempDown	I[75]	-7.56	29.63	0.92	-1.12	-1.41	30.69
91	TempDown	J[93]	-7.56	29.63	0.92	-1.12	-2.79	-13.76
92	TempDown	I[76]	-6.31	20.71	0.85	-0.85	-1.06	21.45
92	TempDown	J[94]	-6.31	20.71	0.85	-0.85	-2.34	-9.61
93	TempDown	I[77]	-5.61	12.24	0.81	-0.53	-0.84	12.69
93	TempDown	J[95]	-5.61	12.24	0.81	-0.53	-2.05	-5.68
94	TempDown	I[78]	-5.3	4.05	0.79	-0.18	-0.74	4.2
94	TempDown	J[96]	-5.3	4.05	0.79	-0.18	-1.92	-1.88
95	TempDown	I[79]	-5.3	-4.05	0.79	0.18	-0.74	-4.2
95	TempDown	J[97]	-5.3	-4.05	0.79	0.18	-1.92	1.88
96	TempDown	I[80]	-5.61	-12.24	0.81	0.53	-0.84	-12.69
96	TempDown	J[98]	-5.61	-12.24	0.81	0.53	-2.05	5.68
97	TempDown	I[81]	-6.31	-20.71	0.85	0.85	-1.06	-21.45
97	TempDown	J[99]	-6.31	-20.71	0.85	0.85	-2.34	9.61
98	TempDown	I[82]	-7.56	-29.63	0.92	1.12	-1.41	-30.69
98	TempDown	J[100]	-7.56	-29.63	0.92	1.12	-2.79	13.76
99	TempDown	I[83]	-9.72	-39.24	1.03	1.26	-1.83	-40.62
99	TempDown	J[101]	-9.72	-39.24	1.03	1.26	-3.37	18.25
100	TempDown	I[84]	-15.06	-49.79	1.12	1.16	-2	-51.5
100	TempDown	J[102]	-15.06	-49.79	1.12	1.16	-3.68	23.18
101	TempDown	I[85]	-33.45	-61.65	1.28	0.41	-0.32	-63.7
101	TempDown	J[103]	-33.45	-61.65	1.28	0.41	-2.24	28.78
102	TempDown	I[86]	-57.13	-72.73	5.56	-1.27	9.16	-74.62
102	TempDown	J[104]	-57.13	-72.73	5.56	-1.27	0.82	34.48
103	TempDown	I[87]	140.14	74.96	-12.36	10.25	28.51	-36.95
103	TempDown	J[105]	140.14	74.96	-12.36	10.25	47.05	-149.39
104	TempDown	I[88]	140.14	-74.96	-12.36	-10.25	28.51	36.95
104	TempDown	J[106]	140.14	-74.96	-12.36	-10.25	47.05	149.39
105	TempDown	I[89]	-57.13	72.73	5.56	6.94	-3.63	-34.48
105	TempDown	J[107]	-57.13	72.73	5.56	6.94	-11.97	-143.58
106	TempDown	I[90]	-33.45	61.65	1.28	4.4	-4.85	-28.78
106	TempDown	J[108]	-33.45	61.65	1.28	4.4	-6.77	-121.25
107	TempDown	I[91]	-15.06	49.79	1.12	2.73	-4.86	-23.18
107	TempDown	J[109]	-15.06	49.79	1.12	2.73	-6.54	-97.86
108	TempDown	I[92]	-9.72	39.24	1.03	1.8	-4.13	-18.25
108	TempDown	J[110]	-9.72	39.24	1.03	1.8	-5.67	-77.11
109	TempDown	I[93]	-7.56	29.63	0.92	1.19	-3.38	-13.76
109	TempDown	J[111]	-7.56	29.63	0.92	1.19	-4.76	-58.21
110	TempDown	I[94]	-6.31	20.71	0.85	0.76	-2.83	-9.61
110	TempDown	J[112]	-6.31	20.71	0.85	0.76	-4.11	-40.67
111	TempDown	I[95]	-5.61	12.24	0.81	0.43	-2.49	-5.68
111	TempDown	J[113]	-5.61	12.24	0.81	0.43	-3.71	-24.04
112	TempDown	I[96]	-5.3	4.05	0.79	0.14	-2.34	-1.88
112	TempDown	J[114]	-5.3	4.05	0.79	0.14	-3.52	-7.95
113	TempDown	I[97]	-5.3	-4.05	0.79	-0.14	-2.34	1.88
113	TempDown	J[115]	-5.3	-4.05	0.79	-0.14	-3.52	7.95
114	TempDown	I[98]	-5.61	-12.24	0.81	-0.43	-2.49	5.68
114	TempDown	J[116]	-5.61	-12.24	0.81	-0.43	-3.71	24.04
115	TempDown	I[99]	-6.31	-20.71	0.85	-0.76	-2.83	9.61
115	TempDown	J[117]	-6.31	-20.71	0.85	-0.76	-4.11	40.67
116	TempDown	I[100]	-7.56	-29.63	0.92	-1.19	-3.38	13.76
116	TempDown	J[118]	-7.56	-29.63	0.92	-1.19	-4.76	58.21
117	TempDown	I[101]	-9.72	-39.24	1.03	-1.8	-4.13	18.25
117	TempDown	J[119]	-9.72	-39.24	1.03	-1.8	-5.67	77.11
118	TempDown	I[102]	-15.06	-49.79	1.12	-2.73	-4.86	23.18
118	TempDown	J[120]	-15.06	-49.79	1.12	-2.73	-6.54	97.86
119	TempDown	I[103]	-33.45	-61.65	1.28	-4.4	-4.85	28.78
119	TempDown	J[121]	-33.45	-61.65	1.28	-4.4	-6.77	121.25
120	TempDown	I[104]	-57.13	-72.73	5.56	-6.94	-3.63	34.48
120	TempDown	J[122]	-57.13	-72.73	5.56	-6.94	-11.97	143.58

121	TempDown	I[105]	195.85	18.87	-3.13	3.33	24.44	20.75
121	TempDown	J[123]	195.85	18.87	-3.13	3.33	29.12	-7.55
122	TempDown	I[106]	195.85	-18.87	-3.13	-3.33	24.44	-20.75
122	TempDown	J[124]	195.85	-18.87	-3.13	-3.33	29.12	7.55
123	TempDown	I[107]	-74.14	20.19	1.19	1.19	-4.35	27.01
123	TempDown	J[125]	-74.14	20.19	1.19	1.19	-6.14	-3.27
124	TempDown	I[108]	-41.92	18.66	0.33	0.92	-3.54	25.58
124	TempDown	J[126]	-41.92	18.66	0.33	0.92	-4.05	-2.4
125	TempDown	I[109]	-21.34	15.55	0.27	0.51	-4.07	21.31
125	TempDown	J[127]	-21.34	15.55	0.27	0.51	-4.47	-2.01
126	TempDown	I[110]	-14.96	12.6	0.29	0.32	-3.62	17.26
126	TempDown	J[128]	-14.96	12.6	0.29	0.32	-4.05	-1.65
127	TempDown	I[111]	-12.5	9.73	0.27	0.19	-2.85	13.33
127	TempDown	J[129]	-12.5	9.73	0.27	0.19	-3.26	-1.26
128	TempDown	I[112]	-11.04	6.91	0.26	0.1	-2.27	9.47
128	TempDown	J[130]	-11.04	6.91	0.26	0.1	-2.67	-0.88
129	TempDown	I[113]	-10.17	4.12	0.26	0.05	-1.94	5.66
129	TempDown	J[131]	-10.17	4.12	0.26	0.05	-2.32	-0.52
130	TempDown	I[114]	-9.78	1.37	0.25	0.02	-1.78	1.88
130	TempDown	J[132]	-9.78	1.37	0.25	0.02	-2.16	-0.17
131	TempDown	I[115]	-9.78	-1.37	0.25	-0.02	-1.78	-1.88
131	TempDown	J[133]	-9.78	-1.37	0.25	-0.02	-2.16	0.17
132	TempDown	I[116]	-10.17	-4.12	0.26	-0.05	-1.94	-5.66
132	TempDown	J[134]	-10.17	-4.12	0.26	-0.05	-2.32	0.52
133	TempDown	I[117]	-11.04	-6.91	0.26	-0.1	-2.27	-9.47
133	TempDown	J[135]	-11.04	-6.91	0.26	-0.1	-2.67	0.88
134	TempDown	I[118]	-12.5	-9.73	0.27	-0.19	-2.85	-13.33
134	TempDown	J[136]	-12.5	-9.73	0.27	-0.19	-3.26	1.26
135	TempDown	I[119]	-14.96	-12.6	0.29	-0.32	-3.62	-17.26
135	TempDown	J[137]	-14.96	-12.6	0.29	-0.32	-4.05	1.65
136	TempDown	I[120]	-21.34	-15.55	0.27	-0.51	-4.07	-21.31
136	TempDown	J[138]	-21.34	-15.55	0.27	-0.51	-4.47	2.01
137	TempDown	I[121]	-41.92	-18.66	0.33	-0.92	-3.54	-25.58
137	TempDown	J[139]	-41.92	-18.66	0.33	-0.92	-4.05	2.4
138	TempDown	I[122]	-74.14	-20.19	1.19	-1.19	-4.35	-27.01
138	TempDown	J[140]	-74.14	-20.19	1.19	-1.19	-6.14	3.27
139	TempDown	I[123]	195.85	18.87	-3.13	3.33	29.12	-7.55
139	TempDown	J[141]	195.85	18.87	-3.13	3.33	33.81	-35.86
140	TempDown	I[124]	195.85	-18.87	-3.13	-3.33	29.12	7.55
140	TempDown	J[142]	195.85	-18.87	-3.13	-3.33	33.81	35.86
141	TempDown	I[125]	-74.14	20.19	1.19	1.19	-6.14	-3.27
141	TempDown	J[143]	-74.14	20.19	1.19	1.19	-7.93	-33.55
142	TempDown	I[126]	-41.92	18.66	0.33	0.92	-4.05	-2.4
142	TempDown	J[144]	-41.92	18.66	0.33	0.92	-4.55	-30.39
143	TempDown	I[127]	-21.34	15.55	0.27	0.51	-4.47	-2.01
143	TempDown	J[145]	-21.34	15.55	0.27	0.51	-4.88	-25.33
144	TempDown	I[128]	-14.96	12.6	0.29	0.32	-4.05	-1.65
144	TempDown	J[146]	-14.96	12.6	0.29	0.32	-4.48	-20.55
145	TempDown	I[129]	-12.5	9.73	0.27	0.19	-3.26	-1.26
145	TempDown	J[147]	-12.5	9.73	0.27	0.19	-3.66	-15.85
146	TempDown	I[130]	-11.04	6.91	0.26	0.1	-2.67	-0.88
146	TempDown	J[148]	-11.04	6.91	0.26	0.1	-3.06	-11.24
147	TempDown	I[131]	-10.17	4.12	0.26	0.05	-2.32	-0.52
147	TempDown	J[149]	-10.17	4.12	0.26	0.05	-2.71	-6.71
148	TempDown	I[132]	-9.78	1.37	0.25	0.02	-2.16	-0.17
148	TempDown	J[150]	-9.78	1.37	0.25	0.02	-2.54	-2.23
149	TempDown	I[133]	-9.78	-1.37	0.25	-0.02	-2.16	0.17
149	TempDown	J[151]	-9.78	-1.37	0.25	-0.02	-2.54	2.23
150	TempDown	I[134]	-10.17	-4.12	0.26	-0.05	-2.32	0.52
150	TempDown	J[152]	-10.17	-4.12	0.26	-0.05	-2.71	6.71
151	TempDown	I[135]	-11.04	-6.91	0.26	-0.1	-2.67	0.88

151	TempDown	J[153]	-11.04	-6.91	0.26	-0.1	-3.06	11.24
152	TempDown	I[136]	-12.5	-9.73	0.27	-0.19	-3.26	1.26
152	TempDown	J[154]	-12.5	-9.73	0.27	-0.19	-3.66	15.85
153	TempDown	I[137]	-14.96	-12.6	0.29	-0.32	-4.05	1.65
153	TempDown	J[155]	-14.96	-12.6	0.29	-0.32	-4.48	20.55
154	TempDown	I[138]	-21.34	-15.55	0.27	-0.51	-4.47	2.01
154	TempDown	J[156]	-21.34	-15.55	0.27	-0.51	-4.88	25.33
155	TempDown	I[139]	-41.92	-18.66	0.33	-0.92	-4.05	2.4
155	TempDown	J[157]	-41.92	-18.66	0.33	-0.92	-4.55	30.39
156	TempDown	I[140]	-74.14	-20.19	1.19	-1.19	-6.14	3.27
156	TempDown	J[158]	-74.14	-20.19	1.19	-1.19	-7.93	33.55
157	TempDown	I[141]	195.85	-18.87	3.13	-3.33	33.81	-35.86
157	TempDown	J[159]	195.85	-18.87	3.13	-3.33	29.12	-7.55
158	TempDown	I[142]	195.85	18.87	3.13	3.33	33.81	35.86
158	TempDown	J[160]	195.85	18.87	3.13	3.33	29.12	7.55
159	TempDown	I[143]	-74.14	-20.19	-1.19	-1.19	-7.93	-33.55
159	TempDown	J[161]	-74.14	-20.19	-1.19	-1.19	-6.14	-3.27
160	TempDown	I[144]	-41.92	-18.66	-0.33	-0.92	-4.55	-30.39
160	TempDown	J[162]	-41.92	-18.66	-0.33	-0.92	-4.05	-2.4
161	TempDown	I[145]	-21.34	-15.55	-0.27	-0.51	-4.88	-25.33
161	TempDown	J[163]	-21.34	-15.55	-0.27	-0.51	-4.47	-2.01
162	TempDown	I[146]	-14.96	-12.6	-0.29	-0.32	-4.48	-20.55
162	TempDown	J[164]	-14.96	-12.6	-0.29	-0.32	-4.05	-1.65
163	TempDown	I[147]	-12.5	-9.73	-0.27	-0.19	-3.66	-15.85
163	TempDown	J[165]	-12.5	-9.73	-0.27	-0.19	-3.26	-1.26
164	TempDown	I[148]	-11.04	-6.91	-0.26	-0.1	-3.06	-11.24
164	TempDown	J[166]	-11.04	-6.91	-0.26	-0.1	-2.67	-0.88
165	TempDown	I[149]	-10.17	-4.12	-0.26	-0.05	-2.71	-6.71
165	TempDown	J[167]	-10.17	-4.12	-0.26	-0.05	-2.32	-0.52
166	TempDown	I[150]	-9.78	-1.37	-0.25	-0.02	-2.54	-2.23
166	TempDown	J[168]	-9.78	-1.37	-0.25	-0.02	-2.16	-0.17
167	TempDown	I[151]	-9.78	1.37	-0.25	0.02	-2.54	2.23
167	TempDown	J[169]	-9.78	1.37	-0.25	0.02	-2.16	0.17
168	TempDown	I[152]	-10.17	4.12	-0.26	0.05	-2.71	6.71
168	TempDown	J[170]	-10.17	4.12	-0.26	0.05	-2.32	0.52
169	TempDown	I[153]	-11.04	6.91	-0.26	0.1	-3.06	11.24
169	TempDown	J[171]	-11.04	6.91	-0.26	0.1	-2.67	0.88
170	TempDown	I[154]	-12.5	9.73	-0.27	0.19	-3.66	15.85
170	TempDown	J[172]	-12.5	9.73	-0.27	0.19	-3.26	1.26
171	TempDown	I[155]	-14.96	12.6	-0.29	0.32	-4.48	20.55
171	TempDown	J[173]	-14.96	12.6	-0.29	0.32	-4.05	1.65
172	TempDown	I[156]	-21.34	15.55	-0.27	0.51	-4.88	25.33
172	TempDown	J[174]	-21.34	15.55	-0.27	0.51	-4.47	2.01
173	TempDown	I[157]	-41.92	18.66	-0.33	0.92	-4.55	30.39
173	TempDown	J[175]	-41.92	18.66	-0.33	0.92	-4.05	2.4
174	TempDown	I[158]	-74.14	20.19	-1.19	1.19	-7.93	33.55
174	TempDown	J[176]	-74.14	20.19	-1.19	1.19	-6.14	3.27
175	TempDown	I[159]	195.85	-18.87	3.13	-3.33	29.12	-7.55
175	TempDown	J[177]	195.85	-18.87	3.13	-3.33	24.44	20.75
176	TempDown	I[160]	195.85	18.87	3.13	3.33	29.12	7.55
176	TempDown	J[178]	195.85	18.87	3.13	3.33	24.44	-20.75
177	TempDown	I[161]	-74.14	-20.19	-1.19	-1.19	-6.14	-3.27
177	TempDown	J[179]	-74.14	-20.19	-1.19	-1.19	-4.35	27.01
178	TempDown	I[162]	-41.92	-18.66	-0.33	-0.92	-4.05	-2.4
178	TempDown	J[180]	-41.92	-18.66	-0.33	-0.92	-3.54	25.58
179	TempDown	I[163]	-21.34	-15.55	-0.27	-0.51	-4.47	-2.01
179	TempDown	J[181]	-21.34	-15.55	-0.27	-0.51	-4.07	21.31
180	TempDown	I[164]	-14.96	-12.6	-0.29	-0.32	-4.05	-1.65
180	TempDown	J[182]	-14.96	-12.6	-0.29	-0.32	-3.62	17.26
181	TempDown	I[165]	-12.5	-9.73	-0.27	-0.19	-3.26	-1.26
181	TempDown	J[183]	-12.5	-9.73	-0.27	-0.19	-2.85	13.33

182	TempDown	I[166]	-11.04	-6.91	-0.26	-0.1	-2.67	-0.88
182	TempDown	J[184]	-11.04	-6.91	-0.26	-0.1	-2.27	9.47
183	TempDown	I[167]	-10.17	-4.12	-0.26	-0.05	-2.32	-0.52
183	TempDown	J[185]	-10.17	-4.12	-0.26	-0.05	-1.94	5.66
184	TempDown	I[168]	-9.78	-1.37	-0.25	-0.02	-2.16	-0.17
184	TempDown	J[186]	-9.78	-1.37	-0.25	-0.02	-1.78	1.88
185	TempDown	I[169]	-9.78	1.37	-0.25	0.02	-2.16	0.17
185	TempDown	J[187]	-9.78	1.37	-0.25	0.02	-1.78	-1.88
186	TempDown	I[170]	-10.17	4.12	-0.26	0.05	-2.32	0.52
186	TempDown	J[188]	-10.17	4.12	-0.26	0.05	-1.94	-5.66
187	TempDown	I[171]	-11.04	6.91	-0.26	0.1	-2.67	0.88
187	TempDown	J[189]	-11.04	6.91	-0.26	0.1	-2.27	-9.47
188	TempDown	I[172]	-12.5	9.73	-0.27	0.19	-3.26	1.26
188	TempDown	J[190]	-12.5	9.73	-0.27	0.19	-2.85	-13.33
189	TempDown	I[173]	-14.96	12.6	-0.29	0.32	-4.05	1.65
189	TempDown	J[191]	-14.96	12.6	-0.29	0.32	-3.62	-17.26
190	TempDown	I[174]	-21.34	15.55	-0.27	0.51	-4.47	2.01
190	TempDown	J[192]	-21.34	15.55	-0.27	0.51	-4.07	-21.31
191	TempDown	I[175]	-41.92	18.66	-0.33	0.92	-4.05	2.4
191	TempDown	J[193]	-41.92	18.66	-0.33	0.92	-3.54	-25.58
192	TempDown	I[176]	-74.14	20.19	-1.19	1.19	-6.14	3.27
192	TempDown	J[194]	-74.14	20.19	-1.19	1.19	-4.35	-27.01
193	TempDown	I[177]	140.14	-74.96	12.36	-10.25	47.05	-149.39
193	TempDown	J[195]	140.14	-74.96	12.36	-10.25	28.51	-36.95
194	TempDown	I[178]	140.14	74.96	12.36	10.25	47.05	149.39
194	TempDown	J[196]	140.14	74.96	12.36	10.25	28.51	36.95
195	TempDown	I[179]	-57.13	-72.73	-5.56	-6.94	-11.97	-143.58
195	TempDown	J[197]	-57.13	-72.73	-5.56	-6.94	-3.63	-34.48
196	TempDown	I[180]	-33.45	-61.65	-1.28	-4.4	-6.77	-121.25
196	TempDown	J[198]	-33.45	-61.65	-1.28	-4.4	-4.85	-28.78
197	TempDown	I[181]	-15.06	-49.79	-1.12	-2.73	-6.54	-97.86
197	TempDown	J[199]	-15.06	-49.79	-1.12	-2.73	-4.86	-23.18
198	TempDown	I[182]	-9.72	-39.24	-1.03	-1.8	-5.67	-77.11
198	TempDown	J[200]	-9.72	-39.24	-1.03	-1.8	-4.13	-18.25
199	TempDown	I[183]	-7.56	-29.63	-0.92	-1.19	-4.76	-58.21
199	TempDown	J[201]	-7.56	-29.63	-0.92	-1.19	-3.38	-13.76
200	TempDown	I[184]	-6.31	-20.71	-0.85	-0.76	-4.11	-40.67
200	TempDown	J[202]	-6.31	-20.71	-0.85	-0.76	-2.83	-9.61
201	TempDown	I[185]	-5.61	-12.24	-0.81	-0.43	-3.71	-24.04
201	TempDown	J[203]	-5.61	-12.24	-0.81	-0.43	-2.49	-5.68
202	TempDown	I[186]	-5.3	-4.05	-0.79	-0.14	-3.52	-7.95
202	TempDown	J[204]	-5.3	-4.05	-0.79	-0.14	-2.34	-1.88
203	TempDown	I[187]	-5.3	4.05	-0.79	0.14	-3.52	7.95
203	TempDown	J[205]	-5.3	4.05	-0.79	0.14	-2.34	1.88
204	TempDown	I[188]	-5.61	12.24	-0.81	0.43	-3.71	24.04
204	TempDown	J[206]	-5.61	12.24	-0.81	0.43	-2.49	5.68
205	TempDown	I[189]	-6.31	20.71	-0.85	0.76	-4.11	40.67
205	TempDown	J[207]	-6.31	20.71	-0.85	0.76	-2.83	9.61
206	TempDown	I[190]	-7.56	29.63	-0.92	1.19	-4.76	58.21
206	TempDown	J[208]	-7.56	29.63	-0.92	1.19	-3.38	13.76
207	TempDown	I[191]	-9.72	39.24	-1.03	1.8	-5.67	77.11
207	TempDown	J[209]	-9.72	39.24	-1.03	1.8	-4.13	18.25
208	TempDown	I[192]	-15.06	49.79	-1.12	2.73	-6.54	97.86
208	TempDown	J[210]	-15.06	49.79	-1.12	2.73	-4.86	23.18
209	TempDown	I[193]	-33.45	61.65	-1.28	4.4	-6.77	121.25
209	TempDown	J[211]	-33.45	61.65	-1.28	4.4	-4.85	28.78
210	TempDown	I[194]	-57.13	72.73	-5.56	6.94	-11.97	143.58
210	TempDown	J[212]	-57.13	72.73	-5.56	6.94	-3.63	34.48
211	TempDown	I[195]	140.14	-74.96	12.36	-4.4	17.59	-36.95
211	TempDown	J[213]	140.14	-74.96	12.36	-4.4	-0.95	75.48
212	TempDown	I[196]	140.14	74.96	12.36	4.4	17.59	36.95

212	TempDown	J[214]	140.14	74.96	12.36	4.4	-0.95	-75.48
213	TempDown	I[197]	-57.13	-72.73	-5.56	-1.27	0.82	-34.48
213	TempDown	J[215]	-57.13	-72.73	-5.56	-1.27	9.16	74.62
214	TempDown	I[198]	-33.45	-61.65	-1.28	0.41	-2.24	-28.78
214	TempDown	J[216]	-33.45	-61.65	-1.28	0.41	-0.32	63.7
215	TempDown	I[199]	-15.06	-49.79	-1.12	1.16	-3.68	-23.18
215	TempDown	J[217]	-15.06	-49.79	-1.12	1.16	-2	51.5
216	TempDown	I[200]	-9.72	-39.24	-1.03	1.26	-3.37	-18.25
216	TempDown	J[218]	-9.72	-39.24	-1.03	1.26	-1.83	40.62
217	TempDown	I[201]	-7.56	-29.63	-0.92	1.12	-2.79	-13.76
217	TempDown	J[219]	-7.56	-29.63	-0.92	1.12	-1.41	30.69
218	TempDown	I[202]	-6.31	-20.71	-0.85	0.85	-2.34	-9.61
218	TempDown	J[220]	-6.31	-20.71	-0.85	0.85	-1.06	21.45
219	TempDown	I[203]	-5.61	-12.24	-0.81	0.53	-2.05	-5.68
219	TempDown	J[221]	-5.61	-12.24	-0.81	0.53	-0.84	12.69
220	TempDown	I[204]	-5.3	-4.05	-0.79	0.18	-1.92	-1.88
220	TempDown	J[222]	-5.3	-4.05	-0.79	0.18	-0.74	4.2
221	TempDown	I[205]	-5.3	4.05	-0.79	-0.18	-1.92	1.88
221	TempDown	J[223]	-5.3	4.05	-0.79	-0.18	-0.74	-4.2
222	TempDown	I[206]	-5.61	12.24	-0.81	-0.53	-2.05	5.68
222	TempDown	J[224]	-5.61	12.24	-0.81	-0.53	-0.84	-12.69
223	TempDown	I[207]	-6.31	20.71	-0.85	-0.85	-2.34	9.61
223	TempDown	J[225]	-6.31	20.71	-0.85	-0.85	-1.06	-21.45
224	TempDown	I[208]	-7.56	29.63	-0.92	-1.12	-2.79	13.76
224	TempDown	J[226]	-7.56	29.63	-0.92	-1.12	-1.41	-30.69
225	TempDown	I[209]	-9.72	39.24	-1.03	-1.26	-3.37	18.25
225	TempDown	J[227]	-9.72	39.24	-1.03	-1.26	-1.83	-40.62
226	TempDown	I[210]	-15.06	49.79	-1.12	-1.16	-3.68	23.18
226	TempDown	J[228]	-15.06	49.79	-1.12	-1.16	-2	-51.5
227	TempDown	I[211]	-33.45	61.65	-1.28	-0.41	-2.24	28.78
227	TempDown	J[229]	-33.45	61.65	-1.28	-0.41	-0.32	-63.7
228	TempDown	I[212]	-57.13	72.73	-5.56	1.27	0.82	34.48
228	TempDown	J[230]	-57.13	72.73	-5.56	1.27	9.16	-74.62
229	TempDown	I[213]	56.68	-255.24	31.57	27.02	39.62	-197.85
229	TempDown	J[353]	56.68	-255.24	31.57	27.02	8.05	57.39
230	TempDown	I[214]	56.68	255.24	31.57	-27.02	39.62	197.85
230	TempDown	J[370]	56.68	255.24	31.57	-27.02	8.05	-57.39
231	TempDown	I[215]	-24.94	-208.69	-16.72	7.8	-7.46	-158.51
231	TempDown	J[354]	-24.94	-208.69	-16.72	7.8	9.26	50.19
232	TempDown	I[216]	-13.83	-132.27	-4.56	4.86	-9.46	-100.03
232	TempDown	J[355]	-13.83	-132.27	-4.56	4.86	-4.9	32.24
233	TempDown	I[217]	-5.78	-87.59	-3.18	2.6	-6.39	-66.2
233	TempDown	J[356]	-5.78	-87.59	-3.18	2.6	-3.2	21.39
234	TempDown	I[218]	-3.77	-59.51	-2.14	1.45	-4.62	-44.91
234	TempDown	J[357]	-3.77	-59.51	-2.14	1.45	-2.48	14.6
235	TempDown	I[219]	-2.72	-40.63	-1.57	0.82	-3.67	-30.63
235	TempDown	J[358]	-2.72	-40.63	-1.57	0.82	-2.09	10
236	TempDown	I[220]	-2.13	-26.61	-1.26	0.46	-3	-20.05
236	TempDown	J[359]	-2.13	-26.61	-1.26	0.46	-1.74	6.56
237	TempDown	I[221]	-1.82	-15.15	-1.1	0.24	-2.6	-11.41
237	TempDown	J[360]	-1.82	-15.15	-1.1	0.24	-1.5	3.74
238	TempDown	I[222]	-1.68	-4.93	-1.04	0.07	-2.42	-3.71
238	TempDown	J[361]	-1.68	-4.93	-1.04	0.07	-1.38	1.22
239	TempDown	I[223]	-1.68	4.93	-1.04	-0.07	-2.42	3.71
239	TempDown	J[362]	-1.68	4.93	-1.04	-0.07	-1.38	-1.22
240	TempDown	I[224]	-1.82	15.15	-1.1	-0.24	-2.6	11.41
240	TempDown	J[363]	-1.82	15.15	-1.1	-0.24	-1.5	-3.74
241	TempDown	I[225]	-2.13	26.61	-1.26	-0.46	-3	20.05
241	TempDown	J[364]	-2.13	26.61	-1.26	-0.46	-1.74	-6.56
242	TempDown	I[226]	-2.72	40.63	-1.57	-0.82	-3.67	30.63
242	TempDown	J[365]	-2.72	40.63	-1.57	-0.82	-2.09	-10

243	TempDown	I[227]	-3.77	59.51	-2.14	-1.45	-4.62	44.91
243	TempDown	J[366]	-3.77	59.51	-2.14	-1.45	-2.48	-14.6
244	TempDown	I[228]	-5.78	87.59	-3.18	-2.6	-6.39	66.2
244	TempDown	J[367]	-5.78	87.59	-3.18	-2.6	-3.2	-21.39
245	TempDown	I[229]	-13.83	132.27	-4.56	-4.86	-9.46	100.03
245	TempDown	J[368]	-13.83	132.27	-4.56	-4.86	-4.9	-32.24
246	TempDown	I[230]	-24.94	208.69	-16.72	-7.8	-7.46	158.51
246	TempDown	J[369]	-24.94	208.69	-16.72	-7.8	9.26	-50.19
247	TempDown	I[1]	220.46	-56.68	7.11	30.86	-83.07	-180.55
247	TempDown	J[231]	220.46	-56.68	7.11	30.86	-98.75	-55.52
248	TempDown	I[19]	220.46	56.68	7.11	-30.86	-83.07	180.55
248	TempDown	J[232]	220.46	56.68	7.11	-30.86	-98.75	55.52
249	TempDown	I[231]	220.46	-56.68	7.11	30.86	-98.75	-55.52
249	TempDown	J[37]	220.46	-56.68	7.11	30.86	-114.43	69.5
250	TempDown	I[232]	220.46	56.68	7.11	-30.86	-98.75	55.52
250	TempDown	J[53]	220.46	56.68	7.11	-30.86	-114.43	-69.5
251	TempDown	I[37]	429.15	-31.74	-5.93	3.06	-207.35	-85.03
251	TempDown	J[233]	429.15	-31.74	-5.93	3.06	-194.27	-15.02
252	TempDown	I[53]	429.15	31.74	-5.93	-3.06	-207.35	85.03
252	TempDown	J[234]	429.15	31.74	-5.93	-3.06	-194.27	15.02
253	TempDown	I[233]	429.15	-31.74	-5.93	3.06	-194.27	-15.02
253	TempDown	J[38]	429.15	-31.74	-5.93	3.06	-181.19	54.98
254	TempDown	I[234]	429.15	31.74	-5.93	-3.06	-194.27	15.02
254	TempDown	J[54]	429.15	31.74	-5.93	-3.06	-181.19	-54.98
255	TempDown	I[38]	561.42	-17.91	-6.46	0.05	-240	-43.39
255	TempDown	J[235]	561.42	-17.91	-6.46	0.05	-225.74	-3.89
256	TempDown	I[54]	561.42	17.91	-6.46	-0.05	-240	43.39
256	TempDown	J[236]	561.42	17.91	-6.46	-0.05	-225.74	3.89
257	TempDown	I[235]	561.42	-17.91	-6.46	0.05	-225.74	-3.89
257	TempDown	J[39]	561.42	-17.91	-6.46	0.05	-211.49	35.61
258	TempDown	I[236]	561.42	17.91	-6.46	-0.05	-225.74	3.89
258	TempDown	J[55]	561.42	17.91	-6.46	-0.05	-211.49	-35.61
259	TempDown	I[39]	649.01	-12.12	-6.14	-0.7	-249.82	-29.57
259	TempDown	J[237]	649.01	-12.12	-6.14	-0.7	-236.28	-2.84
260	TempDown	I[55]	649.01	12.12	-6.14	0.7	-249.82	29.57
260	TempDown	J[238]	649.01	12.12	-6.14	0.7	-236.28	2.84
261	TempDown	I[237]	649.01	-12.12	-6.14	-0.7	-236.28	-2.84
261	TempDown	J[40]	649.01	-12.12	-6.14	-0.7	-222.74	23.9
262	TempDown	I[238]	649.01	12.12	-6.14	0.7	-236.28	2.84
262	TempDown	J[56]	649.01	12.12	-6.14	0.7	-222.74	-23.9
263	TempDown	I[40]	708.52	-8.35	-5.25	-0.83	-248.46	-20.46
263	TempDown	J[239]	708.52	-8.35	-5.25	-0.83	-236.88	-2.04
264	TempDown	I[56]	708.52	8.35	-5.25	0.83	-248.46	20.46
264	TempDown	J[240]	708.52	8.35	-5.25	0.83	-236.88	2.04
265	TempDown	I[239]	708.52	-8.35	-5.25	-0.83	-236.88	-2.04
265	TempDown	J[41]	708.52	-8.35	-5.25	-0.83	-225.29	16.37
266	TempDown	I[240]	708.52	8.35	-5.25	0.83	-236.88	2.04
266	TempDown	J[57]	708.52	8.35	-5.25	0.83	-225.29	-16.37
267	TempDown	I[41]	749.15	-5.63	-4.09	-0.63	-242.69	-13.94
267	TempDown	J[241]	749.15	-5.63	-4.09	-0.63	-233.66	-1.53
268	TempDown	I[57]	749.15	5.63	-4.09	0.63	-242.69	13.94
268	TempDown	J[242]	749.15	5.63	-4.09	0.63	-233.66	1.53
269	TempDown	I[241]	749.15	-5.63	-4.09	-0.63	-233.66	-1.53
269	TempDown	J[42]	749.15	-5.63	-4.09	-0.63	-224.64	10.88
270	TempDown	I[242]	749.15	5.63	-4.09	0.63	-233.66	1.53
270	TempDown	J[58]	749.15	5.63	-4.09	0.63	-224.64	-10.88
271	TempDown	I[42]	775.76	-3.5	-2.79	-0.39	-235.95	-8.98
271	TempDown	J[243]	775.76	-3.5	-2.79	-0.39	-229.8	-1.26
272	TempDown	I[58]	775.76	3.5	-2.79	0.39	-235.95	8.98
272	TempDown	J[244]	775.76	3.5	-2.79	0.39	-229.8	1.26
273	TempDown	I[243]	775.76	-3.5	-2.79	-0.39	-229.8	-1.26

273	TempDown	J[43]	775.76	-3.5	-2.79	-0.39	-223.65	6.46
274	TempDown	I[244]	775.76	3.5	-2.79	0.39	-229.8	1.26
274	TempDown	J[59]	775.76	3.5	-2.79	0.39	-223.65	-6.46
275	TempDown	I[43]	790.91	-1.68	-1.41	-0.18	-230.07	-4.85
275	TempDown	J[245]	790.91	-1.68	-1.41	-0.18	-226.96	-1.13
276	TempDown	I[59]	790.91	1.68	-1.41	0.18	-230.07	4.85
276	TempDown	J[246]	790.91	1.68	-1.41	0.18	-226.96	1.13
277	TempDown	I[245]	790.91	-1.68	-1.41	-0.18	-226.96	-1.13
277	TempDown	J[44]	790.91	-1.68	-1.41	-0.18	-223.84	2.58
278	TempDown	I[246]	790.91	1.68	-1.41	0.18	-226.96	1.13
278	TempDown	J[60]	790.91	1.68	-1.41	0.18	-223.84	-2.58
279	TempDown	I[44]	795.84	0	0	0	-225.93	-1.1
279	TempDown	J[247]	795.84	0	0	0	-225.93	-1.1
280	TempDown	I[60]	795.84	0	0	0	-225.93	1.1
280	TempDown	J[248]	795.84	0	0	0	-225.93	1.1
281	TempDown	I[247]	795.84	0	0	0	-225.93	-1.1
281	TempDown	J[45]	795.84	0	0	0	-225.93	-1.1
282	TempDown	I[248]	795.84	0	0	0	-225.93	1.1
282	TempDown	J[61]	795.84	0	0	0	-225.93	1.1
283	TempDown	I[45]	790.91	1.68	1.41	0.18	-223.84	2.58
283	TempDown	J[249]	790.91	1.68	1.41	0.18	-226.96	-1.13
284	TempDown	I[61]	790.91	-1.68	1.41	-0.18	-223.84	-2.58
284	TempDown	J[250]	790.91	-1.68	1.41	-0.18	-226.96	1.13
285	TempDown	I[249]	790.91	1.68	1.41	0.18	-226.96	-1.13
285	TempDown	J[46]	790.91	1.68	1.41	0.18	-230.07	-4.85
286	TempDown	I[250]	790.91	-1.68	1.41	-0.18	-226.96	1.13
286	TempDown	J[62]	790.91	-1.68	1.41	-0.18	-230.07	4.85
287	TempDown	I[46]	775.76	3.5	2.79	0.39	-223.65	6.46
287	TempDown	J[251]	775.76	3.5	2.79	0.39	-229.8	-1.26
288	TempDown	I[62]	775.76	-3.5	2.79	-0.39	-223.65	-6.46
288	TempDown	J[252]	775.76	-3.5	2.79	-0.39	-229.8	1.26
289	TempDown	I[251]	775.76	3.5	2.79	0.39	-229.8	-1.26
289	TempDown	J[47]	775.76	3.5	2.79	0.39	-235.95	-8.98
290	TempDown	I[252]	775.76	-3.5	2.79	-0.39	-229.8	1.26
290	TempDown	J[63]	775.76	-3.5	2.79	-0.39	-235.95	8.98
291	TempDown	I[47]	749.15	5.63	4.09	0.63	-224.64	10.88
291	TempDown	J[253]	749.15	5.63	4.09	0.63	-233.66	-1.53
292	TempDown	I[63]	749.15	-5.63	4.09	-0.63	-224.64	-10.88
292	TempDown	J[254]	749.15	-5.63	4.09	-0.63	-233.66	1.53
293	TempDown	I[253]	749.15	5.63	4.09	0.63	-233.66	-1.53
293	TempDown	J[48]	749.15	5.63	4.09	0.63	-242.69	-13.94
294	TempDown	I[254]	749.15	-5.63	4.09	-0.63	-233.66	1.53
294	TempDown	J[64]	749.15	-5.63	4.09	-0.63	-242.69	13.94
295	TempDown	I[48]	708.52	8.35	5.25	0.83	-225.29	16.37
295	TempDown	J[255]	708.52	8.35	5.25	0.83	-236.88	-2.04
296	TempDown	I[64]	708.52	-8.35	5.25	-0.83	-225.29	-16.37
296	TempDown	J[256]	708.52	-8.35	5.25	-0.83	-236.88	2.04
297	TempDown	I[255]	708.52	8.35	5.25	0.83	-236.88	-2.04
297	TempDown	J[49]	708.52	8.35	5.25	0.83	-248.46	-20.46
298	TempDown	I[256]	708.52	-8.35	5.25	-0.83	-236.88	2.04
298	TempDown	J[65]	708.52	-8.35	5.25	-0.83	-248.46	20.46
299	TempDown	I[49]	649.01	12.12	6.14	0.7	-222.74	23.9
299	TempDown	J[257]	649.01	12.12	6.14	0.7	-236.28	-2.84
300	TempDown	I[65]	649.01	-12.12	6.14	-0.7	-222.74	-23.9
300	TempDown	J[258]	649.01	-12.12	6.14	-0.7	-236.28	2.84
301	TempDown	I[257]	649.01	12.12	6.14	0.7	-236.28	-2.84
301	TempDown	J[50]	649.01	12.12	6.14	0.7	-249.82	-29.57
302	TempDown	I[258]	649.01	-12.12	6.14	-0.7	-236.28	2.84
302	TempDown	J[66]	649.01	-12.12	6.14	-0.7	-249.82	29.57
303	TempDown	I[50]	561.42	17.91	6.46	-0.05	-211.49	35.61
303	TempDown	J[259]	561.42	17.91	6.46	-0.05	-225.74	-3.89

304	TempDown	I[66]	561.42	-17.91	6.46	0.05	-211.49	-35.61
304	TempDown	J[260]	561.42	-17.91	6.46	0.05	-225.74	3.89
305	TempDown	I[259]	561.42	17.91	6.46	-0.05	-225.74	-3.89
305	TempDown	J[51]	561.42	17.91	6.46	-0.05	-240	-43.39
306	TempDown	I[260]	561.42	-17.91	6.46	0.05	-225.74	3.89
306	TempDown	J[67]	561.42	-17.91	6.46	0.05	-240	43.39
307	TempDown	I[51]	429.15	31.74	5.93	-3.06	-181.19	54.98
307	TempDown	J[261]	429.15	31.74	5.93	-3.06	-194.27	-15.02
308	TempDown	I[67]	429.15	-31.74	5.93	3.06	-181.19	-54.98
308	TempDown	J[262]	429.15	-31.74	5.93	3.06	-194.27	15.02
309	TempDown	I[261]	429.15	31.74	5.93	-3.06	-194.27	-15.02
309	TempDown	J[52]	429.15	31.74	5.93	-3.06	-207.35	-85.03
310	TempDown	I[262]	429.15	-31.74	5.93	3.06	-194.27	15.02
310	TempDown	J[68]	429.15	-31.74	5.93	3.06	-207.35	85.03
311	TempDown	I[52]	220.46	56.68	-7.11	-30.86	-114.43	69.5
311	TempDown	J[263]	220.46	56.68	-7.11	-30.86	-98.75	-55.52
312	TempDown	I[68]	220.46	-56.68	-7.11	30.86	-114.43	-69.5
312	TempDown	J[264]	220.46	-56.68	-7.11	30.86	-98.75	55.52
313	TempDown	I[263]	220.46	56.68	-7.11	-30.86	-98.75	-55.52
313	TempDown	J[18]	220.46	56.68	-7.11	-30.86	-83.07	-180.55
314	TempDown	I[264]	220.46	-56.68	-7.11	30.86	-98.75	55.52
314	TempDown	J[36]	220.46	-56.68	-7.11	30.86	-83.07	180.55
315	TempDown	I[1]	0	0	0	0	0	0
315	TempDown	J[265]	0	0	0	0	0	0
316	TempDown	I[18]	0	0	0	0	0	0
316	TempDown	J[266]	0	0	0	0	0	0
317	TempDown	I[37]	0	0	0	0	0	0
317	TempDown	J[267]	0	0	0	0	0	0
318	TempDown	I[38]	0	0	0	0	0	0
318	TempDown	J[268]	0	0	0	0	0	0
319	TempDown	I[39]	0	0	0	0	0	0
319	TempDown	J[269]	0	0	0	0	0	0
320	TempDown	I[40]	0	0	0	0	0	0
320	TempDown	J[270]	0	0	0	0	0	0
321	TempDown	I[41]	0	0	0	0	0	0
321	TempDown	J[271]	0	0	0	0	0	0
322	TempDown	I[42]	0	0	0	0	0	0
322	TempDown	J[272]	0	0	0	0	0	0
323	TempDown	I[43]	0	0	0	0	0	0
323	TempDown	J[273]	0	0	0	0	0	0
324	TempDown	I[44]	0	0	0	0	0	0
324	TempDown	J[274]	0	0	0	0	0	0
325	TempDown	I[45]	0	0	0	0	0	0
325	TempDown	J[275]	0	0	0	0	0	0
326	TempDown	I[46]	0	0	0	0	0	0
326	TempDown	J[276]	0	0	0	0	0	0
327	TempDown	I[47]	0	0	0	0	0	0
327	TempDown	J[277]	0	0	0	0	0	0
328	TempDown	I[48]	0	0	0	0	0	0
328	TempDown	J[278]	0	0	0	0	0	0
329	TempDown	I[49]	0	0	0	0	0	0
329	TempDown	J[279]	0	0	0	0	0	0
330	TempDown	I[50]	0	0	0	0	0	0
330	TempDown	J[280]	0	0	0	0	0	0
331	TempDown	I[51]	0	0	0	0	0	0
331	TempDown	J[281]	0	0	0	0	0	0
332	TempDown	I[52]	0	0	0	0	0	0
332	TempDown	J[282]	0	0	0	0	0	0
333	TempDown	I[231]	0	0	0	0	0	0
333	TempDown	J[283]	0	0	0	0	0	0
334	TempDown	I[233]	0	0	0	0	0	0

334	TempDown	J[284]	0	0	0	0	0	0
335	TempDown	I[235]	0	0	0	0	0	0
335	TempDown	J[285]	0	0	0	0	0	0
336	TempDown	I[237]	0	0	0	0	0	0
336	TempDown	J[286]	0	0	0	0	0	0
337	TempDown	I[239]	0	0	0	0	0	0
337	TempDown	J[287]	0	0	0	0	0	0
338	TempDown	I[241]	0	0	0	0	0	0
338	TempDown	J[288]	0	0	0	0	0	0
339	TempDown	I[243]	0	0	0	0	0	0
339	TempDown	J[289]	0	0	0	0	0	0
340	TempDown	I[245]	0	0	0	0	0	0
340	TempDown	J[290]	0	0	0	0	0	0
341	TempDown	I[247]	0	0	0	0	0	0
341	TempDown	J[291]	0	0	0	0	0	0
342	TempDown	I[249]	0	0	0	0	0	0
342	TempDown	J[292]	0	0	0	0	0	0
343	TempDown	I[251]	0	0	0	0	0	0
343	TempDown	J[293]	0	0	0	0	0	0
344	TempDown	I[253]	0	0	0	0	0	0
344	TempDown	J[294]	0	0	0	0	0	0
345	TempDown	I[255]	0	0	0	0	0	0
345	TempDown	J[295]	0	0	0	0	0	0
346	TempDown	I[257]	0	0	0	0	0	0
346	TempDown	J[296]	0	0	0	0	0	0
347	TempDown	I[259]	0	0	0	0	0	0
347	TempDown	J[297]	0	0	0	0	0	0
348	TempDown	I[261]	0	0	0	0	0	0
348	TempDown	J[298]	0	0	0	0	0	0
349	TempDown	I[263]	0	0	0	0	0	0
349	TempDown	J[299]	0	0	0	0	0	0
350	TempDown	I[19]	0	0	0	0	0	0
350	TempDown	J[300]	0	0	0	0	0	0
351	TempDown	I[36]	0	0	0	0	0	0
351	TempDown	J[301]	0	0	0	0	0	0
352	TempDown	I[53]	0	0	0	0	0	0
352	TempDown	J[302]	0	0	0	0	0	0
353	TempDown	I[54]	0	0	0	0	0	0
353	TempDown	J[303]	0	0	0	0	0	0
354	TempDown	I[55]	0	0	0	0	0	0
354	TempDown	J[304]	0	0	0	0	0	0
355	TempDown	I[56]	0	0	0	0	0	0
355	TempDown	J[305]	0	0	0	0	0	0
356	TempDown	I[57]	0	0	0	0	0	0
356	TempDown	J[306]	0	0	0	0	0	0
357	TempDown	I[58]	0	0	0	0	0	0
357	TempDown	J[307]	0	0	0	0	0	0
358	TempDown	I[59]	0	0	0	0	0	0
358	TempDown	J[308]	0	0	0	0	0	0
359	TempDown	I[60]	0	0	0	0	0	0
359	TempDown	J[309]	0	0	0	0	0	0
360	TempDown	I[61]	0	0	0	0	0	0
360	TempDown	J[310]	0	0	0	0	0	0
361	TempDown	I[62]	0	0	0	0	0	0
361	TempDown	J[311]	0	0	0	0	0	0
362	TempDown	I[63]	0	0	0	0	0	0
362	TempDown	J[312]	0	0	0	0	0	0
363	TempDown	I[64]	0	0	0	0	0	0
363	TempDown	J[313]	0	0	0	0	0	0
364	TempDown	I[65]	0	0	0	0	0	0
364	TempDown	J[314]	0	0	0	0	0	0

365	TempDown	I[66]	0	0	0	0	0	0
365	TempDown	J[315]	0	0	0	0	0	0
366	TempDown	I[67]	0	0	0	0	0	0
366	TempDown	J[316]	0	0	0	0	0	0
367	TempDown	I[68]	0	0	0	0	0	0
367	TempDown	J[317]	0	0	0	0	0	0
368	TempDown	I[232]	0	0	0	0	0	0
368	TempDown	J[318]	0	0	0	0	0	0
369	TempDown	I[234]	0	0	0	0	0	0
369	TempDown	J[319]	0	0	0	0	0	0
370	TempDown	I[236]	0	0	0	0	0	0
370	TempDown	J[320]	0	0	0	0	0	0
371	TempDown	I[238]	0	0	0	0	0	0
371	TempDown	J[321]	0	0	0	0	0	0
372	TempDown	I[240]	0	0	0	0	0	0
372	TempDown	J[322]	0	0	0	0	0	0
373	TempDown	I[242]	0	0	0	0	0	0
373	TempDown	J[323]	0	0	0	0	0	0
374	TempDown	I[244]	0	0	0	0	0	0
374	TempDown	J[324]	0	0	0	0	0	0
375	TempDown	I[246]	0	0	0	0	0	0
375	TempDown	J[325]	0	0	0	0	0	0
376	TempDown	I[248]	0	0	0	0	0	0
376	TempDown	J[326]	0	0	0	0	0	0
377	TempDown	I[250]	0	0	0	0	0	0
377	TempDown	J[327]	0	0	0	0	0	0
378	TempDown	I[252]	0	0	0	0	0	0
378	TempDown	J[328]	0	0	0	0	0	0
379	TempDown	I[254]	0	0	0	0	0	0
379	TempDown	J[329]	0	0	0	0	0	0
380	TempDown	I[256]	0	0	0	0	0	0
380	TempDown	J[330]	0	0	0	0	0	0
381	TempDown	I[258]	0	0	0	0	0	0
381	TempDown	J[331]	0	0	0	0	0	0
382	TempDown	I[260]	0	0	0	0	0	0
382	TempDown	J[332]	0	0	0	0	0	0
383	TempDown	I[262]	0	0	0	0	0	0
383	TempDown	J[333]	0	0	0	0	0	0
384	TempDown	I[264]	0	0	0	0	0	0
384	TempDown	J[334]	0	0	0	0	0	0
385	TempDown	I[69]	-180.29	-83.46	-19.22	1.59	-52.79	-273.33
385	TempDown	J[71]	-180.29	-83.46	-19.22	1.59	31.99	94.89
386	TempDown	I[105]	-56.08	-55.71	-9.23	0.94	-28.74	-170.14
386	TempDown	J[107]	-56.08	-55.71	-9.23	0.94	12	75.64
387	TempDown	I[141]	-37.74	0	-6.25	0	-21.35	0
387	TempDown	J[143]	-37.74	0	-6.25	0	6.22	0
388	TempDown	I[177]	-56.08	55.71	-9.23	-0.94	-28.74	170.14
388	TempDown	J[179]	-56.08	55.71	-9.23	-0.94	12	-75.64
389	TempDown	I[213]	-180.29	83.46	-19.22	-1.59	-52.79	273.33
389	TempDown	J[215]	-180.29	83.46	-19.22	-1.59	31.99	-94.89
390	TempDown	I[71]	-316.25	-51.27	-8.05	0.01	-22.45	-138.24
390	TempDown	J[72]	-316.25	-51.27	-8.05	0.01	13.08	87.95
391	TempDown	I[107]	-108.63	-38.7	-4.87	-0.06	-14.19	-94.95
391	TempDown	J[108]	-108.63	-38.7	-4.87	-0.06	7.29	75.8
392	TempDown	I[143]	-78.12	0	-3.87	0	-11.88	0
392	TempDown	J[144]	-78.12	0	-3.87	0	5.18	0
393	TempDown	I[179]	-108.63	38.7	-4.87	0.06	-14.19	94.95
393	TempDown	J[180]	-108.63	38.7	-4.87	0.06	7.29	-75.8
394	TempDown	I[215]	-316.25	51.27	-8.05	-0.01	-22.45	138.24
394	TempDown	J[216]	-316.25	51.27	-8.05	-0.01	13.08	-87.95
395	TempDown	I[72]	-386.86	-31.66	-4.78	0.03	-15.46	-75.79

395	TempDown	J[73]	-386.86	-31.66	-4.78	0.03	5.62	63.87
396	TempDown	I[108]	-151.62	-30.23	-3.92	0.01	-12.92	-71.04
396	TempDown	J[109]	-151.62	-30.23	-3.92	0.01	4.38	62.34
397	TempDown	I[144]	-115.44	0	-3.2	0	-11.17	0
397	TempDown	J[145]	-115.44	0	-3.2	0	2.94	0
398	TempDown	I[180]	-151.62	30.23	-3.92	-0.01	-12.92	71.04
398	TempDown	J[181]	-151.62	30.23	-3.92	-0.01	4.38	-62.34
399	TempDown	I[216]	-386.86	31.66	-4.78	-0.03	-15.46	75.79
399	TempDown	J[217]	-386.86	31.66	-4.78	-0.03	5.62	-63.87
400	TempDown	I[73]	-424.67	-22.38	-2.71	-0.03	-10.59	-53.83
400	TempDown	J[376]	-424.67	-22.38	-2.71	-0.03	-4.61	-4.45
401	TempDown	I[109]	-185.87	-23.95	-3.07	-0.01	-11.16	-56.84
401	TempDown	J[377]	-185.87	-23.95	-3.07	-0.01	-4.39	-4
402	TempDown	I[145]	-146.53	0	-2.66	0	-10.18	0
402	TempDown	J[378]	-146.53	0	-2.66	0	-4.32	0
403	TempDown	I[181]	-185.87	23.95	-3.07	0.01	-11.16	56.84
403	TempDown	J[379]	-185.87	23.95	-3.07	0.01	-4.39	4
404	TempDown	I[217]	-424.67	22.38	-2.71	0.03	-10.59	53.83
404	TempDown	J[380]	-424.67	22.38	-2.71	0.03	-4.61	4.45
405	TempDown	I[74]	-444.94	-16.44	-1.6	-0.04	-7.9	-40.61
405	TempDown	J[75]	-444.94	-16.44	-1.6	-0.04	-0.86	31.92
406	TempDown	I[110]	-212.51	-18.71	-2.33	-0.02	-9.47	-45.53
406	TempDown	J[111]	-212.51	-18.71	-2.33	-0.02	0.81	37.01
407	TempDown	I[146]	-171.73	0	-2.09	0	-8.89	0
407	TempDown	J[147]	-171.73	0	-2.09	0	0.33	0
408	TempDown	I[182]	-212.51	18.71	-2.33	0.02	-9.47	45.53
408	TempDown	J[183]	-212.51	18.71	-2.33	0.02	0.81	-37.01
409	TempDown	I[218]	-444.94	16.44	-1.6	0.04	-7.9	40.61
409	TempDown	J[219]	-444.94	16.44	-1.6	0.04	-0.86	-31.92
410	TempDown	I[75]	-455.93	-11.6	-0.95	-0.03	-6.29	-29.4
410	TempDown	J[76]	-455.93	-11.6	-0.95	-0.03	-2.12	21.77
411	TempDown	I[111]	-232.41	-13.77	-1.68	-0.02	-7.95	-34.53
411	TempDown	J[112]	-232.41	-13.77	-1.68	-0.02	-0.54	26.22
412	TempDown	I[147]	-191.18	0	-1.54	0	-7.62	0
412	TempDown	J[148]	-191.18	0	-1.54	0	-0.81	0
413	TempDown	I[183]	-232.41	13.77	-1.68	0.02	-7.95	34.53
413	TempDown	J[184]	-232.41	13.77	-1.68	0.02	-0.54	-26.22
414	TempDown	I[219]	-455.93	11.6	-0.95	0.03	-6.29	29.4
414	TempDown	J[220]	-455.93	11.6	-0.95	0.03	-2.12	-21.77
415	TempDown	I[76]	-461.83	-7.41	-0.54	-0.02	-5.26	-19.73
415	TempDown	J[77]	-461.83	-7.41	-0.54	-0.02	-2.89	12.97
416	TempDown	I[112]	-246.22	-9.04	-1.09	-0.01	-6.57	-23.92
416	TempDown	J[113]	-246.22	-9.04	-1.09	-0.01	-1.75	15.97
417	TempDown	I[148]	-204.99	0	-1.02	0	-6.39	0
417	TempDown	J[149]	-204.99	0	-1.02	0	-1.89	0
418	TempDown	I[184]	-246.22	9.04	-1.09	0.01	-6.57	23.92
418	TempDown	J[185]	-246.22	9.04	-1.09	0.01	-1.75	-15.97
419	TempDown	I[220]	-461.83	7.41	-0.54	0.02	-5.26	19.73
419	TempDown	J[221]	-461.83	7.41	-0.54	0.02	-2.89	-12.97
420	TempDown	I[77]	-464.74	-3.62	-0.24	-0.01	-4.54	-11.13
420	TempDown	J[78]	-464.74	-3.62	-0.24	-0.01	-3.46	4.83
421	TempDown	I[113]	-254.33	-4.48	-0.54	0	-5.29	-13.74
421	TempDown	J[114]	-254.33	-4.48	-0.54	0	-2.92	6.01
422	TempDown	I[149]	-213.24	0	-0.51	0	-5.21	0
422	TempDown	J[150]	-213.24	0	-0.51	0	-2.97	0
423	TempDown	I[185]	-254.33	4.48	-0.54	0	-5.29	13.74
423	TempDown	J[186]	-254.33	4.48	-0.54	0	-2.92	-6.01
424	TempDown	I[221]	-464.74	3.62	-0.24	0.01	-4.54	11.13
424	TempDown	J[222]	-464.74	3.62	-0.24	0.01	-3.46	-4.83
425	TempDown	I[78]	-465.62	0	0	0	-3.97	-3.08
425	TempDown	J[371]	-465.62	0	0	0	-3.97	-3.08

426	TempDown	I[114]	-257.01	0	0	0	-4.08	-3.82
426	TempDown	J[372]	-257.01	0	0	0	-4.08	-3.82
427	TempDown	I[150]	-215.99	0	0	0	-4.07	0
427	TempDown	J[373]	-215.99	0	0	0	-4.07	0
428	TempDown	I[186]	-257.01	0	0	0	-4.08	3.82
428	TempDown	J[374]	-257.01	0	0	0	-4.08	3.82
429	TempDown	I[222]	-465.62	0	0	0	-3.97	3.08
429	TempDown	J[375]	-465.62	0	0	0	-3.97	3.08
430	TempDown	I[79]	-464.74	3.62	0.24	0.01	-3.46	4.83
430	TempDown	J[80]	-464.74	3.62	0.24	0.01	-4.54	-11.13
431	TempDown	I[115]	-254.33	4.48	0.54	0	-2.92	6.01
431	TempDown	J[116]	-254.33	4.48	0.54	0	-5.29	-13.74
432	TempDown	I[151]	-213.24	0	0.51	0	-2.97	0
432	TempDown	J[152]	-213.24	0	0.51	0	-5.21	0
433	TempDown	I[187]	-254.33	-4.48	0.54	0	-2.92	-6.01
433	TempDown	J[188]	-254.33	-4.48	0.54	0	-5.29	13.74
434	TempDown	I[223]	-464.74	-3.62	0.24	-0.01	-3.46	-4.83
434	TempDown	J[224]	-464.74	-3.62	0.24	-0.01	-4.54	11.13
435	TempDown	I[80]	-461.83	7.41	0.54	0.02	-2.89	12.97
435	TempDown	J[81]	-461.83	7.41	0.54	0.02	-5.26	-19.73
436	TempDown	I[116]	-246.22	9.04	1.09	0.01	-1.75	15.97
436	TempDown	J[117]	-246.22	9.04	1.09	0.01	-6.57	-23.92
437	TempDown	I[152]	-204.99	0	1.02	0	-1.89	0
437	TempDown	J[153]	-204.99	0	1.02	0	-6.39	0
438	TempDown	I[188]	-246.22	-9.04	1.09	-0.01	-1.75	-15.97
438	TempDown	J[189]	-246.22	-9.04	1.09	-0.01	-6.57	23.92
439	TempDown	I[224]	-461.83	-7.41	0.54	-0.02	-2.89	-12.97
439	TempDown	J[225]	-461.83	-7.41	0.54	-0.02	-5.26	19.73
440	TempDown	I[81]	-455.93	11.6	0.95	0.03	-2.12	21.77
440	TempDown	J[82]	-455.93	11.6	0.95	0.03	-6.29	-29.4
441	TempDown	I[117]	-232.41	13.77	1.68	0.02	-0.54	26.22
441	TempDown	J[118]	-232.41	13.77	1.68	0.02	-7.95	-34.53
442	TempDown	I[153]	-191.18	0	1.54	0	-0.81	0
442	TempDown	J[154]	-191.18	0	1.54	0	-7.62	0
443	TempDown	I[189]	-232.41	-13.77	1.68	-0.02	-0.54	-26.22
443	TempDown	J[190]	-232.41	-13.77	1.68	-0.02	-7.95	34.53
444	TempDown	I[225]	-455.93	-11.6	0.95	-0.03	-2.12	-21.77
444	TempDown	J[226]	-455.93	-11.6	0.95	-0.03	-6.29	29.4
445	TempDown	I[82]	-444.94	16.44	1.6	0.04	-0.86	31.92
445	TempDown	J[83]	-444.94	16.44	1.6	0.04	-7.9	-40.61
446	TempDown	I[118]	-212.51	18.71	2.33	0.02	0.81	37.01
446	TempDown	J[119]	-212.51	18.71	2.33	0.02	-9.47	-45.53
447	TempDown	I[154]	-171.73	0	2.09	0	0.33	0
447	TempDown	J[155]	-171.73	0	2.09	0	-8.89	0
448	TempDown	I[190]	-212.51	-18.71	2.33	-0.02	0.81	-37.01
448	TempDown	J[191]	-212.51	-18.71	2.33	-0.02	-9.47	45.53
449	TempDown	I[226]	-444.94	-16.44	1.6	-0.04	-0.86	-31.92
449	TempDown	J[227]	-444.94	-16.44	1.6	-0.04	-7.9	40.61
450	TempDown	I[83]	-424.67	22.38	2.71	0.03	1.38	44.92
450	TempDown	J[381]	-424.67	22.38	2.71	0.03	-4.61	-4.45
451	TempDown	I[119]	-185.87	23.95	3.07	0.01	2.38	48.83
451	TempDown	J[382]	-185.87	23.95	3.07	0.01	-4.39	-4
452	TempDown	I[155]	-146.53	0	2.66	0	1.55	0
452	TempDown	J[383]	-146.53	0	2.66	0	-4.32	0
453	TempDown	I[191]	-185.87	-23.95	3.07	-0.01	2.38	-48.83
453	TempDown	J[384]	-185.87	-23.95	3.07	-0.01	-4.39	4
454	TempDown	I[227]	-424.67	-22.38	2.71	-0.03	1.38	-44.92
454	TempDown	J[385]	-424.67	-22.38	2.71	-0.03	-4.61	4.45
455	TempDown	I[84]	-386.86	31.66	4.78	-0.03	5.62	63.87
455	TempDown	J[85]	-386.86	31.66	4.78	-0.03	-15.46	-75.79
456	TempDown	I[120]	-151.62	30.23	3.92	-0.01	4.38	62.34

456	TempDown	J[121]	-151.62	30.23	3.92	-0.01	-12.92	-71.04
457	TempDown	I[156]	-115.44	0	3.2	0	2.94	0
457	TempDown	J[157]	-115.44	0	3.2	0	-11.17	0
458	TempDown	I[192]	-151.62	-30.23	3.92	0.01	4.38	-62.34
458	TempDown	J[193]	-151.62	-30.23	3.92	0.01	-12.92	71.04
459	TempDown	I[228]	-386.86	-31.66	4.78	0.03	5.62	-63.87
459	TempDown	J[229]	-386.86	-31.66	4.78	0.03	-15.46	75.79
460	TempDown	I[85]	-316.25	51.27	8.05	-0.01	13.08	87.95
460	TempDown	J[86]	-316.25	51.27	8.05	-0.01	-22.45	-138.24
461	TempDown	I[121]	-108.63	38.7	4.87	0.06	7.29	75.8
461	TempDown	J[122]	-108.63	38.7	4.87	0.06	-14.19	-94.95
462	TempDown	I[157]	-78.12	0	3.87	0	5.18	0
462	TempDown	J[158]	-78.12	0	3.87	0	-11.88	0
463	TempDown	I[193]	-108.63	-38.7	4.87	-0.06	7.29	-75.8
463	TempDown	J[194]	-108.63	-38.7	4.87	-0.06	-14.19	94.95
464	TempDown	I[229]	-316.25	-51.27	8.05	0.01	13.08	-87.95
464	TempDown	J[230]	-316.25	-51.27	8.05	0.01	-22.45	138.24
465	TempDown	I[86]	-180.29	83.46	19.22	-1.59	31.99	94.89
465	TempDown	J[70]	-180.29	83.46	19.22	-1.59	-52.79	-273.33
466	TempDown	I[122]	-56.08	55.71	9.23	-0.94	12	75.64
466	TempDown	J[106]	-56.08	55.71	9.23	-0.94	-28.74	-170.14
467	TempDown	I[158]	-37.74	0	6.25	0	6.22	0
467	TempDown	J[142]	-37.74	0	6.25	0	-21.35	0
468	TempDown	I[194]	-56.08	-55.71	9.23	0.94	12	-75.64
468	TempDown	J[178]	-56.08	-55.71	9.23	0.94	-28.74	170.14
469	TempDown	I[230]	-180.29	-83.46	19.22	1.59	31.99	-94.89
469	TempDown	J[214]	-180.29	-83.46	19.22	1.59	-52.79	273.33
470	TempDown	I[335]	56.68	255.24	-31.57	-27.02	8.05	57.39
470	TempDown	J[69]	56.68	255.24	-31.57	-27.02	39.62	-197.85
471	TempDown	I[336]	-24.94	208.69	16.72	-7.8	9.26	50.19
471	TempDown	J[71]	-24.94	208.69	16.72	-7.8	-7.46	-158.51
472	TempDown	I[337]	-13.83	132.27	4.56	-4.86	-4.9	32.24
472	TempDown	J[72]	-13.83	132.27	4.56	-4.86	-9.46	-100.03
473	TempDown	I[338]	-5.78	87.59	3.18	-2.6	-3.2	21.39
473	TempDown	J[73]	-5.78	87.59	3.18	-2.6	-6.39	-66.2
474	TempDown	I[339]	-3.77	59.51	2.14	-1.45	-2.48	14.6
474	TempDown	J[74]	-3.77	59.51	2.14	-1.45	-4.62	-44.91
475	TempDown	I[340]	-2.72	40.63	1.57	-0.82	-2.09	10
475	TempDown	J[75]	-2.72	40.63	1.57	-0.82	-3.67	-30.63
476	TempDown	I[341]	-2.13	26.61	1.26	-0.46	-1.74	6.56
476	TempDown	J[76]	-2.13	26.61	1.26	-0.46	-3	-20.05
477	TempDown	I[342]	-1.82	15.15	1.1	-0.24	-1.5	3.74
477	TempDown	J[77]	-1.82	15.15	1.1	-0.24	-2.6	-11.41
478	TempDown	I[343]	-1.68	4.93	1.04	-0.07	-1.38	1.22
478	TempDown	J[78]	-1.68	4.93	1.04	-0.07	-2.42	-3.71
479	TempDown	I[344]	-1.68	-4.93	1.04	0.07	-1.38	-1.22
479	TempDown	J[79]	-1.68	-4.93	1.04	0.07	-2.42	3.71
480	TempDown	I[345]	-1.82	-15.15	1.1	0.24	-1.5	-3.74
480	TempDown	J[80]	-1.82	-15.15	1.1	0.24	-2.6	11.41
481	TempDown	I[346]	-2.13	-26.61	1.26	0.46	-1.74	-6.56
481	TempDown	J[81]	-2.13	-26.61	1.26	0.46	-3	20.05
482	TempDown	I[347]	-2.72	-40.63	1.57	0.82	-2.09	-10
482	TempDown	J[82]	-2.72	-40.63	1.57	0.82	-3.67	30.63
483	TempDown	I[348]	-3.77	-59.51	2.14	1.45	-2.48	-14.6
483	TempDown	J[83]	-3.77	-59.51	2.14	1.45	-4.62	44.91
484	TempDown	I[349]	-5.78	-87.59	3.18	2.6	-3.2	-21.39
484	TempDown	J[84]	-5.78	-87.59	3.18	2.6	-6.39	66.2
485	TempDown	I[350]	-13.83	-132.27	4.56	4.86	-4.9	-32.24
485	TempDown	J[85]	-13.83	-132.27	4.56	4.86	-9.46	100.03
486	TempDown	I[351]	-24.94	-208.69	16.72	7.8	9.26	-50.19
486	TempDown	J[86]	-24.94	-208.69	16.72	7.8	-7.46	158.51

487	TempDown	I[352]	56.68	-255.24	-31.57	27.02	8.05	-57.39
487	TempDown	J[70]	56.68	-255.24	-31.57	27.02	39.62	197.85
488	TempDown	I[353]	56.68	-255.24	31.57	27.02	8.05	57.39
488	TempDown	J[19]	56.68	-255.24	31.57	27.02	-7.74	185.01
489	TempDown	I[354]	-24.94	-208.69	-16.72	7.8	9.26	50.19
489	TempDown	J[53]	-24.94	-208.69	-16.72	7.8	17.62	154.53
490	TempDown	I[355]	-13.83	-132.27	-4.56	4.86	-4.9	32.24
490	TempDown	J[54]	-13.83	-132.27	-4.56	4.86	-2.63	98.37
491	TempDown	I[356]	-5.78	-87.59	-3.18	2.6	-3.2	21.39
491	TempDown	J[55]	-5.78	-87.59	-3.18	2.6	-1.61	65.18
492	TempDown	I[357]	-3.77	-59.51	-2.14	1.45	-2.48	14.6
492	TempDown	J[56]	-3.77	-59.51	-2.14	1.45	-1.41	44.36
493	TempDown	I[358]	-2.72	-40.63	-1.57	0.82	-2.09	10
493	TempDown	J[57]	-2.72	-40.63	-1.57	0.82	-1.31	30.31
494	TempDown	I[359]	-2.13	-26.61	-1.26	0.46	-1.74	6.56
494	TempDown	J[58]	-2.13	-26.61	-1.26	0.46	-1.11	19.86
495	TempDown	I[360]	-1.82	-15.15	-1.1	0.24	-1.5	3.74
495	TempDown	J[59]	-1.82	-15.15	-1.1	0.24	-0.95	11.31
496	TempDown	I[361]	-1.68	-4.93	-1.04	0.07	-1.38	1.22
496	TempDown	J[60]	-1.68	-4.93	-1.04	0.07	-0.87	3.68
497	TempDown	I[362]	-1.68	4.93	-1.04	-0.07	-1.38	-1.22
497	TempDown	J[61]	-1.68	4.93	-1.04	-0.07	-0.87	-3.68
498	TempDown	I[363]	-1.82	15.15	-1.1	-0.24	-1.5	-3.74
498	TempDown	J[62]	-1.82	15.15	-1.1	-0.24	-0.95	-11.31
499	TempDown	I[364]	-2.13	26.61	-1.26	-0.46	-1.74	-6.56
499	TempDown	J[63]	-2.13	26.61	-1.26	-0.46	-1.11	-19.86
500	TempDown	I[365]	-2.72	40.63	-1.57	-0.82	-2.09	-10
500	TempDown	J[64]	-2.72	40.63	-1.57	-0.82	-1.31	-30.31
501	TempDown	I[366]	-3.77	59.51	-2.14	-1.45	-2.48	-14.6
501	TempDown	J[65]	-3.77	59.51	-2.14	-1.45	-1.41	-44.36
502	TempDown	I[367]	-5.78	87.59	-3.18	-2.6	-3.2	-21.39
502	TempDown	J[66]	-5.78	87.59	-3.18	-2.6	-1.61	-65.18
503	TempDown	I[368]	-13.83	132.27	-4.56	-4.86	-4.9	-32.24
503	TempDown	J[67]	-13.83	132.27	-4.56	-4.86	-2.63	-98.37
504	TempDown	I[369]	-24.94	208.69	-16.72	-7.8	9.26	-50.19
504	TempDown	J[68]	-24.94	208.69	-16.72	-7.8	17.62	-154.53
505	TempDown	I[370]	56.68	255.24	31.57	-27.02	8.05	-57.39
505	TempDown	J[36]	56.68	255.24	31.57	-27.02	-7.74	-185.01
506	TempDown	I[371]	-465.62	0	0	0	-3.97	-3.08
506	TempDown	J[79]	-465.62	0	0	0	-3.97	-3.08
507	TempDown	I[372]	-257.01	0	0	0	-4.08	-3.82
507	TempDown	J[115]	-257.01	0	0	0	-4.08	-3.82
508	TempDown	I[373]	-215.99	0	0	0	-4.07	0
508	TempDown	J[151]	-215.99	0	0	0	-4.07	0
509	TempDown	I[374]	-257.01	0	0	0	-4.08	3.82
509	TempDown	J[187]	-257.01	0	0	0	-4.08	3.82
510	TempDown	I[375]	-465.62	0	0	0	-3.97	3.08
510	TempDown	J[223]	-465.62	0	0	0	-3.97	3.08
511	TempDown	I[376]	-424.67	-22.38	-2.71	-0.03	-4.61	-4.45
511	TempDown	J[74]	-424.67	-22.38	-2.71	-0.03	1.38	44.92
512	TempDown	I[377]	-185.87	-23.95	-3.07	-0.01	-4.39	-4
512	TempDown	J[110]	-185.87	-23.95	-3.07	-0.01	2.38	48.83
513	TempDown	I[378]	-146.53	0	-2.66	0	-4.32	0
513	TempDown	J[146]	-146.53	0	-2.66	0	1.55	0
514	TempDown	I[379]	-185.87	23.95	-3.07	0.01	-4.39	4
514	TempDown	J[182]	-185.87	23.95	-3.07	0.01	2.38	-48.83
515	TempDown	I[380]	-424.67	22.38	-2.71	0.03	-4.61	4.45
515	TempDown	J[218]	-424.67	22.38	-2.71	0.03	1.38	-44.92
516	TempDown	I[381]	-424.67	22.38	2.71	0.03	-4.61	-4.45
516	TempDown	J[84]	-424.67	22.38	2.71	0.03	-10.59	-53.83
517	TempDown	I[382]	-185.87	23.95	3.07	0.01	-4.39	-4

517	TempDown	J[120]	-185.87	23.95	3.07	0.01	-11.16	-56.84
518	TempDown	I[383]	-146.53	0	2.66	0	-4.32	0
518	TempDown	J[156]	-146.53	0	2.66	0	-10.18	0
519	TempDown	I[384]	-185.87	-23.95	3.07	-0.01	-4.39	4
519	TempDown	J[192]	-185.87	-23.95	3.07	-0.01	-11.16	56.84
520	TempDown	I[385]	-424.67	-22.38	2.71	-0.03	-4.61	4.45
520	TempDown	J[228]	-424.67	-22.38	2.71	-0.03	-10.59	53.83

2.2. SUBIDA DE TEMPERATURA

Elem	Load	Part	Axial (kN)	Shear-y (kN)	Shear-z (kN)	Torsion (kN*m)	Moment-y (kN*m)	Moment-z (kN*m)
1	TempUP	I[1]	-1266.03	0	1.26	35.68	336.47	61.81
1	TempUP	J[2]	-1266.03	0	1.26	35.68	330.07	61.81
2	TempUP	I[2]	-1231.77	0	-5.32	32.18	330.07	63.71
2	TempUP	J[3]	-1231.77	0	-5.32	32.18	356.36	63.71
3	TempUP	I[3]	-1192.76	0	6.31	28.36	356.36	65.5
3	TempUP	J[4]	-1192.76	0	6.31	28.36	326.02	65.5
4	TempUP	I[4]	-1160.9	0	14.96	24.22	326.02	67.14
4	TempUP	J[5]	-1160.9	0	14.96	24.22	255.86	67.14
5	TempUP	I[5]	-1136.7	0	17.88	19.79	255.86	68.58
5	TempUP	J[6]	-1136.7	0	17.88	19.79	173.75	68.58
6	TempUP	I[6]	-1118.94	0	16.42	15.1	173.75	69.76
6	TempUP	J[7]	-1118.94	0	16.42	15.1	99.64	69.76
7	TempUP	I[7]	-1106.69	0	12.2	10.19	99.64	70.64
7	TempUP	J[8]	-1106.69	0	12.2	10.19	45.25	70.64
8	TempUP	I[8]	-1099.47	0	6.45	5.14	45.25	71.19
8	TempUP	J[9]	-1099.47	0	6.45	5.14	16.74	71.19
9	TempUP	I[9]	-1097.08	0	0	0	16.74	71.37
9	TempUP	J[10]	-1097.08	0	0	0	16.74	71.37
10	TempUP	I[10]	-1099.47	0	-6.45	-5.14	16.74	71.19
10	TempUP	J[11]	-1099.47	0	-6.45	-5.14	45.25	71.19
11	TempUP	I[11]	-1106.69	0	-12.2	-10.19	45.25	70.64
11	TempUP	J[12]	-1106.69	0	-12.2	-10.19	99.64	70.64
12	TempUP	I[12]	-1118.94	0	-16.42	-15.1	99.64	69.76
12	TempUP	J[13]	-1118.94	0	-16.42	-15.1	173.75	69.76
13	TempUP	I[13]	-1136.7	0	-17.88	-19.79	173.75	68.58
13	TempUP	J[14]	-1136.7	0	-17.88	-19.79	255.86	68.58
14	TempUP	I[14]	-1160.9	0	-14.96	-24.22	255.86	67.14
14	TempUP	J[15]	-1160.9	0	-14.96	-24.22	326.02	67.14
15	TempUP	I[15]	-1192.76	0	-6.31	-28.36	326.02	65.5
15	TempUP	J[16]	-1192.76	0	-6.31	-28.36	356.36	65.5
16	TempUP	I[16]	-1231.77	0	5.32	-32.18	356.36	63.71
16	TempUP	J[17]	-1231.77	0	5.32	-32.18	330.07	63.71
17	TempUP	I[17]	-1266.03	0	-1.26	-35.68	330.07	61.81
17	TempUP	J[18]	-1266.03	0	-1.26	-35.68	336.47	61.81
18	TempUP	I[19]	-1266.03	0	1.26	-35.68	336.47	-61.81
18	TempUP	J[20]	-1266.03	0	1.26	-35.68	330.07	-61.81
19	TempUP	I[20]	-1231.77	0	-5.32	-32.18	330.07	-63.71
19	TempUP	J[21]	-1231.77	0	-5.32	-32.18	356.36	-63.71
20	TempUP	I[21]	-1192.76	0	6.31	-28.36	356.36	-65.5
20	TempUP	J[22]	-1192.76	0	6.31	-28.36	326.02	-65.5
21	TempUP	I[22]	-1160.9	0	14.96	-24.22	326.02	-67.14
21	TempUP	J[23]	-1160.9	0	14.96	-24.22	255.86	-67.14
22	TempUP	I[23]	-1136.7	0	17.88	-19.79	255.86	-68.58
22	TempUP	J[24]	-1136.7	0	17.88	-19.79	173.75	-68.58
23	TempUP	I[24]	-1118.94	0	16.42	-15.1	173.75	-69.76
23	TempUP	J[25]	-1118.94	0	16.42	-15.1	99.64	-69.76
24	TempUP	I[25]	-1106.69	0	12.2	-10.19	99.64	-70.64

24	TempUP	J[26]	-1106.69	0	12.2	-10.19	45.25	-70.64
25	TempUP	I[26]	-1099.47	0	6.45	-5.14	45.25	-71.19
25	TempUP	J[27]	-1099.47	0	6.45	-5.14	16.74	-71.19
26	TempUP	I[27]	-1097.08	0	0	0	16.74	-71.37
26	TempUP	J[28]	-1097.08	0	0	0	16.74	-71.37
27	TempUP	I[28]	-1099.47	0	-6.45	5.14	16.74	-71.19
27	TempUP	J[29]	-1099.47	0	-6.45	5.14	45.25	-71.19
28	TempUP	I[29]	-1106.69	0	-12.2	10.19	45.25	-70.64
28	TempUP	J[30]	-1106.69	0	-12.2	10.19	99.64	-70.64
29	TempUP	I[30]	-1118.94	0	-16.42	15.1	99.64	-69.76
29	TempUP	J[31]	-1118.94	0	-16.42	15.1	173.75	-69.76
30	TempUP	I[31]	-1136.7	0	-17.88	19.79	173.75	-68.58
30	TempUP	J[32]	-1136.7	0	-17.88	19.79	255.86	-68.58
31	TempUP	I[32]	-1160.9	0	-14.96	24.22	255.86	-67.14
31	TempUP	J[33]	-1160.9	0	-14.96	24.22	326.02	-67.14
32	TempUP	I[33]	-1192.76	0	-6.31	28.36	326.02	-65.5
32	TempUP	J[34]	-1192.76	0	-6.31	28.36	356.36	-65.5
33	TempUP	I[34]	-1231.77	0	5.32	32.18	356.36	-63.71
33	TempUP	J[35]	-1231.77	0	5.32	32.18	330.07	-63.71
34	TempUP	I[35]	-1266.03	0	-1.26	35.68	330.07	-61.81
34	TempUP	J[36]	-1266.03	0	-1.26	35.68	336.47	-61.81
67	TempUP	I[1]	-927.92	-4091.31	531.45	422.2	130.69	-2967.12
67	TempUP	J[335]	-927.92	-4091.31	531.45	422.2	-135.04	-921.47
68	TempUP	I[18]	-927.92	4091.31	531.45	-422.2	130.69	2967.12
68	TempUP	J[352]	-927.92	4091.31	531.45	-422.2	-135.04	921.47
69	TempUP	I[37]	362.34	-3612.23	-253.22	135.2	-295.83	-2674.45
69	TempUP	J[336]	362.34	-3612.23	-253.22	135.2	-169.22	-868.33
70	TempUP	I[38]	210.89	-2506.96	-69.11	94.5	34.05	-1863.13
70	TempUP	J[337]	210.89	-2506.96	-69.11	94.5	68.6	-609.65
71	TempUP	I[39]	94.46	-1809.73	-53.54	59.62	22.26	-1345.38
71	TempUP	J[338]	94.46	-1809.73	-53.54	59.62	49.03	-440.52
72	TempUP	I[40]	69.19	-1324.45	-40.38	39.49	22.79	-985.6
72	TempUP	J[339]	69.19	-1324.45	-40.38	39.49	42.98	-323.37
73	TempUP	I[41]	55.9	-957.19	-33.03	26.48	23.8	-712.71
73	TempUP	J[340]	55.9	-957.19	-33.03	26.48	40.32	-234.12
74	TempUP	I[42]	48.31	-652.49	-29.04	17.17	22.25	-485.96
74	TempUP	J[341]	48.31	-652.49	-29.04	17.17	36.77	-159.72
75	TempUP	I[43]	44.27	-380.9	-27	9.73	20.47	-283.72
75	TempUP	J[342]	44.27	-380.9	-27	9.73	33.97	-93.27
76	TempUP	I[44]	42.56	-125.37	-26.13	3.16	19.51	-93.39
76	TempUP	J[343]	42.56	-125.37	-26.13	3.16	32.58	-30.7
77	TempUP	I[45]	42.56	125.37	-26.13	-3.16	19.51	93.39
77	TempUP	J[344]	42.56	125.37	-26.13	-3.16	32.58	30.7
78	TempUP	I[46]	44.27	380.9	-27	-9.73	20.47	283.72
78	TempUP	J[345]	44.27	380.9	-27	-9.73	33.97	93.27
79	TempUP	I[47]	48.31	652.49	-29.04	-17.17	22.25	485.96
79	TempUP	J[346]	48.31	652.49	-29.04	-17.17	36.77	159.72
80	TempUP	I[48]	55.9	957.19	-33.03	-26.48	23.8	712.71
80	TempUP	J[347]	55.9	957.19	-33.03	-26.48	40.32	234.12
81	TempUP	I[49]	69.19	1324.45	-40.38	-39.49	22.79	985.6
81	TempUP	J[348]	69.19	1324.45	-40.38	-39.49	42.98	323.37
82	TempUP	I[50]	94.46	1809.73	-53.54	-59.62	22.26	1345.38
82	TempUP	J[349]	94.46	1809.73	-53.54	-59.62	49.03	440.52
83	TempUP	I[51]	210.89	2506.96	-69.11	-94.5	34.05	1863.13
83	TempUP	J[350]	210.89	2506.96	-69.11	-94.5	68.6	609.65
84	TempUP	I[52]	362.34	3612.23	-253.22	-135.2	-295.83	2674.45
84	TempUP	J[351]	362.34	3612.23	-253.22	-135.2	-169.22	868.33
85	TempUP	I[69]	-2320.76	-1281.2	217.32	-55.45	10.61	-1293.95
85	TempUP	J[87]	-2320.76	-1281.2	217.32	-55.45	-315.38	627.85
86	TempUP	I[70]	-2320.76	1281.2	217.32	55.45	10.61	1293.95
86	TempUP	J[88]	-2320.76	1281.2	217.32	55.45	-315.38	-627.85

87	TempUP	I[71]	846.29	-1290.93	-90.21	-20.87	-167.66	-1325.07
87	TempUP	J[89]	846.29	-1290.93	-90.21	-20.87	-32.35	611.33
88	TempUP	I[72]	512.13	-1122.59	-20.36	3.07	-2.78	-1159.13
88	TempUP	J[90]	512.13	-1122.59	-20.36	3.07	27.76	524.76
89	TempUP	I[73]	246.34	-930.95	-19.42	14.18	30.5	-961.91
89	TempUP	J[91]	246.34	-930.95	-19.42	14.18	59.63	434.52
90	TempUP	I[74]	176.98	-750.27	-18.89	16.24	32.64	-775.54
90	TempUP	J[92]	176.98	-750.27	-18.89	16.24	60.97	349.87
91	TempUP	I[75]	151.32	-576.78	-17.84	14.82	28.85	-596.46
91	TempUP	J[93]	151.32	-576.78	-17.84	14.82	55.61	268.7
92	TempUP	I[76]	136.25	-408.45	-17.18	11.49	24.86	-422.52
92	TempUP	J[94]	136.25	-408.45	-17.18	11.49	50.62	190.16
93	TempUP	I[77]	127.62	-243.66	-16.8	7.18	22.15	-252.1
93	TempUP	J[95]	127.62	-243.66	-16.8	7.18	47.35	113.39
94	TempUP	I[78]	123.82	-80.98	-16.63	2.44	20.85	-83.8
94	TempUP	J[96]	123.82	-80.98	-16.63	2.44	45.78	37.68
95	TempUP	I[79]	123.82	80.98	-16.63	-2.44	20.85	83.8
95	TempUP	J[97]	123.82	80.98	-16.63	-2.44	45.78	-37.68
96	TempUP	I[80]	127.62	243.66	-16.8	-7.18	22.15	252.1
96	TempUP	J[98]	127.62	243.66	-16.8	-7.18	47.35	-113.39
97	TempUP	I[81]	136.25	408.45	-17.18	-11.49	24.86	422.52
97	TempUP	J[99]	136.25	408.45	-17.18	-11.49	50.62	-190.16
98	TempUP	I[82]	151.32	576.78	-17.84	-14.82	28.85	596.46
98	TempUP	J[100]	151.32	576.78	-17.84	-14.82	55.61	-268.7
99	TempUP	I[83]	176.98	750.27	-18.89	-16.24	32.64	775.54
99	TempUP	J[101]	176.98	750.27	-18.89	-16.24	60.97	-349.87
100	TempUP	I[84]	246.34	930.95	-19.42	-14.18	30.5	961.91
100	TempUP	J[102]	246.34	930.95	-19.42	-14.18	59.63	-434.52
101	TempUP	I[85]	512.13	1122.59	-20.36	-3.07	-2.78	1159.13
101	TempUP	J[103]	512.13	1122.59	-20.36	-3.07	27.76	-524.76
102	TempUP	I[86]	846.29	1290.93	-90.21	20.87	-167.66	1325.07
102	TempUP	J[104]	846.29	1290.93	-90.21	20.87	-32.35	-611.33
103	TempUP	I[87]	-2320.76	-1281.2	217.32	-155.35	-496.33	627.85
103	TempUP	J[105]	-2320.76	-1281.2	217.32	-155.35	-822.31	2549.65
104	TempUP	I[88]	-2320.76	1281.2	217.32	155.35	-496.33	-627.85
104	TempUP	J[106]	-2320.76	1281.2	217.32	155.35	-822.31	-2549.65
105	TempUP	I[89]	846.29	-1290.93	-90.21	-121.53	33.64	611.33
105	TempUP	J[107]	846.29	-1290.93	-90.21	-121.53	168.95	2547.72
106	TempUP	I[90]	512.13	-1122.59	-20.36	-84.46	67.69	524.76
106	TempUP	J[108]	512.13	-1122.59	-20.36	-84.46	98.22	2208.64
107	TempUP	I[91]	246.34	-930.95	-19.42	-58.41	78.84	434.52
107	TempUP	J[109]	246.34	-930.95	-19.42	-58.41	107.97	1830.95
108	TempUP	I[92]	176.98	-750.27	-18.89	-42.26	74.77	349.87
108	TempUP	J[110]	176.98	-750.27	-18.89	-42.26	103.1	1475.27
109	TempUP	I[93]	151.32	-576.78	-17.84	-30.16	67.41	268.7
109	TempUP	J[111]	151.32	-576.78	-17.84	-30.16	94.18	1133.87
110	TempUP	I[94]	136.25	-408.45	-17.18	-20.36	61.25	190.16
110	TempUP	J[112]	136.25	-408.45	-17.18	-20.36	87.02	802.83
111	TempUP	I[95]	127.62	-243.66	-16.8	-11.82	57.3	113.39
111	TempUP	J[113]	127.62	-243.66	-16.8	-11.82	82.5	478.88
112	TempUP	I[96]	123.82	-80.98	-16.63	-3.88	55.44	37.68
112	TempUP	J[114]	123.82	-80.98	-16.63	-3.88	80.38	159.16
113	TempUP	I[97]	123.82	80.98	-16.63	3.88	55.44	-37.68
113	TempUP	J[115]	123.82	80.98	-16.63	3.88	80.38	-159.16
114	TempUP	I[98]	127.62	243.66	-16.8	11.82	57.3	-113.39
114	TempUP	J[116]	127.62	243.66	-16.8	11.82	82.5	-478.88
115	TempUP	I[99]	136.25	408.45	-17.18	20.36	61.25	-190.16
115	TempUP	J[117]	136.25	408.45	-17.18	20.36	87.02	-802.83
116	TempUP	I[100]	151.32	576.78	-17.84	30.16	67.41	-268.7
116	TempUP	J[118]	151.32	576.78	-17.84	30.16	94.18	-1133.87
117	TempUP	I[101]	176.98	750.27	-18.89	42.26	74.77	-349.87

117	TempUP	J[119]	176.98	750.27	-18.89	42.26	103.1	-1475.27
118	TempUP	I[102]	246.34	930.95	-19.42	58.41	78.84	-434.52
118	TempUP	J[120]	246.34	930.95	-19.42	58.41	107.97	-1830.95
119	TempUP	I[103]	512.13	1122.59	-20.36	84.46	67.69	-524.76
119	TempUP	J[121]	512.13	1122.59	-20.36	84.46	98.22	-2208.64
120	TempUP	I[104]	846.29	1290.93	-90.21	121.53	33.64	-611.33
120	TempUP	J[122]	846.29	1290.93	-90.21	121.53	168.95	-2547.72
121	TempUP	I[105]	-3289.97	-328.31	56.36	-51.01	-429.54	-364.49
121	TempUP	J[123]	-3289.97	-328.31	56.36	-51.01	-514.08	127.98
122	TempUP	I[106]	-3289.97	328.31	56.36	51.02	-429.54	364.49
122	TempUP	J[124]	-3289.97	328.31	56.36	51.02	-514.08	-127.98
123	TempUP	I[107]	1125.27	-362.11	-20.2	-21.15	44.25	-485.54
123	TempUP	J[125]	1125.27	-362.11	-20.2	-21.15	74.54	57.62
124	TempUP	I[108]	646.19	-337.7	-5.49	-17.5	47.07	-462.42
124	TempUP	J[126]	646.19	-337.7	-5.49	-17.5	55.3	44.12
125	TempUP	I[109]	350.71	-286.17	-4.79	-11.26	66.87	-391.53
125	TempUP	J[127]	350.71	-286.17	-4.79	-11.26	74.06	37.72
126	TempUP	I[110]	269.46	-235.27	-5.26	-7.96	66.88	-321.49
126	TempUP	J[128]	269.46	-235.27	-5.26	-7.96	74.77	31.4
127	TempUP	I[111]	242.47	-183.68	-5.2	-5.41	58.74	-251.11
127	TempUP	J[129]	242.47	-183.68	-5.2	-5.41	66.54	24.4
128	TempUP	I[112]	226.54	-131.54	-5.16	-3.47	51.96	-179.99
128	TempUP	J[130]	226.54	-131.54	-5.16	-3.47	59.69	17.33
129	TempUP	I[113]	216.86	-79.03	-5.13	-1.94	47.84	-108.2
129	TempUP	J[131]	216.86	-79.03	-5.13	-1.94	55.54	10.35
130	TempUP	I[114]	212.46	-26.36	-5.12	-0.62	45.94	-36.1
130	TempUP	J[132]	212.46	-26.36	-5.12	-0.62	53.62	3.44
131	TempUP	I[115]	212.46	26.36	-5.12	0.62	45.94	36.1
131	TempUP	J[133]	212.46	26.36	-5.12	0.62	53.62	-3.44
132	TempUP	I[116]	216.86	79.03	-5.13	1.94	47.84	108.2
132	TempUP	J[134]	216.86	79.03	-5.13	1.94	55.54	-10.35
133	TempUP	I[117]	226.54	131.54	-5.16	3.47	51.96	179.99
133	TempUP	J[135]	226.54	131.54	-5.16	3.47	59.69	-17.33
134	TempUP	I[118]	242.47	183.68	-5.2	5.41	58.74	251.11
134	TempUP	J[136]	242.47	183.68	-5.2	5.41	66.54	-24.4
135	TempUP	I[119]	269.46	235.27	-5.26	7.96	66.88	321.49
135	TempUP	J[137]	269.46	235.27	-5.26	7.96	74.77	-31.4
136	TempUP	I[120]	350.71	286.17	-4.79	11.26	66.87	391.53
136	TempUP	J[138]	350.71	286.17	-4.79	11.26	74.06	-37.72
137	TempUP	I[121]	646.19	337.7	-5.49	17.5	47.07	462.42
137	TempUP	J[139]	646.19	337.7	-5.49	17.5	55.3	-44.12
138	TempUP	I[122]	1125.27	362.11	-20.2	21.15	44.25	485.54
138	TempUP	J[140]	1125.27	362.11	-20.2	21.15	74.54	-57.62
139	TempUP	I[123]	-3289.97	-328.31	56.36	-51.01	-514.08	127.98
139	TempUP	J[141]	-3289.97	-328.31	56.36	-51.01	-598.62	620.45
140	TempUP	I[124]	-3289.97	328.31	56.36	51.02	-514.08	-127.98
140	TempUP	J[142]	-3289.97	328.31	56.36	51.02	-598.62	-620.45
141	TempUP	I[125]	1125.27	-362.11	-20.2	-21.15	74.54	57.62
141	TempUP	J[143]	1125.27	-362.11	-20.2	-21.15	104.83	600.79
142	TempUP	I[126]	646.19	-337.7	-5.49	-17.5	55.3	44.12
142	TempUP	J[144]	646.19	-337.7	-5.49	-17.5	63.54	550.67
143	TempUP	I[127]	350.71	-286.17	-4.79	-11.26	74.06	37.72
143	TempUP	J[145]	350.71	-286.17	-4.79	-11.26	81.25	466.97
144	TempUP	I[128]	269.46	-235.27	-5.26	-7.96	74.77	31.4
144	TempUP	J[146]	269.46	-235.27	-5.26	-7.96	82.67	384.3
145	TempUP	I[129]	242.47	-183.68	-5.2	-5.41	66.54	24.4
145	TempUP	J[147]	242.47	-183.68	-5.2	-5.41	74.35	299.92
146	TempUP	I[130]	226.54	-131.54	-5.16	-3.47	59.69	17.33
146	TempUP	J[148]	226.54	-131.54	-5.16	-3.47	67.43	214.64
147	TempUP	I[131]	216.86	-79.03	-5.13	-1.94	55.54	10.35
147	TempUP	J[149]	216.86	-79.03	-5.13	-1.94	63.24	128.9

148	TempUP	I[132]	212.46	-26.36	-5.12	-0.62	53.62	3.44
148	TempUP	J[150]	212.46	-26.36	-5.12	-0.62	61.3	42.98
149	TempUP	I[133]	212.46	26.36	-5.12	0.62	53.62	-3.44
149	TempUP	J[151]	212.46	26.36	-5.12	0.62	61.3	-42.98
150	TempUP	I[134]	216.86	79.03	-5.13	1.94	55.54	-10.35
150	TempUP	J[152]	216.86	79.03	-5.13	1.94	63.24	-128.9
151	TempUP	I[135]	226.54	131.54	-5.16	3.47	59.69	-17.33
151	TempUP	J[153]	226.54	131.54	-5.16	3.47	67.43	-214.64
152	TempUP	I[136]	242.47	183.68	-5.2	5.41	66.54	-24.4
152	TempUP	J[154]	242.47	183.68	-5.2	5.41	74.35	-299.92
153	TempUP	I[137]	269.46	235.27	-5.26	7.96	74.77	-31.4
153	TempUP	J[155]	269.46	235.27	-5.26	7.96	82.67	-384.3
154	TempUP	I[138]	350.71	286.17	-4.79	11.26	74.06	-37.72
154	TempUP	J[156]	350.71	286.17	-4.79	11.26	81.25	-466.97
155	TempUP	I[139]	646.19	337.7	-5.49	17.5	55.3	-44.12
155	TempUP	J[157]	646.19	337.7	-5.49	17.5	63.54	-550.67
156	TempUP	I[140]	1125.27	362.11	-20.2	21.15	74.54	-57.62
156	TempUP	J[158]	1125.27	362.11	-20.2	21.15	104.83	-600.79
157	TempUP	I[141]	-3289.97	328.31	-56.36	51.01	-598.62	620.45
157	TempUP	J[159]	-3289.97	328.31	-56.36	51.01	-514.08	127.98
158	TempUP	I[142]	-3289.97	-328.31	-56.36	-51.02	-598.62	-620.45
158	TempUP	J[160]	-3289.97	-328.31	-56.36	-51.02	-514.08	-127.98
159	TempUP	I[143]	1125.27	362.11	20.2	21.15	104.83	600.79
159	TempUP	J[161]	1125.27	362.11	20.2	21.15	74.54	57.62
160	TempUP	I[144]	646.19	337.7	5.49	17.5	63.54	550.67
160	TempUP	J[162]	646.19	337.7	5.49	17.5	55.3	44.12
161	TempUP	I[145]	350.71	286.17	4.79	11.26	81.25	466.97
161	TempUP	J[163]	350.71	286.17	4.79	11.26	74.06	37.72
162	TempUP	I[146]	269.46	235.27	5.26	7.96	82.67	384.3
162	TempUP	J[164]	269.46	235.27	5.26	7.96	74.77	31.4
163	TempUP	I[147]	242.47	183.68	5.2	5.41	74.35	299.92
163	TempUP	J[165]	242.47	183.68	5.2	5.41	66.54	24.4
164	TempUP	I[148]	226.54	131.54	5.16	3.47	67.43	214.64
164	TempUP	J[166]	226.54	131.54	5.16	3.47	59.69	17.33
165	TempUP	I[149]	216.86	79.03	5.13	1.94	63.24	128.9
165	TempUP	J[167]	216.86	79.03	5.13	1.94	55.54	10.35
166	TempUP	I[150]	212.46	26.36	5.12	0.62	61.3	42.98
166	TempUP	J[168]	212.46	26.36	5.12	0.62	53.62	3.44
167	TempUP	I[151]	212.46	-26.36	5.12	-0.62	61.3	-42.98
167	TempUP	J[169]	212.46	-26.36	5.12	-0.62	53.62	-3.44
168	TempUP	I[152]	216.86	-79.03	5.13	-1.94	63.24	-128.9
168	TempUP	J[170]	216.86	-79.03	5.13	-1.94	55.54	-10.35
169	TempUP	I[153]	226.54	-131.54	5.16	-3.47	67.43	-214.64
169	TempUP	J[171]	226.54	-131.54	5.16	-3.47	59.69	-17.33
170	TempUP	I[154]	242.47	-183.68	5.2	-5.41	74.35	-299.92
170	TempUP	J[172]	242.47	-183.68	5.2	-5.41	66.54	-24.4
171	TempUP	I[155]	269.46	-235.27	5.26	-7.96	82.67	-384.3
171	TempUP	J[173]	269.46	-235.27	5.26	-7.96	74.77	-31.4
172	TempUP	I[156]	350.71	-286.17	4.79	-11.26	81.25	-466.97
172	TempUP	J[174]	350.71	-286.17	4.79	-11.26	74.06	-37.72
173	TempUP	I[157]	646.19	-337.7	5.49	-17.5	63.54	-550.67
173	TempUP	J[175]	646.19	-337.7	5.49	-17.5	55.3	-44.12
174	TempUP	I[158]	1125.27	-362.11	20.2	-21.15	104.83	-600.79
174	TempUP	J[176]	1125.27	-362.11	20.2	-21.15	74.54	-57.62
175	TempUP	I[159]	-3289.97	328.31	-56.36	51.01	-514.08	127.98
175	TempUP	J[177]	-3289.97	328.31	-56.36	51.01	-429.54	-364.49
176	TempUP	I[160]	-3289.97	-328.31	-56.36	-51.02	-514.08	-127.98
176	TempUP	J[178]	-3289.97	-328.31	-56.36	-51.02	-429.54	364.49
177	TempUP	I[161]	1125.27	362.11	20.2	21.15	74.54	57.62
177	TempUP	J[179]	1125.27	362.11	20.2	21.15	44.25	-485.54
178	TempUP	I[162]	646.19	337.7	5.49	17.5	55.3	44.12

178	TempUP	J[180]	646.19	337.7	5.49	17.5	47.07	-462.42
179	TempUP	I[163]	350.71	286.17	4.79	11.26	74.06	37.72
179	TempUP	J[181]	350.71	286.17	4.79	11.26	66.87	-391.53
180	TempUP	I[164]	269.46	235.27	5.26	7.96	74.77	31.4
180	TempUP	J[182]	269.46	235.27	5.26	7.96	66.88	-321.49
181	TempUP	I[165]	242.47	183.68	5.2	5.41	66.54	24.4
181	TempUP	J[183]	242.47	183.68	5.2	5.41	58.74	-251.11
182	TempUP	I[166]	226.54	131.54	5.16	3.47	59.69	17.33
182	TempUP	J[184]	226.54	131.54	5.16	3.47	51.96	-179.99
183	TempUP	I[167]	216.86	79.03	5.13	1.94	55.54	10.35
183	TempUP	J[185]	216.86	79.03	5.13	1.94	47.84	-108.2
184	TempUP	I[168]	212.46	26.36	5.12	0.62	53.62	3.44
184	TempUP	J[186]	212.46	26.36	5.12	0.62	45.94	-36.1
185	TempUP	I[169]	212.46	-26.36	5.12	-0.62	53.62	-3.44
185	TempUP	J[187]	212.46	-26.36	5.12	-0.62	45.94	36.1
186	TempUP	I[170]	216.86	-79.03	5.13	-1.94	55.54	-10.35
186	TempUP	J[188]	216.86	-79.03	5.13	-1.94	47.84	108.2
187	TempUP	I[171]	226.54	-131.54	5.16	-3.47	59.69	-17.33
187	TempUP	J[189]	226.54	-131.54	5.16	-3.47	51.96	179.99
188	TempUP	I[172]	242.47	-183.68	5.2	-5.41	66.54	-24.4
188	TempUP	J[190]	242.47	-183.68	5.2	-5.41	58.74	251.11
189	TempUP	I[173]	269.46	-235.27	5.26	-7.96	74.77	-31.4
189	TempUP	J[191]	269.46	-235.27	5.26	-7.96	66.88	321.49
190	TempUP	I[174]	350.71	-286.17	4.79	-11.26	74.06	-37.72
190	TempUP	J[192]	350.71	-286.17	4.79	-11.26	66.87	391.53
191	TempUP	I[175]	646.19	-337.7	5.49	-17.5	55.3	-44.12
191	TempUP	J[193]	646.19	-337.7	5.49	-17.5	47.07	462.42
192	TempUP	I[176]	1125.27	-362.11	20.2	-21.15	74.54	-57.62
192	TempUP	J[194]	1125.27	-362.11	20.2	-21.15	44.25	485.54
193	TempUP	I[177]	-2320.76	1281.2	-217.32	155.35	-822.31	2549.65
193	TempUP	J[195]	-2320.76	1281.2	-217.32	155.35	-496.33	627.85
194	TempUP	I[178]	-2320.76	-1281.2	-217.32	-155.35	-822.31	-2549.65
194	TempUP	J[196]	-2320.76	-1281.2	-217.32	-155.35	-496.33	-627.85
195	TempUP	I[179]	846.29	1290.93	90.21	121.53	168.95	2547.72
195	TempUP	J[197]	846.29	1290.93	90.21	121.53	33.64	611.33
196	TempUP	I[180]	512.13	1122.59	20.36	84.46	98.22	2208.64
196	TempUP	J[198]	512.13	1122.59	20.36	84.46	67.69	524.76
197	TempUP	I[181]	246.34	930.95	19.42	58.41	107.97	1830.95
197	TempUP	J[199]	246.34	930.95	19.42	58.41	78.84	434.52
198	TempUP	I[182]	176.98	750.27	18.89	42.26	103.1	1475.27
198	TempUP	J[200]	176.98	750.27	18.89	42.26	74.77	349.87
199	TempUP	I[183]	151.32	576.78	17.84	30.16	94.18	1133.87
199	TempUP	J[201]	151.32	576.78	17.84	30.16	67.41	268.7
200	TempUP	I[184]	136.25	408.45	17.18	20.36	87.02	802.83
200	TempUP	J[202]	136.25	408.45	17.18	20.36	61.25	190.16
201	TempUP	I[185]	127.62	243.66	16.8	11.82	82.5	478.88
201	TempUP	J[203]	127.62	243.66	16.8	11.82	57.3	113.39
202	TempUP	I[186]	123.82	80.98	16.63	3.88	80.38	159.16
202	TempUP	J[204]	123.82	80.98	16.63	3.88	55.44	37.68
203	TempUP	I[187]	123.82	-80.98	16.63	-3.88	80.38	-159.16
203	TempUP	J[205]	123.82	-80.98	16.63	-3.88	55.44	-37.68
204	TempUP	I[188]	127.62	-243.66	16.8	-11.82	82.5	-478.88
204	TempUP	J[206]	127.62	-243.66	16.8	-11.82	57.3	-113.39
205	TempUP	I[189]	136.25	-408.45	17.18	-20.36	87.02	-802.83
205	TempUP	J[207]	136.25	-408.45	17.18	-20.36	61.25	-190.16
206	TempUP	I[190]	151.32	-576.78	17.84	-30.16	94.18	-1133.87
206	TempUP	J[208]	151.32	-576.78	17.84	-30.16	67.41	-268.7
207	TempUP	I[191]	176.98	-750.27	18.89	-42.26	103.1	-1475.27
207	TempUP	J[209]	176.98	-750.27	18.89	-42.26	74.77	-349.87
208	TempUP	I[192]	246.34	-930.95	19.42	-58.41	107.97	-1830.95
208	TempUP	J[210]	246.34	-930.95	19.42	-58.41	78.84	-434.52

209	TempUP	I[193]	512.13	-1122.59	20.36	-84.46	98.22	-2208.64
209	TempUP	J[211]	512.13	-1122.59	20.36	-84.46	67.69	-524.76
210	TempUP	I[194]	846.29	-1290.93	90.21	-121.53	168.95	-2547.72
210	TempUP	J[212]	846.29	-1290.93	90.21	-121.53	33.64	-611.33
211	TempUP	I[195]	-2320.76	1281.2	-217.32	55.45	-315.38	627.85
211	TempUP	J[213]	-2320.76	1281.2	-217.32	55.45	10.61	-1293.95
212	TempUP	I[196]	-2320.76	-1281.2	-217.32	-55.45	-315.38	-627.85
212	TempUP	J[214]	-2320.76	-1281.2	-217.32	-55.45	10.61	1293.95
213	TempUP	I[197]	846.29	1290.93	90.21	20.87	-32.35	611.33
213	TempUP	J[215]	846.29	1290.93	90.21	20.87	-167.66	-1325.07
214	TempUP	I[198]	512.13	1122.59	20.36	-3.07	27.76	524.76
214	TempUP	J[216]	512.13	1122.59	20.36	-3.07	-2.78	-1159.13
215	TempUP	I[199]	246.34	930.95	19.42	-14.18	59.63	434.52
215	TempUP	J[217]	246.34	930.95	19.42	-14.18	30.5	-961.91
216	TempUP	I[200]	176.98	750.27	18.89	-16.24	60.97	349.87
216	TempUP	J[218]	176.98	750.27	18.89	-16.24	32.64	-775.54
217	TempUP	I[201]	151.32	576.78	17.84	-14.82	55.61	268.7
217	TempUP	J[219]	151.32	576.78	17.84	-14.82	28.85	-596.46
218	TempUP	I[202]	136.25	408.45	17.18	-11.49	50.62	190.16
218	TempUP	J[220]	136.25	408.45	17.18	-11.49	24.86	-422.52
219	TempUP	I[203]	127.62	243.66	16.8	-7.18	47.35	113.39
219	TempUP	J[221]	127.62	243.66	16.8	-7.18	22.15	-252.1
220	TempUP	I[204]	123.82	80.98	16.63	-2.44	45.78	37.68
220	TempUP	J[222]	123.82	80.98	16.63	-2.44	20.85	-83.8
221	TempUP	I[205]	123.82	-80.98	16.63	2.44	45.78	-37.68
221	TempUP	J[223]	123.82	-80.98	16.63	2.44	20.85	83.8
222	TempUP	I[206]	127.62	-243.66	16.8	7.18	47.35	-113.39
222	TempUP	J[224]	127.62	-243.66	16.8	7.18	22.15	252.1
223	TempUP	I[207]	136.25	-408.45	17.18	11.49	50.62	-190.16
223	TempUP	J[225]	136.25	-408.45	17.18	11.49	24.86	422.52
224	TempUP	I[208]	151.32	-576.78	17.84	14.82	55.61	-268.7
224	TempUP	J[226]	151.32	-576.78	17.84	14.82	28.85	596.46
225	TempUP	I[209]	176.98	-750.27	18.89	16.24	60.97	-349.87
225	TempUP	J[227]	176.98	-750.27	18.89	16.24	32.64	775.54
226	TempUP	I[210]	246.34	-930.95	19.42	14.18	59.63	-434.52
226	TempUP	J[228]	246.34	-930.95	19.42	14.18	30.5	961.91
227	TempUP	I[211]	512.13	-1122.59	20.36	3.07	27.76	-524.76
227	TempUP	J[229]	512.13	-1122.59	20.36	3.07	-2.78	1159.13
228	TempUP	I[212]	846.29	-1290.93	90.21	-20.87	-32.35	-611.33
228	TempUP	J[230]	846.29	-1290.93	90.21	-20.87	-167.66	1325.07
229	TempUP	I[213]	-927.92	4091.31	-531.45	-422.2	-666.49	3169.84
229	TempUP	J[353]	-927.92	4091.31	-531.45	-422.2	-135.04	-921.47
230	TempUP	I[214]	-927.92	-4091.31	-531.45	422.2	-666.49	-3169.84
230	TempUP	J[370]	-927.92	-4091.31	-531.45	422.2	-135.04	921.47
231	TempUP	I[215]	362.34	3612.23	253.22	-135.2	84	2743.89
231	TempUP	J[354]	362.34	3612.23	253.22	-135.2	-169.22	-868.33
232	TempUP	I[216]	210.89	2506.96	69.11	-94.5	137.72	1897.32
232	TempUP	J[355]	210.89	2506.96	69.11	-94.5	68.6	-609.65
233	TempUP	I[217]	94.46	1809.73	53.54	-59.62	102.57	1369.21
233	TempUP	J[356]	94.46	1809.73	53.54	-59.62	49.03	-440.52
234	TempUP	I[218]	69.19	1324.45	40.38	-39.49	83.36	1001.08
234	TempUP	J[357]	69.19	1324.45	40.38	-39.49	42.98	-323.37
235	TempUP	I[219]	55.9	957.19	33.03	-26.48	73.35	723.08
235	TempUP	J[358]	55.9	957.19	33.03	-26.48	40.32	-234.12
236	TempUP	I[220]	48.31	652.49	29.04	-17.17	65.81	492.77
236	TempUP	J[359]	48.31	652.49	29.04	-17.17	36.77	-159.72
237	TempUP	I[221]	44.27	380.9	27	-9.73	60.97	287.63
237	TempUP	J[360]	44.27	380.9	27	-9.73	33.97	-93.27
238	TempUP	I[222]	42.56	125.37	26.13	-3.16	58.71	94.67
238	TempUP	J[361]	42.56	125.37	26.13	-3.16	32.58	-30.7
239	TempUP	I[223]	42.56	-125.37	26.13	3.16	58.71	-94.67

239	TempUP	J[362]	42.56	-125.37	26.13	3.16	32.58	30.7
240	TempUP	I[224]	44.27	-380.9	27	9.73	60.97	-287.63
240	TempUP	J[363]	44.27	-380.9	27	9.73	33.97	93.27
241	TempUP	I[225]	48.31	-652.49	29.04	17.17	65.81	-492.77
241	TempUP	J[364]	48.31	-652.49	29.04	17.17	36.77	159.72
242	TempUP	I[226]	55.9	-957.19	33.03	26.48	73.35	-723.08
242	TempUP	J[365]	55.9	-957.19	33.03	26.48	40.32	234.12
243	TempUP	I[227]	69.19	-1324.45	40.38	39.49	83.36	-1001.08
243	TempUP	J[366]	69.19	-1324.45	40.38	39.49	42.98	323.37
244	TempUP	I[228]	94.46	-1809.73	53.54	59.62	102.57	-1369.21
244	TempUP	J[367]	94.46	-1809.73	53.54	59.62	49.03	440.52
245	TempUP	I[229]	210.89	-2506.96	69.11	94.5	137.72	-1897.32
245	TempUP	J[368]	210.89	-2506.96	69.11	94.5	68.6	609.65
246	TempUP	I[230]	362.34	-3612.23	253.22	135.2	84	-2743.89
246	TempUP	J[369]	362.34	-3612.23	253.22	135.2	-169.22	868.33
247	TempUP	I[1]	-2994.23	927.92	100.4	-509.19	931.79	2895.75
247	TempUP	J[231]	-2994.23	927.92	100.4	-509.19	710.33	848.86
248	TempUP	I[19]	-2994.23	-927.92	100.4	509.19	931.79	-2895.75
248	TempUP	J[232]	-2994.23	-927.92	100.4	509.19	710.33	-848.86
249	TempUP	I[231]	-2994.23	927.92	100.4	-509.19	710.33	848.86
249	TempUP	J[37]	-2994.23	927.92	100.4	-509.19	488.86	-1198.02
250	TempUP	I[232]	-2994.23	-927.92	100.4	509.19	710.33	-848.86
250	TempUP	J[53]	-2994.23	-927.92	100.4	509.19	488.86	1198.02
251	TempUP	I[37]	-6606.45	565.58	281.86	-65.56	2097.52	1476.43
251	TempUP	J[233]	-6606.45	565.58	281.86	-65.56	1475.77	228.83
252	TempUP	I[53]	-6606.45	-565.58	281.86	65.56	2097.52	-1476.43
252	TempUP	J[234]	-6606.45	-565.58	281.86	65.56	1475.77	-228.83
253	TempUP	I[233]	-6606.45	565.58	281.86	-65.56	1475.77	228.83
253	TempUP	J[38]	-6606.45	565.58	281.86	-65.56	854.02	-1018.77
254	TempUP	I[234]	-6606.45	-565.58	281.86	65.56	1475.77	-228.83
254	TempUP	J[54]	-6606.45	-565.58	281.86	65.56	854.02	1018.77
255	TempUP	I[38]	-9113.42	354.69	258.97	-13.59	1971.12	844.36
255	TempUP	J[235]	-9113.42	354.69	258.97	-13.59	1399.86	61.97
256	TempUP	I[54]	-9113.42	-354.69	258.97	13.59	1971.12	-844.36
256	TempUP	J[236]	-9113.42	-354.69	258.97	13.59	1399.86	-61.97
257	TempUP	I[235]	-9113.42	354.69	258.97	-13.59	1399.86	61.97
257	TempUP	J[39]	-9113.42	354.69	258.97	-13.59	828.6	-720.43
258	TempUP	I[236]	-9113.42	-354.69	258.97	13.59	1399.86	-61.97
258	TempUP	J[55]	-9113.42	-354.69	258.97	13.59	828.6	720.43
259	TempUP	I[39]	-10923.14	260.23	224.33	2.68	1626.42	624.96
259	TempUP	J[237]	-10923.14	260.23	224.33	2.68	1131.58	50.93
260	TempUP	I[55]	-10923.14	-260.23	224.33	-2.68	1626.42	-624.96
260	TempUP	J[238]	-10923.14	-260.23	224.33	-2.68	1131.58	-50.93
261	TempUP	I[237]	-10923.14	260.23	224.33	2.68	1131.58	50.93
261	TempUP	J[40]	-10923.14	260.23	224.33	2.68	636.74	-523.1
262	TempUP	I[238]	-10923.14	-260.23	224.33	-2.68	1131.58	-50.93
262	TempUP	J[56]	-10923.14	-260.23	224.33	-2.68	636.74	523.1
263	TempUP	I[40]	-12247.6	191.04	182.83	8.11	1216.49	462.5
263	TempUP	J[239]	-12247.6	191.04	182.83	8.11	813.18	41.09
264	TempUP	I[56]	-12247.6	-191.04	182.83	-8.11	1216.49	-462.5
264	TempUP	J[240]	-12247.6	-191.04	182.83	-8.11	813.18	-41.09
265	TempUP	I[239]	-12247.6	191.04	182.83	8.11	813.18	41.09
265	TempUP	J[41]	-12247.6	191.04	182.83	8.11	409.87	-380.32
266	TempUP	I[240]	-12247.6	-191.04	182.83	-8.11	813.18	-41.09
266	TempUP	J[57]	-12247.6	-191.04	182.83	-8.11	409.87	380.32
267	TempUP	I[41]	-13204.79	135.13	138.52	7.11	826.79	332.4
267	TempUP	J[241]	-13204.79	135.13	138.52	7.11	521.23	34.31
268	TempUP	I[57]	-13204.79	-135.13	138.52	-7.11	826.79	-332.4
268	TempUP	J[242]	-13204.79	-135.13	138.52	-7.11	521.23	-34.31
269	TempUP	I[241]	-13204.79	135.13	138.52	7.11	521.23	34.31
269	TempUP	J[42]	-13204.79	135.13	138.52	7.11	215.67	-263.78

270	TempUP	I[242]	-13204.79	-135.13	138.52	-7.11	521.23	-34.31
270	TempUP	J[58]	-13204.79	-135.13	138.52	-7.11	215.67	263.78
271	TempUP	I[42]	-13857.28	86.83	92.87	4.57	498.99	222.18
271	TempUP	J[243]	-13857.28	86.83	92.87	4.57	294.13	30.65
272	TempUP	I[58]	-13857.28	-86.83	92.87	-4.57	498.99	-222.18
272	TempUP	J[244]	-13857.28	-86.83	92.87	-4.57	294.13	-30.65
273	TempUP	I[243]	-13857.28	86.83	92.87	4.57	294.13	30.65
273	TempUP	J[43]	-13857.28	86.83	92.87	4.57	89.27	-160.88
274	TempUP	I[244]	-13857.28	-86.83	92.87	-4.57	294.13	-30.65
274	TempUP	J[59]	-13857.28	-86.83	92.87	-4.57	89.27	160.88
275	TempUP	I[43]	-14238.18	42.56	46.57	2.15	254.37	122.85
275	TempUP	J[245]	-14238.18	42.56	46.57	2.15	151.64	28.97
276	TempUP	I[59]	-14238.18	-42.56	46.57	-2.15	254.37	-122.85
276	TempUP	J[246]	-14238.18	-42.56	46.57	-2.15	151.64	-28.97
277	TempUP	I[245]	-14238.18	42.56	46.57	2.15	151.64	28.97
277	TempUP	J[44]	-14238.18	42.56	46.57	2.15	48.91	-64.9
278	TempUP	I[246]	-14238.18	-42.56	46.57	-2.15	151.64	-28.97
278	TempUP	J[60]	-14238.18	-42.56	46.57	-2.15	48.91	64.9
279	TempUP	I[44]	-14363.55	0	0	0	103.2	28.49
279	TempUP	J[247]	-14363.55	0	0	0	103.2	28.49
280	TempUP	I[60]	-14363.55	0	0	0	103.2	-28.49
280	TempUP	J[248]	-14363.55	0	0	0	103.2	-28.49
281	TempUP	I[247]	-14363.55	0	0	0	103.2	28.49
281	TempUP	J[45]	-14363.55	0	0	0	103.2	28.49
282	TempUP	I[248]	-14363.55	0	0	0	103.2	-28.49
282	TempUP	J[61]	-14363.55	0	0	0	103.2	-28.49
283	TempUP	I[45]	-14238.18	-42.56	-46.57	-2.15	48.91	-64.9
283	TempUP	J[249]	-14238.18	-42.56	-46.57	-2.15	151.64	28.97
284	TempUP	I[61]	-14238.18	42.56	-46.57	2.15	48.91	64.9
284	TempUP	J[250]	-14238.18	42.56	-46.57	2.15	151.64	-28.97
285	TempUP	I[249]	-14238.18	-42.56	-46.57	-2.15	151.64	28.97
285	TempUP	J[46]	-14238.18	-42.56	-46.57	-2.15	254.37	122.85
286	TempUP	I[250]	-14238.18	42.56	-46.57	2.15	151.64	-28.97
286	TempUP	J[62]	-14238.18	42.56	-46.57	2.15	254.37	-122.85
287	TempUP	I[46]	-13857.28	-86.83	-92.87	-4.57	89.27	-160.88
287	TempUP	J[251]	-13857.28	-86.83	-92.87	-4.57	294.13	30.65
288	TempUP	I[62]	-13857.28	86.83	-92.87	4.57	89.27	160.88
288	TempUP	J[252]	-13857.28	86.83	-92.87	4.57	294.13	-30.65
289	TempUP	I[251]	-13857.28	-86.83	-92.87	-4.57	294.13	30.65
289	TempUP	J[47]	-13857.28	-86.83	-92.87	-4.57	498.99	222.18
290	TempUP	I[252]	-13857.28	86.83	-92.87	4.57	294.13	-30.65
290	TempUP	J[63]	-13857.28	86.83	-92.87	4.57	498.99	-222.18
291	TempUP	I[47]	-13204.79	-135.13	-138.52	-7.11	215.67	-263.78
291	TempUP	J[253]	-13204.79	-135.13	-138.52	-7.11	521.23	34.31
292	TempUP	I[63]	-13204.79	135.13	-138.52	7.11	215.67	263.78
292	TempUP	J[254]	-13204.79	135.13	-138.52	7.11	521.23	-34.31
293	TempUP	I[253]	-13204.79	-135.13	-138.52	-7.11	521.23	34.31
293	TempUP	J[48]	-13204.79	-135.13	-138.52	-7.11	826.79	332.4
294	TempUP	I[254]	-13204.79	135.13	-138.52	7.11	521.23	-34.31
294	TempUP	J[64]	-13204.79	135.13	-138.52	7.11	826.79	-332.4
295	TempUP	I[48]	-12247.6	-191.04	-182.83	-8.11	409.87	-380.32
295	TempUP	J[255]	-12247.6	-191.04	-182.83	-8.11	813.18	41.09
296	TempUP	I[64]	-12247.6	191.04	-182.83	8.11	409.87	380.32
296	TempUP	J[256]	-12247.6	191.04	-182.83	8.11	813.18	-41.09
297	TempUP	I[255]	-12247.6	-191.04	-182.83	-8.11	813.18	41.09
297	TempUP	J[49]	-12247.6	-191.04	-182.83	-8.11	1216.49	462.5
298	TempUP	I[256]	-12247.6	191.04	-182.83	8.11	813.18	-41.09
298	TempUP	J[65]	-12247.6	191.04	-182.83	8.11	1216.49	-462.5
299	TempUP	I[49]	-10923.14	-260.23	-224.33	-2.68	636.74	-523.1
299	TempUP	J[257]	-10923.14	-260.23	-224.33	-2.68	1131.58	50.93
300	TempUP	I[65]	-10923.14	260.23	-224.33	2.68	636.74	523.1

300	TempUP	J[258]	-10923.14	260.23	-224.33	2.68	1131.58	-50.93
301	TempUP	I[257]	-10923.14	-260.23	-224.33	-2.68	1131.58	50.93
301	TempUP	J[50]	-10923.14	-260.23	-224.33	-2.68	1626.42	624.96
302	TempUP	I[258]	-10923.14	260.23	-224.33	2.68	1131.58	-50.93
302	TempUP	J[66]	-10923.14	260.23	-224.33	2.68	1626.42	-624.96
303	TempUP	I[50]	-9113.42	-354.69	-258.97	13.59	828.6	-720.43
303	TempUP	J[259]	-9113.42	-354.69	-258.97	13.59	1399.86	61.97
304	TempUP	I[66]	-9113.42	354.69	-258.97	-13.59	828.6	720.43
304	TempUP	J[260]	-9113.42	354.69	-258.97	-13.59	1399.86	-61.97
305	TempUP	I[259]	-9113.42	-354.69	-258.97	13.59	1399.86	61.97
305	TempUP	J[51]	-9113.42	-354.69	-258.97	13.59	1971.12	844.36
306	TempUP	I[260]	-9113.42	354.69	-258.97	-13.59	1399.86	-61.97
306	TempUP	J[67]	-9113.42	354.69	-258.97	-13.59	1971.12	-844.36
307	TempUP	I[51]	-6606.45	-565.58	-281.86	65.56	854.02	-1018.77
307	TempUP	J[261]	-6606.45	-565.58	-281.86	65.56	1475.77	228.83
308	TempUP	I[67]	-6606.45	565.58	-281.86	-65.56	854.02	1018.77
308	TempUP	J[262]	-6606.45	565.58	-281.86	-65.56	1475.77	-228.83
309	TempUP	I[261]	-6606.45	-565.58	-281.86	65.56	1475.77	228.83
309	TempUP	J[52]	-6606.45	-565.58	-281.86	65.56	2097.52	1476.43
310	TempUP	I[262]	-6606.45	565.58	-281.86	-65.56	1475.77	-228.83
310	TempUP	J[68]	-6606.45	565.58	-281.86	-65.56	2097.52	-1476.43
311	TempUP	I[52]	-2994.23	-927.92	-100.4	509.19	488.86	-1198.02
311	TempUP	J[263]	-2994.23	-927.92	-100.4	509.19	710.33	848.86
312	TempUP	I[68]	-2994.23	927.92	-100.4	-509.19	488.86	1198.02
312	TempUP	J[264]	-2994.23	927.92	-100.4	-509.19	710.33	-848.86
313	TempUP	I[263]	-2994.23	-927.92	-100.4	509.19	710.33	848.86
313	TempUP	J[18]	-2994.23	-927.92	-100.4	509.19	931.79	2895.75
314	TempUP	I[264]	-2994.23	927.92	-100.4	-509.19	710.33	-848.86
314	TempUP	J[36]	-2994.23	927.92	-100.4	-509.19	931.79	-2895.75
315	TempUP	I[1]	0	0	0	0	0	0
315	TempUP	J[265]	0	0	0	0	0	0
316	TempUP	I[18]	0	0	0	0	0	0
316	TempUP	J[266]	0	0	0	0	0	0
317	TempUP	I[37]	0	0	0	0	0	0
317	TempUP	J[267]	0	0	0	0	0	0
318	TempUP	I[38]	0	0	0	0	0	0
318	TempUP	J[268]	0	0	0	0	0	0
319	TempUP	I[39]	0	0	0	0	0	0
319	TempUP	J[269]	0	0	0	0	0	0
320	TempUP	I[40]	0	0	0	0	0	0
320	TempUP	J[270]	0	0	0	0	0	0
321	TempUP	I[41]	0	0	0	0	0	0
321	TempUP	J[271]	0	0	0	0	0	0
322	TempUP	I[42]	0	0	0	0	0	0
322	TempUP	J[272]	0	0	0	0	0	0
323	TempUP	I[43]	0	0	0	0	0	0
323	TempUP	J[273]	0	0	0	0	0	0
324	TempUP	I[44]	0	0	0	0	0	0
324	TempUP	J[274]	0	0	0	0	0	0
325	TempUP	I[45]	0	0	0	0	0	0
325	TempUP	J[275]	0	0	0	0	0	0
326	TempUP	I[46]	0	0	0	0	0	0
326	TempUP	J[276]	0	0	0	0	0	0
327	TempUP	I[47]	0	0	0	0	0	0
327	TempUP	J[277]	0	0	0	0	0	0
328	TempUP	I[48]	0	0	0	0	0	0
328	TempUP	J[278]	0	0	0	0	0	0
329	TempUP	I[49]	0	0	0	0	0	0
329	TempUP	J[279]	0	0	0	0	0	0
330	TempUP	I[50]	0	0	0	0	0	0
330	TempUP	J[280]	0	0	0	0	0	0

331	TempUP	I[51]	0	0	0	0	0	0
331	TempUP	J[281]	0	0	0	0	0	0
332	TempUP	I[52]	0	0	0	0	0	0
332	TempUP	J[282]	0	0	0	0	0	0
333	TempUP	I[231]	0	0	0	0	0	0
333	TempUP	J[283]	0	0	0	0	0	0
334	TempUP	I[233]	0	0	0	0	0	0
334	TempUP	J[284]	0	0	0	0	0	0
335	TempUP	I[235]	0	0	0	0	0	0
335	TempUP	J[285]	0	0	0	0	0	0
336	TempUP	I[237]	0	0	0	0	0	0
336	TempUP	J[286]	0	0	0	0	0	0
337	TempUP	I[239]	0	0	0	0	0	0
337	TempUP	J[287]	0	0	0	0	0	0
338	TempUP	I[241]	0	0	0	0	0	0
338	TempUP	J[288]	0	0	0	0	0	0
339	TempUP	I[243]	0	0	0	0	0	0
339	TempUP	J[289]	0	0	0	0	0	0
340	TempUP	I[245]	0	0	0	0	0	0
340	TempUP	J[290]	0	0	0	0	0	0
341	TempUP	I[247]	0	0	0	0	0	0
341	TempUP	J[291]	0	0	0	0	0	0
342	TempUP	I[249]	0	0	0	0	0	0
342	TempUP	J[292]	0	0	0	0	0	0
343	TempUP	I[251]	0	0	0	0	0	0
343	TempUP	J[293]	0	0	0	0	0	0
344	TempUP	I[253]	0	0	0	0	0	0
344	TempUP	J[294]	0	0	0	0	0	0
345	TempUP	I[255]	0	0	0	0	0	0
345	TempUP	J[295]	0	0	0	0	0	0
346	TempUP	I[257]	0	0	0	0	0	0
346	TempUP	J[296]	0	0	0	0	0	0
347	TempUP	I[259]	0	0	0	0	0	0
347	TempUP	J[297]	0	0	0	0	0	0
348	TempUP	I[261]	0	0	0	0	0	0
348	TempUP	J[298]	0	0	0	0	0	0
349	TempUP	I[263]	0	0	0	0	0	0
349	TempUP	J[299]	0	0	0	0	0	0
350	TempUP	I[19]	0	0	0	0	0	0
350	TempUP	J[300]	0	0	0	0	0	0
351	TempUP	I[36]	0	0	0	0	0	0
351	TempUP	J[301]	0	0	0	0	0	0
352	TempUP	I[53]	0	0	0	0	0	0
352	TempUP	J[302]	0	0	0	0	0	0
353	TempUP	I[54]	0	0	0	0	0	0
353	TempUP	J[303]	0	0	0	0	0	0
354	TempUP	I[55]	0	0	0	0	0	0
354	TempUP	J[304]	0	0	0	0	0	0
355	TempUP	I[56]	0	0	0	0	0	0
355	TempUP	J[305]	0	0	0	0	0	0
356	TempUP	I[57]	0	0	0	0	0	0
356	TempUP	J[306]	0	0	0	0	0	0
357	TempUP	I[58]	0	0	0	0	0	0
357	TempUP	J[307]	0	0	0	0	0	0
358	TempUP	I[59]	0	0	0	0	0	0
358	TempUP	J[308]	0	0	0	0	0	0
359	TempUP	I[60]	0	0	0	0	0	0
359	TempUP	J[309]	0	0	0	0	0	0
360	TempUP	I[61]	0	0	0	0	0	0
360	TempUP	J[310]	0	0	0	0	0	0
361	TempUP	I[62]	0	0	0	0	0	0

361	TempUP	J[311]	0	0	0	0	0	0
362	TempUP	I[63]	0	0	0	0	0	0
362	TempUP	J[312]	0	0	0	0	0	0
363	TempUP	I[64]	0	0	0	0	0	0
363	TempUP	J[313]	0	0	0	0	0	0
364	TempUP	I[65]	0	0	0	0	0	0
364	TempUP	J[314]	0	0	0	0	0	0
365	TempUP	I[66]	0	0	0	0	0	0
365	TempUP	J[315]	0	0	0	0	0	0
366	TempUP	I[67]	0	0	0	0	0	0
366	TempUP	J[316]	0	0	0	0	0	0
367	TempUP	I[68]	0	0	0	0	0	0
367	TempUP	J[317]	0	0	0	0	0	0
368	TempUP	I[232]	0	0	0	0	0	0
368	TempUP	J[318]	0	0	0	0	0	0
369	TempUP	I[234]	0	0	0	0	0	0
369	TempUP	J[319]	0	0	0	0	0	0
370	TempUP	I[236]	0	0	0	0	0	0
370	TempUP	J[320]	0	0	0	0	0	0
371	TempUP	I[238]	0	0	0	0	0	0
371	TempUP	J[321]	0	0	0	0	0	0
372	TempUP	I[240]	0	0	0	0	0	0
372	TempUP	J[322]	0	0	0	0	0	0
373	TempUP	I[242]	0	0	0	0	0	0
373	TempUP	J[323]	0	0	0	0	0	0
374	TempUP	I[244]	0	0	0	0	0	0
374	TempUP	J[324]	0	0	0	0	0	0
375	TempUP	I[246]	0	0	0	0	0	0
375	TempUP	J[325]	0	0	0	0	0	0
376	TempUP	I[248]	0	0	0	0	0	0
376	TempUP	J[326]	0	0	0	0	0	0
377	TempUP	I[250]	0	0	0	0	0	0
377	TempUP	J[327]	0	0	0	0	0	0
378	TempUP	I[252]	0	0	0	0	0	0
378	TempUP	J[328]	0	0	0	0	0	0
379	TempUP	I[254]	0	0	0	0	0	0
379	TempUP	J[329]	0	0	0	0	0	0
380	TempUP	I[256]	0	0	0	0	0	0
380	TempUP	J[330]	0	0	0	0	0	0
381	TempUP	I[258]	0	0	0	0	0	0
381	TempUP	J[331]	0	0	0	0	0	0
382	TempUP	I[260]	0	0	0	0	0	0
382	TempUP	J[332]	0	0	0	0	0	0
383	TempUP	I[262]	0	0	0	0	0	0
383	TempUP	J[333]	0	0	0	0	0	0
384	TempUP	I[264]	0	0	0	0	0	0
384	TempUP	J[334]	0	0	0	0	0	0
385	TempUP	I[69]	2810.11	1392.84	314.13	-26.51	834.94	4463.79
385	TempUP	J[71]	2810.11	1392.84	314.13	-26.51	-550.92	-1681.1
386	TempUP	I[105]	952.89	969.2	160.96	-15.64	475.13	2914.13
386	TempUP	J[107]	952.89	969.2	160.96	-15.64	-235.01	-1361.76
387	TempUP	I[141]	656.62	0	112.72	0	357.54	0
387	TempUP	J[143]	656.62	0	112.72	0	-139.75	0
388	TempUP	I[177]	952.89	-969.2	160.96	15.64	475.13	-2914.13
388	TempUP	J[179]	952.89	-969.2	160.96	15.64	-235.01	1361.76
389	TempUP	I[213]	2810.11	-1392.84	314.13	26.51	834.94	-4463.79
389	TempUP	J[215]	2810.11	-1392.84	314.13	26.51	-550.92	1681.1
390	TempUP	I[71]	5131.41	908.89	151.12	-0.9	377.27	2387.86
390	TempUP	J[72]	5131.41	908.89	151.12	-0.9	-289.44	-1621.96
391	TempUP	I[107]	1881.71	690.22	90.95	0.51	226.79	1671.5
391	TempUP	J[108]	1881.71	690.22	90.95	0.51	-174.46	-1373.61

392	TempUP	I[143]	1380.84	0	72.33	0	184.35	0
392	TempUP	J[144]	1380.84	0	72.33	0	-134.74	0
393	TempUP	I[179]	1881.71	-690.22	90.95	-0.51	226.79	-1671.5
393	TempUP	J[180]	1881.71	-690.22	90.95	-0.51	-174.46	1373.61
394	TempUP	I[215]	5131.41	-908.89	151.12	0.9	377.27	-2387.86
394	TempUP	J[216]	5131.41	-908.89	151.12	0.9	-289.44	1621.96
395	TempUP	I[72]	6515.78	607.65	102.36	-1.12	265.77	1434.49
395	TempUP	J[73]	6515.78	607.65	102.36	-1.12	-185.83	-1246.32
396	TempUP	I[108]	2666.6	556.16	76.09	-0.5	197.92	1297.46
396	TempUP	J[109]	2666.6	556.16	76.09	-0.5	-137.76	-1156.21
397	TempUP	I[144]	2056.24	0	61.34	0	163.06	0
397	TempUP	J[145]	2056.24	0	61.34	0	-107.57	0
398	TempUP	I[180]	2666.6	-556.16	76.09	0.5	197.92	-1297.46
398	TempUP	J[181]	2666.6	-556.16	76.09	0.5	-137.76	1156.21
399	TempUP	I[216]	6515.78	-607.65	102.36	1.12	265.77	-1434.49
399	TempUP	J[217]	6515.78	-607.65	102.36	1.12	-185.83	1246.32
400	TempUP	I[73]	7394.55	455.77	68.24	0.01	179.2	1084.8
400	TempUP	J[376]	7394.55	455.77	68.24	0.01	28.66	79.42
401	TempUP	I[109]	3311.39	451.79	61.46	-0.02	160.29	1066.28
401	TempUP	J[377]	3311.39	451.79	61.46	-0.02	24.72	69.67
402	TempUP	I[145]	2628.57	0	51.76	0	137.65	0
402	TempUP	J[378]	2628.57	0	51.76	0	23.48	0
403	TempUP	I[181]	3311.39	-451.79	61.46	0.02	160.29	-1066.28
403	TempUP	J[379]	3311.39	-451.79	61.46	0.02	24.72	-69.67
404	TempUP	I[217]	7394.55	-455.77	68.24	-0.01	179.2	-1084.8
404	TempUP	J[380]	7394.55	-455.77	68.24	-0.01	28.66	-79.42
405	TempUP	I[74]	7968.74	347.98	46.75	0.39	123.07	850.67
405	TempUP	J[75]	7968.74	347.98	46.75	0.39	-83.19	-684.52
406	TempUP	I[110]	3826.39	359.32	47.83	0.22	123.84	869.83
406	TempUP	J[111]	3826.39	359.32	47.83	0.22	-87.19	-715.39
407	TempUP	I[146]	3099.1	0	41.23	0	108.32	0
407	TempUP	J[147]	3099.1	0	41.23	0	-73.58	0
408	TempUP	I[182]	3826.39	-359.32	47.83	-0.22	123.84	-869.83
408	TempUP	J[183]	3826.39	-359.32	47.83	-0.22	-87.19	715.39
409	TempUP	I[218]	7968.74	-347.98	46.75	-0.39	123.07	-850.67
409	TempUP	J[219]	7968.74	-347.98	46.75	-0.39	-83.19	684.52
410	TempUP	I[75]	8349.15	252.57	31.56	0.34	82.84	635.01
410	TempUP	J[76]	8349.15	252.57	31.56	0.34	-56.4	-479.25
411	TempUP	I[111]	4219.49	268.16	35.19	0.18	90.52	669.59
411	TempUP	J[112]	4219.49	268.16	35.19	0.18	-64.73	-513.47
412	TempUP	I[147]	3466.46	0	30.83	0	80.18	0
412	TempUP	J[148]	3466.46	0	30.83	0	-55.83	0
413	TempUP	I[183]	4219.49	-268.16	35.19	-0.18	90.52	-669.59
413	TempUP	J[184]	4219.49	-268.16	35.19	-0.18	-64.73	513.47
414	TempUP	I[219]	8349.15	-252.57	31.56	-0.34	82.84	-635.01
414	TempUP	J[220]	8349.15	-252.57	31.56	-0.34	-56.4	479.25
415	TempUP	I[76]	8593.19	164.62	19.7	0.21	51.91	436.04
415	TempUP	J[77]	8593.19	164.62	19.7	0.21	-35.01	-290.23
416	TempUP	I[112]	4496.4	177.87	23.17	0.11	59.91	469.35
416	TempUP	J[113]	4496.4	177.87	23.17	0.11	-42.31	-315.37
417	TempUP	I[148]	3729.54	0	20.51	0	53.48	0
417	TempUP	J[149]	3729.54	0	20.51	0	-37.02	0
418	TempUP	I[184]	4496.4	-177.87	23.17	-0.11	59.91	-469.35
418	TempUP	J[185]	4496.4	-177.87	23.17	-0.11	-42.31	315.37
419	TempUP	I[220]	8593.19	-164.62	19.7	-0.21	51.91	-436.04
419	TempUP	J[221]	8593.19	-164.62	19.7	-0.21	-35.01	290.23
420	TempUP	I[77]	8730.43	81.27	9.5	0.1	26.56	249.49
420	TempUP	J[78]	8730.43	81.27	9.5	0.1	-15.37	-109.04
421	TempUP	I[113]	4661.03	88.63	11.5	0.05	31.63	271.71
421	TempUP	J[114]	4661.03	88.63	11.5	0.05	-19.12	-119.31
422	TempUP	I[149]	3887.61	0	10.24	0	28.36	0

422	TempUP	J[150]	3887.61	0	10.24	0	-16.84	0
423	TempUP	I[185]	4661.03	-88.63	11.5	-0.05	31.63	-271.71
423	TempUP	J[186]	4661.03	-88.63	11.5	-0.05	-19.12	119.31
424	TempUP	I[221]	8730.43	-81.27	9.5	-0.1	26.56	-249.49
424	TempUP	J[222]	8730.43	-81.27	9.5	-0.1	-15.37	109.04
425	TempUP	I[78]	8774.82	0	0	0	4.64	69.42
425	TempUP	J[371]	8774.82	0	0	0	4.64	69.42
426	TempUP	I[114]	4715.65	0	0	0	5.39	75.94
426	TempUP	J[372]	4715.65	0	0	0	5.39	75.94
427	TempUP	I[150]	3940.33	0	0	0	4.92	0
427	TempUP	J[373]	3940.33	0	0	0	4.92	0
428	TempUP	I[186]	4715.65	0	0	0	5.39	-75.94
428	TempUP	J[374]	4715.65	0	0	0	5.39	-75.94
429	TempUP	I[222]	8774.82	0	0	0	4.64	-69.42
429	TempUP	J[375]	8774.82	0	0	0	4.64	-69.42
430	TempUP	I[79]	8730.43	-81.27	-9.5	-0.1	-15.37	-109.04
430	TempUP	J[80]	8730.43	-81.27	-9.5	-0.1	26.56	249.49
431	TempUP	I[115]	4661.03	-88.63	-11.5	-0.05	-19.12	-119.31
431	TempUP	J[116]	4661.03	-88.63	-11.5	-0.05	31.63	271.71
432	TempUP	I[151]	3887.61	0	-10.24	0	-16.84	0
432	TempUP	J[152]	3887.61	0	-10.24	0	28.36	0
433	TempUP	I[187]	4661.03	88.63	-11.5	0.05	-19.12	119.31
433	TempUP	J[188]	4661.03	88.63	-11.5	0.05	31.63	-271.71
434	TempUP	I[223]	8730.43	81.27	-9.5	0.1	-15.37	109.04
434	TempUP	J[224]	8730.43	81.27	-9.5	0.1	26.56	-249.49
435	TempUP	I[80]	8593.19	-164.62	-19.7	-0.21	-35.01	-290.23
435	TempUP	J[81]	8593.19	-164.62	-19.7	-0.21	51.91	436.04
436	TempUP	I[116]	4496.4	-177.87	-23.17	-0.11	-42.31	-315.37
436	TempUP	J[117]	4496.4	-177.87	-23.17	-0.11	59.91	469.35
437	TempUP	I[152]	3729.54	0	-20.51	0	-37.02	0
437	TempUP	J[153]	3729.54	0	-20.51	0	53.48	0
438	TempUP	I[188]	4496.4	177.87	-23.17	0.11	-42.31	315.37
438	TempUP	J[189]	4496.4	177.87	-23.17	0.11	59.91	-469.35
439	TempUP	I[224]	8593.19	164.62	-19.7	0.21	-35.01	290.23
439	TempUP	J[225]	8593.19	164.62	-19.7	0.21	51.91	-436.04
440	TempUP	I[81]	8349.15	-252.57	-31.56	-0.34	-56.4	-479.25
440	TempUP	J[82]	8349.15	-252.57	-31.56	-0.34	82.84	635.01
441	TempUP	I[117]	4219.49	-268.16	-35.19	-0.18	-64.73	-513.47
441	TempUP	J[118]	4219.49	-268.16	-35.19	-0.18	90.52	669.59
442	TempUP	I[153]	3466.46	0	-30.83	0	-55.83	0
442	TempUP	J[154]	3466.46	0	-30.83	0	80.18	0
443	TempUP	I[189]	4219.49	268.16	-35.19	0.18	-64.73	513.47
443	TempUP	J[190]	4219.49	268.16	-35.19	0.18	90.52	-669.59
444	TempUP	I[225]	8349.15	252.57	-31.56	0.34	-56.4	479.25
444	TempUP	J[226]	8349.15	252.57	-31.56	0.34	82.84	-635.01
445	TempUP	I[82]	7968.74	-347.98	-46.75	-0.39	-83.19	-684.52
445	TempUP	J[83]	7968.74	-347.98	-46.75	-0.39	123.07	850.67
446	TempUP	I[118]	3826.39	-359.32	-47.83	-0.22	-87.19	-715.39
446	TempUP	J[119]	3826.39	-359.32	-47.83	-0.22	123.84	869.83
447	TempUP	I[154]	3099.1	0	-41.23	0	-73.58	0
447	TempUP	J[155]	3099.1	0	-41.23	0	108.32	0
448	TempUP	I[190]	3826.39	359.32	-47.83	0.22	-87.19	715.39
448	TempUP	J[191]	3826.39	359.32	-47.83	0.22	123.84	-869.83
449	TempUP	I[226]	7968.74	347.98	-46.75	0.39	-83.19	684.52
449	TempUP	J[227]	7968.74	347.98	-46.75	0.39	123.07	-850.67
450	TempUP	I[83]	7394.55	-455.77	-68.24	-0.01	-121.87	-925.95
450	TempUP	J[381]	7394.55	-455.77	-68.24	-0.01	28.66	79.42
451	TempUP	I[119]	3311.39	-451.79	-61.46	0.02	-110.86	-926.93
451	TempUP	J[382]	3311.39	-451.79	-61.46	0.02	24.72	69.67
452	TempUP	I[155]	2628.57	0	-51.76	0	-90.68	0
452	TempUP	J[383]	2628.57	0	-51.76	0	23.48	0

453	TempUP	I[191]	3311.39	451.79	-61.46	-0.02	-110.86	926.93
453	TempUP	J[384]	3311.39	451.79	-61.46	-0.02	24.72	-69.67
454	TempUP	I[227]	7394.55	455.77	-68.24	0.01	-121.87	925.95
454	TempUP	J[385]	7394.55	455.77	-68.24	0.01	28.66	-79.42
455	TempUP	I[84]	6515.78	-607.65	-102.36	1.12	-185.83	-1246.32
455	TempUP	J[85]	6515.78	-607.65	-102.36	1.12	265.77	1434.49
456	TempUP	I[120]	2666.6	-556.16	-76.09	0.5	-137.76	-1156.21
456	TempUP	J[121]	2666.6	-556.16	-76.09	0.5	197.92	1297.46
457	TempUP	I[156]	2056.24	0	-61.34	0	-107.57	0
457	TempUP	J[157]	2056.24	0	-61.34	0	163.06	0
458	TempUP	I[192]	2666.6	556.16	-76.09	-0.5	-137.76	1156.21
458	TempUP	J[193]	2666.6	556.16	-76.09	-0.5	197.92	-1297.46
459	TempUP	I[228]	6515.78	607.65	-102.36	-1.12	-185.83	1246.32
459	TempUP	J[229]	6515.78	607.65	-102.36	-1.12	265.77	-1434.49
460	TempUP	I[85]	5131.41	-908.89	-151.12	0.9	-289.44	-1621.96
460	TempUP	J[86]	5131.41	-908.89	-151.12	0.9	377.27	2387.86
461	TempUP	I[121]	1881.71	-690.22	-90.95	-0.51	-174.46	-1373.61
461	TempUP	J[122]	1881.71	-690.22	-90.95	-0.51	226.79	1671.5
462	TempUP	I[157]	1380.84	0	-72.33	0	-134.74	0
462	TempUP	J[158]	1380.84	0	-72.33	0	184.35	0
463	TempUP	I[193]	1881.71	690.22	-90.95	0.51	-174.46	1373.61
463	TempUP	J[194]	1881.71	690.22	-90.95	0.51	226.79	-1671.5
464	TempUP	I[229]	5131.41	908.89	-151.12	-0.9	-289.44	1621.96
464	TempUP	J[230]	5131.41	908.89	-151.12	-0.9	377.27	-2387.86
465	TempUP	I[86]	2810.11	-1392.84	-314.13	26.51	-550.92	-1681.1
465	TempUP	J[70]	2810.11	-1392.84	-314.13	26.51	834.94	4463.79
466	TempUP	I[122]	952.89	-969.2	-160.96	15.64	-235.01	-1361.76
466	TempUP	J[106]	952.89	-969.2	-160.96	15.64	475.13	2914.13
467	TempUP	I[158]	656.62	0	-112.72	0	-139.75	0
467	TempUP	J[142]	656.62	0	-112.72	0	357.54	0
468	TempUP	I[194]	952.89	969.2	-160.96	-15.64	-235.01	1361.76
468	TempUP	J[178]	952.89	969.2	-160.96	-15.64	475.13	-2914.13
469	TempUP	I[230]	2810.11	1392.84	-314.13	-26.51	-550.92	1681.1
469	TempUP	J[214]	2810.11	1392.84	-314.13	-26.51	834.94	-4463.79
470	TempUP	I[335]	-927.92	-4091.31	531.45	422.2	-135.04	-921.47
470	TempUP	J[69]	-927.92	-4091.31	531.45	422.2	-666.49	3169.84
471	TempUP	I[336]	362.34	-3612.23	-253.22	135.2	-169.22	-868.33
471	TempUP	J[71]	362.34	-3612.23	-253.22	135.2	84	2743.89
472	TempUP	I[337]	210.89	-2506.96	-69.11	94.5	68.6	-609.65
472	TempUP	J[72]	210.89	-2506.96	-69.11	94.5	137.72	1897.32
473	TempUP	I[338]	94.46	-1809.73	-53.54	59.62	49.03	-440.52
473	TempUP	J[73]	94.46	-1809.73	-53.54	59.62	102.57	1369.21
474	TempUP	I[339]	69.19	-1324.45	-40.38	39.49	42.98	-323.37
474	TempUP	J[74]	69.19	-1324.45	-40.38	39.49	83.36	1001.08
475	TempUP	I[340]	55.9	-957.19	-33.03	26.48	40.32	-234.12
475	TempUP	J[75]	55.9	-957.19	-33.03	26.48	73.35	723.08
476	TempUP	I[341]	48.31	-652.49	-29.04	17.17	36.77	-159.72
476	TempUP	J[76]	48.31	-652.49	-29.04	17.17	65.81	492.77
477	TempUP	I[342]	44.27	-380.9	-27	9.73	33.97	-93.27
477	TempUP	J[77]	44.27	-380.9	-27	9.73	60.97	287.63
478	TempUP	I[343]	42.56	-125.37	-26.13	3.16	32.58	-30.7
478	TempUP	J[78]	42.56	-125.37	-26.13	3.16	58.71	94.67
479	TempUP	I[344]	42.56	125.37	-26.13	-3.16	32.58	30.7
479	TempUP	J[79]	42.56	125.37	-26.13	-3.16	58.71	-94.67
480	TempUP	I[345]	44.27	380.9	-27	-9.73	33.97	93.27
480	TempUP	J[80]	44.27	380.9	-27	-9.73	60.97	-287.63
481	TempUP	I[346]	48.31	652.49	-29.04	-17.17	36.77	159.72
481	TempUP	J[81]	48.31	652.49	-29.04	-17.17	65.81	-492.77
482	TempUP	I[347]	55.9	957.19	-33.03	-26.48	40.32	234.12
482	TempUP	J[82]	55.9	957.19	-33.03	-26.48	73.35	-723.08
483	TempUP	I[348]	69.19	1324.45	-40.38	-39.49	42.98	323.37

483	TempUP	J[83]	69.19	1324.45	-40.38	-39.49	83.36	-1001.08
484	TempUP	I[349]	94.46	1809.73	-53.54	-59.62	49.03	440.52
484	TempUP	J[84]	94.46	1809.73	-53.54	-59.62	102.57	-1369.21
485	TempUP	I[350]	210.89	2506.96	-69.11	-94.5	68.6	609.65
485	TempUP	J[85]	210.89	2506.96	-69.11	-94.5	137.72	-1897.32
486	TempUP	I[351]	362.34	3612.23	-253.22	-135.2	-169.22	868.33
486	TempUP	J[86]	362.34	3612.23	-253.22	-135.2	84	-2743.89
487	TempUP	I[352]	-927.92	4091.31	531.45	-422.2	-135.04	921.47
487	TempUP	J[70]	-927.92	4091.31	531.45	-422.2	-666.49	-3169.84
488	TempUP	I[353]	-927.92	4091.31	-531.45	-422.2	-135.04	-921.47
488	TempUP	J[19]	-927.92	4091.31	-531.45	-422.2	130.69	-2967.12
489	TempUP	I[354]	362.34	3612.23	253.22	-135.2	-169.22	-868.33
489	TempUP	J[53]	362.34	3612.23	253.22	-135.2	-295.83	-2674.45
490	TempUP	I[355]	210.89	2506.96	69.11	-94.5	68.6	-609.65
490	TempUP	J[54]	210.89	2506.96	69.11	-94.5	34.05	-1863.13
491	TempUP	I[356]	94.46	1809.73	53.54	-59.62	49.03	-440.52
491	TempUP	J[55]	94.46	1809.73	53.54	-59.62	22.26	-1345.38
492	TempUP	I[357]	69.19	1324.45	40.38	-39.49	42.98	-323.37
492	TempUP	J[56]	69.19	1324.45	40.38	-39.49	22.79	-985.6
493	TempUP	I[358]	55.9	957.19	33.03	-26.48	40.32	-234.12
493	TempUP	J[57]	55.9	957.19	33.03	-26.48	23.8	-712.71
494	TempUP	I[359]	48.31	652.49	29.04	-17.17	36.77	-159.72
494	TempUP	J[58]	48.31	652.49	29.04	-17.17	22.25	-485.96
495	TempUP	I[360]	44.27	380.9	27	-9.73	33.97	-93.27
495	TempUP	J[59]	44.27	380.9	27	-9.73	20.47	-283.72
496	TempUP	I[361]	42.56	125.37	26.13	-3.16	32.58	-30.7
496	TempUP	J[60]	42.56	125.37	26.13	-3.16	19.51	-93.39
497	TempUP	I[362]	42.56	-125.37	26.13	3.16	32.58	30.7
497	TempUP	J[61]	42.56	-125.37	26.13	3.16	19.51	93.39
498	TempUP	I[363]	44.27	-380.9	27	9.73	33.97	93.27
498	TempUP	J[62]	44.27	-380.9	27	9.73	20.47	283.72
499	TempUP	I[364]	48.31	-652.49	29.04	17.17	36.77	159.72
499	TempUP	J[63]	48.31	-652.49	29.04	17.17	22.25	485.96
500	TempUP	I[365]	55.9	-957.19	33.03	26.48	40.32	234.12
500	TempUP	J[64]	55.9	-957.19	33.03	26.48	23.8	712.71
501	TempUP	I[366]	69.19	-1324.45	40.38	39.49	42.98	323.37
501	TempUP	J[65]	69.19	-1324.45	40.38	39.49	22.79	985.6
502	TempUP	I[367]	94.46	-1809.73	53.54	59.62	49.03	440.52
502	TempUP	J[66]	94.46	-1809.73	53.54	59.62	22.26	1345.38
503	TempUP	I[368]	210.89	-2506.96	69.11	94.5	68.6	609.65
503	TempUP	J[67]	210.89	-2506.96	69.11	94.5	34.05	1863.13
504	TempUP	I[369]	362.34	-3612.23	253.22	135.2	-169.22	868.33
504	TempUP	J[68]	362.34	-3612.23	253.22	135.2	-295.83	2674.45
505	TempUP	I[370]	-927.92	-4091.31	-531.45	422.2	-135.04	921.47
505	TempUP	J[36]	-927.92	-4091.31	-531.45	422.2	130.69	2967.12
506	TempUP	I[371]	8774.82	0	0	0	4.64	69.42
506	TempUP	J[79]	8774.82	0	0	0	4.64	69.42
507	TempUP	I[372]	4715.65	0	0	0	5.39	75.94
507	TempUP	J[115]	4715.65	0	0	0	5.39	75.94
508	TempUP	I[373]	3940.33	0	0	0	4.92	0
508	TempUP	J[151]	3940.33	0	0	0	4.92	0
509	TempUP	I[374]	4715.65	0	0	0	5.39	-75.94
509	TempUP	J[187]	4715.65	0	0	0	5.39	-75.94
510	TempUP	I[375]	8774.82	0	0	0	4.64	-69.42
510	TempUP	J[223]	8774.82	0	0	0	4.64	-69.42
511	TempUP	I[376]	7394.55	455.77	68.24	0.01	28.66	79.42
511	TempUP	J[74]	7394.55	455.77	68.24	0.01	-121.87	-925.95
512	TempUP	I[377]	3311.39	451.79	61.46	-0.02	24.72	69.67
512	TempUP	J[110]	3311.39	451.79	61.46	-0.02	-110.86	-926.93
513	TempUP	I[378]	2628.57	0	51.76	0	23.48	0
513	TempUP	J[146]	2628.57	0	51.76	0	-90.68	0

514	TempUP	I[379]	3311.39	-451.79	61.46	0.02	24.72	-69.67
514	TempUP	J[182]	3311.39	-451.79	61.46	0.02	-110.86	926.93
515	TempUP	I[380]	7394.55	-455.77	68.24	-0.01	28.66	-79.42
515	TempUP	J[218]	7394.55	-455.77	68.24	-0.01	-121.87	925.95
516	TempUP	I[381]	7394.55	-455.77	-68.24	-0.01	28.66	79.42
516	TempUP	J[84]	7394.55	-455.77	-68.24	-0.01	179.2	1084.8
517	TempUP	I[382]	3311.39	-451.79	-61.46	0.02	24.72	69.67
517	TempUP	J[120]	3311.39	-451.79	-61.46	0.02	160.29	1066.28
518	TempUP	I[383]	2628.57	0	-51.76	0	23.48	0
518	TempUP	J[156]	2628.57	0	-51.76	0	137.65	0
519	TempUP	I[384]	3311.39	451.79	-61.46	-0.02	24.72	-69.67
519	TempUP	J[192]	3311.39	451.79	-61.46	-0.02	160.29	-1066.28
520	TempUP	I[385]	7394.55	455.77	-68.24	0.01	28.66	-79.42
520	TempUP	J[228]	7394.55	455.77	-68.24	0.01	179.2	-1084.8

2.3. TEMPERATURA COOL 1

Elem	Load	Part	Axial (kN)	Shear-y (kN)	Shear-z (kN)	Torsion (kN*m)	Moment-y (kN*m)	Moment-z (kN*m)
1	cool/10	I[1]	795.21	0	-25.11	-16	-463.4	-27.72
1	cool/10	J[2]	795.21	0	-25.11	-16	-335.51	-27.72
2	cool/10	I[2]	779.39	0	-12.34	-14.43	-335.51	-28.57
2	cool/10	J[3]	779.39	0	-12.34	-14.43	-274.53	-28.57
3	cool/10	I[3]	758.27	0	-13.58	-12.72	-274.53	-29.37
3	cool/10	J[4]	758.27	0	-13.58	-12.72	-209.24	-29.37
4	cool/10	I[4]	739.99	0	-15.26	-10.86	-209.24	-30.11
4	cool/10	J[5]	739.99	0	-15.26	-10.86	-137.66	-30.11
5	cool/10	I[5]	725.59	0	-14.84	-8.88	-137.66	-30.75
5	cool/10	J[6]	725.59	0	-14.84	-8.88	-69.51	-30.75
6	cool/10	I[6]	714.78	0	-12.53	-6.77	-69.51	-31.28
6	cool/10	J[7]	714.78	0	-12.53	-6.77	-12.96	-31.28
7	cool/10	I[7]	707.22	0	-8.95	-4.57	-12.96	-31.68
7	cool/10	J[8]	707.22	0	-8.95	-4.57	26.95	-31.68
8	cool/10	I[8]	702.74	0	-4.65	-2.3	26.95	-31.92
8	cool/10	J[9]	702.74	0	-4.65	-2.3	47.49	-31.92
9	cool/10	I[9]	701.25	0	0	0	47.49	-32.01
9	cool/10	J[10]	701.25	0	0	0	47.49	-32.01
10	cool/10	I[10]	702.74	0	4.65	2.3	47.49	-31.92
10	cool/10	J[11]	702.74	0	4.65	2.3	26.95	-31.92
11	cool/10	I[11]	707.22	0	8.95	4.57	26.95	-31.68
11	cool/10	J[12]	707.22	0	8.95	4.57	-12.96	-31.68
12	cool/10	I[12]	714.78	0	12.53	6.77	-12.96	-31.28
12	cool/10	J[13]	714.78	0	12.53	6.77	-69.51	-31.28
13	cool/10	I[13]	725.59	0	14.84	8.88	-69.51	-30.75
13	cool/10	J[14]	725.59	0	14.84	8.88	-137.66	-30.75
14	cool/10	I[14]	739.99	0	15.26	10.86	-137.66	-30.11
14	cool/10	J[15]	739.99	0	15.26	10.86	-209.24	-30.11
15	cool/10	I[15]	758.27	0	13.58	12.72	-209.24	-29.37
15	cool/10	J[16]	758.27	0	13.58	12.72	-274.53	-29.37
16	cool/10	I[16]	779.39	0	12.34	14.43	-274.53	-28.57
16	cool/10	J[17]	779.39	0	12.34	14.43	-335.51	-28.57
17	cool/10	I[17]	795.21	0	25.11	16	-335.51	-27.72
17	cool/10	J[18]	795.21	0	25.11	16	-463.4	-27.72
18	cool/10	I[19]	795.21	0	-25.11	16	-463.4	27.72
18	cool/10	J[20]	795.21	0	-25.11	16	-335.51	27.72
19	cool/10	I[20]	779.39	0	-12.34	14.43	-335.51	28.57
19	cool/10	J[21]	779.39	0	-12.34	14.43	-274.53	28.57
20	cool/10	I[21]	758.27	0	-13.58	12.72	-274.53	29.37
20	cool/10	J[22]	758.27	0	-13.58	12.72	-209.24	29.37
21	cool/10	I[22]	739.99	0	-15.26	10.86	-209.24	30.11

21	cool/10	J[23]	739.99	0	-15.26	10.86	-137.66	30.11
22	cool/10	I[23]	725.59	0	-14.84	8.88	-137.66	30.75
22	cool/10	J[24]	725.59	0	-14.84	8.88	-69.51	30.75
23	cool/10	I[24]	714.78	0	-12.53	6.77	-69.51	31.28
23	cool/10	J[25]	714.78	0	-12.53	6.77	-12.96	31.28
24	cool/10	I[25]	707.22	0	-8.95	4.57	-12.96	31.68
24	cool/10	J[26]	707.22	0	-8.95	4.57	26.95	31.68
25	cool/10	I[26]	702.74	0	-4.65	2.3	26.95	31.92
25	cool/10	J[27]	702.74	0	-4.65	2.3	47.49	31.92
26	cool/10	I[27]	701.25	0	0	0	47.49	32.01
26	cool/10	J[28]	701.25	0	0	0	47.49	32.01
27	cool/10	I[28]	702.74	0	4.65	-2.3	47.49	31.92
27	cool/10	J[29]	702.74	0	4.65	-2.3	26.95	31.92
28	cool/10	I[29]	707.22	0	8.95	-4.57	26.95	31.68
28	cool/10	J[30]	707.22	0	8.95	-4.57	-12.96	31.68
29	cool/10	I[30]	714.78	0	12.53	-6.77	-12.96	31.28
29	cool/10	J[31]	714.78	0	12.53	-6.77	-69.51	31.28
30	cool/10	I[31]	725.59	0	14.84	-8.88	-69.51	30.75
30	cool/10	J[32]	725.59	0	14.84	-8.88	-137.66	30.75
31	cool/10	I[32]	739.99	0	15.26	-10.86	-137.66	30.11
31	cool/10	J[33]	739.99	0	15.26	-10.86	-209.24	30.11
32	cool/10	I[33]	758.27	0	13.58	-12.72	-209.24	29.37
32	cool/10	J[34]	758.27	0	13.58	-12.72	-274.53	29.37
33	cool/10	I[34]	779.39	0	12.34	-14.43	-274.53	28.57
33	cool/10	J[35]	779.39	0	12.34	-14.43	-335.51	28.57
34	cool/10	I[35]	795.21	0	25.11	-16	-335.51	27.72
34	cool/10	J[36]	795.21	0	25.11	-16	-463.4	27.72
67	cool/10	I[1]	425.77	1846.46	-237.5	-175.99	-44.43	1340.55
67	cool/10	J[335]	425.77	1846.46	-237.5	-175.99	74.32	417.32
68	cool/10	I[18]	425.77	-1846.46	-237.5	175.99	-44.43	-1340.55
68	cool/10	J[352]	425.77	-1846.46	-237.5	175.99	74.32	-417.32
69	cool/10	I[37]	-152.96	1709.45	96.92	-65.13	117.45	1265.91
69	cool/10	J[336]	-152.96	1709.45	96.92	-65.13	68.99	411.19
70	cool/10	I[38]	-87.57	1270.97	29.76	-48.67	-10.27	943.94
70	cool/10	J[337]	-87.57	1270.97	29.76	-48.67	-25.15	308.45
71	cool/10	I[39]	-42.88	968.78	24.81	-33.71	-7.53	719.73
71	cool/10	J[338]	-42.88	968.78	24.81	-33.71	-19.94	235.34
72	cool/10	I[40]	-34.23	738.96	20.37	-24.12	-9.87	549.43
72	cool/10	J[339]	-34.23	738.96	20.37	-24.12	-20.05	179.95
73	cool/10	I[41]	-29.83	549.65	17.86	-17.15	-11.59	408.86
73	cool/10	J[340]	-29.83	549.65	17.86	-17.15	-20.52	134.04
74	cool/10	I[42]	-27.24	381.81	16.49	-11.57	-11.61	284.07
74	cool/10	J[341]	-27.24	381.81	16.49	-11.57	-19.86	93.17
75	cool/10	I[43]	-25.84	225.41	15.79	-6.71	-11.21	167.72
75	cool/10	J[342]	-25.84	225.41	15.79	-6.71	-19.1	55.02
76	cool/10	I[44]	-25.24	74.58	15.49	-2.2	-10.95	55.49
76	cool/10	J[343]	-25.24	74.58	15.49	-2.2	-18.69	18.21
77	cool/10	I[45]	-25.24	-74.58	15.49	2.2	-10.95	-55.49
77	cool/10	J[344]	-25.24	-74.58	15.49	2.2	-18.69	-18.21
78	cool/10	I[46]	-25.84	-225.41	15.79	6.71	-11.21	-167.72
78	cool/10	J[345]	-25.84	-225.41	15.79	6.71	-19.1	-55.02
79	cool/10	I[47]	-27.24	-381.81	16.49	11.57	-11.61	-284.07
79	cool/10	J[346]	-27.24	-381.81	16.49	11.57	-19.86	-93.17
80	cool/10	I[48]	-29.83	-549.65	17.86	17.15	-11.59	-408.86
80	cool/10	J[347]	-29.83	-549.65	17.86	17.15	-20.52	-134.04
81	cool/10	I[49]	-34.23	-738.96	20.37	24.12	-9.87	-549.43
81	cool/10	J[348]	-34.23	-738.96	20.37	24.12	-20.05	-179.95
82	cool/10	I[50]	-42.88	-968.78	24.81	33.71	-7.53	-719.73
82	cool/10	J[349]	-42.88	-968.78	24.81	33.71	-19.94	-235.34
83	cool/10	I[51]	-87.57	-1270.97	29.76	48.67	-10.27	-943.94
83	cool/10	J[350]	-87.57	-1270.97	29.76	48.67	-25.15	-308.45

84	cool/10	I[52]	-152.96	-1709.45	96.92	65.13	117.45	-1265.91
84	cool/10	J[351]	-152.96	-1709.45	96.92	65.13	68.99	-411.19
85	cool/10	I[69]	1070.1	610.71	-98.16	22.61	-0.21	618.15
85	cool/10	J[87]	1070.1	610.71	-98.16	22.61	147.04	-297.91
86	cool/10	I[70]	1070.1	-610.71	-98.16	-22.61	-0.21	-618.15
86	cool/10	J[88]	1070.1	-610.71	-98.16	-22.61	147.04	297.91
87	cool/10	I[71]	-354.42	623.96	33.84	8.7	76.2	640.67
87	cool/10	J[89]	-354.42	623.96	33.84	8.7	25.45	-295.26
88	cool/10	I[72]	-219.85	554.58	9.35	-0.18	7.1	572.38
88	cool/10	J[90]	-219.85	554.58	9.35	-0.18	-6.94	-259.49
89	cool/10	I[73]	-111.58	468.54	9.27	-4.64	-12.01	483.79
89	cool/10	J[91]	-111.58	468.54	9.27	-4.64	-25.92	-219.03
90	cool/10	I[74]	-87.09	383.27	9.39	-5.68	-15.49	395.84
90	cool/10	J[92]	-87.09	383.27	9.39	-5.68	-29.58	-179.06
91	cool/10	I[75]	-79.45	298.1	9.19	-5.38	-15.19	307.98
91	cool/10	J[93]	-79.45	298.1	9.19	-5.38	-28.98	-139.17
92	cool/10	I[76]	-74.81	212.91	9.08	-4.26	-14.16	220.02
92	cool/10	J[94]	-74.81	212.91	9.08	-4.26	-27.78	-99.34
93	cool/10	I[77]	-72.06	127.73	9.03	-2.7	-13.33	132.01
93	cool/10	J[95]	-72.06	127.73	9.03	-2.7	-26.88	-59.58
94	cool/10	I[78]	-70.84	42.57	9	-0.92	-12.91	44
94	cool/10	J[96]	-70.84	42.57	9	-0.92	-26.42	-19.85
95	cool/10	I[79]	-70.84	-42.57	9	0.92	-12.91	-44
95	cool/10	J[97]	-70.84	-42.57	9	0.92	-26.42	19.85
96	cool/10	I[80]	-72.06	-127.73	9.03	2.7	-13.33	-132.01
96	cool/10	J[98]	-72.06	-127.73	9.03	2.7	-26.88	59.58
97	cool/10	I[81]	-74.81	-212.91	9.08	4.26	-14.16	-220.02
97	cool/10	J[99]	-74.81	-212.91	9.08	4.26	-27.78	99.34
98	cool/10	I[82]	-79.45	-298.1	9.19	5.38	-15.19	-307.98
98	cool/10	J[100]	-79.45	-298.1	9.19	5.38	-28.98	139.17
99	cool/10	I[83]	-87.09	-383.27	9.39	5.68	-15.49	-395.84
99	cool/10	J[101]	-87.09	-383.27	9.39	5.68	-29.58	179.06
100	cool/10	I[84]	-111.58	-468.54	9.27	4.64	-12.01	-483.79
100	cool/10	J[102]	-111.58	-468.54	9.27	4.64	-25.92	219.03
101	cool/10	I[85]	-219.85	-554.58	9.35	0.18	7.1	-572.38
101	cool/10	J[103]	-219.85	-554.58	9.35	0.18	-6.94	259.49
102	cool/10	I[86]	-354.42	-623.96	33.84	-8.7	76.2	-640.67
102	cool/10	J[104]	-354.42	-623.96	33.84	-8.7	25.45	295.26
103	cool/10	I[87]	1070.1	610.71	-98.16	70.22	230.48	-297.91
103	cool/10	J[105]	1070.1	610.71	-98.16	70.22	377.72	-1213.97
104	cool/10	I[88]	1070.1	-610.71	-98.16	-70.22	230.48	297.91
104	cool/10	J[106]	1070.1	-610.71	-98.16	-70.22	377.72	1213.97
105	cool/10	I[89]	-354.42	623.96	33.84	57.35	-2.19	-295.26
105	cool/10	J[107]	-354.42	623.96	33.84	57.35	-52.94	-1231.19
106	cool/10	I[90]	-219.85	554.58	9.35	43.06	-24.08	-259.49
106	cool/10	J[108]	-219.85	554.58	9.35	43.06	-38.11	-1091.35
107	cool/10	I[91]	-111.58	468.54	9.27	31.9	-34.62	-219.03
107	cool/10	J[109]	-111.58	468.54	9.27	31.9	-48.53	-921.84
108	cool/10	I[92]	-87.09	383.27	9.39	24.2	-36.37	-179.06
108	cool/10	J[110]	-87.09	383.27	9.39	24.2	-50.45	-753.96
109	cool/10	I[93]	-79.45	298.1	9.19	17.87	-35.17	-139.17
109	cool/10	J[111]	-79.45	298.1	9.19	17.87	-48.96	-586.31
110	cool/10	I[94]	-74.81	212.91	9.08	12.34	-33.62	-99.34
110	cool/10	J[112]	-74.81	212.91	9.08	12.34	-47.24	-418.71
111	cool/10	I[95]	-72.06	127.73	9.03	7.26	-32.49	-59.58
111	cool/10	J[113]	-72.06	127.73	9.03	7.26	-46.04	-251.17
112	cool/10	I[96]	-70.84	42.57	9	2.4	-31.94	-19.85
112	cool/10	J[114]	-70.84	42.57	9	2.4	-45.45	-83.71
113	cool/10	I[97]	-70.84	-42.57	9	-2.4	-31.94	19.85
113	cool/10	J[115]	-70.84	-42.57	9	-2.4	-45.45	83.71
114	cool/10	I[98]	-72.06	-127.73	9.03	-7.26	-32.49	59.58

114	cool/10	J[116]	-72.06	-127.73	9.03	-7.26	-46.04	251.17
115	cool/10	I[99]	-74.81	-212.91	9.08	-12.34	-33.62	99.34
115	cool/10	J[117]	-74.81	-212.91	9.08	-12.34	-47.24	418.71
116	cool/10	I[100]	-79.45	-298.1	9.19	-17.87	-35.17	139.17
116	cool/10	J[118]	-79.45	-298.1	9.19	-17.87	-48.96	586.31
117	cool/10	I[101]	-87.09	-383.27	9.39	-24.2	-36.37	179.06
117	cool/10	J[119]	-87.09	-383.27	9.39	-24.2	-50.45	753.96
118	cool/10	I[102]	-111.58	-468.54	9.27	-31.9	-34.62	219.03
118	cool/10	J[120]	-111.58	-468.54	9.27	-31.9	-48.53	921.84
119	cool/10	I[103]	-219.85	-554.58	9.35	-43.06	-24.08	259.49
119	cool/10	J[121]	-219.85	-554.58	9.35	-43.06	-38.11	1091.35
120	cool/10	I[104]	-354.42	-623.96	33.84	-57.35	-2.19	295.26
120	cool/10	J[122]	-354.42	-623.96	33.84	-57.35	-52.94	1231.19
121	cool/10	I[105]	1533.54	158.41	-25.49	23.37	191.06	176.37
121	cool/10	J[123]	1533.54	158.41	-25.49	23.37	229.3	-61.25
122	cool/10	I[106]	1533.54	-158.41	-25.49	-23.37	191.06	-176.37
122	cool/10	J[124]	1533.54	-158.41	-25.49	-23.37	229.3	61.25
123	cool/10	I[107]	-479.47	176.58	7.19	9.99	1.81	236.99
123	cool/10	J[125]	-479.47	176.58	7.19	9.99	-8.97	-27.89
124	cool/10	I[108]	-281.79	166.29	2.57	8.77	-14.17	227.67
124	cool/10	J[126]	-281.79	166.29	2.57	8.77	-18.03	-21.76
125	cool/10	I[109]	-159.37	142.61	2.35	6.23	-29.63	194.9
125	cool/10	J[127]	-159.37	142.61	2.35	6.23	-33.17	-19.01
126	cool/10	I[110]	-131.62	118.35	2.62	4.69	-32.98	161.5
126	cool/10	J[128]	-131.62	118.35	2.62	4.69	-36.91	-16.02
127	cool/10	I[111]	-124.9	93.11	2.66	3.38	-31.27	127.09
127	cool/10	J[129]	-124.9	93.11	2.66	3.38	-35.26	-12.57
128	cool/10	I[112]	-120.9	67.07	2.68	2.27	-29.32	91.6
128	cool/10	J[130]	-120.9	67.07	2.68	2.27	-33.35	-9
129	cool/10	I[113]	-118.32	40.45	2.7	1.31	-28.05	55.28
129	cool/10	J[131]	-118.32	40.45	2.7	1.31	-32.11	-5.4
130	cool/10	I[114]	-117.16	13.52	2.71	0.43	-27.44	18.47
130	cool/10	J[132]	-117.16	13.52	2.71	0.43	-31.51	-1.8
131	cool/10	I[115]	-117.16	-13.52	2.71	-0.43	-27.44	-18.47
131	cool/10	J[133]	-117.16	-13.52	2.71	-0.43	-31.51	1.8
132	cool/10	I[116]	-118.32	-40.45	2.7	-1.31	-28.05	-55.28
132	cool/10	J[134]	-118.32	-40.45	2.7	-1.31	-32.11	5.4
133	cool/10	I[117]	-120.9	-67.07	2.68	-2.27	-29.32	-91.6
133	cool/10	J[135]	-120.9	-67.07	2.68	-2.27	-33.35	9
134	cool/10	I[118]	-124.9	-93.11	2.66	-3.38	-31.27	-127.09
134	cool/10	J[136]	-124.9	-93.11	2.66	-3.38	-35.26	12.57
135	cool/10	I[119]	-131.62	-118.35	2.62	-4.69	-32.98	-161.5
135	cool/10	J[137]	-131.62	-118.35	2.62	-4.69	-36.91	16.02
136	cool/10	I[120]	-159.37	-142.61	2.35	-6.23	-29.63	-194.9
136	cool/10	J[138]	-159.37	-142.61	2.35	-6.23	-33.17	19.01
137	cool/10	I[121]	-281.79	-166.29	2.57	-8.77	-14.17	-227.67
137	cool/10	J[139]	-281.79	-166.29	2.57	-8.77	-18.03	21.76
138	cool/10	I[122]	-479.47	-176.58	7.19	-9.99	1.81	-236.99
138	cool/10	J[140]	-479.47	-176.58	7.19	-9.99	-8.97	27.89
139	cool/10	I[123]	1533.54	158.41	-25.49	23.37	229.3	-61.25
139	cool/10	J[141]	1533.54	158.41	-25.49	23.37	267.54	-298.87
140	cool/10	I[124]	1533.54	-158.41	-25.49	-23.37	229.3	61.25
140	cool/10	J[142]	1533.54	-158.41	-25.49	-23.37	267.54	298.87
141	cool/10	I[125]	-479.47	176.58	7.19	9.99	-8.97	-27.89
141	cool/10	J[143]	-479.47	176.58	7.19	9.99	-19.76	-292.76
142	cool/10	I[126]	-281.79	166.29	2.57	8.77	-18.03	-21.76
142	cool/10	J[144]	-281.79	166.29	2.57	8.77	-21.88	-271.2
143	cool/10	I[127]	-159.37	142.61	2.35	6.23	-33.17	-19.01
143	cool/10	J[145]	-159.37	142.61	2.35	6.23	-36.7	-232.92
144	cool/10	I[128]	-131.62	118.35	2.62	4.69	-36.91	-16.02
144	cool/10	J[146]	-131.62	118.35	2.62	4.69	-40.84	-193.54

145	cool/10	I[129]	-124.9	93.11	2.66	3.38	-35.26	-12.57
145	cool/10	J[147]	-124.9	93.11	2.66	3.38	-39.24	-152.24
146	cool/10	I[130]	-120.9	67.07	2.68	2.27	-33.35	-9
146	cool/10	J[148]	-120.9	67.07	2.68	2.27	-37.38	-109.6
147	cool/10	I[131]	-118.32	40.45	2.7	1.31	-32.11	-5.4
147	cool/10	J[149]	-118.32	40.45	2.7	1.31	-36.16	-66.08
148	cool/10	I[132]	-117.16	13.52	2.71	0.43	-31.51	-1.8
148	cool/10	J[150]	-117.16	13.52	2.71	0.43	-35.58	-22.08
149	cool/10	I[133]	-117.16	-13.52	2.71	-0.43	-31.51	1.8
149	cool/10	J[151]	-117.16	-13.52	2.71	-0.43	-35.58	22.08
150	cool/10	I[134]	-118.32	-40.45	2.7	-1.31	-32.11	5.4
150	cool/10	J[152]	-118.32	-40.45	2.7	-1.31	-36.16	66.08
151	cool/10	I[135]	-120.9	-67.07	2.68	-2.27	-33.35	9
151	cool/10	J[153]	-120.9	-67.07	2.68	-2.27	-37.38	109.6
152	cool/10	I[136]	-124.9	-93.11	2.66	-3.38	-35.26	12.57
152	cool/10	J[154]	-124.9	-93.11	2.66	-3.38	-39.24	152.24
153	cool/10	I[137]	-131.62	-118.35	2.62	-4.69	-36.91	16.02
153	cool/10	J[155]	-131.62	-118.35	2.62	-4.69	-40.84	193.54
154	cool/10	I[138]	-159.37	-142.61	2.35	-6.23	-33.17	19.01
154	cool/10	J[156]	-159.37	-142.61	2.35	-6.23	-36.7	232.92
155	cool/10	I[139]	-281.79	-166.29	2.57	-8.77	-18.03	21.76
155	cool/10	J[157]	-281.79	-166.29	2.57	-8.77	-21.88	271.2
156	cool/10	I[140]	-479.47	-176.58	7.19	-9.99	-8.97	27.89
156	cool/10	J[158]	-479.47	-176.58	7.19	-9.99	-19.76	292.76
157	cool/10	I[141]	1533.54	-158.41	25.49	-23.37	267.54	-298.87
157	cool/10	J[159]	1533.54	-158.41	25.49	-23.37	229.3	-61.25
158	cool/10	I[142]	1533.54	158.41	25.49	23.37	267.54	298.87
158	cool/10	J[160]	1533.54	158.41	25.49	23.37	229.3	61.25
159	cool/10	I[143]	-479.47	-176.58	-7.19	-9.99	-19.76	-292.76
159	cool/10	J[161]	-479.47	-176.58	-7.19	-9.99	-8.97	-27.89
160	cool/10	I[144]	-281.79	-166.29	-2.57	-8.77	-21.88	-271.2
160	cool/10	J[162]	-281.79	-166.29	-2.57	-8.77	-18.03	-21.76
161	cool/10	I[145]	-159.37	-142.61	-2.35	-6.23	-36.7	-232.92
161	cool/10	J[163]	-159.37	-142.61	-2.35	-6.23	-33.17	-19.01
162	cool/10	I[146]	-131.62	-118.35	-2.62	-4.69	-40.84	-193.54
162	cool/10	J[164]	-131.62	-118.35	-2.62	-4.69	-36.91	-16.02
163	cool/10	I[147]	-124.9	-93.11	-2.66	-3.38	-39.24	-152.24
163	cool/10	J[165]	-124.9	-93.11	-2.66	-3.38	-35.26	-12.57
164	cool/10	I[148]	-120.9	-67.07	-2.68	-2.27	-37.38	-109.6
164	cool/10	J[166]	-120.9	-67.07	-2.68	-2.27	-33.35	-9
165	cool/10	I[149]	-118.32	-40.45	-2.7	-1.31	-36.16	-66.08
165	cool/10	J[167]	-118.32	-40.45	-2.7	-1.31	-32.11	-5.4
166	cool/10	I[150]	-117.16	-13.52	-2.71	-0.43	-35.58	-22.08
166	cool/10	J[168]	-117.16	-13.52	-2.71	-0.43	-31.51	-1.8
167	cool/10	I[151]	-117.16	13.52	-2.71	0.43	-35.58	22.08
167	cool/10	J[169]	-117.16	13.52	-2.71	0.43	-31.51	1.8
168	cool/10	I[152]	-118.32	40.45	-2.7	1.31	-36.16	66.08
168	cool/10	J[170]	-118.32	40.45	-2.7	1.31	-32.11	5.4
169	cool/10	I[153]	-120.9	67.07	-2.68	2.27	-37.38	109.6
169	cool/10	J[171]	-120.9	67.07	-2.68	2.27	-33.35	9
170	cool/10	I[154]	-124.9	93.11	-2.66	3.38	-39.24	152.24
170	cool/10	J[172]	-124.9	93.11	-2.66	3.38	-35.26	12.57
171	cool/10	I[155]	-131.62	118.35	-2.62	4.69	-40.84	193.54
171	cool/10	J[173]	-131.62	118.35	-2.62	4.69	-36.91	16.02
172	cool/10	I[156]	-159.37	142.61	-2.35	6.23	-36.7	232.92
172	cool/10	J[174]	-159.37	142.61	-2.35	6.23	-33.17	19.01
173	cool/10	I[157]	-281.79	166.29	-2.57	8.77	-21.88	271.2
173	cool/10	J[175]	-281.79	166.29	-2.57	8.77	-18.03	21.76
174	cool/10	I[158]	-479.47	176.58	-7.19	9.99	-19.76	292.76
174	cool/10	J[176]	-479.47	176.58	-7.19	9.99	-8.97	27.89
175	cool/10	I[159]	1533.54	-158.41	25.49	-23.37	229.3	-61.25

175	cool/10	J[177]	1533.54	-158.41	25.49	-23.37	191.06	176.37
176	cool/10	I[160]	1533.54	158.41	25.49	23.37	229.3	61.25
176	cool/10	J[178]	1533.54	158.41	25.49	23.37	191.06	-176.37
177	cool/10	I[161]	-479.47	-176.58	-7.19	-9.99	-8.97	-27.89
177	cool/10	J[179]	-479.47	-176.58	-7.19	-9.99	1.81	236.99
178	cool/10	I[162]	-281.79	-166.29	-2.57	-8.77	-18.03	-21.76
178	cool/10	J[180]	-281.79	-166.29	-2.57	-8.77	-14.17	227.67
179	cool/10	I[163]	-159.37	-142.61	-2.35	-6.23	-33.17	-19.01
179	cool/10	J[181]	-159.37	-142.61	-2.35	-6.23	-29.63	194.9
180	cool/10	I[164]	-131.62	-118.35	-2.62	-4.69	-36.91	-16.02
180	cool/10	J[182]	-131.62	-118.35	-2.62	-4.69	-32.98	161.5
181	cool/10	I[165]	-124.9	-93.11	-2.66	-3.38	-35.26	-12.57
181	cool/10	J[183]	-124.9	-93.11	-2.66	-3.38	-31.27	127.09
182	cool/10	I[166]	-120.9	-67.07	-2.68	-2.27	-33.35	-9
182	cool/10	J[184]	-120.9	-67.07	-2.68	-2.27	-29.32	91.6
183	cool/10	I[167]	-118.32	-40.45	-2.7	-1.31	-32.11	-5.4
183	cool/10	J[185]	-118.32	-40.45	-2.7	-1.31	-28.05	55.28
184	cool/10	I[168]	-117.16	-13.52	-2.71	-0.43	-31.51	-1.8
184	cool/10	J[186]	-117.16	-13.52	-2.71	-0.43	-27.44	18.47
185	cool/10	I[169]	-117.16	13.52	-2.71	0.43	-31.51	1.8
185	cool/10	J[187]	-117.16	13.52	-2.71	0.43	-27.44	-18.47
186	cool/10	I[170]	-118.32	40.45	-2.7	1.31	-32.11	5.4
186	cool/10	J[188]	-118.32	40.45	-2.7	1.31	-28.05	-55.28
187	cool/10	I[171]	-120.9	67.07	-2.68	2.27	-33.35	9
187	cool/10	J[189]	-120.9	67.07	-2.68	2.27	-29.32	-91.6
188	cool/10	I[172]	-124.9	93.11	-2.66	3.38	-35.26	12.57
188	cool/10	J[190]	-124.9	93.11	-2.66	3.38	-31.27	-127.09
189	cool/10	I[173]	-131.62	118.35	-2.62	4.69	-36.91	16.02
189	cool/10	J[191]	-131.62	118.35	-2.62	4.69	-32.98	-161.5
190	cool/10	I[174]	-159.37	142.61	-2.35	6.23	-33.17	19.01
190	cool/10	J[192]	-159.37	142.61	-2.35	6.23	-29.63	-194.9
191	cool/10	I[175]	-281.79	166.29	-2.57	8.77	-18.03	21.76
191	cool/10	J[193]	-281.79	166.29	-2.57	8.77	-14.17	-227.67
192	cool/10	I[176]	-479.47	176.58	-7.19	9.99	-8.97	27.89
192	cool/10	J[194]	-479.47	176.58	-7.19	9.99	1.81	-236.99
193	cool/10	I[177]	1070.1	-610.71	98.16	-70.22	377.72	-1213.97
193	cool/10	J[195]	1070.1	-610.71	98.16	-70.22	230.48	-297.91
194	cool/10	I[178]	1070.1	610.71	98.16	70.22	377.72	1213.97
194	cool/10	J[196]	1070.1	610.71	98.16	70.22	230.48	297.91
195	cool/10	I[179]	-354.42	-623.96	-33.84	-57.35	-52.94	-1231.19
195	cool/10	J[197]	-354.42	-623.96	-33.84	-57.35	-2.19	-295.26
196	cool/10	I[180]	-219.85	-554.58	-9.35	-43.06	-38.11	-1091.35
196	cool/10	J[198]	-219.85	-554.58	-9.35	-43.06	-24.08	-259.49
197	cool/10	I[181]	-111.58	-468.54	-9.27	-31.9	-48.53	-921.84
197	cool/10	J[199]	-111.58	-468.54	-9.27	-31.9	-34.62	-219.03
198	cool/10	I[182]	-87.09	-383.27	-9.39	-24.2	-50.45	-753.96
198	cool/10	J[200]	-87.09	-383.27	-9.39	-24.2	-36.37	-179.06
199	cool/10	I[183]	-79.45	-298.1	-9.19	-17.87	-48.96	-586.31
199	cool/10	J[201]	-79.45	-298.1	-9.19	-17.87	-35.17	-139.17
200	cool/10	I[184]	-74.81	-212.91	-9.08	-12.34	-47.24	-418.71
200	cool/10	J[202]	-74.81	-212.91	-9.08	-12.34	-33.62	-99.34
201	cool/10	I[185]	-72.06	-127.73	-9.03	-7.26	-46.04	-251.17
201	cool/10	J[203]	-72.06	-127.73	-9.03	-7.26	-32.49	-59.58
202	cool/10	I[186]	-70.84	-42.57	-9	-2.4	-45.45	-83.71
202	cool/10	J[204]	-70.84	-42.57	-9	-2.4	-31.94	-19.85
203	cool/10	I[187]	-70.84	42.57	-9	2.4	-45.45	83.71
203	cool/10	J[205]	-70.84	42.57	-9	2.4	-31.94	19.85
204	cool/10	I[188]	-72.06	127.73	-9.03	7.26	-46.04	251.17
204	cool/10	J[206]	-72.06	127.73	-9.03	7.26	-32.49	59.58
205	cool/10	I[189]	-74.81	212.91	-9.08	12.34	-47.24	418.71
205	cool/10	J[207]	-74.81	212.91	-9.08	12.34	-33.62	99.34

206	cool/10	I[190]	-79.45	298.1	-9.19	17.87	-48.96	586.31
206	cool/10	J[208]	-79.45	298.1	-9.19	17.87	-35.17	139.17
207	cool/10	I[191]	-87.09	383.27	-9.39	24.2	-50.45	753.96
207	cool/10	J[209]	-87.09	383.27	-9.39	24.2	-36.37	179.06
208	cool/10	I[192]	-111.58	468.54	-9.27	31.9	-48.53	921.84
208	cool/10	J[210]	-111.58	468.54	-9.27	31.9	-34.62	219.03
209	cool/10	I[193]	-219.85	554.58	-9.35	43.06	-38.11	1091.35
209	cool/10	J[211]	-219.85	554.58	-9.35	43.06	-24.08	259.49
210	cool/10	I[194]	-354.42	623.96	-33.84	57.35	-52.94	1231.19
210	cool/10	J[212]	-354.42	623.96	-33.84	57.35	-2.19	295.26
211	cool/10	I[195]	1070.1	-610.71	98.16	-22.61	147.04	-297.91
211	cool/10	J[213]	1070.1	-610.71	98.16	-22.61	-0.21	618.15
212	cool/10	I[196]	1070.1	610.71	98.16	22.61	147.04	297.91
212	cool/10	J[214]	1070.1	610.71	98.16	22.61	-0.21	-618.15
213	cool/10	I[197]	-354.42	-623.96	-33.84	-8.7	25.45	-295.26
213	cool/10	J[215]	-354.42	-623.96	-33.84	-8.7	76.2	640.67
214	cool/10	I[198]	-219.85	-554.58	-9.35	0.18	-6.94	-259.49
214	cool/10	J[216]	-219.85	-554.58	-9.35	0.18	7.1	572.38
215	cool/10	I[199]	-111.58	-468.54	-9.27	4.64	-25.92	-219.03
215	cool/10	J[217]	-111.58	-468.54	-9.27	4.64	-12.01	483.79
216	cool/10	I[200]	-87.09	-383.27	-9.39	5.68	-29.58	-179.06
216	cool/10	J[218]	-87.09	-383.27	-9.39	5.68	-15.49	395.84
217	cool/10	I[201]	-79.45	-298.1	-9.19	5.38	-28.98	-139.17
217	cool/10	J[219]	-79.45	-298.1	-9.19	5.38	-15.19	307.98
218	cool/10	I[202]	-74.81	-212.91	-9.08	4.26	-27.78	-99.34
218	cool/10	J[220]	-74.81	-212.91	-9.08	4.26	-14.16	220.02
219	cool/10	I[203]	-72.06	-127.73	-9.03	2.7	-26.88	-59.58
219	cool/10	J[221]	-72.06	-127.73	-9.03	2.7	-13.33	132.01
220	cool/10	I[204]	-70.84	-42.57	-9	0.92	-26.42	-19.85
220	cool/10	J[222]	-70.84	-42.57	-9	0.92	-12.91	44
221	cool/10	I[205]	-70.84	42.57	-9	-0.92	-26.42	19.85
221	cool/10	J[223]	-70.84	42.57	-9	-0.92	-12.91	-44
222	cool/10	I[206]	-72.06	127.73	-9.03	-2.7	-26.88	59.58
222	cool/10	J[224]	-72.06	127.73	-9.03	-2.7	-13.33	-132.01
223	cool/10	I[207]	-74.81	212.91	-9.08	-4.26	-27.78	99.34
223	cool/10	J[225]	-74.81	212.91	-9.08	-4.26	-14.16	-220.02
224	cool/10	I[208]	-79.45	298.1	-9.19	-5.38	-28.98	139.17
224	cool/10	J[226]	-79.45	298.1	-9.19	-5.38	-15.19	-307.98
225	cool/10	I[209]	-87.09	383.27	-9.39	-5.68	-29.58	179.06
225	cool/10	J[227]	-87.09	383.27	-9.39	-5.68	-15.49	-395.84
226	cool/10	I[210]	-111.58	468.54	-9.27	-4.64	-25.92	219.03
226	cool/10	J[228]	-111.58	468.54	-9.27	-4.64	-12.01	-483.79
227	cool/10	I[211]	-219.85	554.58	-9.35	-0.18	-6.94	259.49
227	cool/10	J[229]	-219.85	554.58	-9.35	-0.18	7.1	-572.38
228	cool/10	I[212]	-354.42	623.96	-33.84	8.7	25.45	295.26
228	cool/10	J[230]	-354.42	623.96	-33.84	8.7	76.2	-640.67
229	cool/10	I[213]	425.77	-1846.46	237.5	175.99	311.83	-1429.15
229	cool/10	J[353]	425.77	-1846.46	237.5	175.99	74.32	417.32
230	cool/10	I[214]	425.77	1846.46	237.5	-175.99	311.83	1429.15
230	cool/10	J[370]	425.77	1846.46	237.5	-175.99	74.32	-417.32
231	cool/10	I[215]	-152.96	-1709.45	-96.92	65.13	-27.93	-1298.27
231	cool/10	J[354]	-152.96	-1709.45	-96.92	65.13	68.99	411.19
232	cool/10	I[216]	-87.57	-1270.97	-29.76	48.67	-54.91	-962.52
232	cool/10	J[355]	-87.57	-1270.97	-29.76	48.67	-25.15	308.45
233	cool/10	I[217]	-42.88	-968.78	-24.81	33.71	-44.75	-733.44
233	cool/10	J[356]	-42.88	-968.78	-24.81	33.71	-19.94	235.34
234	cool/10	I[218]	-34.23	-738.96	-20.37	24.12	-40.42	-559.01
234	cool/10	J[357]	-34.23	-738.96	-20.37	24.12	-20.05	179.95
235	cool/10	I[219]	-29.83	-549.65	-17.86	17.15	-38.38	-415.62
235	cool/10	J[358]	-29.83	-549.65	-17.86	17.15	-20.52	134.04
236	cool/10	I[220]	-27.24	-381.81	-16.49	11.57	-36.35	-288.65

236	cool/10	J[359]	-27.24	-381.81	-16.49	11.57	-19.86	93.17
237	cool/10	I[221]	-25.84	-225.41	-15.79	6.71	-34.89	-170.39
237	cool/10	J[360]	-25.84	-225.41	-15.79	6.71	-19.1	55.02
238	cool/10	I[222]	-25.24	-74.58	-15.49	2.2	-34.18	-56.37
238	cool/10	J[361]	-25.24	-74.58	-15.49	2.2	-18.69	18.21
239	cool/10	I[223]	-25.24	74.58	-15.49	-2.2	-34.18	56.37
239	cool/10	J[362]	-25.24	74.58	-15.49	-2.2	-18.69	-18.21
240	cool/10	I[224]	-25.84	225.41	-15.79	-6.71	-34.89	170.39
240	cool/10	J[363]	-25.84	225.41	-15.79	-6.71	-19.1	-55.02
241	cool/10	I[225]	-27.24	381.81	-16.49	-11.57	-36.35	288.65
241	cool/10	J[364]	-27.24	381.81	-16.49	-11.57	-19.86	-93.17
242	cool/10	I[226]	-29.83	549.65	-17.86	-17.15	-38.38	415.62
242	cool/10	J[365]	-29.83	549.65	-17.86	-17.15	-20.52	-134.04
243	cool/10	I[227]	-34.23	738.96	-20.37	-24.12	-40.42	559.01
243	cool/10	J[366]	-34.23	738.96	-20.37	-24.12	-20.05	-179.95
244	cool/10	I[228]	-42.88	968.78	-24.81	-33.71	-44.75	733.44
244	cool/10	J[367]	-42.88	968.78	-24.81	-33.71	-19.94	-235.34
245	cool/10	I[229]	-87.57	1270.97	-29.76	-48.67	-54.91	962.52
245	cool/10	J[368]	-87.57	1270.97	-29.76	-48.67	-25.15	-308.45
246	cool/10	I[230]	-152.96	1709.45	-96.92	-65.13	-27.93	1298.27
246	cool/10	J[369]	-152.96	1709.45	-96.92	-65.13	68.99	-411.19
247	cool/10	I[1]	1145.21	-425.77	-138.31	218.1	60.16	-1308.54
247	cool/10	J[231]	1145.21	-425.77	-138.31	218.1	365.25	-369.34
248	cool/10	I[19]	1145.21	425.77	-138.31	-218.1	60.16	1308.54
248	cool/10	J[232]	1145.21	425.77	-138.31	-218.1	365.25	369.34
249	cool/10	I[231]	1145.21	-425.77	-138.31	218.1	365.25	-369.34
249	cool/10	J[37]	1145.21	-425.77	-138.31	218.1	670.34	569.85
250	cool/10	I[232]	1145.21	425.77	-138.31	-218.1	365.25	369.34
250	cool/10	J[53]	1145.21	425.77	-138.31	-218.1	670.34	-569.85
251	cool/10	I[37]	2854.67	-272.81	-199.79	38.26	-92.09	-696.06
251	cool/10	J[233]	2854.67	-272.81	-199.79	38.26	348.64	-94.27
252	cool/10	I[53]	2854.67	272.81	-199.79	-38.26	-92.09	696.06
252	cool/10	J[234]	2854.67	272.81	-199.79	-38.26	348.64	94.27
253	cool/10	I[233]	2854.67	-272.81	-199.79	38.26	348.64	-94.27
253	cool/10	J[38]	2854.67	-272.81	-199.79	38.26	789.36	507.52
254	cool/10	I[234]	2854.67	272.81	-199.79	-38.26	348.64	94.27
254	cool/10	J[54]	2854.67	272.81	-199.79	-38.26	789.36	-507.52
255	cool/10	I[38]	4125.64	-185.25	-177.98	12.81	222.25	-436.42
255	cool/10	J[235]	4125.64	-185.25	-177.98	12.81	614.85	-27.78
256	cool/10	I[54]	4125.64	185.25	-177.98	-12.81	222.25	436.42
256	cool/10	J[236]	4125.64	185.25	-177.98	-12.81	614.85	27.78
257	cool/10	I[235]	4125.64	-185.25	-177.98	12.81	614.85	-27.78
257	cool/10	J[39]	4125.64	-185.25	-177.98	12.81	1007.46	380.85
258	cool/10	I[236]	4125.64	185.25	-177.98	-12.81	614.85	27.78
258	cool/10	J[55]	4125.64	185.25	-177.98	-12.81	1007.46	-380.85
259	cool/10	I[39]	5094.42	-142.37	-150.76	2.85	578.57	-338.88
259	cool/10	J[237]	5094.42	-142.37	-150.76	2.85	911.14	-24.83
260	cool/10	I[55]	5094.42	142.37	-150.76	-2.85	578.57	338.88
260	cool/10	J[238]	5094.42	142.37	-150.76	-2.85	911.14	24.83
261	cool/10	I[237]	5094.42	-142.37	-150.76	2.85	911.14	-24.83
261	cool/10	J[40]	5094.42	-142.37	-150.76	2.85	1243.7	289.22
262	cool/10	I[238]	5094.42	142.37	-150.76	-2.85	911.14	24.83
262	cool/10	J[56]	5094.42	142.37	-150.76	-2.85	1243.7	-289.22
263	cool/10	I[40]	5833.37	-108.14	-121.31	-1.25	918.15	-260.21
263	cool/10	J[239]	5833.37	-108.14	-121.31	-1.25	1185.75	-21.66
264	cool/10	I[56]	5833.37	108.14	-121.31	1.25	918.15	260.21
264	cool/10	J[240]	5833.37	108.14	-121.31	1.25	1185.75	21.66
265	cool/10	I[239]	5833.37	-108.14	-121.31	-1.25	1185.75	-21.66
265	cool/10	J[41]	5833.37	-108.14	-121.31	-1.25	1453.35	216.89
266	cool/10	I[240]	5833.37	108.14	-121.31	1.25	1185.75	21.66
266	cool/10	J[57]	5833.37	108.14	-121.31	1.25	1453.35	-216.89

267	cool/10	I[41]	6383.03	-78.31	-91.2	-1.82	1212	-191.97
267	cool/10	J[241]	6383.03	-78.31	-91.2	-1.82	1413.18	-19.23
268	cool/10	I[57]	6383.03	78.31	-91.2	1.82	1212	191.97
268	cool/10	J[242]	6383.03	78.31	-91.2	1.82	1413.18	19.23
269	cool/10	I[241]	6383.03	-78.31	-91.2	-1.82	1413.18	-19.23
269	cool/10	J[42]	6383.03	-78.31	-91.2	-1.82	1614.37	153.52
270	cool/10	I[242]	6383.03	78.31	-91.2	1.82	1413.18	19.23
270	cool/10	J[58]	6383.03	78.31	-91.2	1.82	1614.37	-153.52
271	cool/10	I[42]	6764.84	-51.07	-60.87	-1.32	1447.06	-130.55
271	cool/10	J[243]	6764.84	-51.07	-60.87	-1.32	1581.33	-17.89
272	cool/10	I[58]	6764.84	51.07	-60.87	1.32	1447.06	130.55
272	cool/10	J[244]	6764.84	51.07	-60.87	1.32	1581.33	17.89
273	cool/10	I[243]	6764.84	-51.07	-60.87	-1.32	1581.33	-17.89
273	cool/10	J[43]	6764.84	-51.07	-60.87	-1.32	1715.6	94.77
274	cool/10	I[244]	6764.84	51.07	-60.87	1.32	1581.33	17.89
274	cool/10	J[59]	6764.84	51.07	-60.87	1.32	1715.6	-94.77
275	cool/10	I[43]	6990.24	-25.24	-30.45	-0.65	1616.94	-72.95
275	cool/10	J[245]	6990.24	-25.24	-30.45	-0.65	1684.11	-17.28
276	cool/10	I[59]	6990.24	25.24	-30.45	0.65	1616.94	72.95
276	cool/10	J[246]	6990.24	25.24	-30.45	0.65	1684.11	17.28
277	cool/10	I[245]	6990.24	-25.24	-30.45	-0.65	1684.11	-17.28
277	cool/10	J[44]	6990.24	-25.24	-30.45	-0.65	1751.28	38.39
278	cool/10	I[246]	6990.24	25.24	-30.45	0.65	1684.11	17.28
278	cool/10	J[60]	6990.24	25.24	-30.45	0.65	1751.28	-38.39
279	cool/10	I[44]	7064.82	0	0	0	1718.66	-17.11
279	cool/10	J[247]	7064.82	0	0	0	1718.66	-17.11
280	cool/10	I[60]	7064.82	0	0	0	1718.66	17.11
280	cool/10	J[248]	7064.82	0	0	0	1718.66	17.11
281	cool/10	I[247]	7064.82	0	0	0	1718.66	-17.11
281	cool/10	J[45]	7064.82	0	0	0	1718.66	-17.11
282	cool/10	I[248]	7064.82	0	0	0	1718.66	17.11
282	cool/10	J[61]	7064.82	0	0	0	1718.66	17.11
283	cool/10	I[45]	6990.24	25.24	30.45	0.65	1751.28	38.39
283	cool/10	J[249]	6990.24	25.24	30.45	0.65	1684.11	-17.28
284	cool/10	I[61]	6990.24	-25.24	30.45	-0.65	1751.28	-38.39
284	cool/10	J[250]	6990.24	-25.24	30.45	-0.65	1684.11	17.28
285	cool/10	I[249]	6990.24	25.24	30.45	0.65	1684.11	-17.28
285	cool/10	J[46]	6990.24	25.24	30.45	0.65	1616.94	-72.95
286	cool/10	I[250]	6990.24	-25.24	30.45	-0.65	1684.11	17.28
286	cool/10	J[62]	6990.24	-25.24	30.45	-0.65	1616.94	72.95
287	cool/10	I[46]	6764.84	51.07	60.87	1.32	1715.6	94.77
287	cool/10	J[251]	6764.84	51.07	60.87	1.32	1581.33	-17.89
288	cool/10	I[62]	6764.84	-51.07	60.87	-1.32	1715.6	-94.77
288	cool/10	J[252]	6764.84	-51.07	60.87	-1.32	1581.33	17.89
289	cool/10	I[251]	6764.84	51.07	60.87	1.32	1581.33	-17.89
289	cool/10	J[47]	6764.84	51.07	60.87	1.32	1447.06	-130.55
290	cool/10	I[252]	6764.84	-51.07	60.87	-1.32	1581.33	17.89
290	cool/10	J[63]	6764.84	-51.07	60.87	-1.32	1447.06	130.55
291	cool/10	I[47]	6383.03	78.31	91.2	1.82	1614.37	153.52
291	cool/10	J[253]	6383.03	78.31	91.2	1.82	1413.18	-19.23
292	cool/10	I[63]	6383.03	-78.31	91.2	-1.82	1614.37	-153.52
292	cool/10	J[254]	6383.03	-78.31	91.2	-1.82	1413.18	19.23
293	cool/10	I[253]	6383.03	78.31	91.2	1.82	1413.18	-19.23
293	cool/10	J[48]	6383.03	78.31	91.2	1.82	1212	-191.97
294	cool/10	I[254]	6383.03	-78.31	91.2	-1.82	1413.18	19.23
294	cool/10	J[64]	6383.03	-78.31	91.2	-1.82	1212	191.97
295	cool/10	I[48]	5833.37	108.14	121.31	1.25	1453.35	216.89
295	cool/10	J[255]	5833.37	108.14	121.31	1.25	1185.75	-21.66
296	cool/10	I[64]	5833.37	-108.14	121.31	-1.25	1453.35	-216.89
296	cool/10	J[256]	5833.37	-108.14	121.31	-1.25	1185.75	21.66
297	cool/10	I[255]	5833.37	108.14	121.31	1.25	1185.75	-21.66

297	cool/10	J[49]	5833.37	108.14	121.31	1.25	918.15	-260.21
298	cool/10	I[256]	5833.37	-108.14	121.31	-1.25	1185.75	21.66
298	cool/10	J[65]	5833.37	-108.14	121.31	-1.25	918.15	260.21
299	cool/10	I[49]	5094.42	142.37	150.76	-2.85	1243.7	289.22
299	cool/10	J[257]	5094.42	142.37	150.76	-2.85	911.14	-24.83
300	cool/10	I[65]	5094.42	-142.37	150.76	2.85	1243.7	-289.22
300	cool/10	J[258]	5094.42	-142.37	150.76	2.85	911.14	24.83
301	cool/10	I[257]	5094.42	142.37	150.76	-2.85	911.14	-24.83
301	cool/10	J[50]	5094.42	142.37	150.76	-2.85	578.57	-338.88
302	cool/10	I[258]	5094.42	-142.37	150.76	2.85	911.14	24.83
302	cool/10	J[66]	5094.42	-142.37	150.76	2.85	578.57	338.88
303	cool/10	I[50]	4125.64	185.25	177.98	-12.81	1007.46	380.85
303	cool/10	J[259]	4125.64	185.25	177.98	-12.81	614.85	-27.78
304	cool/10	I[66]	4125.64	-185.25	177.98	12.81	1007.46	-380.85
304	cool/10	J[260]	4125.64	-185.25	177.98	12.81	614.85	27.78
305	cool/10	I[259]	4125.64	185.25	177.98	-12.81	614.85	-27.78
305	cool/10	J[51]	4125.64	185.25	177.98	-12.81	222.25	-436.42
306	cool/10	I[260]	4125.64	-185.25	177.98	12.81	614.85	27.78
306	cool/10	J[67]	4125.64	-185.25	177.98	12.81	222.25	436.42
307	cool/10	I[51]	2854.67	272.81	199.79	-38.26	789.36	507.52
307	cool/10	J[261]	2854.67	272.81	199.79	-38.26	348.64	-94.27
308	cool/10	I[67]	2854.67	-272.81	199.79	38.26	789.36	-507.52
308	cool/10	J[262]	2854.67	-272.81	199.79	38.26	348.64	94.27
309	cool/10	I[261]	2854.67	272.81	199.79	-38.26	348.64	-94.27
309	cool/10	J[52]	2854.67	272.81	199.79	-38.26	-92.09	-696.06
310	cool/10	I[262]	2854.67	-272.81	199.79	38.26	348.64	94.27
310	cool/10	J[68]	2854.67	-272.81	199.79	38.26	-92.09	696.06
311	cool/10	I[52]	1145.21	425.77	138.31	-218.1	670.34	569.85
311	cool/10	J[263]	1145.21	425.77	138.31	-218.1	365.25	-369.34
312	cool/10	I[68]	1145.21	-425.77	138.31	218.1	670.34	-569.85
312	cool/10	J[264]	1145.21	-425.77	138.31	218.1	365.25	369.34
313	cool/10	I[263]	1145.21	425.77	138.31	-218.1	365.25	-369.34
313	cool/10	J[18]	1145.21	425.77	138.31	-218.1	60.16	-1308.54
314	cool/10	I[264]	1145.21	-425.77	138.31	218.1	365.25	369.34
314	cool/10	J[36]	1145.21	-425.77	138.31	218.1	60.16	1308.54
315	cool/10	I[1]	0	0	0	0	0	0
315	cool/10	J[265]	0	0	0	0	0	0
316	cool/10	I[18]	0	0	0	0	0	0
316	cool/10	J[266]	0	0	0	0	0	0
317	cool/10	I[37]	0	0	0	0	0	0
317	cool/10	J[267]	0	0	0	0	0	0
318	cool/10	I[38]	0	0	0	0	0	0
318	cool/10	J[268]	0	0	0	0	0	0
319	cool/10	I[39]	0	0	0	0	0	0
319	cool/10	J[269]	0	0	0	0	0	0
320	cool/10	I[40]	0	0	0	0	0	0
320	cool/10	J[270]	0	0	0	0	0	0
321	cool/10	I[41]	0	0	0	0	0	0
321	cool/10	J[271]	0	0	0	0	0	0
322	cool/10	I[42]	0	0	0	0	0	0
322	cool/10	J[272]	0	0	0	0	0	0
323	cool/10	I[43]	0	0	0	0	0	0
323	cool/10	J[273]	0	0	0	0	0	0
324	cool/10	I[44]	0	0	0	0	0	0
324	cool/10	J[274]	0	0	0	0	0	0
325	cool/10	I[45]	0	0	0	0	0	0
325	cool/10	J[275]	0	0	0	0	0	0
326	cool/10	I[46]	0	0	0	0	0	0
326	cool/10	J[276]	0	0	0	0	0	0
327	cool/10	I[47]	0	0	0	0	0	0
327	cool/10	J[277]	0	0	0	0	0	0

328	cool/10	I[48]	0	0	0	0	0	0
328	cool/10	J[278]	0	0	0	0	0	0
329	cool/10	I[49]	0	0	0	0	0	0
329	cool/10	J[279]	0	0	0	0	0	0
330	cool/10	I[50]	0	0	0	0	0	0
330	cool/10	J[280]	0	0	0	0	0	0
331	cool/10	I[51]	0	0	0	0	0	0
331	cool/10	J[281]	0	0	0	0	0	0
332	cool/10	I[52]	0	0	0	0	0	0
332	cool/10	J[282]	0	0	0	0	0	0
333	cool/10	I[231]	0	0	0	0	0	0
333	cool/10	J[283]	0	0	0	0	0	0
334	cool/10	I[233]	0	0	0	0	0	0
334	cool/10	J[284]	0	0	0	0	0	0
335	cool/10	I[235]	0	0	0	0	0	0
335	cool/10	J[285]	0	0	0	0	0	0
336	cool/10	I[237]	0	0	0	0	0	0
336	cool/10	J[286]	0	0	0	0	0	0
337	cool/10	I[239]	0	0	0	0	0	0
337	cool/10	J[287]	0	0	0	0	0	0
338	cool/10	I[241]	0	0	0	0	0	0
338	cool/10	J[288]	0	0	0	0	0	0
339	cool/10	I[243]	0	0	0	0	0	0
339	cool/10	J[289]	0	0	0	0	0	0
340	cool/10	I[245]	0	0	0	0	0	0
340	cool/10	J[290]	0	0	0	0	0	0
341	cool/10	I[247]	0	0	0	0	0	0
341	cool/10	J[291]	0	0	0	0	0	0
342	cool/10	I[249]	0	0	0	0	0	0
342	cool/10	J[292]	0	0	0	0	0	0
343	cool/10	I[251]	0	0	0	0	0	0
343	cool/10	J[293]	0	0	0	0	0	0
344	cool/10	I[253]	0	0	0	0	0	0
344	cool/10	J[294]	0	0	0	0	0	0
345	cool/10	I[255]	0	0	0	0	0	0
345	cool/10	J[295]	0	0	0	0	0	0
346	cool/10	I[257]	0	0	0	0	0	0
346	cool/10	J[296]	0	0	0	0	0	0
347	cool/10	I[259]	0	0	0	0	0	0
347	cool/10	J[297]	0	0	0	0	0	0
348	cool/10	I[261]	0	0	0	0	0	0
348	cool/10	J[298]	0	0	0	0	0	0
349	cool/10	I[263]	0	0	0	0	0	0
349	cool/10	J[299]	0	0	0	0	0	0
350	cool/10	I[19]	0	0	0	0	0	0
350	cool/10	J[300]	0	0	0	0	0	0
351	cool/10	I[36]	0	0	0	0	0	0
351	cool/10	J[301]	0	0	0	0	0	0
352	cool/10	I[53]	0	0	0	0	0	0
352	cool/10	J[302]	0	0	0	0	0	0
353	cool/10	I[54]	0	0	0	0	0	0
353	cool/10	J[303]	0	0	0	0	0	0
354	cool/10	I[55]	0	0	0	0	0	0
354	cool/10	J[304]	0	0	0	0	0	0
355	cool/10	I[56]	0	0	0	0	0	0
355	cool/10	J[305]	0	0	0	0	0	0
356	cool/10	I[57]	0	0	0	0	0	0
356	cool/10	J[306]	0	0	0	0	0	0
357	cool/10	I[58]	0	0	0	0	0	0
357	cool/10	J[307]	0	0	0	0	0	0
358	cool/10	I[59]	0	0	0	0	0	0

358	cool/10	J[308]	0	0	0	0	0	0
359	cool/10	I[60]	0	0	0	0	0	0
359	cool/10	J[309]	0	0	0	0	0	0
360	cool/10	I[61]	0	0	0	0	0	0
360	cool/10	J[310]	0	0	0	0	0	0
361	cool/10	I[62]	0	0	0	0	0	0
361	cool/10	J[311]	0	0	0	0	0	0
362	cool/10	I[63]	0	0	0	0	0	0
362	cool/10	J[312]	0	0	0	0	0	0
363	cool/10	I[64]	0	0	0	0	0	0
363	cool/10	J[313]	0	0	0	0	0	0
364	cool/10	I[65]	0	0	0	0	0	0
364	cool/10	J[314]	0	0	0	0	0	0
365	cool/10	I[66]	0	0	0	0	0	0
365	cool/10	J[315]	0	0	0	0	0	0
366	cool/10	I[67]	0	0	0	0	0	0
366	cool/10	J[316]	0	0	0	0	0	0
367	cool/10	I[68]	0	0	0	0	0	0
367	cool/10	J[317]	0	0	0	0	0	0
368	cool/10	I[232]	0	0	0	0	0	0
368	cool/10	J[318]	0	0	0	0	0	0
369	cool/10	I[234]	0	0	0	0	0	0
369	cool/10	J[319]	0	0	0	0	0	0
370	cool/10	I[236]	0	0	0	0	0	0
370	cool/10	J[320]	0	0	0	0	0	0
371	cool/10	I[238]	0	0	0	0	0	0
371	cool/10	J[321]	0	0	0	0	0	0
372	cool/10	I[240]	0	0	0	0	0	0
372	cool/10	J[322]	0	0	0	0	0	0
373	cool/10	I[242]	0	0	0	0	0	0
373	cool/10	J[323]	0	0	0	0	0	0
374	cool/10	I[244]	0	0	0	0	0	0
374	cool/10	J[324]	0	0	0	0	0	0
375	cool/10	I[246]	0	0	0	0	0	0
375	cool/10	J[325]	0	0	0	0	0	0
376	cool/10	I[248]	0	0	0	0	0	0
376	cool/10	J[326]	0	0	0	0	0	0
377	cool/10	I[250]	0	0	0	0	0	0
377	cool/10	J[327]	0	0	0	0	0	0
378	cool/10	I[252]	0	0	0	0	0	0
378	cool/10	J[328]	0	0	0	0	0	0
379	cool/10	I[254]	0	0	0	0	0	0
379	cool/10	J[329]	0	0	0	0	0	0
380	cool/10	I[256]	0	0	0	0	0	0
380	cool/10	J[330]	0	0	0	0	0	0
381	cool/10	I[258]	0	0	0	0	0	0
381	cool/10	J[331]	0	0	0	0	0	0
382	cool/10	I[260]	0	0	0	0	0	0
382	cool/10	J[332]	0	0	0	0	0	0
383	cool/10	I[262]	0	0	0	0	0	0
383	cool/10	J[333]	0	0	0	0	0	0
384	cool/10	I[264]	0	0	0	0	0	0
384	cool/10	J[334]	0	0	0	0	0	0
385	cool/10	I[69]	-1235.75	-644.33	-139.34	11.07	-378.61	-2047.3
385	cool/10	J[71]	-1235.75	-644.33	-139.34	11.07	236.12	795.35
386	cool/10	I[105]	-452.3	-463.43	-72.67	6.33	-222.85	-1390.34
386	cool/10	J[107]	-452.3	-463.43	-72.67	6.33	97.75	654.22
387	cool/10	I[141]	-316.82	0	-50.99	0	-170.02	0
387	cool/10	J[143]	-316.82	0	-50.99	0	54.92	0
388	cool/10	I[177]	-452.3	463.43	-72.67	-6.33	-222.85	1390.34
388	cool/10	J[179]	-452.3	463.43	-72.67	-6.33	97.75	-654.22

389	cool/10	I[213]	-1235.75	644.33	-139.34	-11.07	-378.61	2047.3
389	cool/10	J[215]	-1235.75	644.33	-139.34	-11.07	236.12	-795.35
390	cool/10	I[71]	-2321.25	-442.87	-76.26	1.03	-197.08	-1143.59
390	cool/10	J[72]	-2321.25	-442.87	-76.26	1.03	139.35	810.27
391	cool/10	I[107]	-899.67	-338.37	-46.02	0.24	-123.7	-813.96
391	cool/10	J[108]	-899.67	-338.37	-46.02	0.24	79.34	678.86
392	cool/10	I[143]	-669.99	0	-36.61	0	-102.47	0
392	cool/10	J[144]	-669.99	0	-36.61	0	59.02	0
393	cool/10	I[179]	-899.67	338.37	-46.02	-0.24	-123.7	813.96
393	cool/10	J[180]	-899.67	338.37	-46.02	-0.24	79.34	-678.86
394	cool/10	I[215]	-2321.25	442.87	-76.26	-1.03	-197.08	1143.59
394	cool/10	J[216]	-2321.25	442.87	-76.26	-1.03	139.35	-810.27
395	cool/10	I[72]	-3037.65	-310.59	-55.85	0.82	-146.78	-724.62
395	cool/10	J[73]	-3037.65	-310.59	-55.85	0.82	99.62	645.62
396	cool/10	I[108]	-1287.96	-276.43	-39.24	0.4	-106.04	-640.16
396	cool/10	J[109]	-1287.96	-276.43	-39.24	0.4	67.08	579.38
397	cool/10	I[144]	-1002.56	0	-31.46	0	-87.93	0
397	cool/10	J[145]	-1002.56	0	-31.46	0	50.87	0
398	cool/10	I[180]	-1287.96	276.43	-39.24	-0.4	-106.04	640.16
398	cool/10	J[181]	-1287.96	276.43	-39.24	-0.4	67.08	-579.38
399	cool/10	I[216]	-3037.65	310.59	-55.85	-0.82	-146.78	724.62
399	cool/10	J[217]	-3037.65	310.59	-55.85	-0.82	99.62	-645.62
400	cool/10	I[73]	-3537.88	-241.89	-40.32	0.18	-104.96	-571.6
400	cool/10	J[376]	-3537.88	-241.89	-40.32	0.18	-16.03	-38.02
401	cool/10	I[109]	-1613.89	-228.64	-32.32	0.1	-85.42	-537.36
401	cool/10	J[377]	-1613.89	-228.64	-32.32	0.1	-14.12	-33.01
402	cool/10	I[145]	-1287.78	0	-26.75	0	-72.56	0
402	cool/10	J[378]	-1287.78	0	-26.75	0	-13.55	0
403	cool/10	I[181]	-1613.89	228.64	-32.32	-0.1	-85.42	537.36
403	cool/10	J[379]	-1613.89	228.64	-32.32	-0.1	-14.12	33.01
404	cool/10	I[217]	-3537.88	241.89	-40.32	-0.18	-104.96	571.6
404	cool/10	J[380]	-3537.88	241.89	-40.32	-0.18	-16.03	38.02
405	cool/10	I[74]	-3893.57	-189.03	-29.33	-0.07	-74.81	-459.3
405	cool/10	J[75]	-3893.57	-189.03	-29.33	-0.07	54.61	374.64
406	cool/10	I[110]	-1878.82	-184.11	-25.55	-0.04	-65.42	-444.12
406	cool/10	J[111]	-1878.82	-184.11	-25.55	-0.04	47.31	368.12
407	cool/10	I[146]	-1524.47	0	-21.51	0	-56.02	0
407	cool/10	J[147]	-1524.47	0	-21.51	0	38.89	0
408	cool/10	I[182]	-1878.82	184.11	-25.55	0.04	-65.42	444.12
408	cool/10	J[183]	-1878.82	184.11	-25.55	0.04	47.31	-368.12
409	cool/10	I[218]	-3893.57	189.03	-29.33	0.07	-74.81	459.3
409	cool/10	J[219]	-3893.57	189.03	-29.33	0.07	54.61	-374.64
410	cool/10	I[75]	-4145.13	-139.41	-20.66	-0.09	-51.12	-348.95
410	cool/10	J[76]	-4145.13	-139.41	-20.66	-0.09	40.05	266.07
411	cool/10	I[111]	-2083.8	-138.66	-19.01	-0.05	-46.95	-345.28
411	cool/10	J[112]	-2083.8	-138.66	-19.01	-0.05	36.93	266.44
412	cool/10	I[147]	-1710.69	0	-16.2	0	-40.33	0
412	cool/10	J[148]	-1710.69	0	-16.2	0	31.14	0
413	cool/10	I[183]	-2083.8	138.66	-19.01	0.05	-46.95	345.28
413	cool/10	J[184]	-2083.8	138.66	-19.01	0.05	36.93	-266.44
414	cool/10	I[219]	-4145.13	139.41	-20.66	0.09	-51.12	348.95
414	cool/10	J[220]	-4145.13	139.41	-20.66	0.09	40.05	-266.07
415	cool/10	I[76]	-4314.03	-91.83	-13.25	-0.06	-31.54	-242.6
415	cool/10	J[77]	-4314.03	-91.83	-13.25	-0.06	26.93	162.54
416	cool/10	I[112]	-2229.64	-92.58	-12.62	-0.03	-29.89	-243.87
416	cool/10	J[113]	-2229.64	-92.58	-12.62	-0.03	25.77	164.55
417	cool/10	I[148]	-1844.83	0	-10.83	0	-25.59	0
417	cool/10	J[149]	-1844.83	0	-10.83	0	22.19	0
418	cool/10	I[184]	-2229.64	92.58	-12.62	0.03	-29.89	243.87
418	cool/10	J[185]	-2229.64	92.58	-12.62	0.03	25.77	-164.55
419	cool/10	I[220]	-4314.03	91.83	-13.25	0.06	-31.54	242.6

419	cool/10	J[221]	-4314.03	91.83	-13.25	0.06	26.93	-162.54
420	cool/10	I[77]	-4411.71	-45.61	-6.49	-0.03	-14.68	-139.86
420	cool/10	J[78]	-4411.71	-45.61	-6.49	-0.03	13.94	61.34
421	cool/10	I[113]	-2316.92	-46.31	-6.29	-0.02	-14.14	-141.89
421	cool/10	J[114]	-2316.92	-46.31	-6.29	-0.02	13.61	62.43
422	cool/10	I[149]	-1925.73	0	-5.43	0	-11.9	0
422	cool/10	J[150]	-1925.73	0	-5.43	0	12.03	0
423	cool/10	I[185]	-2316.92	46.31	-6.29	0.02	-14.14	141.89
423	cool/10	J[186]	-2316.92	46.31	-6.29	0.02	13.61	-62.43
424	cool/10	I[221]	-4411.71	45.61	-6.49	0.03	-14.68	139.86
424	cool/10	J[222]	-4411.71	45.61	-6.49	0.03	13.94	-61.34
425	cool/10	I[78]	-4443.72	0	0	0	0.27	-39.04
425	cool/10	J[371]	-4443.72	0	0	0	0.27	-39.04
426	cool/10	I[114]	-2345.97	0	0	0	0.34	-39.76
426	cool/10	J[372]	-2345.97	0	0	0	0.34	-39.76
427	cool/10	I[150]	-1952.77	0	0	0	0.66	0
427	cool/10	J[373]	-1952.77	0	0	0	0.66	0
428	cool/10	I[186]	-2345.97	0	0	0	0.34	39.76
428	cool/10	J[374]	-2345.97	0	0	0	0.34	39.76
429	cool/10	I[222]	-4443.72	0	0	0	0.27	39.04
429	cool/10	J[375]	-4443.72	0	0	0	0.27	39.04
430	cool/10	I[79]	-4411.71	45.61	6.49	0.03	13.94	61.34
430	cool/10	J[80]	-4411.71	45.61	6.49	0.03	-14.68	-139.86
431	cool/10	I[115]	-2316.92	46.31	6.29	0.02	13.61	62.43
431	cool/10	J[116]	-2316.92	46.31	6.29	0.02	-14.14	-141.89
432	cool/10	I[151]	-1925.73	0	5.43	0	12.03	0
432	cool/10	J[152]	-1925.73	0	5.43	0	-11.9	0
433	cool/10	I[187]	-2316.92	-46.31	6.29	-0.02	13.61	-62.43
433	cool/10	J[188]	-2316.92	-46.31	6.29	-0.02	-14.14	141.89
434	cool/10	I[223]	-4411.71	-45.61	6.49	-0.03	13.94	-61.34
434	cool/10	J[224]	-4411.71	-45.61	6.49	-0.03	-14.68	139.86
435	cool/10	I[80]	-4314.03	91.83	13.25	0.06	26.93	162.54
435	cool/10	J[81]	-4314.03	91.83	13.25	0.06	-31.54	-242.6
436	cool/10	I[116]	-2229.64	92.58	12.62	0.03	25.77	164.55
436	cool/10	J[117]	-2229.64	92.58	12.62	0.03	-29.89	-243.87
437	cool/10	I[152]	-1844.83	0	10.83	0	22.19	0
437	cool/10	J[153]	-1844.83	0	10.83	0	-25.59	0
438	cool/10	I[188]	-2229.64	-92.58	12.62	-0.03	25.77	-164.55
438	cool/10	J[189]	-2229.64	-92.58	12.62	-0.03	-29.89	243.87
439	cool/10	I[224]	-4314.03	-91.83	13.25	-0.06	26.93	-162.54
439	cool/10	J[225]	-4314.03	-91.83	13.25	-0.06	-31.54	242.6
440	cool/10	I[81]	-4145.13	139.41	20.66	0.09	40.05	266.07
440	cool/10	J[82]	-4145.13	139.41	20.66	0.09	-51.12	-348.95
441	cool/10	I[117]	-2083.8	138.66	19.01	0.05	36.93	266.44
441	cool/10	J[118]	-2083.8	138.66	19.01	0.05	-46.95	-345.28
442	cool/10	I[153]	-1710.69	0	16.2	0	31.14	0
442	cool/10	J[154]	-1710.69	0	16.2	0	-40.33	0
443	cool/10	I[189]	-2083.8	-138.66	19.01	-0.05	36.93	-266.44
443	cool/10	J[190]	-2083.8	-138.66	19.01	-0.05	-46.95	345.28
444	cool/10	I[225]	-4145.13	-139.41	20.66	-0.09	40.05	-266.07
444	cool/10	J[226]	-4145.13	-139.41	20.66	-0.09	-51.12	348.95
445	cool/10	I[82]	-3893.57	189.03	29.33	0.07	54.61	374.64
445	cool/10	J[83]	-3893.57	189.03	29.33	0.07	-74.81	-459.3
446	cool/10	I[118]	-1878.82	184.11	25.55	0.04	47.31	368.12
446	cool/10	J[119]	-1878.82	184.11	25.55	0.04	-65.42	-444.12
447	cool/10	I[154]	-1524.47	0	21.51	0	38.89	0
447	cool/10	J[155]	-1524.47	0	21.51	0	-56.02	0
448	cool/10	I[190]	-1878.82	-184.11	25.55	-0.04	47.31	-368.12
448	cool/10	J[191]	-1878.82	-184.11	25.55	-0.04	-65.42	444.12
449	cool/10	I[226]	-3893.57	-189.03	29.33	-0.07	54.61	-374.64
449	cool/10	J[227]	-3893.57	-189.03	29.33	-0.07	-74.81	459.3

450	cool/10	I[83]	-3537.88	241.89	40.32	-0.18	72.9	495.55
450	cool/10	J[381]	-3537.88	241.89	40.32	-0.18	-16.03	-38.02
451	cool/10	I[119]	-1613.89	228.64	32.32	-0.1	57.17	471.35
451	cool/10	J[382]	-1613.89	228.64	32.32	-0.1	-14.12	-33.01
452	cool/10	I[155]	-1287.78	0	26.75	0	45.47	0
452	cool/10	J[383]	-1287.78	0	26.75	0	-13.55	0
453	cool/10	I[191]	-1613.89	-228.64	32.32	0.1	57.17	-471.35
453	cool/10	J[384]	-1613.89	-228.64	32.32	0.1	-14.12	33.01
454	cool/10	I[227]	-3537.88	-241.89	40.32	0.18	72.9	-495.55
454	cool/10	J[385]	-3537.88	-241.89	40.32	0.18	-16.03	38.02
455	cool/10	I[84]	-3037.65	310.59	55.85	-0.82	99.62	645.62
455	cool/10	J[85]	-3037.65	310.59	55.85	-0.82	-146.78	-724.62
456	cool/10	I[120]	-1287.96	276.43	39.24	-0.4	67.08	579.38
456	cool/10	J[121]	-1287.96	276.43	39.24	-0.4	-106.04	-640.16
457	cool/10	I[156]	-1002.56	0	31.46	0	50.87	0
457	cool/10	J[157]	-1002.56	0	31.46	0	-87.93	0
458	cool/10	I[192]	-1287.96	-276.43	39.24	0.4	67.08	-579.38
458	cool/10	J[193]	-1287.96	-276.43	39.24	0.4	-106.04	640.16
459	cool/10	I[228]	-3037.65	-310.59	55.85	0.82	99.62	-645.62
459	cool/10	J[229]	-3037.65	-310.59	55.85	0.82	-146.78	724.62
460	cool/10	I[85]	-2321.25	442.87	76.26	-1.03	139.35	810.27
460	cool/10	J[86]	-2321.25	442.87	76.26	-1.03	-197.08	-1143.59
461	cool/10	I[121]	-899.67	338.37	46.02	-0.24	79.34	678.86
461	cool/10	J[122]	-899.67	338.37	46.02	-0.24	-123.7	-813.96
462	cool/10	I[157]	-669.99	0	36.61	0	59.02	0
462	cool/10	J[158]	-669.99	0	36.61	0	-102.47	0
463	cool/10	I[193]	-899.67	-338.37	46.02	0.24	79.34	-678.86
463	cool/10	J[194]	-899.67	-338.37	46.02	0.24	-123.7	813.96
464	cool/10	I[229]	-2321.25	-442.87	76.26	1.03	139.35	-810.27
464	cool/10	J[230]	-2321.25	-442.87	76.26	1.03	-197.08	1143.59
465	cool/10	I[86]	-1235.75	644.33	139.34	-11.07	236.12	795.35
465	cool/10	J[70]	-1235.75	644.33	139.34	-11.07	-378.61	-2047.3
466	cool/10	I[122]	-452.3	463.43	72.67	-6.33	97.75	654.22
466	cool/10	J[106]	-452.3	463.43	72.67	-6.33	-222.85	-1390.34
467	cool/10	I[158]	-316.82	0	50.99	0	54.92	0
467	cool/10	J[142]	-316.82	0	50.99	0	-170.02	0
468	cool/10	I[194]	-452.3	-463.43	72.67	6.33	97.75	-654.22
468	cool/10	J[178]	-452.3	-463.43	72.67	6.33	-222.85	1390.34
469	cool/10	I[230]	-1235.75	-644.33	139.34	11.07	236.12	-795.35
469	cool/10	J[214]	-1235.75	-644.33	139.34	11.07	-378.61	2047.3
470	cool/10	I[335]	425.77	1846.46	-237.5	-175.99	74.32	417.32
470	cool/10	J[69]	425.77	1846.46	-237.5	-175.99	311.83	-1429.15
471	cool/10	I[336]	-152.96	1709.45	96.92	-65.13	68.99	411.19
471	cool/10	J[71]	-152.96	1709.45	96.92	-65.13	-27.93	-1298.27
472	cool/10	I[337]	-87.57	1270.97	29.76	-48.67	-25.15	308.45
472	cool/10	J[72]	-87.57	1270.97	29.76	-48.67	-54.91	-962.52
473	cool/10	I[338]	-42.88	968.78	24.81	-33.71	-19.94	235.34
473	cool/10	J[73]	-42.88	968.78	24.81	-33.71	-44.75	-733.44
474	cool/10	I[339]	-34.23	738.96	20.37	-24.12	-20.05	179.95
474	cool/10	J[74]	-34.23	738.96	20.37	-24.12	-40.42	-559.01
475	cool/10	I[340]	-29.83	549.65	17.86	-17.15	-20.52	134.04
475	cool/10	J[75]	-29.83	549.65	17.86	-17.15	-38.38	-415.62
476	cool/10	I[341]	-27.24	381.81	16.49	-11.57	-19.86	93.17
476	cool/10	J[76]	-27.24	381.81	16.49	-11.57	-36.35	-288.65
477	cool/10	I[342]	-25.84	225.41	15.79	-6.71	-19.1	55.02
477	cool/10	J[77]	-25.84	225.41	15.79	-6.71	-34.89	-170.39
478	cool/10	I[343]	-25.24	74.58	15.49	-2.2	-18.69	18.21
478	cool/10	J[78]	-25.24	74.58	15.49	-2.2	-34.18	-56.37
479	cool/10	I[344]	-25.24	-74.58	15.49	2.2	-18.69	-18.21
479	cool/10	J[79]	-25.24	-74.58	15.49	2.2	-34.18	56.37
480	cool/10	I[345]	-25.84	-225.41	15.79	6.71	-19.1	-55.02

480	cool/10	J[80]	-25.84	-225.41	15.79	6.71	-34.89	170.39
481	cool/10	I[346]	-27.24	-381.81	16.49	11.57	-19.86	-93.17
481	cool/10	J[81]	-27.24	-381.81	16.49	11.57	-36.35	288.65
482	cool/10	I[347]	-29.83	-549.65	17.86	17.15	-20.52	-134.04
482	cool/10	J[82]	-29.83	-549.65	17.86	17.15	-38.38	415.62
483	cool/10	I[348]	-34.23	-738.96	20.37	24.12	-20.05	-179.95
483	cool/10	J[83]	-34.23	-738.96	20.37	24.12	-40.42	559.01
484	cool/10	I[349]	-42.88	-968.78	24.81	33.71	-19.94	-235.34
484	cool/10	J[84]	-42.88	-968.78	24.81	33.71	-44.75	733.44
485	cool/10	I[350]	-87.57	-1270.97	29.76	48.67	-25.15	-308.45
485	cool/10	J[85]	-87.57	-1270.97	29.76	48.67	-54.91	962.52
486	cool/10	I[351]	-152.96	-1709.45	96.92	65.13	68.99	-411.19
486	cool/10	J[86]	-152.96	-1709.45	96.92	65.13	-27.93	1298.27
487	cool/10	I[352]	425.77	-1846.46	-237.5	175.99	74.32	-417.32
487	cool/10	J[70]	425.77	-1846.46	-237.5	175.99	311.83	1429.15
488	cool/10	I[353]	425.77	-1846.46	237.5	175.99	74.32	417.32
488	cool/10	J[19]	425.77	-1846.46	237.5	175.99	-44.43	1340.55
489	cool/10	I[354]	-152.96	-1709.45	-96.92	65.13	68.99	411.19
489	cool/10	J[53]	-152.96	-1709.45	-96.92	65.13	117.45	1265.91
490	cool/10	I[355]	-87.57	-1270.97	-29.76	48.67	-25.15	308.45
490	cool/10	J[54]	-87.57	-1270.97	-29.76	48.67	-10.27	943.94
491	cool/10	I[356]	-42.88	-968.78	-24.81	33.71	-19.94	235.34
491	cool/10	J[55]	-42.88	-968.78	-24.81	33.71	-7.53	719.73
492	cool/10	I[357]	-34.23	-738.96	-20.37	24.12	-20.05	179.95
492	cool/10	J[56]	-34.23	-738.96	-20.37	24.12	-9.87	549.43
493	cool/10	I[358]	-29.83	-549.65	-17.86	17.15	-20.52	134.04
493	cool/10	J[57]	-29.83	-549.65	-17.86	17.15	-11.59	408.86
494	cool/10	I[359]	-27.24	-381.81	-16.49	11.57	-19.86	93.17
494	cool/10	J[58]	-27.24	-381.81	-16.49	11.57	-11.61	284.07
495	cool/10	I[360]	-25.84	-225.41	-15.79	6.71	-19.1	55.02
495	cool/10	J[59]	-25.84	-225.41	-15.79	6.71	-11.21	167.72
496	cool/10	I[361]	-25.24	-74.58	-15.49	2.2	-18.69	18.21
496	cool/10	J[60]	-25.24	-74.58	-15.49	2.2	-10.95	55.49
497	cool/10	I[362]	-25.24	74.58	-15.49	-2.2	-18.69	-18.21
497	cool/10	J[61]	-25.24	74.58	-15.49	-2.2	-10.95	-55.49
498	cool/10	I[363]	-25.84	225.41	-15.79	-6.71	-19.1	-55.02
498	cool/10	J[62]	-25.84	225.41	-15.79	-6.71	-11.21	-167.72
499	cool/10	I[364]	-27.24	381.81	-16.49	-11.57	-19.86	-93.17
499	cool/10	J[63]	-27.24	381.81	-16.49	-11.57	-11.61	-284.07
500	cool/10	I[365]	-29.83	549.65	-17.86	-17.15	-20.52	-134.04
500	cool/10	J[64]	-29.83	549.65	-17.86	-17.15	-11.59	-408.86
501	cool/10	I[366]	-34.23	738.96	-20.37	-24.12	-20.05	-179.95
501	cool/10	J[65]	-34.23	738.96	-20.37	-24.12	-9.87	-549.43
502	cool/10	I[367]	-42.88	968.78	-24.81	-33.71	-19.94	-235.34
502	cool/10	J[66]	-42.88	968.78	-24.81	-33.71	-7.53	-719.73
503	cool/10	I[368]	-87.57	1270.97	-29.76	-48.67	-25.15	-308.45
503	cool/10	J[67]	-87.57	1270.97	-29.76	-48.67	-10.27	-943.94
504	cool/10	I[369]	-152.96	1709.45	-96.92	-65.13	68.99	-411.19
504	cool/10	J[68]	-152.96	1709.45	-96.92	-65.13	117.45	-1265.91
505	cool/10	I[370]	425.77	1846.46	237.5	-175.99	74.32	-417.32
505	cool/10	J[36]	425.77	1846.46	237.5	-175.99	-44.43	-1340.55
506	cool/10	I[371]	-4443.72	0	0	0	0.27	-39.04
506	cool/10	J[79]	-4443.72	0	0	0	0.27	-39.04
507	cool/10	I[372]	-2345.97	0	0	0	0.34	-39.76
507	cool/10	J[115]	-2345.97	0	0	0	0.34	-39.76
508	cool/10	I[373]	-1952.77	0	0	0	0.66	0
508	cool/10	J[151]	-1952.77	0	0	0	0.66	0
509	cool/10	I[374]	-2345.97	0	0	0	0.34	39.76
509	cool/10	J[187]	-2345.97	0	0	0	0.34	39.76
510	cool/10	I[375]	-4443.72	0	0	0	0.27	39.04
510	cool/10	J[223]	-4443.72	0	0	0	0.27	39.04

511	cool/10	I[376]	-3537.88	-241.89	-40.32	0.18	-16.03	-38.02
511	cool/10	J[74]	-3537.88	-241.89	-40.32	0.18	72.9	495.55
512	cool/10	I[377]	-1613.89	-228.64	-32.32	0.1	-14.12	-33.01
512	cool/10	J[110]	-1613.89	-228.64	-32.32	0.1	57.17	471.35
513	cool/10	I[378]	-1287.78	0	-26.75	0	-13.55	0
513	cool/10	J[146]	-1287.78	0	-26.75	0	45.47	0
514	cool/10	I[379]	-1613.89	228.64	-32.32	-0.1	-14.12	33.01
514	cool/10	J[182]	-1613.89	228.64	-32.32	-0.1	57.17	-471.35
515	cool/10	I[380]	-3537.88	241.89	-40.32	-0.18	-16.03	38.02
515	cool/10	J[218]	-3537.88	241.89	-40.32	-0.18	72.9	-495.55
516	cool/10	I[381]	-3537.88	241.89	40.32	-0.18	-16.03	-38.02
516	cool/10	J[84]	-3537.88	241.89	40.32	-0.18	-104.96	-571.6
517	cool/10	I[382]	-1613.89	228.64	32.32	-0.1	-14.12	-33.01
517	cool/10	J[120]	-1613.89	228.64	32.32	-0.1	-85.42	-537.36
518	cool/10	I[383]	-1287.78	0	26.75	0	-13.55	0
518	cool/10	J[156]	-1287.78	0	26.75	0	-72.56	0
519	cool/10	I[384]	-1613.89	-228.64	32.32	0.1	-14.12	33.01
519	cool/10	J[192]	-1613.89	-228.64	32.32	0.1	-85.42	537.36
520	cool/10	I[385]	-3537.88	-241.89	40.32	0.18	-16.03	38.02
520	cool/10	J[228]	-3537.88	-241.89	40.32	0.18	-104.96	571.6

2.4. TEMPERATURA HEAT 1

Elem	Load	Part	Axial (kN)	Shear-y (kN)	Shear-z (kN)	Torsion (kN*m)	Moment-y (kN*m)	Moment-z (kN*m)
1	Heat /10	I[1]	257.36	0	-15.89	-3.13	-230.44	-5.43
1	Heat /10	J[2]	257.36	0	-15.89	-3.13	-149.5	-5.43
2	Heat /10	I[2]	254.06	0	-9	-2.82	-149.5	-5.59
2	Heat /10	J[3]	254.06	0	-9	-2.82	-105.03	-5.59
3	Heat /10	I[3]	248.31	0	-7.46	-2.49	-105.03	-5.75
3	Heat /10	J[4]	248.31	0	-7.46	-2.49	-69.15	-5.75
4	Heat /10	I[4]	242.94	0	-6.81	-2.13	-69.15	-5.89
4	Heat /10	J[5]	242.94	0	-6.81	-2.13	-37.2	-5.89
5	Heat /10	I[5]	238.54	0	-5.96	-1.74	-37.2	-6.02
5	Heat /10	J[6]	238.54	0	-5.96	-1.74	-9.85	-6.02
6	Heat /10	I[6]	235.15	0	-4.76	-1.33	-9.85	-6.12
6	Heat /10	J[7]	235.15	0	-4.76	-1.33	11.64	-6.12
7	Heat /10	I[7]	232.75	0	-3.31	-0.89	11.64	-6.2
7	Heat /10	J[8]	232.75	0	-3.31	-0.89	26.4	-6.2
8	Heat /10	I[8]	231.31	0	-1.69	-0.45	26.4	-6.25
8	Heat /10	J[9]	231.31	0	-1.69	-0.45	33.89	-6.25
9	Heat /10	I[9]	230.83	0	0	0	33.89	-6.27
9	Heat /10	J[10]	230.83	0	0	0	33.89	-6.27
10	Heat /10	I[10]	231.31	0	1.69	0.45	33.89	-6.25
10	Heat /10	J[11]	231.31	0	1.69	0.45	26.4	-6.25
11	Heat /10	I[11]	232.75	0	3.31	0.89	26.4	-6.2
11	Heat /10	J[12]	232.75	0	3.31	0.89	11.64	-6.2
12	Heat /10	I[12]	235.15	0	4.76	1.33	11.64	-6.12
12	Heat /10	J[13]	235.15	0	4.76	1.33	-9.85	-6.12
13	Heat /10	I[13]	238.54	0	5.96	1.74	-9.85	-6.02
13	Heat /10	J[14]	238.54	0	5.96	1.74	-37.2	-6.02
14	Heat /10	I[14]	242.94	0	6.81	2.13	-37.2	-5.89
14	Heat /10	J[15]	242.94	0	6.81	2.13	-69.15	-5.89
15	Heat /10	I[15]	248.31	0	7.46	2.49	-69.15	-5.75
15	Heat /10	J[16]	248.31	0	7.46	2.49	-105.03	-5.75
16	Heat /10	I[16]	254.06	0	9	2.82	-105.03	-5.59
16	Heat /10	J[17]	254.06	0	9	2.82	-149.5	-5.59
17	Heat /10	I[17]	257.36	0	15.89	3.13	-149.5	-5.43
17	Heat /10	J[18]	257.36	0	15.89	3.13	-230.44	-5.43

18	Heat /10	I[19]	257.36	0	-15.89	3.13	-230.44	5.43
18	Heat /10	J[20]	257.36	0	-15.89	3.13	-149.5	5.43
19	Heat /10	I[20]	254.06	0	-9	2.82	-149.5	5.59
19	Heat /10	J[21]	254.06	0	-9	2.82	-105.03	5.59
20	Heat /10	I[21]	248.31	0	-7.46	2.49	-105.03	5.75
20	Heat /10	J[22]	248.31	0	-7.46	2.49	-69.15	5.75
21	Heat /10	I[22]	242.94	0	-6.81	2.13	-69.15	5.89
21	Heat /10	J[23]	242.94	0	-6.81	2.13	-37.2	5.89
22	Heat /10	I[23]	238.54	0	-5.96	1.74	-37.2	6.02
22	Heat /10	J[24]	238.54	0	-5.96	1.74	-9.85	6.02
23	Heat /10	I[24]	235.15	0	-4.76	1.33	-9.85	6.12
23	Heat /10	J[25]	235.15	0	-4.76	1.33	11.64	6.12
24	Heat /10	I[25]	232.75	0	-3.31	0.89	11.64	6.2
24	Heat /10	J[26]	232.75	0	-3.31	0.89	26.4	6.2
25	Heat /10	I[26]	231.31	0	-1.69	0.45	26.4	6.25
25	Heat /10	J[27]	231.31	0	-1.69	0.45	33.89	6.25
26	Heat /10	I[27]	230.83	0	0	0	33.89	6.27
26	Heat /10	J[28]	230.83	0	0	0	33.89	6.27
27	Heat /10	I[28]	231.31	0	1.69	-0.45	33.89	6.25
27	Heat /10	J[29]	231.31	0	1.69	-0.45	26.4	6.25
28	Heat /10	I[29]	232.75	0	3.31	-0.89	26.4	6.2
28	Heat /10	J[30]	232.75	0	3.31	-0.89	11.64	6.2
29	Heat /10	I[30]	235.15	0	4.76	-1.33	11.64	6.12
29	Heat /10	J[31]	235.15	0	4.76	-1.33	-9.85	6.12
30	Heat /10	I[31]	238.54	0	5.96	-1.74	-9.85	6.02
30	Heat /10	J[32]	238.54	0	5.96	-1.74	-37.2	6.02
31	Heat /10	I[32]	242.94	0	6.81	-2.13	-37.2	5.89
31	Heat /10	J[33]	242.94	0	6.81	-2.13	-69.15	5.89
32	Heat /10	I[33]	248.31	0	7.46	-2.49	-69.15	5.75
32	Heat /10	J[34]	248.31	0	7.46	-2.49	-105.03	5.75
33	Heat /10	I[34]	254.06	0	9	-2.82	-105.03	5.59
33	Heat /10	J[35]	254.06	0	9	-2.82	-149.5	5.59
34	Heat /10	I[35]	257.36	0	15.89	-3.13	-149.5	5.43
34	Heat /10	J[36]	257.36	0	15.89	-3.13	-230.44	5.43
67	Heat /10	I[1]	87.66	366.68	-46.12	-28.49	-2.36	266.86
67	Heat /10	J[335]	87.66	366.68	-46.12	-28.49	20.7	83.52
68	Heat /10	I[18]	87.66	-366.68	-46.12	28.49	-2.36	-266.86
68	Heat /10	J[352]	87.66	-366.68	-46.12	28.49	20.7	-83.52
69	Heat /10	I[37]	-25.68	374.66	11.53	-14.76	16.19	277.56
69	Heat /10	J[336]	-25.68	374.66	11.53	-14.76	10.42	90.23
70	Heat /10	I[38]	-14.01	314.39	5.27	-12.34	0.23	233.25
70	Heat /10	J[337]	-14.01	314.39	5.27	-12.34	-2.41	76.05
71	Heat /10	I[39]	-8.62	259.93	5.21	-9.72	-0.38	192.93
71	Heat /10	J[338]	-8.62	259.93	5.21	-9.72	-2.99	62.96
72	Heat /10	I[40]	-8.13	209.48	5	-7.59	-1.77	155.59
72	Heat /10	J[339]	-8.13	209.48	5	-7.59	-4.27	50.84
73	Heat /10	I[41]	-7.97	161.43	4.86	-5.72	-2.68	119.94
73	Heat /10	J[340]	-7.97	161.43	4.86	-5.72	-5.11	39.22
74	Heat /10	I[42]	-7.82	114.62	4.78	-4	-3.01	85.18
74	Heat /10	J[341]	-7.82	114.62	4.78	-4	-5.4	27.87
75	Heat /10	I[43]	-7.73	68.53	4.74	-2.37	-3.1	50.93
75	Heat /10	J[342]	-7.73	68.53	4.74	-2.37	-5.47	16.67
76	Heat /10	I[44]	-7.69	22.81	4.72	-0.78	-3.12	16.95
76	Heat /10	J[343]	-7.69	22.81	4.72	-0.78	-5.48	5.55
77	Heat /10	I[45]	-7.69	-22.81	4.72	0.78	-3.12	-16.95
77	Heat /10	J[344]	-7.69	-22.81	4.72	0.78	-5.48	-5.55
78	Heat /10	I[46]	-7.73	-68.53	4.74	2.37	-3.1	-50.93
78	Heat /10	J[345]	-7.73	-68.53	4.74	2.37	-5.47	-16.67
79	Heat /10	I[47]	-7.82	-114.62	4.78	4	-3.01	-85.18
79	Heat /10	J[346]	-7.82	-114.62	4.78	4	-5.4	-27.87
80	Heat /10	I[48]	-7.97	-161.43	4.86	5.72	-2.68	-119.94

80	Heat /10	J[347]	-7.97	-161.43	4.86	5.72	-5.11	-39.22
81	Heat /10	I[49]	-8.13	-209.48	5	7.59	-1.77	-155.59
81	Heat /10	J[348]	-8.13	-209.48	5	7.59	-4.27	-50.84
82	Heat /10	I[50]	-8.62	-259.93	5.21	9.72	-0.38	-192.93
82	Heat /10	J[349]	-8.62	-259.93	5.21	9.72	-2.99	-62.96
83	Heat /10	I[51]	-14.01	-314.39	5.27	12.34	0.23	-233.25
83	Heat /10	J[350]	-14.01	-314.39	5.27	12.34	-2.41	-76.05
84	Heat /10	I[52]	-25.68	-374.66	11.53	14.76	16.19	-277.56
84	Heat /10	J[351]	-25.68	-374.66	11.53	14.76	10.42	-90.23
85	Heat /10	I[69]	222.6	135.71	-19.53	3.41	2	137.94
85	Heat /10	J[87]	222.6	135.71	-19.53	3.41	31.29	-65.63
86	Heat /10	I[70]	222.6	-135.71	-19.53	-3.41	2	-137.94
86	Heat /10	J[88]	222.6	-135.71	-19.53	-3.41	31.29	65.63
87	Heat /10	I[71]	-58.15	142.28	3.66	1.41	15.37	146.18
87	Heat /10	J[89]	-58.15	142.28	3.66	1.41	9.87	-67.24
88	Heat /10	I[72]	-38.65	131.43	1.93	0.5	4	135.54
88	Heat /10	J[90]	-38.65	131.43	1.93	0.5	1.11	-61.6
89	Heat /10	I[73]	-22.34	114.54	2.07	-0.14	-1.61	118.14
89	Heat /10	J[91]	-22.34	114.54	2.07	-0.14	-4.71	-53.68
90	Heat /10	I[74]	-20.5	95.95	2.25	-0.4	-3.41	98.97
90	Heat /10	J[92]	-20.5	95.95	2.25	-0.4	-6.79	-44.96
91	Heat /10	I[75]	-20.74	75.99	2.33	-0.48	-3.98	78.39
91	Heat /10	J[93]	-20.74	75.99	2.33	-0.48	-7.48	-35.59
92	Heat /10	I[76]	-20.78	54.98	2.39	-0.44	-4.12	56.73
92	Heat /10	J[94]	-20.78	54.98	2.39	-0.44	-7.71	-25.74
93	Heat /10	I[77]	-20.74	33.25	2.43	-0.3	-4.13	34.32
93	Heat /10	J[95]	-20.74	33.25	2.43	-0.3	-7.78	-15.56
94	Heat /10	I[78]	-20.71	11.13	2.45	-0.1	-4.12	11.49
94	Heat /10	J[96]	-20.71	11.13	2.45	-0.1	-7.8	-5.21
95	Heat /10	I[79]	-20.71	-11.13	2.45	0.1	-4.12	-11.49
95	Heat /10	J[97]	-20.71	-11.13	2.45	0.1	-7.8	5.21
96	Heat /10	I[80]	-20.74	-33.25	2.43	0.3	-4.13	-34.32
96	Heat /10	J[98]	-20.74	-33.25	2.43	0.3	-7.78	15.56
97	Heat /10	I[81]	-20.78	-54.98	2.39	0.44	-4.12	-56.73
97	Heat /10	J[99]	-20.78	-54.98	2.39	0.44	-7.71	25.74
98	Heat /10	I[82]	-20.74	-75.99	2.33	0.48	-3.98	-78.39
98	Heat /10	J[100]	-20.74	-75.99	2.33	0.48	-7.48	35.59
99	Heat /10	I[83]	-20.5	-95.95	2.25	0.4	-3.41	-98.97
99	Heat /10	J[101]	-20.5	-95.95	2.25	0.4	-6.79	44.96
100	Heat /10	I[84]	-22.34	-114.54	2.07	0.14	-1.61	-118.14
100	Heat /10	J[102]	-22.34	-114.54	2.07	0.14	-4.71	53.68
101	Heat /10	I[85]	-38.65	-131.43	1.93	-0.5	4	-135.54
101	Heat /10	J[103]	-38.65	-131.43	1.93	-0.5	1.11	61.6
102	Heat /10	I[86]	-58.15	-142.28	3.66	-1.41	15.37	-146.18
102	Heat /10	J[104]	-58.15	-142.28	3.66	-1.41	9.87	67.24
103	Heat /10	I[87]	222.6	135.71	-19.53	14	48.65	-65.63
103	Heat /10	J[105]	222.6	135.71	-19.53	14	77.94	-269.19
104	Heat /10	I[88]	222.6	-135.71	-19.53	-14	48.65	65.63
104	Heat /10	J[106]	222.6	-135.71	-19.53	-14	77.94	269.19
105	Heat /10	I[89]	-58.15	142.28	3.66	12.5	5.34	-67.24
105	Heat /10	J[107]	-58.15	142.28	3.66	12.5	-0.16	-280.65
106	Heat /10	I[90]	-38.65	131.43	1.93	10.75	-1.91	-61.6
106	Heat /10	J[108]	-38.65	131.43	1.93	10.75	-4.8	-258.74
107	Heat /10	I[91]	-22.34	114.54	2.07	8.79	-6.45	-53.68
107	Heat /10	J[109]	-22.34	114.54	2.07	8.79	-9.55	-225.5
108	Heat /10	I[92]	-20.5	95.95	2.25	7.08	-8.39	-44.96
108	Heat /10	J[110]	-20.5	95.95	2.25	7.08	-11.76	-188.89
109	Heat /10	I[93]	-20.74	75.99	2.33	5.44	-9.09	-35.59
109	Heat /10	J[111]	-20.74	75.99	2.33	5.44	-12.59	-149.57
110	Heat /10	I[94]	-20.78	54.98	2.39	3.85	-9.33	-25.74
110	Heat /10	J[112]	-20.78	54.98	2.39	3.85	-12.92	-108.2

111	Heat /10	I[95]	-20.74	33.25	2.43	2.3	-9.4	-15.56
111	Heat /10	J[113]	-20.74	33.25	2.43	2.3	-13.05	-65.45
112	Heat /10	I[96]	-20.71	11.13	2.45	0.76	-9.42	-5.21
112	Heat /10	J[114]	-20.71	11.13	2.45	0.76	-13.1	-21.9
113	Heat /10	I[97]	-20.71	-11.13	2.45	-0.76	-9.42	5.21
113	Heat /10	J[115]	-20.71	-11.13	2.45	-0.76	-13.1	21.9
114	Heat /10	I[98]	-20.74	-33.25	2.43	-2.3	-9.4	15.56
114	Heat /10	J[116]	-20.74	-33.25	2.43	-2.3	-13.05	65.45
115	Heat /10	I[99]	-20.78	-54.98	2.39	-3.85	-9.33	25.74
115	Heat /10	J[117]	-20.78	-54.98	2.39	-3.85	-12.92	108.2
116	Heat /10	I[100]	-20.74	-75.99	2.33	-5.44	-9.09	35.59
116	Heat /10	J[118]	-20.74	-75.99	2.33	-5.44	-12.59	149.57
117	Heat /10	I[101]	-20.5	-95.95	2.25	-7.08	-8.39	44.96
117	Heat /10	J[119]	-20.5	-95.95	2.25	-7.08	-11.76	188.89
118	Heat /10	I[102]	-22.34	-114.54	2.07	-8.79	-6.45	53.68
118	Heat /10	J[120]	-22.34	-114.54	2.07	-8.79	-9.55	225.5
119	Heat /10	I[103]	-38.65	-131.43	1.93	-10.75	-1.91	61.6
119	Heat /10	J[121]	-38.65	-131.43	1.93	-10.75	-4.8	258.74
120	Heat /10	I[104]	-58.15	-142.28	3.66	-12.5	5.34	67.24
120	Heat /10	J[122]	-58.15	-142.28	3.66	-12.5	-0.16	280.65
121	Heat /10	I[105]	326.19	36.01	-5.09	4.8	36.7	40.3
121	Heat /10	J[123]	326.19	36.01	-5.09	4.8	44.33	-13.71
122	Heat /10	I[106]	326.19	-36.01	-5.09	-4.8	36.7	-40.3
122	Heat /10	J[124]	326.19	-36.01	-5.09	-4.8	44.33	13.71
123	Heat /10	I[107]	-82.61	40.91	0.57	2.18	10.04	54.99
123	Heat /10	J[125]	-82.61	40.91	0.57	2.18	9.18	-6.37
124	Heat /10	I[108]	-51.59	39.19	0.55	2.13	0.33	53.64
124	Heat /10	J[126]	-51.59	39.19	0.55	2.13	-0.5	-5.14
125	Heat /10	I[109]	-32.13	34.3	0.55	1.75	-5.64	46.79
125	Heat /10	J[127]	-32.13	34.3	0.55	1.75	-6.47	-4.66
126	Heat /10	I[110]	-30.59	28.91	0.63	1.42	-7.79	39.36
126	Heat /10	J[128]	-30.59	28.91	0.63	1.42	-8.74	-4
127	Heat /10	I[111]	-31.68	23.03	0.66	1.09	-8.33	31.35
127	Heat /10	J[129]	-31.68	23.03	0.66	1.09	-9.32	-3.19
128	Heat /10	I[112]	-32.3	16.74	0.69	0.76	-8.43	22.8
128	Heat /10	J[130]	-32.3	16.74	0.69	0.76	-9.47	-2.31
129	Heat /10	I[113]	-32.58	10.16	0.71	0.45	-8.44	13.84
129	Heat /10	J[131]	-32.58	10.16	0.71	0.45	-9.5	-1.4
130	Heat /10	I[114]	-32.72	3.4	0.72	0.15	-8.43	4.64
130	Heat /10	J[132]	-32.72	3.4	0.72	0.15	-9.51	-0.47
131	Heat /10	I[115]	-32.72	-3.4	0.72	-0.15	-8.43	-4.64
131	Heat /10	J[133]	-32.72	-3.4	0.72	-0.15	-9.51	0.47
132	Heat /10	I[116]	-32.58	-10.16	0.71	-0.45	-8.44	-13.84
132	Heat /10	J[134]	-32.58	-10.16	0.71	-0.45	-9.5	1.4
133	Heat /10	I[117]	-32.3	-16.74	0.69	-0.76	-8.43	-22.8
133	Heat /10	J[135]	-32.3	-16.74	0.69	-0.76	-9.47	2.31
134	Heat /10	I[118]	-31.68	-23.03	0.66	-1.09	-8.33	-31.35
134	Heat /10	J[136]	-31.68	-23.03	0.66	-1.09	-9.32	3.19
135	Heat /10	I[119]	-30.59	-28.91	0.63	-1.42	-7.79	-39.36
135	Heat /10	J[137]	-30.59	-28.91	0.63	-1.42	-8.74	4
136	Heat /10	I[120]	-32.13	-34.3	0.55	-1.75	-5.64	-46.79
136	Heat /10	J[138]	-32.13	-34.3	0.55	-1.75	-6.47	4.66
137	Heat /10	I[121]	-51.59	-39.19	0.55	-2.13	0.33	-53.64
137	Heat /10	J[139]	-51.59	-39.19	0.55	-2.13	-0.5	5.14
138	Heat /10	I[122]	-82.61	-40.91	0.57	-2.18	10.04	-54.99
138	Heat /10	J[140]	-82.61	-40.91	0.57	-2.18	9.18	6.37
139	Heat /10	I[123]	326.19	36.01	-5.09	4.8	44.33	-13.71
139	Heat /10	J[141]	326.19	36.01	-5.09	4.8	51.96	-67.72
140	Heat /10	I[124]	326.19	-36.01	-5.09	-4.8	44.33	13.71
140	Heat /10	J[142]	326.19	-36.01	-5.09	-4.8	51.96	67.72
141	Heat /10	I[125]	-82.61	40.91	0.57	2.18	9.18	-6.37

141	Heat /10	J[143]	-82.61	40.91	0.57	2.18	8.32	-67.74
142	Heat /10	I[126]	-51.59	39.19	0.55	2.13	-0.5	-5.14
142	Heat /10	J[144]	-51.59	39.19	0.55	2.13	-1.33	-63.93
143	Heat /10	I[127]	-32.13	34.3	0.55	1.75	-6.47	-4.66
143	Heat /10	J[145]	-32.13	34.3	0.55	1.75	-7.3	-56.11
144	Heat /10	I[128]	-30.59	28.91	0.63	1.42	-8.74	-4
144	Heat /10	J[146]	-30.59	28.91	0.63	1.42	-9.68	-47.36
145	Heat /10	I[129]	-31.68	23.03	0.66	1.09	-9.32	-3.19
145	Heat /10	J[147]	-31.68	23.03	0.66	1.09	-10.32	-37.73
146	Heat /10	I[130]	-32.3	16.74	0.69	0.76	-9.47	-2.31
146	Heat /10	J[148]	-32.3	16.74	0.69	0.76	-10.51	-27.42
147	Heat /10	I[131]	-32.58	10.16	0.71	0.45	-9.5	-1.4
147	Heat /10	J[149]	-32.58	10.16	0.71	0.45	-10.57	-16.64
148	Heat /10	I[132]	-32.72	3.4	0.72	0.15	-9.51	-0.47
148	Heat /10	J[150]	-32.72	3.4	0.72	0.15	-10.58	-5.58
149	Heat /10	I[133]	-32.72	-3.4	0.72	-0.15	-9.51	0.47
149	Heat /10	J[151]	-32.72	-3.4	0.72	-0.15	-10.58	5.58
150	Heat /10	I[134]	-32.58	-10.16	0.71	-0.45	-9.5	1.4
150	Heat /10	J[152]	-32.58	-10.16	0.71	-0.45	-10.57	16.64
151	Heat /10	I[135]	-32.3	-16.74	0.69	-0.76	-9.47	2.31
151	Heat /10	J[153]	-32.3	-16.74	0.69	-0.76	-10.51	27.42
152	Heat /10	I[136]	-31.68	-23.03	0.66	-1.09	-9.32	3.19
152	Heat /10	J[154]	-31.68	-23.03	0.66	-1.09	-10.32	37.73
153	Heat /10	I[137]	-30.59	-28.91	0.63	-1.42	-8.74	4
153	Heat /10	J[155]	-30.59	-28.91	0.63	-1.42	-9.68	47.36
154	Heat /10	I[138]	-32.13	-34.3	0.55	-1.75	-6.47	4.66
154	Heat /10	J[156]	-32.13	-34.3	0.55	-1.75	-7.3	56.11
155	Heat /10	I[139]	-51.59	-39.19	0.55	-2.13	-0.5	5.14
155	Heat /10	J[157]	-51.59	-39.19	0.55	-2.13	-1.33	63.93
156	Heat /10	I[140]	-82.61	-40.91	0.57	-2.18	9.18	6.37
156	Heat /10	J[158]	-82.61	-40.91	0.57	-2.18	8.32	67.74
157	Heat /10	I[141]	326.19	-36.01	5.09	-4.8	51.96	-67.72
157	Heat /10	J[159]	326.19	-36.01	5.09	-4.8	44.33	-13.71
158	Heat /10	I[142]	326.19	36.01	5.09	4.8	51.96	67.72
158	Heat /10	J[160]	326.19	36.01	5.09	4.8	44.33	13.71
159	Heat /10	I[143]	-82.61	-40.91	-0.57	-2.18	8.32	-67.74
159	Heat /10	J[161]	-82.61	-40.91	-0.57	-2.18	9.18	-6.37
160	Heat /10	I[144]	-51.59	-39.19	-0.55	-2.13	-1.33	-63.93
160	Heat /10	J[162]	-51.59	-39.19	-0.55	-2.13	-0.5	-5.14
161	Heat /10	I[145]	-32.13	-34.3	-0.55	-1.75	-7.3	-56.11
161	Heat /10	J[163]	-32.13	-34.3	-0.55	-1.75	-6.47	-4.66
162	Heat /10	I[146]	-30.59	-28.91	-0.63	-1.42	-9.68	-47.36
162	Heat /10	J[164]	-30.59	-28.91	-0.63	-1.42	-8.74	-4
163	Heat /10	I[147]	-31.68	-23.03	-0.66	-1.09	-10.32	-37.73
163	Heat /10	J[165]	-31.68	-23.03	-0.66	-1.09	-9.32	-3.19
164	Heat /10	I[148]	-32.3	-16.74	-0.69	-0.76	-10.51	-27.42
164	Heat /10	J[166]	-32.3	-16.74	-0.69	-0.76	-9.47	-2.31
165	Heat /10	I[149]	-32.58	-10.16	-0.71	-0.45	-10.57	-16.64
165	Heat /10	J[167]	-32.58	-10.16	-0.71	-0.45	-9.5	-1.4
166	Heat /10	I[150]	-32.72	-3.4	-0.72	-0.15	-10.58	-5.58
166	Heat /10	J[168]	-32.72	-3.4	-0.72	-0.15	-9.51	-0.47
167	Heat /10	I[151]	-32.72	3.4	-0.72	0.15	-10.58	5.58
167	Heat /10	J[169]	-32.72	3.4	-0.72	0.15	-9.51	0.47
168	Heat /10	I[152]	-32.58	10.16	-0.71	0.45	-10.57	16.64
168	Heat /10	J[170]	-32.58	10.16	-0.71	0.45	-9.5	1.4
169	Heat /10	I[153]	-32.3	16.74	-0.69	0.76	-10.51	27.42
169	Heat /10	J[171]	-32.3	16.74	-0.69	0.76	-9.47	2.31
170	Heat /10	I[154]	-31.68	23.03	-0.66	1.09	-10.32	37.73
170	Heat /10	J[172]	-31.68	23.03	-0.66	1.09	-9.32	3.19
171	Heat /10	I[155]	-30.59	28.91	-0.63	1.42	-9.68	47.36
171	Heat /10	J[173]	-30.59	28.91	-0.63	1.42	-8.74	4

172	Heat /10	I[156]	-32.13	34.3	-0.55	1.75	-7.3	56.11
172	Heat /10	J[174]	-32.13	34.3	-0.55	1.75	-6.47	4.66
173	Heat /10	I[157]	-51.59	39.19	-0.55	2.13	-1.33	63.93
173	Heat /10	J[175]	-51.59	39.19	-0.55	2.13	-0.5	5.14
174	Heat /10	I[158]	-82.61	40.91	-0.57	2.18	8.32	67.74
174	Heat /10	J[176]	-82.61	40.91	-0.57	2.18	9.18	6.37
175	Heat /10	I[159]	326.19	-36.01	5.09	-4.8	44.33	-13.71
175	Heat /10	J[177]	326.19	-36.01	5.09	-4.8	36.7	40.3
176	Heat /10	I[160]	326.19	36.01	5.09	4.8	44.33	13.71
176	Heat /10	J[178]	326.19	36.01	5.09	4.8	36.7	-40.3
177	Heat /10	I[161]	-82.61	-40.91	-0.57	-2.18	9.18	-6.37
177	Heat /10	J[179]	-82.61	-40.91	-0.57	-2.18	10.04	54.99
178	Heat /10	I[162]	-51.59	-39.19	-0.55	-2.13	-0.5	-5.14
178	Heat /10	J[180]	-51.59	-39.19	-0.55	-2.13	0.33	53.64
179	Heat /10	I[163]	-32.13	-34.3	-0.55	-1.75	-6.47	-4.66
179	Heat /10	J[181]	-32.13	-34.3	-0.55	-1.75	-5.64	46.79
180	Heat /10	I[164]	-30.59	-28.91	-0.63	-1.42	-8.74	-4
180	Heat /10	J[182]	-30.59	-28.91	-0.63	-1.42	-7.79	39.36
181	Heat /10	I[165]	-31.68	-23.03	-0.66	-1.09	-9.32	-3.19
181	Heat /10	J[183]	-31.68	-23.03	-0.66	-1.09	-8.33	31.35
182	Heat /10	I[166]	-32.3	-16.74	-0.69	-0.76	-9.47	-2.31
182	Heat /10	J[184]	-32.3	-16.74	-0.69	-0.76	-8.43	22.8
183	Heat /10	I[167]	-32.58	-10.16	-0.71	-0.45	-9.5	-1.4
183	Heat /10	J[185]	-32.58	-10.16	-0.71	-0.45	-8.44	13.84
184	Heat /10	I[168]	-32.72	-3.4	-0.72	-0.15	-9.51	-0.47
184	Heat /10	J[186]	-32.72	-3.4	-0.72	-0.15	-8.43	4.64
185	Heat /10	I[169]	-32.72	3.4	-0.72	0.15	-9.51	0.47
185	Heat /10	J[187]	-32.72	3.4	-0.72	0.15	-8.43	-4.64
186	Heat /10	I[170]	-32.58	10.16	-0.71	0.45	-9.5	1.4
186	Heat /10	J[188]	-32.58	10.16	-0.71	0.45	-8.44	-13.84
187	Heat /10	I[171]	-32.3	16.74	-0.69	0.76	-9.47	2.31
187	Heat /10	J[189]	-32.3	16.74	-0.69	0.76	-8.43	-22.8
188	Heat /10	I[172]	-31.68	23.03	-0.66	1.09	-9.32	3.19
188	Heat /10	J[190]	-31.68	23.03	-0.66	1.09	-8.33	-31.35
189	Heat /10	I[173]	-30.59	28.91	-0.63	1.42	-8.74	4
189	Heat /10	J[191]	-30.59	28.91	-0.63	1.42	-7.79	-39.36
190	Heat /10	I[174]	-32.13	34.3	-0.55	1.75	-6.47	4.66
190	Heat /10	J[192]	-32.13	34.3	-0.55	1.75	-5.64	-46.79
191	Heat /10	I[175]	-51.59	39.19	-0.55	2.13	-0.5	5.14
191	Heat /10	J[193]	-51.59	39.19	-0.55	2.13	0.33	-53.64
192	Heat /10	I[176]	-82.61	40.91	-0.57	2.18	9.18	6.37
192	Heat /10	J[194]	-82.61	40.91	-0.57	2.18	10.04	-54.99
193	Heat /10	I[177]	222.6	-135.71	19.53	-14	77.94	-269.19
193	Heat /10	J[195]	222.6	-135.71	19.53	-14	48.65	-65.63
194	Heat /10	I[178]	222.6	135.71	19.53	14	77.94	269.19
194	Heat /10	J[196]	222.6	135.71	19.53	14	48.65	65.63
195	Heat /10	I[179]	-58.15	-142.28	-3.66	-12.5	-0.16	-280.65
195	Heat /10	J[197]	-58.15	-142.28	-3.66	-12.5	5.34	-67.24
196	Heat /10	I[180]	-38.65	-131.43	-1.93	-10.75	-4.8	-258.74
196	Heat /10	J[198]	-38.65	-131.43	-1.93	-10.75	-1.91	-61.6
197	Heat /10	I[181]	-22.34	-114.54	-2.07	-8.79	-9.55	-225.5
197	Heat /10	J[199]	-22.34	-114.54	-2.07	-8.79	-6.45	-53.68
198	Heat /10	I[182]	-20.5	-95.95	-2.25	-7.08	-11.76	-188.89
198	Heat /10	J[200]	-20.5	-95.95	-2.25	-7.08	-8.39	-44.96
199	Heat /10	I[183]	-20.74	-75.99	-2.33	-5.44	-12.59	-149.57
199	Heat /10	J[201]	-20.74	-75.99	-2.33	-5.44	-9.09	-35.59
200	Heat /10	I[184]	-20.78	-54.98	-2.39	-3.85	-12.92	-108.2
200	Heat /10	J[202]	-20.78	-54.98	-2.39	-3.85	-9.33	-25.74
201	Heat /10	I[185]	-20.74	-33.25	-2.43	-2.3	-13.05	-65.45
201	Heat /10	J[203]	-20.74	-33.25	-2.43	-2.3	-9.4	-15.56
202	Heat /10	I[186]	-20.71	-11.13	-2.45	-0.76	-13.1	-21.9

202	Heat /10	J[204]	-20.71	-11.13	-2.45	-0.76	-9.42	-5.21
203	Heat /10	I[187]	-20.71	11.13	-2.45	0.76	-13.1	21.9
203	Heat /10	J[205]	-20.71	11.13	-2.45	0.76	-9.42	5.21
204	Heat /10	I[188]	-20.74	33.25	-2.43	2.3	-13.05	65.45
204	Heat /10	J[206]	-20.74	33.25	-2.43	2.3	-9.4	15.56
205	Heat /10	I[189]	-20.78	54.98	-2.39	3.85	-12.92	108.2
205	Heat /10	J[207]	-20.78	54.98	-2.39	3.85	-9.33	25.74
206	Heat /10	I[190]	-20.74	75.99	-2.33	5.44	-12.59	149.57
206	Heat /10	J[208]	-20.74	75.99	-2.33	5.44	-9.09	35.59
207	Heat /10	I[191]	-20.5	95.95	-2.25	7.08	-11.76	188.89
207	Heat /10	J[209]	-20.5	95.95	-2.25	7.08	-8.39	44.96
208	Heat /10	I[192]	-22.34	114.54	-2.07	8.79	-9.55	225.5
208	Heat /10	J[210]	-22.34	114.54	-2.07	8.79	-6.45	53.68
209	Heat /10	I[193]	-38.65	131.43	-1.93	10.75	-4.8	258.74
209	Heat /10	J[211]	-38.65	131.43	-1.93	10.75	-1.91	61.6
210	Heat /10	I[194]	-58.15	142.28	-3.66	12.5	-0.16	280.65
210	Heat /10	J[212]	-58.15	142.28	-3.66	12.5	5.34	67.24
211	Heat /10	I[195]	222.6	-135.71	19.53	-3.41	31.29	-65.63
211	Heat /10	J[213]	222.6	-135.71	19.53	-3.41	2	137.94
212	Heat /10	I[196]	222.6	135.71	19.53	3.41	31.29	65.63
212	Heat /10	J[214]	222.6	135.71	19.53	3.41	2	-137.94
213	Heat /10	I[197]	-58.15	-142.28	-3.66	-1.41	9.87	-67.24
213	Heat /10	J[215]	-58.15	-142.28	-3.66	-1.41	15.37	146.18
214	Heat /10	I[198]	-38.65	-131.43	-1.93	-0.5	1.11	-61.6
214	Heat /10	J[216]	-38.65	-131.43	-1.93	-0.5	4	135.54
215	Heat /10	I[199]	-22.34	-114.54	-2.07	0.14	-4.71	-53.68
215	Heat /10	J[217]	-22.34	-114.54	-2.07	0.14	-1.61	118.14
216	Heat /10	I[200]	-20.5	-95.95	-2.25	0.4	-6.79	-44.96
216	Heat /10	J[218]	-20.5	-95.95	-2.25	0.4	-3.41	98.97
217	Heat /10	I[201]	-20.74	-75.99	-2.33	0.48	-7.48	-35.59
217	Heat /10	J[219]	-20.74	-75.99	-2.33	0.48	-3.98	78.39
218	Heat /10	I[202]	-20.78	-54.98	-2.39	0.44	-7.71	-25.74
218	Heat /10	J[220]	-20.78	-54.98	-2.39	0.44	-4.12	56.73
219	Heat /10	I[203]	-20.74	-33.25	-2.43	0.3	-7.78	-15.56
219	Heat /10	J[221]	-20.74	-33.25	-2.43	0.3	-4.13	34.32
220	Heat /10	I[204]	-20.71	-11.13	-2.45	0.1	-7.8	-5.21
220	Heat /10	J[222]	-20.71	-11.13	-2.45	0.1	-4.12	11.49
221	Heat /10	I[205]	-20.71	11.13	-2.45	-0.1	-7.8	5.21
221	Heat /10	J[223]	-20.71	11.13	-2.45	-0.1	-4.12	-11.49
222	Heat /10	I[206]	-20.74	33.25	-2.43	-0.3	-7.78	15.56
222	Heat /10	J[224]	-20.74	33.25	-2.43	-0.3	-4.13	-34.32
223	Heat /10	I[207]	-20.78	54.98	-2.39	-0.44	-7.71	25.74
223	Heat /10	J[225]	-20.78	54.98	-2.39	-0.44	-4.12	-56.73
224	Heat /10	I[208]	-20.74	75.99	-2.33	-0.48	-7.48	35.59
224	Heat /10	J[226]	-20.74	75.99	-2.33	-0.48	-3.98	-78.39
225	Heat /10	I[209]	-20.5	95.95	-2.25	-0.4	-6.79	44.96
225	Heat /10	J[227]	-20.5	95.95	-2.25	-0.4	-3.41	-98.97
226	Heat /10	I[210]	-22.34	114.54	-2.07	-0.14	-4.71	53.68
226	Heat /10	J[228]	-22.34	114.54	-2.07	-0.14	-1.61	-118.14
227	Heat /10	I[211]	-38.65	131.43	-1.93	0.5	1.11	61.6
227	Heat /10	J[229]	-38.65	131.43	-1.93	0.5	4	-135.54
228	Heat /10	I[212]	-58.15	142.28	-3.66	1.41	9.87	67.24
228	Heat /10	J[230]	-58.15	142.28	-3.66	1.41	15.37	-146.18
229	Heat /10	I[213]	87.66	-366.68	46.12	28.49	66.83	-283.17
229	Heat /10	J[353]	87.66	-366.68	46.12	28.49	20.7	83.52
230	Heat /10	I[214]	87.66	366.68	46.12	-28.49	66.83	283.17
230	Heat /10	J[370]	87.66	366.68	46.12	-28.49	20.7	-83.52
231	Heat /10	I[215]	-25.68	-374.66	-11.53	14.76	-1.11	-284.43
231	Heat /10	J[354]	-25.68	-374.66	-11.53	14.76	10.42	90.23
232	Heat /10	I[216]	-14.01	-314.39	-5.27	12.34	-7.68	-238.34
232	Heat /10	J[355]	-14.01	-314.39	-5.27	12.34	-2.41	76.05

233	Heat /10	I[217]	-8.62	-259.93	-5.21	9.72	-8.2	-196.96
233	Heat /10	J[356]	-8.62	-259.93	-5.21	9.72	-2.99	62.96
234	Heat /10	I[218]	-8.13	-209.48	-5	7.59	-9.27	-158.64
234	Heat /10	J[357]	-8.13	-209.48	-5	7.59	-4.27	50.84
235	Heat /10	I[219]	-7.97	-161.43	-4.86	5.72	-9.97	-122.2
235	Heat /10	J[358]	-7.97	-161.43	-4.86	5.72	-5.11	39.22
236	Heat /10	I[220]	-7.82	-114.62	-4.78	4	-10.18	-86.76
236	Heat /10	J[359]	-7.82	-114.62	-4.78	4	-5.4	27.87
237	Heat /10	I[221]	-7.73	-68.53	-4.74	2.37	-10.21	-51.86
237	Heat /10	J[360]	-7.73	-68.53	-4.74	2.37	-5.47	16.67
238	Heat /10	I[222]	-7.69	-22.81	-4.72	0.78	-10.2	-17.26
238	Heat /10	J[361]	-7.69	-22.81	-4.72	0.78	-5.48	5.55
239	Heat /10	I[223]	-7.69	22.81	-4.72	-0.78	-10.2	17.26
239	Heat /10	J[362]	-7.69	22.81	-4.72	-0.78	-5.48	-5.55
240	Heat /10	I[224]	-7.73	68.53	-4.74	-2.37	-10.21	51.86
240	Heat /10	J[363]	-7.73	68.53	-4.74	-2.37	-5.47	-16.67
241	Heat /10	I[225]	-7.82	114.62	-4.78	-4	-10.18	86.76
241	Heat /10	J[364]	-7.82	114.62	-4.78	-4	-5.4	-27.87
242	Heat /10	I[226]	-7.97	161.43	-4.86	-5.72	-9.97	122.2
242	Heat /10	J[365]	-7.97	161.43	-4.86	-5.72	-5.11	-39.22
243	Heat /10	I[227]	-8.13	209.48	-5	-7.59	-9.27	158.64
243	Heat /10	J[366]	-8.13	209.48	-5	-7.59	-4.27	-50.84
244	Heat /10	I[228]	-8.62	259.93	-5.21	-9.72	-8.2	196.96
244	Heat /10	J[367]	-8.62	259.93	-5.21	-9.72	-2.99	-62.96
245	Heat /10	I[229]	-14.01	314.39	-5.27	-12.34	-7.68	238.34
245	Heat /10	J[368]	-14.01	314.39	-5.27	-12.34	-2.41	-76.05
246	Heat /10	I[230]	-25.68	374.66	-11.53	-14.76	-1.11	284.43
246	Heat /10	J[369]	-25.68	374.66	-11.53	-14.76	10.42	-90.23
247	Heat /10	I[1]	135.85	-87.66	-68.78	38.11	225.5	-260.59
247	Heat /10	J[231]	135.85	-87.66	-68.78	38.11	377.23	-67.23
248	Heat /10	I[19]	135.85	87.66	-68.78	-38.11	225.5	260.59
248	Heat /10	J[232]	135.85	87.66	-68.78	-38.11	377.23	67.23
249	Heat /10	I[231]	135.85	-87.66	-68.78	38.11	377.23	-67.23
249	Heat /10	J[37]	135.85	-87.66	-68.78	38.11	528.96	126.12
250	Heat /10	I[232]	135.85	87.66	-68.78	-38.11	377.23	67.23
250	Heat /10	J[53]	135.85	87.66	-68.78	-38.11	528.96	-126.12
251	Heat /10	I[37]	510.52	-61.98	-71.92	11.45	361.36	-151.44
251	Heat /10	J[233]	510.52	-61.98	-71.92	11.45	520.02	-14.72
252	Heat /10	I[53]	510.52	61.98	-71.92	-11.45	361.36	151.44
252	Heat /10	J[234]	510.52	61.98	-71.92	-11.45	520.02	14.72
253	Heat /10	I[233]	510.52	-61.98	-71.92	11.45	520.02	-14.72
253	Heat /10	J[38]	510.52	-61.98	-71.92	11.45	678.68	122
254	Heat /10	I[234]	510.52	61.98	-71.92	-11.45	520.02	14.72
254	Heat /10	J[54]	510.52	61.98	-71.92	-11.45	678.68	-122
255	Heat /10	I[38]	824.91	-47.97	-62.49	5.51	538.1	-111.25
255	Heat /10	J[235]	824.91	-47.97	-62.49	5.51	675.94	-5.44
256	Heat /10	I[54]	824.91	47.97	-62.49	-5.51	538.1	111.25
256	Heat /10	J[236]	824.91	47.97	-62.49	-5.51	675.94	5.44
257	Heat /10	I[235]	824.91	-47.97	-62.49	5.51	675.94	-5.44
257	Heat /10	J[39]	824.91	-47.97	-62.49	5.51	813.79	100.38
258	Heat /10	I[236]	824.91	47.97	-62.49	-5.51	675.94	5.44
258	Heat /10	J[55]	824.91	47.97	-62.49	-5.51	813.79	-100.38
259	Heat /10	I[39]	1084.83	-39.35	-51.94	2.37	698.05	-92.55
259	Heat /10	J[237]	1084.83	-39.35	-51.94	2.37	812.62	-5.75
260	Heat /10	I[55]	1084.83	39.35	-51.94	-2.37	698.05	92.55
260	Heat /10	J[238]	1084.83	39.35	-51.94	-2.37	812.62	5.75
261	Heat /10	I[237]	1084.83	-39.35	-51.94	2.37	812.62	-5.75
261	Heat /10	J[40]	1084.83	-39.35	-51.94	2.37	927.19	81.04
262	Heat /10	I[238]	1084.83	39.35	-51.94	-2.37	812.62	5.75
262	Heat /10	J[56]	1084.83	39.35	-51.94	-2.37	927.19	-81.04
263	Heat /10	I[40]	1294.32	-31.22	-41.33	0.83	834.15	-74.54

263	Heat /10	J[239]	1294.32	-31.22	-41.33	0.83	925.32	-5.69
264	Heat /10	I[56]	1294.32	31.22	-41.33	-0.83	834.15	74.54
264	Heat /10	J[240]	1294.32	31.22	-41.33	-0.83	925.32	5.69
265	Heat /10	I[239]	1294.32	-31.22	-41.33	0.83	925.32	-5.69
265	Heat /10	J[41]	1294.32	-31.22	-41.33	0.83	1016.48	63.17
266	Heat /10	I[240]	1294.32	31.22	-41.33	-0.83	925.32	5.69
266	Heat /10	J[57]	1294.32	31.22	-41.33	-0.83	1016.48	-63.17
267	Heat /10	I[41]	1455.74	-23.25	-30.86	0.25	944.92	-56.76
267	Heat /10	J[241]	1455.74	-23.25	-30.86	0.25	1012.98	-5.48
268	Heat /10	I[57]	1455.74	23.25	-30.86	-0.25	944.92	56.76
268	Heat /10	J[242]	1455.74	23.25	-30.86	-0.25	1012.98	5.48
269	Heat /10	I[241]	1455.74	-23.25	-30.86	0.25	1012.98	-5.48
269	Heat /10	J[42]	1455.74	-23.25	-30.86	0.25	1081.05	45.8
270	Heat /10	I[242]	1455.74	23.25	-30.86	-0.25	1012.98	5.48
270	Heat /10	J[58]	1455.74	23.25	-30.86	-0.25	1081.05	-45.8
271	Heat /10	I[42]	1570.37	-15.42	-20.51	0.07	1030.3	-39.38
271	Heat /10	J[243]	1570.37	-15.42	-20.51	0.07	1075.54	-5.36
272	Heat /10	I[58]	1570.37	15.42	-20.51	-0.07	1030.3	39.38
272	Heat /10	J[244]	1570.37	15.42	-20.51	-0.07	1075.54	5.36
273	Heat /10	I[243]	1570.37	-15.42	-20.51	0.07	1075.54	-5.36
273	Heat /10	J[43]	1570.37	-15.42	-20.51	0.07	1120.78	28.66
274	Heat /10	I[244]	1570.37	15.42	-20.51	-0.07	1075.54	5.36
274	Heat /10	J[59]	1570.37	15.42	-20.51	-0.07	1120.78	-28.66
275	Heat /10	I[43]	1638.9	-7.69	-10.24	0.01	1090.46	-22.27
275	Heat /10	J[245]	1638.9	-7.69	-10.24	0.01	1113.05	-5.3
276	Heat /10	I[59]	1638.9	7.69	-10.24	-0.01	1090.46	22.27
276	Heat /10	J[246]	1638.9	7.69	-10.24	-0.01	1113.05	5.3
277	Heat /10	I[245]	1638.9	-7.69	-10.24	0.01	1113.05	-5.3
277	Heat /10	J[44]	1638.9	-7.69	-10.24	0.01	1135.63	11.66
278	Heat /10	I[246]	1638.9	7.69	-10.24	-0.01	1113.05	5.3
278	Heat /10	J[60]	1638.9	7.69	-10.24	-0.01	1135.63	-11.66
279	Heat /10	I[44]	1661.71	0	0	0	1125.54	-5.29
279	Heat /10	J[247]	1661.71	0	0	0	1125.54	-5.29
280	Heat /10	I[60]	1661.71	0	0	0	1125.54	5.29
280	Heat /10	J[248]	1661.71	0	0	0	1125.54	5.29
281	Heat /10	I[247]	1661.71	0	0	0	1125.54	-5.29
281	Heat /10	J[45]	1661.71	0	0	0	1125.54	-5.29
282	Heat /10	I[248]	1661.71	0	0	0	1125.54	5.29
282	Heat /10	J[61]	1661.71	0	0	0	1125.54	5.29
283	Heat /10	I[45]	1638.9	7.69	10.24	-0.01	1135.63	11.66
283	Heat /10	J[249]	1638.9	7.69	10.24	-0.01	1113.05	-5.3
284	Heat /10	I[61]	1638.9	-7.69	10.24	0.01	1135.63	-11.66
284	Heat /10	J[250]	1638.9	-7.69	10.24	0.01	1113.05	5.3
285	Heat /10	I[249]	1638.9	7.69	10.24	-0.01	1113.05	-5.3
285	Heat /10	J[46]	1638.9	7.69	10.24	-0.01	1090.46	-22.27
286	Heat /10	I[250]	1638.9	-7.69	10.24	0.01	1113.05	5.3
286	Heat /10	J[62]	1638.9	-7.69	10.24	0.01	1090.46	22.27
287	Heat /10	I[46]	1570.37	15.42	20.51	-0.07	1120.78	28.66
287	Heat /10	J[251]	1570.37	15.42	20.51	-0.07	1075.54	-5.36
288	Heat /10	I[62]	1570.37	-15.42	20.51	0.07	1120.78	-28.66
288	Heat /10	J[252]	1570.37	-15.42	20.51	0.07	1075.54	5.36
289	Heat /10	I[251]	1570.37	15.42	20.51	-0.07	1075.54	-5.36
289	Heat /10	J[47]	1570.37	15.42	20.51	-0.07	1030.3	-39.38
290	Heat /10	I[252]	1570.37	-15.42	20.51	0.07	1075.54	5.36
290	Heat /10	J[63]	1570.37	-15.42	20.51	0.07	1030.3	39.38
291	Heat /10	I[47]	1455.74	23.25	30.86	-0.25	1081.05	45.8
291	Heat /10	J[253]	1455.74	23.25	30.86	-0.25	1012.98	-5.48
292	Heat /10	I[63]	1455.74	-23.25	30.86	0.25	1081.05	-45.8
292	Heat /10	J[254]	1455.74	-23.25	30.86	0.25	1012.98	5.48
293	Heat /10	I[253]	1455.74	23.25	30.86	-0.25	1012.98	-5.48
293	Heat /10	J[48]	1455.74	23.25	30.86	-0.25	944.92	-56.76

294	Heat /10	I[254]	1455.74	-23.25	30.86	0.25	1012.98	5.48
294	Heat /10	J[64]	1455.74	-23.25	30.86	0.25	944.92	56.76
295	Heat /10	I[48]	1294.32	31.22	41.33	-0.83	1016.48	63.17
295	Heat /10	J[255]	1294.32	31.22	41.33	-0.83	925.32	-5.69
296	Heat /10	I[64]	1294.32	-31.22	41.33	0.83	1016.48	-63.17
296	Heat /10	J[256]	1294.32	-31.22	41.33	0.83	925.32	5.69
297	Heat /10	I[255]	1294.32	31.22	41.33	-0.83	925.32	-5.69
297	Heat /10	J[49]	1294.32	31.22	41.33	-0.83	834.15	-74.54
298	Heat /10	I[256]	1294.32	-31.22	41.33	0.83	925.32	5.69
298	Heat /10	J[65]	1294.32	-31.22	41.33	0.83	834.15	74.54
299	Heat /10	I[49]	1084.83	39.35	51.94	-2.37	927.19	81.04
299	Heat /10	J[257]	1084.83	39.35	51.94	-2.37	812.62	-5.75
300	Heat /10	I[65]	1084.83	-39.35	51.94	2.37	927.19	-81.04
300	Heat /10	J[258]	1084.83	-39.35	51.94	2.37	812.62	5.75
301	Heat /10	I[257]	1084.83	39.35	51.94	-2.37	812.62	-5.75
301	Heat /10	J[50]	1084.83	39.35	51.94	-2.37	698.05	-92.55
302	Heat /10	I[258]	1084.83	-39.35	51.94	2.37	812.62	5.75
302	Heat /10	J[66]	1084.83	-39.35	51.94	2.37	698.05	92.55
303	Heat /10	I[50]	824.91	47.97	62.49	-5.51	813.79	100.38
303	Heat /10	J[259]	824.91	47.97	62.49	-5.51	675.94	-5.44
304	Heat /10	I[66]	824.91	-47.97	62.49	5.51	813.79	-100.38
304	Heat /10	J[260]	824.91	-47.97	62.49	5.51	675.94	5.44
305	Heat /10	I[259]	824.91	47.97	62.49	-5.51	675.94	-5.44
305	Heat /10	J[51]	824.91	47.97	62.49	-5.51	538.1	-111.25
306	Heat /10	I[260]	824.91	-47.97	62.49	5.51	675.94	5.44
306	Heat /10	J[67]	824.91	-47.97	62.49	5.51	538.1	111.25
307	Heat /10	I[51]	510.52	61.98	71.92	-11.45	678.68	122
307	Heat /10	J[261]	510.52	61.98	71.92	-11.45	520.02	-14.72
308	Heat /10	I[67]	510.52	-61.98	71.92	11.45	678.68	-122
308	Heat /10	J[262]	510.52	-61.98	71.92	11.45	520.02	14.72
309	Heat /10	I[261]	510.52	61.98	71.92	-11.45	520.02	-14.72
309	Heat /10	J[52]	510.52	61.98	71.92	-11.45	361.36	-151.44
310	Heat /10	I[262]	510.52	-61.98	71.92	11.45	520.02	14.72
310	Heat /10	J[68]	510.52	-61.98	71.92	11.45	361.36	151.44
311	Heat /10	I[52]	135.85	87.66	68.78	-38.11	528.96	126.12
311	Heat /10	J[263]	135.85	87.66	68.78	-38.11	377.23	-67.23
312	Heat /10	I[68]	135.85	-87.66	68.78	38.11	528.96	-126.12
312	Heat /10	J[264]	135.85	-87.66	68.78	38.11	377.23	67.23
313	Heat /10	I[263]	135.85	87.66	68.78	-38.11	377.23	-67.23
313	Heat /10	J[18]	135.85	87.66	68.78	-38.11	225.5	-260.59
314	Heat /10	I[264]	135.85	-87.66	68.78	38.11	377.23	67.23
314	Heat /10	J[36]	135.85	-87.66	68.78	38.11	225.5	260.59
315	Heat /10	I[1]	0	0	0	0	0	0
315	Heat /10	J[265]	0	0	0	0	0	0
316	Heat /10	I[18]	0	0	0	0	0	0
316	Heat /10	J[266]	0	0	0	0	0	0
317	Heat /10	I[37]	0	0	0	0	0	0
317	Heat /10	J[267]	0	0	0	0	0	0
318	Heat /10	I[38]	0	0	0	0	0	0
318	Heat /10	J[268]	0	0	0	0	0	0
319	Heat /10	I[39]	0	0	0	0	0	0
319	Heat /10	J[269]	0	0	0	0	0	0
320	Heat /10	I[40]	0	0	0	0	0	0
320	Heat /10	J[270]	0	0	0	0	0	0
321	Heat /10	I[41]	0	0	0	0	0	0
321	Heat /10	J[271]	0	0	0	0	0	0
322	Heat /10	I[42]	0	0	0	0	0	0
322	Heat /10	J[272]	0	0	0	0	0	0
323	Heat /10	I[43]	0	0	0	0	0	0
323	Heat /10	J[273]	0	0	0	0	0	0
324	Heat /10	I[44]	0	0	0	0	0	0

324	Heat /10	J[274]	0	0	0	0	0	0
325	Heat /10	I[45]	0	0	0	0	0	0
325	Heat /10	J[275]	0	0	0	0	0	0
326	Heat /10	I[46]	0	0	0	0	0	0
326	Heat /10	J[276]	0	0	0	0	0	0
327	Heat /10	I[47]	0	0	0	0	0	0
327	Heat /10	J[277]	0	0	0	0	0	0
328	Heat /10	I[48]	0	0	0	0	0	0
328	Heat /10	J[278]	0	0	0	0	0	0
329	Heat /10	I[49]	0	0	0	0	0	0
329	Heat /10	J[279]	0	0	0	0	0	0
330	Heat /10	I[50]	0	0	0	0	0	0
330	Heat /10	J[280]	0	0	0	0	0	0
331	Heat /10	I[51]	0	0	0	0	0	0
331	Heat /10	J[281]	0	0	0	0	0	0
332	Heat /10	I[52]	0	0	0	0	0	0
332	Heat /10	J[282]	0	0	0	0	0	0
333	Heat /10	I[231]	0	0	0	0	0	0
333	Heat /10	J[283]	0	0	0	0	0	0
334	Heat /10	I[233]	0	0	0	0	0	0
334	Heat /10	J[284]	0	0	0	0	0	0
335	Heat /10	I[235]	0	0	0	0	0	0
335	Heat /10	J[285]	0	0	0	0	0	0
336	Heat /10	I[237]	0	0	0	0	0	0
336	Heat /10	J[286]	0	0	0	0	0	0
337	Heat /10	I[239]	0	0	0	0	0	0
337	Heat /10	J[287]	0	0	0	0	0	0
338	Heat /10	I[241]	0	0	0	0	0	0
338	Heat /10	J[288]	0	0	0	0	0	0
339	Heat /10	I[243]	0	0	0	0	0	0
339	Heat /10	J[289]	0	0	0	0	0	0
340	Heat /10	I[245]	0	0	0	0	0	0
340	Heat /10	J[290]	0	0	0	0	0	0
341	Heat /10	I[247]	0	0	0	0	0	0
341	Heat /10	J[291]	0	0	0	0	0	0
342	Heat /10	I[249]	0	0	0	0	0	0
342	Heat /10	J[292]	0	0	0	0	0	0
343	Heat /10	I[251]	0	0	0	0	0	0
343	Heat /10	J[293]	0	0	0	0	0	0
344	Heat /10	I[253]	0	0	0	0	0	0
344	Heat /10	J[294]	0	0	0	0	0	0
345	Heat /10	I[255]	0	0	0	0	0	0
345	Heat /10	J[295]	0	0	0	0	0	0
346	Heat /10	I[257]	0	0	0	0	0	0
346	Heat /10	J[296]	0	0	0	0	0	0
347	Heat /10	I[259]	0	0	0	0	0	0
347	Heat /10	J[297]	0	0	0	0	0	0
348	Heat /10	I[261]	0	0	0	0	0	0
348	Heat /10	J[298]	0	0	0	0	0	0
349	Heat /10	I[263]	0	0	0	0	0	0
349	Heat /10	J[299]	0	0	0	0	0	0
350	Heat /10	I[19]	0	0	0	0	0	0
350	Heat /10	J[300]	0	0	0	0	0	0
351	Heat /10	I[36]	0	0	0	0	0	0
351	Heat /10	J[301]	0	0	0	0	0	0
352	Heat /10	I[53]	0	0	0	0	0	0
352	Heat /10	J[302]	0	0	0	0	0	0
353	Heat /10	I[54]	0	0	0	0	0	0
353	Heat /10	J[303]	0	0	0	0	0	0
354	Heat /10	I[55]	0	0	0	0	0	0
354	Heat /10	J[304]	0	0	0	0	0	0

355	Heat /10	I[56]	0	0	0	0	0	0
355	Heat /10	J[305]	0	0	0	0	0	0
356	Heat /10	I[57]	0	0	0	0	0	0
356	Heat /10	J[306]	0	0	0	0	0	0
357	Heat /10	I[58]	0	0	0	0	0	0
357	Heat /10	J[307]	0	0	0	0	0	0
358	Heat /10	I[59]	0	0	0	0	0	0
358	Heat /10	J[308]	0	0	0	0	0	0
359	Heat /10	I[60]	0	0	0	0	0	0
359	Heat /10	J[309]	0	0	0	0	0	0
360	Heat /10	I[61]	0	0	0	0	0	0
360	Heat /10	J[310]	0	0	0	0	0	0
361	Heat /10	I[62]	0	0	0	0	0	0
361	Heat /10	J[311]	0	0	0	0	0	0
362	Heat /10	I[63]	0	0	0	0	0	0
362	Heat /10	J[312]	0	0	0	0	0	0
363	Heat /10	I[64]	0	0	0	0	0	0
363	Heat /10	J[313]	0	0	0	0	0	0
364	Heat /10	I[65]	0	0	0	0	0	0
364	Heat /10	J[314]	0	0	0	0	0	0
365	Heat /10	I[66]	0	0	0	0	0	0
365	Heat /10	J[315]	0	0	0	0	0	0
366	Heat /10	I[67]	0	0	0	0	0	0
366	Heat /10	J[316]	0	0	0	0	0	0
367	Heat /10	I[68]	0	0	0	0	0	0
367	Heat /10	J[317]	0	0	0	0	0	0
368	Heat /10	I[232]	0	0	0	0	0	0
368	Heat /10	J[318]	0	0	0	0	0	0
369	Heat /10	I[234]	0	0	0	0	0	0
369	Heat /10	J[319]	0	0	0	0	0	0
370	Heat /10	I[236]	0	0	0	0	0	0
370	Heat /10	J[320]	0	0	0	0	0	0
371	Heat /10	I[238]	0	0	0	0	0	0
371	Heat /10	J[321]	0	0	0	0	0	0
372	Heat /10	I[240]	0	0	0	0	0	0
372	Heat /10	J[322]	0	0	0	0	0	0
373	Heat /10	I[242]	0	0	0	0	0	0
373	Heat /10	J[323]	0	0	0	0	0	0
374	Heat /10	I[244]	0	0	0	0	0	0
374	Heat /10	J[324]	0	0	0	0	0	0
375	Heat /10	I[246]	0	0	0	0	0	0
375	Heat /10	J[325]	0	0	0	0	0	0
376	Heat /10	I[248]	0	0	0	0	0	0
376	Heat /10	J[326]	0	0	0	0	0	0
377	Heat /10	I[250]	0	0	0	0	0	0
377	Heat /10	J[327]	0	0	0	0	0	0
378	Heat /10	I[252]	0	0	0	0	0	0
378	Heat /10	J[328]	0	0	0	0	0	0
379	Heat /10	I[254]	0	0	0	0	0	0
379	Heat /10	J[329]	0	0	0	0	0	0
380	Heat /10	I[256]	0	0	0	0	0	0
380	Heat /10	J[330]	0	0	0	0	0	0
381	Heat /10	I[258]	0	0	0	0	0	0
381	Heat /10	J[331]	0	0	0	0	0	0
382	Heat /10	I[260]	0	0	0	0	0	0
382	Heat /10	J[332]	0	0	0	0	0	0
383	Heat /10	I[262]	0	0	0	0	0	0
383	Heat /10	J[333]	0	0	0	0	0	0
384	Heat /10	I[264]	0	0	0	0	0	0
384	Heat /10	J[334]	0	0	0	0	0	0
385	Heat /10	I[69]	-230.97	-134.94	-26.59	1.8	-75.99	-421.11

385	Heat /10	J[71]	-230.97	-134.94	-26.59	1.8	41.33	174.23
386	Heat /10	I[105]	-99.7	-103.59	-14.44	0.93	-48	-309.49
386	Heat /10	J[107]	-99.7	-103.59	-14.44	0.93	15.72	147.53
387	Heat /10	I[141]	-72.01	0	-10.18	0	-37.61	0
387	Heat /10	J[143]	-72.01	0	-10.18	0	7.29	0
388	Heat /10	I[177]	-99.7	103.59	-14.44	-0.93	-48	309.49
388	Heat /10	J[179]	-99.7	103.59	-14.44	-0.93	15.72	-147.53
389	Heat /10	I[213]	-230.97	134.94	-26.59	-1.8	-75.99	421.11
389	Heat /10	J[215]	-230.97	134.94	-26.59	-1.8	41.33	-174.23
390	Heat /10	I[71]	-463.36	-102.47	-18.72	0.48	-51.05	-256.39
390	Heat /10	J[72]	-463.36	-102.47	-18.72	0.48	31.55	195.67
391	Heat /10	I[107]	-201.07	-79.13	-11.35	0.26	-34.05	-188.12
391	Heat /10	J[108]	-201.07	-79.13	-11.35	0.26	16.03	161
392	Heat /10	I[143]	-153.84	0	-9.03	0	-28.91	0
392	Heat /10	J[144]	-153.84	0	-9.03	0	10.93	0
393	Heat /10	I[179]	-201.07	79.13	-11.35	-0.26	-34.05	188.12
393	Heat /10	J[180]	-201.07	79.13	-11.35	-0.26	16.03	-161
394	Heat /10	I[215]	-463.36	102.47	-18.72	-0.48	-51.05	256.39
394	Heat /10	J[216]	-463.36	102.47	-18.72	-0.48	31.55	-195.67
395	Heat /10	I[72]	-646.32	-77.83	-15.38	0.3	-41.07	-178.21
395	Heat /10	J[73]	-646.32	-77.83	-15.38	0.3	26.78	165.15
396	Heat /10	I[108]	-293.31	-66.19	-9.97	0.16	-28.48	-151.38
396	Heat /10	J[109]	-293.31	-66.19	-9.97	0.16	15.5	140.64
397	Heat /10	I[144]	-232.22	0	-7.93	0	-23.83	0
397	Heat /10	J[145]	-232.22	0	-7.93	0	11.14	0
398	Heat /10	I[180]	-293.31	66.19	-9.97	-0.16	-28.48	151.38
398	Heat /10	J[181]	-293.31	66.19	-9.97	-0.16	15.5	-140.64
399	Heat /10	I[216]	-646.32	77.83	-15.38	-0.3	-41.07	178.21
399	Heat /10	J[217]	-646.32	77.83	-15.38	-0.3	26.78	-165.15
400	Heat /10	I[73]	-791.71	-64.11	-12.23	0.12	-31.55	-149.95
400	Heat /10	J[376]	-791.71	-64.11	-12.23	0.12	-4.56	-8.52
401	Heat /10	I[109]	-373.55	-56.4	-8.45	0.06	-22.77	-131.65
401	Heat /10	J[377]	-373.55	-56.4	-8.45	0.06	-4.12	-7.25
402	Heat /10	I[145]	-300.82	0	-6.82	0	-19.05	0
402	Heat /10	J[378]	-300.82	0	-6.82	0	-4	0
403	Heat /10	I[181]	-373.55	56.4	-8.45	-0.06	-22.77	131.65
403	Heat /10	J[379]	-373.55	56.4	-8.45	-0.06	-4.12	7.25
404	Heat /10	I[217]	-791.71	64.11	-12.23	-0.12	-31.55	149.95
404	Heat /10	J[380]	-791.71	64.11	-12.23	-0.12	-4.56	8.52
405	Heat /10	I[74]	-905.24	-51.75	-9.48	0.04	-23.41	-124.7
405	Heat /10	J[75]	-905.24	-51.75	-9.48	0.04	18.43	103.59
406	Heat /10	I[110]	-440.6	-46.31	-6.83	0.02	-17.22	-111.1
406	Heat /10	J[111]	-440.6	-46.31	-6.83	0.02	12.93	93.21
407	Heat /10	I[146]	-358.63	0	-5.56	0	-14.29	0
407	Heat /10	J[147]	-358.63	0	-5.56	0	10.25	0
408	Heat /10	I[182]	-440.6	46.31	-6.83	-0.02	-17.22	111.1
408	Heat /10	J[183]	-440.6	46.31	-6.83	-0.02	12.93	-93.21
409	Heat /10	I[218]	-905.24	51.75	-9.48	-0.04	-23.41	124.7
409	Heat /10	J[219]	-905.24	51.75	-9.48	-0.04	18.43	-103.59
410	Heat /10	I[75]	-990.68	-38.98	-6.96	0.01	-16.25	-97
410	Heat /10	J[76]	-990.68	-38.98	-6.96	0.01	14.44	74.96
411	Heat /10	I[111]	-493.56	-35.37	-5.17	0	-12.03	-87.71
411	Heat /10	J[112]	-493.56	-35.37	-5.17	0	10.76	68.33
412	Heat /10	I[147]	-404.69	0	-4.23	0	-9.85	0
412	Heat /10	J[148]	-404.69	0	-4.23	0	8.82	0
413	Heat /10	I[183]	-493.56	35.37	-5.17	0	-12.03	87.71
413	Heat /10	J[184]	-493.56	35.37	-5.17	0	10.76	-68.33
414	Heat /10	I[219]	-990.68	38.98	-6.96	-0.01	-16.25	97
414	Heat /10	J[220]	-990.68	38.98	-6.96	-0.01	14.44	-74.96
415	Heat /10	I[76]	-1050.33	-26.03	-4.57	0	-9.87	-68.53
415	Heat /10	J[77]	-1050.33	-26.03	-4.57	0	10.29	46.3

416	Heat /10	I[112]	-531.79	-23.85	-3.46	0	-7.2	-62.67
416	Heat /10	J[113]	-531.79	-23.85	-3.46	0	8.08	42.55
417	Heat /10	I[148]	-438.17	0	-2.85	0	-5.73	0
417	Heat /10	J[149]	-438.17	0	-2.85	0	6.84	0
418	Heat /10	I[184]	-531.79	23.85	-3.46	0	-7.2	62.67
418	Heat /10	J[185]	-531.79	23.85	-3.46	0	8.08	-42.55
419	Heat /10	I[220]	-1050.33	26.03	-4.57	0	-9.87	68.53
419	Heat /10	J[221]	-1050.33	26.03	-4.57	0	10.29	-46.3
420	Heat /10	I[77]	-1085.6	-13.02	-2.27	0	-4.11	-39.89
420	Heat /10	J[78]	-1085.6	-13.02	-2.27	0	5.88	17.57
421	Heat /10	I[113]	-554.89	-12	-1.74	0	-2.75	-36.74
421	Heat /10	J[114]	-554.89	-12	-1.74	0	4.92	16.21
422	Heat /10	I[149]	-458.48	0	-1.43	0	-1.97	0
422	Heat /10	J[150]	-458.48	0	-1.43	0	4.36	0
423	Heat /10	I[185]	-554.89	12	-1.74	0	-2.75	36.74
423	Heat /10	J[186]	-554.89	12	-1.74	0	4.92	-16.21
424	Heat /10	I[221]	-1085.6	13.02	-2.27	0	-4.11	39.89
424	Heat /10	J[222]	-1085.6	13.02	-2.27	0	5.88	-17.57
425	Heat /10	I[78]	-1097.28	0	0	0	1.11	-11.18
425	Heat /10	J[371]	-1097.28	0	0	0	1.11	-11.18
426	Heat /10	I[114]	-562.61	0	0	0	1.3	-10.33
426	Heat /10	J[372]	-562.61	0	0	0	1.3	-10.33
427	Heat /10	I[150]	-465.29	0	0	0	1.41	0
427	Heat /10	J[373]	-465.29	0	0	0	1.41	0
428	Heat /10	I[186]	-562.61	0	0	0	1.3	10.33
428	Heat /10	J[374]	-562.61	0	0	0	1.3	10.33
429	Heat /10	I[222]	-1097.28	0	0	0	1.11	11.18
429	Heat /10	J[375]	-1097.28	0	0	0	1.11	11.18
430	Heat /10	I[79]	-1085.6	13.02	2.27	0	5.88	17.57
430	Heat /10	J[80]	-1085.6	13.02	2.27	0	-4.11	-39.89
431	Heat /10	I[115]	-554.89	12	1.74	0	4.92	16.21
431	Heat /10	J[116]	-554.89	12	1.74	0	-2.75	-36.74
432	Heat /10	I[151]	-458.48	0	1.43	0	4.36	0
432	Heat /10	J[152]	-458.48	0	1.43	0	-1.97	0
433	Heat /10	I[187]	-554.89	-12	1.74	0	4.92	-16.21
433	Heat /10	J[188]	-554.89	-12	1.74	0	-2.75	36.74
434	Heat /10	I[223]	-1085.6	-13.02	2.27	0	5.88	-17.57
434	Heat /10	J[224]	-1085.6	-13.02	2.27	0	-4.11	39.89
435	Heat /10	I[80]	-1050.33	26.03	4.57	0	10.29	46.3
435	Heat /10	J[81]	-1050.33	26.03	4.57	0	-9.87	-68.53
436	Heat /10	I[116]	-531.79	23.85	3.46	0	8.08	42.55
436	Heat /10	J[117]	-531.79	23.85	3.46	0	-7.2	-62.67
437	Heat /10	I[152]	-438.17	0	2.85	0	6.84	0
437	Heat /10	J[153]	-438.17	0	2.85	0	-5.73	0
438	Heat /10	I[188]	-531.79	-23.85	3.46	0	8.08	-42.55
438	Heat /10	J[189]	-531.79	-23.85	3.46	0	-7.2	62.67
439	Heat /10	I[224]	-1050.33	-26.03	4.57	0	10.29	-46.3
439	Heat /10	J[225]	-1050.33	-26.03	4.57	0	-9.87	68.53
440	Heat /10	I[81]	-990.68	38.98	6.96	-0.01	14.44	74.96
440	Heat /10	J[82]	-990.68	38.98	6.96	-0.01	-16.25	-97
441	Heat /10	I[117]	-493.56	35.37	5.17	0	10.76	68.33
441	Heat /10	J[118]	-493.56	35.37	5.17	0	-12.03	-87.71
442	Heat /10	I[153]	-404.69	0	4.23	0	8.82	0
442	Heat /10	J[154]	-404.69	0	4.23	0	-9.85	0
443	Heat /10	I[189]	-493.56	-35.37	5.17	0	10.76	-68.33
443	Heat /10	J[190]	-493.56	-35.37	5.17	0	-12.03	87.71
444	Heat /10	I[225]	-990.68	-38.98	6.96	0.01	14.44	-74.96
444	Heat /10	J[226]	-990.68	-38.98	6.96	0.01	-16.25	97
445	Heat /10	I[82]	-905.24	51.75	9.48	-0.04	18.43	103.59
445	Heat /10	J[83]	-905.24	51.75	9.48	-0.04	-23.41	-124.7
446	Heat /10	I[118]	-440.6	46.31	6.83	-0.02	12.93	93.21

446	Heat /10	J[119]	-440.6	46.31	6.83	-0.02	-17.22	-111.1
447	Heat /10	I[154]	-358.63	0	5.56	0	10.25	0
447	Heat /10	J[155]	-358.63	0	5.56	0	-14.29	0
448	Heat /10	I[190]	-440.6	-46.31	6.83	0.02	12.93	-93.21
448	Heat /10	J[191]	-440.6	-46.31	6.83	0.02	-17.22	111.1
449	Heat /10	I[226]	-905.24	-51.75	9.48	0.04	18.43	-103.59
449	Heat /10	J[227]	-905.24	-51.75	9.48	0.04	-23.41	124.7
450	Heat /10	I[83]	-791.71	64.11	12.23	-0.12	22.43	132.91
450	Heat /10	J[381]	-791.71	64.11	12.23	-0.12	-4.56	-8.52
451	Heat /10	I[119]	-373.55	56.4	8.45	-0.06	14.53	117.15
451	Heat /10	J[382]	-373.55	56.4	8.45	-0.06	-4.12	-7.25
452	Heat /10	I[155]	-300.82	0	6.82	0	11.05	0
452	Heat /10	J[383]	-300.82	0	6.82	0	-4	0
453	Heat /10	I[191]	-373.55	-56.4	8.45	0.06	14.53	-117.15
453	Heat /10	J[384]	-373.55	-56.4	8.45	0.06	-4.12	7.25
454	Heat /10	I[227]	-791.71	-64.11	12.23	0.12	22.43	-132.91
454	Heat /10	J[385]	-791.71	-64.11	12.23	0.12	-4.56	8.52
455	Heat /10	I[84]	-646.32	77.83	15.38	-0.3	26.78	165.15
455	Heat /10	J[85]	-646.32	77.83	15.38	-0.3	-41.07	-178.21
456	Heat /10	I[120]	-293.31	66.19	9.97	-0.16	15.5	140.64
456	Heat /10	J[121]	-293.31	66.19	9.97	-0.16	-28.48	-151.38
457	Heat /10	I[156]	-232.22	0	7.93	0	11.14	0
457	Heat /10	J[157]	-232.22	0	7.93	0	-23.83	0
458	Heat /10	I[192]	-293.31	-66.19	9.97	0.16	15.5	-140.64
458	Heat /10	J[193]	-293.31	-66.19	9.97	0.16	-28.48	151.38
459	Heat /10	I[228]	-646.32	-77.83	15.38	0.3	26.78	-165.15
459	Heat /10	J[229]	-646.32	-77.83	15.38	0.3	-41.07	178.21
460	Heat /10	I[85]	-463.36	102.47	18.72	-0.48	31.55	195.67
460	Heat /10	J[86]	-463.36	102.47	18.72	-0.48	-51.05	-256.39
461	Heat /10	I[121]	-201.07	79.13	11.35	-0.26	16.03	161
461	Heat /10	J[122]	-201.07	79.13	11.35	-0.26	-34.05	-188.12
462	Heat /10	I[157]	-153.84	0	9.03	0	10.93	0
462	Heat /10	J[158]	-153.84	0	9.03	0	-28.91	0
463	Heat /10	I[193]	-201.07	-79.13	11.35	0.26	16.03	-161
463	Heat /10	J[194]	-201.07	-79.13	11.35	0.26	-34.05	188.12
464	Heat /10	I[229]	-463.36	-102.47	18.72	0.48	31.55	-195.67
464	Heat /10	J[230]	-463.36	-102.47	18.72	0.48	-51.05	256.39
465	Heat /10	I[86]	-230.97	134.94	26.59	-1.8	41.33	174.23
465	Heat /10	J[70]	-230.97	134.94	26.59	-1.8	-75.99	-421.11
466	Heat /10	I[122]	-99.7	103.59	14.44	-0.93	15.72	147.53
466	Heat /10	J[106]	-99.7	103.59	14.44	-0.93	-48	-309.49
467	Heat /10	I[158]	-72.01	0	10.18	0	7.29	0
467	Heat /10	J[142]	-72.01	0	10.18	0	-37.61	0
468	Heat /10	I[194]	-99.7	-103.59	14.44	0.93	15.72	-147.53
468	Heat /10	J[178]	-99.7	-103.59	14.44	0.93	-48	309.49
469	Heat /10	I[230]	-230.97	-134.94	26.59	1.8	41.33	-174.23
469	Heat /10	J[214]	-230.97	-134.94	26.59	1.8	-75.99	421.11
470	Heat /10	I[335]	87.66	366.68	-46.12	-28.49	20.7	83.52
470	Heat /10	J[69]	87.66	366.68	-46.12	-28.49	66.83	-283.17
471	Heat /10	I[336]	-25.68	374.66	11.53	-14.76	10.42	90.23
471	Heat /10	J[71]	-25.68	374.66	11.53	-14.76	-1.11	-284.43
472	Heat /10	I[337]	-14.01	314.39	5.27	-12.34	-2.41	76.05
472	Heat /10	J[72]	-14.01	314.39	5.27	-12.34	-7.68	-238.34
473	Heat /10	I[338]	-8.62	259.93	5.21	-9.72	-2.99	62.96
473	Heat /10	J[73]	-8.62	259.93	5.21	-9.72	-8.2	-196.96
474	Heat /10	I[339]	-8.13	209.48	5	-7.59	-4.27	50.84
474	Heat /10	J[74]	-8.13	209.48	5	-7.59	-9.27	-158.64
475	Heat /10	I[340]	-7.97	161.43	4.86	-5.72	-5.11	39.22
475	Heat /10	J[75]	-7.97	161.43	4.86	-5.72	-9.97	-122.2
476	Heat /10	I[341]	-7.82	114.62	4.78	-4	-5.4	27.87
476	Heat /10	J[76]	-7.82	114.62	4.78	-4	-10.18	-86.76

477	Heat /10	I[342]	-7.73	68.53	4.74	-2.37	-5.47	16.67
477	Heat /10	J[77]	-7.73	68.53	4.74	-2.37	-10.21	-51.86
478	Heat /10	I[343]	-7.69	22.81	4.72	-0.78	-5.48	5.55
478	Heat /10	J[78]	-7.69	22.81	4.72	-0.78	-10.2	-17.26
479	Heat /10	I[344]	-7.69	-22.81	4.72	0.78	-5.48	-5.55
479	Heat /10	J[79]	-7.69	-22.81	4.72	0.78	-10.2	17.26
480	Heat /10	I[345]	-7.73	-68.53	4.74	2.37	-5.47	-16.67
480	Heat /10	J[80]	-7.73	-68.53	4.74	2.37	-10.21	51.86
481	Heat /10	I[346]	-7.82	-114.62	4.78	4	-5.4	-27.87
481	Heat /10	J[81]	-7.82	-114.62	4.78	4	-10.18	86.76
482	Heat /10	I[347]	-7.97	-161.43	4.86	5.72	-5.11	-39.22
482	Heat /10	J[82]	-7.97	-161.43	4.86	5.72	-9.97	122.2
483	Heat /10	I[348]	-8.13	-209.48	5	7.59	-4.27	-50.84
483	Heat /10	J[83]	-8.13	-209.48	5	7.59	-9.27	158.64
484	Heat /10	I[349]	-8.62	-259.93	5.21	9.72	-2.99	-62.96
484	Heat /10	J[84]	-8.62	-259.93	5.21	9.72	-8.2	196.96
485	Heat /10	I[350]	-14.01	-314.39	5.27	12.34	-2.41	-76.05
485	Heat /10	J[85]	-14.01	-314.39	5.27	12.34	-7.68	238.34
486	Heat /10	I[351]	-25.68	-374.66	11.53	14.76	10.42	-90.23
486	Heat /10	J[86]	-25.68	-374.66	11.53	14.76	-1.11	284.43
487	Heat /10	I[352]	87.66	-366.68	-46.12	28.49	20.7	-83.52
487	Heat /10	J[70]	87.66	-366.68	-46.12	28.49	66.83	283.17
488	Heat /10	I[353]	87.66	-366.68	46.12	28.49	20.7	83.52
488	Heat /10	J[19]	87.66	-366.68	46.12	28.49	-2.36	266.86
489	Heat /10	I[354]	-25.68	-374.66	-11.53	14.76	10.42	90.23
489	Heat /10	J[53]	-25.68	-374.66	-11.53	14.76	16.19	277.56
490	Heat /10	I[355]	-14.01	-314.39	-5.27	12.34	-2.41	76.05
490	Heat /10	J[54]	-14.01	-314.39	-5.27	12.34	0.23	233.25
491	Heat /10	I[356]	-8.62	-259.93	-5.21	9.72	-2.99	62.96
491	Heat /10	J[55]	-8.62	-259.93	-5.21	9.72	-0.38	192.93
492	Heat /10	I[357]	-8.13	-209.48	-5	7.59	-4.27	50.84
492	Heat /10	J[56]	-8.13	-209.48	-5	7.59	-1.77	155.59
493	Heat /10	I[358]	-7.97	-161.43	-4.86	5.72	-5.11	39.22
493	Heat /10	J[57]	-7.97	-161.43	-4.86	5.72	-2.68	119.94
494	Heat /10	I[359]	-7.82	-114.62	-4.78	4	-5.4	27.87
494	Heat /10	J[58]	-7.82	-114.62	-4.78	4	-3.01	85.18
495	Heat /10	I[360]	-7.73	-68.53	-4.74	2.37	-5.47	16.67
495	Heat /10	J[59]	-7.73	-68.53	-4.74	2.37	-3.1	50.93
496	Heat /10	I[361]	-7.69	-22.81	-4.72	0.78	-5.48	5.55
496	Heat /10	J[60]	-7.69	-22.81	-4.72	0.78	-3.12	16.95
497	Heat /10	I[362]	-7.69	22.81	-4.72	-0.78	-5.48	-5.55
497	Heat /10	J[61]	-7.69	22.81	-4.72	-0.78	-3.12	-16.95
498	Heat /10	I[363]	-7.73	68.53	-4.74	-2.37	-5.47	-16.67
498	Heat /10	J[62]	-7.73	68.53	-4.74	-2.37	-3.1	-50.93
499	Heat /10	I[364]	-7.82	114.62	-4.78	-4	-5.4	-27.87
499	Heat /10	J[63]	-7.82	114.62	-4.78	-4	-3.01	-85.18
500	Heat /10	I[365]	-7.97	161.43	-4.86	-5.72	-5.11	-39.22
500	Heat /10	J[64]	-7.97	161.43	-4.86	-5.72	-2.68	-119.94
501	Heat /10	I[366]	-8.13	209.48	-5	-7.59	-4.27	-50.84
501	Heat /10	J[65]	-8.13	209.48	-5	-7.59	-1.77	-155.59
502	Heat /10	I[367]	-8.62	259.93	-5.21	-9.72	-2.99	-62.96
502	Heat /10	J[66]	-8.62	259.93	-5.21	-9.72	-0.38	-192.93
503	Heat /10	I[368]	-14.01	314.39	-5.27	-12.34	-2.41	-76.05
503	Heat /10	J[67]	-14.01	314.39	-5.27	-12.34	0.23	-233.25
504	Heat /10	I[369]	-25.68	374.66	-11.53	-14.76	10.42	-90.23
504	Heat /10	J[68]	-25.68	374.66	-11.53	-14.76	16.19	-277.56
505	Heat /10	I[370]	87.66	366.68	46.12	-28.49	20.7	-83.52
505	Heat /10	J[36]	87.66	366.68	46.12	-28.49	-2.36	-266.86
506	Heat /10	I[371]	-1097.28	0	0	0	1.11	-11.18
506	Heat /10	J[79]	-1097.28	0	0	0	1.11	-11.18
507	Heat /10	I[372]	-562.61	0	0	0	1.3	-10.33

507	Heat /10	J[115]	-562.61	0	0	0	1.3	-10.33
508	Heat /10	I[373]	-465.29	0	0	0	1.41	0
508	Heat /10	J[151]	-465.29	0	0	0	1.41	0
509	Heat /10	I[374]	-562.61	0	0	0	1.3	10.33
509	Heat /10	J[187]	-562.61	0	0	0	1.3	10.33
510	Heat /10	I[375]	-1097.28	0	0	0	1.11	11.18
510	Heat /10	J[223]	-1097.28	0	0	0	1.11	11.18
511	Heat /10	I[376]	-791.71	-64.11	-12.23	0.12	-4.56	-8.52
511	Heat /10	J[74]	-791.71	-64.11	-12.23	0.12	22.43	132.91
512	Heat /10	I[377]	-373.55	-56.4	-8.45	0.06	-4.12	-7.25
512	Heat /10	J[110]	-373.55	-56.4	-8.45	0.06	14.53	117.15
513	Heat /10	I[378]	-300.82	0	-6.82	0	-4	0
513	Heat /10	J[146]	-300.82	0	-6.82	0	11.05	0
514	Heat /10	I[379]	-373.55	56.4	-8.45	-0.06	-4.12	7.25
514	Heat /10	J[182]	-373.55	56.4	-8.45	-0.06	14.53	-117.15
515	Heat /10	I[380]	-791.71	64.11	-12.23	-0.12	-4.56	8.52
515	Heat /10	J[218]	-791.71	64.11	-12.23	-0.12	22.43	-132.91
516	Heat /10	I[381]	-791.71	64.11	12.23	-0.12	-4.56	-8.52
516	Heat /10	J[84]	-791.71	64.11	12.23	-0.12	-31.55	-149.95
517	Heat /10	I[382]	-373.55	56.4	8.45	-0.06	-4.12	-7.25
517	Heat /10	J[120]	-373.55	56.4	8.45	-0.06	-22.77	-131.65
518	Heat /10	I[383]	-300.82	0	6.82	0	-4	0
518	Heat /10	J[156]	-300.82	0	6.82	0	-19.05	0
519	Heat /10	I[384]	-373.55	-56.4	8.45	0.06	-4.12	7.25
519	Heat /10	J[192]	-373.55	-56.4	8.45	0.06	-22.77	131.65
520	Heat /10	I[385]	-791.71	-64.11	12.23	0.12	-4.56	8.52
520	Heat /10	J[228]	-791.71	-64.11	12.23	0.12	-31.55	149.95

3. ACCIÓN DEL TRÁFICO

3.1. MÁXIMO AXIL NEGATIVO Y SUS CONCOMITANTES

Elem	Load	Part	Component	Axial (kN)	Shear-y (kN)	Shear-z (kN)	Torsion (kN*m)	Moment-y (kN*m)	Moment-z (kN*m)
1	MV-LM1(min)	I[1]	Axial	-1890.7	-0.18	35.68	3.53	13.56	2.3
1	MV-LM1(min)	J[2]	Axial	-1890.7	-0.18	35.68	3.53	-168.2	3.23
2	MV-LM1(min)	I[2]	Axial	-1852.33	-0.15	5.93	3.99	-171.69	4.34
2	MV-LM1(min)	J[3]	Axial	-1852.33	-0.15	5.93	3.99	-201.01	5.06
3	MV-LM1(min)	I[3]	Axial	-1805.79	-0.15	-2.73	3.69	-201.01	5.28
3	MV-LM1(min)	J[4]	Axial	-1805.79	-0.15	-2.73	3.69	-187.87	5.98
4	MV-LM1(min)	I[4]	Axial	-1763.65	-0.18	-10.83	2.74	-168.99	5.58
4	MV-LM1(min)	J[5]	Axial	-1763.65	-0.18	-10.83	2.74	-118.19	6.44
5	MV-LM1(min)	I[5]	Axial	-1728.69	-0.18	-20.16	2.31	-118.19	6.6
5	MV-LM1(min)	J[6]	Axial	-1728.69	-0.18	-20.16	2.31	-25.61	7.44
6	MV-LM1(min)	I[6]	Axial	-1700.43	-0.18	-31.36	1.8	-25.61	7.58
6	MV-LM1(min)	J[7]	Axial	-1700.43	-0.18	-31.36	1.8	115.96	8.41
7	MV-LM1(min)	I[7]	Axial	-1678.46	-0.13	-34.53	1.85	11.53	8.89
7	MV-LM1(min)	J[8]	Axial	-1678.46	-0.13	-34.53	1.85	165.42	9.46
8	MV-LM1(min)	I[8]	Axial	-1663.19	-0.12	-35.54	1.13	151.25	9.62
8	MV-LM1(min)	J[9]	Axial	-1663.19	-0.12	-35.54	1.13	308.45	10.14
9	MV-LM1(min)	I[9]	Axial	-1656.32	-0.13	-11.82	0.44	315.29	10.18
9	MV-LM1(min)	J[10]	Axial	-1656.32	-0.13	-11.82	0.44	367.43	10.73
10	MV-LM1(min)	I[10]	Axial	-1662.39	-0.15	27.92	-0.47	347.66	10.81
10	MV-LM1(min)	J[11]	Axial	-1662.39	-0.15	27.92	-0.47	224.16	11.46
11	MV-LM1(min)	I[11]	Axial	-1678.78	-0.12	36.73	-1.17	277.18	11.18
11	MV-LM1(min)	J[12]	Axial	-1678.78	-0.12	36.73	-1.17	113.45	11.71
12	MV-LM1(min)	I[12]	Axial	-1701.55	-0.12	31.72	-1.99	113.45	11.6
12	MV-LM1(min)	J[13]	Axial	-1701.55	-0.12	31.72	-1.99	-29.73	12.13
13	MV-LM1(min)	I[13]	Axial	-1729.92	-0.12	20.75	-2.81	-29.73	11.97
13	MV-LM1(min)	J[14]	Axial	-1729.92	-0.12	20.75	-2.81	-125.03	12.51
14	MV-LM1(min)	I[14]	Axial	-1765.08	-0.12	11.82	-3.62	-125.03	12.3
14	MV-LM1(min)	J[15]	Axial	-1765.08	-0.12	11.82	-3.62	-180.48	12.86
15	MV-LM1(min)	I[15]	Axial	-1807.52	-0.12	6.09	-4.41	-180.48	12.61
15	MV-LM1(min)	J[16]	Axial	-1807.52	-0.12	6.09	-4.41	-209.74	13.18
16	MV-LM1(min)	I[16]	Axial	-1854.71	-0.12	-1.79	-5.18	-209.74	12.89
16	MV-LM1(min)	J[17]	Axial	-1854.71	-0.12	-1.79	-5.18	-200.91	13.48
17	MV-LM1(min)	I[17]	Axial	-1894.16	-0.12	-31.73	-5.93	-200.91	13.16
17	MV-LM1(min)	J[18]	Axial	-1894.16	-0.12	-31.73	-5.93	-39.3	13.76
18	MV-LM1(min)	I[19]	Axial	-1890.69	0.17	35.67	-2.91	13.66	-3.3
18	MV-LM1(min)	J[20]	Axial	-1890.69	0.17	35.67	-2.91	-168.05	-4.16
19	MV-LM1(min)	I[20]	Axial	-1852.33	0.13	5.94	-3.29	-171.5	-5.27
19	MV-LM1(min)	J[21]	Axial	-1852.33	0.13	5.94	-3.29	-200.86	-5.91
20	MV-LM1(min)	I[21]	Axial	-1805.79	0.13	-2.72	-2.93	-200.86	-6.1
20	MV-LM1(min)	J[22]	Axial	-1805.79	0.13	-2.72	-2.93	-187.77	-6.72
21	MV-LM1(min)	I[22]	Axial	-1763.63	0.17	-10.82	-1.98	-168.91	-6.24
21	MV-LM1(min)	J[23]	Axial	-1763.63	0.17	-10.82	-1.98	-118.14	-7.03
22	MV-LM1(min)	I[23]	Axial	-1728.68	0.17	-20.16	-1.51	-118.14	-7.14
22	MV-LM1(min)	J[24]	Axial	-1728.68	0.17	-20.16	-1.51	-25.58	-7.91
23	MV-LM1(min)	I[24]	Axial	-1700.42	0.17	-31.36	-0.98	-25.58	-8
23	MV-LM1(min)	J[25]	Axial	-1700.42	0.17	-31.36	-0.98	115.98	-8.75
24	MV-LM1(min)	I[25]	Axial	-1678.47	0.11	-34.52	-0.94	11.54	-9.2
24	MV-LM1(min)	J[26]	Axial	-1678.47	0.11	-34.52	-0.94	165.43	-9.69
25	MV-LM1(min)	I[26]	Axial	-1663.2	0.1	-35.54	-0.2	151.26	-9.79
25	MV-LM1(min)	J[27]	Axial	-1663.2	0.1	-35.54	-0.2	308.44	-10.24
26	MV-LM1(min)	I[27]	Axial	-1656.33	0.1	-14.92	0.53	308.44	-10.23
26	MV-LM1(min)	J[28]	Axial	-1656.33	0.1	-14.92	0.53	374.27	-10.68
27	MV-LM1(min)	I[28]	Axial	-1662.39	0.13	27.92	1.38	347.65	-10.71
27	MV-LM1(min)	J[29]	Axial	-1662.39	0.13	27.92	1.38	224.15	-11.29
28	MV-LM1(min)	I[29]	Axial	-1678.79	0.1	36.73	2.09	277.17	-10.95

28	MV-LM1(min)	J[30]	Axial	-1678.79	0.1	36.73	2.09	113.43	-11.4
29	MV-LM1(min)	I[30]	Axial	-1701.56	0.1	31.72	2.88	113.43	-11.23
29	MV-LM1(min)	J[31]	Axial	-1701.56	0.1	31.72	2.88	-29.77	-11.69
30	MV-LM1(min)	I[31]	Axial	-1729.93	0.1	20.76	3.66	-29.77	-11.47
30	MV-LM1(min)	J[32]	Axial	-1729.93	0.1	20.76	3.66	-125.08	-11.94
31	MV-LM1(min)	I[32]	Axial	-1765.1	0.1	11.83	4.43	-125.08	-11.68
31	MV-LM1(min)	J[33]	Axial	-1765.1	0.1	11.83	4.43	-180.57	-12.16
32	MV-LM1(min)	I[33]	Axial	-1807.54	0.1	6.1	5.18	-180.57	-11.86
32	MV-LM1(min)	J[34]	Axial	-1807.54	0.1	6.1	5.18	-209.9	-12.35
33	MV-LM1(min)	I[34]	Axial	-1854.73	0.1	-1.78	5.9	-209.9	-12.02
33	MV-LM1(min)	J[35]	Axial	-1854.73	0.1	-1.78	5.9	-201.1	-12.53
34	MV-LM1(min)	I[35]	Axial	-1894.17	0.1	-31.73	6.59	-201.1	-12.17
34	MV-LM1(min)	J[36]	Axial	-1894.17	0.1	-31.73	6.59	-39.45	-12.69
67	MV-LM1(min)	I[1]	Axial	-226.45	-499.83	86.19	65.46	170.94	-356.27
67	MV-LM1(min)	J[335]	Axial	-226.45	-499.83	86.4	65.46	127.85	-106.35
68	MV-LM1(min)	I[18]	Axial	-178.19	275.59	43.17	-33.46	70.22	198.21
68	MV-LM1(min)	J[352]	Axial	-178.19	275.59	43.65	-33.46	48.63	60.42
69	MV-LM1(min)	I[37]	Axial	-101.88	221.86	-391.47	-13.14	-486.5	161.39
69	MV-LM1(min)	J[336]	Axial	-101.88	221.86	-386.7	-13.14	-290.77	50.46
70	MV-LM1(min)	I[38]	Axial	-116.89	180.95	-378.9	-9.34	-493.09	133.2
70	MV-LM1(min)	J[337]	Axial	-116.89	180.95	-373.94	-9.34	-303.64	42.72
71	MV-LM1(min)	I[39]	Axial	-117.9	30.89	-375.08	-4.78	-481.79	19.54
71	MV-LM1(min)	J[338]	Axial	-117.9	30.89	-369.71	-4.78	-294.25	4.09
72	MV-LM1(min)	I[40]	Axial	-117.82	-72.65	-375.2	0.97	-480.52	-56.25
72	MV-LM1(min)	J[339]	Axial	-117.82	-72.65	-369.82	0.97	-292.92	-19.93
73	MV-LM1(min)	I[41]	Axial	-115.93	-146.11	-376.66	5.06	-482.97	-109.92
73	MV-LM1(min)	J[340]	Axial	-115.93	-146.11	-371.69	5.06	-294.64	-36.86
74	MV-LM1(min)	I[42]	Axial	-113.75	-154.31	-378.4	5.65	-489.3	-115.7
74	MV-LM1(min)	J[341]	Axial	-113.75	-154.31	-373.44	5.65	-300.1	-38.54
75	MV-LM1(min)	I[43]	Axial	-112.17	-110.5	-379.7	3.82	-497	-82.97
75	MV-LM1(min)	J[342]	Axial	-112.17	-110.5	-374.74	3.82	-307.15	-27.72
76	MV-LM1(min)	I[44]	Axial	-111.42	-55.22	-380.61	1.29	-503.05	-42.1
76	MV-LM1(min)	J[343]	Axial	-111.42	-55.22	-375.23	1.29	-312.75	-14.49
77	MV-LM1(min)	I[45]	Axial	-111.41	60.8	-380.66	-0.82	-503.33	46.51
77	MV-LM1(min)	J[344]	Axial	-111.41	60.8	-375.28	-0.82	-313	16.11
78	MV-LM1(min)	I[46]	Axial	-112.15	115.86	-379.83	-3.41	-497.8	87.17
78	MV-LM1(min)	J[345]	Axial	-112.15	115.86	-374.87	-3.41	-307.89	29.24
79	MV-LM1(min)	I[47]	Axial	-113.72	159.29	-378.59	-5.38	-490.43	119.5
79	MV-LM1(min)	J[346]	Axial	-113.72	159.29	-373.63	-5.38	-301.13	39.86
80	MV-LM1(min)	I[48]	Axial	-115.91	151.59	-376.87	-5.03	-484.06	113.93
80	MV-LM1(min)	J[347]	Axial	-115.91	151.59	-371.91	-5.03	-295.63	38.14
81	MV-LM1(min)	I[49]	Axial	-117.84	75.34	-375.36	-0.99	-481.55	58.11
81	MV-LM1(min)	J[348]	Axial	-117.84	75.34	-369.98	-0.99	-293.87	20.44
82	MV-LM1(min)	I[50]	Axial	-118.03	-30.28	-375.06	4.71	-481.85	-19.28
82	MV-LM1(min)	J[349]	Axial	-118.03	-30.28	-369.69	4.71	-294.32	-4.14
83	MV-LM1(min)	I[51]	Axial	-117.31	-183.22	-378.64	9.45	-491.74	-134.96
83	MV-LM1(min)	J[350]	Axial	-117.31	-183.22	-373.68	9.45	-302.42	-43.35
84	MV-LM1(min)	I[52]	Axial	-102.71	-230.95	-390.34	13.73	-482.74	-167.97
84	MV-LM1(min)	J[351]	Axial	-102.71	-230.95	-385.55	13.73	-287.57	-52.49
85	MV-LM1(min)	I[69]	Axial	-384.27	-96.64	44.04	-7.11	109.46	-93.19
85	MV-LM1(min)	J[87]	Axial	-384.27	-96.64	44.04	-7.11	43.4	51.77
86	MV-LM1(min)	I[70]	Axial	-307.6	114.28	49.89	5.33	123.72	111.53
86	MV-LM1(min)	J[88]	Axial	-307.6	114.28	49.89	5.33	48.88	-59.89
87	MV-LM1(min)	I[71]	Axial	-106.22	61.82	-67.43	14.68	284.52	58.99
87	MV-LM1(min)	J[89]	Axial	-106.22	61.82	-40.41	14.68	372.17	-33.74
88	MV-LM1(min)	I[72]	Axial	-116.36	40.86	-76.89	6.66	319.82	38.62
88	MV-LM1(min)	J[90]	Axial	-116.36	40.86	-49.87	6.66	421.66	-22.67
89	MV-LM1(min)	I[73]	Axial	-123.36	-24.19	-64.56	-14.68	338.41	-22.45
89	MV-LM1(min)	J[91]	Axial	-123.36	-24.19	-37.55	-14.68	421.76	13.82
90	MV-LM1(min)	I[74]	Axial	-123.34	-48.87	-63.04	-15.11	340.56	-47.33
90	MV-LM1(min)	J[92]	Axial	-123.34	-48.87	-36.03	-15.11	421.63	25.97

91	MV-LM1(min)	I[75]	Axial	-118.16	-66.64	-63.45	-14.81	334.2	-65.29
91	MV-LM1(min)	J[93]	Axial	-118.16	-66.64	-36.44	-14.81	415.89	34.67
92	MV-LM1(min)	I[76]	Axial	-111.56	-70.34	-64.53	-14.25	325.17	-68.95
92	MV-LM1(min)	J[94]	Axial	-111.56	-70.34	-37.51	-14.25	408.47	36.55
93	MV-LM1(min)	I[77]	Axial	-106.01	-61.03	-65.7	-13.91	317.38	-59.31
93	MV-LM1(min)	J[95]	Axial	-106.01	-61.03	-38.68	-13.91	402.43	32.23
94	MV-LM1(min)	I[78]	Axial	-102.31	-42.64	-66.7	-14.08	311.84	-40.39
94	MV-LM1(min)	J[96]	Axial	-102.31	-42.64	-39.68	-14.08	398.39	23.57
95	MV-LM1(min)	I[79]	Axial	-102.25	73.96	-66.9	13.37	310.64	73.24
95	MV-LM1(min)	J[97]	Axial	-102.25	73.96	-39.88	13.37	397.5	-37.7
96	MV-LM1(min)	I[80]	Axial	-105.87	88.68	-66.06	13.18	315.15	88.31
96	MV-LM1(min)	J[98]	Axial	-105.87	88.68	-39.04	13.18	400.74	-44.71
97	MV-LM1(min)	I[81]	Axial	-111.37	92.53	-64.98	13.48	322.3	92.22
97	MV-LM1(min)	J[99]	Axial	-111.37	92.53	-37.96	13.48	406.27	-46.58
98	MV-LM1(min)	I[82]	Axial	-118.05	82.24	-63.9	14.03	331.32	81.64
98	MV-LM1(min)	J[100]	Axial	-118.05	82.24	-36.88	14.03	413.68	-41.72
99	MV-LM1(min)	I[83]	Axial	-123.61	57.09	-48.64	14.5	324.91	55.84
99	MV-LM1(min)	J[101]	Axial	-123.61	57.09	-42.02	14.5	394.57	-29.8
100	MV-LM1(min)	I[84]	Axial	-124.43	25.8	-64.67	14.09	339.02	24.16
100	MV-LM1(min)	J[102]	Axial	-124.43	25.8	-37.65	14.09	422.53	-14.53
101	MV-LM1(min)	I[85]	Axial	-118.31	-34.17	-77.33	-7.48	321.24	-31.57
101	MV-LM1(min)	J[103]	Axial	-118.31	-34.17	-50.31	-7.48	423.75	19.69
102	MV-LM1(min)	I[86]	Axial	-110.36	-60.84	-67.64	-15.26	289.3	-57.78
102	MV-LM1(min)	J[104]	Axial	-110.36	-60.84	-40.63	-15.26	377.27	33.47
103	MV-LM1(min)	I[87]	Axial	-384.27	-96.64	44.04	-14.64	13.44	51.77
103	MV-LM1(min)	J[105]	Axial	-384.27	-96.64	44.04	-14.64	-52.62	196.72
104	MV-LM1(min)	I[88]	Axial	-307.6	114.28	49.89	14.24	24.9	-59.89
104	MV-LM1(min)	J[106]	Axial	-307.6	114.28	49.89	14.24	-49.94	-231.32
105	MV-LM1(min)	I[89]	Axial	-106.22	61.82	-40.41	19.5	363.89	-33.74
105	MV-LM1(min)	J[107]	Axial	-106.22	61.82	-31.03	19.5	415.12	-126.48
106	MV-LM1(min)	I[90]	Axial	-116.36	40.86	-49.87	9.84	412.58	-22.67
106	MV-LM1(min)	J[108]	Axial	-116.36	40.86	-33.46	9.84	470.97	-83.96
107	MV-LM1(min)	I[91]	Axial	-123.36	-24.19	-37.55	-16.57	412.14	13.82
107	MV-LM1(min)	J[109]	Axial	-123.36	-24.19	-21.72	-16.57	452.63	50.1
108	MV-LM1(min)	I[92]	Axial	-123.34	-48.87	-36.03	-18.92	412.01	25.97
108	MV-LM1(min)	J[110]	Axial	-123.34	-48.87	-20.62	-18.92	450.64	99.26
109	MV-LM1(min)	I[93]	Axial	-118.16	-66.64	-36.44	-20.01	406.68	34.67
109	MV-LM1(min)	J[111]	Axial	-118.16	-66.64	-21.9	-20.01	446.79	134.62
110	MV-LM1(min)	I[94]	Axial	-111.56	-70.34	-37.51	-19.73	399.77	36.55
110	MV-LM1(min)	J[112]	Axial	-111.56	-70.34	-23.87	-19.73	442.38	142.06
111	MV-LM1(min)	I[95]	Axial	-106.01	-61.03	-38.68	-18.67	394.16	32.23
111	MV-LM1(min)	J[113]	Axial	-106.01	-61.03	-25.69	-18.67	439.18	123.77
112	MV-LM1(min)	I[96]	Axial	-102.31	-42.64	-39.68	-17.41	390.41	23.57
112	MV-LM1(min)	J[114]	Axial	-102.31	-42.64	-27.03	-17.41	437.28	87.53
113	MV-LM1(min)	I[97]	Axial	-102.25	73.96	-39.88	19.13	389.52	-37.7
113	MV-LM1(min)	J[115]	Axial	-102.25	73.96	-27.25	19.13	436.71	-148.64
114	MV-LM1(min)	I[98]	Axial	-105.87	88.68	-39.04	20.09	392.49	-44.71
114	MV-LM1(min)	J[116]	Axial	-105.87	88.68	-26.08	20.09	438.08	-177.72
115	MV-LM1(min)	I[99]	Axial	-111.37	92.53	-37.96	20.69	397.59	-46.58
115	MV-LM1(min)	J[117]	Axial	-111.37	92.53	-24.37	20.69	440.93	-185.37
116	MV-LM1(min)	I[100]	Axial	-118.05	82.24	-36.88	20.44	404.47	-41.72
116	MV-LM1(min)	J[118]	Axial	-118.05	82.24	-22.41	20.44	445.31	-165.07
117	MV-LM1(min)	I[101]	Axial	-123.61	57.09	-42.02	18.96	384.93	-29.8
117	MV-LM1(min)	J[119]	Axial	-123.61	57.09	-26.63	18.96	432.57	-115.43
118	MV-LM1(min)	I[102]	Axial	-124.43	25.8	-37.65	16.1	412.83	-14.53
118	MV-LM1(min)	J[120]	Axial	-124.43	25.8	-21.68	16.1	453.32	-53.23
119	MV-LM1(min)	I[103]	Axial	-118.31	-34.17	-50.31	-10.14	414.52	19.69
119	MV-LM1(min)	J[121]	Axial	-118.31	-34.17	-33.37	-10.14	473.04	70.95
120	MV-LM1(min)	I[104]	Axial	-110.36	-60.84	-40.63	-20.01	368.67	33.47
120	MV-LM1(min)	J[122]	Axial	-110.36	-60.84	-30.39	-20.01	419.37	124.73
121	MV-LM1(min)	I[105]	Axial	-440.77	8.66	21.14	2.74	-16.23	25.8

121	MV-LM1(min)	J[123]	Axial	-440.77	8.66	21.14	2.74	-47.93	12.81
122	MV-LM1(min)	I[106]	Axial	-385.17	40.38	-2.25	10.54	-88.48	50.79
122	MV-LM1(min)	J[124]	Axial	-385.17	40.38	-2.25	10.54	-85.11	-9.77
123	MV-LM1(min)	I[107]	Axial	-183.23	12.68	-23.11	9.79	462.18	6.02
123	MV-LM1(min)	J[125]	Axial	-183.23	12.68	-21.42	9.79	496	-13.01
124	MV-LM1(min)	I[108]	Axial	-185.14	10.88	-25.92	9.41	462.95	4.7
124	MV-LM1(min)	J[126]	Axial	-185.14	10.88	-23.36	9.41	500.55	-11.63
125	MV-LM1(min)	I[109]	Axial	-191.84	-4.74	-24.99	-9.03	459.44	3.14
125	MV-LM1(min)	J[127]	Axial	-191.84	-4.74	-22.52	-9.03	495.69	10.26
126	MV-LM1(min)	I[110]	Axial	-192.92	-9.88	-24.64	-9.52	453.67	-3.56
126	MV-LM1(min)	J[128]	Axial	-192.92	-9.88	-22.22	-9.52	489.42	11.26
127	MV-LM1(min)	I[111]	Axial	-187.02	-14.4	-24.37	-9.91	452.98	-9.39
127	MV-LM1(min)	J[129]	Axial	-187.02	-14.4	-22.07	-9.91	488.38	12.22
128	MV-LM1(min)	I[112]	Axial	-178.3	-15.9	-24.17	-10.01	451.4	-11.29
128	MV-LM1(min)	J[130]	Axial	-178.3	-15.9	-22.01	-10.01	486.57	12.56
129	MV-LM1(min)	I[113]	Axial	-170.51	-14.09	-24.03	-9.71	450.77	-8.77
129	MV-LM1(min)	J[131]	Axial	-170.51	-14.09	-21.97	-9.71	485.78	12.37
130	MV-LM1(min)	I[114]	Axial	-165.14	-10.06	-24.04	-9.43	450.6	-3.35
130	MV-LM1(min)	J[132]	Axial	-165.14	-10.06	-22.04	-9.43	485.66	11.75
131	MV-LM1(min)	I[115]	Axial	-165.14	14.47	-24.07	9.5	450.52	9.94
131	MV-LM1(min)	J[133]	Axial	-165.14	14.47	-22.07	9.5	485.62	-11.76
132	MV-LM1(min)	I[116]	Axial	-170.5	17.87	-24.07	9.76	450.63	14.44
132	MV-LM1(min)	J[134]	Axial	-170.5	17.87	-22.02	9.76	485.72	-12.38
133	MV-LM1(min)	I[117]	Axial	-178.3	18.74	-24.22	10	451.25	15.55
133	MV-LM1(min)	J[135]	Axial	-178.3	18.74	-22.06	10	486.5	-12.56
134	MV-LM1(min)	I[118]	Axial	-187.02	16.3	-24.42	9.82	452.71	12.24
134	MV-LM1(min)	J[136]	Axial	-187.02	16.3	-22.12	9.82	488.19	-12.21
135	MV-LM1(min)	I[119]	Axial	-192.94	10.86	-24.68	9.4	453.56	5.02
135	MV-LM1(min)	J[137]	Axial	-192.94	10.86	-22.26	9.4	489.37	-11.26
136	MV-LM1(min)	I[120]	Axial	-191.92	5.12	-24.98	8.87	459.52	-2.57
136	MV-LM1(min)	J[138]	Axial	-191.92	5.12	-22.49	8.87	495.74	-10.25
137	MV-LM1(min)	I[121]	Axial	-185.28	-9.32	-25.89	-9.53	463.01	-2.35
137	MV-LM1(min)	J[139]	Axial	-185.28	-9.32	-23.3	-9.53	500.55	11.63
138	MV-LM1(min)	I[122]	Axial	-183.48	-11.72	-23.06	-9.95	462.48	-4.56
138	MV-LM1(min)	J[140]	Axial	-183.48	-11.72	-21.33	-9.95	496.2	13.03
139	MV-LM1(min)	I[123]	Axial	-440.77	8.66	21.14	2.74	-47.93	12.81
139	MV-LM1(min)	J[141]	Axial	-440.77	8.66	21.14	2.74	-79.64	-0.18
140	MV-LM1(min)	I[124]	Axial	-385.17	40.38	-2.25	10.54	-85.11	-9.77
140	MV-LM1(min)	J[142]	Axial	-385.17	40.38	-2.25	10.54	-81.74	-70.34
141	MV-LM1(min)	I[125]	Axial	-183.23	12.68	-21.42	9.79	496	-13.01
141	MV-LM1(min)	J[143]	Axial	-183.23	12.68	-16.02	9.79	522.73	-32.03
142	MV-LM1(min)	I[126]	Axial	-185.14	10.88	-23.36	9.41	500.55	-11.63
142	MV-LM1(min)	J[144]	Axial	-185.14	10.88	-15.55	9.41	527.77	-27.95
143	MV-LM1(min)	I[127]	Axial	-191.84	-4.74	-22.52	-9.03	495.69	10.26
143	MV-LM1(min)	J[145]	Axial	-191.84	-4.74	-15.04	-9.03	521.99	17.37
144	MV-LM1(min)	I[128]	Axial	-192.92	-9.88	-22.22	-9.52	489.42	11.26
144	MV-LM1(min)	J[146]	Axial	-192.92	-9.88	-14.87	-9.52	515.4	26.09
145	MV-LM1(min)	I[129]	Axial	-187.02	-14.4	-22.07	-9.91	488.38	12.22
145	MV-LM1(min)	J[147]	Axial	-187.02	-14.4	-15.07	-9.91	514.48	33.82
146	MV-LM1(min)	I[130]	Axial	-178.3	-15.9	-22.01	-10.01	486.57	12.56
146	MV-LM1(min)	J[148]	Axial	-178.3	-15.9	-15.39	-10.01	512.96	36.41
147	MV-LM1(min)	I[131]	Axial	-170.51	-14.09	-21.97	-9.71	485.78	12.37
147	MV-LM1(min)	J[149]	Axial	-170.51	-14.09	-15.65	-9.71	512.41	33.51
148	MV-LM1(min)	I[132]	Axial	-165.14	-10.06	-22.04	-9.43	485.66	11.75
148	MV-LM1(min)	J[150]	Axial	-165.14	-10.06	-15.87	-9.43	512.54	26.84
149	MV-LM1(min)	I[133]	Axial	-165.14	14.47	-22.07	9.5	485.62	-11.76
149	MV-LM1(min)	J[151]	Axial	-165.14	14.47	-15.9	9.5	512.55	-33.46
150	MV-LM1(min)	I[134]	Axial	-170.5	17.87	-22.02	9.76	485.72	-12.38
150	MV-LM1(min)	J[152]	Axial	-170.5	17.87	-15.7	9.76	512.42	-39.19
151	MV-LM1(min)	I[135]	Axial	-178.3	18.74	-22.06	10	486.5	-12.56
151	MV-LM1(min)	J[153]	Axial	-178.3	18.74	-15.44	10	512.97	-40.67

152	MV-LM1(min)	I[136]	Axial	-187.02	16.3	-22.12	9.82	488.19	-12.21
152	MV-LM1(min)	J[154]	Axial	-187.02	16.3	-15.12	9.82	514.37	-36.66
153	MV-LM1(min)	I[137]	Axial	-192.94	10.86	-22.26	9.4	489.37	-11.26
153	MV-LM1(min)	J[155]	Axial	-192.94	10.86	-14.91	9.4	515.41	-27.54
154	MV-LM1(min)	I[138]	Axial	-191.92	5.12	-22.49	8.87	495.74	-10.25
154	MV-LM1(min)	J[156]	Axial	-191.92	5.12	-15.01	8.87	522	-17.92
155	MV-LM1(min)	I[139]	Axial	-185.28	-9.32	-23.3	-9.53	500.55	11.63
155	MV-LM1(min)	J[157]	Axial	-185.28	-9.32	-15.49	-9.53	527.69	25.61
156	MV-LM1(min)	I[140]	Axial	-183.48	-11.72	-21.33	-9.95	496.2	13.03
156	MV-LM1(min)	J[158]	Axial	-183.48	-11.72	-15.92	-9.95	522.79	30.62
157	MV-LM1(min)	I[141]	Axial	-405.51	62.67	7.01	16.07	-82.46	105.5
157	MV-LM1(min)	J[159]	Axial	-405.51	62.67	7.01	16.07	-92.98	11.5
158	MV-LM1(min)	I[142]	Axial	-413.18	-5.68	-21.77	0.3	-84.93	-22.85
158	MV-LM1(min)	J[160]	Axial	-413.18	-5.68	-21.77	0.3	-52.28	-14.33
159	MV-LM1(min)	I[143]	Axial	-183.73	-12.72	15.94	-9.75	523.1	-32.08
159	MV-LM1(min)	J[161]	Axial	-183.73	-12.72	21.37	-9.75	496.48	-13
160	MV-LM1(min)	I[144]	Axial	-185.09	-10.95	15.57	-9.41	527.94	-28.05
160	MV-LM1(min)	J[162]	Axial	-185.09	-10.95	23.39	-9.41	500.68	-11.62
161	MV-LM1(min)	I[145]	Axial	-191.83	4.26	15.03	8.99	522.07	16.64
161	MV-LM1(min)	J[163]	Axial	-191.83	4.26	22.51	8.99	495.79	10.25
162	MV-LM1(min)	I[146]	Axial	-192.92	9.84	14.87	9.52	515.44	26.02
162	MV-LM1(min)	J[164]	Axial	-192.92	9.84	22.22	9.52	489.46	11.26
163	MV-LM1(min)	I[147]	Axial	-187.02	14.5	15.07	9.92	514.54	33.97
163	MV-LM1(min)	J[165]	Axial	-187.02	14.5	22.07	9.92	488.44	12.22
164	MV-LM1(min)	I[148]	Axial	-178.3	16.11	15.39	10.02	512.96	36.72
164	MV-LM1(min)	J[166]	Axial	-178.3	16.11	22	10.02	486.58	12.56
165	MV-LM1(min)	I[149]	Axial	-170.51	14.28	15.64	9.72	512.41	33.79
165	MV-LM1(min)	J[167]	Axial	-170.51	14.28	21.97	9.72	485.79	12.37
166	MV-LM1(min)	I[150]	Axial	-165.14	10.18	15.87	9.43	512.54	27.02
166	MV-LM1(min)	J[168]	Axial	-165.14	10.18	22.03	9.43	485.66	11.75
167	MV-LM1(min)	I[151]	Axial	-165.14	-14.59	15.9	-9.5	512.55	-33.65
167	MV-LM1(min)	J[169]	Axial	-165.14	-14.59	22.07	-9.5	485.62	-11.76
168	MV-LM1(min)	I[152]	Axial	-170.5	-18.08	15.7	-9.76	512.42	-39.49
168	MV-LM1(min)	J[170]	Axial	-170.5	-18.08	22.02	-9.76	485.71	-12.38
169	MV-LM1(min)	I[153]	Axial	-178.29	-18.96	15.45	-10	512.98	-41.01
169	MV-LM1(min)	J[171]	Axial	-178.29	-18.96	22.07	-10	486.5	-12.57
170	MV-LM1(min)	I[154]	Axial	-187.02	-16.41	15.12	-9.82	514.4	-36.82
170	MV-LM1(min)	J[172]	Axial	-187.02	-16.41	22.13	-9.82	488.22	-12.21
171	MV-LM1(min)	I[155]	Axial	-192.94	-10.79	14.92	-9.4	515.44	-27.45
171	MV-LM1(min)	J[173]	Axial	-192.94	-10.79	22.26	-9.4	489.4	-11.26
172	MV-LM1(min)	I[156]	Axial	-191.88	-4.39	15.03	-8.88	522.07	-16.83
172	MV-LM1(min)	J[174]	Axial	-191.88	-4.39	22.51	-8.88	495.8	-10.25
173	MV-LM1(min)	I[157]	Axial	-185.1	9.57	15.54	9.56	527.94	25.98
173	MV-LM1(min)	J[175]	Axial	-185.1	9.57	23.36	9.56	500.73	11.63
174	MV-LM1(min)	I[158]	Axial	-183.98	11.59	15.9	9.72	522.99	30.4
174	MV-LM1(min)	J[176]	Axial	-183.98	11.59	21.32	9.72	496.43	13.02
175	MV-LM1(min)	I[159]	Axial	-405.51	62.67	7.01	16.07	-92.98	11.5
175	MV-LM1(min)	J[177]	Axial	-405.51	62.67	7.01	16.07	-103.49	-82.5
176	MV-LM1(min)	I[160]	Axial	-413.18	-5.68	-21.77	0.3	-52.28	-14.33
176	MV-LM1(min)	J[178]	Axial	-413.18	-5.68	-21.77	0.3	-19.63	-5.81
177	MV-LM1(min)	I[161]	Axial	-183.73	-12.72	21.37	-9.75	496.48	-13
177	MV-LM1(min)	J[179]	Axial	-183.73	-12.72	23.11	-9.75	462.69	6.07
178	MV-LM1(min)	I[162]	Axial	-185.09	-10.95	23.39	-9.41	500.68	-11.62
178	MV-LM1(min)	J[180]	Axial	-185.09	-10.95	25.93	-9.41	463.04	4.8
179	MV-LM1(min)	I[163]	Axial	-191.83	4.26	22.51	8.99	495.79	10.25
179	MV-LM1(min)	J[181]	Axial	-191.83	4.26	24.98	8.99	459.56	3.87
180	MV-LM1(min)	I[164]	Axial	-192.92	9.84	22.22	9.52	489.46	11.26
180	MV-LM1(min)	J[182]	Axial	-192.92	9.84	24.64	9.52	453.71	-3.49
181	MV-LM1(min)	I[165]	Axial	-187.02	14.5	22.07	9.92	488.44	12.22
181	MV-LM1(min)	J[183]	Axial	-187.02	14.5	24.37	9.92	453.03	-9.53
182	MV-LM1(min)	I[166]	Axial	-178.3	16.11	22	10.02	486.58	12.56

182	MV-LM1(min)	J[184]	Axial	-178.3	16.11	24.17	10.02	451.41	-11.6
183	MV-LM1(min)	I[167]	Axial	-170.51	14.28	21.97	9.72	485.79	12.37
183	MV-LM1(min)	J[185]	Axial	-170.51	14.28	24.02	9.72	450.78	-9.06
184	MV-LM1(min)	I[168]	Axial	-165.14	10.18	22.03	9.43	485.66	11.75
184	MV-LM1(min)	J[186]	Axial	-165.14	10.18	24.03	9.43	450.61	-3.52
185	MV-LM1(min)	I[169]	Axial	-165.14	-14.59	22.07	-9.5	485.62	-11.76
185	MV-LM1(min)	J[187]	Axial	-165.14	-14.59	24.07	-9.5	450.51	10.13
186	MV-LM1(min)	I[170]	Axial	-170.5	-18.08	22.02	-9.76	485.71	-12.38
186	MV-LM1(min)	J[188]	Axial	-170.5	-18.08	24.08	-9.76	450.62	14.74
187	MV-LM1(min)	I[171]	Axial	-178.29	-18.96	22.07	-10	486.5	-12.57
187	MV-LM1(min)	J[189]	Axial	-178.29	-18.96	24.23	-10	451.24	15.88
188	MV-LM1(min)	I[172]	Axial	-187.02	-16.41	22.13	-9.82	488.22	-12.21
188	MV-LM1(min)	J[190]	Axial	-187.02	-16.41	24.42	-9.82	452.73	12.39
189	MV-LM1(min)	I[173]	Axial	-192.94	-10.79	22.26	-9.4	489.4	-11.26
189	MV-LM1(min)	J[191]	Axial	-192.94	-10.79	24.68	-9.4	453.58	4.93
190	MV-LM1(min)	I[174]	Axial	-191.88	-4.39	22.51	-8.88	495.8	-10.25
190	MV-LM1(min)	J[192]	Axial	-191.88	-4.39	24.98	-8.88	459.56	-3.66
191	MV-LM1(min)	I[175]	Axial	-185.1	9.57	23.36	9.56	500.73	11.63
191	MV-LM1(min)	J[193]	Axial	-185.1	9.57	25.92	9.56	463.13	-2.73
192	MV-LM1(min)	I[176]	Axial	-183.98	11.59	21.32	9.72	496.43	13.02
192	MV-LM1(min)	J[194]	Axial	-183.98	11.59	23.08	9.72	462.7	-4.36
193	MV-LM1(min)	I[177]	Axial	-289.07	98.05	-45.4	14.13	-63.74	199.15
193	MV-LM1(min)	J[195]	Axial	-289.07	98.05	-45.4	14.13	4.36	52.07
194	MV-LM1(min)	I[178]	Axial	-336.08	-132.53	-50.26	-18.31	-63.33	-267.9
194	MV-LM1(min)	J[196]	Axial	-336.08	-132.53	-50.26	-18.31	12.06	-69.1
195	MV-LM1(min)	I[179]	Axial	-108.83	-62.27	31.16	-19.45	419.48	-127.31
195	MV-LM1(min)	J[197]	Axial	-108.83	-62.27	41.16	-19.45	367.74	-33.9
196	MV-LM1(min)	I[180]	Axial	-115.89	-41.09	33.4	-9.84	471.25	-84.4
196	MV-LM1(min)	J[198]	Axial	-115.89	-41.09	49.67	-9.84	413.01	-22.77
197	MV-LM1(min)	I[181]	Axial	-123.17	23.85	21.69	16.55	452.98	49.45
197	MV-LM1(min)	J[199]	Axial	-123.17	23.85	37.48	16.55	412.56	13.67
198	MV-LM1(min)	I[182]	Axial	-123.32	48.95	20.6	18.94	450.95	99.44
198	MV-LM1(min)	J[200]	Axial	-123.32	48.95	36.01	18.94	412.35	26.01
199	MV-LM1(min)	I[183]	Axial	-118.16	66.81	21.9	20.02	446.85	134.95
199	MV-LM1(min)	J[201]	Axial	-118.16	66.81	36.43	20.02	406.74	34.74
200	MV-LM1(min)	I[184]	Axial	-111.56	70.52	23.86	19.75	442.39	142.43
200	MV-LM1(min)	J[202]	Axial	-111.56	70.52	37.51	19.75	399.77	36.64
201	MV-LM1(min)	I[185]	Axial	-106.01	61.16	25.69	18.68	439.18	124.02
201	MV-LM1(min)	J[203]	Axial	-106.01	61.16	38.68	18.68	394.17	32.29
202	MV-LM1(min)	I[186]	Axial	-102.31	42.68	27.03	17.41	437.28	87.61
202	MV-LM1(min)	J[204]	Axial	-102.31	42.68	39.68	17.41	390.42	23.59
203	MV-LM1(min)	I[187]	Axial	-102.25	-74.15	27.25	-19.14	436.71	-149
203	MV-LM1(min)	J[205]	Axial	-102.25	-74.15	39.89	-19.14	389.52	-37.78
204	MV-LM1(min)	I[188]	Axial	-105.86	-88.94	26.09	-20.1	438.09	-178.24
204	MV-LM1(min)	J[206]	Axial	-105.86	-88.94	39.04	-20.1	392.49	-44.83
205	MV-LM1(min)	I[189]	Axial	-111.37	-92.83	24.38	-20.7	440.97	-185.95
205	MV-LM1(min)	J[207]	Axial	-111.37	-92.83	37.97	-20.7	397.62	-46.71
206	MV-LM1(min)	I[190]	Axial	-118.05	-82.47	22.41	-20.45	445.44	-165.54
206	MV-LM1(min)	J[208]	Axial	-118.05	-82.47	36.88	-20.45	404.59	-41.83
207	MV-LM1(min)	I[191]	Axial	-123.57	-57.15	26.63	-18.96	432.8	-115.55
207	MV-LM1(min)	J[209]	Axial	-123.57	-57.15	42.01	-18.96	385.18	-29.83
208	MV-LM1(min)	I[192]	Axial	-124.13	-25.45	21.66	-16.1	453.48	-52.56
208	MV-LM1(min)	J[210]	Axial	-124.13	-25.45	37.55	-16.1	413.05	-14.38
209	MV-LM1(min)	I[193]	Axial	-117.1	34.44	33.37	10.13	473.71	71.44
209	MV-LM1(min)	J[211]	Axial	-117.1	34.44	50.11	10.13	415.29	19.78
210	MV-LM1(min)	I[194]	Axial	-113.19	60.92	30.46	19.82	422.61	124.85
210	MV-LM1(min)	J[212]	Axial	-113.19	60.92	40.99	19.82	371.66	33.47
211	MV-LM1(min)	I[195]	Axial	-289.07	98.05	-45.4	6.48	26.9	52.07
211	MV-LM1(min)	J[213]	Axial	-289.07	98.05	-45.4	6.48	95	-95.01
212	MV-LM1(min)	I[196]	Axial	-336.08	-132.53	-50.26	-7.98	38.27	-69.1
212	MV-LM1(min)	J[214]	Axial	-336.08	-132.53	-50.26	-7.98	113.66	129.69

213	MV-LM1(min)	I[197]	Axial	-108.83	-62.27	41.16	-14.59	376.23	-33.9
213	MV-LM1(min)	J[215]	Axial	-108.83	-62.27	68.18	-14.59	287.46	59.51
214	MV-LM1(min)	I[198]	Axial	-115.89	-41.09	49.67	-6.63	422.05	-22.77
214	MV-LM1(min)	J[216]	Axial	-115.89	-41.09	76.69	-6.63	320.51	38.87
215	MV-LM1(min)	I[199]	Axial	-123.17	23.85	37.48	14.69	422.16	13.67
215	MV-LM1(min)	J[217]	Axial	-123.17	23.85	64.49	14.69	338.92	-22.1
216	MV-LM1(min)	I[200]	Axial	-123.32	48.95	36.01	15.12	421.97	26.01
216	MV-LM1(min)	J[218]	Axial	-123.32	48.95	63.03	15.12	340.92	-47.42
217	MV-LM1(min)	I[201]	Axial	-118.16	66.81	36.43	14.82	415.95	34.74
217	MV-LM1(min)	J[219]	Axial	-118.16	66.81	63.45	14.82	334.27	-65.46
218	MV-LM1(min)	I[202]	Axial	-111.56	70.52	37.51	14.25	408.47	36.64
218	MV-LM1(min)	J[220]	Axial	-111.56	70.52	64.53	14.25	325.18	-69.15
219	MV-LM1(min)	I[203]	Axial	-106.01	61.16	38.68	13.91	402.43	32.29
219	MV-LM1(min)	J[221]	Axial	-106.01	61.16	65.69	13.91	317.39	-59.45
220	MV-LM1(min)	I[204]	Axial	-102.31	42.68	39.68	14.09	398.4	23.59
220	MV-LM1(min)	J[222]	Axial	-102.31	42.68	66.69	14.09	311.85	-40.44
221	MV-LM1(min)	I[205]	Axial	-102.25	-74.15	39.89	-13.36	397.49	-37.78
221	MV-LM1(min)	J[223]	Axial	-102.25	-74.15	66.91	-13.36	310.63	73.43
222	MV-LM1(min)	I[206]	Axial	-105.86	-88.94	39.04	-13.16	400.74	-44.83
222	MV-LM1(min)	J[224]	Axial	-105.86	-88.94	66.06	-13.16	315.14	88.58
223	MV-LM1(min)	I[207]	Axial	-111.37	-92.83	37.97	-13.46	406.3	-46.71
223	MV-LM1(min)	J[225]	Axial	-111.37	-92.83	64.98	-13.46	322.32	92.53
224	MV-LM1(min)	I[208]	Axial	-118.05	-82.47	36.88	-14.02	413.8	-41.83
224	MV-LM1(min)	J[226]	Axial	-118.05	-82.47	63.9	-14.02	331.44	81.88
225	MV-LM1(min)	I[209]	Axial	-123.57	-57.15	42.01	-14.51	394.81	-29.83
225	MV-LM1(min)	J[227]	Axial	-123.57	-57.15	48.63	-14.51	325.17	55.9
226	MV-LM1(min)	I[210]	Axial	-124.13	-25.45	37.55	-14.11	422.73	-14.38
226	MV-LM1(min)	J[228]	Axial	-124.13	-25.45	64.57	-14.11	339.37	23.79
227	MV-LM1(min)	I[211]	Axial	-117.1	34.44	50.11	7.45	424.42	19.78
227	MV-LM1(min)	J[229]	Axial	-117.1	34.44	77.13	7.45	322.22	-31.87
228	MV-LM1(min)	I[212]	Axial	-113.19	60.92	40.99	15.07	380.49	33.47
228	MV-LM1(min)	J[230]	Axial	-113.19	60.92	68	15.07	291.98	-57.92
229	MV-LM1(min)	I[213]	Axial	-121.69	532.02	-91.87	-68.76	9.25	418.29
229	MV-LM1(min)	J[353]	Axial	-121.69	532.02	-91.28	-68.76	101.12	-113.73
230	MV-LM1(min)	I[214]	Axial	-141.18	-652.93	-106.7	84.77	13.47	-512.72
230	MV-LM1(min)	J[370]	Axial	-141.18	-652.93	-104.75	84.77	120.17	140.22
231	MV-LM1(min)	I[215]	Axial	-102.38	-225.85	384.62	13.43	95.51	-174.58
231	MV-LM1(min)	J[354]	Axial	-102.38	-225.85	386.27	13.43	-289.11	51.27
232	MV-LM1(min)	I[216]	Axial	-116.84	-181.28	372.23	9.35	69.11	-138.5
232	MV-LM1(min)	J[355]	Axial	-116.84	-181.28	373.89	9.35	-303.13	42.79
233	MV-LM1(min)	I[217]	Axial	-117.9	-31.01	368.45	4.78	74.38	-26.89
233	MV-LM1(min)	J[356]	Axial	-117.9	-31.01	369.69	4.78	-294.08	4.12
234	MV-LM1(min)	I[218]	Axial	-117.82	72.62	368.58	-0.97	75.69	52.7
234	MV-LM1(min)	J[357]	Axial	-117.82	72.62	369.82	-0.97	-292.89	-19.92
235	MV-LM1(min)	I[219]	Axial	-115.93	146.36	370.04	-5.07	75.45	109.45
235	MV-LM1(min)	J[358]	Axial	-115.93	146.36	371.69	-5.07	-294.59	-36.92
236	MV-LM1(min)	I[220]	Axial	-113.75	154.41	371.78	-5.64	71.7	115.84
236	MV-LM1(min)	J[359]	Axial	-113.75	154.41	373.44	-5.64	-300.09	-38.57
237	MV-LM1(min)	I[221]	Axial	-112.17	110.53	373.08	-3.82	65.94	82.8
237	MV-LM1(min)	J[360]	Axial	-112.17	110.53	374.74	-3.82	-307.14	-27.73
238	MV-LM1(min)	I[222]	Axial	-111.42	55.23	373.99	-1.29	61.25	40.74
238	MV-LM1(min)	J[361]	Axial	-111.42	55.23	375.23	-1.29	-312.74	-14.49
239	MV-LM1(min)	I[223]	Axial	-111.41	-60.83	374.04	0.82	61.04	-44.71
239	MV-LM1(min)	J[362]	Axial	-111.41	-60.83	375.28	0.82	-313	16.12
240	MV-LM1(min)	I[224]	Axial	-112.15	-115.93	373.22	3.4	65.32	-86.66
240	MV-LM1(min)	J[363]	Axial	-112.15	-115.93	374.87	3.4	-307.9	29.26
241	MV-LM1(min)	I[225]	Axial	-113.71	-159.39	371.98	5.37	70.84	-119.51
241	MV-LM1(min)	J[364]	Axial	-113.71	-159.39	373.64	5.37	-301.14	39.88
242	MV-LM1(min)	I[226]	Axial	-115.91	-151.6	370.26	5.03	74.68	-113.45
242	MV-LM1(min)	J[365]	Axial	-115.91	-151.6	371.91	5.03	-295.57	38.14
243	MV-LM1(min)	I[227]	Axial	-117.84	-75.33	368.74	0.98	74.98	-54.89

243	MV-LM1(min)	J[366]	Axial	-117.84	-75.33	369.98	0.98	-293.77	20.44
244	MV-LM1(min)	I[228]	Axial	-118.01	30.36	368.45	-4.71	74.32	26.21
244	MV-LM1(min)	J[367]	Axial	-118.01	30.36	369.69	-4.71	-294.13	-4.15
245	MV-LM1(min)	I[229]	Axial	-117.2	183.45	372.03	-9.41	69.83	140
245	MV-LM1(min)	J[368]	Axial	-117.2	183.45	373.69	-9.41	-302.2	-43.45
246	MV-LM1(min)	I[230]	Axial	-102.91	235.38	383.85	-14.04	97.78	181.95
246	MV-LM1(min)	J[369]	Axial	-102.91	235.38	385.5	-14.04	-286.07	-53.43
247	MV-LM1(min)	I[1]	Axial	-35.87	6.37	25.5	-157.12	-15.67	22.09
247	MV-LM1(min)	J[231]	Axial	-35.87	6.37	25.5	-157.12	-71.91	8.04
248	MV-LM1(min)	I[19]	Axial	-39.83	-19.09	33.63	113.98	-27.27	-56.17
248	MV-LM1(min)	J[232]	Axial	-39.83	-19.09	33.63	113.98	-101.47	-14.07
249	MV-LM1(min)	I[231]	Axial	-35.87	6.37	25.5	-157.12	-71.91	8.04
249	MV-LM1(min)	J[37]	Axial	-35.87	6.37	25.5	-157.12	-128.15	-6.02
250	MV-LM1(min)	I[232]	Axial	-39.83	-19.09	33.63	113.98	-101.47	-14.07
250	MV-LM1(min)	J[53]	Axial	-39.83	-19.09	33.63	113.98	-175.66	28.03
251	MV-LM1(min)	I[37]	Axial	-343.15	61.48	109.23	-175.59	-551.25	167.43
251	MV-LM1(min)	J[233]	Axial	-343.15	61.48	109.23	-175.59	-792.19	31.8
252	MV-LM1(min)	I[53]	Axial	-345.38	-60.29	109.36	179.66	-549.86	-162.5
252	MV-LM1(min)	J[234]	Axial	-345.38	-60.29	109.36	179.66	-791.1	-29.51
253	MV-LM1(min)	I[233]	Axial	-343.15	61.48	109.23	-175.59	-792.19	31.8
253	MV-LM1(min)	J[38]	Axial	-343.15	61.48	109.23	-175.59	-1033.13	-103.83
254	MV-LM1(min)	I[234]	Axial	-345.38	-60.29	109.36	179.66	-791.1	-29.51
254	MV-LM1(min)	J[54]	Axial	-345.38	-60.29	109.36	179.66	-1032.34	103.47
255	MV-LM1(min)	I[38]	Axial	-662.69	40.31	74.38	-112.29	-1014.15	123.19
255	MV-LM1(min)	J[235]	Axial	-662.69	40.31	74.38	-112.29	-1178.22	34.27
256	MV-LM1(min)	I[54]	Axial	-664.16	-40.14	74.43	114.09	-1013.39	-122.87
256	MV-LM1(min)	J[236]	Axial	-664.16	-40.14	74.43	114.09	-1177.57	-34.33
257	MV-LM1(min)	I[235]	Axial	-662.69	40.31	74.38	-112.29	-1178.22	34.27
257	MV-LM1(min)	J[39]	Axial	-662.69	40.31	74.38	-112.29	-1342.3	-54.65
258	MV-LM1(min)	I[236]	Axial	-664.16	-40.14	74.43	114.09	-1177.57	-34.33
258	MV-LM1(min)	J[55]	Axial	-664.16	-40.14	74.43	114.09	-1341.76	54.21
259	MV-LM1(min)	I[39]	Axial	-847.29	16.85	29.79	-43.19	-1256.08	77.96
259	MV-LM1(min)	J[237]	Axial	-847.29	16.85	29.79	-43.19	-1321.8	40.8
260	MV-LM1(min)	I[55]	Axial	-848.29	-16.82	29.82	43.92	-1255.7	-78.01
260	MV-LM1(min)	J[238]	Axial	-848.29	-16.82	29.82	43.92	-1321.47	-40.91
261	MV-LM1(min)	I[237]	Axial	-847.29	16.85	29.79	-43.19	-1321.8	40.8
261	MV-LM1(min)	J[40]	Axial	-847.29	16.85	29.79	-43.19	-1387.51	3.64
262	MV-LM1(min)	I[238]	Axial	-848.29	-16.82	29.82	43.92	-1321.47	-40.91
262	MV-LM1(min)	J[56]	Axial	-848.29	-16.82	29.82	43.92	-1387.24	-3.81
263	MV-LM1(min)	I[40]	Axial	-884.72	-4.08	-7.14	17.81	-1294.21	30.48
263	MV-LM1(min)	J[239]	Axial	-884.72	-4.08	-7.14	17.81	-1278.46	39.47
264	MV-LM1(min)	I[56]	Axial	-885.48	4.1	-7.13	-17.5	-1294.03	-30.45
264	MV-LM1(min)	J[240]	Axial	-885.48	4.1	-7.13	-17.5	-1278.32	-39.49
265	MV-LM1(min)	I[239]	Axial	-884.72	-4.08	-7.14	17.81	-1278.46	39.47
265	MV-LM1(min)	J[41]	Axial	-884.72	-4.08	-7.14	17.81	-1262.71	48.46
266	MV-LM1(min)	I[240]	Axial	-885.48	4.1	-7.13	-17.5	-1278.32	-39.49
266	MV-LM1(min)	J[57]	Axial	-885.48	4.1	-7.13	-17.5	-1262.6	-48.53
267	MV-LM1(min)	I[41]	Axial	-797.54	-23.65	-41.11	85.58	-1273.76	-14.21
267	MV-LM1(min)	J[241]	Axial	-797.54	-23.65	-41.11	85.58	-1183.07	37.96
268	MV-LM1(min)	I[57]	Axial	-798.18	23.67	-41.1	-85.44	-1273.71	14.26
268	MV-LM1(min)	J[242]	Axial	-798.18	23.67	-41.1	-85.44	-1183.05	-37.95
269	MV-LM1(min)	I[241]	Axial	-797.54	-23.65	-41.11	85.58	-1183.07	37.96
269	MV-LM1(min)	J[42]	Axial	-797.54	-23.65	-41.11	85.58	-1092.39	90.13
270	MV-LM1(min)	I[242]	Axial	-798.18	23.67	-41.1	-85.44	-1183.05	-37.95
270	MV-LM1(min)	J[58]	Axial	-798.18	23.67	-41.1	-85.44	-1092.39	-90.16
271	MV-LM1(min)	I[42]	Axial	-604.73	-37.97	-66.02	139.31	-1127.5	-50.22
271	MV-LM1(min)	J[243]	Axial	-604.73	-37.97	-66.02	139.31	-981.86	33.53
272	MV-LM1(min)	I[58]	Axial	-605.28	37.98	-66.01	-139.28	-1127.57	50.25
272	MV-LM1(min)	J[244]	Axial	-605.28	37.98	-66.01	-139.28	-981.96	-33.52
273	MV-LM1(min)	I[243]	Axial	-604.73	-37.97	-66.02	139.31	-981.86	33.53
273	MV-LM1(min)	J[43]	Axial	-604.73	-37.97	-66.02	139.31	-836.23	117.28

274	MV-LM1(min)	I[244]	Axial	-605.28	37.98	-66.01	-139.28	-981.96	-33.52
274	MV-LM1(min)	J[59]	Axial	-605.28	37.98	-66.01	-139.28	-836.35	-117.3
275	MV-LM1(min)	I[43]	Axial	-356.15	-41.52	-72.1	165.83	-850.46	-65.8
275	MV-LM1(min)	J[245]	Axial	-356.15	-41.52	-72.1	165.83	-691.42	25.78
276	MV-LM1(min)	I[59]	Axial	-356.42	41.5	-72.06	-165.87	-850.76	65.77
276	MV-LM1(min)	J[246]	Axial	-356.42	41.5	-72.06	-165.87	-691.8	-25.78
277	MV-LM1(min)	I[245]	Axial	-356.15	-41.52	-72.1	165.83	-691.42	25.78
277	MV-LM1(min)	J[44]	Axial	-356.15	-41.52	-72.1	165.83	-532.38	117.36
278	MV-LM1(min)	I[246]	Axial	-356.42	41.5	-72.06	-165.87	-691.8	-25.78
278	MV-LM1(min)	J[60]	Axial	-356.42	41.5	-72.06	-165.87	-532.84	-117.33
279	MV-LM1(min)	I[44]	Axial	-167.88	11.73	14.16	187.1	-190.74	18.3
279	MV-LM1(min)	J[247]	Axial	-167.88	11.73	14.16	187.1	-221.98	-7.58
280	MV-LM1(min)	I[60]	Axial	-168.02	-11.68	14.1	-186.66	-191.18	-18.18
280	MV-LM1(min)	J[248]	Axial	-168.02	-11.68	14.1	-186.66	-222.27	7.58
281	MV-LM1(min)	I[247]	Axial	-167.88	11.73	14.16	187.1	-221.98	-7.58
281	MV-LM1(min)	J[45]	Axial	-167.88	11.73	14.16	187.1	-253.22	-33.46
282	MV-LM1(min)	I[248]	Axial	-168.02	-11.68	14.1	-186.66	-222.27	7.58
282	MV-LM1(min)	J[61]	Axial	-168.02	-11.68	14.1	-186.66	-253.37	33.34
283	MV-LM1(min)	I[45]	Axial	-312.16	31.18	46.21	171.37	-255.33	56.22
283	MV-LM1(min)	J[249]	Axial	-312.16	31.18	46.21	171.37	-357.27	-12.55
284	MV-LM1(min)	I[61]	Axial	-312.16	-31.21	46.28	-171.31	-254.83	-56.29
284	MV-LM1(min)	J[250]	Axial	-312.16	-31.21	46.28	-171.31	-356.92	12.56
285	MV-LM1(min)	I[249]	Axial	-312.16	31.18	46.21	171.37	-357.27	-12.55
285	MV-LM1(min)	J[46]	Axial	-312.16	31.18	46.21	171.37	-459.21	-81.33
286	MV-LM1(min)	I[250]	Axial	-312.16	-31.21	46.28	-171.31	-356.92	12.56
286	MV-LM1(min)	J[62]	Axial	-312.16	-31.21	46.28	-171.31	-459	81.41
287	MV-LM1(min)	I[46]	Axial	-478.38	27.67	41.91	147.58	-446.34	46.51
287	MV-LM1(min)	J[251]	Axial	-478.38	27.67	41.91	147.58	-538.79	-14.51
288	MV-LM1(min)	I[62]	Axial	-478.14	-27.67	41.92	-147.56	-446.23	-46.52
288	MV-LM1(min)	J[252]	Axial	-478.14	-27.67	41.92	-147.56	-538.7	14.51
289	MV-LM1(min)	I[251]	Axial	-478.38	27.67	41.91	147.58	-538.79	-14.51
289	MV-LM1(min)	J[47]	Axial	-478.38	27.67	41.91	147.58	-631.25	-75.54
290	MV-LM1(min)	I[252]	Axial	-478.14	-27.67	41.92	-147.56	-538.7	14.51
290	MV-LM1(min)	J[63]	Axial	-478.14	-27.67	41.92	-147.56	-631.17	75.55
291	MV-LM1(min)	I[47]	Axial	-647.4	20.7	40.4	-99.09	-1076.77	87.19
291	MV-LM1(min)	J[253]	Axial	-647.4	20.7	40.4	-99.09	-1165.89	41.53
292	MV-LM1(min)	I[63]	Axial	-647.16	-20.71	40.41	99.07	-1076.66	-87.21
292	MV-LM1(min)	J[254]	Axial	-647.16	-20.71	40.41	99.07	-1165.79	-41.53
293	MV-LM1(min)	I[253]	Axial	-647.4	20.7	40.4	-99.09	-1165.89	41.53
293	MV-LM1(min)	J[48]	Axial	-647.4	20.7	40.4	-99.09	-1255.01	-4.14
294	MV-LM1(min)	I[254]	Axial	-647.16	-20.71	40.41	99.07	-1165.79	-41.53
294	MV-LM1(min)	J[64]	Axial	-647.16	-20.71	40.41	99.07	-1254.92	4.15
295	MV-LM1(min)	I[48]	Axial	-718.54	0.67	7.53	-33.17	-1251.48	46.19
295	MV-LM1(min)	J[255]	Axial	-718.54	0.67	7.53	-33.17	-1268.08	44.72
296	MV-LM1(min)	I[64]	Axial	-718.33	-0.67	7.53	33.16	-1251.38	-46.21
296	MV-LM1(min)	J[256]	Axial	-718.33	-0.67	7.53	33.16	-1267.99	-44.73
297	MV-LM1(min)	I[255]	Axial	-718.54	0.67	7.53	-33.17	-1268.08	44.72
297	MV-LM1(min)	J[49]	Axial	-718.54	0.67	7.53	-33.17	-1284.69	43.26
298	MV-LM1(min)	I[256]	Axial	-718.33	-0.67	7.53	33.16	-1267.99	-44.73
298	MV-LM1(min)	J[65]	Axial	-718.33	-0.67	7.53	33.16	-1284.6	-43.24
299	MV-LM1(min)	I[49]	Axial	-659.68	-21.71	-27.86	31.12	-1386.64	1.21
299	MV-LM1(min)	J[257]	Axial	-659.68	-21.71	-27.86	31.12	-1325.2	49.1
300	MV-LM1(min)	I[65]	Axial	-659.48	21.7	-27.85	-31.03	-1386.56	-1.2
300	MV-LM1(min)	J[258]	Axial	-659.48	21.7	-27.85	-31.03	-1325.13	-49.08
301	MV-LM1(min)	I[257]	Axial	-659.68	-21.71	-27.86	31.12	-1325.2	49.1
301	MV-LM1(min)	J[50]	Axial	-659.68	-21.71	-27.86	31.12	-1263.75	96.99
302	MV-LM1(min)	I[258]	Axial	-659.48	21.7	-27.85	-31.03	-1325.13	-49.08
302	MV-LM1(min)	J[66]	Axial	-659.48	21.7	-27.85	-31.03	-1263.7	-96.95
303	MV-LM1(min)	I[50]	Axial	-480.4	-34	-47.81	-91.41	-776.92	-95.03
303	MV-LM1(min)	J[259]	Axial	-480.4	-34	-47.81	-91.41	-671.46	-20.03
304	MV-LM1(min)	I[66]	Axial	-480.43	33.96	-47.8	91.02	-776.77	94.94

304	MV-LM1(min)	J[260]	Axial	-480.43	33.96	-47.8	91.02	-671.32	20.02
305	MV-LM1(min)	I[259]	Axial	-480.4	-34	-47.81	-91.41	-671.46	-20.03
305	MV-LM1(min)	J[51]	Axial	-480.4	-34	-47.81	-91.41	-565.99	54.97
306	MV-LM1(min)	I[260]	Axial	-480.43	33.96	-47.8	91.02	-671.32	20.02
306	MV-LM1(min)	J[67]	Axial	-480.43	33.96	-47.8	91.02	-565.87	-54.9
307	MV-LM1(min)	I[51]	Axial	-240.85	-54.96	-66.77	-153.31	-584.96	-126.72
307	MV-LM1(min)	J[261]	Axial	-240.85	-54.96	-66.77	-153.31	-437.67	-5.49
308	MV-LM1(min)	I[67]	Axial	-241.04	54.75	-66.76	152.54	-584.75	126.66
308	MV-LM1(min)	J[262]	Axial	-241.04	54.75	-66.76	152.54	-437.47	5.88
309	MV-LM1(min)	I[261]	Axial	-240.85	-54.96	-66.77	-153.31	-437.67	-5.49
309	MV-LM1(min)	J[52]	Axial	-240.85	-54.96	-66.77	-153.31	-290.39	115.74
310	MV-LM1(min)	I[262]	Axial	-241.04	54.75	-66.76	152.54	-437.47	5.88
310	MV-LM1(min)	J[68]	Axial	-241.04	54.75	-66.76	152.54	-290.2	-114.9
311	MV-LM1(min)	I[52]	Axial	-36.32	-36.13	-16.3	-245.7	-89.49	-66.13
311	MV-LM1(min)	J[263]	Axial	-36.32	-36.13	-16.3	-245.7	-53.53	13.58
312	MV-LM1(min)	I[68]	Axial	-36.1	38.19	-17.91	255.47	-98.98	69.37
312	MV-LM1(min)	J[264]	Axial	-36.1	38.19	-17.91	255.47	-59.46	-14.88
313	MV-LM1(min)	I[263]	Axial	-36.32	-36.13	-16.3	-245.7	-53.53	13.58
313	MV-LM1(min)	J[18]	Axial	-36.32	-36.13	-16.3	-245.7	-17.57	93.28
314	MV-LM1(min)	I[264]	Axial	-36.1	38.19	-17.91	255.47	-59.46	-14.88
314	MV-LM1(min)	J[36]	Axial	-36.1	38.19	-17.91	255.47	-19.95	-99.12
315	MV-LM1(min)	I[1]	Axial	0	0	0	0	0	0
315	MV-LM1(min)	J[265]	Axial	0	0	0	0	0	0
316	MV-LM1(min)	I[18]	Axial	0	0	0	0	0	0
316	MV-LM1(min)	J[266]	Axial	0	0	0	0	0	0
317	MV-LM1(min)	I[37]	Axial	0	0	0	0	0	0
317	MV-LM1(min)	J[267]	Axial	0	0	0	0	0	0
318	MV-LM1(min)	I[38]	Axial	0	0	0	0	0	0
318	MV-LM1(min)	J[268]	Axial	0	0	0	0	0	0
319	MV-LM1(min)	I[39]	Axial	0	0	0	0	0	0
319	MV-LM1(min)	J[269]	Axial	0	0	0	0	0	0
320	MV-LM1(min)	I[40]	Axial	0	0	0	0	0	0
320	MV-LM1(min)	J[270]	Axial	0	0	0	0	0	0
321	MV-LM1(min)	I[41]	Axial	0	0	0	0	0	0
321	MV-LM1(min)	J[271]	Axial	0	0	0	0	0	0
322	MV-LM1(min)	I[42]	Axial	0	0	0	0	0	0
322	MV-LM1(min)	J[272]	Axial	0	0	0	0	0	0
323	MV-LM1(min)	I[43]	Axial	0	0	0	0	0	0
323	MV-LM1(min)	J[273]	Axial	0	0	0	0	0	0
324	MV-LM1(min)	I[44]	Axial	0	0	0	0	0	0
324	MV-LM1(min)	J[274]	Axial	0	0	0	0	0	0
325	MV-LM1(min)	I[45]	Axial	0	0	0	0	0	0
325	MV-LM1(min)	J[275]	Axial	0	0	0	0	0	0
326	MV-LM1(min)	I[46]	Axial	0	0	0	0	0	0
326	MV-LM1(min)	J[276]	Axial	0	0	0	0	0	0
327	MV-LM1(min)	I[47]	Axial	0	0	0	0	0	0
327	MV-LM1(min)	J[277]	Axial	0	0	0	0	0	0
328	MV-LM1(min)	I[48]	Axial	0	0	0	0	0	0
328	MV-LM1(min)	J[278]	Axial	0	0	0	0	0	0
329	MV-LM1(min)	I[49]	Axial	0	0	0	0	0	0
329	MV-LM1(min)	J[279]	Axial	0	0	0	0	0	0
330	MV-LM1(min)	I[50]	Axial	0	0	0	0	0	0
330	MV-LM1(min)	J[280]	Axial	0	0	0	0	0	0
331	MV-LM1(min)	I[51]	Axial	0	0	0	0	0	0
331	MV-LM1(min)	J[281]	Axial	0	0	0	0	0	0
332	MV-LM1(min)	I[52]	Axial	0	0	0	0	0	0
332	MV-LM1(min)	J[282]	Axial	0	0	0	0	0	0
333	MV-LM1(min)	I[231]	Axial	0	0	0	0	0	0
333	MV-LM1(min)	J[283]	Axial	0	0	0	0	0	0
334	MV-LM1(min)	I[233]	Axial	0	0	0	0	0	0
334	MV-LM1(min)	J[284]	Axial	0	0	0	0	0	0

335	MV-LM1(min)	I[235]	Axial	0	0	0	0	0	0
335	MV-LM1(min)	J[285]	Axial	0	0	0	0	0	0
336	MV-LM1(min)	I[237]	Axial	0	0	0	0	0	0
336	MV-LM1(min)	J[286]	Axial	0	0	0	0	0	0
337	MV-LM1(min)	I[239]	Axial	0	0	0	0	0	0
337	MV-LM1(min)	J[287]	Axial	0	0	0	0	0	0
338	MV-LM1(min)	I[241]	Axial	0	0	0	0	0	0
338	MV-LM1(min)	J[288]	Axial	0	0	0	0	0	0
339	MV-LM1(min)	I[243]	Axial	0	0	0	0	0	0
339	MV-LM1(min)	J[289]	Axial	0	0	0	0	0	0
340	MV-LM1(min)	I[245]	Axial	0	0	0	0	0	0
340	MV-LM1(min)	J[290]	Axial	0	0	0	0	0	0
341	MV-LM1(min)	I[247]	Axial	0	0	0	0	0	0
341	MV-LM1(min)	J[291]	Axial	0	0	0	0	0	0
342	MV-LM1(min)	I[249]	Axial	0	0	0	0	0	0
342	MV-LM1(min)	J[292]	Axial	0	0	0	0	0	0
343	MV-LM1(min)	I[251]	Axial	0	0	0	0	0	0
343	MV-LM1(min)	J[293]	Axial	0	0	0	0	0	0
344	MV-LM1(min)	I[253]	Axial	0	0	0	0	0	0
344	MV-LM1(min)	J[294]	Axial	0	0	0	0	0	0
345	MV-LM1(min)	I[255]	Axial	0	0	0	0	0	0
345	MV-LM1(min)	J[295]	Axial	0	0	0	0	0	0
346	MV-LM1(min)	I[257]	Axial	0	0	0	0	0	0
346	MV-LM1(min)	J[296]	Axial	0	0	0	0	0	0
347	MV-LM1(min)	I[259]	Axial	0	0	0	0	0	0
347	MV-LM1(min)	J[297]	Axial	0	0	0	0	0	0
348	MV-LM1(min)	I[261]	Axial	0	0	0	0	0	0
348	MV-LM1(min)	J[298]	Axial	0	0	0	0	0	0
349	MV-LM1(min)	I[263]	Axial	0	0	0	0	0	0
349	MV-LM1(min)	J[299]	Axial	0	0	0	0	0	0
350	MV-LM1(min)	I[19]	Axial	0	0	0	0	0	0
350	MV-LM1(min)	J[300]	Axial	0	0	0	0	0	0
351	MV-LM1(min)	I[36]	Axial	0	0	0	0	0	0
351	MV-LM1(min)	J[301]	Axial	0	0	0	0	0	0
352	MV-LM1(min)	I[53]	Axial	0	0	0	0	0	0
352	MV-LM1(min)	J[302]	Axial	0	0	0	0	0	0
353	MV-LM1(min)	I[54]	Axial	0	0	0	0	0	0
353	MV-LM1(min)	J[303]	Axial	0	0	0	0	0	0
354	MV-LM1(min)	I[55]	Axial	0	0	0	0	0	0
354	MV-LM1(min)	J[304]	Axial	0	0	0	0	0	0
355	MV-LM1(min)	I[56]	Axial	0	0	0	0	0	0
355	MV-LM1(min)	J[305]	Axial	0	0	0	0	0	0
356	MV-LM1(min)	I[57]	Axial	0	0	0	0	0	0
356	MV-LM1(min)	J[306]	Axial	0	0	0	0	0	0
357	MV-LM1(min)	I[58]	Axial	0	0	0	0	0	0
357	MV-LM1(min)	J[307]	Axial	0	0	0	0	0	0
358	MV-LM1(min)	I[59]	Axial	0	0	0	0	0	0
358	MV-LM1(min)	J[308]	Axial	0	0	0	0	0	0
359	MV-LM1(min)	I[60]	Axial	0	0	0	0	0	0
359	MV-LM1(min)	J[309]	Axial	0	0	0	0	0	0
360	MV-LM1(min)	I[61]	Axial	0	0	0	0	0	0
360	MV-LM1(min)	J[310]	Axial	0	0	0	0	0	0
361	MV-LM1(min)	I[62]	Axial	0	0	0	0	0	0
361	MV-LM1(min)	J[311]	Axial	0	0	0	0	0	0
362	MV-LM1(min)	I[63]	Axial	0	0	0	0	0	0
362	MV-LM1(min)	J[312]	Axial	0	0	0	0	0	0
363	MV-LM1(min)	I[64]	Axial	0	0	0	0	0	0
363	MV-LM1(min)	J[313]	Axial	0	0	0	0	0	0
364	MV-LM1(min)	I[65]	Axial	0	0	0	0	0	0
364	MV-LM1(min)	J[314]	Axial	0	0	0	0	0	0
365	MV-LM1(min)	I[66]	Axial	0	0	0	0	0	0

365	MV-LM1(min)	J[315]	Axial	0	0	0	0	0	0
366	MV-LM1(min)	I[67]	Axial	0	0	0	0	0	0
366	MV-LM1(min)	J[316]	Axial	0	0	0	0	0	0
367	MV-LM1(min)	I[68]	Axial	0	0	0	0	0	0
367	MV-LM1(min)	J[317]	Axial	0	0	0	0	0	0
368	MV-LM1(min)	I[232]	Axial	0	0	0	0	0	0
368	MV-LM1(min)	J[318]	Axial	0	0	0	0	0	0
369	MV-LM1(min)	I[234]	Axial	0	0	0	0	0	0
369	MV-LM1(min)	J[319]	Axial	0	0	0	0	0	0
370	MV-LM1(min)	I[236]	Axial	0	0	0	0	0	0
370	MV-LM1(min)	J[320]	Axial	0	0	0	0	0	0
371	MV-LM1(min)	I[238]	Axial	0	0	0	0	0	0
371	MV-LM1(min)	J[321]	Axial	0	0	0	0	0	0
372	MV-LM1(min)	I[240]	Axial	0	0	0	0	0	0
372	MV-LM1(min)	J[322]	Axial	0	0	0	0	0	0
373	MV-LM1(min)	I[242]	Axial	0	0	0	0	0	0
373	MV-LM1(min)	J[323]	Axial	0	0	0	0	0	0
374	MV-LM1(min)	I[244]	Axial	0	0	0	0	0	0
374	MV-LM1(min)	J[324]	Axial	0	0	0	0	0	0
375	MV-LM1(min)	I[246]	Axial	0	0	0	0	0	0
375	MV-LM1(min)	J[325]	Axial	0	0	0	0	0	0
376	MV-LM1(min)	I[248]	Axial	0	0	0	0	0	0
376	MV-LM1(min)	J[326]	Axial	0	0	0	0	0	0
377	MV-LM1(min)	I[250]	Axial	0	0	0	0	0	0
377	MV-LM1(min)	J[327]	Axial	0	0	0	0	0	0
378	MV-LM1(min)	I[252]	Axial	0	0	0	0	0	0
378	MV-LM1(min)	J[328]	Axial	0	0	0	0	0	0
379	MV-LM1(min)	I[254]	Axial	0	0	0	0	0	0
379	MV-LM1(min)	J[329]	Axial	0	0	0	0	0	0
380	MV-LM1(min)	I[256]	Axial	0	0	0	0	0	0
380	MV-LM1(min)	J[330]	Axial	0	0	0	0	0	0
381	MV-LM1(min)	I[258]	Axial	0	0	0	0	0	0
381	MV-LM1(min)	J[331]	Axial	0	0	0	0	0	0
382	MV-LM1(min)	I[260]	Axial	0	0	0	0	0	0
382	MV-LM1(min)	J[332]	Axial	0	0	0	0	0	0
383	MV-LM1(min)	I[262]	Axial	0	0	0	0	0	0
383	MV-LM1(min)	J[333]	Axial	0	0	0	0	0	0
384	MV-LM1(min)	I[264]	Axial	0	0	0	0	0	0
384	MV-LM1(min)	J[334]	Axial	0	0	0	0	0	0
385	MV-LM1(min)	I[69]	Axial	-293.03	-82.05	-47.16	4.3	-99.03	-314.04
385	MV-LM1(min)	J[71]	Axial	-293.03	-82.05	-47.16	4.3	109.03	47.96
386	MV-LM1(min)	I[105]	Axial	-67.49	2.06	-31.37	5.87	-53.84	-97.54
386	MV-LM1(min)	J[107]	Axial	-67.49	2.06	-31.37	5.87	84.54	-106.62
387	MV-LM1(min)	I[141]	Axial	-29.89	2.15	-33.95	-3.04	-46.39	-6.41
387	MV-LM1(min)	J[143]	Axial	-29.89	2.15	-33.95	-3.04	103.41	-15.9
388	MV-LM1(min)	I[177]	Axial	-68.48	-7.74	-33.89	1.32	-54.3	116.78
388	MV-LM1(min)	J[179]	Axial	-68.48	-7.74	-33.89	1.32	95.22	150.93
389	MV-LM1(min)	I[213]	Axial	-294.77	83.94	-47.33	-4.53	-99.48	316.96
389	MV-LM1(min)	J[215]	Axial	-294.77	83.94	-47.33	-4.53	109.33	-53.37
390	MV-LM1(min)	I[71]	Axial	-724.34	-20.37	-44.38	0.59	-72.15	-204.04
390	MV-LM1(min)	J[72]	Axial	-724.34	-20.37	-44.38	0.59	123.66	-114.17
391	MV-LM1(min)	I[107]	Axial	-141.7	9.2	-31.8	10.56	-37.46	-31.23
391	MV-LM1(min)	J[108]	Axial	-141.7	9.2	-31.8	10.56	102.83	-71.8
392	MV-LM1(min)	I[143]	Axial	-55.01	4.05	-33.37	-3.08	-33.94	1.95
392	MV-LM1(min)	J[144]	Axial	-55.01	4.05	-33.37	-3.08	113.27	-15.9
393	MV-LM1(min)	I[179]	Axial	-142.19	-9.34	-31.79	-10.62	-37.48	30.02
393	MV-LM1(min)	J[180]	Axial	-142.19	-9.34	-31.79	-10.62	102.78	71.24
394	MV-LM1(min)	I[215]	Axial	-725.46	19.65	-44.39	-0.7	-72.19	199.74
394	MV-LM1(min)	J[216]	Axial	-725.46	19.65	-44.39	-0.7	123.65	113.06
395	MV-LM1(min)	I[72]	Axial	-999.25	9.83	-29.83	-0.58	-32.34	-158.82
395	MV-LM1(min)	J[73]	Axial	-999.25	9.83	-29.83	-0.58	99.29	-202.16

396	MV-LM1(min)	I[108]	Axial	-196.45	15.85	-24.2	6.7	-10.57	-30.14
396	MV-LM1(min)	J[109]	Axial	-196.45	15.85	-24.2	6.7	96.2	-100.05
397	MV-LM1(min)	I[144]	Axial	-78.38	4.07	-29.41	-2.27	-16.59	0.42
397	MV-LM1(min)	J[145]	Axial	-78.38	4.07	-29.41	-2.27	113.16	-17.53
398	MV-LM1(min)	I[180]	Axial	-196.6	-16	-24.2	-6.71	-10.59	29.47
398	MV-LM1(min)	J[181]	Axial	-196.6	-16	-24.2	-6.71	96.17	100.07
399	MV-LM1(min)	I[216]	Axial	-999.38	-10.06	-29.83	0.55	-32.33	157.79
399	MV-LM1(min)	J[217]	Axial	-999.38	-10.06	-29.83	0.55	99.26	202.16
400	MV-LM1(min)	I[73]	Axial	-1091.6	-43.09	13.52	13.64	65.59	-279.62
400	MV-LM1(min)	J[376]	Axial	-1091.6	-43.09	13.52	13.64	35.77	-184.56
401	MV-LM1(min)	I[109]	Axial	-209.27	-19.01	5.26	10.85	56.55	-111.26
401	MV-LM1(min)	J[377]	Axial	-209.27	-19.01	5.26	10.85	44.96	-69.33
402	MV-LM1(min)	I[145]	Axial	-82.57	-5.19	27.08	1.1	110.28	-19.78
402	MV-LM1(min)	J[378]	Axial	-82.57	-5.19	27.08	1.1	50.55	-8.34
403	MV-LM1(min)	I[181]	Axial	-209.26	13.65	18.84	-6.72	86.73	98.9
403	MV-LM1(min)	J[379]	Axial	-209.26	13.65	18.84	-6.72	45.18	68.8
404	MV-LM1(min)	I[217]	Axial	-1091.45	43.04	13.52	-13.66	65.6	279.43
404	MV-LM1(min)	J[380]	Axial	-1091.45	43.04	13.52	-13.66	35.77	184.48
405	MV-LM1(min)	I[74]	Axial	-1043.36	-17.17	22.72	9.12	85.4	-223.18
405	MV-LM1(min)	J[75]	Axial	-1043.36	-17.17	22.72	9.12	-14.84	-147.42
406	MV-LM1(min)	I[110]	Axial	-189.07	-6	22.77	2.01	94.86	-84.79
406	MV-LM1(min)	J[111]	Axial	-189.07	-6	22.77	2.01	-5.58	-58.3
407	MV-LM1(min)	I[146]	Axial	-68.96	-5.06	31.01	1.95	116.15	-17.47
407	MV-LM1(min)	J[147]	Axial	-68.96	-5.06	31.01	1.95	-20.65	4.84
408	MV-LM1(min)	I[182]	Axial	-188.89	5.89	22.77	-2.02	94.88	84.44
408	MV-LM1(min)	J[183]	Axial	-188.89	5.89	22.77	-2.02	-5.59	58.46
409	MV-LM1(min)	I[218]	Axial	-1042.97	17.13	22.72	-9.13	85.4	223.01
409	MV-LM1(min)	J[219]	Axial	-1042.97	17.13	22.72	-9.13	-14.84	147.43
410	MV-LM1(min)	I[75]	Axial	-876.36	-0.43	28.74	5.98	96.08	-184.66
410	MV-LM1(min)	J[76]	Axial	-876.36	-0.43	28.74	5.98	-30.73	-182.77
411	MV-LM1(min)	I[111]	Axial	-134.65	-2.93	27.79	-1.52	101.16	-72.52
411	MV-LM1(min)	J[112]	Axial	-134.65	-2.93	27.79	-1.52	-21.45	-59.59
412	MV-LM1(min)	I[147]	Axial	-38.31	4.4	35.69	-2.24	120.61	15.83
412	MV-LM1(min)	J[148]	Axial	-38.31	4.4	35.69	-2.24	-36.86	-3.59
413	MV-LM1(min)	I[183]	Axial	-134.37	2.7	27.83	1.55	101.24	71.82
413	MV-LM1(min)	J[184]	Axial	-134.37	2.7	27.83	1.55	-21.52	59.92
414	MV-LM1(min)	I[219]	Axial	-876.05	0.39	28.75	-5.98	96.09	184.5
414	MV-LM1(min)	J[220]	Axial	-876.05	0.39	28.75	-5.98	-30.74	182.79
415	MV-LM1(min)	I[76]	Axial	-662.26	0.68	30.05	5.43	95.36	-182.31
415	MV-LM1(min)	J[77]	Axial	-662.26	0.68	30.05	5.43	-37.22	-185.31
416	MV-LM1(min)	I[112]	Axial	-67.7	3.86	21.77	-1.22	80.27	-42.46
416	MV-LM1(min)	J[113]	Axial	-67.7	3.86	21.77	-1.22	-15.75	-59.5
417	MV-LM1(min)	I[148]	Axial	-1.18	-0.03	20.91	0	64.31	-0.08
417	MV-LM1(min)	J[149]	Axial	-1.18	-0.03	20.91	0	-27.92	0.04
418	MV-LM1(min)	I[184]	Axial	-67.42	-3.94	21.76	1.21	80.26	42.22
418	MV-LM1(min)	J[185]	Axial	-67.42	-3.94	21.76	1.21	-15.76	59.6
419	MV-LM1(min)	I[220]	Axial	-661.82	-0.76	30.06	-5.44	95.39	182.05
419	MV-LM1(min)	J[221]	Axial	-661.82	-0.76	30.06	-5.44	-37.25	185.4
420	MV-LM1(min)	I[77]	Axial	-489.2	-17.24	25.56	7.35	82.34	-224.16
420	MV-LM1(min)	J[78]	Axial	-489.2	-17.24	25.56	7.35	-30.44	-148.09
421	MV-LM1(min)	I[113]	Axial	-24.94	1.12	14.26	8.11	48.4	-48.03
421	MV-LM1(min)	J[114]	Axial	-24.94	1.12	14.26	8.11	-14.5	-52.99
422	MV-LM1(min)	I[149]	Axial	0	0	0	0	0	0
422	MV-LM1(min)	J[150]	Axial	0	0	0	0	0	0
423	MV-LM1(min)	I[185]	Axial	-24.9	-1.08	14.26	-8.11	48.38	48.13
423	MV-LM1(min)	J[186]	Axial	-24.9	-1.08	14.26	-8.11	-14.52	52.91
424	MV-LM1(min)	I[221]	Axial	-488.84	17.27	25.55	-7.36	82.31	224.19
424	MV-LM1(min)	J[222]	Axial	-488.84	17.27	25.55	-7.36	-30.4	147.97
425	MV-LM1(min)	I[78]	Axial	-419.72	13.57	-13.87	-3.1	-5.98	-157.34
425	MV-LM1(min)	J[371]	Axial	-419.72	13.57	-13.87	-3.1	24.61	-187.29
426	MV-LM1(min)	I[114]	Axial	-7.48	4.28	-11.11	2.68	-9.44	-34.41

426	MV-LM1(min)	J[372]	Axial	-7.48	4.28	-11.11	2.68	15.06	-43.85
427	MV-LM1(min)	I[150]	Axial	0	0	0	0	0	0
427	MV-LM1(min)	J[373]	Axial	0	0	0	0	0	0
428	MV-LM1(min)	I[186]	Axial	-7.76	-4.03	-11.11	-2.67	-9.45	35.03
428	MV-LM1(min)	J[374]	Axial	-7.76	-4.03	-11.11	-2.67	15.06	43.93
429	MV-LM1(min)	I[222]	Axial	-419.8	-26.69	-18.16	8.35	-15.45	128.44
429	MV-LM1(min)	J[375]	Axial	-419.8	-26.69	-18.16	8.35	24.61	187.32
430	MV-LM1(min)	I[79]	Axial	-491.04	2.98	-24.45	-6.73	-28.03	-178.94
430	MV-LM1(min)	J[80]	Axial	-491.04	2.98	-24.45	-6.73	79.83	-192.1
431	MV-LM1(min)	I[115]	Axial	-20.02	1.05	-26.42	-1.36	-24.05	-83.71
431	MV-LM1(min)	J[116]	Axial	-20.02	1.05	-26.42	-1.36	92.52	-88.35
432	MV-LM1(min)	I[151]	Axial	0	0	0	0	0	0
432	MV-LM1(min)	J[152]	Axial	0	0	0	0	0	0
433	MV-LM1(min)	I[187]	Axial	-20.19	-0.89	-26.43	1.35	-24.07	84.13
433	MV-LM1(min)	J[188]	Axial	-20.19	-0.89	-26.43	1.35	92.55	88.08
434	MV-LM1(min)	I[223]	Axial	-491.28	-2.86	-24.45	6.73	-28.04	179.24
434	MV-LM1(min)	J[224]	Axial	-491.28	-2.86	-24.45	6.73	79.84	191.86
435	MV-LM1(min)	I[80]	Axial	-674.11	-19.02	-30.59	-4.81	-38.46	-226.01
435	MV-LM1(min)	J[81]	Axial	-674.11	-19.02	-30.59	-4.81	96.5	-142.09
436	MV-LM1(min)	I[116]	Axial	-76.29	-22.84	-30.97	3.85	-34.67	-109.63
436	MV-LM1(min)	J[117]	Axial	-76.29	-22.84	-30.97	3.85	101.98	-8.86
437	MV-LM1(min)	I[152]	Axial	-1.18	0.03	-20.91	0	-27.92	0.08
437	MV-LM1(min)	J[153]	Axial	-1.18	0.03	-20.91	0	64.31	-0.05
438	MV-LM1(min)	I[188]	Axial	-76.58	22.96	-30.95	-3.84	-34.63	109.94
438	MV-LM1(min)	J[189]	Axial	-76.58	22.96	-30.95	-3.84	101.93	8.64
439	MV-LM1(min)	I[224]	Axial	-674.1	18.92	-30.53	4.83	-38.33	225.83
439	MV-LM1(min)	J[225]	Axial	-674.1	18.92	-30.53	4.83	96.36	142.37
440	MV-LM1(min)	I[81]	Axial	-899.49	-10.24	-27.97	-5.79	-29.23	-210.05
440	MV-LM1(min)	J[82]	Axial	-899.49	-10.24	-27.97	-5.79	94.15	-164.87
441	MV-LM1(min)	I[117]	Axial	-149.98	-19.66	-29.54	1.5	-27.12	-107.41
441	MV-LM1(min)	J[118]	Axial	-149.98	-19.66	-29.54	1.5	103.22	-20.67
442	MV-LM1(min)	I[153]	Axial	-38.32	6.66	-35.69	-2.24	-36.86	8.94
442	MV-LM1(min)	J[154]	Axial	-38.32	6.66	-35.69	-2.24	120.62	-20.44
443	MV-LM1(min)	I[189]	Axial	-150.26	19.84	-29.54	-1.5	-27.13	107.8
443	MV-LM1(min)	J[190]	Axial	-150.26	19.84	-29.54	-1.5	103.22	20.29
444	MV-LM1(min)	I[225]	Axial	-899.37	10.31	-27.96	5.79	-29.21	210.18
444	MV-LM1(min)	J[226]	Axial	-899.37	10.31	-27.96	5.79	94.13	164.69
445	MV-LM1(min)	I[82]	Axial	-1079.05	9.29	-22.3	-8.38	-14.11	-170.43
445	MV-LM1(min)	J[83]	Axial	-1079.05	9.29	-22.3	-8.38	84.25	-211.43
446	MV-LM1(min)	I[118]	Axial	-206.82	-11.44	-24.42	-0.2	-10.72	-101.68
446	MV-LM1(min)	J[119]	Axial	-206.82	-11.44	-24.42	-0.2	97.01	-51.22
447	MV-LM1(min)	I[154]	Axial	-68.98	6.58	-31.01	-2	-20.65	8.85
447	MV-LM1(min)	J[155]	Axial	-68.98	6.58	-31.01	-2	116.16	-20.19
448	MV-LM1(min)	I[190]	Axial	-207.12	11.62	-24.42	0.2	-10.74	102.07
448	MV-LM1(min)	J[191]	Axial	-207.12	11.62	-24.42	0.2	97.01	50.81
449	MV-LM1(min)	I[226]	Axial	-1078.86	-9.22	-22.29	8.39	-14.11	170.55
449	MV-LM1(min)	J[227]	Axial	-1078.86	-9.22	-22.29	8.39	84.24	211.25
450	MV-LM1(min)	I[83]	Axial	-1143.31	38.49	-13.3	-12.53	6.28	-108.43
450	MV-LM1(min)	J[381]	Axial	-1143.31	38.49	-13.3	-12.53	35.61	-193.33
451	MV-LM1(min)	I[119]	Axial	-230.31	2.78	-18.79	-5.5	3.65	-71.25
451	MV-LM1(min)	J[382]	Axial	-230.31	2.78	-18.79	-5.5	45.11	-77.39
452	MV-LM1(min)	I[155]	Axial	-82.58	6.2	-27.08	-1.18	-9.19	6.15
452	MV-LM1(min)	J[383]	Axial	-82.58	6.2	-27.08	-1.18	50.55	-7.54
453	MV-LM1(min)	I[191]	Axial	-230.6	-2.61	-18.8	5.52	3.63	71.55
453	MV-LM1(min)	J[384]	Axial	-230.6	-2.61	-18.8	5.52	45.1	77.31
454	MV-LM1(min)	I[227]	Axial	-1143.06	-38.39	-13.3	12.55	6.27	108.54
454	MV-LM1(min)	J[385]	Axial	-1143.06	-38.39	-13.3	12.55	35.61	193.23
455	MV-LM1(min)	I[84]	Axial	-1051.26	-12.79	30.21	1.77	100.02	-218.66
455	MV-LM1(min)	J[85]	Axial	-1051.26	-12.79	30.21	1.77	-33.25	-162.23
456	MV-LM1(min)	I[120]	Axial	-214.96	-24.95	24.32	-5.37	96.43	-129.23
456	MV-LM1(min)	J[121]	Axial	-214.96	-24.95	24.32	-5.37	-10.87	-19.16

457	MV-LM1(min)	I[156]	Axial	-78.4	-3.16	29.41	2.19	113.16	-14.74
457	MV-LM1(min)	J[157]	Axial	-78.4	-3.16	29.41	2.19	-16.59	-0.8
458	MV-LM1(min)	I[192]	Axial	-215.28	25.28	24.32	5.41	96.39	129.39
458	MV-LM1(min)	J[193]	Axial	-215.28	25.28	24.32	5.41	-10.9	17.87
459	MV-LM1(min)	I[228]	Axial	-1051.08	13.28	30.19	-1.71	99.98	218.67
459	MV-LM1(min)	J[229]	Axial	-1051.08	13.28	30.19	-1.71	-33.23	160.07
460	MV-LM1(min)	I[85]	Axial	-778.15	21.09	45.27	0.27	125.78	-126.81
460	MV-LM1(min)	J[86]	Axial	-778.15	21.09	45.27	0.27	-73.94	-219.85
461	MV-LM1(min)	I[121]	Axial	-157.76	-15.55	32.09	-9.55	103.65	-95.92
461	MV-LM1(min)	J[122]	Axial	-157.76	-15.55	32.09	-9.55	-37.92	-27.31
462	MV-LM1(min)	I[157]	Axial	-55.01	-3.42	33.37	3.06	113.27	-13.83
462	MV-LM1(min)	J[158]	Axial	-55.01	-3.42	33.37	3.06	-33.94	1.24
463	MV-LM1(min)	I[193]	Axial	-158.07	15.78	32.08	9.64	103.58	94.93
463	MV-LM1(min)	J[194]	Axial	-158.07	15.78	32.08	9.64	-37.95	25.32
464	MV-LM1(min)	I[229]	Axial	-778.15	-20	45.26	-0.14	125.72	125.19
464	MV-LM1(min)	J[230]	Axial	-778.15	-20	45.26	-0.14	-73.95	213.43
465	MV-LM1(min)	I[86]	Axial	-325.69	86.64	50.56	-4.3	115.7	42.83
465	MV-LM1(min)	J[70]	Axial	-325.69	86.64	50.56	-4.3	-107.36	-339.42
466	MV-LM1(min)	I[122]	Axial	-74.26	-7.73	32.95	-5.57	88.52	-124.11
466	MV-LM1(min)	J[106]	Axial	-74.26	-7.73	32.95	-5.57	-56.83	-90.03
467	MV-LM1(min)	I[158]	Axial	-29.88	-1.98	33.95	3.1	103.41	-15.31
467	MV-LM1(min)	J[142]	Axial	-29.88	-1.98	33.95	3.1	-46.38	-6.59
468	MV-LM1(min)	I[194]	Axial	-74.37	6.46	32.97	5.66	88.54	121.42
468	MV-LM1(min)	J[178]	Axial	-74.37	6.46	32.97	5.66	-56.9	92.93
469	MV-LM1(min)	I[230]	Axial	-325.74	-88.36	50.56	4.48	115.66	-48.82
469	MV-LM1(min)	J[214]	Axial	-325.74	-88.36	50.56	4.48	-107.38	341.02
470	MV-LM1(min)	I[335]	Axial	-226.45	-499.83	86.4	65.46	127.85	-106.35
470	MV-LM1(min)	J[69]	Axial	-226.45	-499.83	89.13	65.46	38.71	393.48
471	MV-LM1(min)	I[336]	Axial	-101.88	221.86	-386.7	-13.14	-290.77	50.46
471	MV-LM1(min)	J[71]	Axial	-101.88	221.86	-385.04	-13.14	94.27	-171.4
472	MV-LM1(min)	I[337]	Axial	-116.89	180.95	-373.94	-9.34	-303.64	42.72
472	MV-LM1(min)	J[72]	Axial	-116.89	180.95	-372.28	-9.34	68.64	-138.23
473	MV-LM1(min)	I[338]	Axial	-117.9	30.89	-369.71	-4.78	-294.25	4.09
473	MV-LM1(min)	J[73]	Axial	-117.9	30.89	-368.47	-4.78	74.22	-26.8
474	MV-LM1(min)	I[339]	Axial	-117.82	-72.65	-369.82	0.97	-292.92	-19.93
474	MV-LM1(min)	J[74]	Axial	-117.82	-72.65	-368.58	0.97	75.67	52.73
475	MV-LM1(min)	I[340]	Axial	-115.93	-146.11	-371.69	5.06	-294.64	-36.86
475	MV-LM1(min)	J[75]	Axial	-115.93	-146.11	-370.04	5.06	75.4	109.25
476	MV-LM1(min)	I[341]	Axial	-113.75	-154.31	-373.44	5.65	-300.1	-38.54
476	MV-LM1(min)	J[76]	Axial	-113.75	-154.31	-371.79	5.65	71.69	115.77
477	MV-LM1(min)	I[342]	Axial	-112.17	-110.5	-374.74	3.82	-307.15	-27.72
477	MV-LM1(min)	J[77]	Axial	-112.17	-110.5	-373.08	3.82	65.93	82.78
478	MV-LM1(min)	I[343]	Axial	-111.42	-55.22	-375.23	1.29	-312.75	-14.49
478	MV-LM1(min)	J[78]	Axial	-111.42	-55.22	-373.99	1.29	61.25	40.74
479	MV-LM1(min)	I[344]	Axial	-111.41	60.8	-375.28	-0.82	-313	16.11
479	MV-LM1(min)	J[79]	Axial	-111.41	60.8	-374.04	-0.82	61.04	-44.69
480	MV-LM1(min)	I[345]	Axial	-112.15	115.86	-374.87	-3.41	-307.89	29.24
480	MV-LM1(min)	J[80]	Axial	-112.15	115.86	-373.22	-3.41	65.33	-86.62
481	MV-LM1(min)	I[346]	Axial	-113.72	159.29	-373.63	-5.38	-301.13	39.86
481	MV-LM1(min)	J[81]	Axial	-113.72	159.29	-371.98	-5.38	70.84	-119.44
482	MV-LM1(min)	I[347]	Axial	-115.91	151.59	-371.91	-5.03	-295.63	38.14
482	MV-LM1(min)	J[82]	Axial	-115.91	151.59	-370.26	-5.03	74.63	-113.45
483	MV-LM1(min)	I[348]	Axial	-117.84	75.34	-369.98	-0.99	-293.87	20.44
483	MV-LM1(min)	J[83]	Axial	-117.84	75.34	-368.74	-0.99	74.87	-54.9
484	MV-LM1(min)	I[349]	Axial	-118.03	-30.28	-369.69	4.71	-294.32	-4.14
484	MV-LM1(min)	J[84]	Axial	-118.03	-30.28	-368.45	4.71	74.13	26.15
485	MV-LM1(min)	I[350]	Axial	-117.31	-183.22	-373.68	9.45	-302.42	-43.35
485	MV-LM1(min)	J[85]	Axial	-117.31	-183.22	-372.02	9.45	69.6	139.86
486	MV-LM1(min)	I[351]	Axial	-102.71	-230.95	-385.55	13.73	-287.57	-52.49
486	MV-LM1(min)	J[86]	Axial	-102.71	-230.95	-383.89	13.73	96.33	178.46
487	MV-LM1(min)	I[352]	Axial	-178.19	275.59	43.65	-33.46	48.63	60.42

487	MV-LM1(min)	J[70]	Axial	-178.19	275.59	44.06	-33.46	4.57	-215.17
488	MV-LM1(min)	I[353]	Axial	-121.69	532.02	-91.28	-68.76	101.12	-113.73
488	MV-LM1(min)	J[19]	Axial	-121.69	532.02	-87.17	-68.76	144.71	-379.74
489	MV-LM1(min)	I[354]	Axial	-102.38	-225.85	386.27	13.43	-289.11	51.27
489	MV-LM1(min)	J[53]	Axial	-102.38	-225.85	391.06	13.43	-484.64	164.19
490	MV-LM1(min)	I[355]	Axial	-116.84	-181.28	373.89	9.35	-303.13	42.79
490	MV-LM1(min)	J[54]	Axial	-116.84	-181.28	378.85	9.35	-492.55	133.43
491	MV-LM1(min)	I[356]	Axial	-117.9	-31.01	369.69	4.78	-294.08	4.12
491	MV-LM1(min)	J[55]	Axial	-117.9	-31.01	375.07	4.78	-481.61	19.62
492	MV-LM1(min)	I[357]	Axial	-117.82	72.62	369.82	-0.97	-292.89	-19.92
492	MV-LM1(min)	J[56]	Axial	-117.82	72.62	375.2	-0.97	-480.49	-56.23
493	MV-LM1(min)	I[358]	Axial	-115.93	146.36	371.69	-5.07	-294.59	-36.92
493	MV-LM1(min)	J[57]	Axial	-115.93	146.36	376.65	-5.07	-482.92	-110.1
494	MV-LM1(min)	I[359]	Axial	-113.75	154.41	373.44	-5.64	-300.09	-38.57
494	MV-LM1(min)	J[58]	Axial	-113.75	154.41	378.4	-5.64	-489.29	-115.78
495	MV-LM1(min)	I[360]	Axial	-112.17	110.53	374.74	-3.82	-307.14	-27.73
495	MV-LM1(min)	J[59]	Axial	-112.17	110.53	379.7	-3.82	-496.99	-83
496	MV-LM1(min)	I[361]	Axial	-111.42	55.23	375.23	-1.29	-312.74	-14.49
496	MV-LM1(min)	J[60]	Axial	-111.42	55.23	380.61	-1.29	-503.04	-42.11
497	MV-LM1(min)	I[362]	Axial	-111.41	-60.83	375.28	0.82	-313	16.12
497	MV-LM1(min)	J[61]	Axial	-111.41	-60.83	380.66	0.82	-503.33	46.54
498	MV-LM1(min)	I[363]	Axial	-112.15	-115.92	374.87	3.4	-307.9	29.26
498	MV-LM1(min)	J[62]	Axial	-112.15	-115.92	379.84	3.4	-497.82	87.22
499	MV-LM1(min)	I[364]	Axial	-113.71	-159.39	373.64	5.37	-301.14	39.88
499	MV-LM1(min)	J[63]	Axial	-113.71	-159.39	378.6	5.37	-490.44	119.57
500	MV-LM1(min)	I[365]	Axial	-115.91	-151.6	371.91	5.03	-295.57	38.14
500	MV-LM1(min)	J[64]	Axial	-115.91	-151.6	376.87	5.03	-484.01	113.94
501	MV-LM1(min)	I[366]	Axial	-117.84	-75.33	369.98	0.98	-293.77	20.44
501	MV-LM1(min)	J[65]	Axial	-117.84	-75.33	375.36	0.98	-481.45	58.11
502	MV-LM1(min)	I[367]	Axial	-118.01	30.36	369.69	-4.71	-294.13	-4.15
502	MV-LM1(min)	J[66]	Axial	-118.01	30.36	375.07	-4.71	-481.66	-19.33
503	MV-LM1(min)	I[368]	Axial	-117.2	183.45	373.69	-9.41	-302.2	-43.45
503	MV-LM1(min)	J[67]	Axial	-117.2	183.45	378.65	-9.41	-491.52	-135.17
504	MV-LM1(min)	I[369]	Axial	-102.91	235.38	385.5	-14.04	-286.07	-53.43
504	MV-LM1(min)	J[68]	Axial	-102.91	235.38	390.3	-14.04	-481.22	-171.11
505	MV-LM1(min)	I[370]	Axial	-141.18	-652.93	-104.75	84.77	120.17	140.22
505	MV-LM1(min)	J[36]	Axial	-141.18	-652.93	-102.3	84.77	171.32	466.68
506	MV-LM1(min)	I[371]	Axial	-419.72	13.57	-13.87	-3.1	24.61	-187.29
506	MV-LM1(min)	J[79]	Axial	-419.72	13.57	-13.87	-3.1	55.19	-217.23
507	MV-LM1(min)	I[372]	Axial	-7.48	4.28	-11.11	2.68	15.06	-43.85
507	MV-LM1(min)	J[115]	Axial	-7.48	4.28	-11.11	2.68	39.56	-53.29
508	MV-LM1(min)	I[373]	Axial	0	0	0	0	0	0
508	MV-LM1(min)	J[151]	Axial	0	0	0	0	0	0
509	MV-LM1(min)	I[374]	Axial	-7.76	-4.03	-11.11	-2.67	15.06	43.93
509	MV-LM1(min)	J[187]	Axial	-7.76	-4.03	-11.11	-2.67	39.57	52.82
510	MV-LM1(min)	I[375]	Axial	-419.8	-26.69	-18.16	8.35	24.61	187.32
510	MV-LM1(min)	J[223]	Axial	-419.8	-26.69	-18.16	8.35	64.66	246.2
511	MV-LM1(min)	I[376]	Axial	-1091.6	-43.09	13.52	13.64	35.77	-184.56
511	MV-LM1(min)	J[74]	Axial	-1091.6	-43.09	13.52	13.64	5.95	-89.5
512	MV-LM1(min)	I[377]	Axial	-209.27	-19.01	5.26	10.85	44.96	-69.33
512	MV-LM1(min)	J[110]	Axial	-209.27	-19.01	5.26	10.85	33.36	-27.4
513	MV-LM1(min)	I[378]	Axial	-82.57	-5.19	27.08	1.1	50.55	-8.34
513	MV-LM1(min)	J[146]	Axial	-82.57	-5.19	27.08	1.1	-9.19	3.1
514	MV-LM1(min)	I[379]	Axial	-209.26	13.65	18.84	-6.72	45.18	68.8
514	MV-LM1(min)	J[182]	Axial	-209.26	13.65	18.84	-6.72	3.62	38.69
515	MV-LM1(min)	I[380]	Axial	-1091.45	43.04	13.52	-13.66	35.77	184.48
515	MV-LM1(min)	J[218]	Axial	-1091.45	43.04	13.52	-13.66	5.94	89.53
516	MV-LM1(min)	I[381]	Axial	-1143.31	38.49	-13.3	-12.53	35.61	-193.33
516	MV-LM1(min)	J[84]	Axial	-1143.31	38.49	-13.3	-12.53	64.94	-278.23
517	MV-LM1(min)	I[382]	Axial	-230.31	2.78	-18.79	-5.5	45.11	-77.39
517	MV-LM1(min)	J[120]	Axial	-230.31	2.78	-18.79	-5.5	86.56	-83.52

518	MV-LM1(min)	I[383]	Axial	-82.58	6.2	-27.08	-1.18	50.55	-7.54
518	MV-LM1(min)	J[156]	Axial	-82.58	6.2	-27.08	-1.18	110.28	-21.22
519	MV-LM1(min)	I[384]	Axial	-230.6	-2.61	-18.8	5.52	45.1	77.31
519	MV-LM1(min)	J[192]	Axial	-230.6	-2.61	-18.8	5.52	86.56	83.08
520	MV-LM1(min)	I[385]	Axial	-1143.06	-38.39	-13.3	12.55	35.61	193.23
520	MV-LM1(min)	J[228]	Axial	-1143.06	-38.39	-13.3	12.55	64.94	277.92

3.2. MÁXIMO AXIL POSITIVO Y SUS CONCOMITANTES

Elem	Load	Part	Component	Axial (kN)	Shear-y (kN)	Shear-z (kN)	Torsion (kN*m)	Moment-y (kN*m)	Moment-z (kN*m)
1	MV-LM1(max)	I[1]	Axial	1.3	-0.26	-0.37	4.07	-0.55	-14.4
1	MV-LM1(max)	J[2]	Axial	1.3	-0.26	-0.37	4.07	1.34	-13.05
2	MV-LM1(max)	I[2]	Axial	1.63	-0.31	0.28	5.51	1.85	-14.8
2	MV-LM1(max)	J[3]	Axial	1.63	-0.31	0.28	5.51	0.46	-13.29
3	MV-LM1(max)	I[3]	Axial	1.52	-0.31	0.16	6.29	0.46	-12.94
3	MV-LM1(max)	J[4]	Axial	1.52	-0.31	0.16	6.29	-0.33	-11.47
4	MV-LM1(max)	I[4]	Axial	1.42	-0.31	0.03	6.99	-0.33	-11.06
4	MV-LM1(max)	J[5]	Axial	1.42	-0.31	0.03	6.99	-0.49	-9.63
5	MV-LM1(max)	I[5]	Axial	1.38	-0.31	-0.01	7.6	-0.49	-9.15
5	MV-LM1(max)	J[6]	Axial	1.38	-0.31	-0.01	7.6	-0.43	-7.75
6	MV-LM1(max)	I[6]	Axial	1.35	-0.31	-0.02	8.11	-0.43	-7.21
6	MV-LM1(max)	J[7]	Axial	1.35	-0.31	-0.02	8.11	-0.34	-5.83
7	MV-LM1(max)	I[7]	Axial	1.34	-0.31	-0.02	8.5	-0.34	-5.25
7	MV-LM1(max)	J[8]	Axial	1.34	-0.31	-0.02	8.5	-0.27	-3.89
8	MV-LM1(max)	I[8]	Axial	1.33	-0.31	-0.01	8.75	-0.27	-3.28
8	MV-LM1(max)	J[9]	Axial	1.33	-0.31	-0.01	8.75	-0.2	-1.93
9	MV-LM1(max)	I[9]	Axial	1.33	-0.31	-0.01	8.87	-0.2	-1.29
9	MV-LM1(max)	J[10]	Axial	1.33	-0.31	-0.01	8.87	-0.15	0.06
10	MV-LM1(max)	I[10]	Axial	1.33	-0.31	-0.01	8.84	-0.15	0.7
10	MV-LM1(max)	J[11]	Axial	1.33	-0.31	-0.01	8.84	-0.09	2.05
11	MV-LM1(max)	I[11]	Axial	1.34	-0.31	-0.01	8.67	-0.09	2.67
11	MV-LM1(max)	J[12]	Axial	1.34	-0.31	-0.01	8.67	-0.04	4.03
12	MV-LM1(max)	I[12]	Axial	1.36	-0.31	-0.01	8.37	-0.04	4.63
12	MV-LM1(max)	J[13]	Axial	1.36	-0.31	-0.01	8.37	0.03	6.01
13	MV-LM1(max)	I[13]	Axial	1.38	-0.31	-0.01	7.94	0.03	6.56
13	MV-LM1(max)	J[14]	Axial	1.38	-0.31	-0.01	7.94	0.09	7.96
14	MV-LM1(max)	I[14]	Axial	1.42	-0.31	-0.02	7.41	0.09	8.46
14	MV-LM1(max)	J[15]	Axial	1.42	-0.31	-0.02	7.41	0.17	9.9
15	MV-LM1(max)	I[15]	Axial	1.45	-0.31	-0.02	6.78	0.18	10.33
15	MV-LM1(max)	J[16]	Axial	1.45	-0.31	-0.02	6.78	0.27	11.8
16	MV-LM1(max)	I[16]	Axial	1.49	-0.31	-0.01	6.06	0.27	12.18
16	MV-LM1(max)	J[17]	Axial	1.49	-0.31	-0.01	6.06	0.34	13.69
17	MV-LM1(max)	I[17]	Axial	1.51	-0.31	0.04	5.3	0.33	14.03
17	MV-LM1(max)	J[18]	Axial	1.51	-0.31	0.04	5.3	0.15	15.59
18	MV-LM1(max)	I[19]	Axial	1.43	-0.31	-0.1	5.24	-0.79	-15.77
18	MV-LM1(max)	J[20]	Axial	1.43	-0.31	-0.1	5.24	-0.25	-14.18
19	MV-LM1(max)	I[20]	Axial	1.43	-0.31	-0.03	6.02	-0.24	-13.85
19	MV-LM1(max)	J[21]	Axial	1.43	-0.31	-0.03	6.02	-0.08	-12.31
20	MV-LM1(max)	I[21]	Axial	1.4	-0.31	-0.01	6.74	-0.08	-11.94
20	MV-LM1(max)	J[22]	Axial	1.4	-0.31	-0.01	6.74	-0.03	-10.45
21	MV-LM1(max)	I[22]	Axial	1.37	-0.31	0	7.37	-0.03	-10.01
21	MV-LM1(max)	J[23]	Axial	1.37	-0.31	0	7.37	-0.03	-8.55
22	MV-LM1(max)	I[23]	Axial	1.34	-0.31	0	7.92	-0.03	-8.05
22	MV-LM1(max)	J[24]	Axial	1.34	-0.31	0	7.92	-0.05	-6.63
23	MV-LM1(max)	I[24]	Axial	1.32	-0.31	0.01	8.35	-0.05	-6.08
23	MV-LM1(max)	J[25]	Axial	1.32	-0.31	0.01	8.35	-0.09	-4.68
24	MV-LM1(max)	I[25]	Axial	1.31	-0.31	0.01	8.65	-0.09	-4.08
24	MV-LM1(max)	J[26]	Axial	1.31	-0.31	0.01	8.65	-0.13	-2.7
25	MV-LM1(max)	I[26]	Axial	1.29	-0.31	0.01	8.83	-0.13	-2.07

25	MV-LM1(max)	J[27]	Axial	1.29	-0.31	0.01	8.83	-0.17	-0.7
26	MV-LM1(max)	I[27]	Axial	1.29	-0.31	0.01	8.85	-0.17	-0.06
26	MV-LM1(max)	J[28]	Axial	1.29	-0.31	0.01	8.85	-0.21	1.31
27	MV-LM1(max)	I[28]	Axial	1.29	-0.31	0.01	8.74	-0.21	1.94
27	MV-LM1(max)	J[29]	Axial	1.29	-0.31	0.01	8.74	-0.26	3.31
28	MV-LM1(max)	I[29]	Axial	1.3	-0.31	0.01	8.48	-0.26	3.93
28	MV-LM1(max)	J[30]	Axial	1.3	-0.31	0.01	8.48	-0.31	5.31
29	MV-LM1(max)	I[30]	Axial	1.32	-0.31	0.01	8.09	-0.31	5.89
29	MV-LM1(max)	J[31]	Axial	1.32	-0.31	0.01	8.09	-0.37	7.29
30	MV-LM1(max)	I[31]	Axial	1.34	-0.31	0	7.57	-0.37	7.82
30	MV-LM1(max)	J[32]	Axial	1.34	-0.31	0	7.57	-0.37	9.25
31	MV-LM1(max)	I[32]	Axial	1.39	-0.31	-0.05	6.96	-0.37	9.73
31	MV-LM1(max)	J[33]	Axial	1.39	-0.31	-0.05	6.96	-0.11	11.18
32	MV-LM1(max)	I[33]	Axial	1.49	-0.31	-0.2	6.25	-0.11	11.6
32	MV-LM1(max)	J[34]	Axial	1.49	-0.31	-0.2	6.25	0.84	13.09
33	MV-LM1(max)	I[34]	Axial	1.62	-0.31	-0.34	5.46	0.84	13.44
33	MV-LM1(max)	J[35]	Axial	1.62	-0.31	-0.34	5.46	2.5	14.97
34	MV-LM1(max)	I[35]	Axial	1.3	-0.27	0.3	4.02	1.91	13.2
34	MV-LM1(max)	J[36]	Axial	1.3	-0.27	0.3	4.02	0.39	14.57
67	MV-LM1(max)	I[1]	Axial	135.77	315.01	-126.48	-23.79	-60.64	228.74
67	MV-LM1(max)	J[335]	Axial	135.77	315.01	-120.73	-23.79	2.6	71.24
68	MV-LM1(max)	I[18]	Axial	161.94	-276.67	-127.37	21.68	-128.67	-198.47
68	MV-LM1(max)	J[352]	Axial	161.94	-276.67	-120.16	21.68	-64.98	-60.14
69	MV-LM1(max)	I[37]	Axial	53.37	102.05	-63.98	3.01	95.38	84.09
69	MV-LM1(max)	J[336]	Axial	53.37	102.05	-63.79	3.01	127.37	33.06
70	MV-LM1(max)	I[38]	Axial	44.74	-128.11	-45.83	-6.29	149.44	-106.78
70	MV-LM1(max)	J[337]	Axial	44.74	-128.11	-45.83	-6.29	172.35	-42.72
71	MV-LM1(max)	I[39]	Axial	36.45	163.55	-47.41	0.45	115.62	129.41
71	MV-LM1(max)	J[338]	Axial	36.45	163.55	-47.41	0.45	139.32	47.63
72	MV-LM1(max)	I[40]	Axial	35.44	191.02	-47.37	-0.68	111.57	150.07
72	MV-LM1(max)	J[339]	Axial	35.44	191.02	-47.37	-0.68	135.25	54.57
73	MV-LM1(max)	I[41]	Axial	34.61	230.92	-47.46	-2.48	109.46	179.66
73	MV-LM1(max)	J[340]	Axial	34.61	230.92	-47.46	-2.48	133.19	64.19
74	MV-LM1(max)	I[42]	Axial	33.71	257.23	-47.2	-3.84	112.55	198.7
74	MV-LM1(max)	J[341]	Axial	33.71	257.23	-47.2	-3.84	136.15	70.09
75	MV-LM1(max)	I[43]	Axial	32.92	256.02	-46.68	-4.11	120.33	196.87
75	MV-LM1(max)	J[342]	Axial	32.92	256.02	-46.68	-4.11	143.68	68.86
76	MV-LM1(max)	I[44]	Axial	32.65	243.58	-50.97	-0.62	127.7	190.82
76	MV-LM1(max)	J[343]	Axial	32.65	243.58	-50.97	-0.62	153.19	69.03
77	MV-LM1(max)	I[45]	Axial	32.65	-241.79	-50.96	0.78	127.77	-189.4
77	MV-LM1(max)	J[344]	Axial	32.65	-241.79	-50.96	0.78	153.25	-68.5
78	MV-LM1(max)	I[46]	Axial	32.96	-248.86	-46.65	4.74	120.61	-191.16
78	MV-LM1(max)	J[345]	Axial	32.96	-248.86	-46.65	4.74	143.93	-66.74
79	MV-LM1(max)	I[47]	Axial	33.79	-249.36	-47.31	4.47	112	-192.48
79	MV-LM1(max)	J[346]	Axial	33.79	-249.36	-47.31	4.47	135.65	-67.8
80	MV-LM1(max)	I[48]	Axial	34.77	-223.58	-47.7	3.05	108.14	-173.89
80	MV-LM1(max)	J[347]	Axial	34.77	-223.58	-47.7	3.05	131.99	-62.1
81	MV-LM1(max)	I[49]	Axial	35.95	-189.11	-45.37	2.53	121.05	-147.25
81	MV-LM1(max)	J[348]	Axial	35.95	-189.11	-45.37	2.53	143.73	-52.7
82	MV-LM1(max)	I[50]	Axial	37.18	-157.9	-45.59	0.96	124.32	-124.01
82	MV-LM1(max)	J[349]	Axial	37.18	-157.9	-45.59	0.96	147.11	-45.06
83	MV-LM1(max)	I[51]	Axial	46.53	260.31	-39.84	-10.77	-26.12	193.69
83	MV-LM1(max)	J[350]	Axial	46.53	260.31	-39.84	-10.77	-6.2	63.53
84	MV-LM1(max)	I[52]	Axial	60.26	415.35	-63.92	-23.09	-48.98	300.31
84	MV-LM1(max)	J[351]	Axial	60.26	415.35	-63.29	-23.09	-17.02	92.63
85	MV-LM1(max)	I[69]	Axial	239.16	45.78	-67.55	0.32	-16.08	40.97
85	MV-LM1(max)	J[87]	Axial	239.16	45.78	-55.64	0.32	79.29	-27.71
86	MV-LM1(max)	I[70]	Axial	266.12	-39.64	-69.61	-0.5	-34.47	-33.92
86	MV-LM1(max)	J[88]	Axial	266.12	-39.64	-57.7	-0.5	64	25.55
87	MV-LM1(max)	I[71]	Axial	114.72	-72.07	-23.15	-7.38	-17.83	-71.96
87	MV-LM1(max)	J[89]	Axial	114.72	-72.07	-23.15	-7.38	16.9	36.14

88	MV-LM1(max)	I[72]	Axial	97.51	-48.32	-15.19	-3.51	-21.8	-48.82
88	MV-LM1(max)	J[90]	Axial	97.51	-48.32	-15.19	-3.51	0.99	23.66
89	MV-LM1(max)	I[73]	Axial	74.98	-16.52	-18.5	-1.13	-31.76	-16.55
89	MV-LM1(max)	J[91]	Axial	74.98	-16.52	-18.5	-1.13	-4.02	8.23
90	MV-LM1(max)	I[74]	Axial	68.18	17.05	-19.34	-0.49	-34.8	17.53
90	MV-LM1(max)	J[92]	Axial	68.18	17.05	-19.34	-0.49	-5.78	-8.04
91	MV-LM1(max)	I[75]	Axial	61.95	45.21	-18.94	-0.62	-32.71	46.22
91	MV-LM1(max)	J[93]	Axial	61.95	45.21	-18.94	-0.62	-4.3	-21.6
92	MV-LM1(max)	I[76]	Axial	55.1	64.42	-17.02	-1.13	-21.38	65.75
92	MV-LM1(max)	J[94]	Axial	55.1	64.42	-17.02	-1.13	4.16	-30.88
93	MV-LM1(max)	I[77]	Axial	48.68	75.53	-14.83	-1.46	-7.2	76.98
93	MV-LM1(max)	J[95]	Axial	48.68	75.53	-14.83	-1.46	15.05	-36.32
94	MV-LM1(max)	I[78]	Axial	42.67	77.54	-12.89	-1.99	0.18	79.06
94	MV-LM1(max)	J[96]	Axial	42.67	77.54	-12.89	-1.99	19.52	-37.25
95	MV-LM1(max)	I[79]	Axial	42.73	-51.14	-12.41	1.46	2.81	-51.38
95	MV-LM1(max)	J[97]	Axial	42.73	-51.14	-12.41	1.46	21.43	25.34
96	MV-LM1(max)	I[80]	Axial	48.91	-42.08	-14.54	0.85	-5.55	-41.9
96	MV-LM1(max)	J[98]	Axial	48.91	-42.08	-14.54	0.85	16.25	21.22
97	MV-LM1(max)	I[81]	Axial	55.67	-26.93	-16.96	0.46	-21.05	-26.44
97	MV-LM1(max)	J[99]	Axial	55.67	-26.93	-16.96	0.46	4.4	13.96
98	MV-LM1(max)	I[82]	Axial	63.15	-5.41	-19.22	-0.08	-34.43	-4.49
98	MV-LM1(max)	J[100]	Axial	63.15	-5.41	-19.22	-0.08	-5.6	3.63
99	MV-LM1(max)	I[83]	Axial	70.49	27.12	-20.18	-0.46	-40.15	28.74
99	MV-LM1(max)	J[101]	Axial	70.49	27.12	-20.18	-0.46	-9.88	-11.94
100	MV-LM1(max)	I[84]	Axial	78.79	61.8	-20.08	-0.02	-42.26	63.91
100	MV-LM1(max)	J[102]	Axial	78.79	61.8	-20.08	-0.02	-12.13	-28.79
101	MV-LM1(max)	I[85]	Axial	103.13	95.53	-17.59	1.58	-39.85	97.91
101	MV-LM1(max)	J[103]	Axial	103.13	95.53	-17.59	1.58	-13.47	-45.38
102	MV-LM1(max)	I[86]	Axial	136.25	116.76	-25.98	5.43	-37.61	118.32
102	MV-LM1(max)	J[104]	Axial	136.25	116.76	-25.98	5.43	1.37	-56.82
103	MV-LM1(max)	I[87]	Axial	239.16	45.78	-55.64	3.89	97.94	-27.71
103	MV-LM1(max)	J[105]	Axial	239.16	45.78	-52.33	3.89	178.09	-96.38
104	MV-LM1(max)	I[88]	Axial	266.12	-39.64	-57.7	-3.59	84.75	25.55
104	MV-LM1(max)	J[106]	Axial	266.12	-39.64	-54.39	-3.59	167.99	85.01
105	MV-LM1(max)	I[89]	Axial	114.72	-72.07	-23.15	-13	25.84	36.14
105	MV-LM1(max)	J[107]	Axial	114.72	-72.07	-19.14	-13	56.56	144.24
106	MV-LM1(max)	I[90]	Axial	97.51	-48.32	-15.19	-7.27	8.59	23.66
106	MV-LM1(max)	J[108]	Axial	97.51	-48.32	-13.14	-7.27	29.32	96.14
107	MV-LM1(max)	I[91]	Axial	74.98	-16.52	-18.5	-2.42	1.83	8.23
107	MV-LM1(max)	J[109]	Axial	74.98	-16.52	-16.27	-2.42	27.35	33.02
108	MV-LM1(max)	I[92]	Axial	68.18	17.05	-19.34	0.83	-0.47	-8.04
108	MV-LM1(max)	J[110]	Axial	68.18	17.05	-17.01	0.83	26.21	-33.62
109	MV-LM1(max)	I[93]	Axial	61.95	45.21	-18.94	2.9	0.53	-21.6
109	MV-LM1(max)	J[111]	Axial	61.95	45.21	-16.36	2.9	26.37	-89.42
110	MV-LM1(max)	I[94]	Axial	55.1	64.42	-17.02	3.9	8.45	-30.88
110	MV-LM1(max)	J[112]	Axial	55.1	64.42	-14.19	3.9	31.16	-127.52
111	MV-LM1(max)	I[95]	Axial	48.68	75.53	-14.83	4.43	18.85	-36.32
111	MV-LM1(max)	J[113]	Axial	48.68	75.53	-11.82	4.43	38.09	-149.61
112	MV-LM1(max)	I[96]	Axial	42.67	77.54	-12.89	4.05	22.85	-37.25
112	MV-LM1(max)	J[114]	Axial	42.67	77.54	-9.79	4.05	39.08	-153.56
113	MV-LM1(max)	I[97]	Axial	42.73	-51.14	-12.41	-2.53	24.76	25.34
113	MV-LM1(max)	J[115]	Axial	42.73	-51.14	-9.3	-2.53	40.26	102.05
114	MV-LM1(max)	I[98]	Axial	48.91	-42.08	-14.54	-2.43	20.07	21.22
114	MV-LM1(max)	J[116]	Axial	48.91	-42.08	-11.52	-2.43	38.85	84.35
115	MV-LM1(max)	I[99]	Axial	55.67	-26.93	-16.96	-1.64	8.74	13.96
115	MV-LM1(max)	J[117]	Axial	55.67	-26.93	-14.12	-1.64	31.34	54.36
116	MV-LM1(max)	I[100]	Axial	63.15	-5.41	-19.22	-0.5	-0.68	3.63
116	MV-LM1(max)	J[118]	Axial	63.15	-5.41	-16.62	-0.5	25.55	11.75
117	MV-LM1(max)	I[101]	Axial	70.49	27.12	-20.18	1.66	-4.38	-11.94
117	MV-LM1(max)	J[119]	Axial	70.49	27.12	-17.84	1.66	23.55	-52.62
118	MV-LM1(max)	I[102]	Axial	78.79	61.8	-20.08	4.79	-5.99	-28.79

118	MV-LM1(max)	J[120]	Axial	78.79	61.8	-17.9	4.79	21.95	-121.48
119	MV-LM1(max)	I[103]	Axial	103.13	95.53	-17.59	9.03	-5.42	-45.38
119	MV-LM1(max)	J[121]	Axial	103.13	95.53	-15.68	9.03	19.04	-188.67
120	MV-LM1(max)	I[104]	Axial	136.25	116.76	-25.98	14.54	11.99	-56.82
120	MV-LM1(max)	J[122]	Axial	136.25	116.76	-22.21	14.54	47.19	-231.96
121	MV-LM1(max)	I[105]	Axial	269.33	-12.13	-38.05	-14.38	149.2	-29.37
121	MV-LM1(max)	J[123]	Axial	269.33	-12.13	-34.74	-14.38	204.61	-11.17
122	MV-LM1(max)	I[106]	Axial	284.88	23.51	-37.53	13.83	146.9	46.88
122	MV-LM1(max)	J[124]	Axial	284.88	23.51	-34.22	13.83	201.54	11.61
123	MV-LM1(max)	I[107]	Axial	176.36	-22.43	-252.86	-6.16	841.75	-29.75
123	MV-LM1(max)	J[125]	Axial	176.36	-22.43	-118.33	-6.16	1153.83	3.89
124	MV-LM1(max)	I[108]	Axial	139.85	-3.07	-245.11	-0.84	771.39	-4.99
124	MV-LM1(max)	J[126]	Axial	139.85	-3.07	-111.45	-0.84	1072.29	-0.38
125	MV-LM1(max)	I[109]	Axial	130.41	-1.3	-245.15	-0.15	764.47	-2.67
125	MV-LM1(max)	J[127]	Axial	130.41	-1.3	-111.4	-0.15	1065.38	-0.73
126	MV-LM1(max)	I[110]	Axial	126.54	0.67	-245.59	0.36	764.67	0.17
126	MV-LM1(max)	J[128]	Axial	126.54	0.67	-111.79	0.36	1066.22	-0.85
127	MV-LM1(max)	I[111]	Axial	125.35	2.81	-246.34	0.45	765.62	3.09
127	MV-LM1(max)	J[129]	Axial	125.35	2.81	-112.41	0.45	1068.23	-1.13
128	MV-LM1(max)	I[112]	Axial	124.35	4.72	-247.06	0.3	768.48	5.72
128	MV-LM1(max)	J[130]	Axial	124.35	4.72	-113.01	0.3	1072.11	-1.35
129	MV-LM1(max)	I[113]	Axial	123.51	6.17	-247.48	-0.41	770.97	7.61
129	MV-LM1(max)	J[131]	Axial	123.51	6.17	-113.31	-0.41	1075.17	-1.64
130	MV-LM1(max)	I[114]	Axial	122.95	2.81	-278.28	1.54	812.01	2.7
130	MV-LM1(max)	J[132]	Axial	122.95	2.81	-144.06	1.54	1162.39	-1.52
131	MV-LM1(max)	I[115]	Axial	122.95	2.61	-278.29	-1.44	811.97	5.43
131	MV-LM1(max)	J[133]	Axial	122.95	2.61	-144.07	-1.44	1162.37	1.51
132	MV-LM1(max)	I[116]	Axial	123.56	10.09	-247.45	0.75	771	16.73
132	MV-LM1(max)	J[134]	Axial	123.56	10.09	-113.29	0.75	1075.16	1.6
133	MV-LM1(max)	I[117]	Axial	124.44	10.77	-247.12	0.01	768.25	17.45
133	MV-LM1(max)	J[135]	Axial	124.44	10.77	-113.06	0.01	1071.98	1.3
134	MV-LM1(max)	I[118]	Axial	125.5	11.83	-246.49	-0.21	765.21	18.82
134	MV-LM1(max)	J[136]	Axial	125.5	11.83	-112.56	-0.21	1068.05	1.08
135	MV-LM1(max)	I[119]	Axial	126.72	11.82	-245.8	-0.26	763.92	18.52
135	MV-LM1(max)	J[137]	Axial	126.72	11.82	-112	-0.26	1065.78	0.79
136	MV-LM1(max)	I[120]	Axial	130.49	11.83	-245.41	0.09	763.43	18.42
136	MV-LM1(max)	J[138]	Axial	130.49	11.83	-111.68	0.09	1064.75	0.68
137	MV-LM1(max)	I[121]	Axial	139.72	11.13	-245.39	0.63	770.07	17.03
137	MV-LM1(max)	J[139]	Axial	139.72	11.13	-111.75	0.63	1071.41	0.34
138	MV-LM1(max)	I[122]	Axial	176.97	12.46	-252.88	3.06	842.06	14.55
138	MV-LM1(max)	J[140]	Axial	176.97	12.46	-118.39	3.06	1154.2	-4.15
139	MV-LM1(max)	I[123]	Axial	269.33	-12.13	-34.74	-14.38	204.61	-11.17
139	MV-LM1(max)	J[141]	Axial	269.33	-12.13	-31.43	-14.38	253.41	7.03
140	MV-LM1(max)	I[124]	Axial	284.88	23.51	-34.22	13.83	201.54	11.61
140	MV-LM1(max)	J[142]	Axial	284.88	23.51	-30.91	13.83	249.56	-23.67
141	MV-LM1(max)	I[125]	Axial	176.36	-22.43	-118.33	-6.16	1153.83	3.89
141	MV-LM1(max)	J[143]	Axial	176.36	-22.43	94.5	-6.16	1118.39	37.53
142	MV-LM1(max)	I[126]	Axial	139.85	-3.07	-111.45	-0.84	1072.29	-0.38
142	MV-LM1(max)	J[144]	Axial	139.85	-3.07	98.95	-0.84	1028.96	4.23
143	MV-LM1(max)	I[127]	Axial	130.41	-1.3	-111.4	-0.15	1065.38	-0.73
143	MV-LM1(max)	J[145]	Axial	130.41	-1.3	99.34	-0.15	1021.64	1.21
144	MV-LM1(max)	I[128]	Axial	126.54	0.67	-111.79	0.36	1066.22	-0.85
144	MV-LM1(max)	J[146]	Axial	126.54	0.67	99.08	0.36	1022.92	-1.86
145	MV-LM1(max)	I[129]	Axial	125.35	2.81	-112.41	0.45	1068.23	-1.13
145	MV-LM1(max)	J[147]	Axial	125.35	2.81	98.81	0.45	1025.52	-5.35
146	MV-LM1(max)	I[130]	Axial	124.35	4.72	-113.01	0.3	1072.11	-1.35
146	MV-LM1(max)	J[148]	Axial	124.35	4.72	98.6	0.3	1029.91	-8.42
147	MV-LM1(max)	I[131]	Axial	123.51	6.17	-113.31	-0.41	1075.17	-1.64
147	MV-LM1(max)	J[149]	Axial	123.51	6.17	98.59	-0.41	1033.13	-10.89
148	MV-LM1(max)	I[132]	Axial	122.95	2.81	-144.06	1.54	1162.39	-1.52
148	MV-LM1(max)	J[150]	Axial	122.95	2.81	67.99	1.54	1166.32	-5.74

149	MV-LM1(max)	I[133]	Axial	122.95	2.61	-144.07	-1.44	1162.37	1.51
149	MV-LM1(max)	J[151]	Axial	122.95	2.61	67.98	-1.44	1166.32	-2.41
150	MV-LM1(max)	I[134]	Axial	123.56	10.09	-113.29	0.75	1075.16	1.6
150	MV-LM1(max)	J[152]	Axial	123.56	10.09	98.61	0.75	1033.09	-13.53
151	MV-LM1(max)	I[135]	Axial	124.44	10.77	-113.06	0.01	1071.98	1.3
151	MV-LM1(max)	J[153]	Axial	124.44	10.77	98.54	0.01	1029.86	-14.84
152	MV-LM1(max)	I[136]	Axial	125.5	11.83	-112.56	-0.21	1068.05	1.08
152	MV-LM1(max)	J[154]	Axial	125.5	11.83	98.66	-0.21	1025.56	-16.66
153	MV-LM1(max)	I[137]	Axial	126.72	11.82	-112	-0.26	1065.78	0.79
153	MV-LM1(max)	J[155]	Axial	126.72	11.82	98.88	-0.26	1022.8	-16.93
154	MV-LM1(max)	I[138]	Axial	130.49	11.83	-111.68	0.09	1064.75	0.68
154	MV-LM1(max)	J[156]	Axial	130.49	11.83	99.06	0.09	1021.42	-17.06
155	MV-LM1(max)	I[139]	Axial	139.72	11.13	-111.75	0.63	1071.41	0.34
155	MV-LM1(max)	J[157]	Axial	139.72	11.13	98.65	0.63	1028.52	-16.35
156	MV-LM1(max)	I[140]	Axial	176.97	12.46	-118.39	3.06	1154.2	-4.15
156	MV-LM1(max)	J[158]	Axial	176.97	12.46	94.42	3.06	1118.87	-22.84
157	MV-LM1(max)	I[141]	Axial	248.49	-6.83	5.1	-4.86	342.89	-22.37
157	MV-LM1(max)	J[159]	Axial	248.49	-6.83	17.02	-4.86	329.28	-12.11
158	MV-LM1(max)	I[142]	Axial	249.04	6.45	4.25	5.38	342.39	21.82
158	MV-LM1(max)	J[160]	Axial	249.04	6.45	16.16	5.38	330.07	12.15
159	MV-LM1(max)	I[143]	Axial	175.72	6.56	-94.46	3.29	1119.25	13.89
159	MV-LM1(max)	J[161]	Axial	175.72	6.56	118.34	3.29	1154.64	4.06
160	MV-LM1(max)	I[144]	Axial	139.58	3.02	-98.99	0.83	1028.59	4.14
160	MV-LM1(max)	J[162]	Axial	139.58	3.02	111.41	0.83	1071.98	-0.39
161	MV-LM1(max)	I[145]	Axial	130.28	1.43	-99.34	0.16	1021.47	1.41
161	MV-LM1(max)	J[163]	Axial	130.28	1.43	111.4	0.16	1065.22	-0.73
162	MV-LM1(max)	I[146]	Axial	126.52	-0.55	-99.09	-0.35	1022.81	-1.68
162	MV-LM1(max)	J[164]	Axial	126.52	-0.55	111.79	-0.35	1066.11	-0.85
163	MV-LM1(max)	I[147]	Axial	125.35	-2.68	-98.81	-0.45	1025.42	-5.15
163	MV-LM1(max)	J[165]	Axial	125.35	-2.68	112.41	-0.45	1068.13	-1.14
164	MV-LM1(max)	I[148]	Axial	124.35	-4.68	-98.6	-0.3	1029.89	-8.37
164	MV-LM1(max)	J[166]	Axial	124.35	-4.68	113.01	-0.3	1072.09	-1.35
165	MV-LM1(max)	I[149]	Axial	123.51	-6.18	-98.59	0.41	1033.12	-10.92
165	MV-LM1(max)	J[167]	Axial	123.51	-6.18	113.31	0.41	1075.15	-1.64
166	MV-LM1(max)	I[150]	Axial	122.95	-2.81	-67.99	-1.54	1166.32	-5.73
166	MV-LM1(max)	J[168]	Axial	122.95	-2.81	144.06	-1.54	1162.39	-1.52
167	MV-LM1(max)	I[151]	Axial	122.95	-2.63	-67.98	1.44	1166.32	-2.43
167	MV-LM1(max)	J[169]	Axial	122.95	-2.63	144.07	1.44	1162.37	1.51
168	MV-LM1(max)	I[152]	Axial	123.57	-10.1	-98.61	-0.75	1033.1	-13.56
168	MV-LM1(max)	J[170]	Axial	123.57	-10.1	113.29	-0.75	1075.17	1.6
169	MV-LM1(max)	I[153]	Axial	124.44	-10.84	-98.54	0	1029.88	-14.96
169	MV-LM1(max)	J[171]	Axial	124.44	-10.84	113.06	0	1072	1.3
170	MV-LM1(max)	I[154]	Axial	125.5	-12.02	-98.65	0.21	1025.61	-16.96
170	MV-LM1(max)	J[172]	Axial	125.5	-12.02	112.57	0.21	1068.08	1.08
171	MV-LM1(max)	I[155]	Axial	126.76	-12.02	-98.88	0.26	1022.91	-17.23
171	MV-LM1(max)	J[173]	Axial	126.76	-12.02	112	0.26	1065.89	0.79
172	MV-LM1(max)	I[156]	Axial	130.77	-12.13	-99.09	-0.1	1021.65	-17.52
172	MV-LM1(max)	J[174]	Axial	130.77	-12.13	111.65	-0.1	1065.01	0.67
173	MV-LM1(max)	I[157]	Axial	140.32	-11.21	-98.7	-0.69	1029.09	-16.5
173	MV-LM1(max)	J[175]	Axial	140.32	-11.21	111.7	-0.69	1072.05	0.31
174	MV-LM1(max)	I[158]	Axial	175.21	-10.54	-94.47	-2.8	1120.13	-20.04
174	MV-LM1(max)	J[176]	Axial	175.21	-10.54	118.34	-2.8	1155.54	-4.23
175	MV-LM1(max)	I[159]	Axial	248.49	-6.83	17.02	-4.86	329.28	-12.11
175	MV-LM1(max)	J[177]	Axial	248.49	-6.83	20.32	-4.86	300.45	-1.86
176	MV-LM1(max)	I[160]	Axial	249.04	6.45	16.16	5.38	330.07	12.15
176	MV-LM1(max)	J[178]	Axial	249.04	6.45	19.47	5.38	302.52	2.48
177	MV-LM1(max)	I[161]	Axial	175.72	6.56	118.34	3.29	1154.64	4.06
177	MV-LM1(max)	J[179]	Axial	175.72	6.56	252.81	3.29	842.59	-5.77
178	MV-LM1(max)	I[162]	Axial	139.58	3.02	111.41	0.83	1071.98	-0.39
178	MV-LM1(max)	J[180]	Axial	139.58	3.02	245.09	0.83	771.12	-4.92
179	MV-LM1(max)	I[163]	Axial	130.28	1.43	111.4	0.16	1065.22	-0.73

179	MV-LM1(max)	J[181]	Axial	130.28	1.43	245.15	0.16	764.3	-2.88
180	MV-LM1(max)	I[164]	Axial	126.52	-0.55	111.79	-0.35	1066.11	-0.85
180	MV-LM1(max)	J[182]	Axial	126.52	-0.55	245.59	-0.35	764.56	-0.02
181	MV-LM1(max)	I[165]	Axial	125.35	-2.68	112.41	-0.45	1068.13	-1.14
181	MV-LM1(max)	J[183]	Axial	125.35	-2.68	246.33	-0.45	765.52	2.88
182	MV-LM1(max)	I[166]	Axial	124.35	-4.68	113.01	-0.3	1072.09	-1.35
182	MV-LM1(max)	J[184]	Axial	124.35	-4.68	247.06	-0.3	768.45	5.67
183	MV-LM1(max)	I[167]	Axial	123.51	-6.18	113.31	0.41	1075.15	-1.64
183	MV-LM1(max)	J[185]	Axial	123.51	-6.18	247.48	0.41	770.96	7.63
184	MV-LM1(max)	I[168]	Axial	122.95	-2.81	144.06	-1.54	1162.39	-1.52
184	MV-LM1(max)	J[186]	Axial	122.95	-2.81	278.28	-1.54	812	2.69
185	MV-LM1(max)	I[169]	Axial	122.95	-2.63	144.07	1.44	1162.37	1.51
185	MV-LM1(max)	J[187]	Axial	122.95	-2.63	278.29	1.44	811.97	5.45
186	MV-LM1(max)	I[170]	Axial	123.57	-10.1	113.29	-0.75	1075.17	1.6
186	MV-LM1(max)	J[188]	Axial	123.57	-10.1	247.45	-0.75	771.01	16.75
187	MV-LM1(max)	I[171]	Axial	124.44	-10.84	113.06	0	1072	1.3
187	MV-LM1(max)	J[189]	Axial	124.44	-10.84	247.12	0	768.27	17.56
188	MV-LM1(max)	I[172]	Axial	125.5	-12.02	112.57	0.21	1068.08	1.08
188	MV-LM1(max)	J[190]	Axial	125.5	-12.02	246.49	0.21	765.24	19.11
189	MV-LM1(max)	I[173]	Axial	126.76	-12.02	112	0.26	1065.89	0.79
189	MV-LM1(max)	J[191]	Axial	126.76	-12.02	245.8	0.26	764.03	18.81
190	MV-LM1(max)	I[174]	Axial	130.77	-12.13	111.65	-0.1	1065.01	0.67
190	MV-LM1(max)	J[192]	Axial	130.77	-12.13	245.4	-0.1	763.72	18.86
191	MV-LM1(max)	I[175]	Axial	140.32	-11.21	111.7	-0.69	1072.05	0.31
191	MV-LM1(max)	J[193]	Axial	140.32	-11.21	245.36	-0.69	770.77	17.13
192	MV-LM1(max)	I[176]	Axial	175.21	-10.54	118.34	-2.8	1155.54	-4.23
192	MV-LM1(max)	J[194]	Axial	175.21	-10.54	252.79	-2.8	843.52	11.58
193	MV-LM1(max)	I[177]	Axial	206.27	-46.79	53.69	-3.49	180.73	-98.26
193	MV-LM1(max)	J[195]	Axial	206.27	-46.79	57	-3.49	98.55	-28.07
194	MV-LM1(max)	I[178]	Axial	214.67	45.04	51.59	5.31	183.59	95.41
194	MV-LM1(max)	J[196]	Axial	214.67	45.04	54.9	5.31	104.55	27.85
195	MV-LM1(max)	I[179]	Axial	123.04	74.05	19.01	12.7	49.9	148
195	MV-LM1(max)	J[197]	Axial	123.04	74.05	22.85	12.7	19.47	36.93
196	MV-LM1(max)	I[180]	Axial	94.96	45.85	13.09	7.1	26.81	91.21
196	MV-LM1(max)	J[198]	Axial	94.96	45.85	15.19	7.1	6.12	22.43
197	MV-LM1(max)	I[181]	Axial	74.14	16.28	16.29	2.38	26.12	32.54
197	MV-LM1(max)	J[199]	Axial	74.14	16.28	18.52	2.38	0.58	8.12
198	MV-LM1(max)	I[182]	Axial	68.09	-17.32	17.01	-0.86	25.59	-34.15
198	MV-LM1(max)	J[200]	Axial	68.09	-17.32	19.35	-0.86	-1.09	-8.17
199	MV-LM1(max)	I[183]	Axial	61.94	-45.55	16.36	-2.93	26.1	-90.08
199	MV-LM1(max)	J[201]	Axial	61.94	-45.55	18.94	-2.93	0.27	-21.76
200	MV-LM1(max)	I[184]	Axial	55.09	-64.76	14.2	-3.91	31.06	-128.18
200	MV-LM1(max)	J[202]	Axial	55.09	-64.76	17.02	-3.91	8.35	-31.04
201	MV-LM1(max)	I[185]	Axial	48.67	-75.85	11.83	-4.44	38.04	-150.24
201	MV-LM1(max)	J[203]	Axial	48.67	-75.85	14.84	-4.44	18.8	-36.46
202	MV-LM1(max)	I[186]	Axial	42.67	-77.84	9.79	-4.07	39.06	-154.13
202	MV-LM1(max)	J[204]	Axial	42.67	-77.84	12.9	-4.07	22.82	-37.38
203	MV-LM1(max)	I[187]	Axial	42.73	51.32	9.3	2.54	40.28	102.39
203	MV-LM1(max)	J[205]	Axial	42.73	51.32	12.4	2.54	24.78	25.41
204	MV-LM1(max)	I[188]	Axial	48.92	42.24	11.51	2.44	38.88	84.65
204	MV-LM1(max)	J[206]	Axial	48.92	42.24	14.53	2.44	20.1	21.29
205	MV-LM1(max)	I[189]	Axial	55.67	27.07	14.12	1.64	31.39	54.63
205	MV-LM1(max)	J[207]	Axial	55.67	27.07	16.96	1.64	8.8	14.02
206	MV-LM1(max)	I[190]	Axial	63.15	5.47	16.62	0.51	25.64	11.87
206	MV-LM1(max)	J[208]	Axial	63.15	5.47	19.22	0.51	-0.59	3.66
207	MV-LM1(max)	I[191]	Axial	70.53	-27.21	17.84	-1.67	23.83	-52.8
207	MV-LM1(max)	J[209]	Axial	70.53	-27.21	20.18	-1.67	-4.1	-11.98
208	MV-LM1(max)	I[192]	Axial	79.31	-62.05	17.89	-4.83	22.84	-121.98
208	MV-LM1(max)	J[210]	Axial	79.31	-62.05	20.09	-4.83	-5.09	-28.9
209	MV-LM1(max)	I[193]	Axial	104.9	-93.95	15.58	-9.44	21.8	-185.44
209	MV-LM1(max)	J[211]	Axial	104.9	-93.95	17.54	-9.44	-2.54	-44.52

210	MV-LM1(max)	I[194]	Axial	129.97	-120.64	21.56	-14.08	53.74	-240
210	MV-LM1(max)	J[212]	Axial	129.97	-120.64	25.26	-14.08	19.55	-59.04
211	MV-LM1(max)	I[195]	Axial	206.27	-46.79	57	0.16	82.46	-28.07
211	MV-LM1(max)	J[213]	Axial	206.27	-46.79	68.91	0.16	-14.95	42.11
212	MV-LM1(max)	I[196]	Axial	214.67	45.04	54.9	1.8	87.81	27.85
212	MV-LM1(max)	J[214]	Axial	214.67	45.04	66.81	1.8	-6.46	-39.71
213	MV-LM1(max)	I[197]	Axial	123.04	74.05	22.85	6.92	9.88	36.93
213	MV-LM1(max)	J[215]	Axial	123.04	74.05	22.85	6.92	-24.39	-74.15
214	MV-LM1(max)	I[198]	Axial	94.96	45.85	15.19	3.52	-1.28	22.43
214	MV-LM1(max)	J[216]	Axial	94.96	45.85	15.19	3.52	-24.07	-46.35
215	MV-LM1(max)	I[199]	Axial	74.14	16.28	18.52	1.11	-5.2	8.12
215	MV-LM1(max)	J[217]	Axial	74.14	16.28	18.52	1.11	-32.98	-16.3
216	MV-LM1(max)	I[200]	Axial	68.09	-17.32	19.35	0.49	-6.4	-8.17
216	MV-LM1(max)	J[218]	Axial	68.09	-17.32	19.35	0.49	-35.42	17.81
217	MV-LM1(max)	I[201]	Axial	61.94	-45.55	18.94	0.63	-4.56	-21.76
217	MV-LM1(max)	J[219]	Axial	61.94	-45.55	18.94	0.63	-32.97	46.57
218	MV-LM1(max)	I[202]	Axial	55.09	-64.76	17.02	1.14	4.06	-31.04
218	MV-LM1(max)	J[220]	Axial	55.09	-64.76	17.02	1.14	-21.48	66.1
219	MV-LM1(max)	I[203]	Axial	48.67	-75.85	14.84	1.47	15	-36.46
219	MV-LM1(max)	J[221]	Axial	48.67	-75.85	14.84	1.47	-7.25	77.32
220	MV-LM1(max)	I[204]	Axial	42.67	-77.84	12.9	2	19.49	-37.38
220	MV-LM1(max)	J[222]	Axial	42.67	-77.84	12.9	2	0.15	79.37
221	MV-LM1(max)	I[205]	Axial	42.73	51.32	12.4	-1.47	21.45	25.41
221	MV-LM1(max)	J[223]	Axial	42.73	51.32	12.4	-1.47	2.84	-51.56
222	MV-LM1(max)	I[206]	Axial	48.92	42.24	14.53	-0.85	16.29	21.29
222	MV-LM1(max)	J[224]	Axial	48.92	42.24	14.53	-0.85	-5.51	-42.06
223	MV-LM1(max)	I[207]	Axial	55.67	27.07	16.96	-0.47	4.46	14.02
223	MV-LM1(max)	J[225]	Axial	55.67	27.07	16.96	-0.47	-20.98	-26.58
224	MV-LM1(max)	I[208]	Axial	63.15	5.47	19.22	0.08	-5.51	3.66
224	MV-LM1(max)	J[226]	Axial	63.15	5.47	19.22	0.08	-34.33	-4.55
225	MV-LM1(max)	I[209]	Axial	70.53	-27.21	20.18	0.46	-9.6	-11.98
225	MV-LM1(max)	J[227]	Axial	70.53	-27.21	20.18	0.46	-39.88	28.84
226	MV-LM1(max)	I[210]	Axial	79.31	-62.05	20.09	0.01	-11.27	-28.9
226	MV-LM1(max)	J[228]	Axial	79.31	-62.05	20.09	0.01	-41.41	64.17
227	MV-LM1(max)	I[211]	Axial	104.9	-93.95	17.54	-2.11	-10.72	-44.52
227	MV-LM1(max)	J[229]	Axial	104.9	-93.95	17.54	-2.11	-37.04	96.4
228	MV-LM1(max)	I[212]	Axial	129.97	-120.64	25.26	-4.67	9.42	-59.04
228	MV-LM1(max)	J[230]	Axial	129.97	-120.64	25.26	-4.67	-28.46	121.92
229	MV-LM1(max)	I[213]	Axial	101.74	-331.73	106.64	11.65	330.34	-244.56
229	MV-LM1(max)	J[353]	Axial	101.74	-331.73	108.13	11.65	223.7	87.17
230	MV-LM1(max)	I[214]	Axial	104.04	361.3	115.02	-19.64	279.3	271.06
230	MV-LM1(max)	J[370]	Axial	104.04	361.3	115.3	-19.64	164.28	-90.25
231	MV-LM1(max)	I[215]	Axial	53.84	3.42	62.22	-7.73	158.17	11.28
231	MV-LM1(max)	J[354]	Axial	53.84	3.42	62.22	-7.73	95.94	7.86
232	MV-LM1(max)	I[216]	Axial	44.36	126.28	45.69	6.32	217.82	84.05
232	MV-LM1(max)	J[355]	Axial	44.36	126.28	45.69	6.32	172.13	-42.23
233	MV-LM1(max)	I[217]	Axial	36.45	-163.35	47.43	-0.45	186.42	-115.76
233	MV-LM1(max)	J[356]	Axial	36.45	-163.35	47.43	-0.45	139	47.59
234	MV-LM1(max)	I[218]	Axial	35.45	-190.83	47.37	0.69	182.49	-136.32
234	MV-LM1(max)	J[357]	Axial	35.45	-190.83	47.37	0.69	135.11	54.51
235	MV-LM1(max)	I[219]	Axial	34.62	-230.87	47.46	2.5	180.59	-166.7
235	MV-LM1(max)	J[358]	Axial	34.62	-230.87	47.46	2.5	133.13	64.17
236	MV-LM1(max)	I[220]	Axial	33.71	-257.26	47.2	3.84	183.31	-187.16
236	MV-LM1(max)	J[359]	Axial	33.71	-257.26	47.2	3.84	136.12	70.1
237	MV-LM1(max)	I[221]	Axial	32.92	-256.03	46.68	4.1	190.35	-187.17
237	MV-LM1(max)	J[360]	Axial	32.92	-256.03	46.68	4.1	143.66	68.86
238	MV-LM1(max)	I[222]	Axial	32.65	-243.6	50.97	0.62	204.15	-174.56
238	MV-LM1(max)	J[361]	Axial	32.65	-243.6	50.97	0.62	153.18	69.04
239	MV-LM1(max)	I[223]	Axial	32.65	241.81	50.96	-0.78	204.22	173.3
239	MV-LM1(max)	J[362]	Axial	32.65	241.81	50.96	-0.78	153.26	-68.51
240	MV-LM1(max)	I[224]	Axial	32.96	248.87	46.65	-4.74	190.59	182.13

240	MV-LM1(max)	J[363]	Axial	32.96	248.87	46.65	-4.74	143.94	-66.74
241	MV-LM1(max)	I[225]	Axial	33.8	249.33	47.31	-4.48	182.97	181.54
241	MV-LM1(max)	J[364]	Axial	33.8	249.33	47.31	-4.48	135.66	-67.79
242	MV-LM1(max)	I[226]	Axial	34.77	223.39	47.71	-3.06	179.7	161.34
242	MV-LM1(max)	J[365]	Axial	34.77	223.39	47.71	-3.06	131.99	-62.05
243	MV-LM1(max)	I[227]	Axial	35.95	188.84	45.38	-2.54	189.3	136.21
243	MV-LM1(max)	J[366]	Axial	35.95	188.84	45.38	-2.54	143.92	-52.62
244	MV-LM1(max)	I[228]	Axial	37.25	157.51	45.6	-0.98	193.37	112.58
244	MV-LM1(max)	J[367]	Axial	37.25	157.51	45.6	-0.98	147.77	-44.93
245	MV-LM1(max)	I[229]	Axial	47.32	-259.83	39.79	10.6	36.47	-196.19
245	MV-LM1(max)	J[368]	Axial	47.32	-259.83	39.79	10.6	-3.32	63.64
246	MV-LM1(max)	I[230]	Axial	58.59	-434.19	62.72	24.71	51.87	-337.91
246	MV-LM1(max)	J[369]	Axial	58.59	-434.19	62.72	24.71	-10.85	96.28
247	MV-LM1(max)	I[1]	Axial	1292.74	-24.74	-265.48	184.64	-839.98	-28.04
247	MV-LM1(max)	J[231]	Axial	1292.74	-24.74	-265.48	184.64	-254.37	26.54
248	MV-LM1(max)	I[19]	Axial	1293.96	24.14	-258.72	-190.59	-841.55	24.75
248	MV-LM1(max)	J[232]	Axial	1293.96	24.14	-258.72	-190.59	-270.84	-28.5
249	MV-LM1(max)	I[231]	Axial	1292.74	-24.74	-265.48	184.64	-254.37	26.54
249	MV-LM1(max)	J[37]	Axial	1292.74	-24.74	-265.48	184.64	331.25	81.12
250	MV-LM1(max)	I[232]	Axial	1293.96	24.14	-258.72	-190.59	-270.84	-28.5
250	MV-LM1(max)	J[53]	Axial	1293.96	24.14	-258.72	-190.59	299.87	-81.75
251	MV-LM1(max)	I[37]	Axial	1650.71	-75.89	-366.78	62.47	702.51	-199.15
251	MV-LM1(max)	J[233]	Axial	1650.71	-75.89	-366.78	62.47	1511.59	-31.76
252	MV-LM1(max)	I[53]	Axial	1649.36	75.5	-366.8	-63.72	702.81	197.54
252	MV-LM1(max)	J[234]	Axial	1649.36	75.5	-366.8	-63.72	1511.94	30.99
253	MV-LM1(max)	I[233]	Axial	1650.71	-75.89	-366.78	62.47	1511.59	-31.76
253	MV-LM1(max)	J[38]	Axial	1650.71	-75.89	-366.78	62.47	2320.67	135.64
254	MV-LM1(max)	I[234]	Axial	1649.36	75.5	-366.8	-63.72	1511.94	30.99
254	MV-LM1(max)	J[54]	Axial	1649.36	75.5	-366.8	-63.72	2321.06	-135.56
255	MV-LM1(max)	I[38]	Axial	2018.98	-59.83	-253.45	18.3	1590.72	-184.74
255	MV-LM1(max)	J[235]	Axial	2018.98	-59.83	-253.45	18.3	2149.81	-52.75
256	MV-LM1(max)	I[54]	Axial	2019.15	59.79	-253.47	-18.54	1590.5	184.63
256	MV-LM1(max)	J[236]	Axial	2019.15	59.79	-253.47	-18.54	2149.63	52.75
257	MV-LM1(max)	I[235]	Axial	2018.98	-59.83	-253.45	18.3	2149.81	-52.75
257	MV-LM1(max)	J[39]	Axial	2018.98	-59.83	-253.45	18.3	2708.9	79.23
258	MV-LM1(max)	I[236]	Axial	2019.15	59.79	-253.47	-18.54	2149.63	52.75
258	MV-LM1(max)	J[55]	Axial	2019.15	59.79	-253.47	-18.54	2708.76	-79.13
259	MV-LM1(max)	I[39]	Axial	2172.07	-40.67	-196.09	-51.51	1888.31	-146.91
259	MV-LM1(max)	J[237]	Axial	2172.07	-40.67	-196.09	-51.51	2320.85	-57.21
260	MV-LM1(max)	I[55]	Axial	2172.65	40.65	-196.1	51.52	1888.16	146.84
260	MV-LM1(max)	J[238]	Axial	2172.65	40.65	-196.1	51.52	2320.74	57.18
261	MV-LM1(max)	I[237]	Axial	2172.07	-40.67	-196.09	-51.51	2320.85	-57.21
261	MV-LM1(max)	J[40]	Axial	2172.07	-40.67	-196.09	-51.51	2753.39	32.49
262	MV-LM1(max)	I[238]	Axial	2172.65	40.65	-196.1	51.52	2320.74	57.18
262	MV-LM1(max)	J[56]	Axial	2172.65	40.65	-196.1	51.52	2753.32	-32.49
263	MV-LM1(max)	I[40]	Axial	2157.32	45.22	176.38	131.81	2715.42	41.98
263	MV-LM1(max)	J[239]	Axial	2157.32	45.22	176.38	131.81	2326.34	-57.78
264	MV-LM1(max)	I[56]	Axial	2157.88	-45.24	176.37	-131.82	2715.38	-42.03
264	MV-LM1(max)	J[240]	Axial	2157.88	-45.24	176.37	-131.82	2326.33	57.75
265	MV-LM1(max)	I[239]	Axial	2157.32	45.22	176.38	131.81	2326.34	-57.78
265	MV-LM1(max)	J[41]	Axial	2157.32	45.22	176.38	131.81	1937.27	-157.54
266	MV-LM1(max)	I[240]	Axial	2157.88	-45.24	176.37	-131.82	2326.33	57.75
266	MV-LM1(max)	J[57]	Axial	2157.88	-45.24	176.37	-131.82	1937.28	157.54
267	MV-LM1(max)	I[41]	Axial	2001.01	56.1	200.69	76.27	2597.7	70.66
267	MV-LM1(max)	J[241]	Axial	2001.01	56.1	200.69	76.27	2155	-53.08
268	MV-LM1(max)	I[57]	Axial	2001.45	-56.11	200.68	-76.26	2597.75	-70.7
268	MV-LM1(max)	J[242]	Axial	2001.45	-56.11	200.68	-76.26	2155.07	53.06
269	MV-LM1(max)	I[241]	Axial	2001.01	56.1	200.69	76.27	2155	-53.08
269	MV-LM1(max)	J[42]	Axial	2001.01	56.1	200.69	76.27	1712.31	-176.83
270	MV-LM1(max)	I[242]	Axial	2001.45	-56.11	200.68	-76.26	2155.07	53.06
270	MV-LM1(max)	J[58]	Axial	2001.45	-56.11	200.68	-76.26	1712.39	176.83

271	MV-LM1(max)	I[42]	Axial	1776	59.64	210.23	48.28	2391.08	84.03
271	MV-LM1(max)	J[243]	Axial	1776	59.64	210.23	48.28	1927.33	-47.52
272	MV-LM1(max)	I[58]	Axial	1776.25	-59.63	210.23	-48.2	2391.21	-84.04
272	MV-LM1(max)	J[244]	Axial	1776.25	-59.63	210.23	-48.2	1927.48	47.51
273	MV-LM1(max)	I[243]	Axial	1776	59.64	210.23	48.28	1927.33	-47.52
273	MV-LM1(max)	J[43]	Axial	1776	59.64	210.23	48.28	1463.58	-179.07
274	MV-LM1(max)	I[244]	Axial	1776.25	-59.63	210.23	-48.2	1927.48	47.51
274	MV-LM1(max)	J[59]	Axial	1776.25	-59.63	210.23	-48.2	1463.74	179.05
275	MV-LM1(max)	I[43]	Axial	1566.4	55.07	205.2	43.62	2157.5	79.63
275	MV-LM1(max)	J[245]	Axial	1566.4	55.07	205.2	43.62	1704.86	-41.85
276	MV-LM1(max)	I[59]	Axial	1566.48	-55.05	205.16	-43.53	2157.82	-79.58
276	MV-LM1(max)	J[246]	Axial	1566.48	-55.05	205.16	-43.53	1705.26	41.85
277	MV-LM1(max)	I[245]	Axial	1566.4	55.07	205.2	43.62	1704.86	-41.85
277	MV-LM1(max)	J[44]	Axial	1566.4	55.07	205.2	43.62	1252.22	-163.34
278	MV-LM1(max)	I[246]	Axial	1566.48	-55.05	205.16	-43.53	1705.26	41.85
278	MV-LM1(max)	J[60]	Axial	1566.48	-55.05	205.16	-43.53	1252.69	163.28
279	MV-LM1(max)	I[44]	Axial	1449.21	24.66	152.21	-5.4	1889.38	17.47
279	MV-LM1(max)	J[247]	Axial	1449.21	24.66	152.21	-5.4	1553.63	-36.93
280	MV-LM1(max)	I[60]	Axial	1449.15	-40.57	183.24	-58.97	1958.36	-52.53
280	MV-LM1(max)	J[248]	Axial	1449.15	-40.57	183.24	-58.97	1554.16	36.96
281	MV-LM1(max)	I[247]	Axial	1449.21	24.66	152.21	-5.4	1553.63	-36.93
281	MV-LM1(max)	J[45]	Axial	1449.21	24.66	152.21	-5.4	1217.88	-91.34
282	MV-LM1(max)	I[248]	Axial	1449.15	-40.57	183.24	-58.97	1554.16	36.96
282	MV-LM1(max)	J[61]	Axial	1449.15	-40.57	183.24	-58.97	1149.96	126.45
283	MV-LM1(max)	I[45]	Axial	1534.48	-59.43	-205.09	-83.79	1228.15	-171.83
283	MV-LM1(max)	J[249]	Axial	1534.48	-59.43	-205.09	-83.79	1680.54	-40.74
284	MV-LM1(max)	I[61]	Axial	1534.53	59.48	-205.16	83.75	1227.42	171.93
284	MV-LM1(max)	J[250]	Axial	1534.53	59.48	-205.16	83.75	1679.98	40.73
285	MV-LM1(max)	I[249]	Axial	1534.48	-59.43	-205.09	-83.79	1680.54	-40.74
285	MV-LM1(max)	J[46]	Axial	1534.48	-59.43	-205.09	-83.79	2132.94	90.34
286	MV-LM1(max)	I[250]	Axial	1534.53	59.48	-205.16	83.75	1679.98	40.73
286	MV-LM1(max)	J[62]	Axial	1534.53	59.48	-205.16	83.75	2132.54	-90.48
287	MV-LM1(max)	I[46]	Axial	1738.5	-63.16	-209.85	-69.61	1438.93	-185.2
287	MV-LM1(max)	J[251]	Axial	1738.5	-63.16	-209.85	-69.61	1901.82	-45.88
288	MV-LM1(max)	I[62]	Axial	1738.45	63.17	-209.84	69.71	1438.76	185.23
288	MV-LM1(max)	J[252]	Axial	1738.45	63.17	-209.84	69.71	1901.64	45.88
289	MV-LM1(max)	I[251]	Axial	1738.5	-63.16	-209.85	-69.61	1901.82	-45.88
289	MV-LM1(max)	J[47]	Axial	1738.5	-63.16	-209.85	-69.61	2364.72	93.45
290	MV-LM1(max)	I[252]	Axial	1738.45	63.17	-209.84	69.71	1901.64	45.88
290	MV-LM1(max)	J[63]	Axial	1738.45	63.17	-209.84	69.71	2364.53	-93.46
291	MV-LM1(max)	I[47]	Axial	1953.62	-59.09	-200.65	-84.21	1684.54	-181.67
291	MV-LM1(max)	J[253]	Axial	1953.62	-59.09	-200.65	-84.21	2127.16	-51.32
292	MV-LM1(max)	I[63]	Axial	1953.53	59.11	-200.65	84.37	1684.37	181.72
292	MV-LM1(max)	J[254]	Axial	1953.53	59.11	-200.65	84.37	2126.98	51.34
293	MV-LM1(max)	I[253]	Axial	1953.62	-59.09	-200.65	-84.21	2127.16	-51.32
293	MV-LM1(max)	J[48]	Axial	1953.62	-59.09	-200.65	-84.21	2569.77	79.03
294	MV-LM1(max)	I[254]	Axial	1953.53	59.11	-200.65	84.37	2126.98	51.34
294	MV-LM1(max)	J[64]	Axial	1953.53	59.11	-200.65	84.37	2569.59	-79.05
295	MV-LM1(max)	I[48]	Axial	2095.82	-47.54	-176.84	-129.05	1907.12	-161.16
295	MV-LM1(max)	J[255]	Axial	2095.82	-47.54	-176.84	-129.05	2297.22	-56.3
296	MV-LM1(max)	I[64]	Axial	2095.83	47.55	-176.84	129.37	1906.9	161.24
296	MV-LM1(max)	J[256]	Axial	2095.83	47.55	-176.84	129.37	2297	56.34
297	MV-LM1(max)	I[255]	Axial	2095.82	-47.54	-176.84	-129.05	2297.22	-56.3
297	MV-LM1(max)	J[49]	Axial	2095.82	-47.54	-176.84	-129.05	2687.31	48.57
298	MV-LM1(max)	I[256]	Axial	2095.83	47.55	-176.84	129.37	2297	56.34
298	MV-LM1(max)	J[65]	Axial	2095.83	47.55	-176.84	129.37	2687.09	-48.55
299	MV-LM1(max)	I[49]	Axial	2115.16	38.47	194.94	60.76	2719.98	29.65
299	MV-LM1(max)	J[257]	Axial	2115.16	38.47	194.94	60.76	2289.97	-55.2
300	MV-LM1(max)	I[65]	Axial	2115.38	-38.45	194.94	-60.03	2719.68	-29.47
300	MV-LM1(max)	J[258]	Axial	2115.38	-38.45	194.94	-60.03	2289.67	55.34
301	MV-LM1(max)	I[257]	Axial	2115.16	38.47	194.94	60.76	2289.97	-55.2

301	MV-LM1(max)	J[50]	Axial	2115.16	38.47	194.94	60.76	1859.96	-140.05
302	MV-LM1(max)	I[258]	Axial	2115.38	-38.45	194.94	-60.03	2289.67	55.34
302	MV-LM1(max)	J[66]	Axial	2115.38	-38.45	194.94	-60.03	1859.66	140.15
303	MV-LM1(max)	I[50]	Axial	1947.4	66.07	294.69	21.08	2676.9	96.27
303	MV-LM1(max)	J[259]	Axial	1947.4	66.07	294.69	21.08	2026.85	-49.46
304	MV-LM1(max)	I[66]	Axial	1948.03	-65.93	294.7	-19.31	2676.35	-95.88
304	MV-LM1(max)	J[260]	Axial	1948.03	-65.93	294.7	-19.31	2026.27	49.57
305	MV-LM1(max)	I[259]	Axial	1947.4	66.07	294.69	21.08	2026.85	-49.46
305	MV-LM1(max)	J[51]	Axial	1947.4	66.07	294.69	21.08	1376.79	-195.19
306	MV-LM1(max)	I[260]	Axial	1948.03	-65.93	294.7	-19.31	2026.27	49.57
306	MV-LM1(max)	J[67]	Axial	1948.03	-65.93	294.7	-19.31	1376.2	195.01
307	MV-LM1(max)	I[51]	Axial	1572.77	69.85	306.13	-56.99	1826.73	138.07
307	MV-LM1(max)	J[261]	Axial	1572.77	69.85	306.13	-56.99	1151.44	-16.02
308	MV-LM1(max)	I[67]	Axial	1574.1	-68.84	306.14	61.12	1825.75	-137.69
308	MV-LM1(max)	J[262]	Axial	1574.1	-68.84	306.14	61.12	1150.43	14.17
309	MV-LM1(max)	I[261]	Axial	1572.77	69.85	306.13	-56.99	1151.44	-16.02
309	MV-LM1(max)	J[52]	Axial	1572.77	69.85	306.13	-56.99	476.16	-170.11
310	MV-LM1(max)	I[262]	Axial	1574.1	-68.84	306.14	61.12	1150.43	14.17
310	MV-LM1(max)	J[68]	Axial	1574.1	-68.84	306.14	61.12	475.11	166.03
311	MV-LM1(max)	I[52]	Axial	1322.68	-0.27	194.67	-110.05	-44.12	54.48
311	MV-LM1(max)	J[263]	Axial	1322.68	-0.27	194.67	-110.05	-473.53	55.07
312	MV-LM1(max)	I[68]	Axial	1323.68	-0.73	194.64	119.15	-44.73	-58.75
312	MV-LM1(max)	J[264]	Axial	1323.68	-0.73	194.64	119.15	-474.09	-57.15
313	MV-LM1(max)	I[263]	Axial	1322.68	-0.27	194.67	-110.05	-473.53	55.07
313	MV-LM1(max)	J[18]	Axial	1322.68	-0.27	194.67	-110.05	-902.93	55.66
314	MV-LM1(max)	I[264]	Axial	1323.68	-0.73	194.64	119.15	-474.09	-57.15
314	MV-LM1(max)	J[36]	Axial	1323.68	-0.73	194.64	119.15	-903.45	-55.54
315	MV-LM1(max)	I[1]	Axial	0	0	0	0	0	0
315	MV-LM1(max)	J[265]	Axial	0	0	0	0	0	0
316	MV-LM1(max)	I[18]	Axial	0	0	0	0	0	0
316	MV-LM1(max)	J[266]	Axial	0	0	0	0	0	0
317	MV-LM1(max)	I[37]	Axial	0	0	0	0	0	0
317	MV-LM1(max)	J[267]	Axial	0	0	0	0	0	0
318	MV-LM1(max)	I[38]	Axial	0	0	0	0	0	0
318	MV-LM1(max)	J[268]	Axial	0	0	0	0	0	0
319	MV-LM1(max)	I[39]	Axial	0	0	0	0	0	0
319	MV-LM1(max)	J[269]	Axial	0	0	0	0	0	0
320	MV-LM1(max)	I[40]	Axial	0	0	0	0	0	0
320	MV-LM1(max)	J[270]	Axial	0	0	0	0	0	0
321	MV-LM1(max)	I[41]	Axial	0	0	0	0	0	0
321	MV-LM1(max)	J[271]	Axial	0	0	0	0	0	0
322	MV-LM1(max)	I[42]	Axial	0	0	0	0	0	0
322	MV-LM1(max)	J[272]	Axial	0	0	0	0	0	0
323	MV-LM1(max)	I[43]	Axial	0	0	0	0	0	0
323	MV-LM1(max)	J[273]	Axial	0	0	0	0	0	0
324	MV-LM1(max)	I[44]	Axial	0	0	0	0	0	0
324	MV-LM1(max)	J[274]	Axial	0	0	0	0	0	0
325	MV-LM1(max)	I[45]	Axial	0	0	0	0	0	0
325	MV-LM1(max)	J[275]	Axial	0	0	0	0	0	0
326	MV-LM1(max)	I[46]	Axial	0	0	0	0	0	0
326	MV-LM1(max)	J[276]	Axial	0	0	0	0	0	0
327	MV-LM1(max)	I[47]	Axial	0	0	0	0	0	0
327	MV-LM1(max)	J[277]	Axial	0	0	0	0	0	0
328	MV-LM1(max)	I[48]	Axial	0	0	0	0	0	0
328	MV-LM1(max)	J[278]	Axial	0	0	0	0	0	0
329	MV-LM1(max)	I[49]	Axial	0	0	0	0	0	0
329	MV-LM1(max)	J[279]	Axial	0	0	0	0	0	0
330	MV-LM1(max)	I[50]	Axial	0	0	0	0	0	0
330	MV-LM1(max)	J[280]	Axial	0	0	0	0	0	0
331	MV-LM1(max)	I[51]	Axial	0	0	0	0	0	0
331	MV-LM1(max)	J[281]	Axial	0	0	0	0	0	0

332	MV-LM1(max)	I[52]	Axial	0	0	0	0	0	0
332	MV-LM1(max)	J[282]	Axial	0	0	0	0	0	0
333	MV-LM1(max)	I[231]	Axial	0	0	0	0	0	0
333	MV-LM1(max)	J[283]	Axial	0	0	0	0	0	0
334	MV-LM1(max)	I[233]	Axial	0	0	0	0	0	0
334	MV-LM1(max)	J[284]	Axial	0	0	0	0	0	0
335	MV-LM1(max)	I[235]	Axial	0	0	0	0	0	0
335	MV-LM1(max)	J[285]	Axial	0	0	0	0	0	0
336	MV-LM1(max)	I[237]	Axial	0	0	0	0	0	0
336	MV-LM1(max)	J[286]	Axial	0	0	0	0	0	0
337	MV-LM1(max)	I[239]	Axial	0	0	0	0	0	0
337	MV-LM1(max)	J[287]	Axial	0	0	0	0	0	0
338	MV-LM1(max)	I[241]	Axial	0	0	0	0	0	0
338	MV-LM1(max)	J[288]	Axial	0	0	0	0	0	0
339	MV-LM1(max)	I[243]	Axial	0	0	0	0	0	0
339	MV-LM1(max)	J[289]	Axial	0	0	0	0	0	0
340	MV-LM1(max)	I[245]	Axial	0	0	0	0	0	0
340	MV-LM1(max)	J[290]	Axial	0	0	0	0	0	0
341	MV-LM1(max)	I[247]	Axial	0	0	0	0	0	0
341	MV-LM1(max)	J[291]	Axial	0	0	0	0	0	0
342	MV-LM1(max)	I[249]	Axial	0	0	0	0	0	0
342	MV-LM1(max)	J[292]	Axial	0	0	0	0	0	0
343	MV-LM1(max)	I[251]	Axial	0	0	0	0	0	0
343	MV-LM1(max)	J[293]	Axial	0	0	0	0	0	0
344	MV-LM1(max)	I[253]	Axial	0	0	0	0	0	0
344	MV-LM1(max)	J[294]	Axial	0	0	0	0	0	0
345	MV-LM1(max)	I[255]	Axial	0	0	0	0	0	0
345	MV-LM1(max)	J[295]	Axial	0	0	0	0	0	0
346	MV-LM1(max)	I[257]	Axial	0	0	0	0	0	0
346	MV-LM1(max)	J[296]	Axial	0	0	0	0	0	0
347	MV-LM1(max)	I[259]	Axial	0	0	0	0	0	0
347	MV-LM1(max)	J[297]	Axial	0	0	0	0	0	0
348	MV-LM1(max)	I[261]	Axial	0	0	0	0	0	0
348	MV-LM1(max)	J[298]	Axial	0	0	0	0	0	0
349	MV-LM1(max)	I[263]	Axial	0	0	0	0	0	0
349	MV-LM1(max)	J[299]	Axial	0	0	0	0	0	0
350	MV-LM1(max)	I[19]	Axial	0	0	0	0	0	0
350	MV-LM1(max)	J[300]	Axial	0	0	0	0	0	0
351	MV-LM1(max)	I[36]	Axial	0	0	0	0	0	0
351	MV-LM1(max)	J[301]	Axial	0	0	0	0	0	0
352	MV-LM1(max)	I[53]	Axial	0	0	0	0	0	0
352	MV-LM1(max)	J[302]	Axial	0	0	0	0	0	0
353	MV-LM1(max)	I[54]	Axial	0	0	0	0	0	0
353	MV-LM1(max)	J[303]	Axial	0	0	0	0	0	0
354	MV-LM1(max)	I[55]	Axial	0	0	0	0	0	0
354	MV-LM1(max)	J[304]	Axial	0	0	0	0	0	0
355	MV-LM1(max)	I[56]	Axial	0	0	0	0	0	0
355	MV-LM1(max)	J[305]	Axial	0	0	0	0	0	0
356	MV-LM1(max)	I[57]	Axial	0	0	0	0	0	0
356	MV-LM1(max)	J[306]	Axial	0	0	0	0	0	0
357	MV-LM1(max)	I[58]	Axial	0	0	0	0	0	0
357	MV-LM1(max)	J[307]	Axial	0	0	0	0	0	0
358	MV-LM1(max)	I[59]	Axial	0	0	0	0	0	0
358	MV-LM1(max)	J[308]	Axial	0	0	0	0	0	0
359	MV-LM1(max)	I[60]	Axial	0	0	0	0	0	0
359	MV-LM1(max)	J[309]	Axial	0	0	0	0	0	0
360	MV-LM1(max)	I[61]	Axial	0	0	0	0	0	0
360	MV-LM1(max)	J[310]	Axial	0	0	0	0	0	0
361	MV-LM1(max)	I[62]	Axial	0	0	0	0	0	0
361	MV-LM1(max)	J[311]	Axial	0	0	0	0	0	0
362	MV-LM1(max)	I[63]	Axial	0	0	0	0	0	0

362	MV-LM1(max)	J[312]	Axial	0	0	0	0	0	0
363	MV-LM1(max)	I[64]	Axial	0	0	0	0	0	0
363	MV-LM1(max)	J[313]	Axial	0	0	0	0	0	0
364	MV-LM1(max)	I[65]	Axial	0	0	0	0	0	0
364	MV-LM1(max)	J[314]	Axial	0	0	0	0	0	0
365	MV-LM1(max)	I[66]	Axial	0	0	0	0	0	0
365	MV-LM1(max)	J[315]	Axial	0	0	0	0	0	0
366	MV-LM1(max)	I[67]	Axial	0	0	0	0	0	0
366	MV-LM1(max)	J[316]	Axial	0	0	0	0	0	0
367	MV-LM1(max)	I[68]	Axial	0	0	0	0	0	0
367	MV-LM1(max)	J[317]	Axial	0	0	0	0	0	0
368	MV-LM1(max)	I[232]	Axial	0	0	0	0	0	0
368	MV-LM1(max)	J[318]	Axial	0	0	0	0	0	0
369	MV-LM1(max)	I[234]	Axial	0	0	0	0	0	0
369	MV-LM1(max)	J[319]	Axial	0	0	0	0	0	0
370	MV-LM1(max)	I[236]	Axial	0	0	0	0	0	0
370	MV-LM1(max)	J[320]	Axial	0	0	0	0	0	0
371	MV-LM1(max)	I[238]	Axial	0	0	0	0	0	0
371	MV-LM1(max)	J[321]	Axial	0	0	0	0	0	0
372	MV-LM1(max)	I[240]	Axial	0	0	0	0	0	0
372	MV-LM1(max)	J[322]	Axial	0	0	0	0	0	0
373	MV-LM1(max)	I[242]	Axial	0	0	0	0	0	0
373	MV-LM1(max)	J[323]	Axial	0	0	0	0	0	0
374	MV-LM1(max)	I[244]	Axial	0	0	0	0	0	0
374	MV-LM1(max)	J[324]	Axial	0	0	0	0	0	0
375	MV-LM1(max)	I[246]	Axial	0	0	0	0	0	0
375	MV-LM1(max)	J[325]	Axial	0	0	0	0	0	0
376	MV-LM1(max)	I[248]	Axial	0	0	0	0	0	0
376	MV-LM1(max)	J[326]	Axial	0	0	0	0	0	0
377	MV-LM1(max)	I[250]	Axial	0	0	0	0	0	0
377	MV-LM1(max)	J[327]	Axial	0	0	0	0	0	0
378	MV-LM1(max)	I[252]	Axial	0	0	0	0	0	0
378	MV-LM1(max)	J[328]	Axial	0	0	0	0	0	0
379	MV-LM1(max)	I[254]	Axial	0	0	0	0	0	0
379	MV-LM1(max)	J[329]	Axial	0	0	0	0	0	0
380	MV-LM1(max)	I[256]	Axial	0	0	0	0	0	0
380	MV-LM1(max)	J[330]	Axial	0	0	0	0	0	0
381	MV-LM1(max)	I[258]	Axial	0	0	0	0	0	0
381	MV-LM1(max)	J[331]	Axial	0	0	0	0	0	0
382	MV-LM1(max)	I[260]	Axial	0	0	0	0	0	0
382	MV-LM1(max)	J[332]	Axial	0	0	0	0	0	0
383	MV-LM1(max)	I[262]	Axial	0	0	0	0	0	0
383	MV-LM1(max)	J[333]	Axial	0	0	0	0	0	0
384	MV-LM1(max)	I[264]	Axial	0	0	0	0	0	0
384	MV-LM1(max)	J[334]	Axial	0	0	0	0	0	0
385	MV-LM1(max)	I[69]	Axial	435.59	161.52	55.05	-11.04	126.69	508.21
385	MV-LM1(max)	J[71]	Axial	435.59	161.52	55.05	-11.04	-116.17	-204.36
386	MV-LM1(max)	I[105]	Axial	106.36	57.08	24.75	-12.97	58.46	173.3
386	MV-LM1(max)	J[107]	Axial	106.36	57.08	24.75	-12.97	-50.74	-78.54
387	MV-LM1(max)	I[141]	Axial	55.08	34.07	14.36	11.88	34.44	102.96
387	MV-LM1(max)	J[143]	Axial	55.08	34.07	14.36	11.88	-28.91	-47.33
388	MV-LM1(max)	I[177]	Axial	106.8	-59.03	24.77	13.09	58.57	-175.84
388	MV-LM1(max)	J[179]	Axial	106.8	-59.03	24.77	13.09	-50.69	84.6
389	MV-LM1(max)	I[213]	Axial	435.92	-165.47	55.04	11.47	126.74	-510.56
389	MV-LM1(max)	J[215]	Axial	435.92	-165.47	55.04	11.47	-116.07	219.47
390	MV-LM1(max)	I[71]	Axial	868.69	102.87	30.17	-7.45	52.14	288.57
390	MV-LM1(max)	J[72]	Axial	868.69	102.87	30.17	-7.45	-80.96	-165.28
391	MV-LM1(max)	I[107]	Axial	217.24	28.92	12.42	-8.56	10.9	77
391	MV-LM1(max)	J[108]	Axial	217.24	28.92	12.42	-8.56	-43.9	-50.6
392	MV-LM1(max)	I[143]	Axial	113.46	33.36	7.26	9.71	0.95	86.8
392	MV-LM1(max)	J[144]	Axial	113.46	33.36	7.26	9.71	-31.09	-60.36

393	MV-LM1(max)	I[179]	Axial	217.83	-28.17	12.39	8.71	10.94	-72.14
393	MV-LM1(max)	J[180]	Axial	217.83	-28.17	12.39	8.71	-43.71	52.11
394	MV-LM1(max)	I[215]	Axial	868.77	-100.41	30.15	7.73	52.16	-274.48
394	MV-LM1(max)	J[216]	Axial	868.77	-100.41	30.15	7.73	-80.83	168.49
395	MV-LM1(max)	I[72]	Axial	1139.46	52.03	18.12	-5.07	22.85	153.27
395	MV-LM1(max)	J[73]	Axial	1139.46	52.03	18.12	-5.07	-57.08	-76.26
396	MV-LM1(max)	I[108]	Axial	300.31	12.29	8.4	-6.16	0.22	42.66
396	MV-LM1(max)	J[109]	Axial	300.31	12.29	8.4	-6.16	-36.82	-11.54
397	MV-LM1(max)	I[144]	Axial	161.72	29.56	4.78	6.02	-6.8	68.89
397	MV-LM1(max)	J[145]	Axial	161.72	29.56	4.78	6.02	-27.87	-61.54
398	MV-LM1(max)	I[180]	Axial	300.68	-11.7	8.39	6.21	0.27	-40.3
398	MV-LM1(max)	J[181]	Axial	300.68	-11.7	8.39	6.21	-36.73	11.33
399	MV-LM1(max)	I[216]	Axial	1139.03	-51.15	18.09	5.18	22.81	-149.4
399	MV-LM1(max)	J[217]	Axial	1139.03	-51.15	18.09	5.18	-57	76.24
400	MV-LM1(max)	I[73]	Axial	1268.55	11.26	5.36	-0.95	-7.26	67.87
400	MV-LM1(max)	J[376]	Axial	1268.55	11.26	5.36	-0.95	-19.09	43.04
401	MV-LM1(max)	I[109]	Axial	351.39	-5.51	3.55	-1.93	-11.93	8.37
401	MV-LM1(max)	J[377]	Axial	351.39	-5.51	3.55	-1.93	-19.76	20.51
402	MV-LM1(max)	I[145]	Axial	192.43	24.82	2.27	1.59	-13.53	53.4
402	MV-LM1(max)	J[378]	Axial	192.43	24.82	2.27	1.59	-18.55	-1.35
403	MV-LM1(max)	I[181]	Axial	351.61	5.77	3.54	1.95	-11.95	-7.57
403	MV-LM1(max)	J[379]	Axial	351.61	5.77	3.54	1.95	-19.74	-20.29
404	MV-LM1(max)	I[217]	Axial	1267.97	-11.09	5.36	0.99	-7.26	-67.28
404	MV-LM1(max)	J[380]	Axial	1267.97	-11.09	5.36	0.99	-19.08	-42.81
405	MV-LM1(max)	I[74]	Axial	1273.31	-20.85	-4.62	2.41	-29.27	-1.19
405	MV-LM1(max)	J[75]	Axial	1273.31	-20.85	-4.62	2.41	-8.87	90.81
406	MV-LM1(max)	I[110]	Axial	367.58	-21.88	-1.32	2.56	-22.41	-23.02
406	MV-LM1(max)	J[111]	Axial	367.58	-21.88	-1.32	2.56	-16.58	73.49
407	MV-LM1(max)	I[146]	Axial	205.19	17.7	-0.29	-2.99	-18.92	35.25
407	MV-LM1(max)	J[147]	Axial	205.19	17.7	-0.29	-2.99	-17.65	-42.82
408	MV-LM1(max)	I[182]	Axial	367.68	22.09	-1.33	-2.55	-22.44	23.61
408	MV-LM1(max)	J[183]	Axial	367.68	22.09	-1.33	-2.55	-16.55	-73.84
409	MV-LM1(max)	I[218]	Axial	1272.63	20.94	-4.62	-2.39	-29.26	1.52
409	MV-LM1(max)	J[219]	Axial	1272.63	20.94	-4.62	-2.39	-8.87	-90.88
410	MV-LM1(max)	I[75]	Axial	1169.45	-51.4	-13.92	6.14	-47.99	-68.47
410	MV-LM1(max)	J[76]	Axial	1169.45	-51.4	-13.92	6.14	13.44	158.29
411	MV-LM1(max)	I[111]	Axial	350.46	-35.42	-5.46	6.22	-29.64	-50.58
411	MV-LM1(max)	J[112]	Axial	350.46	-35.42	-5.46	6.22	-5.55	105.7
412	MV-LM1(max)	I[147]	Axial	200.68	6.73	-2.93	-2.79	-22.93	12.24
412	MV-LM1(max)	J[148]	Axial	200.68	6.73	-2.93	-2.79	-10.01	-17.45
413	MV-LM1(max)	I[183]	Axial	350.4	35.76	-5.5	-6.25	-29.74	51.55
413	MV-LM1(max)	J[184]	Axial	350.4	35.76	-5.5	-6.25	-5.47	-106.22
414	MV-LM1(max)	I[219]	Axial	1168.82	51.5	-13.92	-6.13	-47.98	68.83
414	MV-LM1(max)	J[220]	Axial	1168.82	51.5	-13.92	-6.13	13.43	-158.39
415	MV-LM1(max)	I[76]	Axial	976.26	-73.3	-20.78	8.68	-59.66	-115.02
415	MV-LM1(max)	J[77]	Axial	976.26	-73.3	-20.78	8.68	32.04	208.36
416	MV-LM1(max)	I[112]	Axial	306.97	-42.2	-8.32	8.03	-31.9	-65.24
416	MV-LM1(max)	J[113]	Axial	306.97	-42.2	-8.32	8.03	4.78	120.93
417	MV-LM1(max)	I[148]	Axial	182.18	9.17	-2.66	-3.32	-12.85	13.17
417	MV-LM1(max)	J[149]	Axial	182.18	9.17	-2.66	-3.32	-1.1	-27.29
418	MV-LM1(max)	I[184]	Axial	306.77	42.44	-8.32	-8.01	-31.91	65.9
418	MV-LM1(max)	J[185]	Axial	306.77	42.44	-8.32	-8.01	4.81	-121.33
419	MV-LM1(max)	I[220]	Axial	975.42	73.45	-20.79	-8.67	-59.67	115.5
419	MV-LM1(max)	J[221]	Axial	975.42	73.45	-20.79	-8.67	32.05	-208.55
420	MV-LM1(max)	I[77]	Axial	763.19	-70.27	-19.49	8.03	-53.04	-107.79
420	MV-LM1(max)	J[78]	Axial	763.19	-70.27	-19.49	8.03	32.94	202.2
421	MV-LM1(max)	I[113]	Axial	256.81	-38.96	-7.92	8.69	-25.71	-60.08
421	MV-LM1(max)	J[114]	Axial	256.81	-38.96	-7.92	8.69	9.21	111.78
422	MV-LM1(max)	I[149]	Axial	164.91	7.41	-3.53	-2.71	-11.83	9.37
422	MV-LM1(max)	J[150]	Axial	164.91	7.41	-3.53	-2.71	3.76	-23.32
423	MV-LM1(max)	I[185]	Axial	256.6	39.22	-7.92	-8.67	-25.71	60.76

423	MV-LM1(max)	J[186]	Axial	256.6	39.22	-7.92	-8.67	9.25	-112.28
424	MV-LM1(max)	I[221]	Axial	762.38	70.32	-19.46	-8.02	-52.98	108.02
424	MV-LM1(max)	J[222]	Axial	762.38	70.32	-19.46	-8.02	32.88	-202.21
425	MV-LM1(max)	I[78]	Axial	622.75	38.09	12.69	-9.87	21.47	138.22
425	MV-LM1(max)	J[371]	Axial	622.75	38.09	12.69	-9.87	-6.53	54.2
426	MV-LM1(max)	I[114]	Axial	231.42	7.99	6.03	-10.48	10.22	47.44
426	MV-LM1(max)	J[372]	Axial	231.42	7.99	6.03	-10.48	-3.08	29.81
427	MV-LM1(max)	I[150]	Axial	140.23	-11.15	4.46	-3.42	9.23	-15.48
427	MV-LM1(max)	J[373]	Axial	140.23	-11.15	4.46	-3.42	-0.6	9.12
428	MV-LM1(max)	I[186]	Axial	231.62	-18.27	8.13	10.38	14.83	-70.19
428	MV-LM1(max)	J[374]	Axial	231.62	-18.27	8.13	10.38	-3.09	-29.87
429	MV-LM1(max)	I[222]	Axial	623.11	-52.84	16.88	9.79	30.7	-170.84
429	MV-LM1(max)	J[375]	Axial	623.11	-52.84	16.88	9.79	-6.53	-54.27
430	MV-LM1(max)	I[79]	Axial	834.2	62.32	20.4	-10.26	35.07	193.98
430	MV-LM1(max)	J[80]	Axial	834.2	62.32	20.4	-10.26	-54.95	-80.95
431	MV-LM1(max)	I[115]	Axial	288.1	14.51	8.56	-11.03	10.59	67.73
431	MV-LM1(max)	J[116]	Axial	288.1	14.51	8.56	-11.03	-27.18	3.74
432	MV-LM1(max)	I[151]	Axial	164.9	-10.29	3.53	-3.3	3.76	-12.43
432	MV-LM1(max)	J[152]	Axial	164.9	-10.29	3.53	-3.3	-11.83	32.98
433	MV-LM1(max)	I[187]	Axial	288.33	-14.69	8.57	11.04	10.6	-68.25
433	MV-LM1(max)	J[188]	Axial	288.33	-14.69	8.57	11.04	-27.2	-3.46
434	MV-LM1(max)	I[223]	Axial	834.75	-62.43	20.41	10.26	35.08	-194.31
434	MV-LM1(max)	J[224]	Axial	834.75	-62.43	20.41	10.26	-54.96	81.12
435	MV-LM1(max)	I[80]	Axial	1069.69	66.65	22.25	-10.11	35.25	204.82
435	MV-LM1(max)	J[81]	Axial	1069.69	66.65	22.25	-10.11	-62.91	-89.22
436	MV-LM1(max)	I[116]	Axial	345.53	20.97	9.3	-11.54	7.22	84.87
436	MV-LM1(max)	J[117]	Axial	345.53	20.97	9.3	-11.54	-33.81	-7.64
437	MV-LM1(max)	I[152]	Axial	182.17	-9.24	2.66	-2.97	-1.1	-9.16
437	MV-LM1(max)	J[153]	Axial	182.17	-9.24	2.66	-2.97	-12.85	31.62
438	MV-LM1(max)	I[188]	Axial	345.71	-21.03	9.27	11.53	7.16	-85.09
438	MV-LM1(max)	J[189]	Axial	345.71	-21.03	9.27	11.53	-33.75	7.7
439	MV-LM1(max)	I[224]	Axial	1069.96	-66.52	22.19	10.1	35.13	-204.62
439	MV-LM1(max)	J[225]	Axial	1069.96	-66.52	22.19	10.1	-62.78	88.83
440	MV-LM1(max)	I[81]	Axial	1283.71	40.85	15.22	-7.62	16.41	153.44
440	MV-LM1(max)	J[82]	Axial	1283.71	40.85	15.22	-7.62	-50.73	-26.76
441	MV-LM1(max)	I[117]	Axial	396.55	8.88	5.77	-7.81	-4.85	64.63
441	MV-LM1(max)	J[118]	Axial	396.55	8.88	5.77	-7.81	-30.29	25.43
442	MV-LM1(max)	I[153]	Axial	200.61	-3.98	2.93	-3.39	-10.02	1.59
442	MV-LM1(max)	J[154]	Axial	200.61	-3.98	2.93	-3.39	-22.93	19.13
443	MV-LM1(max)	I[189]	Axial	396.61	-8.96	5.76	7.81	-4.86	-64.82
443	MV-LM1(max)	J[190]	Axial	396.61	-8.96	5.76	7.81	-30.27	-25.31
444	MV-LM1(max)	I[225]	Axial	1283.89	-40.86	15.22	7.62	16.41	-153.51
444	MV-LM1(max)	J[226]	Axial	1283.89	-40.86	15.22	7.62	-50.73	26.76
445	MV-LM1(max)	I[82]	Axial	1403.45	8.56	5.83	-3.9	-6.17	86.59
445	MV-LM1(max)	J[83]	Axial	1403.45	8.56	5.83	-3.9	-31.89	48.82
446	MV-LM1(max)	I[118]	Axial	416.6	-7.06	1.43	-4.13	-16.31	31.25
446	MV-LM1(max)	J[119]	Axial	416.6	-7.06	1.43	-4.13	-22.61	62.38
447	MV-LM1(max)	I[154]	Axial	205.13	-2.05	0.19	-1.5	-18.14	6.38
447	MV-LM1(max)	J[155]	Axial	205.13	-2.05	0.19	-1.5	-18.99	15.44
448	MV-LM1(max)	I[190]	Axial	416.58	6.99	1.42	4.13	-16.33	-31.41
448	MV-LM1(max)	J[191]	Axial	416.58	6.99	1.42	4.13	-22.6	-62.27
449	MV-LM1(max)	I[226]	Axial	1403.62	-8.57	5.83	3.91	-6.17	-86.64
449	MV-LM1(max)	J[227]	Axial	1403.62	-8.57	5.83	3.91	-31.89	-48.83
450	MV-LM1(max)	I[83]	Axial	1411.85	-26.63	-4.51	-0.2	-29.11	13.54
450	MV-LM1(max)	J[381]	Axial	1411.85	-26.63	-4.51	-0.2	-19.17	72.29
451	MV-LM1(max)	I[119]	Axial	401.34	-23.07	-3.68	0.52	-27.91	-3.79
451	MV-LM1(max)	J[382]	Axial	401.34	-23.07	-3.68	0.52	-19.79	47.1
452	MV-LM1(max)	I[155]	Axial	192.19	1.07	-2.29	0.72	-23.65	13.6
452	MV-LM1(max)	J[383]	Axial	192.19	1.07	-2.29	0.72	-18.6	11.24
453	MV-LM1(max)	I[191]	Axial	401.27	23.03	-3.69	-0.52	-27.92	3.66
453	MV-LM1(max)	J[384]	Axial	401.27	23.03	-3.69	-0.52	-19.79	-47.13

454	MV-LM1(max)	I[227]	Axial	1412.03	26.68	-4.51	0.21	-29.12	-13.52
454	MV-LM1(max)	J[385]	Axial	1412.03	26.68	-4.51	0.21	-19.18	-72.36
455	MV-LM1(max)	I[84]	Axial	1288.94	-69.65	-18.28	4.61	-57.64	-77.86
455	MV-LM1(max)	J[85]	Axial	1288.94	-69.65	-18.28	4.61	23.02	229.42
456	MV-LM1(max)	I[120]	Axial	347.48	-38.93	-8.95	5.31	-38.13	-38.27
456	MV-LM1(max)	J[121]	Axial	347.48	-38.93	-8.95	5.31	1.35	133.48
457	MV-LM1(max)	I[156]	Axial	161.32	7.41	-4.78	4.83	-27.9	41.12
457	MV-LM1(max)	J[157]	Axial	161.32	7.41	-4.78	4.83	-6.81	8.44
458	MV-LM1(max)	I[192]	Axial	347.36	38.98	-8.95	-5.3	-38.16	38.14
458	MV-LM1(max)	J[193]	Axial	347.36	38.98	-8.95	-5.3	1.34	-133.85
459	MV-LM1(max)	I[228]	Axial	1289.06	69.99	-18.29	-4.56	-57.66	77.86
459	MV-LM1(max)	J[229]	Axial	1289.06	69.99	-18.29	-4.56	23.04	-230.9
460	MV-LM1(max)	I[85]	Axial	1006.89	-124	-32.09	8.34	-85.93	-166.9
460	MV-LM1(max)	J[86]	Axial	1006.89	-124	-32.09	8.34	55.66	380.16
461	MV-LM1(max)	I[121]	Axial	256.56	-54.54	-13.46	9.21	-46.8	-69.95
461	MV-LM1(max)	J[122]	Axial	256.56	-54.54	-13.46	9.21	12.59	170.67
462	MV-LM1(max)	I[157]	Axial	112.97	16.67	-7.28	9.39	-31.17	56.15
462	MV-LM1(max)	J[158]	Axial	112.97	16.67	-7.28	9.39	0.93	-17.39
463	MV-LM1(max)	I[193]	Axial	256.28	54.77	-13.48	-9.17	-46.88	69.24
463	MV-LM1(max)	J[194]	Axial	256.28	54.77	-13.48	-9.17	12.57	-172.41
464	MV-LM1(max)	I[229]	Axial	1006.83	125.13	-32.11	-8.22	-85.99	165.44
464	MV-LM1(max)	J[230]	Axial	1006.83	125.13	-32.11	-8.22	55.65	-386.63
465	MV-LM1(max)	I[86]	Axial	521.72	-196.63	-64.61	14.85	-134.94	-223.19
465	MV-LM1(max)	J[70]	Axial	521.72	-196.63	-64.61	14.85	150.12	644.31
466	MV-LM1(max)	I[122]	Axial	127.75	-77.14	-28.82	15.79	-58.61	-79.69
466	MV-LM1(max)	J[106]	Axial	127.75	-77.14	-28.82	15.79	68.52	260.65
467	MV-LM1(max)	I[158]	Axial	54.77	32.89	-14.35	14.69	-28.92	74.28
467	MV-LM1(max)	J[142]	Axial	54.77	32.89	-14.35	14.69	34.38	-70.8
468	MV-LM1(max)	I[194]	Axial	127.55	76.23	-28.81	-15.75	-58.63	77.04
468	MV-LM1(max)	J[178]	Axial	127.55	76.23	-28.81	-15.75	68.46	-259.27
469	MV-LM1(max)	I[230]	Axial	521.58	194.72	-64.62	-14.67	-134.99	215.88
469	MV-LM1(max)	J[214]	Axial	521.58	194.72	-64.62	-14.67	150.1	-643.16
470	MV-LM1(max)	I[335]	Axial	135.77	315.01	-120.73	-23.79	2.6	71.24
470	MV-LM1(max)	J[69]	Axial	135.77	315.01	-117.51	-23.79	120.11	-243.77
471	MV-LM1(max)	I[336]	Axial	53.37	102.05	-63.79	3.01	127.37	33.06
471	MV-LM1(max)	J[71]	Axial	53.37	102.05	-63.79	3.01	191.16	-68.98
472	MV-LM1(max)	I[337]	Axial	44.74	-128.11	-45.83	-6.29	172.35	-42.72
472	MV-LM1(max)	J[72]	Axial	44.74	-128.11	-45.83	-6.29	218.18	85.38
473	MV-LM1(max)	I[338]	Axial	36.45	163.55	-47.41	0.45	139.32	47.63
473	MV-LM1(max)	J[73]	Axial	36.45	163.55	-47.41	0.45	186.73	-115.92
474	MV-LM1(max)	I[339]	Axial	35.44	191.02	-47.37	-0.68	135.25	54.57
474	MV-LM1(max)	J[74]	Axial	35.44	191.02	-47.37	-0.68	182.62	-136.45
475	MV-LM1(max)	I[340]	Axial	34.61	230.92	-47.46	-2.48	133.19	64.19
475	MV-LM1(max)	J[75]	Axial	34.61	230.92	-47.46	-2.48	180.65	-166.73
476	MV-LM1(max)	I[341]	Axial	33.71	257.23	-47.2	-3.84	136.15	70.09
476	MV-LM1(max)	J[76]	Axial	33.71	257.23	-47.2	-3.84	183.34	-187.13
477	MV-LM1(max)	I[342]	Axial	32.92	256.02	-46.68	-4.11	143.68	68.86
477	MV-LM1(max)	J[77]	Axial	32.92	256.02	-46.68	-4.11	190.36	-187.16
478	MV-LM1(max)	I[343]	Axial	32.65	243.58	-50.97	-0.62	153.19	69.03
478	MV-LM1(max)	J[78]	Axial	32.65	243.58	-50.97	-0.62	204.16	-174.54
479	MV-LM1(max)	I[344]	Axial	32.65	-241.79	-50.96	0.78	153.25	-68.5
479	MV-LM1(max)	J[79]	Axial	32.65	-241.79	-50.96	0.78	204.21	173.28
480	MV-LM1(max)	I[345]	Axial	32.96	-248.86	-46.65	4.74	143.93	-66.74
480	MV-LM1(max)	J[80]	Axial	32.96	-248.86	-46.65	4.74	190.58	182.12
481	MV-LM1(max)	I[346]	Axial	33.79	-249.36	-47.31	4.47	135.65	-67.8
481	MV-LM1(max)	J[81]	Axial	33.79	-249.36	-47.31	4.47	182.96	181.56
482	MV-LM1(max)	I[347]	Axial	34.77	-223.58	-47.7	3.05	131.99	-62.1
482	MV-LM1(max)	J[82]	Axial	34.77	-223.58	-47.7	3.05	179.69	161.49
483	MV-LM1(max)	I[348]	Axial	35.95	-189.11	-45.37	2.53	143.73	-52.7
483	MV-LM1(max)	J[83]	Axial	35.95	-189.11	-45.37	2.53	189.1	136.41
484	MV-LM1(max)	I[349]	Axial	37.18	-157.9	-45.59	0.96	147.11	-45.06

484	MV-LM1(max)	J[84]	Axial	37.18	-157.9	-45.59	0.96	192.7	112.85
485	MV-LM1(max)	I[350]	Axial	46.53	260.3	-39.84	-10.77	-6.2	63.53
485	MV-LM1(max)	J[85]	Axial	46.53	260.3	-39.84	-10.77	33.64	-196.77
486	MV-LM1(max)	I[351]	Axial	60.26	415.35	-63.29	-23.09	-17.02	92.63
486	MV-LM1(max)	J[86]	Axial	60.26	415.35	-63.29	-23.09	46.27	-322.72
487	MV-LM1(max)	I[352]	Axial	161.94	-276.67	-120.16	21.68	-64.98	-60.14
487	MV-LM1(max)	J[70]	Axial	161.94	-276.67	-118.66	21.68	53.67	216.53
488	MV-LM1(max)	I[353]	Axial	101.74	-331.73	108.13	11.65	223.7	87.17
488	MV-LM1(max)	J[19]	Axial	101.74	-331.73	108.64	11.65	169.37	253.04
489	MV-LM1(max)	I[354]	Axial	53.84	3.42	62.22	-7.73	95.94	7.86
489	MV-LM1(max)	J[53]	Axial	53.84	3.42	62.41	-7.73	64.74	6.14
490	MV-LM1(max)	I[355]	Axial	44.36	126.28	45.69	6.32	172.13	-42.23
490	MV-LM1(max)	J[54]	Axial	44.36	126.28	45.69	6.32	149.29	-105.37
491	MV-LM1(max)	I[356]	Axial	36.45	-163.35	47.43	-0.45	139	47.59
491	MV-LM1(max)	J[55]	Axial	36.45	-163.35	47.43	-0.45	115.28	129.26
492	MV-LM1(max)	I[357]	Axial	35.45	-190.83	47.37	0.69	135.11	54.51
492	MV-LM1(max)	J[56]	Axial	35.45	-190.83	47.37	0.69	111.43	149.93
493	MV-LM1(max)	I[358]	Axial	34.62	-230.87	47.46	2.5	133.13	64.17
493	MV-LM1(max)	J[57]	Axial	34.62	-230.87	47.46	2.5	109.4	179.6
494	MV-LM1(max)	I[359]	Axial	33.71	-257.26	47.2	3.84	136.12	70.1
494	MV-LM1(max)	J[58]	Axial	33.71	-257.26	47.2	3.84	112.52	198.73
495	MV-LM1(max)	I[360]	Axial	32.92	-256.03	46.68	4.1	143.66	68.86
495	MV-LM1(max)	J[59]	Axial	32.92	-256.03	46.68	4.1	120.32	196.88
496	MV-LM1(max)	I[361]	Axial	32.65	-243.6	50.97	0.62	153.18	69.04
496	MV-LM1(max)	J[60]	Axial	32.65	-243.6	50.97	0.62	127.69	190.84
497	MV-LM1(max)	I[362]	Axial	32.65	241.81	50.96	-0.78	153.26	-68.51
497	MV-LM1(max)	J[61]	Axial	32.65	241.81	50.96	-0.78	127.78	-189.41
498	MV-LM1(max)	I[363]	Axial	32.96	248.87	46.65	-4.74	143.95	-66.74
498	MV-LM1(max)	J[62]	Axial	32.96	248.87	46.65	-4.74	120.62	-191.17
499	MV-LM1(max)	I[364]	Axial	33.8	249.33	47.31	-4.48	135.66	-67.79
499	MV-LM1(max)	J[63]	Axial	33.8	249.33	47.31	-4.48	112.01	-192.46
500	MV-LM1(max)	I[365]	Axial	34.77	223.39	47.71	-3.06	131.99	-62.05
500	MV-LM1(max)	J[64]	Axial	34.77	223.39	47.71	-3.06	108.13	-173.75
501	MV-LM1(max)	I[366]	Axial	35.95	188.84	45.38	-2.54	143.92	-52.62
501	MV-LM1(max)	J[65]	Axial	35.95	188.84	45.38	-2.54	121.23	-147.04
502	MV-LM1(max)	I[367]	Axial	37.25	157.51	45.6	-0.98	147.77	-44.93
502	MV-LM1(max)	J[66]	Axial	37.25	157.51	45.6	-0.98	124.97	-123.68
503	MV-LM1(max)	I[368]	Axial	47.32	-259.83	39.79	10.6	-3.32	63.64
503	MV-LM1(max)	J[67]	Axial	47.32	-259.83	39.79	10.6	-23.22	193.55
504	MV-LM1(max)	I[369]	Axial	58.59	-434.19	62.72	24.71	-10.85	96.28
504	MV-LM1(max)	J[68]	Axial	58.59	-434.19	63.34	24.71	-42.52	313.38
505	MV-LM1(max)	I[370]	Axial	104.04	361.3	115.3	-19.64	164.28	-90.25
505	MV-LM1(max)	J[36]	Axial	104.04	361.3	117.11	-19.64	105.73	-270.9
506	MV-LM1(max)	I[371]	Axial	622.75	38.09	12.69	-9.87	-6.53	54.2
506	MV-LM1(max)	J[79]	Axial	622.75	38.09	12.69	-9.87	-34.54	-29.83
507	MV-LM1(max)	I[372]	Axial	231.42	7.99	6.03	-10.48	-3.08	29.81
507	MV-LM1(max)	J[115]	Axial	231.42	7.99	6.03	-10.48	-16.38	12.17
508	MV-LM1(max)	I[373]	Axial	140.23	-11.15	4.46	-3.42	-0.6	9.12
508	MV-LM1(max)	J[151]	Axial	140.23	-11.15	4.46	-3.42	-10.44	33.71
509	MV-LM1(max)	I[374]	Axial	231.62	-18.27	8.13	10.38	-3.09	-29.87
509	MV-LM1(max)	J[187]	Axial	231.62	-18.27	8.13	10.38	-21.01	10.44
510	MV-LM1(max)	I[375]	Axial	623.11	-52.84	16.88	9.79	-6.53	-54.27
510	MV-LM1(max)	J[223]	Axial	623.11	-52.84	16.88	9.79	-43.76	62.3
511	MV-LM1(max)	I[376]	Axial	1268.55	11.26	5.36	-0.95	-19.09	43.04
511	MV-LM1(max)	J[74]	Axial	1268.55	11.26	5.36	-0.95	-30.92	18.2
512	MV-LM1(max)	I[377]	Axial	351.39	-5.51	3.55	-1.93	-19.76	20.51
512	MV-LM1(max)	J[110]	Axial	351.39	-5.51	3.55	-1.93	-27.59	32.65
513	MV-LM1(max)	I[378]	Axial	192.43	24.82	2.27	1.59	-18.55	-1.35
513	MV-LM1(max)	J[146]	Axial	192.43	24.82	2.27	1.59	-23.56	-56.09
514	MV-LM1(max)	I[379]	Axial	351.61	5.77	3.54	1.95	-19.74	-20.29
514	MV-LM1(max)	J[182]	Axial	351.61	5.77	3.54	1.95	-27.54	-33.01

515	MV-LM1(max)	I[380]	Axial	1267.97	-11.09	5.36	0.99	-19.08	-42.81
515	MV-LM1(max)	J[218]	Axial	1267.97	-11.09	5.36	0.99	-30.9	-18.34
516	MV-LM1(max)	I[381]	Axial	1411.85	-26.63	-4.51	-0.2	-19.17	72.29
516	MV-LM1(max)	J[84]	Axial	1411.85	-26.63	-4.51	-0.2	-9.23	131.04
517	MV-LM1(max)	I[382]	Axial	401.34	-23.07	-3.68	0.52	-19.79	47.1
517	MV-LM1(max)	J[120]	Axial	401.34	-23.07	-3.68	0.52	-11.67	97.98
518	MV-LM1(max)	I[383]	Axial	192.19	1.07	-2.29	0.72	-18.6	11.24
518	MV-LM1(max)	J[156]	Axial	192.19	1.07	-2.29	0.72	-13.56	8.89
519	MV-LM1(max)	I[384]	Axial	401.27	23.03	-3.69	-0.52	-19.79	-47.13
519	MV-LM1(max)	J[192]	Axial	401.27	23.03	-3.69	-0.52	-11.66	-97.92
520	MV-LM1(max)	I[385]	Axial	1412.03	26.68	-4.51	0.21	-19.18	-72.36
520	MV-LM1(max)	J[228]	Axial	1412.03	26.68	-4.51	0.21	-9.23	-131.21

3.3. MÁXIMO CORTANTE NEGATIVO Y SUS CONCOMITANTES

Elem	Load	Part	Component	Axial (kN)	Shear-y (kN)	Shear-z (kN)	Torsion (kN*m)	Moment-y (kN*m)	Moment-z (kN*m)
1	MV-LM1(min)	I[1]	Shear-z	-576.49	-0.67	-80.86	-2.47	-85.49	-27.6
1	MV-LM1(min)	J[2]	Shear-z	-576.49	-0.67	-80.86	-2.47	326.39	-24.16
2	MV-LM1(min)	I[2]	Shear-z	-819.49	-0.65	-60.22	-3.97	178.34	-19.61
2	MV-LM1(min)	J[3]	Shear-z	-819.49	-0.65	-60.22	-3.97	476.01	-16.39
3	MV-LM1(min)	I[3]	Shear-z	-1031.29	-0.57	-50.68	-3.14	216.58	-10.9
3	MV-LM1(min)	J[4]	Shear-z	-1031.29	-0.57	-50.68	-3.14	460.24	-8.16
4	MV-LM1(min)	I[4]	Shear-z	-1181.71	-0.48	-46.32	-1.52	194.07	-3.78
4	MV-LM1(min)	J[5]	Shear-z	-1181.71	-0.48	-46.32	-1.52	411.31	-1.55
5	MV-LM1(min)	I[5]	Shear-z	-1334.24	-0.34	-45.17	-0.13	114.53	2.95
5	MV-LM1(min)	J[6]	Shear-z	-1334.24	-0.34	-45.17	-0.13	321.92	4.5
6	MV-LM1(min)	I[6]	Shear-z	-1470.21	-0.04	-46.85	-0.54	13.71	9.5
6	MV-LM1(min)	J[7]	Shear-z	-1470.21	-0.04	-46.85	-0.54	225.19	9.69
7	MV-LM1(min)	I[7]	Shear-z	-1403.74	0.07	-49.73	-0.57	4.22	10.56
7	MV-LM1(min)	J[8]	Shear-z	-1403.74	0.07	-49.73	-0.57	225.89	10.23
8	MV-LM1(min)	I[8]	Shear-z	-1315.84	0.18	-52.47	-0.52	21.75	9.98
8	MV-LM1(min)	J[9]	Shear-z	-1315.84	0.18	-52.47	-0.52	253.85	9.17
9	MV-LM1(min)	I[9]	Shear-z	-1207.82	0.29	-54.3	-0.41	66.09	7.95
9	MV-LM1(min)	J[10]	Shear-z	-1207.82	0.29	-54.3	-0.41	305.63	6.68
10	MV-LM1(min)	I[10]	Shear-z	-1080.31	0.39	-54.57	-0.13	130.86	4.61
10	MV-LM1(min)	J[11]	Shear-z	-1080.31	0.39	-54.57	-0.13	372.25	2.9
11	MV-LM1(min)	I[11]	Shear-z	-933.76	0.47	-52.85	0.38	204.24	0.19
11	MV-LM1(min)	J[12]	Shear-z	-933.76	0.47	-52.85	0.38	439.81	-1.92
12	MV-LM1(min)	I[12]	Shear-z	-768.85	0.54	-48.84	1.08	269.75	-4.88
12	MV-LM1(min)	J[13]	Shear-z	-768.85	0.54	-48.84	1.08	490.22	-7.33
13	MV-LM1(min)	I[13]	Shear-z	-740.66	0.39	-42.72	2.43	240.46	-6.44
13	MV-LM1(min)	J[14]	Shear-z	-740.66	0.39	-42.72	2.43	436.62	-8.23
14	MV-LM1(min)	I[14]	Shear-z	-758.77	0.33	-35.21	0.63	205.98	-7.59
14	MV-LM1(min)	J[15]	Shear-z	-758.77	0.33	-35.21	0.63	371.14	-9.15
15	MV-LM1(min)	I[15]	Shear-z	-695.45	0.32	-24.94	-4.3	104.45	-10.18
15	MV-LM1(min)	J[16]	Shear-z	-695.45	0.32	-24.94	-4.3	224.35	-11.71
16	MV-LM1(min)	I[16]	Shear-z	-1419.32	-0.54	-21.01	-8.53	-349.98	22.62
16	MV-LM1(min)	J[17]	Shear-z	-1419.32	-0.54	-21.01	-8.53	-246.16	25.31
17	MV-LM1(min)	I[17]	Shear-z	-1630.52	-0.51	-53.74	-8.73	-281.8	26.02
17	MV-LM1(min)	J[18]	Shear-z	-1630.52	-0.51	-53.74	-8.73	-8.06	28.59
18	MV-LM1(min)	I[19]	Shear-z	-576.85	0.68	-80.79	2.25	-84.79	28.09
18	MV-LM1(min)	J[20]	Shear-z	-576.85	0.68	-80.79	2.25	326.73	24.61
19	MV-LM1(min)	I[20]	Shear-z	-819.36	0.65	-60.24	3.8	177.87	19.74
19	MV-LM1(min)	J[21]	Shear-z	-819.36	0.65	-60.24	3.8	475.59	16.52
20	MV-LM1(min)	I[21]	Shear-z	-1031.04	0.57	-50.7	3.12	216.42	10.83
20	MV-LM1(min)	J[22]	Shear-z	-1031.04	0.57	-50.7	3.12	460.17	8.1
21	MV-LM1(min)	I[22]	Shear-z	-1181.38	0.47	-46.33	1.73	194.09	3.54
21	MV-LM1(min)	J[23]	Shear-z	-1181.38	0.47	-46.33	1.73	411.37	1.33
22	MV-LM1(min)	I[23]	Shear-z	-1333.84	0.33	-45.17	0.58	114.67	-3.28

22	MV-LM1(min)	J[24]	Shear-z	-1333.84	0.33	-45.17	0.58	322.07	-4.79
23	MV-LM1(min)	I[24]	Shear-z	-1470.24	0.02	-46.85	1.46	13.67	-10.04
23	MV-LM1(min)	J[25]	Shear-z	-1470.24	0.02	-46.85	1.46	225.16	-10.13
24	MV-LM1(min)	I[25]	Shear-z	-1403.67	-0.09	-49.73	1.48	4.25	-10.9
24	MV-LM1(min)	J[26]	Shear-z	-1403.67	-0.09	-49.73	1.48	225.92	-10.49
25	MV-LM1(min)	I[26]	Shear-z	-1315.8	-0.2	-52.47	1.48	21.77	-10.16
25	MV-LM1(min)	J[27]	Shear-z	-1315.8	-0.2	-52.47	1.48	253.86	-9.28
26	MV-LM1(min)	I[27]	Shear-z	-1207.81	-0.3	-54.29	1.39	66.09	-7.98
26	MV-LM1(min)	J[28]	Shear-z	-1207.81	-0.3	-54.29	1.39	305.63	-6.64
27	MV-LM1(min)	I[28]	Shear-z	-1080.33	-0.4	-54.57	1.07	130.85	-4.5
27	MV-LM1(min)	J[29]	Shear-z	-1080.33	-0.4	-54.57	1.07	372.23	-2.73
28	MV-LM1(min)	I[29]	Shear-z	-933.79	-0.49	-52.85	0.46	204.22	0.03
28	MV-LM1(min)	J[30]	Shear-z	-933.79	-0.49	-52.85	0.46	439.78	2.21
29	MV-LM1(min)	I[30]	Shear-z	-768.89	-0.55	-48.84	-0.38	269.72	5.17
29	MV-LM1(min)	J[31]	Shear-z	-768.89	-0.55	-48.84	-0.38	490.18	7.68
30	MV-LM1(min)	I[31]	Shear-z	-740.65	-0.4	-42.72	-1.93	240.44	6.74
30	MV-LM1(min)	J[32]	Shear-z	-740.65	-0.4	-42.72	-1.93	436.59	8.57
31	MV-LM1(min)	I[32]	Shear-z	-758.56	-0.34	-35.21	-0.24	206.01	7.89
31	MV-LM1(min)	J[33]	Shear-z	-758.56	-0.34	-35.21	-0.24	371.15	9.5
32	MV-LM1(min)	I[33]	Shear-z	-694.82	-0.33	-24.93	4.53	104.59	10.46
32	MV-LM1(min)	J[34]	Shear-z	-694.82	-0.33	-24.93	4.53	224.45	12.03
33	MV-LM1(min)	I[34]	Shear-z	-1419.19	0.54	-21	8.84	-350.03	-22.23
33	MV-LM1(min)	J[35]	Shear-z	-1419.19	0.54	-21	8.84	-246.22	-24.88
34	MV-LM1(min)	I[35]	Shear-z	-1630.59	0.5	-53.74	9.18	-281.93	-25.36
34	MV-LM1(min)	J[36]	Shear-z	-1630.59	0.5	-53.74	9.18	-8.17	-27.88
67	MV-LM1(min)	I[1]	Shear-z	14.38	79.14	-658.76	-23.55	-456.43	40.56
67	MV-LM1(min)	J[335]	Shear-z	14.38	79.14	-622.2	-23.55	-127.05	0.99
68	MV-LM1(min)	I[18]	Shear-z	32.39	-79.89	-659.1	25.25	-466.22	-40.62
68	MV-LM1(min)	J[352]	Shear-z	21.97	-76.07	-546.04	25.32	-162.25	0.34
69	MV-LM1(min)	I[37]	Shear-z	-59.5	62.69	-593.82	-10.55	-376.01	39.45
69	MV-LM1(min)	J[336]	Shear-z	-67.37	62.55	-476.04	-9.42	-149.92	9.46
70	MV-LM1(min)	I[38]	Shear-z	-79.08	63.12	-563.36	-8.1	-323.74	41.14
70	MV-LM1(min)	J[337]	Shear-z	-87.27	67.89	-446.65	-8.4	-113.79	10.99
71	MV-LM1(min)	I[39]	Shear-z	-86.11	59.46	-558.37	-4.61	-313.98	41.6
71	MV-LM1(min)	J[338]	Shear-z	-94.3	40.22	-441.2	-3.5	-110.65	7.93
72	MV-LM1(min)	I[40]	Shear-z	-87.31	28.28	-558.21	-1.77	-316.31	20.08
72	MV-LM1(min)	J[339]	Shear-z	-95.29	24.6	-441.19	-1.2	-113.11	5.8
73	MV-LM1(min)	I[41]	Shear-z	-87.49	24.36	-559.26	-0.98	-322.88	17.82
73	MV-LM1(min)	J[340]	Shear-z	-95.37	16.59	-442.68	-0.14	-118.51	4.59
74	MV-LM1(min)	I[42]	Shear-z	-87.15	19.04	-560.12	-0.37	-324.46	14.07
74	MV-LM1(min)	J[341]	Shear-z	-94.92	8.09	-443.68	0.62	-119	2.72
75	MV-LM1(min)	I[43]	Shear-z	-86.49	15.44	-560.85	0.56	-324.28	11.98
75	MV-LM1(min)	J[342]	Shear-z	-94.25	7.72	-444.51	1.17	-118.15	2.9
76	MV-LM1(min)	I[44]	Shear-z	-86.1	37.35	-561.28	0.1	-324.82	28.49
76	MV-LM1(min)	J[343]	Shear-z	-93.87	3.63	-444.51	1.83	-118.24	2.24
77	MV-LM1(min)	I[45]	Shear-z	-85.92	-17.44	-561.35	1.73	-324.49	-12.83
77	MV-LM1(min)	J[344]	Shear-z	-93.69	11.41	-444.6	-0.32	-117.93	2.09
78	MV-LM1(min)	I[46]	Shear-z	-86.1	2.72	-561.11	1.2	-324.4	2.23
78	MV-LM1(min)	J[345]	Shear-z	-93.89	5.65	-444.75	0.28	-117.95	0.88
79	MV-LM1(min)	I[47]	Shear-z	-86.8	5	-560.58	1.78	-326.06	4.55
79	MV-LM1(min)	J[346]	Shear-z	-94.63	11.2	-444.08	0.49	-119.96	2.56
80	MV-LM1(min)	I[48]	Shear-z	-87.17	-2.95	-560.01	2.3	-326.9	-1.22
80	MV-LM1(min)	J[347]	Shear-z	-95.14	0.32	-443.29	1.13	-121.45	0.01
81	MV-LM1(min)	I[49]	Shear-z	-87.04	-9.33	-559.23	2.6	-322.64	-5.74
81	MV-LM1(min)	J[348]	Shear-z	-95.2	-10.65	-441.95	1.77	-117.71	-2.29
82	MV-LM1(min)	I[50]	Shear-z	-85.64	-41.71	-559.45	4.9	-319.94	-28.54
82	MV-LM1(min)	J[349]	Shear-z	-94.13	-28.99	-441.83	3.66	-114.03	-5.39
83	MV-LM1(min)	I[51]	Shear-z	-79.21	-48.44	-564.16	8.03	-328.99	-30.53
83	MV-LM1(min)	J[350]	Shear-z	-87.74	-60.31	-446.9	8.44	-116.19	-9.38
84	MV-LM1(min)	I[52]	Shear-z	-58.69	-33.01	-594.27	8.95	-382.7	-18.37
84	MV-LM1(min)	J[351]	Shear-z	-68	-57.61	-475.17	9.21	-151.13	-8.56

85	MV-LM1(min)	I[69]	Shear-z	50.04	-2.51	-489.46	-19.43	208.32	-0.77
85	MV-LM1(min)	J[87]	Shear-z	46.81	-3.15	-468.13	-20.96	840.07	2.83
86	MV-LM1(min)	I[70]	Shear-z	62.45	3.72	-488.92	18.49	208.69	2.4
86	MV-LM1(min)	J[88]	Shear-z	59.51	4.6	-467.56	20.06	839.51	-3.15
87	MV-LM1(min)	I[71]	Shear-z	39.65	-12.82	-452.4	-0.04	109.96	-14.23
87	MV-LM1(min)	J[89]	Shear-z	36.55	-9.33	-427.39	1.76	668.26	3.85
88	MV-LM1(min)	I[72]	Shear-z	0.79	6.41	-437.15	0.17	113.47	6.53
88	MV-LM1(min)	J[90]	Shear-z	-1.26	11.31	-415.52	2.41	630.55	-5.21
89	MV-LM1(min)	I[73]	Shear-z	-6.01	3.14	-435.14	2.75	107.66	2.68
89	MV-LM1(min)	J[91]	Shear-z	-7.5	5.86	-415.06	4.15	615.01	-3.13
90	MV-LM1(min)	I[74]	Shear-z	-7.34	-5.31	-435.41	2.65	104.65	-5.91
90	MV-LM1(min)	J[92]	Shear-z	-9.12	-5.69	-415.39	2.45	611.82	2.31
91	MV-LM1(min)	I[75]	Shear-z	-6.12	-7.48	-436.18	2.53	102.39	-8.1
91	MV-LM1(min)	J[93]	Shear-z	-8.08	-10	-415.68	1.77	612.37	4.3
92	MV-LM1(min)	I[76]	Shear-z	-4.71	-2.43	-436.72	2.14	102.21	-2.9
92	MV-LM1(min)	J[94]	Shear-z	-6.79	-7.14	-415.64	1.15	615.12	2.92
93	MV-LM1(min)	I[77]	Shear-z	-2.53	1.42	-436.94	1.95	105.07	1.17
93	MV-LM1(min)	J[95]	Shear-z	-4.67	-5.35	-415.38	1.04	620.09	2.17
94	MV-LM1(min)	I[78]	Shear-z	-1.23	13.07	-437.1	2.12	106.49	13.28
94	MV-LM1(min)	J[96]	Shear-z	-3.37	4.54	-415.27	1.5	622.8	-2.37
95	MV-LM1(min)	I[79]	Shear-z	-1.2	13.7	-437.13	-2.86	106.32	14.79
95	MV-LM1(min)	J[97]	Shear-z	-3.37	7.89	-415.26	-1.92	622.84	-3.24
96	MV-LM1(min)	I[80]	Shear-z	-2.33	24.94	-437.03	-2.74	104.76	26.45
96	MV-LM1(min)	J[98]	Shear-z	-4.55	18.22	-415.35	-1.49	620.44	-8
97	MV-LM1(min)	I[81]	Shear-z	-4.31	29.43	-436.88	-2.71	101.85	31.18
97	MV-LM1(min)	J[99]	Shear-z	-6.51	22.34	-415.6	-1.36	615.81	-9.81
98	MV-LM1(min)	I[82]	Shear-z	-5.62	32.01	-436.52	-3.17	100.54	33.82
98	MV-LM1(min)	J[100]	Shear-z	-7.7	25.17	-415.79	-2.03	611.98	-11.16
99	MV-LM1(min)	I[83]	Shear-z	-6.63	26.82	-435.91	-3.33	101.77	28.44
99	MV-LM1(min)	J[101]	Shear-z	-8.44	20.82	-415.69	-2.75	610.49	-9.15
100	MV-LM1(min)	I[84]	Shear-z	-5.14	14.33	-435.69	-3.44	104.38	15.62
100	MV-LM1(min)	J[102]	Shear-z	-6.35	8.12	-415.55	-4.5	612.8	-3.2
101	MV-LM1(min)	I[85]	Shear-z	1.16	6.7	-437.62	-0.76	110.15	7.19
101	MV-LM1(min)	J[103]	Shear-z	0.12	1.42	-416.18	-2.75	626.97	-0.58
102	MV-LM1(min)	I[86]	Shear-z	39.88	20.58	-452.36	-0.64	107.92	22.38
102	MV-LM1(min)	J[104]	Shear-z	38.65	17.79	-427.72	-2.29	664.88	-7.72
103	MV-LM1(min)	I[87]	Shear-z	46.81	-3.15	-468.13	-21.21	843.72	2.83
103	MV-LM1(min)	J[105]	Shear-z	43.12	-1.22	-308.57	-19.34	1133.61	2.82
104	MV-LM1(min)	I[88]	Shear-z	59.51	4.6	-467.56	20.42	844.15	-3.15
104	MV-LM1(min)	J[106]	Shear-z	48.45	1.51	-308.35	18.8	1133.32	-3.15
105	MV-LM1(min)	I[89]	Shear-z	36.55	-9.33	-427.39	1.03	671.11	3.85
105	MV-LM1(min)	J[107]	Shear-z	21.06	-9.35	-264.73	3.2	885.88	18.31
106	MV-LM1(min)	I[90]	Shear-z	-1.26	11.31	-415.52	3.3	630.45	-5.21
106	MV-LM1(min)	J[108]	Shear-z	-18.19	15.4	-256.68	7.52	820	-30.32
107	MV-LM1(min)	I[91]	Shear-z	-7.5	5.86	-415.06	4.61	614.42	-3.13
107	MV-LM1(min)	J[109]	Shear-z	-24.27	4.67	-257.57	6.1	800.63	-9.44
108	MV-LM1(min)	I[92]	Shear-z	-9.12	-5.69	-415.39	2	611.11	2.31
108	MV-LM1(min)	J[110]	Shear-z	-26.24	-10.76	-257.91	1.62	797.19	20.89
109	MV-LM1(min)	I[93]	Shear-z	-8.08	-10	-415.68	0.99	611.74	4.3
109	MV-LM1(min)	J[111]	Shear-z	-25.14	-17.52	-257.81	-0.03	798.74	34.16
110	MV-LM1(min)	I[94]	Shear-z	-6.79	-7.14	-415.64	0.59	614.59	2.92
110	MV-LM1(min)	J[112]	Shear-z	-23.43	-18.73	-257.4	-1.04	803.12	36.51
111	MV-LM1(min)	I[95]	Shear-z	-4.67	-5.35	-415.38	0.62	619.72	2.17
111	MV-LM1(min)	J[113]	Shear-z	-21.19	-17.6	-256.9	-1.18	808.48	34.36
112	MV-LM1(min)	I[96]	Shear-z	-3.37	4.54	-415.27	1.86	622.53	-2.37
112	MV-LM1(min)	J[114]	Shear-z	-20.08	-7.18	-256.62	0.26	810.56	13.88
113	MV-LM1(min)	I[97]	Shear-z	-3.37	7.89	-415.26	-1.3	622.58	-3.24
113	MV-LM1(min)	J[115]	Shear-z	-20.12	0.51	-256.57	-0.77	810.64	-0.85
114	MV-LM1(min)	I[98]	Shear-z	-4.55	18.22	-415.35	-0.07	620.08	-8
114	MV-LM1(min)	J[116]	Shear-z	-21.24	11.85	-256.74	0.71	808.8	-23.14
115	MV-LM1(min)	I[99]	Shear-z	-6.51	22.34	-415.6	0.38	615.3	-9.81

115	MV-LM1(min)	J[117]	Shear-z	-23.39	16.32	-257.17	1.08	803.9	-31.83
116	MV-LM1(min)	I[100]	Shear-z	-7.7	25.17	-415.79	-0.07	611.38	-11.16
116	MV-LM1(min)	J[118]	Shear-z	-25.06	17.46	-257.65	0.25	799.07	-34.03
117	MV-LM1(min)	I[101]	Shear-z	-8.44	20.82	-415.69	-1.13	609.83	-9.15
117	MV-LM1(min)	J[119]	Shear-z	-25.94	13.19	-257.9	-1.23	797.07	-25.65
118	MV-LM1(min)	I[102]	Shear-z	-6.35	8.12	-415.55	-3.87	612.31	-3.2
118	MV-LM1(min)	J[120]	Shear-z	-23.52	-0.62	-257.77	-5.6	799.9	1.52
119	MV-LM1(min)	I[103]	Shear-z	0.12	1.42	-416.18	-2.64	626.98	-0.58
119	MV-LM1(min)	J[121]	Shear-z	-16.77	-9.54	-257.16	-6.95	818.08	18.83
120	MV-LM1(min)	I[104]	Shear-z	38.65	17.79	-427.72	-0.9	667.89	-7.72
120	MV-LM1(min)	J[122]	Shear-z	21.63	11.77	-264.91	-3.14	884.12	-23.08
121	MV-LM1(min)	I[105]	Shear-z	43.76	-6.3	-311.96	-16.31	1089.02	5.05
121	MV-LM1(min)	J[123]	Shear-z	39.48	-6.15	-293.29	-16.29	1296.91	11.91
122	MV-LM1(min)	I[106]	Shear-z	44.15	9.48	-311.3	15.71	1090.16	-0.06
122	MV-LM1(min)	J[124]	Shear-z	40.09	9.11	-292.68	15.76	1296.94	-11.74
123	MV-LM1(min)	I[107]	Shear-z	116.97	-1.95	-300.24	1.19	806.95	-3.68
123	MV-LM1(min)	J[125]	Shear-z	95.85	4.73	-280.91	5.32	1022.98	-0.39
124	MV-LM1(min)	I[108]	Shear-z	83.43	11.95	-299.71	5.71	741.23	17.39
124	MV-LM1(min)	J[126]	Shear-z	61.79	17.63	-284.31	9.38	957.82	-0.79
125	MV-LM1(min)	I[109]	Shear-z	78.14	6.15	-300.9	4.05	721.91	8.14
125	MV-LM1(min)	J[127]	Shear-z	56	9.04	-286.87	6.4	939.88	-0.83
126	MV-LM1(min)	I[110]	Shear-z	75.96	-1.6	-301.24	0.25	718.83	-2.64
126	MV-LM1(min)	J[128]	Shear-z	53.49	-2.64	-287.31	0.57	937.16	0.01
127	MV-LM1(min)	I[111]	Shear-z	78.17	-6.34	-300.99	-1.44	719.96	-9.61
127	MV-LM1(min)	J[129]	Shear-z	55.54	-10.27	-286.65	-2.12	938.38	0.15
128	MV-LM1(min)	I[112]	Shear-z	81.22	-9.14	-300.43	-2.62	723.69	-13.86
128	MV-LM1(min)	J[130]	Shear-z	58.47	-15.28	-285.56	-3.76	941.86	0.11
129	MV-LM1(min)	I[113]	Shear-z	84.25	-9.71	-299.77	-2.37	727.86	-14.87
129	MV-LM1(min)	J[131]	Shear-z	61.46	-17.34	-284.47	-3.49	945.55	-0.02
130	MV-LM1(min)	I[114]	Shear-z	86.15	-6.72	-299.4	-1	730.4	-10.76
130	MV-LM1(min)	J[132]	Shear-z	63.37	-15.18	-283.83	-1.77	947.85	-0.35
131	MV-LM1(min)	I[115]	Shear-z	86.18	-1.67	-299.34	0.65	730.61	-1.81
131	MV-LM1(min)	J[133]	Shear-z	63.39	-9.25	-283.73	1.13	948.03	0.4
132	MV-LM1(min)	I[116]	Shear-z	84.19	2.33	-299.62	2.02	728.23	3.83
132	MV-LM1(min)	J[134]	Shear-z	61.37	-5	-284.2	2.93	945.84	0.08
133	MV-LM1(min)	I[117]	Shear-z	81.24	5.2	-300.2	2.85	724.64	7.92
133	MV-LM1(min)	J[135]	Shear-z	58.46	-1.63	-285.16	3.91	942.71	-0.1
134	MV-LM1(min)	I[118]	Shear-z	78.21	5.36	-300.82	1.87	721.13	8.1
134	MV-LM1(min)	J[136]	Shear-z	55.54	-0.93	-286.27	2.64	939.57	-0.16
135	MV-LM1(min)	I[119]	Shear-z	76.12	2.94	-301.17	0.32	719.04	4.63
135	MV-LM1(min)	J[137]	Shear-z	53.67	-3.12	-287.07	0.27	937.53	-0.03
136	MV-LM1(min)	I[120]	Shear-z	78.14	-1.81	-301.02	-1.68	721.35	-2.19
136	MV-LM1(min)	J[138]	Shear-z	56.04	-8.28	-286.93	-2.99	939.55	0.22
137	MV-LM1(min)	I[121]	Shear-z	83.96	-8.74	-300.08	-5.15	739.63	-12.66
137	MV-LM1(min)	J[139]	Shear-z	62.74	-16.82	-284.82	-8.41	956.54	0.66
138	MV-LM1(min)	I[122]	Shear-z	118.69	5.04	-300.24	-1.55	806.23	8.26
138	MV-LM1(min)	J[140]	Shear-z	98.52	-3.45	-280.96	-5.55	1021.87	0.26
139	MV-LM1(min)	I[123]	Shear-z	39.48	-6.15	-293.29	-16.29	1296.91	11.91
139	MV-LM1(min)	J[141]	Shear-z	2.92	-15.74	-150.05	-17.7	818.72	29.02
140	MV-LM1(min)	I[124]	Shear-z	40.09	9.11	-292.68	15.76	1296.94	-11.74
140	MV-LM1(min)	J[142]	Shear-z	-0.04	20.71	-149.05	16.83	816.97	-36.2
141	MV-LM1(min)	I[125]	Shear-z	95.85	4.73	-280.91	5.32	1022.98	-0.39
141	MV-LM1(min)	J[143]	Shear-z	4.11	8.3	-133.42	10.53	712.78	-14.05
142	MV-LM1(min)	I[126]	Shear-z	61.79	17.63	-284.31	9.38	957.82	-0.79
142	MV-LM1(min)	J[144]	Shear-z	-41.41	29.88	-142.25	16.55	674.96	-47.41
143	MV-LM1(min)	I[127]	Shear-z	56	9.04	-286.87	6.4	939.88	-0.83
143	MV-LM1(min)	J[145]	Shear-z	-44.67	15.98	-146.59	11.43	665.66	-26.32
144	MV-LM1(min)	I[128]	Shear-z	53.49	-2.64	-287.31	0.57	937.16	0.01
144	MV-LM1(min)	J[146]	Shear-z	-46.24	-2.97	-147.29	1.88	664.18	3.44
145	MV-LM1(min)	I[129]	Shear-z	55.54	-10.27	-286.65	-2.12	938.38	0.15
145	MV-LM1(min)	J[147]	Shear-z	-42.75	-16.12	-146.2	-2.61	664.97	23.55

146	MV-LM1(min)	I[130]	Shear-z	58.47	-15.28	-285.56	-3.76	941.86	0.11
146	MV-LM1(min)	J[148]	Shear-z	-37.8	-25.32	-144.45	-5.34	666.62	37.47
147	MV-LM1(min)	I[131]	Shear-z	61.46	-17.34	-284.47	-3.49	945.55	-0.02
147	MV-LM1(min)	J[149]	Shear-z	-33.29	-29.34	-142.72	-5.01	667.85	43.3
148	MV-LM1(min)	I[132]	Shear-z	63.37	-15.18	-283.83	-1.77	947.85	-0.35
148	MV-LM1(min)	J[150]	Shear-z	-31.17	-26.8	-141.69	-2.31	668.13	38.98
149	MV-LM1(min)	I[133]	Shear-z	63.39	-9.25	-283.73	1.13	948.03	0.4
149	MV-LM1(min)	J[151]	Shear-z	-31.21	-19.82	-141.53	1.14	668.07	31.08
150	MV-LM1(min)	I[134]	Shear-z	61.37	-5	-284.2	2.93	945.84	0.08
150	MV-LM1(min)	J[152]	Shear-z	-33.65	-13.78	-142.27	3.95	667.3	21.53
151	MV-LM1(min)	I[135]	Shear-z	58.46	-1.63	-285.16	3.91	942.71	-0.1
151	MV-LM1(min)	J[153]	Shear-z	-37.92	-8.86	-143.78	5.42	666.57	13.88
152	MV-LM1(min)	I[136]	Shear-z	55.54	-0.93	-286.27	2.64	939.57	-0.16
152	MV-LM1(min)	J[154]	Shear-z	-42.92	-8.66	-145.53	3.3	664.9	13.65
153	MV-LM1(min)	I[137]	Shear-z	53.67	-3.12	-287.07	0.27	937.53	-0.03
153	MV-LM1(min)	J[155]	Shear-z	-46.22	-12.43	-146.81	-0.63	663.88	19.63
154	MV-LM1(min)	I[138]	Shear-z	56.04	-8.28	-286.93	-2.99	939.55	0.22
154	MV-LM1(min)	J[156]	Shear-z	-44.92	-19.99	-146.53	-5.94	665.11	31.41
155	MV-LM1(min)	I[139]	Shear-z	62.74	-16.82	-284.82	-8.41	956.54	0.66
155	MV-LM1(min)	J[157]	Shear-z	-40.18	-33.21	-142.88	-14.97	674.08	52.22
156	MV-LM1(min)	I[140]	Shear-z	98.52	-3.45	-280.96	-5.55	1021.87	0.26
156	MV-LM1(min)	J[158]	Shear-z	5.76	-10.73	-133.48	-10.54	712.17	17.56
157	MV-LM1(min)	I[141]	Shear-z	-52.51	-7.74	-157.55	-6.11	773.39	1.84
157	MV-LM1(min)	J[159]	Shear-z	-52.71	-7.74	-157.51	-6.18	999.63	13.36
158	MV-LM1(min)	I[142]	Shear-z	-60.32	11.72	-156.62	5.07	774.59	3.66
158	MV-LM1(min)	J[160]	Shear-z	-60.51	11.72	-156.59	5.14	999.56	-13.84
159	MV-LM1(min)	I[143]	Shear-z	59.99	7.88	-163.4	5.83	850.69	12.5
159	MV-LM1(min)	J[161]	Shear-z	43.45	5.81	-158.56	2.07	829.86	0.25
160	MV-LM1(min)	I[144]	Shear-z	32.6	20.4	-175.91	10.95	801.16	28.94
160	MV-LM1(min)	J[162]	Shear-z	25.25	30.22	-170.69	11.75	811.4	-1.62
161	MV-LM1(min)	I[145]	Shear-z	28.94	13.43	-180.48	6.15	790.84	21.37
161	MV-LM1(min)	J[163]	Shear-z	18.82	21.52	-175.77	6.52	811.91	1.14
162	MV-LM1(min)	I[146]	Shear-z	28.6	6.86	-181.13	1.76	789.36	12.45
162	MV-LM1(min)	J[164]	Shear-z	17.65	12.16	-176.63	1.2	812.28	1.88
163	MV-LM1(min)	I[147]	Shear-z	33.3	-0.04	-179.85	-1.86	790.96	2.8
163	MV-LM1(min)	J[165]	Shear-z	20.98	2.8	-175.36	-3.14	811.61	2.39
164	MV-LM1(min)	I[148]	Shear-z	39.98	-7.45	-177.86	-4.2	793.2	-8.08
164	MV-LM1(min)	J[166]	Shear-z	26.07	-6.82	-173.24	-6.3	810.28	2.5
165	MV-LM1(min)	I[149]	Shear-z	45.08	-15.6	-175.91	-4.03	794.09	-20.77
165	MV-LM1(min)	J[167]	Shear-z	29.39	-16.43	-171.05	-6.59	807.36	1.99
166	MV-LM1(min)	I[150]	Shear-z	47.76	-21.59	-174.78	-2.11	794.46	-30.55
166	MV-LM1(min)	J[168]	Shear-z	30.62	-23.48	-169.56	-5.15	805.26	1.23
167	MV-LM1(min)	I[151]	Shear-z	47.67	-24.61	-174.61	1.04	794.28	-38.84
167	MV-LM1(min)	J[169]	Shear-z	30.51	-18.42	-169.27	4.19	804.68	-1.31
168	MV-LM1(min)	I[152]	Shear-z	45.13	-27.06	-175.46	3.15	794.12	-43.3
168	MV-LM1(min)	J[170]	Shear-z	29.41	-21.4	-170.49	5.88	806.58	-2.07
169	MV-LM1(min)	I[153]	Shear-z	40.09	-26.9	-177.18	4.26	793.46	-43.54
169	MV-LM1(min)	J[171]	Shear-z	26.11	-21.35	-172.51	6.59	809.46	-2.58
170	MV-LM1(min)	I[154]	Shear-z	33.32	-24.79	-179.18	2.51	791.22	-40.11
170	MV-LM1(min)	J[172]	Shear-z	20.89	-21.22	-174.69	4.06	810.87	-2.42
171	MV-LM1(min)	I[155]	Shear-z	28.33	-22.18	-180.66	-0.53	789.47	-35.45
171	MV-LM1(min)	J[173]	Shear-z	17.18	-20.36	-176.24	0.28	811.79	-1.85
172	MV-LM1(min)	I[156]	Shear-z	28.18	-20.82	-180.45	-4.57	790.94	-32.38
172	MV-LM1(min)	J[174]	Shear-z	17.57	-22.23	-175.93	-4.72	812.19	-1.01
173	MV-LM1(min)	I[157]	Shear-z	30.66	-23.67	-176.54	-9.4	801.17	-33.67
173	MV-LM1(min)	J[175]	Shear-z	22.35	-27.09	-171.66	-10.11	812.54	1.89
174	MV-LM1(min)	I[158]	Shear-z	57.18	-7.6	-163.47	-6.12	850.94	-11.75
174	MV-LM1(min)	J[176]	Shear-z	41.42	-0.93	-158.62	-2.65	829.55	0.15
175	MV-LM1(min)	I[159]	Shear-z	-52.71	-7.74	-157.51	-6.18	999.63	13.36
175	MV-LM1(min)	J[177]	Shear-z	-9.21	-19.88	-63.34	-16.4	396.88	33.86
176	MV-LM1(min)	I[160]	Shear-z	-60.51	11.72	-156.59	5.14	999.56	-13.84

176	MV-LM1(min)	J[178]	Shear-z	-21.42	26.73	-61.74	14.64	394.31	-44.91
177	MV-LM1(min)	I[161]	Shear-z	43.45	5.81	-158.56	2.07	829.86	0.25
177	MV-LM1(min)	J[179]	Shear-z	7.28	-1.28	-45.22	-5.03	292.4	1.47
178	MV-LM1(min)	I[162]	Shear-z	25.25	30.22	-170.69	11.75	811.4	-1.62
178	MV-LM1(min)	J[180]	Shear-z	-15.76	41.9	-57.21	14.5	329.11	-64.3
179	MV-LM1(min)	I[163]	Shear-z	18.82	21.52	-175.77	6.52	811.91	1.14
179	MV-LM1(min)	J[181]	Shear-z	-44.78	29.99	-62.93	7.75	378.52	-42.53
180	MV-LM1(min)	I[164]	Shear-z	17.65	12.16	-176.63	1.2	812.28	1.88
180	MV-LM1(min)	J[182]	Shear-z	-30.2	17.31	-64.35	0.91	346.46	-23.93
181	MV-LM1(min)	I[165]	Shear-z	20.98	2.8	-175.36	-3.14	811.61	2.39
181	MV-LM1(min)	J[183]	Shear-z	-28.4	4.58	-63.16	-4.8	343.49	-4.44
182	MV-LM1(min)	I[166]	Shear-z	26.07	-6.82	-173.24	-6.3	810.28	2.5
182	MV-LM1(min)	J[184]	Shear-z	-24.68	-8.12	-60.75	-9.38	337.63	14.69
183	MV-LM1(min)	I[167]	Shear-z	29.39	-16.43	-171.05	-6.59	807.36	1.99
183	MV-LM1(min)	J[185]	Shear-z	-22.65	-19.81	-58.02	-10.23	329.86	31.75
184	MV-LM1(min)	I[168]	Shear-z	30.62	-23.48	-169.56	-5.15	805.26	1.23
184	MV-LM1(min)	J[186]	Shear-z	-22.39	-27.84	-55.97	-8.91	323.97	43.06
185	MV-LM1(min)	I[169]	Shear-z	30.51	-18.42	-169.27	4.19	804.68	-1.31
185	MV-LM1(min)	J[187]	Shear-z	-32.39	-21.77	-55.63	5.84	343.71	29.83
186	MV-LM1(min)	I[170]	Shear-z	29.41	-21.4	-170.49	5.88	806.58	-2.07
186	MV-LM1(min)	J[188]	Shear-z	-22.7	-17.04	-57.28	9.53	327.75	23.47
187	MV-LM1(min)	I[171]	Shear-z	26.11	-21.35	-172.51	6.59	809.46	-2.58
187	MV-LM1(min)	J[189]	Shear-z	-24.68	-16.34	-59.85	9.97	335.25	21.95
188	MV-LM1(min)	I[172]	Shear-z	20.89	-21.22	-174.69	4.06	810.87	-2.42
188	MV-LM1(min)	J[190]	Shear-z	-28.59	-18.01	-62.39	6.11	341.49	24.58
189	MV-LM1(min)	I[173]	Shear-z	17.18	-20.36	-176.24	0.28	811.79	-1.85
189	MV-LM1(min)	J[191]	Shear-z	-30.87	-19.17	-64	0.98	345.6	26.79
190	MV-LM1(min)	I[174]	Shear-z	17.57	-22.23	-175.93	-4.72	812.19	-1.01
190	MV-LM1(min)	J[192]	Shear-z	-46.52	-25.18	-63.26	-5.58	379.61	35.49
191	MV-LM1(min)	I[175]	Shear-z	22.35	-27.09	-171.66	-10.11	812.54	1.89
191	MV-LM1(min)	J[193]	Shear-z	-19.45	-35.1	-58.46	-12.58	332.45	54.45
192	MV-LM1(min)	I[176]	Shear-z	41.42	-0.93	-158.62	-2.65	829.55	0.15
192	MV-LM1(min)	J[194]	Shear-z	7.5	13.19	-45.22	4	290.61	-18.97
193	MV-LM1(min)	I[177]	Shear-z	-87.91	24.99	-73.92	-0.55	343.59	53.78
193	MV-LM1(min)	J[195]	Shear-z	-87.91	24.99	-73.92	-0.55	454.47	16.3
194	MV-LM1(min)	I[178]	Shear-z	-108.1	-32.73	-74.75	-1.74	342.53	-69.78
194	MV-LM1(min)	J[196]	Shear-z	-108.1	-32.73	-74.75	-1.74	454.66	-20.69
195	MV-LM1(min)	I[179]	Shear-z	-21.21	-31.86	-62.36	-5.08	307.65	-64.77
195	MV-LM1(min)	J[197]	Shear-z	-21.21	-31.86	-62.36	-5.08	401.19	-16.97
196	MV-LM1(min)	I[180]	Shear-z	-16.2	8.24	-75.54	3.26	311.54	13.95
196	MV-LM1(min)	J[198]	Shear-z	-16.2	8.24	-75.54	3.26	424.85	1.59
197	MV-LM1(min)	I[181]	Shear-z	-28.22	26.01	-81.5	6.29	324.64	51.32
197	MV-LM1(min)	J[199]	Shear-z	-28.22	26.01	-81.5	6.29	446.89	12.31
198	MV-LM1(min)	I[182]	Shear-z	-30.92	33.99	-83.17	4.83	325.41	67.69
198	MV-LM1(min)	J[200]	Shear-z	-30.92	33.99	-83.17	4.83	450.16	16.69
199	MV-LM1(min)	I[183]	Shear-z	-28.23	38.92	-81.69	3.04	323.31	77.86
199	MV-LM1(min)	J[201]	Shear-z	-28.23	38.92	-81.69	3.04	445.85	19.49
200	MV-LM1(min)	I[184]	Shear-z	-23.81	36.53	-78.84	0.99	319.08	73.5
200	MV-LM1(min)	J[202]	Shear-z	-23.81	36.53	-78.84	0.99	437.34	18.69
201	MV-LM1(min)	I[185]	Shear-z	-21.26	19.31	-75.86	-0.44	312.95	39.63
201	MV-LM1(min)	J[203]	Shear-z	-21.26	19.31	-75.86	-0.44	426.74	10.67
202	MV-LM1(min)	I[186]	Shear-z	-19.75	0.39	-73.8	-0.77	308.95	2.32
202	MV-LM1(min)	J[204]	Shear-z	-19.75	0.39	-73.8	-0.77	419.65	1.73
203	MV-LM1(min)	I[187]	Shear-z	-19.67	-41.72	-73.41	-1.64	308.04	-82.95
203	MV-LM1(min)	J[205]	Shear-z	-19.67	-41.72	-73.41	-1.64	418.15	-20.37
204	MV-LM1(min)	I[188]	Shear-z	-21.15	-55.55	-75.14	-1.58	311.19	-110.31
204	MV-LM1(min)	J[206]	Shear-z	-21.15	-55.55	-75.14	-1.58	423.91	-26.99
205	MV-LM1(min)	I[189]	Shear-z	-23.68	-62.84	-77.91	-1.91	316.85	-124.83
205	MV-LM1(min)	J[207]	Shear-z	-23.68	-62.84	-77.91	-1.91	433.71	-30.57
206	MV-LM1(min)	I[190]	Shear-z	-28.33	-54.71	-80.9	-3.13	321.49	-108.7
206	MV-LM1(min)	J[208]	Shear-z	-28.33	-54.71	-80.9	-3.13	442.83	-26.63

207	MV-LM1(min)	I[191]	Shear-z	-31.72	-38.47	-82.81	-4.15	324.73	-76.41
207	MV-LM1(min)	J[209]	Shear-z	-31.72	-38.47	-82.81	-4.15	448.94	-18.71
208	MV-LM1(min)	I[192]	Shear-z	-30.71	-21.42	-81.9	-5.12	325.61	-42.33
208	MV-LM1(min)	J[210]	Shear-z	-30.71	-21.42	-81.9	-5.12	448.47	-10.2
209	MV-LM1(min)	I[193]	Shear-z	-21.58	-1.66	-76.68	-1.92	314.82	-0.98
209	MV-LM1(min)	J[211]	Shear-z	-21.58	-1.66	-76.68	-1.92	429.84	1.51
210	MV-LM1(min)	I[194]	Shear-z	-23.79	32.47	-63.21	4.33	307.17	66.38
210	MV-LM1(min)	J[212]	Shear-z	-23.79	32.47	-63.21	4.33	401.99	17.68
211	MV-LM1(min)	I[195]	Shear-z	-87.91	24.99	-73.92	-2.5	461.32	16.3
211	MV-LM1(min)	J[213]	Shear-z	-173.43	46.15	-57.72	-6.39	228.14	-42.28
212	MV-LM1(min)	I[196]	Shear-z	-108.1	-32.73	-74.75	0.81	463.08	-20.69
212	MV-LM1(min)	J[214]	Shear-z	-217.97	-68.85	-60.91	3.65	239.61	64.35
213	MV-LM1(min)	I[197]	Shear-z	-21.21	-31.86	-62.36	-2.6	402.84	-16.97
213	MV-LM1(min)	J[215]	Shear-z	-14.71	-48.79	-7.27	-9.45	139.44	48.34
214	MV-LM1(min)	I[198]	Shear-z	-16.2	8.24	-75.54	2.61	426.11	1.59
214	MV-LM1(min)	J[216]	Shear-z	-2.39	0.42	-13.39	2.14	151.13	-3.29
215	MV-LM1(min)	I[199]	Shear-z	-28.22	26.01	-81.5	4.26	449.09	12.31
215	MV-LM1(min)	J[217]	Shear-z	-49.96	34.28	-17.18	6.27	226.1	-33.83
216	MV-LM1(min)	I[200]	Shear-z	-30.92	33.99	-83.17	2.18	452.57	16.69
216	MV-LM1(min)	J[218]	Shear-z	-24.33	42.25	-20.22	2.85	185.96	-42
217	MV-LM1(min)	I[201]	Shear-z	-28.23	38.92	-81.69	0	448.05	19.49
217	MV-LM1(min)	J[219]	Shear-z	-21.91	51.57	-19.49	0.76	182.53	-51.05
218	MV-LM1(min)	I[202]	Shear-z	-23.81	36.53	-78.84	-1.86	439.19	18.69
218	MV-LM1(min)	J[220]	Shear-z	-16.98	54.2	-16.85	-1.4	170.37	-53.36
219	MV-LM1(min)	I[203]	Shear-z	-21.26	19.31	-75.86	-1.94	428.39	10.67
219	MV-LM1(min)	J[221]	Shear-z	-13.54	41.68	-13.69	-1.91	154.42	-40.34
220	MV-LM1(min)	I[204]	Shear-z	-19.75	0.39	-73.8	-0.8	421.19	1.73
220	MV-LM1(min)	J[222]	Shear-z	-5.61	29.59	-10.99	-0.42	141.19	-28.04
221	MV-LM1(min)	I[205]	Shear-z	-19.67	-41.72	-73.41	1.61	419.69	-20.37
221	MV-LM1(min)	J[223]	Shear-z	-5.55	-53.61	-10.5	0.88	138.57	53.23
222	MV-LM1(min)	I[206]	Shear-z	-21.15	-55.55	-75.14	2.75	425.56	-26.99
222	MV-LM1(min)	J[224]	Shear-z	-13.5	-66.6	-12.9	2.5	150.07	66.51
223	MV-LM1(min)	I[207]	Shear-z	-23.68	-62.84	-77.91	2.99	435.56	-30.57
223	MV-LM1(min)	J[225]	Shear-z	-17.01	-67.87	-15.95	2.26	165.44	67.7
224	MV-LM1(min)	I[208]	Shear-z	-28.33	-54.71	-80.9	1.13	445.04	-26.63
224	MV-LM1(min)	J[226]	Shear-z	-22.31	-54.46	-18.86	0.05	179.1	54.08
225	MV-LM1(min)	I[209]	Shear-z	-31.72	-38.47	-82.81	-1.15	451.41	-18.71
225	MV-LM1(min)	J[227]	Shear-z	-25.57	-35.11	-20.13	-2.22	185.62	34.52
226	MV-LM1(min)	I[210]	Shear-z	-30.71	-21.42	-81.9	-3.45	450.86	-10.2
226	MV-LM1(min)	J[228]	Shear-z	-52.75	-23.8	-17.75	-5.76	229.29	22.89
227	MV-LM1(min)	I[211]	Shear-z	-21.58	-1.66	-76.68	-1.79	431.52	1.51
227	MV-LM1(min)	J[229]	Shear-z	-5.7	-2.36	-14.02	-1.12	155.62	5.39
228	MV-LM1(min)	I[212]	Shear-z	-23.79	32.47	-63.21	1.79	403.84	17.68
228	MV-LM1(min)	J[230]	Shear-z	-11.99	47.63	-7.55	7.45	135.85	-46.85
229	MV-LM1(min)	I[213]	Shear-z	-116.51	511.1	-104.36	-67.7	37.35	403.97
229	MV-LM1(min)	J[353]	Shear-z	-116.51	511.1	-104.36	-67.7	141.71	-107.13
230	MV-LM1(min)	I[214]	Shear-z	-134.27	-625.97	-118.78	84.31	46.68	-494.2
230	MV-LM1(min)	J[370]	Shear-z	-134.27	-625.97	-118.78	84.31	165.46	131.77
231	MV-LM1(min)	I[215]	Shear-z	2.69	-285.97	-6.51	12.27	116.97	-212.66
231	MV-LM1(min)	J[354]	Shear-z	2.69	-285.97	-6.51	12.27	123.47	73.3
232	MV-LM1(min)	I[216]	Shear-z	2.72	-297.46	-12.69	23.1	140.05	-233.52
232	MV-LM1(min)	J[355]	Shear-z	2.72	-297.46	-12.69	23.1	152.74	63.95
233	MV-LM1(min)	I[217]	Shear-z	-6.7	87.67	-20.59	-1.52	157.53	61.32
233	MV-LM1(min)	J[356]	Shear-z	-6.7	87.67	-20.59	-1.52	178.12	-26.35
234	MV-LM1(min)	I[218]	Shear-z	-8.03	227.48	-23.31	-11.89	163.89	171.59
234	MV-LM1(min)	J[357]	Shear-z	-8.03	227.48	-23.31	-11.89	187.19	-55.9
235	MV-LM1(min)	I[219]	Shear-z	-3.75	300.11	-20.86	-19.33	158.3	232.32
235	MV-LM1(min)	J[358]	Shear-z	-3.75	300.11	-20.86	-19.33	179.16	-67.79
236	MV-LM1(min)	I[220]	Shear-z	-1.77	330.34	-17.16	-23.59	147.19	258.6
236	MV-LM1(min)	J[359]	Shear-z	-1.77	330.34	-17.16	-23.59	164.35	-71.74
237	MV-LM1(min)	I[221]	Shear-z	-0.42	313.15	-13.48	-23.74	133.7	246.41

237	MV-LM1(min)	J[360]	Shear-z	-0.42	313.15	-13.48	-23.74	147.19	-66.74
238	MV-LM1(min)	I[222]	Shear-z	0.91	343.23	-10.8	-22.53	134.61	264.66
238	MV-LM1(min)	J[361]	Shear-z	0.91	343.23	-10.8	-22.53	145.41	-78.56
239	MV-LM1(min)	I[223]	Shear-z	0.77	-360.47	-10.42	21.35	132.11	-276.86
239	MV-LM1(min)	J[362]	Shear-z	0.77	-360.47	-10.42	21.35	142.54	83.62
240	MV-LM1(min)	I[224]	Shear-z	-1.8	-396.3	-13.03	24.46	137.22	-306.4
240	MV-LM1(min)	J[363]	Shear-z	-1.8	-396.3	-13.03	24.46	150.24	89.9
241	MV-LM1(min)	I[225]	Shear-z	-1.96	-336.59	-16.27	23.25	142.06	-263.45
241	MV-LM1(min)	J[364]	Shear-z	-1.96	-336.59	-16.27	23.25	158.33	73.14
242	MV-LM1(min)	I[226]	Shear-z	-3.95	-303.07	-20.25	19.85	155.1	-235.36
242	MV-LM1(min)	J[365]	Shear-z	-3.95	-303.07	-20.25	19.85	175.35	67.71
243	MV-LM1(min)	I[227]	Shear-z	-5.72	-204.8	-22.7	11.85	159.43	-156.39
243	MV-LM1(min)	J[366]	Shear-z	-5.72	-204.8	-22.7	11.85	182.13	48.41
244	MV-LM1(min)	I[228]	Shear-z	-5.08	-82.16	-20.69	2.04	152.12	-58.54
244	MV-LM1(min)	J[367]	Shear-z	-5.08	-82.16	-20.69	2.04	172.81	23.62
245	MV-LM1(min)	I[229]	Shear-z	4.15	243.28	-12.82	-21.43	133.63	193.18
245	MV-LM1(min)	J[368]	Shear-z	4.15	243.28	-12.82	-21.43	146.45	-50.1
246	MV-LM1(min)	I[230]	Shear-z	2.35	296.77	-7.04	-14.56	117.2	222.85
246	MV-LM1(min)	J[369]	Shear-z	2.35	296.77	-7.04	-14.56	124.25	-73.92
247	MV-LM1(min)	I[1]	Shear-z	960.1	-89.95	-502.59	20.28	-598.03	-216
247	MV-LM1(min)	J[231]	Shear-z	960.1	-89.95	-502.59	20.28	510.63	-17.59
248	MV-LM1(min)	I[19]	Shear-z	950.5	90.85	-502.08	-24.85	-591.87	218.03
248	MV-LM1(min)	J[232]	Shear-z	950.5	90.85	-502.08	-24.85	515.66	17.63
249	MV-LM1(min)	I[231]	Shear-z	960.1	-89.95	-502.59	20.28	510.63	-17.59
249	MV-LM1(min)	J[37]	Shear-z	960.1	-89.95	-502.59	20.28	1619.28	180.83
250	MV-LM1(min)	I[232]	Shear-z	950.5	90.85	-502.08	-24.85	515.66	17.63
250	MV-LM1(min)	J[53]	Shear-z	950.5	90.85	-502.08	-24.85	1623.2	-182.76
251	MV-LM1(min)	I[37]	Shear-z	1556.72	-86.8	-381.62	15.57	723.68	-226.45
251	MV-LM1(min)	J[233]	Shear-z	1556.72	-86.8	-381.62	15.57	1565.49	-34.98
252	MV-LM1(min)	I[53]	Shear-z	1556.37	86.45	-381.61	-17.06	723.52	225.04
252	MV-LM1(min)	J[234]	Shear-z	1556.37	86.45	-381.61	-17.06	1565.31	34.35
253	MV-LM1(min)	I[233]	Shear-z	1556.72	-86.8	-381.62	15.57	1565.49	-34.98
253	MV-LM1(min)	J[38]	Shear-z	1556.72	-86.8	-381.62	15.57	2407.3	156.49
254	MV-LM1(min)	I[234]	Shear-z	1556.37	86.45	-381.61	-17.06	1565.31	34.35
254	MV-LM1(min)	J[54]	Shear-z	1556.37	86.45	-381.61	-17.06	2407.11	-156.35
255	MV-LM1(min)	I[38]	Shear-z	1847.92	-70.75	-316.9	-44.68	1171.49	-200.59
255	MV-LM1(min)	J[235]	Shear-z	1847.92	-70.75	-316.9	-44.68	1870.54	-44.53
256	MV-LM1(min)	I[54]	Shear-z	1849.68	70.68	-316.94	44.3	1171	200.36
256	MV-LM1(min)	J[236]	Shear-z	1849.68	70.68	-316.94	44.3	1870.14	44.45
257	MV-LM1(min)	I[235]	Shear-z	1847.92	-70.75	-316.9	-44.68	1870.54	-44.53
257	MV-LM1(min)	J[39]	Shear-z	1847.92	-70.75	-316.9	-44.68	2569.59	111.53
258	MV-LM1(min)	I[236]	Shear-z	1849.68	70.68	-316.94	44.3	1870.14	44.45
258	MV-LM1(min)	J[55]	Shear-z	1849.68	70.68	-316.94	44.3	2569.28	-111.46
259	MV-LM1(min)	I[39]	Shear-z	1817.5	-59.13	-284.21	-112.06	1165.33	-174.53
259	MV-LM1(min)	J[237]	Shear-z	1817.5	-59.13	-284.21	-112.06	1792.26	-44.09
260	MV-LM1(min)	I[55]	Shear-z	1819.24	59.09	-284.23	111.97	1165.22	174.34
260	MV-LM1(min)	J[238]	Shear-z	1819.24	59.09	-284.23	111.97	1792.2	43.99
261	MV-LM1(min)	I[237]	Shear-z	1817.5	-59.13	-284.21	-112.06	1792.26	-44.09
261	MV-LM1(min)	J[40]	Shear-z	1817.5	-59.13	-284.21	-112.06	2419.19	86.35
262	MV-LM1(min)	I[238]	Shear-z	1819.24	59.09	-284.23	111.97	1792.2	43.99
262	MV-LM1(min)	J[56]	Shear-z	1819.24	59.09	-284.23	111.97	2419.18	-86.36
263	MV-LM1(min)	I[40]	Shear-z	1479.3	-52.18	-274.7	-150.67	781.86	-157.38
263	MV-LM1(min)	J[239]	Shear-z	1479.3	-52.18	-274.7	-150.67	1387.82	-42.26
264	MV-LM1(min)	I[56]	Shear-z	1480.39	52.17	-274.71	150.67	782.07	157.28
264	MV-LM1(min)	J[240]	Shear-z	1480.39	52.17	-274.71	150.67	1388.04	42.21
265	MV-LM1(min)	I[239]	Shear-z	1479.3	-52.18	-274.7	-150.67	1387.82	-42.26
265	MV-LM1(min)	J[41]	Shear-z	1479.3	-52.18	-274.7	-150.67	1993.78	72.85
266	MV-LM1(min)	I[240]	Shear-z	1480.39	52.17	-274.71	150.67	1388.04	42.21
266	MV-LM1(min)	J[57]	Shear-z	1480.39	52.17	-274.71	150.67	1994.02	-72.87
267	MV-LM1(min)	I[41]	Shear-z	1152.71	-58.42	-282.29	-162.11	483.25	-165.31
267	MV-LM1(min)	J[241]	Shear-z	1152.71	-58.42	-282.29	-162.11	1105.96	-36.44

268	MV-LM1(min)	I[57]	Shear-z	1154.1	58.4	-282.3	161.99	483.36	165.21
268	MV-LM1(min)	J[242]	Shear-z	1154.1	58.4	-282.3	161.99	1106.07	36.38
269	MV-LM1(min)	I[241]	Shear-z	1152.71	-58.42	-282.29	-162.11	1105.96	-36.44
269	MV-LM1(min)	J[42]	Shear-z	1152.71	-58.42	-282.29	-162.11	1728.67	92.43
270	MV-LM1(min)	I[242]	Shear-z	1154.1	58.4	-282.3	161.99	1106.07	36.38
270	MV-LM1(min)	J[58]	Shear-z	1154.1	58.4	-282.3	161.99	1728.78	-92.44
271	MV-LM1(min)	I[42]	Shear-z	1035.6	-67.35	-294.98	-151.56	412.66	-184.81
271	MV-LM1(min)	J[243]	Shear-z	1035.6	-67.35	-294.98	-151.56	1063.34	-36.24
272	MV-LM1(min)	I[58]	Shear-z	1036.57	67.34	-294.98	151.47	412.79	184.75
272	MV-LM1(min)	J[244]	Shear-z	1036.57	67.34	-294.98	151.47	1063.47	36.21
273	MV-LM1(min)	I[243]	Shear-z	1035.6	-67.35	-294.98	-151.56	1063.34	-36.24
273	MV-LM1(min)	J[43]	Shear-z	1035.6	-67.35	-294.98	-151.56	1714.03	112.32
274	MV-LM1(min)	I[244]	Shear-z	1036.57	67.34	-294.98	151.47	1063.47	36.21
274	MV-LM1(min)	J[59]	Shear-z	1036.57	67.34	-294.98	151.47	1714.15	-112.32
275	MV-LM1(min)	I[43]	Shear-z	1018.47	-76.43	-308.06	-128.95	421.74	-206.03
275	MV-LM1(min)	J[245]	Shear-z	1018.47	-76.43	-308.06	-128.95	1101.29	-37.44
276	MV-LM1(min)	I[59]	Shear-z	1019.04	76.42	-308.06	128.9	421.84	206
276	MV-LM1(min)	J[246]	Shear-z	1019.04	76.42	-308.06	128.9	1101.38	37.43
277	MV-LM1(min)	I[245]	Shear-z	1018.47	-76.43	-308.06	-128.95	1101.29	-37.44
277	MV-LM1(min)	J[44]	Shear-z	1018.47	-76.43	-308.06	-128.95	1780.84	131.15
278	MV-LM1(min)	I[246]	Shear-z	1019.04	76.42	-308.06	128.9	1101.38	37.43
278	MV-LM1(min)	J[60]	Shear-z	1019.04	76.42	-308.06	128.9	1780.92	-131.15
279	MV-LM1(min)	I[44]	Shear-z	1105.34	-83.75	-318.47	-104.25	518.93	-224.83
279	MV-LM1(min)	J[247]	Shear-z	1105.34	-83.75	-318.47	-104.25	1221.44	-40.09
280	MV-LM1(min)	I[60]	Shear-z	1105.59	83.75	-318.47	104.25	518.97	224.83
280	MV-LM1(min)	J[248]	Shear-z	1105.59	83.75	-318.47	104.25	1221.48	40.08
281	MV-LM1(min)	I[247]	Shear-z	1105.34	-83.75	-318.47	-104.25	1221.44	-40.09
281	MV-LM1(min)	J[45]	Shear-z	1105.34	-83.75	-318.47	-104.25	1923.95	144.65
282	MV-LM1(min)	I[248]	Shear-z	1105.59	83.75	-318.47	104.25	1221.48	40.08
282	MV-LM1(min)	J[61]	Shear-z	1105.59	83.75	-318.47	104.25	1923.98	-144.66
283	MV-LM1(min)	I[45]	Shear-z	1273.06	-87.61	-323.44	-87.45	694.33	-237.35
283	MV-LM1(min)	J[249]	Shear-z	1273.06	-87.61	-323.44	-87.45	1407.8	-44.09
284	MV-LM1(min)	I[61]	Shear-z	1273.1	87.62	-323.44	87.47	694.31	237.36
284	MV-LM1(min)	J[250]	Shear-z	1273.1	87.62	-323.44	87.47	1407.77	44.09
285	MV-LM1(min)	I[249]	Shear-z	1273.06	-87.61	-323.44	-87.45	1407.8	-44.09
285	MV-LM1(min)	J[46]	Shear-z	1273.06	-87.61	-323.44	-87.45	2121.27	149.17
286	MV-LM1(min)	I[250]	Shear-z	1273.1	87.62	-323.44	87.47	1407.77	44.09
286	MV-LM1(min)	J[62]	Shear-z	1273.1	87.62	-323.44	87.47	2121.24	-149.18
287	MV-LM1(min)	I[46]	Shear-z	1474.63	-86.58	-320.47	-87.32	921.59	-240.2
287	MV-LM1(min)	J[251]	Shear-z	1474.63	-86.58	-320.47	-87.32	1628.51	-49.22
288	MV-LM1(min)	I[62]	Shear-z	1474.56	86.59	-320.47	87.38	921.51	240.23
288	MV-LM1(min)	J[252]	Shear-z	1474.56	86.59	-320.47	87.38	1628.43	49.23
289	MV-LM1(min)	I[251]	Shear-z	1474.63	-86.58	-320.47	-87.32	1628.51	-49.22
289	MV-LM1(min)	J[47]	Shear-z	1474.63	-86.58	-320.47	-87.32	2335.44	141.75
290	MV-LM1(min)	I[252]	Shear-z	1474.56	86.59	-320.47	87.38	1628.43	49.23
290	MV-LM1(min)	J[63]	Shear-z	1474.56	86.59	-320.47	87.38	2335.35	-141.77
291	MV-LM1(min)	I[47]	Shear-z	1643.55	-79.59	-307.27	-110.32	1159.3	-230.62
291	MV-LM1(min)	J[253]	Shear-z	1643.55	-79.59	-307.27	-110.32	1837.11	-55.07
292	MV-LM1(min)	I[63]	Shear-z	1643.45	79.6	-307.27	110.43	1159.15	230.67
292	MV-LM1(min)	J[254]	Shear-z	1643.45	79.6	-307.27	110.43	1836.95	55.08
293	MV-LM1(min)	I[253]	Shear-z	1643.55	-79.59	-307.27	-110.32	1837.11	-55.07
293	MV-LM1(min)	J[48]	Shear-z	1643.55	-79.59	-307.27	-110.32	2514.91	120.49
294	MV-LM1(min)	I[254]	Shear-z	1643.45	79.6	-307.27	110.43	1836.95	55.08
294	MV-LM1(min)	J[64]	Shear-z	1643.45	79.6	-307.27	110.43	2514.75	-120.5
295	MV-LM1(min)	I[48]	Shear-z	1608.26	-70.93	-282.62	-165.32	1228.64	-207.08
295	MV-LM1(min)	J[255]	Shear-z	1608.26	-70.93	-282.62	-165.32	1852.06	-50.61
296	MV-LM1(min)	I[64]	Shear-z	1608.1	70.96	-282.62	165.48	1228.62	207.17
296	MV-LM1(min)	J[256]	Shear-z	1608.1	70.96	-282.62	165.48	1852.06	50.65
297	MV-LM1(min)	I[255]	Shear-z	1608.26	-70.93	-282.62	-165.32	1852.06	-50.61
297	MV-LM1(min)	J[49]	Shear-z	1608.26	-70.93	-282.62	-165.32	2475.48	105.86
298	MV-LM1(min)	I[256]	Shear-z	1608.1	70.96	-282.62	165.48	1852.06	50.65

298	MV-LM1(min)	J[65]	Shear-z	1608.1	70.96	-282.62	165.48	2475.49	-105.88
299	MV-LM1(min)	I[49]	Shear-z	1373.3	-58.87	-251.33	-226.58	1048.15	-175.91
299	MV-LM1(min)	J[257]	Shear-z	1373.3	-58.87	-251.33	-226.58	1602.55	-46.05
300	MV-LM1(min)	I[65]	Shear-z	1373.51	58.88	-251.32	227.01	1048.07	176.02
300	MV-LM1(min)	J[258]	Shear-z	1373.51	58.88	-251.32	227.01	1602.46	46.14
301	MV-LM1(min)	I[257]	Shear-z	1373.3	-58.87	-251.33	-226.58	1602.55	-46.05
301	MV-LM1(min)	J[50]	Shear-z	1373.3	-58.87	-251.33	-226.58	2156.96	83.8
302	MV-LM1(min)	I[258]	Shear-z	1373.51	58.88	-251.32	227.01	1602.46	46.14
302	MV-LM1(min)	J[66]	Shear-z	1373.51	58.88	-251.32	227.01	2156.85	-83.73
303	MV-LM1(min)	I[50]	Shear-z	1059.43	-48.66	-207.9	-282.72	814.54	-145.39
303	MV-LM1(min)	J[259]	Shear-z	1059.43	-48.66	-207.9	-282.72	1273.14	-38.05
304	MV-LM1(min)	I[66]	Shear-z	1060.17	48.69	-207.87	283.83	814.62	145.54
304	MV-LM1(min)	J[260]	Shear-z	1060.17	48.69	-207.87	283.83	1273.15	38.13
305	MV-LM1(min)	I[259]	Shear-z	1059.43	-48.66	-207.9	-282.72	1273.14	-38.05
305	MV-LM1(min)	J[51]	Shear-z	1059.43	-48.66	-207.9	-282.72	1731.74	69.29
306	MV-LM1(min)	I[260]	Shear-z	1060.17	48.69	-207.87	283.83	1273.15	38.13
306	MV-LM1(min)	J[67]	Shear-z	1060.17	48.69	-207.87	283.83	1731.68	-69.28
307	MV-LM1(min)	I[51]	Shear-z	532.95	-53.05	-145.36	-249.31	139.71	-126.99
307	MV-LM1(min)	J[261]	Shear-z	532.95	-53.05	-145.36	-249.31	460.35	-9.96
308	MV-LM1(min)	I[67]	Shear-z	533.76	53.3	-145.28	251.17	139.95	127
308	MV-LM1(min)	J[262]	Shear-z	533.76	53.3	-145.28	251.17	460.42	9.43
309	MV-LM1(min)	I[261]	Shear-z	532.95	-53.05	-145.36	-249.31	460.35	-9.96
309	MV-LM1(min)	J[52]	Shear-z	532.95	-53.05	-145.36	-249.31	781	107.06
310	MV-LM1(min)	I[262]	Shear-z	533.76	53.3	-145.28	251.17	460.42	9.43
310	MV-LM1(min)	J[68]	Shear-z	533.76	53.3	-145.28	251.17	780.89	-108.14
311	MV-LM1(min)	I[52]	Shear-z	635.67	-137.37	-122.8	244.78	-1153.62	-184.87
311	MV-LM1(min)	J[263]	Shear-z	635.67	-137.37	-122.8	244.78	-882.75	118.15
312	MV-LM1(min)	I[68]	Shear-z	636.14	136.94	-122.8	-240.75	-1153.89	183.04
312	MV-LM1(min)	J[264]	Shear-z	636.14	136.94	-122.8	-240.75	-883	-119.04
313	MV-LM1(min)	I[263]	Shear-z	635.67	-137.37	-122.8	244.78	-882.75	118.15
313	MV-LM1(min)	J[18]	Shear-z	635.67	-137.37	-122.8	244.78	-611.87	421.18
314	MV-LM1(min)	I[264]	Shear-z	636.14	136.94	-122.8	-240.75	-883	-119.04
314	MV-LM1(min)	J[36]	Shear-z	636.14	136.94	-122.8	-240.75	-612.11	-421.12
315	MV-LM1(min)	I[1]	Shear-z	0	0	0	0	0	0
315	MV-LM1(min)	J[265]	Shear-z	0	0	0	0	0	0
316	MV-LM1(min)	I[18]	Shear-z	0	0	0	0	0	0
316	MV-LM1(min)	J[266]	Shear-z	0	0	0	0	0	0
317	MV-LM1(min)	I[37]	Shear-z	0	0	0	0	0	0
317	MV-LM1(min)	J[267]	Shear-z	0	0	0	0	0	0
318	MV-LM1(min)	I[38]	Shear-z	0	0	0	0	0	0
318	MV-LM1(min)	J[268]	Shear-z	0	0	0	0	0	0
319	MV-LM1(min)	I[39]	Shear-z	0	0	0	0	0	0
319	MV-LM1(min)	J[269]	Shear-z	0	0	0	0	0	0
320	MV-LM1(min)	I[40]	Shear-z	0	0	0	0	0	0
320	MV-LM1(min)	J[270]	Shear-z	0	0	0	0	0	0
321	MV-LM1(min)	I[41]	Shear-z	0	0	0	0	0	0
321	MV-LM1(min)	J[271]	Shear-z	0	0	0	0	0	0
322	MV-LM1(min)	I[42]	Shear-z	0	0	0	0	0	0
322	MV-LM1(min)	J[272]	Shear-z	0	0	0	0	0	0
323	MV-LM1(min)	I[43]	Shear-z	0	0	0	0	0	0
323	MV-LM1(min)	J[273]	Shear-z	0	0	0	0	0	0
324	MV-LM1(min)	I[44]	Shear-z	0	0	0	0	0	0
324	MV-LM1(min)	J[274]	Shear-z	0	0	0	0	0	0
325	MV-LM1(min)	I[45]	Shear-z	0	0	0	0	0	0
325	MV-LM1(min)	J[275]	Shear-z	0	0	0	0	0	0
326	MV-LM1(min)	I[46]	Shear-z	0	0	0	0	0	0
326	MV-LM1(min)	J[276]	Shear-z	0	0	0	0	0	0
327	MV-LM1(min)	I[47]	Shear-z	0	0	0	0	0	0
327	MV-LM1(min)	J[277]	Shear-z	0	0	0	0	0	0
328	MV-LM1(min)	I[48]	Shear-z	0	0	0	0	0	0
328	MV-LM1(min)	J[278]	Shear-z	0	0	0	0	0	0

329	MV-LM1(min)	I[49]	Shear-z	0	0	0	0	0	0
329	MV-LM1(min)	J[279]	Shear-z	0	0	0	0	0	0
330	MV-LM1(min)	I[50]	Shear-z	0	0	0	0	0	0
330	MV-LM1(min)	J[280]	Shear-z	0	0	0	0	0	0
331	MV-LM1(min)	I[51]	Shear-z	0	0	0	0	0	0
331	MV-LM1(min)	J[281]	Shear-z	0	0	0	0	0	0
332	MV-LM1(min)	I[52]	Shear-z	0	0	0	0	0	0
332	MV-LM1(min)	J[282]	Shear-z	0	0	0	0	0	0
333	MV-LM1(min)	I[231]	Shear-z	0	0	0	0	0	0
333	MV-LM1(min)	J[283]	Shear-z	0	0	0	0	0	0
334	MV-LM1(min)	I[233]	Shear-z	0	0	0	0	0	0
334	MV-LM1(min)	J[284]	Shear-z	0	0	0	0	0	0
335	MV-LM1(min)	I[235]	Shear-z	0	0	0	0	0	0
335	MV-LM1(min)	J[285]	Shear-z	0	0	0	0	0	0
336	MV-LM1(min)	I[237]	Shear-z	0	0	0	0	0	0
336	MV-LM1(min)	J[286]	Shear-z	0	0	0	0	0	0
337	MV-LM1(min)	I[239]	Shear-z	0	0	0	0	0	0
337	MV-LM1(min)	J[287]	Shear-z	0	0	0	0	0	0
338	MV-LM1(min)	I[241]	Shear-z	0	0	0	0	0	0
338	MV-LM1(min)	J[288]	Shear-z	0	0	0	0	0	0
339	MV-LM1(min)	I[243]	Shear-z	0	0	0	0	0	0
339	MV-LM1(min)	J[289]	Shear-z	0	0	0	0	0	0
340	MV-LM1(min)	I[245]	Shear-z	0	0	0	0	0	0
340	MV-LM1(min)	J[290]	Shear-z	0	0	0	0	0	0
341	MV-LM1(min)	I[247]	Shear-z	0	0	0	0	0	0
341	MV-LM1(min)	J[291]	Shear-z	0	0	0	0	0	0
342	MV-LM1(min)	I[249]	Shear-z	0	0	0	0	0	0
342	MV-LM1(min)	J[292]	Shear-z	0	0	0	0	0	0
343	MV-LM1(min)	I[251]	Shear-z	0	0	0	0	0	0
343	MV-LM1(min)	J[293]	Shear-z	0	0	0	0	0	0
344	MV-LM1(min)	I[253]	Shear-z	0	0	0	0	0	0
344	MV-LM1(min)	J[294]	Shear-z	0	0	0	0	0	0
345	MV-LM1(min)	I[255]	Shear-z	0	0	0	0	0	0
345	MV-LM1(min)	J[295]	Shear-z	0	0	0	0	0	0
346	MV-LM1(min)	I[257]	Shear-z	0	0	0	0	0	0
346	MV-LM1(min)	J[296]	Shear-z	0	0	0	0	0	0
347	MV-LM1(min)	I[259]	Shear-z	0	0	0	0	0	0
347	MV-LM1(min)	J[297]	Shear-z	0	0	0	0	0	0
348	MV-LM1(min)	I[261]	Shear-z	0	0	0	0	0	0
348	MV-LM1(min)	J[298]	Shear-z	0	0	0	0	0	0
349	MV-LM1(min)	I[263]	Shear-z	0	0	0	0	0	0
349	MV-LM1(min)	J[299]	Shear-z	0	0	0	0	0	0
350	MV-LM1(min)	I[19]	Shear-z	0	0	0	0	0	0
350	MV-LM1(min)	J[300]	Shear-z	0	0	0	0	0	0
351	MV-LM1(min)	I[36]	Shear-z	0	0	0	0	0	0
351	MV-LM1(min)	J[301]	Shear-z	0	0	0	0	0	0
352	MV-LM1(min)	I[53]	Shear-z	0	0	0	0	0	0
352	MV-LM1(min)	J[302]	Shear-z	0	0	0	0	0	0
353	MV-LM1(min)	I[54]	Shear-z	0	0	0	0	0	0
353	MV-LM1(min)	J[303]	Shear-z	0	0	0	0	0	0
354	MV-LM1(min)	I[55]	Shear-z	0	0	0	0	0	0
354	MV-LM1(min)	J[304]	Shear-z	0	0	0	0	0	0
355	MV-LM1(min)	I[56]	Shear-z	0	0	0	0	0	0
355	MV-LM1(min)	J[305]	Shear-z	0	0	0	0	0	0
356	MV-LM1(min)	I[57]	Shear-z	0	0	0	0	0	0
356	MV-LM1(min)	J[306]	Shear-z	0	0	0	0	0	0
357	MV-LM1(min)	I[58]	Shear-z	0	0	0	0	0	0
357	MV-LM1(min)	J[307]	Shear-z	0	0	0	0	0	0
358	MV-LM1(min)	I[59]	Shear-z	0	0	0	0	0	0
358	MV-LM1(min)	J[308]	Shear-z	0	0	0	0	0	0
359	MV-LM1(min)	I[60]	Shear-z	0	0	0	0	0	0

359	MV-LM1(min)	J[309]	Shear-z	0	0	0	0	0	0
360	MV-LM1(min)	I[61]	Shear-z	0	0	0	0	0	0
360	MV-LM1(min)	J[310]	Shear-z	0	0	0	0	0	0
361	MV-LM1(min)	I[62]	Shear-z	0	0	0	0	0	0
361	MV-LM1(min)	J[311]	Shear-z	0	0	0	0	0	0
362	MV-LM1(min)	I[63]	Shear-z	0	0	0	0	0	0
362	MV-LM1(min)	J[312]	Shear-z	0	0	0	0	0	0
363	MV-LM1(min)	I[64]	Shear-z	0	0	0	0	0	0
363	MV-LM1(min)	J[313]	Shear-z	0	0	0	0	0	0
364	MV-LM1(min)	I[65]	Shear-z	0	0	0	0	0	0
364	MV-LM1(min)	J[314]	Shear-z	0	0	0	0	0	0
365	MV-LM1(min)	I[66]	Shear-z	0	0	0	0	0	0
365	MV-LM1(min)	J[315]	Shear-z	0	0	0	0	0	0
366	MV-LM1(min)	I[67]	Shear-z	0	0	0	0	0	0
366	MV-LM1(min)	J[316]	Shear-z	0	0	0	0	0	0
367	MV-LM1(min)	I[68]	Shear-z	0	0	0	0	0	0
367	MV-LM1(min)	J[317]	Shear-z	0	0	0	0	0	0
368	MV-LM1(min)	I[232]	Shear-z	0	0	0	0	0	0
368	MV-LM1(min)	J[318]	Shear-z	0	0	0	0	0	0
369	MV-LM1(min)	I[234]	Shear-z	0	0	0	0	0	0
369	MV-LM1(min)	J[319]	Shear-z	0	0	0	0	0	0
370	MV-LM1(min)	I[236]	Shear-z	0	0	0	0	0	0
370	MV-LM1(min)	J[320]	Shear-z	0	0	0	0	0	0
371	MV-LM1(min)	I[238]	Shear-z	0	0	0	0	0	0
371	MV-LM1(min)	J[321]	Shear-z	0	0	0	0	0	0
372	MV-LM1(min)	I[240]	Shear-z	0	0	0	0	0	0
372	MV-LM1(min)	J[322]	Shear-z	0	0	0	0	0	0
373	MV-LM1(min)	I[242]	Shear-z	0	0	0	0	0	0
373	MV-LM1(min)	J[323]	Shear-z	0	0	0	0	0	0
374	MV-LM1(min)	I[244]	Shear-z	0	0	0	0	0	0
374	MV-LM1(min)	J[324]	Shear-z	0	0	0	0	0	0
375	MV-LM1(min)	I[246]	Shear-z	0	0	0	0	0	0
375	MV-LM1(min)	J[325]	Shear-z	0	0	0	0	0	0
376	MV-LM1(min)	I[248]	Shear-z	0	0	0	0	0	0
376	MV-LM1(min)	J[326]	Shear-z	0	0	0	0	0	0
377	MV-LM1(min)	I[250]	Shear-z	0	0	0	0	0	0
377	MV-LM1(min)	J[327]	Shear-z	0	0	0	0	0	0
378	MV-LM1(min)	I[252]	Shear-z	0	0	0	0	0	0
378	MV-LM1(min)	J[328]	Shear-z	0	0	0	0	0	0
379	MV-LM1(min)	I[254]	Shear-z	0	0	0	0	0	0
379	MV-LM1(min)	J[329]	Shear-z	0	0	0	0	0	0
380	MV-LM1(min)	I[256]	Shear-z	0	0	0	0	0	0
380	MV-LM1(min)	J[330]	Shear-z	0	0	0	0	0	0
381	MV-LM1(min)	I[258]	Shear-z	0	0	0	0	0	0
381	MV-LM1(min)	J[331]	Shear-z	0	0	0	0	0	0
382	MV-LM1(min)	I[260]	Shear-z	0	0	0	0	0	0
382	MV-LM1(min)	J[332]	Shear-z	0	0	0	0	0	0
383	MV-LM1(min)	I[262]	Shear-z	0	0	0	0	0	0
383	MV-LM1(min)	J[333]	Shear-z	0	0	0	0	0	0
384	MV-LM1(min)	I[264]	Shear-z	0	0	0	0	0	0
384	MV-LM1(min)	J[334]	Shear-z	0	0	0	0	0	0
385	MV-LM1(min)	I[69]	Shear-z	-290.73	-43.91	-49.51	-0.35	-98.99	-314.97
385	MV-LM1(min)	J[71]	Shear-z	-290.73	-43.91	-49.51	-0.35	119.41	-121.23
386	MV-LM1(min)	I[105]	Shear-z	-67.21	8.48	-35.19	-1.75	-54.79	-114.45
386	MV-LM1(min)	J[107]	Shear-z	-67.21	8.48	-35.19	-1.75	100.48	-151.88
387	MV-LM1(min)	I[141]	Shear-z	-29.64	2.16	-34.09	-3.05	-46.47	-6.4
387	MV-LM1(min)	J[143]	Shear-z	-29.64	2.16	-34.09	-3.05	103.94	-15.94
388	MV-LM1(min)	I[177]	Shear-z	-68.1	-7.79	-35.35	1.63	-55.18	116.96
388	MV-LM1(min)	J[179]	Shear-z	-68.1	-7.79	-35.35	1.63	100.77	151.32
389	MV-LM1(min)	I[213]	Shear-z	-293.24	45.91	-49.76	0.14	-99.64	318.83
389	MV-LM1(min)	J[215]	Shear-z	-293.24	45.91	-49.76	0.14	119.89	116.29

390	MV-LM1(min)	I[71]	Shear-z	-693.74	-17.53	-45.12	-0.11	-74.74	-188.84
390	MV-LM1(min)	J[72]	Shear-z	-693.74	-17.53	-45.12	-0.11	124.33	-111.5
391	MV-LM1(min)	I[107]	Shear-z	-128.28	27.18	-36.58	-2.13	-48.94	-15.92
391	MV-LM1(min)	J[108]	Shear-z	-128.28	27.18	-36.58	-2.13	112.42	-135.85
392	MV-LM1(min)	I[143]	Shear-z	-50.62	-3.92	-38.22	3.08	-50.53	-1.21
392	MV-LM1(min)	J[144]	Shear-z	-50.62	-3.92	-38.22	3.08	118.11	16.09
393	MV-LM1(min)	I[179]	Shear-z	-128.72	-27.19	-36.58	2.1	-48.97	15.62
393	MV-LM1(min)	J[180]	Shear-z	-128.72	-27.19	-36.58	2.1	112.41	135.57
394	MV-LM1(min)	I[215]	Shear-z	-694.61	16.9	-45.13	0.01	-74.76	185.07
394	MV-LM1(min)	J[216]	Shear-z	-694.61	16.9	-45.13	0.01	124.32	110.5
395	MV-LM1(min)	I[72]	Shear-z	-859.33	13.5	-36.97	-4.41	-52.84	-110.02
395	MV-LM1(min)	J[73]	Shear-z	-859.33	13.5	-36.97	-4.41	110.28	-169.57
396	MV-LM1(min)	I[108]	Shear-z	-163.62	38.66	-33.61	-4.57	-38.13	12.56
396	MV-LM1(min)	J[109]	Shear-z	-163.62	38.66	-33.61	-4.57	110.15	-158.01
397	MV-LM1(min)	I[144]	Shear-z	-66.5	-4.62	-36.53	2.68	-42.47	-3.42
397	MV-LM1(min)	J[145]	Shear-z	-66.5	-4.62	-36.53	2.68	118.67	16.96
398	MV-LM1(min)	I[180]	Shear-z	-163.73	-38.68	-33.61	4.56	-38.14	-12.66
398	MV-LM1(min)	J[181]	Shear-z	-163.73	-38.68	-33.61	4.56	110.14	158.01
399	MV-LM1(min)	I[216]	Shear-z	-858.43	-13.69	-36.97	4.39	-52.84	109.1
399	MV-LM1(min)	J[217]	Shear-z	-858.43	-13.69	-36.97	4.39	110.26	169.51
400	MV-LM1(min)	I[73]	Shear-z	-757.05	31.73	-30.83	-8.6	-40.65	-67.68
400	MV-LM1(min)	J[376]	Shear-z	-757.05	31.73	-30.83	-8.6	27.36	-137.68
401	MV-LM1(min)	I[109]	Shear-z	-141.87	45.16	-30.83	-7.44	-32.21	22.01
401	MV-LM1(min)	J[377]	Shear-z	-141.87	45.16	-30.83	-7.44	35.8	-77.61
402	MV-LM1(min)	I[145]	Shear-z	-54.7	5.37	-34.89	-2.24	-38.58	5.44
402	MV-LM1(min)	J[378]	Shear-z	-54.7	5.37	-34.89	-2.24	38.38	-6.4
403	MV-LM1(min)	I[181]	Shear-z	-141.48	-45.29	-30.83	7.43	-32.21	-22.48
403	MV-LM1(min)	J[379]	Shear-z	-141.48	-45.29	-30.83	7.43	35.8	77.43
404	MV-LM1(min)	I[217]	Shear-z	-755.89	-31.81	-30.83	8.6	-40.65	67.29
404	MV-LM1(min)	J[380]	Shear-z	-755.89	-31.81	-30.83	8.6	27.36	137.46
405	MV-LM1(min)	I[74]	Shear-z	-429.04	37.06	-28.74	-11.13	-41.24	-49.23
405	MV-LM1(min)	J[75]	Shear-z	-429.04	37.06	-28.74	-11.13	85.55	-212.72
406	MV-LM1(min)	I[110]	Shear-z	-47.13	46.11	-29.66	-9.33	-34.13	24.79
406	MV-LM1(min)	J[111]	Shear-z	-47.13	46.11	-29.66	-9.33	96.72	-178.66
407	MV-LM1(min)	I[146]	Shear-z	0.61	6.01	-34.08	-1.92	-40.92	7.12
407	MV-LM1(min)	J[147]	Shear-z	0.61	6.01	-34.08	-1.92	109.44	-19.39
408	MV-LM1(min)	I[182]	Shear-z	-46.77	-46.18	-29.66	9.31	-34.13	-25.06
408	MV-LM1(min)	J[183]	Shear-z	-46.77	-46.18	-29.66	9.31	96.73	178.68
409	MV-LM1(min)	I[218]	Shear-z	-428.41	-37.11	-28.74	11.12	-41.25	48.99
409	MV-LM1(min)	J[219]	Shear-z	-428.41	-37.11	-28.74	11.12	85.56	212.73
410	MV-LM1(min)	I[75]	Shear-z	231.36	-34.81	-30.79	-1.83	-63.2	-93.99
410	MV-LM1(min)	J[76]	Shear-z	231.36	-34.81	-30.79	-1.83	72.66	59.58
411	MV-LM1(min)	I[111]	Shear-z	60.31	39.45	-30.39	-9.9	-40.83	13.57
411	MV-LM1(min)	J[112]	Shear-z	60.31	39.45	-30.39	-9.9	93.25	-160.48
412	MV-LM1(min)	I[147]	Shear-z	74.34	6.4	-34.51	-1.77	-47.14	8.13
412	MV-LM1(min)	J[148]	Shear-z	74.34	6.4	-34.51	-1.77	105.11	-20.11
413	MV-LM1(min)	I[183]	Shear-z	60.92	-39.64	-30.39	9.89	-40.84	-14.18
413	MV-LM1(min)	J[184]	Shear-z	60.92	-39.64	-30.39	9.89	93.26	160.72
414	MV-LM1(min)	I[219]	Shear-z	232.05	34.79	-30.8	1.82	-63.2	93.86
414	MV-LM1(min)	J[220]	Shear-z	232.05	34.79	-30.8	1.82	72.66	-59.62
415	MV-LM1(min)	I[76]	Shear-z	254.58	-52.08	-34.9	-0.22	-72.7	-135.74
415	MV-LM1(min)	J[77]	Shear-z	254.58	-52.08	-34.9	-0.22	81.27	94.02
416	MV-LM1(min)	I[112]	Shear-z	85.76	29.57	-31.93	-9.62	-44.86	-8.18
416	MV-LM1(min)	J[113]	Shear-z	85.76	29.57	-31.93	-9.62	96	-138.64
417	MV-LM1(min)	I[148]	Shear-z	91.95	6.71	-35.49	-1.77	-49.81	8.94
417	MV-LM1(min)	J[149]	Shear-z	91.95	6.71	-35.49	-1.77	106.75	-20.65
418	MV-LM1(min)	I[184]	Shear-z	86.24	-29.73	-31.93	9.61	-44.87	7.69
418	MV-LM1(min)	J[185]	Shear-z	86.24	-29.73	-31.93	9.61	96.01	138.86
419	MV-LM1(min)	I[220]	Shear-z	254.89	52.08	-34.9	0.21	-72.69	135.7
419	MV-LM1(min)	J[221]	Shear-z	254.89	52.08	-34.9	0.21	81.27	-94.07
420	MV-LM1(min)	I[77]	Shear-z	174.3	-67.6	-38.59	1.45	-79.6	-173.86

420	MV-LM1(min)	J[78]	Shear-z	174.3	-67.6	-38.59	1.45	90.64	124.37
421	MV-LM1(min)	I[113]	Shear-z	85.13	19.13	-33.69	-8.85	-48.2	-32.27
421	MV-LM1(min)	J[114]	Shear-z	85.13	19.13	-33.69	-8.85	100.42	-116.66
422	MV-LM1(min)	I[149]	Shear-z	93.62	6.88	-36.62	-1.89	-51.85	9.4
422	MV-LM1(min)	J[150]	Shear-z	93.62	6.88	-36.62	-1.89	109.71	-20.94
423	MV-LM1(min)	I[185]	Shear-z	85.44	-19.24	-33.69	8.85	-48.21	31.94
423	MV-LM1(min)	J[186]	Shear-z	85.44	-19.24	-33.69	8.85	100.43	116.81
424	MV-LM1(min)	I[221]	Shear-z	174.39	67.62	-38.58	-1.45	-79.59	173.89
424	MV-LM1(min)	J[222]	Shear-z	174.39	67.62	-38.58	-1.45	90.64	-124.43
425	MV-LM1(min)	I[78]	Shear-z	9.15	-78.56	-41.14	2.82	-82.62	-202.84
425	MV-LM1(min)	J[371]	Shear-z	9.15	-78.56	-41.14	2.82	8.13	-29.55
426	MV-LM1(min)	I[114]	Shear-z	55.53	10.35	-35.24	-7.96	-49.87	-53.51
426	MV-LM1(min)	J[372]	Shear-z	55.53	10.35	-35.24	-7.96	27.85	-76.35
427	MV-LM1(min)	I[150]	Shear-z	77.18	6.92	-37.63	-2.07	-52.56	9.54
427	MV-LM1(min)	J[373]	Shear-z	77.18	6.92	-37.63	-2.07	30.45	-5.74
428	MV-LM1(min)	I[186]	Shear-z	55.69	-10.41	-35.24	7.96	-49.88	53.34
428	MV-LM1(min)	J[374]	Shear-z	55.69	-10.41	-35.24	7.96	27.85	76.3
429	MV-LM1(min)	I[222]	Shear-z	9.13	78.6	-41.14	-2.82	-82.61	202.92
429	MV-LM1(min)	J[375]	Shear-z	9.13	78.6	-41.14	-2.82	8.13	29.55
430	MV-LM1(min)	I[79]	Shear-z	-220.1	-81.87	-41.95	3.09	-80.8	-214.66
430	MV-LM1(min)	J[80]	Shear-z	-220.1	-81.87	-41.95	3.09	104.25	146.52
431	MV-LM1(min)	I[115]	Shear-z	1.63	5.29	-36.17	-7.31	-49.26	-67.09
431	MV-LM1(min)	J[116]	Shear-z	1.63	5.29	-36.17	-7.31	110.33	-90.45
432	MV-LM1(min)	I[151]	Shear-z	45.2	6.88	-38.27	-2.22	-51.53	9.42
432	MV-LM1(min)	J[152]	Shear-z	45.2	6.88	-38.27	-2.22	117.29	-20.91
433	MV-LM1(min)	I[187]	Shear-z	1.66	-5.3	-36.18	7.31	-49.27	67.04
433	MV-LM1(min)	J[188]	Shear-z	1.66	-5.3	-36.18	7.31	110.34	90.43
434	MV-LM1(min)	I[223]	Shear-z	-220.14	81.92	-41.94	-3.09	-80.79	214.79
434	MV-LM1(min)	J[224]	Shear-z	-220.14	81.92	-41.94	-3.09	104.24	-146.63
435	MV-LM1(min)	I[80]	Shear-z	-623.17	-19.19	-40.46	-7.45	-64.36	-187.2
435	MV-LM1(min)	J[81]	Shear-z	-623.17	-19.19	-40.46	-7.45	114.15	-102.56
436	MV-LM1(min)	I[116]	Shear-z	-65.34	5.52	-36.18	-7.21	-46.15	-69.15
436	MV-LM1(min)	J[117]	Shear-z	-65.34	5.52	-36.18	-7.21	113.48	-93.48
437	MV-LM1(min)	I[152]	Shear-z	4.59	6.76	-38.31	-2.3	-48.72	9.16
437	MV-LM1(min)	J[153]	Shear-z	4.59	6.76	-38.31	-2.3	120.32	-20.67
438	MV-LM1(min)	I[188]	Shear-z	-65.4	-5.48	-36.19	7.21	-46.16	69.2
438	MV-LM1(min)	J[189]	Shear-z	-65.4	-5.48	-36.19	7.21	113.48	93.4
439	MV-LM1(min)	I[224]	Shear-z	-623.09	19.24	-40.45	7.45	-64.34	187.3
439	MV-LM1(min)	J[225]	Shear-z	-623.09	19.24	-40.45	7.45	114.13	102.43
440	MV-LM1(min)	I[81]	Shear-z	-830.29	-9.16	-37.72	-8.76	-55.22	-170.07
440	MV-LM1(min)	J[82]	Shear-z	-830.29	-9.16	-37.72	-8.76	111.19	-129.66
441	MV-LM1(min)	I[117]	Shear-z	-129.41	11.72	-35.06	-7.82	-40.81	-57.58
441	MV-LM1(min)	J[118]	Shear-z	-129.41	11.72	-35.06	-7.82	113.86	-109.3
442	MV-LM1(min)	I[153]	Shear-z	-34.7	6.64	-37.66	-2.24	-44.5	8.9
442	MV-LM1(min)	J[154]	Shear-z	-34.7	6.64	-37.66	-2.24	121.66	-20.39
443	MV-LM1(min)	I[189]	Shear-z	-129.59	-11.65	-35.06	7.82	-40.82	57.74
443	MV-LM1(min)	J[190]	Shear-z	-129.59	-11.65	-35.06	7.82	113.87	109.12
444	MV-LM1(min)	I[225]	Shear-z	-830.27	9.22	-37.71	8.76	-55.2	170.19
444	MV-LM1(min)	J[226]	Shear-z	-830.27	9.22	-37.71	8.76	111.18	129.5
445	MV-LM1(min)	I[82]	Shear-z	-782.56	9.81	-32.55	-11.64	-44.6	-125.5
445	MV-LM1(min)	J[83]	Shear-z	-782.56	9.81	-32.55	-11.64	99.01	-168.75
446	MV-LM1(min)	I[118]	Shear-z	-104.8	22.65	-32.96	-9.28	-38.18	-31.76
446	MV-LM1(min)	J[119]	Shear-z	-104.8	22.65	-32.96	-9.28	107.25	-131.71
447	MV-LM1(min)	I[154]	Shear-z	-15.43	6.62	-36.49	-2.01	-44.26	8.93
447	MV-LM1(min)	J[155]	Shear-z	-15.43	6.62	-36.49	-2.01	116.73	-20.27
448	MV-LM1(min)	I[190]	Shear-z	-105	-22.44	-32.97	9.29	-38.19	32.23
448	MV-LM1(min)	J[191]	Shear-z	-105	-22.44	-32.97	9.29	107.26	131.23
449	MV-LM1(min)	I[226]	Shear-z	-782.19	-9.71	-32.55	11.65	-44.6	125.7
449	MV-LM1(min)	J[227]	Shear-z	-782.19	-9.71	-32.55	11.65	98.99	168.53
450	MV-LM1(min)	I[83]	Shear-z	-551.63	26.99	-26.61	-15.14	-35.53	-80.98
450	MV-LM1(min)	J[381]	Shear-z	-551.63	26.99	-26.61	-15.14	23.17	-140.52

451	MV-LM1(min)	I[119]	Shear-z	-55.55	29.47	-30.93	-11.51	-37.17	-14.5
451	MV-LM1(min)	J[382]	Shear-z	-55.55	29.47	-30.93	-11.51	31.05	-79.5
452	MV-LM1(min)	I[155]	Shear-z	5.3	6.65	-35.52	-1.6	-45.42	9.11
452	MV-LM1(min)	J[383]	Shear-z	5.3	6.65	-35.52	-1.6	32.94	-5.56
453	MV-LM1(min)	I[191]	Shear-z	-55.64	-29.39	-30.93	11.52	-37.19	14.61
453	MV-LM1(min)	J[384]	Shear-z	-55.64	-29.39	-30.93	11.52	31.05	79.45
454	MV-LM1(min)	I[227]	Shear-z	-551.39	-26.91	-26.61	15.15	-35.53	81.07
454	MV-LM1(min)	J[385]	Shear-z	-551.39	-26.91	-26.61	15.15	23.16	140.43
455	MV-LM1(min)	I[84]	Shear-z	679.22	-23.24	-21.6	-5.14	-51.27	-64.39
455	MV-LM1(min)	J[85]	Shear-z	679.22	-23.24	-21.6	-5.14	44.02	38.13
456	MV-LM1(min)	I[120]	Shear-z	-20.27	32.29	-29.23	-13.68	-37.4	-6.16
456	MV-LM1(min)	J[121]	Shear-z	-20.27	32.29	-29.23	-13.68	91.58	-148.61
457	MV-LM1(min)	I[156]	Shear-z	13.57	6.8	-34.7	-1.1	-47.19	9.5
457	MV-LM1(min)	J[157]	Shear-z	13.57	6.8	-34.7	-1.1	105.9	-20.51
458	MV-LM1(min)	I[192]	Shear-z	-20.32	-32.36	-29.24	13.7	-37.42	5.77
458	MV-LM1(min)	J[193]	Shear-z	-20.32	-32.36	-29.24	13.7	91.57	148.54
459	MV-LM1(min)	I[228]	Shear-z	679.41	23.34	-21.61	5.18	-51.3	64.13
459	MV-LM1(min)	J[229]	Shear-z	679.41	23.34	-21.61	5.18	44.04	-38.86
460	MV-LM1(min)	I[85]	Shear-z	971.25	-120.75	-33.03	8.05	-87.03	-171.29
460	MV-LM1(min)	J[86]	Shear-z	971.25	-120.75	-33.03	8.05	58.68	361.42
461	MV-LM1(min)	I[121]	Shear-z	19.22	29.3	-28.24	-15.54	-43.83	-1.24
461	MV-LM1(min)	J[122]	Shear-z	19.22	29.3	-28.24	-15.54	80.77	-130.5
462	MV-LM1(min)	I[157]	Shear-z	19.77	6.51	-34.24	-0.81	-54.62	8.75
462	MV-LM1(min)	J[158]	Shear-z	19.77	6.51	-34.24	-0.81	96.42	-19.98
463	MV-LM1(min)	I[193]	Shear-z	19.3	-30.17	-28.24	15.63	-43.85	-0.9
463	MV-LM1(min)	J[194]	Shear-z	19.3	-30.17	-28.24	15.63	80.76	132.22
464	MV-LM1(min)	I[229]	Shear-z	971.22	121.63	-33.04	-7.95	-87.08	170.03
464	MV-LM1(min)	J[230]	Shear-z	971.22	121.63	-33.04	-7.95	58.67	-366.57
465	MV-LM1(min)	I[86]	Shear-z	521.07	-196.8	-64.7	15.05	-135.2	-224.55
465	MV-LM1(min)	J[70]	Shear-z	521.07	-196.8	-64.7	15.05	150.25	643.68
466	MV-LM1(min)	I[122]	Shear-z	127.48	-76.48	-28.87	16.07	-58.75	-79.27
466	MV-LM1(min)	J[106]	Shear-z	127.48	-76.48	-28.87	16.07	68.6	258.14
467	MV-LM1(min)	I[158]	Shear-z	24.81	-2.53	-20.01	1.27	-47.99	-7.64
467	MV-LM1(min)	J[142]	Shear-z	24.81	-2.53	-20.01	1.27	40.31	3.52
468	MV-LM1(min)	I[194]	Shear-z	127.29	75.63	-28.86	-16.04	-58.76	76.79
468	MV-LM1(min)	J[178]	Shear-z	127.29	75.63	-28.86	-16.04	68.55	-256.86
469	MV-LM1(min)	I[230]	Shear-z	520.94	194.96	-64.71	-14.88	-135.24	217.56
469	MV-LM1(min)	J[214]	Shear-z	520.94	194.96	-64.71	-14.88	150.23	-642.58
470	MV-LM1(min)	I[335]	Shear-z	14.38	79.14	-622.2	-23.55	-127.05	0.99
470	MV-LM1(min)	J[69]	Shear-z	8.53	73.32	-498.97	-25.19	283.11	-75.28
471	MV-LM1(min)	I[336]	Shear-z	-67.37	62.55	-476.04	-9.42	-149.92	9.46
471	MV-LM1(min)	J[71]	Shear-z	-74.31	63.33	-426.98	-8.16	203.52	-52.32
472	MV-LM1(min)	I[337]	Shear-z	-87.27	67.89	-446.65	-8.4	-113.79	10.99
472	MV-LM1(min)	J[72]	Shear-z	-94.56	72.25	-399.27	-7.1	196.74	-58.61
473	MV-LM1(min)	I[338]	Shear-z	-94.3	40.22	-441.2	-3.5	-110.65	7.93
473	MV-LM1(min)	J[73]	Shear-z	-101.03	58.97	-395.39	-3.26	189.2	-45.38
474	MV-LM1(min)	I[339]	Shear-z	-95.29	24.6	-441.19	-1.2	-113.11	5.8
474	MV-LM1(min)	J[74]	Shear-z	-102.12	25.17	-395.24	-0.82	186.2	-18.74
475	MV-LM1(min)	I[340]	Shear-z	-95.37	16.59	-442.68	-0.14	-118.51	4.59
475	MV-LM1(min)	J[75]	Shear-z	-102.2	17.33	-396.01	-0.15	183.22	-12.49
476	MV-LM1(min)	I[341]	Shear-z	-94.92	8.09	-443.68	0.62	-119	2.72
476	MV-LM1(min)	J[76]	Shear-z	-101.75	7.98	-396.65	0.47	185.39	-5.39
477	MV-LM1(min)	I[342]	Shear-z	-94.25	7.72	-444.51	1.17	-118.15	2.9
477	MV-LM1(min)	J[77]	Shear-z	-101.08	6.18	-397.21	1.08	188.43	-3.72
478	MV-LM1(min)	I[343]	Shear-z	-93.87	3.63	-444.51	1.83	-118.24	2.24
478	MV-LM1(min)	J[78]	Shear-z	-100.67	29.53	-397.53	0.5	189.37	-21.2
479	MV-LM1(min)	I[344]	Shear-z	-93.69	11.41	-444.6	-0.32	-117.93	2.09
479	MV-LM1(min)	J[79]	Shear-z	-100.49	-18.8	-397.57	0.64	189.96	13.54
480	MV-LM1(min)	I[345]	Shear-z	-93.89	5.65	-444.75	0.28	-117.95	0.88
480	MV-LM1(min)	J[80]	Shear-z	-100.73	2.96	-397.36	0.03	189.24	-2.84
481	MV-LM1(min)	I[346]	Shear-z	-94.63	11.2	-444.08	0.49	-119.96	2.56

481	MV-LM1(min)	J[81]	Shear-z	-101.49	7.42	-396.92	0.38	185.43	-5.78
482	MV-LM1(min)	I[347]	Shear-z	-95.14	0.32	-443.29	1.13	-121.45	0.01
482	MV-LM1(min)	J[82]	Shear-z	-102	-3.76	-396.46	0.99	181.6	2.68
483	MV-LM1(min)	I[348]	Shear-z	-95.2	-10.65	-441.95	1.77	-117.71	-2.29
483	MV-LM1(min)	J[83]	Shear-z	-102.03	-13.66	-395.87	1.36	183	10.22
484	MV-LM1(min)	I[349]	Shear-z	-94.13	-28.99	-441.83	3.66	-114.03	-5.39
484	MV-LM1(min)	J[84]	Shear-z	-100.75	-47.95	-396.06	3.45	186.49	36.98
485	MV-LM1(min)	I[350]	Shear-z	-87.74	-60.31	-446.9	8.44	-116.19	-9.38
485	MV-LM1(min)	J[85]	Shear-z	-94.7	-62.94	-399.76	7.08	194.01	51.41
486	MV-LM1(min)	I[351]	Shear-z	-68	-57.61	-475.17	9.21	-151.13	-8.56
486	MV-LM1(min)	J[86]	Shear-z	-74.48	-54.47	-426.7	7.78	200.85	45.3
487	MV-LM1(min)	I[352]	Shear-z	21.97	-76.07	-546.04	25.32	-162.25	0.34
487	MV-LM1(min)	J[70]	Shear-z	19.41	-72.51	-499.51	26.54	273.34	75.18
488	MV-LM1(min)	I[353]	Shear-z	-116.51	511.1	-104.36	-67.7	141.71	-107.13
488	MV-LM1(min)	J[19]	Shear-z	-116.51	511.1	-104.36	-67.7	193.89	-362.68
489	MV-LM1(min)	I[354]	Shear-z	2.69	-285.97	-6.51	12.27	123.47	73.3
489	MV-LM1(min)	J[53]	Shear-z	2.69	-285.97	-6.51	12.27	126.73	216.29
490	MV-LM1(min)	I[355]	Shear-z	2.72	-297.46	-12.69	23.1	152.74	63.95
490	MV-LM1(min)	J[54]	Shear-z	2.73	-297.1	-12.69	23.07	158.71	212.43
491	MV-LM1(min)	I[356]	Shear-z	-6.7	87.67	-20.59	-1.52	178.12	-26.35
491	MV-LM1(min)	J[55]	Shear-z	-6.66	87.79	-20.56	-1.54	187.6	-70.25
492	MV-LM1(min)	I[357]	Shear-z	-8.03	227.48	-23.31	-11.89	187.19	-55.9
492	MV-LM1(min)	J[56]	Shear-z	-7.99	227.24	-23.28	-11.89	198.03	-169.45
493	MV-LM1(min)	I[358]	Shear-z	-3.75	300.11	-20.86	-19.33	179.16	-67.79
493	MV-LM1(min)	J[57]	Shear-z	-3.73	299.74	-20.84	-19.31	188.95	-217.58
494	MV-LM1(min)	I[359]	Shear-z	-1.77	330.34	-17.16	-23.59	164.35	-71.74
494	MV-LM1(min)	J[58]	Shear-z	-1.75	330.02	-17.15	-23.57	172.47	-236.68
495	MV-LM1(min)	I[360]	Shear-z	-0.42	313.15	-13.48	-23.74	147.19	-66.74
495	MV-LM1(min)	J[59]	Shear-z	-0.41	312.95	-13.48	-23.72	153.61	-223.17
496	MV-LM1(min)	I[361]	Shear-z	0.91	343.23	-10.8	-22.53	145.41	-78.56
496	MV-LM1(min)	J[60]	Shear-z	0.91	343.21	-10.8	-22.52	150.74	-250.17
497	MV-LM1(min)	I[362]	Shear-z	0.77	-360.47	-10.42	21.35	142.54	83.62
497	MV-LM1(min)	J[61]	Shear-z	0.77	-360.45	-10.42	21.35	147.68	263.84
498	MV-LM1(min)	I[363]	Shear-z	-1.8	-396.3	-13.03	24.46	150.24	89.9
498	MV-LM1(min)	J[62]	Shear-z	-1.79	-396.08	-13.02	24.45	156.46	287.89
499	MV-LM1(min)	I[364]	Shear-z	-1.96	-336.59	-16.27	23.25	158.33	73.14
499	MV-LM1(min)	J[63]	Shear-z	-1.95	-336.24	-16.26	23.23	166.06	241.18
500	MV-LM1(min)	I[365]	Shear-z	-3.95	-303.07	-20.25	19.85	175.35	67.71
500	MV-LM1(min)	J[64]	Shear-z	-3.93	-302.65	-20.23	19.83	184.9	218.94
501	MV-LM1(min)	I[366]	Shear-z	-5.72	-204.8	-22.7	11.85	182.13	48.41
501	MV-LM1(min)	J[65]	Shear-z	-5.68	-204.5	-22.67	11.85	192.72	150.59
502	MV-LM1(min)	I[367]	Shear-z	-5.08	-82.16	-20.69	2.04	172.81	23.62
502	MV-LM1(min)	J[66]	Shear-z	-5.03	-82.24	-20.66	2.06	182.34	64.74
503	MV-LM1(min)	I[368]	Shear-z	4.15	243.28	-12.82	-21.43	146.45	-50.1
503	MV-LM1(min)	J[67]	Shear-z	4.16	242.88	-12.81	-21.39	152.41	-171.47
504	MV-LM1(min)	I[369]	Shear-z	2.35	296.77	-7.04	-14.56	124.25	-73.92
504	MV-LM1(min)	J[68]	Shear-z	2.35	296.77	-7.04	-14.56	127.77	-222.3
505	MV-LM1(min)	I[370]	Shear-z	-134.27	-625.97	-118.78	84.31	165.46	131.77
505	MV-LM1(min)	J[36]	Shear-z	-134.27	-625.97	-118.78	84.31	224.85	444.75
506	MV-LM1(min)	I[371]	Shear-z	9.15	-78.56	-41.14	2.82	8.13	-29.55
506	MV-LM1(min)	J[79]	Shear-z	9.15	-78.56	-41.14	2.82	98.89	143.74
507	MV-LM1(min)	I[372]	Shear-z	55.53	10.35	-35.24	-7.96	27.85	-76.35
507	MV-LM1(min)	J[115]	Shear-z	55.53	10.35	-35.24	-7.96	105.58	-99.19
508	MV-LM1(min)	I[373]	Shear-z	77.18	6.92	-37.63	-2.07	30.45	-5.74
508	MV-LM1(min)	J[151]	Shear-z	77.18	6.92	-37.63	-2.07	113.47	-21.01
509	MV-LM1(min)	I[374]	Shear-z	55.69	-10.41	-35.24	7.96	27.85	76.3
509	MV-LM1(min)	J[187]	Shear-z	55.69	-10.41	-35.24	7.96	105.59	99.26
510	MV-LM1(min)	I[375]	Shear-z	9.13	78.6	-41.14	-2.82	8.13	29.55
510	MV-LM1(min)	J[223]	Shear-z	9.13	78.6	-41.14	-2.82	98.88	-143.82
511	MV-LM1(min)	I[376]	Shear-z	-757.05	31.73	-30.83	-8.6	27.36	-137.68
511	MV-LM1(min)	J[74]	Shear-z	-757.05	31.73	-30.83	-8.6	95.36	-207.68

512	MV-LM1(min)	I[377]	Shear-z	-141.87	45.16	-30.83	-7.44	35.8	-77.61
512	MV-LM1(min)	J[110]	Shear-z	-141.87	45.16	-30.83	-7.44	103.82	-177.24
513	MV-LM1(min)	I[378]	Shear-z	-54.7	5.37	-34.89	-2.24	38.38	-6.4
513	MV-LM1(min)	J[146]	Shear-z	-54.7	5.37	-34.89	-2.24	115.34	-18.24
514	MV-LM1(min)	I[379]	Shear-z	-141.48	-45.29	-30.83	7.43	35.8	77.43
514	MV-LM1(min)	J[182]	Shear-z	-141.48	-45.29	-30.83	7.43	103.81	177.34
515	MV-LM1(min)	I[380]	Shear-z	-755.89	-31.81	-30.83	8.6	27.36	137.46
515	MV-LM1(min)	J[218]	Shear-z	-755.89	-31.81	-30.83	8.6	95.37	207.64
516	MV-LM1(min)	I[381]	Shear-z	-551.63	26.99	-26.61	-15.14	23.17	-140.52
516	MV-LM1(min)	J[84]	Shear-z	-551.63	26.99	-26.61	-15.14	81.86	-200.06
517	MV-LM1(min)	I[382]	Shear-z	-55.55	29.47	-30.93	-11.51	31.05	-79.5
517	MV-LM1(min)	J[120]	Shear-z	-55.55	29.47	-30.93	-11.51	99.28	-144.5
518	MV-LM1(min)	I[383]	Shear-z	5.3	6.65	-35.52	-1.6	32.94	-5.56
518	MV-LM1(min)	J[156]	Shear-z	5.3	6.65	-35.52	-1.6	111.29	-20.24
519	MV-LM1(min)	I[384]	Shear-z	-55.64	-29.39	-30.93	11.52	31.05	79.45
519	MV-LM1(min)	J[192]	Shear-z	-55.64	-29.39	-30.93	11.52	99.28	144.28
520	MV-LM1(min)	I[385]	Shear-z	-551.39	-26.91	-26.61	15.15	23.16	140.43
520	MV-LM1(min)	J[228]	Shear-z	-551.39	-26.91	-26.61	15.15	81.86	199.79

3.4. MÁXIMO CORTANTE POSITIVO Y SUS CONCOMITANTES

Elem	Load	Part	Component	Axial (kN)	Shear-y (kN)	Shear-z (kN)	Torsion (kN*m)	Moment-y (kN*m)	Moment-z (kN*m)
1	MV-LM1(max)	I[1]	Shear-z	-1596.57	0.29	58.92	6.44	59.38	18.31
1	MV-LM1(max)	J[2]	Shear-z	-1596.57	0.29	58.92	6.44	-240.77	16.84
2	MV-LM1(max)	I[2]	Shear-z	-1435.32	0.3	24.31	6.32	-211.07	15.94
2	MV-LM1(max)	J[3]	Shear-z	-1435.32	0.3	24.31	6.32	-331.23	14.43
3	MV-LM1(max)	I[3]	Shear-z	-707.1	-0.36	24.74	4.63	221.69	-11.93
3	MV-LM1(max)	J[4]	Shear-z	-707.1	-0.36	24.74	4.63	102.75	-10.19
4	MV-LM1(max)	I[4]	Shear-z	-762.95	-0.38	34.98	-0.12	369.35	-8.86
4	MV-LM1(max)	J[5]	Shear-z	-762.95	-0.38	34.98	-0.12	205.27	-7.07
5	MV-LM1(max)	I[5]	Shear-z	-751.52	-0.45	42.57	-1.66	433.11	-7.68
5	MV-LM1(max)	J[6]	Shear-z	-751.52	-0.45	42.57	-1.66	237.65	-5.62
6	MV-LM1(max)	I[6]	Shear-z	-754.67	-0.64	48.76	-0.8	494.7	-6.75
6	MV-LM1(max)	J[7]	Shear-z	-754.67	-0.64	48.76	-0.8	274.62	-3.86
7	MV-LM1(max)	I[7]	Shear-z	-921.02	-0.63	52.86	-0.1	444.73	-1.71
7	MV-LM1(max)	J[8]	Shear-z	-921.02	-0.63	52.86	-0.1	209.1	1.09
8	MV-LM1(max)	I[8]	Shear-z	-1069.71	-0.59	54.65	0.36	376.61	3.2
8	MV-LM1(max)	J[9]	Shear-z	-1069.71	-0.59	54.65	0.36	134.89	5.79
9	MV-LM1(max)	I[9]	Shear-z	-1199.74	-0.52	54.42	0.59	308.83	7.41
9	MV-LM1(max)	J[10]	Shear-z	-1199.74	-0.52	54.42	0.59	68.74	9.73
10	MV-LM1(max)	I[10]	Shear-z	-1310.57	-0.45	52.65	0.62	255.48	10.59
10	MV-LM1(max)	J[11]	Shear-z	-1310.57	-0.45	52.65	0.62	22.6	12.56
11	MV-LM1(max)	I[11]	Shear-z	-1401.49	-0.35	49.97	0.56	225.68	12.45
11	MV-LM1(max)	J[12]	Shear-z	-1401.49	-0.35	49.97	0.56	2.93	14.01
12	MV-LM1(max)	I[12]	Shear-z	-1471.25	-0.24	47.18	0.48	222.9	12.7
12	MV-LM1(max)	J[13]	Shear-z	-1471.25	-0.24	47.18	0.48	9.93	13.77
13	MV-LM1(max)	I[13]	Shear-z	-1364.13	0.08	45.49	-0.4	310.96	7.47
13	MV-LM1(max)	J[14]	Shear-z	-1364.13	0.08	45.49	-0.4	102.06	7.08
14	MV-LM1(max)	I[14]	Shear-z	-1207.49	0.28	46.57	1.31	402.82	1
14	MV-LM1(max)	J[15]	Shear-z	-1207.49	0.28	46.57	1.31	184.41	-0.3
15	MV-LM1(max)	I[15]	Shear-z	-1064.11	0.43	50.61	3.16	453.16	-6.48
15	MV-LM1(max)	J[16]	Shear-z	-1064.11	0.43	50.61	3.16	209.84	-8.56
16	MV-LM1(max)	I[16]	Shear-z	-841.99	0.59	59.2	4.61	476.7	-16.47
16	MV-LM1(max)	J[17]	Shear-z	-841.99	0.59	59.2	4.61	184.11	-19.37
17	MV-LM1(max)	I[17]	Shear-z	-589.14	0.67	78.46	3.5	338.76	-25.63
17	MV-LM1(max)	J[18]	Shear-z	-589.14	0.67	78.46	3.5	-60.92	-29.03
18	MV-LM1(max)	I[19]	Shear-z	-1596.41	-0.31	58.91	-5.7	59.58	-19.49
18	MV-LM1(max)	J[20]	Shear-z	-1596.41	-0.31	58.91	-5.7	-240.54	-17.93
19	MV-LM1(max)	I[20]	Shear-z	-1435.47	-0.32	24.34	-5.54	-210.37	-16.85

19	MV-LM1(max)	J[21]	Shear-z	-1435.47	-0.32	24.34	-5.54	-330.66	-15.28
20	MV-LM1(max)	I[21]	Shear-z	-707.66	0.37	24.8	-4.61	222.17	12.16
20	MV-LM1(max)	J[22]	Shear-z	-707.66	0.37	24.8	-4.61	102.96	10.4
21	MV-LM1(max)	I[22]	Shear-z	-763.26	0.39	34.99	0.02	369.34	9.01
21	MV-LM1(max)	J[23]	Shear-z	-763.26	0.39	34.99	0.02	205.22	7.19
22	MV-LM1(max)	I[23]	Shear-z	-751.79	0.45	42.56	1.54	432.98	7.74
22	MV-LM1(max)	J[24]	Shear-z	-751.79	0.45	42.56	1.54	237.53	5.68
23	MV-LM1(max)	I[24]	Shear-z	-754.49	0.65	48.75	0.52	494.77	6.92
23	MV-LM1(max)	J[25]	Shear-z	-754.49	0.65	48.75	0.52	274.69	3.99
24	MV-LM1(max)	I[25]	Shear-z	-920.98	0.63	52.86	0.15	444.74	1.68
24	MV-LM1(max)	J[26]	Shear-z	-920.98	0.63	52.86	0.15	209.12	-1.11
25	MV-LM1(max)	I[26]	Shear-z	-1069.69	0.58	54.65	-0.09	376.62	-3.25
25	MV-LM1(max)	J[27]	Shear-z	-1069.69	0.58	54.65	-0.09	134.9	-5.83
26	MV-LM1(max)	I[27]	Shear-z	-1199.74	0.52	54.42	-0.12	308.83	-7.43
26	MV-LM1(max)	J[28]	Shear-z	-1199.74	0.52	54.42	-0.12	68.74	-9.71
27	MV-LM1(max)	I[28]	Shear-z	-1310.6	0.44	52.65	0.01	255.46	-10.52
27	MV-LM1(max)	J[29]	Shear-z	-1310.6	0.44	52.65	0.01	22.58	-12.44
28	MV-LM1(max)	I[29]	Shear-z	-1401.57	0.34	49.97	0.19	225.64	-12.24
28	MV-LM1(max)	J[30]	Shear-z	-1401.57	0.34	49.97	0.19	2.88	-13.75
29	MV-LM1(max)	I[30]	Shear-z	-1471.35	0.22	47.18	0.35	222.85	-12.34
29	MV-LM1(max)	J[31]	Shear-z	-1471.35	0.22	47.18	0.35	9.87	-13.35
30	MV-LM1(max)	I[31]	Shear-z	-1364.26	-0.1	45.5	1.29	310.88	-6.95
30	MV-LM1(max)	J[32]	Shear-z	-1364.26	-0.1	45.5	1.29	101.96	-6.49
31	MV-LM1(max)	I[32]	Shear-z	-1207.72	-0.29	46.58	-0.49	402.7	-0.37
31	MV-LM1(max)	J[33]	Shear-z	-1207.72	-0.29	46.58	-0.49	184.25	1
32	MV-LM1(max)	I[33]	Shear-z	-1064.42	-0.45	50.62	-2.46	453	7.16
32	MV-LM1(max)	J[34]	Shear-z	-1064.42	-0.45	50.62	-2.46	209.64	9.3
33	MV-LM1(max)	I[34]	Shear-z	-842.09	-0.6	59.2	-4.09	476.58	17.09
33	MV-LM1(max)	J[35]	Shear-z	-842.09	-0.6	59.2	-4.09	183.97	20.04
34	MV-LM1(max)	I[35]	Shear-z	-588.85	-0.68	78.47	-3.18	338.71	26.15
34	MV-LM1(max)	J[36]	Shear-z	-588.85	-0.68	78.47	-3.18	-61	29.59
67	MV-LM1(max)	I[1]	Shear-z	-211.73	-509.53	104.34	67.4	215.84	-361.56
67	MV-LM1(max)	J[335]	Shear-z	-211.73	-509.53	104.34	67.4	163.67	-106.8
68	MV-LM1(max)	I[18]	Shear-z	-104.86	626.33	118.79	-84.4	218.18	445
68	MV-LM1(max)	J[352]	Shear-z	-104.86	626.33	118.79	-84.4	158.79	131.83
69	MV-LM1(max)	I[37]	Shear-z	2.67	286.29	6.54	-12.28	126.84	216.53
69	MV-LM1(max)	J[336]	Shear-z	2.67	286.29	6.54	-12.28	123.57	73.38
70	MV-LM1(max)	I[38]	Shear-z	2.51	297.38	12.71	-23.06	158.16	212.67
70	MV-LM1(max)	J[337]	Shear-z	2.5	297.74	12.72	-23.1	152.18	64.05
71	MV-LM1(max)	I[39]	Shear-z	-6.65	-88.51	20.5	1.53	186.73	-70.8
71	MV-LM1(max)	J[338]	Shear-z	-6.69	-88.39	20.53	1.51	177.29	-26.54
72	MV-LM1(max)	I[40]	Shear-z	-7.97	-227.41	23.27	11.88	197.81	-169.58
72	MV-LM1(max)	J[339]	Shear-z	-8.01	-227.65	23.3	11.89	186.98	-55.94
73	MV-LM1(max)	I[41]	Shear-z	-3.72	-299.69	20.84	19.31	188.85	-217.53
73	MV-LM1(max)	J[340]	Shear-z	-3.75	-300.06	20.86	19.33	179.06	-67.77
74	MV-LM1(max)	I[42]	Shear-z	-1.76	-329.94	17.15	23.58	172.44	-236.62
74	MV-LM1(max)	J[341]	Shear-z	-1.77	-330.26	17.16	23.6	164.32	-71.72
75	MV-LM1(max)	I[43]	Shear-z	-0.41	-312.88	13.47	23.73	153.59	-223.11
75	MV-LM1(max)	J[342]	Shear-z	-0.42	-313.08	13.48	23.74	147.17	-66.71
76	MV-LM1(max)	I[44]	Shear-z	0.91	-343.17	10.8	22.53	150.7	-250.13
76	MV-LM1(max)	J[343]	Shear-z	0.9	-343.19	10.8	22.53	145.37	-78.55
77	MV-LM1(max)	I[45]	Shear-z	0.76	360.2	10.42	-21.35	147.67	263.65
77	MV-LM1(max)	J[344]	Shear-z	0.76	360.23	10.43	-21.35	142.52	83.55
78	MV-LM1(max)	I[46]	Shear-z	-1.79	395.97	13.03	-24.46	156.47	287.8
78	MV-LM1(max)	J[345]	Shear-z	-1.8	396.18	13.03	-24.47	150.24	89.86
79	MV-LM1(max)	I[47]	Shear-z	-1.94	336.04	16.27	-23.24	166.04	241.02
79	MV-LM1(max)	J[346]	Shear-z	-1.95	336.38	16.28	-23.26	158.31	73.08
80	MV-LM1(max)	I[48]	Shear-z	-3.92	302.29	20.24	-19.82	184.69	218.66
80	MV-LM1(max)	J[347]	Shear-z	-3.94	302.71	20.25	-19.84	175.14	67.61
81	MV-LM1(max)	I[49]	Shear-z	-5.68	204.61	22.67	-11.85	192.47	150.66
81	MV-LM1(max)	J[348]	Shear-z	-5.72	204.91	22.7	-11.86	181.89	48.43

82	MV-LM1(max)	I[50]	Shear-z	-5.06	82.59	20.64	-2.06	181.93	64.98
82	MV-LM1(max)	J[349]	Shear-z	-5.1	82.51	20.67	-2.04	172.41	23.68
83	MV-LM1(max)	I[51]	Shear-z	3.61	-243.31	12.83	21.37	150.75	-171.86
83	MV-LM1(max)	J[350]	Shear-z	3.59	-243.71	12.84	21.41	144.77	-50.28
84	MV-LM1(max)	I[52]	Shear-z	2.38	-296.73	7.04	14.55	127.74	-222.28
84	MV-LM1(max)	J[351]	Shear-z	2.38	-296.73	7.04	14.55	124.22	-73.92
85	MV-LM1(max)	I[69]	Shear-z	-269.34	-45.05	57.67	6.21	248.65	-40.76
85	MV-LM1(max)	J[87]	Shear-z	-134.3	-24.73	73.95	2.39	471.34	16.37
86	MV-LM1(max)	I[70]	Shear-z	-230.11	68.68	60.89	-3.62	242.17	64.13
86	MV-LM1(max)	J[88]	Shear-z	-127.86	32.8	74.8	-0.8	467.44	-20.79
87	MV-LM1(max)	I[71]	Shear-z	-14.28	48.86	7.28	9.46	139.04	48.4
87	MV-LM1(max)	J[89]	Shear-z	-18.79	31.56	62.31	2.65	400.68	-16.89
88	MV-LM1(max)	I[72]	Shear-z	-3.54	-0.21	13.42	-2.11	150.07	-3.09
88	MV-LM1(max)	J[90]	Shear-z	-17.89	-8.06	75.56	-2.56	424.4	1.48
89	MV-LM1(max)	I[73]	Shear-z	-50.43	-34.62	17.16	-6.25	225.18	-34.19
89	MV-LM1(max)	J[91]	Shear-z	-28.68	-26.25	81.48	-4.25	448.26	12.42
90	MV-LM1(max)	I[74]	Shear-z	-24.37	-42.32	20.21	-2.85	185.61	-42.07
90	MV-LM1(max)	J[92]	Shear-z	-30.95	-34	83.16	-2.18	452.31	16.7
91	MV-LM1(max)	I[75]	Shear-z	-21.91	-51.49	19.5	-0.76	182.42	-50.97
91	MV-LM1(max)	J[93]	Shear-z	-28.23	-38.86	81.69	-0.01	447.99	19.46
92	MV-LM1(max)	I[76]	Shear-z	-16.99	-54.09	16.85	1.39	170.38	-53.25
92	MV-LM1(max)	J[94]	Shear-z	-23.81	-36.48	78.84	1.86	439.23	18.67
93	MV-LM1(max)	I[77]	Shear-z	-13.54	-41.55	13.69	1.91	154.42	-40.21
93	MV-LM1(max)	J[95]	Shear-z	-21.26	-19.26	75.86	1.94	428.41	10.64
94	MV-LM1(max)	I[78]	Shear-z	-5.61	-29.52	10.98	0.42	141.18	-27.96
94	MV-LM1(max)	J[96]	Shear-z	-19.75	-0.41	73.8	0.8	421.19	1.74
95	MV-LM1(max)	I[79]	Shear-z	-5.55	53.45	10.5	-0.87	138.58	53.06
95	MV-LM1(max)	J[97]	Shear-z	-19.67	41.58	73.41	-1.6	419.68	-20.3
96	MV-LM1(max)	I[80]	Shear-z	-13.51	66.38	12.9	-2.49	150.05	66.27
96	MV-LM1(max)	J[98]	Shear-z	-21.16	55.34	75.15	-2.74	425.52	-26.9
97	MV-LM1(max)	I[81]	Shear-z	-17.05	67.42	15.96	-2.26	165.26	67.24
97	MV-LM1(max)	J[99]	Shear-z	-23.71	62.38	77.92	-2.99	435.36	-30.35
98	MV-LM1(max)	I[82]	Shear-z	-22.31	54.37	18.86	-0.05	178.94	53.98
98	MV-LM1(max)	J[100]	Shear-z	-28.33	54.56	80.9	-1.13	444.84	-26.55
99	MV-LM1(max)	I[83]	Shear-z	-25.61	35.22	20.12	2.21	185.36	34.64
99	MV-LM1(max)	J[101]	Shear-z	-31.77	38.43	82.81	1.15	451.04	-18.69
100	MV-LM1(max)	I[84]	Shear-z	-52.99	24.22	17.74	5.73	228.86	23.33
100	MV-LM1(max)	J[102]	Shear-z	-31.1	21.69	81.89	3.42	450.26	-10.32
101	MV-LM1(max)	I[85]	Shear-z	-7.03	2.11	14.04	1.09	154.28	5.15
101	MV-LM1(max)	J[103]	Shear-z	-22.64	1.51	76.69	1.76	430.42	1.59
102	MV-LM1(max)	I[86]	Shear-z	-0.36	-59.14	7.64	-11.03	121.92	-60.2
102	MV-LM1(max)	J[104]	Shear-z	-21.8	-32.15	63.19	-1.85	402.07	17.57
103	MV-LM1(max)	I[87]	Shear-z	-134.3	-24.73	73.95	0.46	460.87	16.37
103	MV-LM1(max)	J[105]	Shear-z	-134.3	-24.73	73.95	0.46	349.94	53.47
104	MV-LM1(max)	I[88]	Shear-z	-127.86	32.8	74.8	1.76	457.47	-20.79
104	MV-LM1(max)	J[106]	Shear-z	-127.86	32.8	74.8	1.76	345.27	-69.99
105	MV-LM1(max)	I[89]	Shear-z	-18.79	31.56	62.31	5.11	399.21	-16.89
105	MV-LM1(max)	J[107]	Shear-z	-18.79	31.56	62.31	5.11	305.74	-64.23
106	MV-LM1(max)	I[90]	Shear-z	-17.89	-8.06	75.56	-3.19	423.01	1.48
106	MV-LM1(max)	J[108]	Shear-z	-17.89	-8.06	75.56	-3.19	309.67	13.57
107	MV-LM1(max)	I[91]	Shear-z	-28.68	-26.25	81.48	-6.3	446.02	12.42
107	MV-LM1(max)	J[109]	Shear-z	-28.68	-26.25	81.48	-6.3	323.8	51.8
108	MV-LM1(max)	I[92]	Shear-z	-30.95	-34	83.16	-4.83	449.9	16.7
108	MV-LM1(max)	J[110]	Shear-z	-30.95	-34	83.16	-4.83	325.15	67.7
109	MV-LM1(max)	I[93]	Shear-z	-28.23	-38.86	81.69	-3.04	445.79	19.46
109	MV-LM1(max)	J[111]	Shear-z	-28.23	-38.86	81.69	-3.04	323.25	77.74
110	MV-LM1(max)	I[94]	Shear-z	-23.81	-36.48	78.84	-0.99	437.37	18.67
110	MV-LM1(max)	J[112]	Shear-z	-23.81	-36.48	78.84	-0.99	319.12	73.38
111	MV-LM1(max)	I[95]	Shear-z	-21.26	-19.26	75.86	0.44	426.76	10.64
111	MV-LM1(max)	J[113]	Shear-z	-21.26	-19.26	75.86	0.44	312.97	39.53
112	MV-LM1(max)	I[96]	Shear-z	-19.75	-0.41	73.8	0.77	419.65	1.74

112	MV-LM1(max)	J[114]	Shear-z	-19.75	-0.41	73.8	0.77	308.95	2.36
113	MV-LM1(max)	I[97]	Shear-z	-19.67	41.58	73.41	1.64	418.15	-20.3
113	MV-LM1(max)	J[115]	Shear-z	-19.67	41.58	73.41	1.64	308.03	-82.66
114	MV-LM1(max)	I[98]	Shear-z	-21.16	55.34	75.15	1.58	423.87	-26.9
114	MV-LM1(max)	J[116]	Shear-z	-21.16	55.34	75.15	1.58	311.15	-109.9
115	MV-LM1(max)	I[99]	Shear-z	-23.71	62.38	77.92	1.88	433.51	-30.35
115	MV-LM1(max)	J[117]	Shear-z	-23.71	62.38	77.92	1.88	316.63	-123.92
116	MV-LM1(max)	I[100]	Shear-z	-28.33	54.56	80.9	3.13	442.63	-26.55
116	MV-LM1(max)	J[118]	Shear-z	-28.33	54.56	80.9	3.13	321.28	-108.39
117	MV-LM1(max)	I[101]	Shear-z	-31.77	38.43	82.81	4.15	448.57	-18.69
117	MV-LM1(max)	J[119]	Shear-z	-31.77	38.43	82.81	4.15	324.36	-76.34
118	MV-LM1(max)	I[102]	Shear-z	-31.1	21.69	81.89	5.11	447.83	-10.32
118	MV-LM1(max)	J[120]	Shear-z	-31.1	21.69	81.89	5.11	324.99	-42.86
119	MV-LM1(max)	I[103]	Shear-z	-22.64	1.51	76.69	1.88	428.66	1.59
119	MV-LM1(max)	J[121]	Shear-z	-22.64	1.51	76.69	1.88	313.62	-0.67
120	MV-LM1(max)	I[104]	Shear-z	-21.8	-32.15	63.19	-4.35	400.37	17.57
120	MV-LM1(max)	J[122]	Shear-z	-21.8	-32.15	63.19	-4.35	305.58	65.8
121	MV-LM1(max)	I[105]	Shear-z	-51.51	20.03	63.33	16.33	402.37	34.35
121	MV-LM1(max)	J[123]	Shear-z	-76.16	7.69	157.5	6.05	1002.65	13.57
122	MV-LM1(max)	I[106]	Shear-z	-51.84	-26.6	61.79	-14.63	398.45	-44.89
122	MV-LM1(max)	J[124]	Shear-z	-75.37	-10.76	156.79	-5.19	1001.7	-13.93
123	MV-LM1(max)	I[107]	Shear-z	9.16	1.31	45.21	5.08	291.21	1.48
123	MV-LM1(max)	J[125]	Shear-z	46.54	-5.95	158.54	-2.02	827.91	0.2
124	MV-LM1(max)	I[108]	Shear-z	-18.05	-41.8	57.22	-14.47	326.72	-64.24
124	MV-LM1(max)	J[126]	Shear-z	23.42	-30.26	170.68	-11.74	809.44	-1.68
125	MV-LM1(max)	I[109]	Shear-z	-45.66	-29.94	62.93	-7.75	377.67	-42.47
125	MV-LM1(max)	J[127]	Shear-z	18.16	-21.49	175.77	-6.52	811.28	1.13
126	MV-LM1(max)	I[110]	Shear-z	-30.29	-17.28	64.35	-0.91	346.13	-23.89
126	MV-LM1(max)	J[128]	Shear-z	17.59	-12.11	176.63	-1.2	812.05	1.87
127	MV-LM1(max)	I[111]	Shear-z	-28.4	-4.54	63.16	4.8	343.48	-4.38
127	MV-LM1(max)	J[129]	Shear-z	20.97	-2.77	175.37	3.14	811.65	2.39
128	MV-LM1(max)	I[112]	Shear-z	-24.68	8.15	60.74	9.37	337.7	14.73
128	MV-LM1(max)	J[130]	Shear-z	26.07	6.82	173.24	6.3	810.38	2.51
129	MV-LM1(max)	I[113]	Shear-z	-22.65	19.84	58.02	10.22	329.88	31.79
129	MV-LM1(max)	J[131]	Shear-z	29.39	16.49	171.05	6.6	807.39	2
130	MV-LM1(max)	I[114]	Shear-z	-22.39	27.8	55.97	8.91	323.98	43
130	MV-LM1(max)	J[132]	Shear-z	30.62	23.45	169.56	5.15	805.27	1.23
131	MV-LM1(max)	I[115]	Shear-z	-32.39	21.67	55.63	-5.84	343.7	29.69
131	MV-LM1(max)	J[133]	Shear-z	30.51	18.36	169.27	-4.19	804.67	-1.3
132	MV-LM1(max)	I[116]	Shear-z	-22.71	16.94	57.28	-9.53	327.7	23.33
132	MV-LM1(max)	J[134]	Shear-z	29.4	21.26	170.5	-5.88	806.54	-2.06
133	MV-LM1(max)	I[117]	Shear-z	-24.71	16.19	59.85	-9.98	335.01	21.74
133	MV-LM1(max)	J[135]	Shear-z	26.08	21.18	172.51	-6.59	809.17	-2.55
134	MV-LM1(max)	I[118]	Shear-z	-28.6	17.9	62.4	-6.11	341.11	24.44
134	MV-LM1(max)	J[136]	Shear-z	20.88	21.1	174.69	-4.06	810.48	-2.4
135	MV-LM1(max)	I[119]	Shear-z	-30.96	19.14	64	-0.99	345.22	26.76
135	MV-LM1(max)	J[137]	Shear-z	17.08	20.28	176.24	-0.28	811.39	-1.84
136	MV-LM1(max)	I[120]	Shear-z	-47	25.19	63.26	5.57	379.14	35.52
136	MV-LM1(max)	J[138]	Shear-z	17.05	22.24	175.93	4.71	811.71	-1
137	MV-LM1(max)	I[121]	Shear-z	-20.11	35.07	58.47	12.57	331.77	54.42
137	MV-LM1(max)	J[139]	Shear-z	21.6	27.26	171.66	10.09	811.76	1.92
138	MV-LM1(max)	I[122]	Shear-z	2.85	-13.16	45.24	-3.97	293.87	-19.09
138	MV-LM1(max)	J[140]	Shear-z	40.13	1.67	158.63	2.6	830.5	0.09
139	MV-LM1(max)	I[123]	Shear-z	-76.16	7.69	157.5	6.05	1002.65	13.57
139	MV-LM1(max)	J[141]	Shear-z	-75.97	7.69	157.53	5.98	776.42	2.13
140	MV-LM1(max)	I[124]	Shear-z	-75.37	-10.76	156.79	-5.19	1001.7	-13.93
140	MV-LM1(max)	J[142]	Shear-z	-75.17	-10.76	156.82	-5.12	776.65	2.11
141	MV-LM1(max)	I[125]	Shear-z	46.54	-5.95	158.54	-2.02	827.91	0.2
141	MV-LM1(max)	J[143]	Shear-z	62.88	-8.07	163.38	-5.78	848.93	12.75
142	MV-LM1(max)	I[126]	Shear-z	23.42	-30.26	170.68	-11.74	809.44	-1.68
142	MV-LM1(max)	J[144]	Shear-z	31.26	-20.51	175.9	-10.94	799.71	29.05

143	MV-LM1(max)	I[127]	Shear-z	18.16	-21.49	175.77	-6.52	811.28	1.13
143	MV-LM1(max)	J[145]	Shear-z	28.48	-13.42	180.48	-6.15	790.41	21.33
144	MV-LM1(max)	I[128]	Shear-z	17.59	-12.11	176.63	-1.2	812.05	1.87
144	MV-LM1(max)	J[146]	Shear-z	28.56	-6.78	181.14	-1.75	789.22	12.33
145	MV-LM1(max)	I[129]	Shear-z	20.97	-2.77	175.37	3.14	811.65	2.39
145	MV-LM1(max)	J[147]	Shear-z	33.3	0.12	179.85	1.86	791.04	2.69
146	MV-LM1(max)	I[130]	Shear-z	26.07	6.82	173.24	6.3	810.38	2.51
146	MV-LM1(max)	J[148]	Shear-z	39.99	7.5	177.85	4.2	793.32	-8.15
147	MV-LM1(max)	I[131]	Shear-z	29.39	16.49	171.05	6.6	807.39	2
147	MV-LM1(max)	J[149]	Shear-z	45.09	15.7	175.91	4.04	794.13	-20.93
148	MV-LM1(max)	I[132]	Shear-z	30.62	23.45	169.56	5.15	805.27	1.23
148	MV-LM1(max)	J[150]	Shear-z	47.76	21.6	174.78	2.11	794.47	-30.56
149	MV-LM1(max)	I[133]	Shear-z	30.51	18.36	169.27	-4.19	804.67	-1.3
149	MV-LM1(max)	J[151]	Shear-z	47.67	24.51	174.62	-1.04	794.27	-38.68
150	MV-LM1(max)	I[134]	Shear-z	29.4	21.26	170.5	-5.88	806.54	-2.06
150	MV-LM1(max)	J[152]	Shear-z	45.12	26.86	175.47	-3.15	794.08	-43
151	MV-LM1(max)	I[135]	Shear-z	26.08	21.18	172.51	-6.59	809.17	-2.55
151	MV-LM1(max)	J[153]	Shear-z	40.05	26.66	177.19	-4.26	793.16	-43.16
152	MV-LM1(max)	I[136]	Shear-z	20.88	21.1	174.69	-4.06	810.48	-2.4
152	MV-LM1(max)	J[154]	Shear-z	33.31	24.6	179.18	-2.51	790.82	-39.81
153	MV-LM1(max)	I[137]	Shear-z	17.08	20.28	176.24	-0.28	811.39	-1.84
153	MV-LM1(max)	J[155]	Shear-z	28.23	22.04	180.66	0.54	789.04	-35.23
154	MV-LM1(max)	I[138]	Shear-z	17.05	22.24	175.93	4.71	811.71	-1
154	MV-LM1(max)	J[156]	Shear-z	27.57	20.8	180.45	4.57	790.37	-32.34
155	MV-LM1(max)	I[139]	Shear-z	21.6	27.26	171.66	10.09	811.76	1.92
155	MV-LM1(max)	J[157]	Shear-z	29.59	23.92	176.54	9.37	800.04	-34
156	MV-LM1(max)	I[140]	Shear-z	40.13	1.67	158.63	2.6	830.5	0.09
156	MV-LM1(max)	J[158]	Shear-z	57.74	8.68	163.48	6.04	850.61	-13.37
157	MV-LM1(max)	I[141]	Shear-z	-17.72	15.48	150.05	17.6	821.43	28.67
157	MV-LM1(max)	J[159]	Shear-z	31.16	5.83	293.28	16.1	1298.04	11.83
158	MV-LM1(max)	I[142]	Shear-z	-17.52	-19.5	149.27	-16.91	819.72	-34.47
158	MV-LM1(max)	J[160]	Shear-z	31.47	-7.26	293.03	-15.88	1298	-11.75
159	MV-LM1(max)	I[143]	Shear-z	5.64	-8.44	133.41	-10.55	711.64	-14.33
159	MV-LM1(max)	J[161]	Shear-z	97.36	-4.92	280.91	-5.34	1021.88	-0.46
160	MV-LM1(max)	I[144]	Shear-z	-42.79	-30.01	142.24	-16.58	673.51	-47.65
160	MV-LM1(max)	J[162]	Shear-z	60.84	-17.78	284.29	-9.41	956.88	-0.83
161	MV-LM1(max)	I[145]	Shear-z	-45.08	-15.96	146.59	-11.43	665.26	-26.3
161	MV-LM1(max)	J[163]	Shear-z	55.71	-8.94	286.88	-6.39	939.59	-0.84
162	MV-LM1(max)	I[146]	Shear-z	-46.28	3.07	147.29	-1.87	664.03	3.6
162	MV-LM1(max)	J[164]	Shear-z	53.46	2.9	287.31	-0.55	936.98	0.01
163	MV-LM1(max)	I[147]	Shear-z	-42.75	16.26	146.2	2.62	665.05	23.77
163	MV-LM1(max)	J[165]	Shear-z	55.54	10.59	286.65	2.14	938.65	0.16
164	MV-LM1(max)	I[148]	Shear-z	-37.79	25.44	144.45	5.35	666.73	37.66
164	MV-LM1(max)	J[166]	Shear-z	58.5	15.53	285.56	3.79	942.15	0.13
165	MV-LM1(max)	I[149]	Shear-z	-33.29	29.48	142.72	5.01	667.89	43.52
165	MV-LM1(max)	J[167]	Shear-z	61.46	17.46	284.47	3.5	945.59	-0.02
166	MV-LM1(max)	I[150]	Shear-z	-31.16	26.87	141.69	2.31	668.14	39.09
166	MV-LM1(max)	J[168]	Shear-z	63.38	15.24	283.83	1.77	947.87	-0.35
167	MV-LM1(max)	I[151]	Shear-z	-31.21	19.81	141.53	-1.15	668.06	31.08
167	MV-LM1(max)	J[169]	Shear-z	63.39	9.24	283.74	-1.14	948.02	0.41
168	MV-LM1(max)	I[152]	Shear-z	-33.66	13.71	142.27	-3.95	667.26	21.42
168	MV-LM1(max)	J[170]	Shear-z	61.36	4.93	284.2	-2.93	945.78	0.08
169	MV-LM1(max)	I[153]	Shear-z	-37.95	8.87	143.78	-5.41	666.29	13.91
169	MV-LM1(max)	J[171]	Shear-z	58.4	1.6	285.16	-3.88	942.21	-0.06
170	MV-LM1(max)	I[154]	Shear-z	-42.93	8.59	145.54	-3.29	664.51	13.56
170	MV-LM1(max)	J[172]	Shear-z	55.54	0.73	286.27	-2.61	938.75	-0.13
171	MV-LM1(max)	I[155]	Shear-z	-46.32	12.34	146.81	0.63	663.45	19.52
171	MV-LM1(max)	J[173]	Shear-z	53.61	2.84	287.07	-0.26	937.08	-0.02
172	MV-LM1(max)	I[156]	Shear-z	-45.53	20.02	146.54	5.94	664.53	31.46
172	MV-LM1(max)	J[174]	Shear-z	55.76	8.15	286.93	3	939.28	0.22
173	MV-LM1(max)	I[157]	Shear-z	-41.26	33.4	142.87	14.97	672.93	52.55

173	MV-LM1(max)	J[175]	Shear-z	62.27	17.07	284.81	8.4	956.06	0.68
174	MV-LM1(max)	I[158]	Shear-z	7.08	11.32	133.49	10.51	711.33	18.49
174	MV-LM1(max)	J[176]	Shear-z	98.41	4.42	280.97	5.49	1021.97	0.26
175	MV-LM1(max)	I[159]	Shear-z	31.16	5.83	293.28	16.1	1298.04	11.83
175	MV-LM1(max)	J[177]	Shear-z	33.75	5.95	311.96	16.11	1090.4	5.49
176	MV-LM1(max)	I[160]	Shear-z	31.47	-7.26	293.03	-15.88	1298	-11.75
176	MV-LM1(max)	J[178]	Shear-z	34.58	-7.45	311.68	-15.84	1090.73	-3.13
177	MV-LM1(max)	I[161]	Shear-z	97.36	-4.92	280.91	-5.34	1021.88	-0.46
177	MV-LM1(max)	J[179]	Shear-z	117.15	1.71	300.23	-1.19	806.78	-3.34
178	MV-LM1(max)	I[162]	Shear-z	60.84	-17.78	284.29	-9.41	956.88	-0.83
178	MV-LM1(max)	J[180]	Shear-z	82.82	-12.14	299.68	-5.73	740.69	17.65
179	MV-LM1(max)	I[163]	Shear-z	55.71	-8.94	286.88	-6.39	939.59	-0.84
179	MV-LM1(max)	J[181]	Shear-z	77.93	-6.04	300.9	-4.04	721.7	7.98
180	MV-LM1(max)	I[164]	Shear-z	53.46	2.9	287.31	-0.55	936.98	0.01
180	MV-LM1(max)	J[182]	Shear-z	75.93	1.86	301.24	-0.23	718.66	-3.03
181	MV-LM1(max)	I[165]	Shear-z	55.54	10.59	286.65	2.14	938.65	0.16
181	MV-LM1(max)	J[183]	Shear-z	78.17	6.66	300.99	1.46	720.22	-10.07
182	MV-LM1(max)	I[166]	Shear-z	58.5	15.53	285.56	3.79	942.15	0.13
182	MV-LM1(max)	J[184]	Shear-z	81.24	9.39	300.43	2.64	723.97	-14.21
183	MV-LM1(max)	I[167]	Shear-z	61.46	17.46	284.47	3.5	945.59	-0.02
183	MV-LM1(max)	J[185]	Shear-z	84.25	9.81	299.77	2.37	727.9	-15.03
184	MV-LM1(max)	I[168]	Shear-z	63.38	15.24	283.83	1.77	947.87	-0.35
184	MV-LM1(max)	J[186]	Shear-z	86.15	6.76	299.4	1.01	730.42	-10.82
185	MV-LM1(max)	I[169]	Shear-z	63.39	9.24	283.74	-1.14	948.02	0.41
185	MV-LM1(max)	J[187]	Shear-z	86.17	1.65	299.34	-0.65	730.6	-1.77
186	MV-LM1(max)	I[170]	Shear-z	61.36	4.93	284.2	-2.93	945.78	0.08
186	MV-LM1(max)	J[188]	Shear-z	84.18	-2.42	299.62	-2.02	728.17	3.97
187	MV-LM1(max)	I[171]	Shear-z	58.4	1.6	285.16	-3.88	942.21	-0.06
187	MV-LM1(max)	J[189]	Shear-z	81.19	-5.25	300.21	-2.82	724.16	8.04
188	MV-LM1(max)	I[172]	Shear-z	55.54	0.73	286.27	-2.61	938.75	-0.13
188	MV-LM1(max)	J[190]	Shear-z	78.21	-5.58	300.82	-1.84	720.35	8.45
189	MV-LM1(max)	I[173]	Shear-z	53.61	2.84	287.07	-0.26	937.08	-0.02
189	MV-LM1(max)	J[191]	Shear-z	76.1	-3.25	301.18	-0.31	718.69	5.09
190	MV-LM1(max)	I[174]	Shear-z	55.76	8.15	286.93	3	939.28	0.22
190	MV-LM1(max)	J[192]	Shear-z	78.08	1.67	301.02	1.68	721.29	-1.97
191	MV-LM1(max)	I[175]	Shear-z	62.27	17.07	284.81	8.4	956.06	0.68
191	MV-LM1(max)	J[193]	Shear-z	83.89	9.06	300.07	5.14	739.6	-13.14
192	MV-LM1(max)	I[176]	Shear-z	98.41	4.42	280.97	5.49	1021.97	0.26
192	MV-LM1(max)	J[194]	Shear-z	117.64	-3.91	300.24	1.47	806.98	6.51
193	MV-LM1(max)	I[177]	Shear-z	36.49	-1.17	308.91	18.98	1135.08	-1.95
193	MV-LM1(max)	J[195]	Shear-z	37.69	0.81	468.46	20.87	845.02	1.69
194	MV-LM1(max)	I[178]	Shear-z	37.06	0.51	308.77	-18.84	1134.74	0.72
194	MV-LM1(max)	J[196]	Shear-z	39.23	-2.57	467.97	-20.47	846.16	-2.32
195	MV-LM1(max)	I[179]	Shear-z	21.01	8.42	264.62	-3.28	885.59	16.47
195	MV-LM1(max)	J[197]	Shear-z	36.82	8.46	427.28	-1.11	670.74	3.41
196	MV-LM1(max)	I[180]	Shear-z	-18.86	-15.68	256.65	-7.56	819.42	-30.88
196	MV-LM1(max)	J[198]	Shear-z	-1.99	-11.65	415.49	-3.34	629.84	-5.38
197	MV-LM1(max)	I[181]	Shear-z	-24.42	-4.55	257.58	-6.09	800.32	-9.21
197	MV-LM1(max)	J[199]	Shear-z	-7.7	-5.77	415.06	-4.61	614.02	-3.09
198	MV-LM1(max)	I[182]	Shear-z	-26.23	11.03	257.92	-1.61	797.08	21.42
198	MV-LM1(max)	J[200]	Shear-z	-9.12	5.91	415.39	-1.99	610.92	2.4
199	MV-LM1(max)	I[183]	Shear-z	-25.13	17.83	257.81	0.05	798.72	34.76
199	MV-LM1(max)	J[201]	Shear-z	-8.07	10.24	415.68	-0.97	611.67	4.41
200	MV-LM1(max)	I[184]	Shear-z	-23.42	18.96	257.39	1.07	803.23	36.95
200	MV-LM1(max)	J[202]	Shear-z	-6.79	7.35	415.63	-0.57	614.64	3.01
201	MV-LM1(max)	I[185]	Shear-z	-21.18	17.69	256.89	1.19	808.52	34.53
201	MV-LM1(max)	J[203]	Shear-z	-4.67	5.39	415.38	-0.61	619.74	2.19
202	MV-LM1(max)	I[186]	Shear-z	-20.08	7.2	256.62	-0.26	810.56	13.93
202	MV-LM1(max)	J[204]	Shear-z	-3.37	-4.56	415.27	-1.86	622.54	-2.38
203	MV-LM1(max)	I[187]	Shear-z	-20.12	-0.53	256.57	0.77	810.63	-0.91
203	MV-LM1(max)	J[205]	Shear-z	-3.37	-7.95	415.26	1.3	622.58	-3.27

204	MV-LM1(max)	I[188]	Shear-z	-21.24	-11.93	256.75	-0.71	808.76	-23.28
204	MV-LM1(max)	J[206]	Shear-z	-4.54	-18.34	415.35	0.07	620.07	-8.05
205	MV-LM1(max)	I[189]	Shear-z	-23.41	-16.25	257.18	-1.05	803.65	-31.67
205	MV-LM1(max)	J[207]	Shear-z	-6.52	-22.33	415.6	-0.36	615.13	-9.8
206	MV-LM1(max)	I[190]	Shear-z	-25.05	-17.75	257.66	-0.26	799	-34.61
206	MV-LM1(max)	J[208]	Shear-z	-7.69	-25.49	415.8	0.06	611.36	-11.3
207	MV-LM1(max)	I[191]	Shear-z	-25.95	-13.47	257.9	1.22	796.96	-26.18
207	MV-LM1(max)	J[209]	Shear-z	-8.42	-21.14	415.7	1.12	609.88	-9.29
208	MV-LM1(max)	I[192]	Shear-z	-23.58	0.48	257.78	5.61	799.79	1.24
208	MV-LM1(max)	J[210]	Shear-z	-6.15	-8.34	415.56	3.86	612.55	-3.3
209	MV-LM1(max)	I[193]	Shear-z	-16.82	9.81	257.15	6.95	818.03	19.36
209	MV-LM1(max)	J[211]	Shear-z	0.71	-1.17	416.18	2.62	627.66	-0.48
210	MV-LM1(max)	I[194]	Shear-z	21.28	-10.79	264.9	3.13	884.43	-21.17
210	MV-LM1(max)	J[212]	Shear-z	36.53	-16.76	427.69	0.87	669.65	-7.31
211	MV-LM1(max)	I[195]	Shear-z	37.69	0.81	468.46	20.8	842.08	1.69
211	MV-LM1(max)	J[213]	Shear-z	39.24	0.32	489.77	19.29	210.23	1.46
212	MV-LM1(max)	I[196]	Shear-z	39.23	-2.57	467.97	-20.27	843.1	-2.32
212	MV-LM1(max)	J[214]	Shear-z	41.52	-1.82	489.3	-18.69	211.9	0.32
213	MV-LM1(max)	I[197]	Shear-z	36.82	8.46	427.28	-1.77	667.87	3.41
213	MV-LM1(max)	J[215]	Shear-z	38.94	11.98	452.29	0.04	110.61	-13.36
214	MV-LM1(max)	I[198]	Shear-z	-1.99	-11.65	415.49	-2.44	629.99	-5.38
214	MV-LM1(max)	J[216]	Shear-z	0.4	-6.69	437.12	-0.18	113.3	6.81
215	MV-LM1(max)	I[199]	Shear-z	-7.7	-5.77	415.06	-4.16	614.62	-3.09
215	MV-LM1(max)	J[217]	Shear-z	-6.14	-3	435.15	-2.76	107.35	2.54
216	MV-LM1(max)	I[200]	Shear-z	-9.12	5.91	415.39	-2.45	611.63	2.4
216	MV-LM1(max)	J[218]	Shear-z	-7.35	5.55	435.42	-2.66	104.47	-6.16
217	MV-LM1(max)	I[201]	Shear-z	-8.07	10.24	415.68	-1.77	612.3	4.41
217	MV-LM1(max)	J[219]	Shear-z	-6.11	7.72	436.18	-2.53	102.31	-8.35
218	MV-LM1(max)	I[202]	Shear-z	-6.79	7.35	415.63	-1.14	615.17	3.01
218	MV-LM1(max)	J[220]	Shear-z	-4.7	2.62	436.71	-2.13	102.26	-3.1
219	MV-LM1(max)	I[203]	Shear-z	-4.67	5.39	415.38	-1.03	620.1	2.19
219	MV-LM1(max)	J[221]	Shear-z	-2.53	-1.41	436.94	-1.94	105.08	1.16
220	MV-LM1(max)	I[204]	Shear-z	-3.37	-4.56	415.27	-1.5	622.8	-2.38
220	MV-LM1(max)	J[222]	Shear-z	-1.23	-13.12	437.1	-2.12	106.49	13.33
221	MV-LM1(max)	I[205]	Shear-z	-3.37	-7.95	415.26	1.92	622.84	-3.27
221	MV-LM1(max)	J[223]	Shear-z	-1.2	-13.79	437.13	2.86	106.32	14.89
222	MV-LM1(max)	I[206]	Shear-z	-4.54	-18.34	415.35	1.5	620.42	-8.05
222	MV-LM1(max)	J[224]	Shear-z	-2.32	-25.09	437.04	2.75	104.75	26.61
223	MV-LM1(max)	I[207]	Shear-z	-6.52	-22.33	415.6	1.38	615.64	-9.8
223	MV-LM1(max)	J[225]	Shear-z	-4.32	-29.46	436.88	2.73	101.7	31.22
224	MV-LM1(max)	I[208]	Shear-z	-7.69	-25.49	415.8	2.05	611.96	-11.3
224	MV-LM1(max)	J[226]	Shear-z	-5.61	-32.39	436.54	3.19	100.56	34.21
225	MV-LM1(max)	I[209]	Shear-z	-8.42	-21.14	415.7	2.77	610.53	-9.29
225	MV-LM1(max)	J[227]	Shear-z	-6.59	-27.21	435.92	3.35	101.92	28.85
226	MV-LM1(max)	I[210]	Shear-z	-6.15	-8.34	415.56	4.51	613.03	-3.3
226	MV-LM1(max)	J[228]	Shear-z	-4.77	-14.63	435.7	3.45	104.84	15.93
227	MV-LM1(max)	I[211]	Shear-z	0.71	-1.17	416.18	2.71	627.6	-0.48
227	MV-LM1(max)	J[229]	Shear-z	2.13	-6.52	437.62	0.7	111.18	6.99
228	MV-LM1(max)	I[212]	Shear-z	36.53	-16.76	427.69	2.18	666.8	-7.31
228	MV-LM1(max)	J[230]	Shear-z	37	-19.6	452.33	0.52	110.57	21.29
229	MV-LM1(max)	I[213]	Shear-z	1.37	-82.79	500.03	26.5	285.27	-82.66
229	MV-LM1(max)	J[353]	Shear-z	9.57	-106.31	526.55	25.8	-159.55	7.62
230	MV-LM1(max)	I[214]	Shear-z	-1.21	74.2	499.88	-26.66	277.04	76.53
230	MV-LM1(max)	J[370]	Shear-z	1.18	77.6	546.37	-25.43	-158.73	0.03
231	MV-LM1(max)	I[215]	Shear-z	-74.63	-66.13	426.62	8.28	204.02	-54.47
231	MV-LM1(max)	J[354]	Shear-z	-67.8	-65.01	475.73	9.53	-148.86	10.02
232	MV-LM1(max)	I[216]	Shear-z	-94.66	-72.62	399.23	7.11	196.63	-58.87
232	MV-LM1(max)	J[355]	Shear-z	-87.27	-68.13	446.62	8.41	-113.63	11.05
233	MV-LM1(max)	I[217]	Shear-z	-101.03	-58.81	395.4	3.26	188.96	-45.26
233	MV-LM1(max)	J[356]	Shear-z	-94.29	-40.01	441.22	3.51	-110.82	7.88
234	MV-LM1(max)	I[218]	Shear-z	-102.1	-24.94	395.25	0.83	186.08	-18.57

234	MV-LM1(max)	J[357]	Shear-z	-95.27	-24.37	441.2	1.21	-113.23	5.73
235	MV-LM1(max)	I[219]	Shear-z	-102.19	-17.21	396.01	0.16	183.15	-12.41
235	MV-LM1(max)	J[358]	Shear-z	-95.36	-16.46	442.68	0.16	-118.58	4.55
236	MV-LM1(max)	I[220]	Shear-z	-101.75	-7.92	396.65	-0.47	185.38	-5.35
236	MV-LM1(max)	J[359]	Shear-z	-94.92	-8.03	443.67	-0.62	-119.01	2.71
237	MV-LM1(max)	I[221]	Shear-z	-101.08	-6.17	397.21	-1.08	188.42	-3.72
237	MV-LM1(max)	J[360]	Shear-z	-94.26	-7.71	444.51	-1.17	-118.16	2.9
238	MV-LM1(max)	I[222]	Shear-z	-100.67	-29.52	397.53	-0.51	189.35	-21.2
238	MV-LM1(max)	J[361]	Shear-z	-93.87	-3.63	444.51	-1.84	-118.25	2.24
239	MV-LM1(max)	I[223]	Shear-z	-100.5	18.92	397.57	-0.65	189.93	13.63
239	MV-LM1(max)	J[362]	Shear-z	-93.7	-11.3	444.6	0.32	-117.96	2.06
240	MV-LM1(max)	I[224]	Shear-z	-100.73	-3.03	397.36	-0.04	189.24	-2.89
240	MV-LM1(max)	J[363]	Shear-z	-93.89	-5.73	444.75	-0.29	-117.95	0.9
241	MV-LM1(max)	I[225]	Shear-z	-101.48	-7.4	396.93	-0.39	185.46	-5.77
241	MV-LM1(max)	J[364]	Shear-z	-94.62	-11.19	444.08	-0.5	-119.92	2.56
242	MV-LM1(max)	I[226]	Shear-z	-101.99	3.84	396.48	-1.01	181.58	2.74
242	MV-LM1(max)	J[365]	Shear-z	-95.13	-0.25	443.31	-1.15	-121.45	-0.01
243	MV-LM1(max)	I[227]	Shear-z	-102.02	13.33	395.88	-1.37	183.21	9.97
243	MV-LM1(max)	J[366]	Shear-z	-95.18	10.29	441.97	-1.78	-117.44	-2.19
244	MV-LM1(max)	I[228]	Shear-z	-100.69	47.63	396.07	-3.46	187.07	36.76
244	MV-LM1(max)	J[367]	Shear-z	-94.05	28.62	441.84	-3.67	-113.32	-5.28
245	MV-LM1(max)	I[229]	Shear-z	-94.32	62.89	399.76	-7.1	195.18	51.44
245	MV-LM1(max)	J[368]	Shear-z	-87.27	60.18	446.91	-8.46	-114.76	-9.27
246	MV-LM1(max)	I[230]	Shear-z	-75.16	55.12	426.65	-7.83	202.27	45.86
246	MV-LM1(max)	J[369]	Shear-z	-68.78	58.18	475.12	-9.27	-149.47	-8.62
247	MV-LM1(max)	I[1]	Shear-z	273.53	116.88	139.75	-193.33	-379.2	346.77
247	MV-LM1(max)	J[231]	Shear-z	273.53	116.88	139.75	-193.33	-687.48	88.94
248	MV-LM1(max)	I[19]	Shear-z	271.8	-118.04	139.75	204.32	-378.24	-346.86
248	MV-LM1(max)	J[232]	Shear-z	271.8	-118.04	139.75	204.32	-686.51	-86.47
249	MV-LM1(max)	I[231]	Shear-z	273.53	116.88	139.75	-193.33	-687.48	88.94
249	MV-LM1(max)	J[37]	Shear-z	273.53	116.88	139.75	-193.33	-995.75	-168.89
250	MV-LM1(max)	I[232]	Shear-z	271.8	-118.04	139.75	204.32	-686.51	-86.47
250	MV-LM1(max)	J[53]	Shear-z	271.8	-118.04	139.75	204.32	-994.78	173.92
251	MV-LM1(max)	I[37]	Shear-z	272.89	56.69	145.95	98.03	304.69	126.22
251	MV-LM1(max)	J[233]	Shear-z	272.89	56.69	145.95	98.03	-17.26	1.15
252	MV-LM1(max)	I[53]	Shear-z	269.23	-56.24	146.07	-96.84	306.5	-124.36
252	MV-LM1(max)	J[234]	Shear-z	269.23	-56.24	146.07	-96.84	-15.72	-0.29
253	MV-LM1(max)	I[233]	Shear-z	272.89	56.69	145.95	98.03	-17.26	1.15
253	MV-LM1(max)	J[38]	Shear-z	272.89	56.69	145.95	98.03	-339.21	-123.91
254	MV-LM1(max)	I[234]	Shear-z	269.23	-56.24	146.07	-96.84	-15.72	-0.29
254	MV-LM1(max)	J[54]	Shear-z	269.23	-56.24	146.07	-96.84	-337.93	123.77
255	MV-LM1(max)	I[38]	Shear-z	1100.82	48.02	206.44	293.48	1729.21	69.17
255	MV-LM1(max)	J[235]	Shear-z	1100.82	48.02	206.44	293.48	1273.84	-36.76
256	MV-LM1(max)	I[54]	Shear-z	1098.35	-47.96	206.49	-293.55	1729.79	-68.87
256	MV-LM1(max)	J[236]	Shear-z	1098.35	-47.96	206.49	-293.55	1274.3	36.94
257	MV-LM1(max)	I[235]	Shear-z	1100.82	48.02	206.44	293.48	1273.84	-36.76
257	MV-LM1(max)	J[39]	Shear-z	1100.82	48.02	206.44	293.48	818.46	-142.7
258	MV-LM1(max)	I[236]	Shear-z	1098.35	-47.96	206.49	-293.55	1274.3	36.94
258	MV-LM1(max)	J[55]	Shear-z	1098.35	-47.96	206.49	-293.55	818.81	142.74
259	MV-LM1(max)	I[39]	Shear-z	1420.28	57.68	250.08	237.18	2159.16	82.01
259	MV-LM1(max)	J[237]	Shear-z	1420.28	57.68	250.08	237.18	1607.52	-45.24
260	MV-LM1(max)	I[55]	Shear-z	1420.39	-57.69	250.07	-237.26	2159.05	-82.01
260	MV-LM1(max)	J[238]	Shear-z	1420.39	-57.69	250.07	-237.26	1607.42	45.24
261	MV-LM1(max)	I[237]	Shear-z	1420.28	57.68	250.08	237.18	1607.52	-45.24
261	MV-LM1(max)	J[40]	Shear-z	1420.28	57.68	250.08	237.18	1055.89	-172.48
262	MV-LM1(max)	I[238]	Shear-z	1420.39	-57.69	250.07	-237.26	1607.42	45.24
262	MV-LM1(max)	J[56]	Shear-z	1420.39	-57.69	250.07	-237.26	1055.79	172.49
263	MV-LM1(max)	I[40]	Shear-z	1659.24	69.25	281.51	173.46	2476.52	103.22
263	MV-LM1(max)	J[239]	Shear-z	1659.24	69.25	281.51	173.46	1855.53	-49.54
264	MV-LM1(max)	I[56]	Shear-z	1660.31	-69.28	281.5	-173.63	2476.3	-103.32
264	MV-LM1(max)	J[240]	Shear-z	1660.31	-69.28	281.5	-173.63	1855.34	49.49

265	MV-LM1(max)	I[239]	Shear-z	1659.24	69.25	281.51	173.46	1855.53	-49.54
265	MV-LM1(max)	J[41]	Shear-z	1659.24	69.25	281.51	173.46	1234.55	-202.31
266	MV-LM1(max)	I[240]	Shear-z	1660.31	-69.28	281.5	-173.63	1855.34	49.49
266	MV-LM1(max)	J[57]	Shear-z	1660.31	-69.28	281.5	-173.63	1234.37	202.31
267	MV-LM1(max)	I[41]	Shear-z	1705.11	77.17	306.18	112.55	2528.32	115.19
267	MV-LM1(max)	J[241]	Shear-z	1705.11	77.17	306.18	112.55	1852.92	-55.04
268	MV-LM1(max)	I[57]	Shear-z	1705.46	-77.18	306.18	-112.59	2528.36	-115.22
268	MV-LM1(max)	J[242]	Shear-z	1705.46	-77.18	306.18	-112.59	1852.96	55.03
269	MV-LM1(max)	I[241]	Shear-z	1705.11	77.17	306.18	112.55	1852.92	-55.04
269	MV-LM1(max)	J[42]	Shear-z	1705.11	77.17	306.18	112.55	1177.52	-225.28
270	MV-LM1(max)	I[242]	Shear-z	1705.46	-77.18	306.18	-112.59	1852.96	55.03
270	MV-LM1(max)	J[58]	Shear-z	1705.46	-77.18	306.18	-112.59	1177.57	225.28
271	MV-LM1(max)	I[42]	Shear-z	1526.58	83.45	319.43	80.84	2347.7	134.73
271	MV-LM1(max)	J[243]	Shear-z	1526.58	83.45	319.43	80.84	1643.08	-49.35
272	MV-LM1(max)	I[58]	Shear-z	1526.78	-83.45	319.43	-80.86	2347.73	-134.74
272	MV-LM1(max)	J[244]	Shear-z	1526.78	-83.45	319.43	-80.86	1643.11	49.34
273	MV-LM1(max)	I[243]	Shear-z	1526.58	83.45	319.43	80.84	1643.08	-49.35
273	MV-LM1(max)	J[43]	Shear-z	1526.58	83.45	319.43	80.84	938.47	-233.43
274	MV-LM1(max)	I[244]	Shear-z	1526.78	-83.45	319.43	-80.86	1643.11	49.34
274	MV-LM1(max)	J[59]	Shear-z	1526.78	-83.45	319.43	-80.86	938.49	233.43
275	MV-LM1(max)	I[43]	Shear-z	1319.65	83.93	322.37	73.58	2129.99	141.22
275	MV-LM1(max)	J[245]	Shear-z	1319.65	83.93	322.37	73.58	1418.89	-43.92
276	MV-LM1(max)	I[59]	Shear-z	1319.63	-83.93	322.37	-73.56	2130.01	-141.22
276	MV-LM1(max)	J[246]	Shear-z	1319.63	-83.93	322.37	-73.56	1418.9	43.92
277	MV-LM1(max)	I[245]	Shear-z	1319.65	83.93	322.37	73.58	1418.89	-43.92
277	MV-LM1(max)	J[44]	Shear-z	1319.65	83.93	322.37	73.58	707.78	-229.07
278	MV-LM1(max)	I[246]	Shear-z	1319.63	-83.93	322.37	-73.56	1418.9	43.92
278	MV-LM1(max)	J[60]	Shear-z	1319.63	-83.93	322.37	-73.56	707.79	229.06
279	MV-LM1(max)	I[44]	Shear-z	1149.78	79.66	317.38	85.56	1927.8	136.39
279	MV-LM1(max)	J[247]	Shear-z	1149.78	79.66	317.38	85.56	1227.69	-39.34
280	MV-LM1(max)	I[60]	Shear-z	1149.53	-79.66	317.38	-85.53	1927.77	-136.37
280	MV-LM1(max)	J[248]	Shear-z	1149.53	-79.66	317.38	-85.53	1227.66	39.34
281	MV-LM1(max)	I[247]	Shear-z	1149.78	79.66	317.38	85.56	1227.69	-39.34
281	MV-LM1(max)	J[45]	Shear-z	1149.78	79.66	317.38	85.56	527.58	-215.07
282	MV-LM1(max)	I[248]	Shear-z	1149.53	-79.66	317.38	-85.53	1227.66	39.34
282	MV-LM1(max)	J[61]	Shear-z	1149.53	-79.66	317.38	-85.53	527.55	215.05
283	MV-LM1(max)	I[45]	Shear-z	1062.24	72.08	307.01	108.79	1779.04	123.08
283	MV-LM1(max)	J[249]	Shear-z	1062.24	72.08	307.01	108.79	1101.81	-35.92
284	MV-LM1(max)	I[61]	Shear-z	1061.79	-72.07	307.01	-108.74	1778.93	-123.04
284	MV-LM1(max)	J[250]	Shear-z	1061.79	-72.07	307.01	-108.74	1101.71	35.93
285	MV-LM1(max)	I[249]	Shear-z	1062.24	72.08	307.01	108.79	1101.81	-35.92
285	MV-LM1(max)	J[46]	Shear-z	1062.24	72.08	307.01	108.79	424.58	-194.93
286	MV-LM1(max)	I[250]	Shear-z	1061.79	-72.07	307.01	-108.74	1101.71	35.93
286	MV-LM1(max)	J[62]	Shear-z	1061.79	-72.07	307.01	-108.74	424.49	194.9
287	MV-LM1(max)	I[46]	Shear-z	1078.12	62.89	294.02	133.67	1706.13	104.86
287	MV-LM1(max)	J[251]	Shear-z	1078.12	62.89	294.02	133.67	1057.55	-33.87
288	MV-LM1(max)	I[62]	Shear-z	1077.52	-62.87	294.02	-133.61	1705.95	-104.8
288	MV-LM1(max)	J[252]	Shear-z	1077.52	-62.87	294.02	-133.61	1057.38	33.88
289	MV-LM1(max)	I[251]	Shear-z	1078.12	62.89	294.02	133.67	1057.55	-33.87
289	MV-LM1(max)	J[47]	Shear-z	1078.12	62.89	294.02	133.67	408.97	-172.6
290	MV-LM1(max)	I[252]	Shear-z	1077.52	-62.87	294.02	-133.61	1057.38	33.88
290	MV-LM1(max)	J[63]	Shear-z	1077.52	-62.87	294.02	-133.61	408.81	172.56
291	MV-LM1(max)	I[47]	Shear-z	1191.34	53.99	281.49	150.13	1714.62	85.87
291	MV-LM1(max)	J[253]	Shear-z	1191.34	53.99	281.49	150.13	1093.68	-33.23
292	MV-LM1(max)	I[63]	Shear-z	1190.75	-53.96	281.48	-150.04	1714.39	-85.78
292	MV-LM1(max)	J[254]	Shear-z	1190.75	-53.96	281.48	-150.04	1093.48	33.24
293	MV-LM1(max)	I[253]	Shear-z	1191.34	53.99	281.49	150.13	1093.68	-33.23
293	MV-LM1(max)	J[48]	Shear-z	1191.34	53.99	281.49	150.13	472.75	-152.32
294	MV-LM1(max)	I[254]	Shear-z	1190.75	-53.96	281.48	-150.04	1093.48	33.24
294	MV-LM1(max)	J[64]	Shear-z	1190.75	-53.96	281.48	-150.04	472.56	152.27
295	MV-LM1(max)	I[48]	Shear-z	1485.54	48.1	273.83	149.65	1963.96	67.94

295	MV-LM1(max)	J[255]	Shear-z	1485.54	48.1	273.83	149.65	1359.92	-38.16
296	MV-LM1(max)	I[64]	Shear-z	1485.22	-48.08	273.83	-149.38	1963.49	-67.84
296	MV-LM1(max)	J[256]	Shear-z	1485.22	-48.08	273.83	-149.38	1359.46	38.21
297	MV-LM1(max)	I[255]	Shear-z	1485.54	48.1	273.83	149.65	1359.92	-38.16
297	MV-LM1(max)	J[49]	Shear-z	1485.54	48.1	273.83	149.65	755.88	-144.26
298	MV-LM1(max)	I[256]	Shear-z	1485.22	-48.08	273.83	-149.38	1359.46	38.21
298	MV-LM1(max)	J[65]	Shear-z	1485.22	-48.08	273.83	-149.38	755.43	144.26
299	MV-LM1(max)	I[49]	Shear-z	1791.04	56.12	282.93	122.95	2395.19	82.06
299	MV-LM1(max)	J[257]	Shear-z	1791.04	56.12	282.93	122.95	1771.08	-41.74
300	MV-LM1(max)	I[65]	Shear-z	1790.92	-56.09	282.92	-122.36	2394.76	-81.86
300	MV-LM1(max)	J[258]	Shear-z	1790.92	-56.09	282.92	-122.36	1770.67	41.87
301	MV-LM1(max)	I[257]	Shear-z	1791.04	56.12	282.93	122.95	1771.08	-41.74
301	MV-LM1(max)	J[50]	Shear-z	1791.04	56.12	282.93	122.95	1146.97	-165.54
302	MV-LM1(max)	I[258]	Shear-z	1790.92	-56.09	282.92	-122.36	1770.67	41.87
302	MV-LM1(max)	J[66]	Shear-z	1790.92	-56.09	282.92	-122.36	1146.57	165.59
303	MV-LM1(max)	I[50]	Shear-z	1788.09	69.47	314.58	60.88	2557.17	108.43
303	MV-LM1(max)	J[259]	Shear-z	1788.09	69.47	314.58	60.88	1863.23	-44.81
304	MV-LM1(max)	I[66]	Shear-z	1788.42	-69.33	314.59	-59.48	2556.71	-108.05
304	MV-LM1(max)	J[260]	Shear-z	1788.42	-69.33	314.59	-59.48	1862.77	44.9
305	MV-LM1(max)	I[259]	Shear-z	1788.09	69.47	314.58	60.88	1863.23	-44.81
305	MV-LM1(max)	J[51]	Shear-z	1788.09	69.47	314.58	60.88	1169.3	-198.04
306	MV-LM1(max)	I[260]	Shear-z	1788.42	-69.33	314.59	-59.48	1862.77	44.9
306	MV-LM1(max)	J[67]	Shear-z	1788.42	-69.33	314.59	-59.48	1168.83	197.84
307	MV-LM1(max)	I[51]	Shear-z	1458.33	88.6	377.46	-4.71	2419.83	154.78
307	MV-LM1(max)	J[261]	Shear-z	1458.33	88.6	377.46	-4.71	1587.21	-40.66
308	MV-LM1(max)	I[67]	Shear-z	1459.31	-87.93	377.49	7.55	2419.54	-154.54
308	MV-LM1(max)	J[262]	Shear-z	1459.31	-87.93	377.49	7.55	1586.83	39.43
309	MV-LM1(max)	I[261]	Shear-z	1458.33	88.6	377.46	-4.71	1587.21	-40.66
309	MV-LM1(max)	J[52]	Shear-z	1458.33	88.6	377.46	-4.71	754.59	-236.1
310	MV-LM1(max)	I[262]	Shear-z	1459.31	-87.93	377.49	7.55	1586.83	39.43
310	MV-LM1(max)	J[68]	Shear-z	1459.31	-87.93	377.49	7.55	754.12	233.4
311	MV-LM1(max)	I[52]	Shear-z	838.59	95.03	495.49	-22.63	1662.58	183.13
311	MV-LM1(max)	J[263]	Shear-z	838.59	95.03	495.49	-22.63	569.59	-26.5
312	MV-LM1(max)	I[68]	Shear-z	839.06	-95.57	495.56	27.56	1662.8	-185.2
312	MV-LM1(max)	J[264]	Shear-z	839.06	-95.57	495.56	27.56	569.66	25.63
313	MV-LM1(max)	I[263]	Shear-z	838.59	95.03	495.49	-22.63	569.59	-26.5
313	MV-LM1(max)	J[18]	Shear-z	838.59	95.03	495.49	-22.63	-523.4	-236.13
314	MV-LM1(max)	I[264]	Shear-z	839.06	-95.57	495.56	27.56	569.66	25.63
314	MV-LM1(max)	J[36]	Shear-z	839.06	-95.57	495.56	27.56	-523.47	236.45
315	MV-LM1(max)	I[1]	Shear-z	0	0	0	0	0	0
315	MV-LM1(max)	J[265]	Shear-z	0	0	0	0	0	0
316	MV-LM1(max)	I[18]	Shear-z	0	0	0	0	0	0
316	MV-LM1(max)	J[266]	Shear-z	0	0	0	0	0	0
317	MV-LM1(max)	I[37]	Shear-z	0	0	0	0	0	0
317	MV-LM1(max)	J[267]	Shear-z	0	0	0	0	0	0
318	MV-LM1(max)	I[38]	Shear-z	0	0	0	0	0	0
318	MV-LM1(max)	J[268]	Shear-z	0	0	0	0	0	0
319	MV-LM1(max)	I[39]	Shear-z	0	0	0	0	0	0
319	MV-LM1(max)	J[269]	Shear-z	0	0	0	0	0	0
320	MV-LM1(max)	I[40]	Shear-z	0	0	0	0	0	0
320	MV-LM1(max)	J[270]	Shear-z	0	0	0	0	0	0
321	MV-LM1(max)	I[41]	Shear-z	0	0	0	0	0	0
321	MV-LM1(max)	J[271]	Shear-z	0	0	0	0	0	0
322	MV-LM1(max)	I[42]	Shear-z	0	0	0	0	0	0
322	MV-LM1(max)	J[272]	Shear-z	0	0	0	0	0	0
323	MV-LM1(max)	I[43]	Shear-z	0	0	0	0	0	0
323	MV-LM1(max)	J[273]	Shear-z	0	0	0	0	0	0
324	MV-LM1(max)	I[44]	Shear-z	0	0	0	0	0	0
324	MV-LM1(max)	J[274]	Shear-z	0	0	0	0	0	0
325	MV-LM1(max)	I[45]	Shear-z	0	0	0	0	0	0
325	MV-LM1(max)	J[275]	Shear-z	0	0	0	0	0	0

326	MV-LM1(max)	I[46]	Shear-z	0	0	0	0	0	0
326	MV-LM1(max)	J[276]	Shear-z	0	0	0	0	0	0
327	MV-LM1(max)	I[47]	Shear-z	0	0	0	0	0	0
327	MV-LM1(max)	J[277]	Shear-z	0	0	0	0	0	0
328	MV-LM1(max)	I[48]	Shear-z	0	0	0	0	0	0
328	MV-LM1(max)	J[278]	Shear-z	0	0	0	0	0	0
329	MV-LM1(max)	I[49]	Shear-z	0	0	0	0	0	0
329	MV-LM1(max)	J[279]	Shear-z	0	0	0	0	0	0
330	MV-LM1(max)	I[50]	Shear-z	0	0	0	0	0	0
330	MV-LM1(max)	J[280]	Shear-z	0	0	0	0	0	0
331	MV-LM1(max)	I[51]	Shear-z	0	0	0	0	0	0
331	MV-LM1(max)	J[281]	Shear-z	0	0	0	0	0	0
332	MV-LM1(max)	I[52]	Shear-z	0	0	0	0	0	0
332	MV-LM1(max)	J[282]	Shear-z	0	0	0	0	0	0
333	MV-LM1(max)	I[231]	Shear-z	0	0	0	0	0	0
333	MV-LM1(max)	J[283]	Shear-z	0	0	0	0	0	0
334	MV-LM1(max)	I[233]	Shear-z	0	0	0	0	0	0
334	MV-LM1(max)	J[284]	Shear-z	0	0	0	0	0	0
335	MV-LM1(max)	I[235]	Shear-z	0	0	0	0	0	0
335	MV-LM1(max)	J[285]	Shear-z	0	0	0	0	0	0
336	MV-LM1(max)	I[237]	Shear-z	0	0	0	0	0	0
336	MV-LM1(max)	J[286]	Shear-z	0	0	0	0	0	0
337	MV-LM1(max)	I[239]	Shear-z	0	0	0	0	0	0
337	MV-LM1(max)	J[287]	Shear-z	0	0	0	0	0	0
338	MV-LM1(max)	I[241]	Shear-z	0	0	0	0	0	0
338	MV-LM1(max)	J[288]	Shear-z	0	0	0	0	0	0
339	MV-LM1(max)	I[243]	Shear-z	0	0	0	0	0	0
339	MV-LM1(max)	J[289]	Shear-z	0	0	0	0	0	0
340	MV-LM1(max)	I[245]	Shear-z	0	0	0	0	0	0
340	MV-LM1(max)	J[290]	Shear-z	0	0	0	0	0	0
341	MV-LM1(max)	I[247]	Shear-z	0	0	0	0	0	0
341	MV-LM1(max)	J[291]	Shear-z	0	0	0	0	0	0
342	MV-LM1(max)	I[249]	Shear-z	0	0	0	0	0	0
342	MV-LM1(max)	J[292]	Shear-z	0	0	0	0	0	0
343	MV-LM1(max)	I[251]	Shear-z	0	0	0	0	0	0
343	MV-LM1(max)	J[293]	Shear-z	0	0	0	0	0	0
344	MV-LM1(max)	I[253]	Shear-z	0	0	0	0	0	0
344	MV-LM1(max)	J[294]	Shear-z	0	0	0	0	0	0
345	MV-LM1(max)	I[255]	Shear-z	0	0	0	0	0	0
345	MV-LM1(max)	J[295]	Shear-z	0	0	0	0	0	0
346	MV-LM1(max)	I[257]	Shear-z	0	0	0	0	0	0
346	MV-LM1(max)	J[296]	Shear-z	0	0	0	0	0	0
347	MV-LM1(max)	I[259]	Shear-z	0	0	0	0	0	0
347	MV-LM1(max)	J[297]	Shear-z	0	0	0	0	0	0
348	MV-LM1(max)	I[261]	Shear-z	0	0	0	0	0	0
348	MV-LM1(max)	J[298]	Shear-z	0	0	0	0	0	0
349	MV-LM1(max)	I[263]	Shear-z	0	0	0	0	0	0
349	MV-LM1(max)	J[299]	Shear-z	0	0	0	0	0	0
350	MV-LM1(max)	I[19]	Shear-z	0	0	0	0	0	0
350	MV-LM1(max)	J[300]	Shear-z	0	0	0	0	0	0
351	MV-LM1(max)	I[36]	Shear-z	0	0	0	0	0	0
351	MV-LM1(max)	J[301]	Shear-z	0	0	0	0	0	0
352	MV-LM1(max)	I[53]	Shear-z	0	0	0	0	0	0
352	MV-LM1(max)	J[302]	Shear-z	0	0	0	0	0	0
353	MV-LM1(max)	I[54]	Shear-z	0	0	0	0	0	0
353	MV-LM1(max)	J[303]	Shear-z	0	0	0	0	0	0
354	MV-LM1(max)	I[55]	Shear-z	0	0	0	0	0	0
354	MV-LM1(max)	J[304]	Shear-z	0	0	0	0	0	0
355	MV-LM1(max)	I[56]	Shear-z	0	0	0	0	0	0
355	MV-LM1(max)	J[305]	Shear-z	0	0	0	0	0	0
356	MV-LM1(max)	I[57]	Shear-z	0	0	0	0	0	0

356	MV-LM1(max)	J[306]	Shear-z	0	0	0	0	0	0
357	MV-LM1(max)	I[58]	Shear-z	0	0	0	0	0	0
357	MV-LM1(max)	J[307]	Shear-z	0	0	0	0	0	0
358	MV-LM1(max)	I[59]	Shear-z	0	0	0	0	0	0
358	MV-LM1(max)	J[308]	Shear-z	0	0	0	0	0	0
359	MV-LM1(max)	I[60]	Shear-z	0	0	0	0	0	0
359	MV-LM1(max)	J[309]	Shear-z	0	0	0	0	0	0
360	MV-LM1(max)	I[61]	Shear-z	0	0	0	0	0	0
360	MV-LM1(max)	J[310]	Shear-z	0	0	0	0	0	0
361	MV-LM1(max)	I[62]	Shear-z	0	0	0	0	0	0
361	MV-LM1(max)	J[311]	Shear-z	0	0	0	0	0	0
362	MV-LM1(max)	I[63]	Shear-z	0	0	0	0	0	0
362	MV-LM1(max)	J[312]	Shear-z	0	0	0	0	0	0
363	MV-LM1(max)	I[64]	Shear-z	0	0	0	0	0	0
363	MV-LM1(max)	J[313]	Shear-z	0	0	0	0	0	0
364	MV-LM1(max)	I[65]	Shear-z	0	0	0	0	0	0
364	MV-LM1(max)	J[314]	Shear-z	0	0	0	0	0	0
365	MV-LM1(max)	I[66]	Shear-z	0	0	0	0	0	0
365	MV-LM1(max)	J[315]	Shear-z	0	0	0	0	0	0
366	MV-LM1(max)	I[67]	Shear-z	0	0	0	0	0	0
366	MV-LM1(max)	J[316]	Shear-z	0	0	0	0	0	0
367	MV-LM1(max)	I[68]	Shear-z	0	0	0	0	0	0
367	MV-LM1(max)	J[317]	Shear-z	0	0	0	0	0	0
368	MV-LM1(max)	I[232]	Shear-z	0	0	0	0	0	0
368	MV-LM1(max)	J[318]	Shear-z	0	0	0	0	0	0
369	MV-LM1(max)	I[234]	Shear-z	0	0	0	0	0	0
369	MV-LM1(max)	J[319]	Shear-z	0	0	0	0	0	0
370	MV-LM1(max)	I[236]	Shear-z	0	0	0	0	0	0
370	MV-LM1(max)	J[320]	Shear-z	0	0	0	0	0	0
371	MV-LM1(max)	I[238]	Shear-z	0	0	0	0	0	0
371	MV-LM1(max)	J[321]	Shear-z	0	0	0	0	0	0
372	MV-LM1(max)	I[240]	Shear-z	0	0	0	0	0	0
372	MV-LM1(max)	J[322]	Shear-z	0	0	0	0	0	0
373	MV-LM1(max)	I[242]	Shear-z	0	0	0	0	0	0
373	MV-LM1(max)	J[323]	Shear-z	0	0	0	0	0	0
374	MV-LM1(max)	I[244]	Shear-z	0	0	0	0	0	0
374	MV-LM1(max)	J[324]	Shear-z	0	0	0	0	0	0
375	MV-LM1(max)	I[246]	Shear-z	0	0	0	0	0	0
375	MV-LM1(max)	J[325]	Shear-z	0	0	0	0	0	0
376	MV-LM1(max)	I[248]	Shear-z	0	0	0	0	0	0
376	MV-LM1(max)	J[326]	Shear-z	0	0	0	0	0	0
377	MV-LM1(max)	I[250]	Shear-z	0	0	0	0	0	0
377	MV-LM1(max)	J[327]	Shear-z	0	0	0	0	0	0
378	MV-LM1(max)	I[252]	Shear-z	0	0	0	0	0	0
378	MV-LM1(max)	J[328]	Shear-z	0	0	0	0	0	0
379	MV-LM1(max)	I[254]	Shear-z	0	0	0	0	0	0
379	MV-LM1(max)	J[329]	Shear-z	0	0	0	0	0	0
380	MV-LM1(max)	I[256]	Shear-z	0	0	0	0	0	0
380	MV-LM1(max)	J[330]	Shear-z	0	0	0	0	0	0
381	MV-LM1(max)	I[258]	Shear-z	0	0	0	0	0	0
381	MV-LM1(max)	J[331]	Shear-z	0	0	0	0	0	0
382	MV-LM1(max)	I[260]	Shear-z	0	0	0	0	0	0
382	MV-LM1(max)	J[332]	Shear-z	0	0	0	0	0	0
383	MV-LM1(max)	I[262]	Shear-z	0	0	0	0	0	0
383	MV-LM1(max)	J[333]	Shear-z	0	0	0	0	0	0
384	MV-LM1(max)	I[264]	Shear-z	0	0	0	0	0	0
384	MV-LM1(max)	J[334]	Shear-z	0	0	0	0	0	0
385	MV-LM1(max)	I[69]	Shear-z	434.63	163.5	55.36	-12.13	127.28	511.56
385	MV-LM1(max)	J[71]	Shear-z	434.63	163.5	55.36	-12.13	-116.94	-209.76
386	MV-LM1(max)	I[105]	Shear-z	106.12	56.92	24.8	-13.38	58.56	172.75
386	MV-LM1(max)	J[107]	Shear-z	106.12	56.92	24.8	-13.38	-50.86	-78.37

387	MV-LM1(max)	I[141]	Shear-z	24.8	-1.78	20.01	1.12	40.31	-0.25
387	MV-LM1(max)	J[143]	Shear-z	24.8	-1.78	20.01	1.12	-47.99	7.62
388	MV-LM1(max)	I[177]	Shear-z	106.55	-58.84	24.82	13.5	58.68	-175.24
388	MV-LM1(max)	J[179]	Shear-z	106.55	-58.84	24.82	13.5	-50.82	84.34
389	MV-LM1(max)	I[213]	Shear-z	434.88	-167.41	55.34	12.52	127.31	-513.83
389	MV-LM1(max)	J[215]	Shear-z	434.88	-167.41	55.34	12.52	-116.84	224.74
390	MV-LM1(max)	I[71]	Shear-z	836.37	100.85	31.09	-7.1	55.14	274.41
390	MV-LM1(max)	J[72]	Shear-z	836.37	100.85	31.09	-7.1	-82.02	-170.53
391	MV-LM1(max)	I[107]	Shear-z	21.13	-32.61	28.28	15.64	80.85	-137.54
391	MV-LM1(max)	J[108]	Shear-z	21.13	-32.61	28.28	15.64	-43.92	6.31
392	MV-LM1(max)	I[143]	Shear-z	19.77	-6.66	34.24	0.82	96.42	-20.54
392	MV-LM1(max)	J[144]	Shear-z	19.77	-6.66	34.24	0.82	-54.63	8.84
393	MV-LM1(max)	I[179]	Shear-z	19.42	33.26	28.23	-15.65	80.77	140.44
393	MV-LM1(max)	J[180]	Shear-z	19.42	33.26	28.23	-15.65	-43.79	-6.31
394	MV-LM1(max)	I[215]	Shear-z	836.14	-98.48	31.06	7.37	55.15	-260.85
394	MV-LM1(max)	J[216]	Shear-z	836.14	-98.48	31.06	7.37	-81.89	173.62
395	MV-LM1(max)	I[72]	Shear-z	586.35	12.1	21.44	4.99	43.77	-9.63
395	MV-LM1(max)	J[73]	Shear-z	586.35	12.1	21.44	4.99	-50.8	-63.01
396	MV-LM1(max)	I[108]	Shear-z	-14.21	-36.14	29.3	13.94	91.75	-154.35
396	MV-LM1(max)	J[109]	Shear-z	-14.21	-36.14	29.3	13.94	-37.5	5.08
397	MV-LM1(max)	I[144]	Shear-z	13.57	-6.5	34.7	1.03	105.9	-20.92
397	MV-LM1(max)	J[145]	Shear-z	13.57	-6.5	34.7	1.03	-47.19	7.77
398	MV-LM1(max)	I[180]	Shear-z	-14.69	36.27	29.29	-13.93	91.73	154.85
398	MV-LM1(max)	J[181]	Shear-z	-14.69	36.27	29.29	-13.93	-37.49	-5.16
399	MV-LM1(max)	I[216]	Shear-z	584.63	-11.43	21.42	-4.91	43.75	12.66
399	MV-LM1(max)	J[217]	Shear-z	584.63	-11.43	21.42	-4.91	-50.75	63.07
400	MV-LM1(max)	I[73]	Shear-z	-521.15	-31.69	26.93	15.79	82.61	-206.18
400	MV-LM1(max)	J[376]	Shear-z	-521.15	-31.69	26.93	15.79	23.21	-136.28
401	MV-LM1(max)	I[109]	Shear-z	-47.58	-34.76	30.97	11.85	99.43	-153.06
401	MV-LM1(max)	J[377]	Shear-z	-47.58	-34.76	30.97	11.85	31.11	-76.38
402	MV-LM1(max)	I[145]	Shear-z	5.31	-5.83	35.52	1.51	111.29	-19.38
402	MV-LM1(max)	J[378]	Shear-z	5.31	-5.83	35.52	1.51	32.94	-6.52
403	MV-LM1(max)	I[181]	Shear-z	-47.65	34.75	30.97	-11.85	99.43	153.03
403	MV-LM1(max)	J[379]	Shear-z	-47.65	34.75	30.97	-11.85	31.11	76.39
404	MV-LM1(max)	I[217]	Shear-z	-520.99	31.67	26.93	-15.8	82.61	206.1
404	MV-LM1(max)	J[380]	Shear-z	-520.99	31.67	26.93	-15.8	23.21	136.24
405	MV-LM1(max)	I[74]	Shear-z	-742.77	-16.31	33.03	12.05	99.99	-178.93
405	MV-LM1(max)	J[75]	Shear-z	-742.77	-16.31	33.03	12.05	-45.75	-106.97
406	MV-LM1(max)	I[110]	Shear-z	-95.29	-30.26	33.01	9.73	107.45	-144.94
406	MV-LM1(max)	J[111]	Shear-z	-95.29	-30.26	33.01	9.73	-38.19	-11.47
407	MV-LM1(max)	I[146]	Shear-z	-15.41	-5.13	36.49	1.95	116.73	-17.67
407	MV-LM1(max)	J[147]	Shear-z	-15.41	-5.13	36.49	1.95	-44.26	4.95
408	MV-LM1(max)	I[182]	Shear-z	-95.02	30.09	33.01	-9.73	107.45	144.47
408	MV-LM1(max)	J[183]	Shear-z	-95.02	30.09	33.01	-9.73	-38.19	11.71
409	MV-LM1(max)	I[218]	Shear-z	-741.86	16.26	33.03	-12.06	99.98	178.67
409	MV-LM1(max)	J[219]	Shear-z	-741.86	16.26	33.03	-12.06	-45.74	106.92
410	MV-LM1(max)	I[75]	Shear-z	-799.64	0.78	38.46	8.89	113.03	-143.54
410	MV-LM1(max)	J[76]	Shear-z	-799.64	0.78	38.46	8.89	-56.66	-147
411	MV-LM1(max)	I[111]	Shear-z	-120.06	-24.22	35.14	7.94	114.09	-134.02
411	MV-LM1(max)	J[112]	Shear-z	-120.06	-24.22	35.14	7.94	-40.96	-27.16
412	MV-LM1(max)	I[147]	Shear-z	-34.68	4.42	37.66	-2.24	121.66	15.89
412	MV-LM1(max)	J[148]	Shear-z	-34.68	4.42	37.66	-2.24	-44.5	-3.62
413	MV-LM1(max)	I[183]	Shear-z	-120.05	24.21	35.14	-7.94	114.09	133.98
413	MV-LM1(max)	J[184]	Shear-z	-120.05	24.21	35.14	-7.94	-40.96	27.17
414	MV-LM1(max)	I[219]	Shear-z	-799.49	-0.8	38.46	-8.89	113.03	143.47
414	MV-LM1(max)	J[220]	Shear-z	-799.49	-0.8	38.46	-8.89	-56.65	146.99
415	MV-LM1(max)	I[76]	Shear-z	-599.19	8.39	41.55	7.08	116.74	-122.69
415	MV-LM1(max)	J[77]	Shear-z	-599.19	8.39	41.55	7.08	-66.57	-159.69
416	MV-LM1(max)	I[112]	Shear-z	-57.56	-22.07	36.32	6.97	113.83	-127.72
416	MV-LM1(max)	J[113]	Shear-z	-57.56	-22.07	36.32	6.97	-46.4	-30.33
417	MV-LM1(max)	I[148]	Shear-z	4.59	3.96	38.31	-2.35	120.32	14.75

417	MV-LM1(max)	J[149]	Shear-z	4.59	3.96	38.31	-2.35	-48.72	-2.73
418	MV-LM1(max)	I[184]	Shear-z	-57.58	22.1	36.32	-6.96	113.83	127.8
418	MV-LM1(max)	J[185]	Shear-z	-57.58	22.1	36.32	-6.96	-46.4	30.28
419	MV-LM1(max)	I[220]	Shear-z	-599.09	-8.39	41.55	-7.08	116.74	122.67
419	MV-LM1(max)	J[221]	Shear-z	-599.09	-8.39	41.55	-7.08	-66.57	159.67
420	MV-LM1(max)	I[77]	Shear-z	-176.58	71.25	43.08	-3.67	106.95	129.7
420	MV-LM1(max)	J[78]	Shear-z	-176.58	71.25	43.08	-3.67	-83.11	-184.62
421	MV-LM1(max)	I[113]	Shear-z	8.76	-24.99	36.36	6.82	110.78	-131.7
421	MV-LM1(max)	J[114]	Shear-z	8.76	-24.99	36.36	6.82	-49.63	-21.46
422	MV-LM1(max)	I[149]	Shear-z	45.2	3.67	38.27	-2.31	117.29	14.02
422	MV-LM1(max)	J[150]	Shear-z	45.2	3.67	38.27	-2.31	-51.53	-2.15
423	MV-LM1(max)	I[185]	Shear-z	8.67	25.06	36.36	-6.81	110.78	131.89
423	MV-LM1(max)	J[186]	Shear-z	8.67	25.06	36.36	-6.81	-49.63	21.33
424	MV-LM1(max)	I[221]	Shear-z	-176.43	-71.25	43.08	3.67	106.95	-129.74
424	MV-LM1(max)	J[222]	Shear-z	-176.43	-71.25	43.08	3.67	-83.11	184.61
425	MV-LM1(max)	I[78]	Shear-z	55.53	65.75	42.57	-3.79	102.18	122.4
425	MV-LM1(max)	J[371]	Shear-z	55.53	65.75	42.57	-3.79	8.28	-22.64
426	MV-LM1(max)	I[114]	Shear-z	62.85	-32.17	35.45	7.31	106.07	-144.89
426	MV-LM1(max)	J[372]	Shear-z	62.85	-32.17	35.45	7.31	27.87	-73.93
427	MV-LM1(max)	I[150]	Shear-z	77.18	3.52	37.63	-2.17	113.47	13.67
427	MV-LM1(max)	J[373]	Shear-z	77.18	3.52	37.63	-2.17	30.45	5.91
428	MV-LM1(max)	I[186]	Shear-z	62.69	32.29	35.45	-7.3	106.07	145.22
428	MV-LM1(max)	J[374]	Shear-z	62.69	32.29	35.45	-7.3	27.87	73.98
429	MV-LM1(max)	I[222]	Shear-z	55.55	-65.73	42.57	3.79	102.19	-122.37
429	MV-LM1(max)	J[375]	Shear-z	55.55	-65.73	42.57	3.79	8.28	22.63
430	MV-LM1(max)	I[79]	Shear-z	227.51	53.13	40.2	-2.63	94.28	100.28
430	MV-LM1(max)	J[80]	Shear-z	227.51	53.13	40.2	-2.63	-83.07	-134.1
431	MV-LM1(max)	I[115]	Shear-z	92.95	-41.92	33.9	8.16	100.9	-164.1
431	MV-LM1(max)	J[116]	Shear-z	92.95	-41.92	33.9	8.16	-48.68	20.84
432	MV-LM1(max)	I[151]	Shear-z	93.62	3.5	36.62	-2	109.71	13.65
432	MV-LM1(max)	J[152]	Shear-z	93.62	3.5	36.62	-2	-51.85	-1.77
433	MV-LM1(max)	I[187]	Shear-z	92.72	42.1	33.9	-8.16	100.9	164.57
433	MV-LM1(max)	J[188]	Shear-z	92.72	42.1	33.9	-8.16	-48.67	-21.18
434	MV-LM1(max)	I[223]	Shear-z	227.44	-53.09	40.21	2.64	94.29	-100.18
434	MV-LM1(max)	J[224]	Shear-z	227.44	-53.09	40.21	2.64	-83.08	134.03
435	MV-LM1(max)	I[80]	Shear-z	315.76	36.51	36.57	-0.97	84.95	68.87
435	MV-LM1(max)	J[81]	Shear-z	315.76	36.51	36.57	-0.97	-76.37	-92.22
436	MV-LM1(max)	I[116]	Shear-z	93.74	-52.12	32.12	9.01	96.4	-185.14
436	MV-LM1(max)	J[117]	Shear-z	93.74	-52.12	32.12	9.01	-45.3	44.82
437	MV-LM1(max)	I[152]	Shear-z	91.96	3.57	35.49	-1.85	106.75	13.87
437	MV-LM1(max)	J[153]	Shear-z	91.96	3.57	35.49	-1.85	-49.81	-1.88
438	MV-LM1(max)	I[188]	Shear-z	93.44	52.37	32.12	-9.01	96.4	185.75
438	MV-LM1(max)	J[189]	Shear-z	93.44	52.37	32.12	-9.01	-45.29	-45.28
439	MV-LM1(max)	I[224]	Shear-z	315.65	-36.44	36.58	0.97	84.97	-68.69
439	MV-LM1(max)	J[225]	Shear-z	315.65	-36.44	36.58	0.97	-76.39	92.08
440	MV-LM1(max)	I[81]	Shear-z	298.08	18.75	32.36	0.87	76.03	34.89
440	MV-LM1(max)	J[82]	Shear-z	298.08	18.75	32.36	0.87	-66.72	-47.82
441	MV-LM1(max)	I[117]	Shear-z	67.33	-60.68	30.53	9.44	93.5	-203.84
441	MV-LM1(max)	J[118]	Shear-z	67.33	-60.68	30.53	9.44	-41.18	63.86
442	MV-LM1(max)	I[153]	Shear-z	74.35	3.69	34.51	-1.8	105.11	14.19
442	MV-LM1(max)	J[154]	Shear-z	74.35	3.69	34.51	-1.8	-47.14	-2.11
443	MV-LM1(max)	I[189]	Shear-z	67.05	60.94	30.52	-9.44	93.49	204.48
443	MV-LM1(max)	J[190]	Shear-z	67.05	60.94	30.52	-9.44	-41.18	-64.39
444	MV-LM1(max)	I[225]	Shear-z	298.11	-18.64	32.37	-0.87	76.05	-34.65
444	MV-LM1(max)	J[226]	Shear-z	298.11	-18.64	32.37	-0.87	-66.75	47.59
445	MV-LM1(max)	I[82]	Shear-z	-394.92	-49.74	29.76	11.1	87.37	-235.79
445	MV-LM1(max)	J[83]	Shear-z	-394.92	-49.74	29.76	11.1	-43.92	-16.35
446	MV-LM1(max)	I[118]	Shear-z	-44.49	-65.29	29.73	9.13	96.87	-218.11
446	MV-LM1(max)	J[119]	Shear-z	-44.49	-65.29	29.73	9.13	-34.3	69.92
447	MV-LM1(max)	I[154]	Shear-z	0.62	3.76	34.08	-1.89	109.44	14.33
447	MV-LM1(max)	J[155]	Shear-z	0.62	3.76	34.08	-1.89	-40.92	-2.25

448	MV-LM1(max)	I[190]	Shear-z	-44.76	65.43	29.73	-9.15	96.85	218.46
448	MV-LM1(max)	J[191]	Shear-z	-44.76	65.43	29.73	-9.15	-34.29	-70.2
449	MV-LM1(max)	I[226]	Shear-z	-395.17	49.85	29.77	-11.09	87.39	236
449	MV-LM1(max)	J[227]	Shear-z	-395.17	49.85	29.77	-11.09	-43.93	16.09
450	MV-LM1(max)	I[83]	Shear-z	-758.9	-41.34	31.42	9.17	96.42	-227.42
450	MV-LM1(max)	J[381]	Shear-z	-758.9	-41.34	31.42	9.17	27.1	-136.23
451	MV-LM1(max)	I[119]	Shear-z	-145.98	-58.93	30.86	7.88	103.85	-207.61
451	MV-LM1(max)	J[382]	Shear-z	-145.98	-58.93	30.86	7.88	35.78	-77.61
452	MV-LM1(max)	I[155]	Shear-z	-54.67	3.78	34.89	-2.16	115.35	14.33
452	MV-LM1(max)	J[383]	Shear-z	-54.67	3.78	34.89	-2.16	38.38	6
453	MV-LM1(max)	I[191]	Shear-z	-146.3	59.15	30.85	-7.89	103.82	208.08
453	MV-LM1(max)	J[384]	Shear-z	-146.3	59.15	30.85	-7.89	35.77	77.59
454	MV-LM1(max)	I[227]	Shear-z	-758.84	41.54	31.43	-9.15	96.42	227.75
454	MV-LM1(max)	J[385]	Shear-z	-758.84	41.54	31.43	-9.15	27.1	136.12
455	MV-LM1(max)	I[84]	Shear-z	-891.43	-18.84	37.42	5.37	111.14	-186.17
455	MV-LM1(max)	J[85]	Shear-z	-891.43	-18.84	37.42	5.37	-53.95	-103.04
456	MV-LM1(max)	I[120]	Shear-z	-172.49	-46.84	33.67	5.3	110.29	-179.37
456	MV-LM1(max)	J[121]	Shear-z	-172.49	-46.84	33.67	5.3	-38.27	27.26
457	MV-LM1(max)	I[156]	Shear-z	-66.48	3.54	36.53	-2.58	118.68	13.78
457	MV-LM1(max)	J[157]	Shear-z	-66.48	3.54	36.53	-2.58	-42.47	-1.82
458	MV-LM1(max)	I[192]	Shear-z	-172.71	47.02	33.67	-5.28	110.26	179.39
458	MV-LM1(max)	J[193]	Shear-z	-172.71	47.02	33.67	-5.28	-38.29	-28.03
459	MV-LM1(max)	I[228]	Shear-z	-891.31	19.48	37.41	-5.32	111.09	186.39
459	MV-LM1(max)	J[229]	Shear-z	-891.31	19.48	37.41	-5.32	-53.94	100.45
460	MV-LM1(max)	I[85]	Shear-z	-744.28	17.49	46.01	0.85	126.48	-124.19
460	MV-LM1(max)	J[86]	Shear-z	-744.28	17.49	46.01	0.85	-76.51	-201.35
461	MV-LM1(max)	I[121]	Shear-z	-137.7	-31.9	36.76	2.73	112.96	-151.52
461	MV-LM1(max)	J[122]	Shear-z	-137.7	-31.9	36.76	2.73	-49.24	-10.79
462	MV-LM1(max)	I[157]	Shear-z	-50.61	3.13	38.22	-3.02	118.11	13.25
462	MV-LM1(max)	J[158]	Shear-z	-50.61	3.13	38.22	-3.02	-50.53	-0.54
463	MV-LM1(max)	I[193]	Shear-z	-137.91	31.93	36.76	-2.68	112.9	150.7
463	MV-LM1(max)	J[194]	Shear-z	-137.91	31.93	36.76	-2.68	-49.26	9.82
464	MV-LM1(max)	I[229]	Shear-z	-744.3	-16.25	46	-0.71	126.41	122.5
464	MV-LM1(max)	J[230]	Shear-z	-744.3	-16.25	46	-0.71	-76.52	194.21
465	MV-LM1(max)	I[86]	Shear-z	-322.08	48.88	52.77	0.34	125.81	-125.49
465	MV-LM1(max)	J[70]	Shear-z	-322.08	48.88	52.77	0.34	-106.98	-341.14
466	MV-LM1(max)	I[122]	Shear-z	-72.18	-12.07	35.97	1.89	102	-162.88
466	MV-LM1(max)	J[106]	Shear-z	-72.18	-12.07	35.97	1.89	-56.68	-109.62
467	MV-LM1(max)	I[158]	Shear-z	-29.63	-1.98	34.09	3.08	103.94	-15.27
467	MV-LM1(max)	J[142]	Shear-z	-29.63	-1.98	34.09	3.08	-46.47	-6.55
468	MV-LM1(max)	I[194]	Shear-z	-72.24	10.77	35.98	-1.8	102.02	160.44
468	MV-LM1(max)	J[178]	Shear-z	-72.24	10.77	35.98	-1.8	-56.74	112.92
469	MV-LM1(max)	I[230]	Shear-z	-322.09	-50.43	52.76	-0.18	125.77	120.44
469	MV-LM1(max)	J[214]	Shear-z	-322.09	-50.43	52.76	-0.18	-106.99	342.92
470	MV-LM1(max)	I[335]	Shear-z	-211.73	-509.53	104.34	67.4	163.67	-106.8
470	MV-LM1(max)	J[69]	Shear-z	-211.73	-509.53	104.34	67.4	59.33	402.74
471	MV-LM1(max)	I[336]	Shear-z	2.67	286.29	6.54	-12.28	123.57	73.38
471	MV-LM1(max)	J[71]	Shear-z	2.67	286.29	6.54	-12.28	117.03	-212.91
472	MV-LM1(max)	I[337]	Shear-z	2.5	297.74	12.72	-23.1	152.18	64.05
472	MV-LM1(max)	J[72]	Shear-z	2.5	297.74	12.72	-23.1	139.46	-233.7
473	MV-LM1(max)	I[338]	Shear-z	-6.69	-88.39	20.53	1.51	177.29	-26.54
473	MV-LM1(max)	J[73]	Shear-z	-6.69	-88.39	20.53	1.51	156.76	61.85
474	MV-LM1(max)	I[339]	Shear-z	-8.01	-227.65	23.3	11.89	186.98	-55.94
474	MV-LM1(max)	J[74]	Shear-z	-8.01	-227.65	23.3	11.89	163.68	171.71
475	MV-LM1(max)	I[340]	Shear-z	-3.75	-300.06	20.86	19.33	179.06	-67.77
475	MV-LM1(max)	J[75]	Shear-z	-3.75	-300.06	20.86	19.33	158.2	232.28
476	MV-LM1(max)	I[341]	Shear-z	-1.77	-330.26	17.16	23.6	164.32	-71.72
476	MV-LM1(max)	J[76]	Shear-z	-1.77	-330.26	17.16	23.6	147.17	258.55
477	MV-LM1(max)	I[342]	Shear-z	-0.42	-313.08	13.48	23.74	147.17	-66.71
477	MV-LM1(max)	J[77]	Shear-z	-0.42	-313.08	13.48	23.74	133.69	246.37
478	MV-LM1(max)	I[343]	Shear-z	0.9	-343.19	10.8	22.53	145.37	-78.55

478	MV-LM1(max)	J[78]	Shear-z	0.9	-343.19	10.8	22.53	134.58	264.63
479	MV-LM1(max)	I[344]	Shear-z	0.76	360.23	10.43	-21.35	142.52	83.55
479	MV-LM1(max)	J[79]	Shear-z	0.76	360.23	10.43	-21.35	132.1	-276.68
480	MV-LM1(max)	I[345]	Shear-z	-1.8	396.18	13.03	-24.47	150.24	89.86
480	MV-LM1(max)	J[80]	Shear-z	-1.8	396.18	13.03	-24.47	137.21	-306.32
481	MV-LM1(max)	I[346]	Shear-z	-1.95	336.38	16.28	-23.26	158.31	73.08
481	MV-LM1(max)	J[81]	Shear-z	-1.95	336.38	16.28	-23.26	142.03	-263.31
482	MV-LM1(max)	I[347]	Shear-z	-3.94	302.71	20.25	-19.84	175.14	67.61
482	MV-LM1(max)	J[82]	Shear-z	-3.94	302.71	20.25	-19.84	154.89	-235.1
483	MV-LM1(max)	I[348]	Shear-z	-5.72	204.91	22.7	-11.86	181.89	48.43
483	MV-LM1(max)	J[83]	Shear-z	-5.72	204.91	22.7	-11.86	159.19	-156.48
484	MV-LM1(max)	I[349]	Shear-z	-5.1	82.51	20.67	-2.04	172.41	23.68
484	MV-LM1(max)	J[84]	Shear-z	-5.1	82.51	20.67	-2.04	151.74	-58.83
485	MV-LM1(max)	I[350]	Shear-z	3.59	-243.71	12.84	21.41	144.77	-50.28
485	MV-LM1(max)	J[85]	Shear-z	3.59	-243.71	12.84	21.41	131.93	193.43
486	MV-LM1(max)	I[351]	Shear-z	2.38	-296.73	7.04	14.55	124.22	-73.92
486	MV-LM1(max)	J[86]	Shear-z	2.38	-296.73	7.04	14.55	117.18	222.81
487	MV-LM1(max)	I[352]	Shear-z	-104.86	626.33	118.79	-84.4	158.79	131.83
487	MV-LM1(max)	J[70]	Shear-z	-104.86	626.33	118.79	-84.4	39.99	-494.5
488	MV-LM1(max)	I[353]	Shear-z	9.57	-106.31	526.55	25.8	-159.55	7.62
488	MV-LM1(max)	J[19]	Shear-z	5.6	-86.55	659.57	24.57	-455.14	45.9
489	MV-LM1(max)	I[354]	Shear-z	-67.8	-65.01	475.73	9.53	-148.86	10.02
489	MV-LM1(max)	J[53]	Shear-z	-59.65	-64.93	593.55	10.64	-375.42	41.1
490	MV-LM1(max)	I[355]	Shear-z	-87.27	-68.13	446.62	8.41	-113.63	11.05
490	MV-LM1(max)	J[54]	Shear-z	-79.2	-63.36	563.34	8.1	-323.95	41.33
491	MV-LM1(max)	I[356]	Shear-z	-94.29	-40.01	441.22	3.51	-110.82	7.88
491	MV-LM1(max)	J[55]	Shear-z	-86.13	-59.34	558.39	4.61	-314.36	41.51
492	MV-LM1(max)	I[357]	Shear-z	-95.27	-24.37	441.2	1.21	-113.23	5.73
492	MV-LM1(max)	J[56]	Shear-z	-87.29	-28.11	558.22	1.78	-316.5	19.94
493	MV-LM1(max)	I[358]	Shear-z	-95.36	-16.46	442.68	0.16	-118.58	4.55
493	MV-LM1(max)	J[57]	Shear-z	-87.49	-24.3	559.26	0.99	-322.98	17.76
494	MV-LM1(max)	I[359]	Shear-z	-94.92	-8.03	443.67	-0.62	-119.01	2.71
494	MV-LM1(max)	J[58]	Shear-z	-87.15	-19.02	560.12	0.37	-324.5	14.06
495	MV-LM1(max)	I[360]	Shear-z	-94.26	-7.71	444.51	-1.17	-118.16	2.9
495	MV-LM1(max)	J[59]	Shear-z	-86.49	-15.45	560.84	-0.56	-324.3	11.98
496	MV-LM1(max)	I[361]	Shear-z	-93.87	-3.63	444.51	-1.84	-118.25	2.24
496	MV-LM1(max)	J[60]	Shear-z	-86.1	-37.36	561.27	-0.1	-324.84	28.49
497	MV-LM1(max)	I[362]	Shear-z	-93.7	-11.3	444.6	0.32	-117.96	2.06
497	MV-LM1(max)	J[61]	Shear-z	-85.92	17.55	561.35	-1.74	-324.52	-12.92
498	MV-LM1(max)	I[363]	Shear-z	-93.89	-5.73	444.75	-0.29	-117.95	0.9
498	MV-LM1(max)	J[62]	Shear-z	-86.1	-2.81	561.12	-1.21	-324.39	2.29
499	MV-LM1(max)	I[364]	Shear-z	-94.62	-11.19	444.08	-0.5	-119.92	2.56
499	MV-LM1(max)	J[63]	Shear-z	-86.79	-5.02	560.59	-1.79	-326	4.57
500	MV-LM1(max)	I[365]	Shear-z	-95.13	-0.25	443.31	-1.15	-121.45	-0.01
500	MV-LM1(max)	J[64]	Shear-z	-87.16	3.04	560.02	-2.33	-326.87	-1.29
501	MV-LM1(max)	I[366]	Shear-z	-95.18	10.29	441.97	-1.78	-117.44	-2.19
501	MV-LM1(max)	J[65]	Shear-z	-87.03	8.98	559.24	-2.62	-322.3	-5.46
502	MV-LM1(max)	I[367]	Shear-z	-94.05	28.62	441.84	-3.67	-113.32	-5.28
502	MV-LM1(max)	J[66]	Shear-z	-85.54	41.3	559.47	-4.91	-319.01	-28.19
503	MV-LM1(max)	I[368]	Shear-z	-87.27	60.18	446.91	-8.46	-114.76	-9.27
503	MV-LM1(max)	J[67]	Shear-z	-78.6	48.19	564.17	-8.06	-327.12	-30.25
504	MV-LM1(max)	I[369]	Shear-z	-68.78	58.18	475.12	-9.27	-149.47	-8.62
504	MV-LM1(max)	J[68]	Shear-z	-59.78	33.34	594.21	-9.01	-380.41	-18.53
505	MV-LM1(max)	I[370]	Shear-z	1.18	77.6	546.37	-25.43	-158.73	0.03
505	MV-LM1(max)	J[36]	Shear-z	3.62	81.34	659.39	-25.37	-460.88	-41.64
506	MV-LM1(max)	I[371]	Shear-z	55.53	65.75	42.57	-3.79	8.28	-22.64
506	MV-LM1(max)	J[79]	Shear-z	55.53	65.75	42.57	-3.79	-85.62	-167.67
507	MV-LM1(max)	I[372]	Shear-z	62.85	-32.17	35.45	7.31	27.87	-73.93
507	MV-LM1(max)	J[115]	Shear-z	62.85	-32.17	35.45	7.31	-50.33	-2.97
508	MV-LM1(max)	I[373]	Shear-z	77.18	3.52	37.63	-2.17	30.45	5.91
508	MV-LM1(max)	J[151]	Shear-z	77.18	3.52	37.63	-2.17	-52.56	-1.84

509	MV-LM1(max)	I[374]	Shear-z	62.69	32.29	35.45	-7.3	27.87	73.98
509	MV-LM1(max)	J[187]	Shear-z	62.69	32.29	35.45	-7.3	-50.32	2.75
510	MV-LM1(max)	I[375]	Shear-z	55.55	-65.73	42.57	3.79	8.28	22.63
510	MV-LM1(max)	J[223]	Shear-z	55.55	-65.73	42.57	3.79	-85.62	167.64
511	MV-LM1(max)	I[376]	Shear-z	-521.15	-31.69	26.93	15.79	23.21	-136.28
511	MV-LM1(max)	J[74]	Shear-z	-521.15	-31.69	26.93	15.79	-36.19	-66.37
512	MV-LM1(max)	I[377]	Shear-z	-47.58	-34.76	30.97	11.85	31.11	-76.38
512	MV-LM1(max)	J[110]	Shear-z	-47.58	-34.76	30.97	11.85	-37.21	0.3
513	MV-LM1(max)	I[378]	Shear-z	5.31	-5.83	35.52	1.51	32.94	-6.52
513	MV-LM1(max)	J[146]	Shear-z	5.31	-5.83	35.52	1.51	-45.42	6.34
514	MV-LM1(max)	I[379]	Shear-z	-47.65	34.75	30.97	-11.85	31.11	76.39
514	MV-LM1(max)	J[182]	Shear-z	-47.65	34.75	30.97	-11.85	-37.21	-0.26
515	MV-LM1(max)	I[380]	Shear-z	-520.99	31.67	26.93	-15.8	23.21	136.24
515	MV-LM1(max)	J[218]	Shear-z	-520.99	31.67	26.93	-15.8	-36.19	66.38
516	MV-LM1(max)	I[381]	Shear-z	-758.9	-41.34	31.42	9.17	27.1	-136.23
516	MV-LM1(max)	J[84]	Shear-z	-758.9	-41.34	31.42	9.17	-42.22	-45.03
517	MV-LM1(max)	I[382]	Shear-z	-145.98	-58.93	30.86	7.88	35.78	-77.61
517	MV-LM1(max)	J[120]	Shear-z	-145.98	-58.93	30.86	7.88	-32.29	52.38
518	MV-LM1(max)	I[383]	Shear-z	-54.67	3.78	34.89	-2.16	38.38	6
518	MV-LM1(max)	J[156]	Shear-z	-54.67	3.78	34.89	-2.16	-38.58	-2.33
519	MV-LM1(max)	I[384]	Shear-z	-146.3	59.15	30.85	-7.89	35.77	77.59
519	MV-LM1(max)	J[192]	Shear-z	-146.3	59.15	30.85	-7.89	-32.29	-52.89
520	MV-LM1(max)	I[385]	Shear-z	-758.84	41.54	31.43	-9.15	27.1	136.12
520	MV-LM1(max)	J[228]	Shear-z	-758.84	41.54	31.43	-9.15	-42.23	44.5

3.5. MÁXIMO MOMENTO NEGATIVO Y SUS CONCOMITANTES

Elem	Load	Part	Axial (kN)	Shear-y (kN)	Shear-z (kN)	Torsion (kN*m)	Moment-y (kN*m)	Moment-z (kN*m)
1	MV-LM1(min)	I[1]	-1890.7	-1.1	-80.86	-16.78	-130.5	-55.89
1	MV-LM1(min)	J[2]	-1890.7	-1.1	-80.86	-16.78	-246.03	-50.35
2	MV-LM1(min)	I[2]	-1852.33	-1.1	-60.22	-19.05	-246.03	-49.49
2	MV-LM1(min)	J[3]	-1852.33	-1.1	-60.22	-19.05	-354.31	-44.13
3	MV-LM1(min)	I[3]	-1805.79	-1.1	-50.68	-21.3	-354.31	-43.07
3	MV-LM1(min)	J[4]	-1805.79	-1.1	-50.68	-21.3	-403.14	-37.87
4	MV-LM1(min)	I[4]	-1763.65	-1.1	-46.32	-23.33	-403.14	-36.6
4	MV-LM1(min)	J[5]	-1763.65	-1.1	-46.32	-23.33	-415.97	-31.57
5	MV-LM1(min)	I[5]	-1728.69	-1.1	-45.17	-25.09	-415.97	-30.09
5	MV-LM1(min)	J[6]	-1728.69	-1.1	-45.17	-25.09	-397.45	-25.2
6	MV-LM1(min)	I[6]	-1700.43	-1.1	-46.85	-26.52	-397.45	-23.55
6	MV-LM1(min)	J[7]	-1700.43	-1.1	-46.85	-26.52	-351.03	-18.8
7	MV-LM1(min)	I[7]	-1678.46	-1.1	-49.73	-27.57	-351.03	-16.99
7	MV-LM1(min)	J[8]	-1678.46	-1.1	-49.73	-27.57	-282.35	-12.38
8	MV-LM1(min)	I[8]	-1663.19	-1.1	-52.47	-28.22	-282.35	-10.46
8	MV-LM1(min)	J[9]	-1663.19	-1.1	-52.47	-28.22	-214.75	-6.04
9	MV-LM1(min)	I[9]	-1656.32	-1.1	-54.3	-28.42	-214.75	-4.08
9	MV-LM1(min)	J[10]	-1656.32	-1.1	-54.3	-28.42	-210.87	-4.76
10	MV-LM1(min)	I[10]	-1662.39	-1.1	-54.57	-28.19	-210.87	-6.33
10	MV-LM1(min)	J[11]	-1662.39	-1.1	-54.57	-28.19	-278.89	-10.78
11	MV-LM1(min)	I[11]	-1678.78	-1.1	-52.85	-27.53	-278.89	-12.76
11	MV-LM1(min)	J[12]	-1678.78	-1.1	-52.85	-27.53	-348.47	-17.5
12	MV-LM1(min)	I[12]	-1701.55	-1.1	-48.84	-26.46	-348.47	-19.25
12	MV-LM1(min)	J[13]	-1701.55	-1.1	-48.84	-26.46	-397.2	-24.1
13	MV-LM1(min)	I[13]	-1729.92	-1.1	-42.72	-25.02	-397.2	-25.69
13	MV-LM1(min)	J[14]	-1729.92	-1.1	-42.72	-25.02	-420	-30.64
14	MV-LM1(min)	I[14]	-1765.08	-1.1	-35.21	-23.26	-420	-32.11
14	MV-LM1(min)	J[15]	-1765.08	-1.1	-35.21	-23.26	-413.5	-37.2
15	MV-LM1(min)	I[15]	-1807.52	-1.1	-24.94	-21.38	-413.5	-38.46
15	MV-LM1(min)	J[16]	-1807.52	-1.1	-24.94	-21.38	-375.2	-43.69
16	MV-LM1(min)	I[16]	-1854.71	-1.1	-21.01	-19.03	-375.2	-44.75

16	MV-LM1(min)	J[17]	-1854.71	-1.1	-21.01	-19.03	-283.77	-50.13
17	MV-LM1(min)	I[17]	-1894.16	-1.1	-53.74	-17.26	-283.77	-50.98
17	MV-LM1(min)	J[18]	-1894.16	-1.1	-53.74	-17.26	-109.17	-56.54
18	MV-LM1(min)	I[19]	-1890.69	-1.12	-80.79	-16.1	-130.94	-56.15
18	MV-LM1(min)	J[20]	-1890.69	-1.12	-80.79	-16.1	-245.89	-50.53
19	MV-LM1(min)	I[20]	-1852.33	-1.12	-60.24	-18.47	-245.89	-49.68
19	MV-LM1(min)	J[21]	-1852.33	-1.12	-60.24	-18.47	-354.13	-44.25
20	MV-LM1(min)	I[21]	-1805.79	-1.12	-50.7	-20.78	-354.13	-43.18
20	MV-LM1(min)	J[22]	-1805.79	-1.12	-50.7	-20.78	-403.03	-37.92
21	MV-LM1(min)	I[22]	-1763.63	-1.12	-46.33	-22.87	-403.03	-36.65
21	MV-LM1(min)	J[23]	-1763.63	-1.12	-46.33	-22.87	-415.91	-31.55
22	MV-LM1(min)	I[23]	-1728.68	-1.12	-45.17	-24.69	-415.91	-30.07
22	MV-LM1(min)	J[24]	-1728.68	-1.12	-45.17	-24.69	-397.42	-25.12
23	MV-LM1(min)	I[24]	-1700.42	-1.12	-46.85	-26.19	-397.42	-23.53
23	MV-LM1(min)	J[25]	-1700.42	-1.12	-46.85	-26.19	-351.02	-18.77
24	MV-LM1(min)	I[25]	-1678.47	-1.12	-49.73	-27.31	-351.02	-16.99
24	MV-LM1(min)	J[26]	-1678.47	-1.12	-49.73	-27.31	-282.39	-12.66
25	MV-LM1(min)	I[26]	-1663.2	-1.12	-52.47	-28.03	-282.39	-11.56
25	MV-LM1(min)	J[27]	-1663.2	-1.12	-52.47	-28.03	-214.79	-11.19
26	MV-LM1(min)	I[27]	-1656.33	-1.12	-54.29	-28.31	-214.79	-10.97
26	MV-LM1(min)	J[28]	-1656.33	-1.12	-54.29	-28.31	-210.83	-11.88
27	MV-LM1(min)	I[28]	-1662.39	-1.12	-54.57	-28.14	-210.83	-11.83
27	MV-LM1(min)	J[29]	-1662.39	-1.12	-54.57	-28.14	-278.84	-13.88
28	MV-LM1(min)	I[29]	-1678.79	-1.12	-52.85	-27.54	-278.84	-14.32
28	MV-LM1(min)	J[30]	-1678.79	-1.12	-52.85	-27.54	-348.46	-18.09
29	MV-LM1(min)	I[30]	-1701.56	-1.12	-48.84	-26.52	-348.46	-19.4
29	MV-LM1(min)	J[31]	-1701.56	-1.12	-48.84	-26.52	-397.2	-24.15
30	MV-LM1(min)	I[31]	-1729.93	-1.12	-42.72	-25.12	-397.2	-25.49
30	MV-LM1(min)	J[32]	-1729.93	-1.12	-42.72	-25.12	-420.01	-30.4
31	MV-LM1(min)	I[32]	-1765.1	-1.12	-35.21	-23.4	-420.01	-31.57
31	MV-LM1(min)	J[33]	-1765.1	-1.12	-35.21	-23.4	-413.54	-36.62
32	MV-LM1(min)	I[33]	-1807.54	-1.12	-24.93	-21.4	-413.54	-38.84
32	MV-LM1(min)	J[34]	-1807.54	-1.12	-24.93	-21.4	-375.29	-44.24
33	MV-LM1(min)	I[34]	-1854.73	-1.12	-21	-19.19	-375.29	-45.24
33	MV-LM1(min)	J[35]	-1854.73	-1.12	-21	-19.19	-283.92	-50.81
34	MV-LM1(min)	I[35]	-1894.17	-1.12	-53.74	-16.87	-283.92	-51.6
34	MV-LM1(min)	J[36]	-1894.17	-1.12	-53.74	-16.87	-109.31	-57.35
67	MV-LM1(min)	I[1]	-226.45	-531.91	-658.76	-36.51	-544.73	-379.72
67	MV-LM1(min)	J[335]	-226.45	-531.91	-622.2	-36.51	-347.72	-116.91
68	MV-LM1(min)	I[18]	-178.19	-380.38	-659.1	-85.88	-545.52	-278.68
68	MV-LM1(min)	J[352]	-178.19	-380.38	-546.04	-85.88	-349.11	-91.29
69	MV-LM1(min)	I[37]	-101.88	-529.61	-593.82	-33.18	-512.65	-385.13
69	MV-LM1(min)	J[336]	-101.88	-529.61	-476.04	-33.18	-322.45	-120.5
70	MV-LM1(min)	I[38]	-116.89	-349.39	-563.36	-28.77	-513.64	-254.13
70	MV-LM1(min)	J[337]	-116.89	-349.39	-446.65	-28.77	-352.46	-79.92
71	MV-LM1(min)	I[39]	-117.9	-237.99	-558.37	-22.37	-525.32	-185.25
71	MV-LM1(min)	J[338]	-117.9	-237.99	-441.2	-22.37	-374.19	-67.42
72	MV-LM1(min)	I[40]	-117.82	-323.29	-558.21	-19.83	-529.05	-245.91
72	MV-LM1(min)	J[339]	-117.82	-323.29	-441.19	-19.83	-378.97	-84.67
73	MV-LM1(min)	I[41]	-115.93	-416.18	-559.26	-21.49	-528.84	-310.55
73	MV-LM1(min)	J[340]	-115.93	-416.18	-442.68	-21.49	-374.27	-103.37
74	MV-LM1(min)	I[42]	-113.75	-494	-560.12	-25.61	-526.55	-365.21
74	MV-LM1(min)	J[341]	-113.75	-494	-443.68	-25.61	-366.5	-118.15
75	MV-LM1(min)	I[43]	-112.17	-536.69	-560.85	-29.77	-523.71	-391.78
75	MV-LM1(min)	J[342]	-112.17	-536.69	-444.51	-29.77	-363.02	-125.13
76	MV-LM1(min)	I[44]	-111.42	-540.53	-561.28	-32.84	-522.09	-393.3
76	MV-LM1(min)	J[343]	-111.42	-540.53	-444.51	-32.84	-360.23	-124.16
77	MV-LM1(min)	I[45]	-111.41	-514.44	-561.35	-34.15	-521.93	-371.93
77	MV-LM1(min)	J[344]	-111.41	-514.44	-444.6	-34.15	-359.89	-116.61
78	MV-LM1(min)	I[46]	-112.15	-459.67	-561.11	-33.38	-523.32	-332.28
78	MV-LM1(min)	J[345]	-112.15	-459.67	-444.75	-33.38	-362.1	-104.27

79	MV-LM1(min)	I[47]	-113.72	-385.48	-560.58	-30.17	-526.1	-279.77
79	MV-LM1(min)	J[346]	-113.72	-385.48	-444.08	-30.17	-364.16	-89.97
80	MV-LM1(min)	I[48]	-115.91	-311.85	-560.01	-23.93	-528.9	-229.51
80	MV-LM1(min)	J[347]	-115.91	-311.85	-443.29	-23.93	-372.07	-76.67
81	MV-LM1(min)	I[49]	-117.84	-280.64	-559.23	-15.6	-529.92	-208.88
81	MV-LM1(min)	J[348]	-117.84	-280.64	-441.95	-15.6	-377.84	-72.59
82	MV-LM1(min)	I[50]	-118.03	-323.05	-559.45	-12.86	-527.24	-240.98
82	MV-LM1(min)	J[349]	-118.03	-323.05	-441.83	-12.86	-375.41	-82.34
83	MV-LM1(min)	I[51]	-117.31	-423.18	-564.16	-23.75	-516.81	-311.89
83	MV-LM1(min)	J[350]	-117.31	-423.18	-446.9	-23.75	-356.1	-102.71
84	MV-LM1(min)	I[52]	-102.71	-524.96	-594.27	-33.46	-516.58	-385.06
84	MV-LM1(min)	J[351]	-102.71	-524.96	-475.17	-33.46	-322.95	-123.29
85	MV-LM1(min)	I[69]	-384.27	-149.42	-489.46	-26.92	-236.18	-152.39
85	MV-LM1(min)	J[87]	-384.27	-149.42	-468.13	-26.92	-182.8	-39.28
86	MV-LM1(min)	I[70]	-307.6	-87.94	-488.92	-31.38	-236.13	-91.83
86	MV-LM1(min)	J[88]	-307.6	-87.94	-467.56	-31.38	-173.54	-69.41
87	MV-LM1(min)	I[71]	-106.22	-152.57	-452.4	-21.14	-123.78	-157.41
87	MV-LM1(min)	J[89]	-106.22	-152.57	-427.39	-21.14	-22.88	-43.41
88	MV-LM1(min)	I[72]	-116.36	-123.84	-437.15	-20.86	-197.12	-128.21
88	MV-LM1(min)	J[90]	-116.36	-123.84	-415.52	-20.86	-55.24	-35.6
89	MV-LM1(min)	I[73]	-123.36	-88.56	-435.14	-21.6	-238.14	-91.74
89	MV-LM1(min)	J[91]	-123.36	-88.56	-415.06	-21.6	-81.01	-25.41
90	MV-LM1(min)	I[74]	-123.34	-70.01	-435.41	-22.93	-244.93	-70.22
90	MV-LM1(min)	J[92]	-123.34	-70.01	-415.39	-22.93	-86.85	-21.87
91	MV-LM1(min)	I[75]	-118.16	-81.62	-436.18	-24.5	-237.06	-80.59
91	MV-LM1(min)	J[93]	-118.16	-81.62	-415.68	-24.5	-82.39	-28.32
92	MV-LM1(min)	I[76]	-111.56	-97.37	-436.72	-25.42	-224.12	-99.39
92	MV-LM1(min)	J[94]	-111.56	-97.37	-415.64	-25.42	-73.16	-39.28
93	MV-LM1(min)	I[77]	-106.01	-108.62	-436.94	-26.32	-210.35	-111.84
93	MV-LM1(min)	J[95]	-106.01	-108.62	-415.38	-26.32	-63.9	-50.08
94	MV-LM1(min)	I[78]	-102.31	-112.69	-437.1	-26.57	-204.86	-115.86
94	MV-LM1(min)	J[96]	-102.31	-112.69	-415.27	-26.57	-56.71	-57.1
95	MV-LM1(min)	I[79]	-102.25	-109.69	-437.13	-26.26	-204.04	-112.87
95	MV-LM1(min)	J[97]	-102.25	-109.69	-415.26	-26.26	-54.75	-60.44
96	MV-LM1(min)	I[80]	-105.87	-97.23	-437.03	-26.38	-208.1	-100.12
96	MV-LM1(min)	J[98]	-105.87	-97.23	-415.35	-26.38	-61.16	-60.05
97	MV-LM1(min)	I[81]	-111.37	-78.78	-436.88	-25.79	-216.2	-81.23
97	MV-LM1(min)	J[99]	-111.37	-78.78	-415.6	-25.79	-70.08	-56.12
98	MV-LM1(min)	I[82]	-118.05	-60.73	-436.52	-25.13	-232.59	-62.71
98	MV-LM1(min)	J[100]	-118.05	-60.73	-415.79	-25.13	-80	-47.34
99	MV-LM1(min)	I[83]	-123.61	-56.85	-435.91	-24.71	-241.96	-58.89
99	MV-LM1(min)	J[101]	-123.61	-56.85	-415.69	-24.71	-86.7	-38.08
100	MV-LM1(min)	I[84]	-124.43	-67.54	-435.69	-25.24	-238.74	-69.99
100	MV-LM1(min)	J[102]	-124.43	-67.54	-415.55	-25.24	-84.87	-34.06
101	MV-LM1(min)	I[85]	-118.31	-87.67	-437.62	-27.24	-202.78	-90.78
101	MV-LM1(min)	J[103]	-118.31	-87.67	-416.18	-27.24	-65.1	-49.46
102	MV-LM1(min)	I[86]	-110.36	-100.37	-452.36	-29	-125.66	-104.11
102	MV-LM1(min)	J[104]	-110.36	-100.37	-427.72	-29	-28	-63.72
103	MV-LM1(min)	I[87]	-384.27	-149.42	-468.13	-31.74	-187.09	-39.28
103	MV-LM1(min)	J[105]	-384.27	-149.42	-308.57	-31.74	-164.72	-163.87
104	MV-LM1(min)	I[88]	-307.6	-87.94	-467.56	-37.44	-180.65	-69.41
104	MV-LM1(min)	J[106]	-307.6	-87.94	-308.35	-37.44	-151.9	-270.01
105	MV-LM1(min)	I[89]	-106.22	-152.57	-427.39	-27.45	-17.86	-43.41
105	MV-LM1(min)	J[107]	-106.22	-152.57	-264.73	-27.45	-2.23	-183.05
106	MV-LM1(min)	I[90]	-116.36	-123.84	-415.52	-25	-55.47	-35.6
106	MV-LM1(min)	J[108]	-116.36	-123.84	-256.68	-25	-0.62	-145.9
107	MV-LM1(min)	I[91]	-123.36	-88.56	-415.06	-25.38	-81.92	-25.41
107	MV-LM1(min)	J[109]	-123.36	-88.56	-257.57	-25.38	-10.2	-97.57
108	MV-LM1(min)	I[92]	-123.34	-70.01	-415.39	-27.54	-87.92	-21.87
108	MV-LM1(min)	J[110]	-123.34	-70.01	-257.91	-27.54	-13.26	-84.81
109	MV-LM1(min)	I[93]	-118.16	-81.62	-415.68	-30.34	-83.47	-28.32

109	MV-LM1(min)	J[111]	-118.16	-81.62	-257.81	-30.34	-12.37	-113.13
110	MV-LM1(min)	I[94]	-111.56	-97.37	-415.64	-32.5	-74.23	-39.28
110	MV-LM1(min)	J[112]	-111.56	-97.37	-257.4	-32.5	-8.99	-160.29
111	MV-LM1(min)	I[95]	-106.01	-108.62	-415.38	-33.99	-65.08	-50.08
111	MV-LM1(min)	J[113]	-106.01	-108.62	-256.9	-33.99	-6.12	-204.69
112	MV-LM1(min)	I[96]	-102.31	-112.69	-415.27	-34.04	-58.07	-57.1
112	MV-LM1(min)	J[114]	-102.31	-112.69	-256.62	-34.04	-3.6	-233.53
113	MV-LM1(min)	I[97]	-102.25	-109.69	-415.26	-32.96	-56.1	-60.44
113	MV-LM1(min)	J[115]	-102.25	-109.69	-256.57	-32.96	-2.4	-244.53
114	MV-LM1(min)	I[98]	-105.87	-97.23	-415.35	-31.07	-62.32	-60.05
114	MV-LM1(min)	J[116]	-105.87	-97.23	-256.74	-31.07	-4.6	-241.93
115	MV-LM1(min)	I[99]	-111.37	-78.78	-415.6	-28.88	-71.11	-56.12
115	MV-LM1(min)	J[117]	-111.37	-78.78	-257.17	-28.88	-7.74	-224.55
116	MV-LM1(min)	I[100]	-118.05	-60.73	-415.79	-27.8	-80.98	-47.34
116	MV-LM1(min)	J[118]	-118.05	-60.73	-257.65	-27.8	-11.61	-189.18
117	MV-LM1(min)	I[101]	-123.61	-56.85	-415.69	-27.45	-87.57	-38.08
117	MV-LM1(min)	J[119]	-123.61	-56.85	-257.9	-27.45	-14.62	-151.36
118	MV-LM1(min)	I[102]	-124.43	-67.54	-415.55	-29.02	-85.44	-34.06
118	MV-LM1(min)	J[120]	-124.43	-67.54	-257.77	-29.02	-14.21	-144.09
119	MV-LM1(min)	I[103]	-118.31	-87.67	-416.18	-33.44	-64.79	-49.46
119	MV-LM1(min)	J[121]	-118.31	-87.67	-257.16	-33.44	-8.49	-204.29
120	MV-LM1(min)	I[104]	-110.36	-100.37	-427.72	-36.2	-21.42	-63.72
120	MV-LM1(min)	J[122]	-110.36	-100.37	-264.91	-36.2	-3.49	-258.69
121	MV-LM1(min)	I[105]	-440.77	-68.44	-311.96	-28.93	-137.92	-96.51
121	MV-LM1(min)	J[123]	-440.77	-68.44	-293.29	-28.93	-108.21	-20.77
122	MV-LM1(min)	I[106]	-385.17	-52.68	-311.3	-34.91	-131.17	-77.03
122	MV-LM1(min)	J[124]	-385.17	-52.68	-292.68	-34.91	-101.12	-22.71
123	MV-LM1(min)	I[107]	-183.23	-83.79	-300.24	-28.58	-6.66	-123.86
123	MV-LM1(min)	J[125]	-183.23	-83.79	-280.91	-28.58	-1.34	-13.85
124	MV-LM1(min)	I[108]	-185.14	-75.27	-299.71	-23.23	-10.76	-111.49
124	MV-LM1(min)	J[126]	-185.14	-75.27	-284.31	-23.23	0	-13.05
125	MV-LM1(min)	I[109]	-191.84	-60.59	-300.9	-19.5	-26.12	-89.93
125	MV-LM1(min)	J[127]	-191.84	-60.59	-286.87	-19.5	-0.17	-12.32
126	MV-LM1(min)	I[110]	-192.92	-47.24	-301.24	-18.32	-29.28	-69.93
126	MV-LM1(min)	J[128]	-192.92	-47.24	-287.31	-18.32	-0.77	-11.74
127	MV-LM1(min)	I[111]	-187.02	-48.12	-300.99	-22.41	-26.54	-67.18
127	MV-LM1(min)	J[129]	-187.02	-48.12	-286.65	-22.41	-1.13	-11.76
128	MV-LM1(min)	I[112]	-178.3	-57.1	-300.43	-26.09	-21.36	-79.71
128	MV-LM1(min)	J[130]	-178.3	-57.1	-285.56	-26.09	-1.06	-12.41
129	MV-LM1(min)	I[113]	-170.51	-62.74	-299.77	-28.76	-16.33	-88.22
129	MV-LM1(min)	J[131]	-170.51	-62.74	-284.47	-28.76	-0.67	-13.21
130	MV-LM1(min)	I[114]	-165.14	-66.65	-299.4	-29.97	-12.27	-94.37
130	MV-LM1(min)	J[132]	-165.14	-66.65	-283.83	-29.97	-0.14	-13.98
131	MV-LM1(min)	I[115]	-165.14	-67.63	-299.34	-29.6	-11.1	-96.67
131	MV-LM1(min)	J[133]	-165.14	-67.63	-283.73	-29.6	0	-14.53
132	MV-LM1(min)	I[116]	-170.5	-66	-299.62	-27.67	-14.6	-95.31
132	MV-LM1(min)	J[134]	-170.5	-66	-284.2	-27.67	-0.07	-14.71
133	MV-LM1(min)	I[117]	-178.3	-62.66	-300.2	-24.71	-19.5	-91.23
133	MV-LM1(min)	J[135]	-178.3	-62.66	-285.16	-24.71	-0.52	-14.43
134	MV-LM1(min)	I[118]	-187.02	-58.63	-300.82	-21.79	-24.91	-85.56
134	MV-LM1(min)	J[136]	-187.02	-58.63	-286.27	-21.79	-0.86	-13.71
135	MV-LM1(min)	I[119]	-192.94	-56.38	-301.17	-21.7	-28.86	-82.27
135	MV-LM1(min)	J[137]	-192.94	-56.38	-287.07	-21.7	-1.05	-12.99
136	MV-LM1(min)	I[120]	-191.92	-58.24	-301.02	-25.06	-28.04	-84.99
136	MV-LM1(min)	J[138]	-191.92	-58.24	-286.93	-25.06	-1.34	-12.59
137	MV-LM1(min)	I[121]	-185.28	-64.99	-300.08	-30.57	-19.72	-94.99
137	MV-LM1(min)	J[139]	-185.28	-64.99	-284.82	-30.57	-1.5	-12.97
138	MV-LM1(min)	I[122]	-183.48	-71.2	-300.24	-35.79	-6.94	-104.76
138	MV-LM1(min)	J[140]	-183.48	-71.2	-280.96	-35.79	-0.09	-15.4
139	MV-LM1(min)	I[123]	-440.77	-68.44	-293.29	-28.93	-108.21	-20.77
139	MV-LM1(min)	J[141]	-440.77	-68.44	-150.05	-28.93	-95.49	-67.53

140	MV-LM1(min)	I[124]	-385.17	-52.68	-292.68	-34.91	-101.12	-22.71
140	MV-LM1(min)	J[142]	-385.17	-52.68	-149.05	-34.91	-91.6	-98.04
141	MV-LM1(min)	I[125]	-183.23	-83.79	-280.91	-28.58	-1.34	-13.85
141	MV-LM1(min)	J[143]	-183.23	-83.79	-133.42	-28.58	0	-89.27
142	MV-LM1(min)	I[126]	-185.14	-75.27	-284.31	-23.23	0	-13.05
142	MV-LM1(min)	J[144]	-185.14	-75.27	-142.25	-23.23	0	-77.24
143	MV-LM1(min)	I[127]	-191.84	-60.59	-286.87	-19.5	-0.17	-12.32
143	MV-LM1(min)	J[145]	-191.84	-60.59	-146.59	-19.5	0	-63.57
144	MV-LM1(min)	I[128]	-192.92	-47.24	-287.31	-18.32	-0.77	-11.74
144	MV-LM1(min)	J[146]	-192.92	-47.24	-147.29	-18.32	0	-52.46
145	MV-LM1(min)	I[129]	-187.02	-48.12	-286.65	-22.41	-1.13	-11.76
145	MV-LM1(min)	J[147]	-187.02	-48.12	-146.2	-22.41	0	-52.04
146	MV-LM1(min)	I[130]	-178.3	-57.1	-285.56	-26.09	-1.06	-12.41
146	MV-LM1(min)	J[148]	-178.3	-57.1	-144.45	-26.09	0	-53.09
147	MV-LM1(min)	I[131]	-170.51	-62.74	-284.47	-28.76	-0.67	-13.21
147	MV-LM1(min)	J[149]	-170.51	-62.74	-142.72	-28.76	0	-60.39
148	MV-LM1(min)	I[132]	-165.14	-66.65	-283.83	-29.97	-0.14	-13.98
148	MV-LM1(min)	J[150]	-165.14	-66.65	-141.69	-29.97	0	-71.39
149	MV-LM1(min)	I[133]	-165.14	-67.63	-283.73	-29.6	0	-14.53
149	MV-LM1(min)	J[151]	-165.14	-67.63	-141.53	-29.6	0	-81.19
150	MV-LM1(min)	I[134]	-170.5	-66	-284.2	-27.67	-0.07	-14.71
150	MV-LM1(min)	J[152]	-170.5	-66	-142.27	-27.67	0	-87.23
151	MV-LM1(min)	I[135]	-178.3	-62.66	-285.16	-24.71	-0.52	-14.43
151	MV-LM1(min)	J[153]	-178.3	-62.66	-143.78	-24.71	0	-90
152	MV-LM1(min)	I[136]	-187.02	-58.63	-286.27	-21.79	-0.86	-13.71
152	MV-LM1(min)	J[154]	-187.02	-58.63	-145.53	-21.79	0	-88.94
153	MV-LM1(min)	I[137]	-192.94	-56.38	-287.07	-21.7	-1.05	-12.99
153	MV-LM1(min)	J[155]	-192.94	-56.38	-146.81	-21.7	0	-87.17
154	MV-LM1(min)	I[138]	-191.92	-58.24	-286.93	-25.06	-1.34	-12.59
154	MV-LM1(min)	J[156]	-191.92	-58.24	-146.53	-25.06	0	-89.42
155	MV-LM1(min)	I[139]	-185.28	-64.99	-284.82	-30.57	-1.5	-12.97
155	MV-LM1(min)	J[157]	-185.28	-64.99	-142.88	-30.57	0	-95.41
156	MV-LM1(min)	I[140]	-183.48	-71.2	-280.96	-35.79	-0.09	-15.4
156	MV-LM1(min)	J[158]	-183.48	-71.2	-133.48	-35.79	0	-115.97
157	MV-LM1(min)	I[141]	-405.51	-41.35	-157.55	-36.99	-92.61	-69.49
157	MV-LM1(min)	J[159]	-405.51	-41.35	-157.51	-36.99	-96.63	-20.82
158	MV-LM1(min)	I[142]	-413.18	-61.93	-156.62	-26.84	-89.58	-97.9
158	MV-LM1(min)	J[160]	-413.18	-61.93	-156.59	-26.84	-103.79	-22.74
159	MV-LM1(min)	I[143]	-183.73	-57.09	-163.4	-36.95	0	-89.32
159	MV-LM1(min)	J[161]	-183.73	-57.09	-158.56	-36.95	0	-13.87
160	MV-LM1(min)	I[144]	-185.09	-51.73	-175.91	-32.36	0	-77.54
160	MV-LM1(min)	J[162]	-185.09	-51.73	-170.69	-32.36	-0.14	-13.05
161	MV-LM1(min)	I[145]	-191.83	-42.1	-180.48	-26.26	0	-63.75
161	MV-LM1(min)	J[163]	-191.83	-42.1	-175.77	-26.26	-0.71	-12.32
162	MV-LM1(min)	I[146]	-192.92	-34.82	-181.13	-21.9	0	-52.72
162	MV-LM1(min)	J[164]	-192.92	-34.82	-176.63	-21.9	-1.03	-11.73
163	MV-LM1(min)	I[147]	-187.02	-33.06	-179.85	-21.14	0	-52.28
163	MV-LM1(min)	J[165]	-187.02	-33.06	-175.36	-21.14	-1.24	-11.76
164	MV-LM1(min)	I[148]	-178.3	-33.4	-177.86	-23.24	0	-53.29
164	MV-LM1(min)	J[166]	-178.3	-33.4	-173.24	-23.24	-1.1	-12.41
165	MV-LM1(min)	I[149]	-170.51	-39.75	-175.91	-26.36	0	-60.25
165	MV-LM1(min)	J[167]	-170.51	-39.75	-171.05	-26.36	-0.68	-13.21
166	MV-LM1(min)	I[150]	-165.14	-46.57	-174.78	-28.71	0	-71.23
166	MV-LM1(min)	J[168]	-165.14	-46.57	-169.56	-28.71	-0.14	-13.98
167	MV-LM1(min)	I[151]	-165.14	-53.22	-174.61	-29.62	0	-81.16
167	MV-LM1(min)	J[169]	-165.14	-53.22	-169.27	-29.62	0	-14.53
168	MV-LM1(min)	I[152]	-170.5	-58.03	-175.46	-28.81	0	-87.34
168	MV-LM1(min)	J[170]	-170.5	-58.03	-170.49	-28.81	-0.09	-14.71
169	MV-LM1(min)	I[153]	-178.29	-60.02	-177.18	-26.73	0	-90.12
169	MV-LM1(min)	J[171]	-178.29	-60.02	-172.51	-26.73	-0.56	-14.43
170	MV-LM1(min)	I[154]	-187.02	-59.39	-179.18	-22.81	0	-89.14

170	MV-LM1(min)	J[172]	-187.02	-59.39	-174.69	-22.81	-0.91	-13.71
171	MV-LM1(min)	I[155]	-192.94	-59.13	-180.66	-18.54	0	-87.44
171	MV-LM1(min)	J[173]	-192.94	-59.13	-176.24	-18.54	-1.1	-12.99
172	MV-LM1(min)	I[156]	-191.88	-60.21	-180.45	-18.75	0	-89.7
172	MV-LM1(min)	J[174]	-191.88	-60.21	-175.93	-18.75	-1.37	-12.59
173	MV-LM1(min)	I[157]	-185.1	-64.35	-176.54	-21.63	0	-96.3
173	MV-LM1(min)	J[175]	-185.1	-64.35	-171.66	-21.63	-1.27	-12.96
174	MV-LM1(min)	I[158]	-183.98	-76.87	-163.47	-27.76	0	-115.87
174	MV-LM1(min)	J[176]	-183.98	-76.87	-158.62	-27.76	0	-15.39
175	MV-LM1(min)	I[159]	-405.51	-41.35	-157.51	-36.99	-96.63	-20.82
175	MV-LM1(min)	J[177]	-405.51	-41.35	-63.34	-36.99	-126.69	-94.95
176	MV-LM1(min)	I[160]	-413.18	-61.93	-156.59	-26.84	-103.79	-22.74
176	MV-LM1(min)	J[178]	-413.18	-61.93	-61.74	-26.84	-129.02	-76.02
177	MV-LM1(min)	I[161]	-183.73	-57.09	-158.56	-36.95	0	-13.87
177	MV-LM1(min)	J[179]	-183.73	-57.09	-45.22	-36.95	-3.78	-122.92
178	MV-LM1(min)	I[162]	-185.09	-51.73	-170.69	-32.36	-0.14	-13.05
178	MV-LM1(min)	J[180]	-185.09	-51.73	-57.21	-32.36	-14.11	-111.58
179	MV-LM1(min)	I[163]	-191.83	-42.1	-175.77	-26.26	-0.71	-12.32
179	MV-LM1(min)	J[181]	-191.83	-42.1	-62.93	-26.26	-26.94	-90.1
180	MV-LM1(min)	I[164]	-192.92	-34.82	-176.63	-21.9	-1.03	-11.73
180	MV-LM1(min)	J[182]	-192.92	-34.82	-64.35	-21.9	-29.59	-69.89
181	MV-LM1(min)	I[165]	-187.02	-33.06	-175.36	-21.14	-1.24	-11.76
181	MV-LM1(min)	J[183]	-187.02	-33.06	-63.16	-21.14	-26.64	-67.03
182	MV-LM1(min)	I[166]	-178.3	-33.4	-173.24	-23.24	-1.1	-12.41
182	MV-LM1(min)	J[184]	-178.3	-33.4	-60.75	-23.24	-21.38	-79.91
183	MV-LM1(min)	I[167]	-170.51	-39.75	-171.05	-26.36	-0.68	-13.21
183	MV-LM1(min)	J[185]	-170.51	-39.75	-58.02	-26.36	-16.33	-88.44
184	MV-LM1(min)	I[168]	-165.14	-46.57	-169.56	-28.71	-0.14	-13.98
184	MV-LM1(min)	J[186]	-165.14	-46.57	-55.97	-28.71	-12.25	-94.58
185	MV-LM1(min)	I[169]	-165.14	-53.22	-169.27	-29.62	0	-14.53
185	MV-LM1(min)	J[187]	-165.14	-53.22	-55.63	-29.62	-11.12	-96.83
186	MV-LM1(min)	I[170]	-170.5	-58.03	-170.49	-28.81	-0.09	-14.71
186	MV-LM1(min)	J[188]	-170.5	-58.03	-57.28	-28.81	-14.63	-95.35
187	MV-LM1(min)	I[171]	-178.29	-60.02	-172.51	-26.73	-0.56	-14.43
187	MV-LM1(min)	J[189]	-178.29	-60.02	-59.85	-26.73	-19.56	-91.32
188	MV-LM1(min)	I[172]	-187.02	-59.39	-174.69	-22.81	-0.91	-13.71
188	MV-LM1(min)	J[190]	-187.02	-59.39	-62.39	-22.81	-25.04	-85.54
189	MV-LM1(min)	I[173]	-192.94	-59.13	-176.24	-18.54	-1.1	-12.99
189	MV-LM1(min)	J[191]	-192.94	-59.13	-64	-18.54	-29.08	-82.2
190	MV-LM1(min)	I[174]	-191.88	-60.21	-175.93	-18.75	-1.37	-12.59
190	MV-LM1(min)	J[192]	-191.88	-60.21	-63.26	-18.75	-28.31	-85.09
191	MV-LM1(min)	I[175]	-185.1	-64.35	-171.66	-21.63	-1.27	-12.96
191	MV-LM1(min)	J[193]	-185.1	-64.35	-58.46	-21.63	-19.07	-95
192	MV-LM1(min)	I[176]	-183.98	-76.87	-158.62	-27.76	0	-15.39
192	MV-LM1(min)	J[194]	-183.98	-76.87	-45.22	-27.76	-1.17	-104.41
193	MV-LM1(min)	I[177]	-289.07	-83.63	-73.92	-38.16	-151.92	-164.41
193	MV-LM1(min)	J[195]	-289.07	-83.63	-73.92	-38.16	-174.31	-39.55
194	MV-LM1(min)	I[178]	-336.08	-133.2	-74.75	-31.32	-152.5	-269.1
194	MV-LM1(min)	J[196]	-336.08	-133.2	-74.75	-31.32	-177.91	-69.36
195	MV-LM1(min)	I[179]	-108.83	-93.17	-62.36	-36.78	-1.41	-183.13
195	MV-LM1(min)	J[197]	-108.83	-93.17	-62.36	-36.78	-17.34	-43.55
196	MV-LM1(min)	I[180]	-115.89	-73.87	-75.54	-33.53	-3.14	-145.98
196	MV-LM1(min)	J[198]	-115.89	-73.87	-75.54	-33.53	-58.03	-35.59
197	MV-LM1(min)	I[181]	-123.17	-48.47	-81.5	-28.82	-10.95	-97.36
197	MV-LM1(min)	J[199]	-123.17	-48.47	-81.5	-28.82	-82.89	-25.35
198	MV-LM1(min)	I[182]	-123.32	-42.08	-83.17	-27.19	-13.53	-84.97
198	MV-LM1(min)	J[200]	-123.32	-42.08	-83.17	-27.19	-88.26	-21.91
199	MV-LM1(min)	I[183]	-118.16	-57.03	-81.69	-27.47	-12.53	-113.5
199	MV-LM1(min)	J[201]	-118.16	-57.03	-81.69	-27.47	-83.57	-28.37
200	MV-LM1(min)	I[184]	-111.56	-80.89	-78.84	-29.09	-9.03	-160.68
200	MV-LM1(min)	J[202]	-111.56	-80.89	-78.84	-29.09	-74.25	-39.36

201	MV-LM1(min)	I[185]	-106.01	-103.27	-75.86	-30.96	-6.13	-205.08
201	MV-LM1(min)	J[203]	-106.01	-103.27	-75.86	-30.96	-65.08	-50.17
202	MV-LM1(min)	I[186]	-102.31	-117.84	-73.8	-32.03	-3.59	-233.94
202	MV-LM1(min)	J[204]	-102.31	-117.84	-73.8	-32.03	-58.07	-57.19
203	MV-LM1(min)	I[187]	-102.25	-123.27	-73.41	-33.31	-2.41	-244.95
203	MV-LM1(min)	J[205]	-102.25	-123.27	-73.41	-33.31	-56.11	-60.53
204	MV-LM1(min)	I[188]	-105.86	-121.52	-75.14	-33.46	-4.63	-242.36
204	MV-LM1(min)	J[206]	-105.86	-121.52	-75.14	-33.46	-62.35	-60.15
205	MV-LM1(min)	I[189]	-111.37	-112.57	-77.91	-32.9	-7.77	-225.07
205	MV-LM1(min)	J[207]	-111.37	-112.57	-77.91	-32.9	-71.18	-56.24
206	MV-LM1(min)	I[190]	-118.05	-94.88	-80.9	-30.46	-11.68	-189.77
206	MV-LM1(min)	J[208]	-118.05	-94.88	-80.9	-30.46	-81.13	-47.48
207	MV-LM1(min)	I[191]	-123.57	-75.74	-82.81	-27.67	-14.7	-151.78
207	MV-LM1(min)	J[209]	-123.57	-75.74	-82.81	-27.67	-87.82	-38.18
208	MV-LM1(min)	I[192]	-124.13	-73.36	-81.9	-25.38	-14.17	-144.28
208	MV-LM1(min)	J[210]	-124.13	-73.36	-81.9	-25.38	-85.8	-34.08
209	MV-LM1(min)	I[193]	-117.1	-103.28	-76.68	-24.7	-7.32	-204.37
209	MV-LM1(min)	J[211]	-117.1	-103.28	-76.68	-24.7	-64.99	-49.48
210	MV-LM1(min)	I[194]	-113.19	-129.73	-63.21	-26.07	0	-258.27
210	MV-LM1(min)	J[212]	-113.19	-129.73	-63.21	-26.07	-14.58	-63.7
211	MV-LM1(min)	I[195]	-289.07	-83.63	-73.92	-32.28	-162.47	-39.55
211	MV-LM1(min)	J[213]	-289.07	-83.63	-57.72	-32.28	-226.29	-151.02
212	MV-LM1(min)	I[196]	-336.08	-133.2	-74.75	-26.62	-169.17	-69.36
212	MV-LM1(min)	J[214]	-336.08	-133.2	-60.91	-26.62	-221.51	-91.4
213	MV-LM1(min)	I[197]	-108.83	-93.17	-62.36	-30.02	-22.43	-43.55
213	MV-LM1(min)	J[215]	-108.83	-93.17	-7.27	-30.02	-123.95	-156.69
214	MV-LM1(min)	I[198]	-115.89	-73.87	-75.54	-28.25	-57.64	-35.59
214	MV-LM1(min)	J[216]	-115.89	-73.87	-13.39	-28.25	-198.33	-128.32
215	MV-LM1(min)	I[199]	-123.17	-48.47	-81.5	-25.47	-81.94	-25.35
215	MV-LM1(min)	J[217]	-123.17	-48.47	-17.18	-25.47	-238.66	-91.9
216	MV-LM1(min)	I[200]	-123.32	-42.08	-83.17	-24.98	-87.18	-21.91
216	MV-LM1(min)	J[218]	-123.32	-42.08	-20.22	-24.98	-245.08	-70.29
217	MV-LM1(min)	I[201]	-118.16	-57.03	-81.69	-25.29	-82.5	-28.37
217	MV-LM1(min)	J[219]	-118.16	-57.03	-19.49	-25.29	-237.06	-80.71
218	MV-LM1(min)	I[202]	-111.56	-80.89	-78.84	-25.91	-73.18	-39.36
218	MV-LM1(min)	J[220]	-111.56	-80.89	-16.85	-25.91	-224.08	-99.48
219	MV-LM1(min)	I[203]	-106.01	-103.27	-75.86	-25.9	-63.9	-50.17
219	MV-LM1(min)	J[221]	-106.01	-103.27	-13.69	-25.9	-210.32	-111.96
220	MV-LM1(min)	I[204]	-102.31	-117.84	-73.8	-26.61	-56.7	-57.19
220	MV-LM1(min)	J[222]	-102.31	-117.84	-10.99	-26.61	-204.85	-115.98
221	MV-LM1(min)	I[205]	-102.25	-123.27	-73.41	-27.38	-54.76	-60.53
221	MV-LM1(min)	J[223]	-102.25	-123.27	-10.5	-27.38	-204.05	-112.99
222	MV-LM1(min)	I[206]	-105.86	-121.52	-75.14	-27.07	-61.19	-60.15
222	MV-LM1(min)	J[224]	-105.86	-121.52	-12.9	-27.07	-208.14	-100.27
223	MV-LM1(min)	I[207]	-111.37	-112.57	-77.91	-25.81	-70.15	-56.24
223	MV-LM1(min)	J[225]	-111.37	-112.57	-15.95	-25.81	-216.3	-81.39
224	MV-LM1(min)	I[208]	-118.05	-94.88	-80.9	-24.57	-80.14	-47.48
224	MV-LM1(min)	J[226]	-118.05	-94.88	-18.86	-24.57	-232.82	-62.79
225	MV-LM1(min)	I[209]	-123.57	-75.74	-82.81	-22.71	-86.93	-38.18
225	MV-LM1(min)	J[227]	-123.57	-75.74	-20.13	-22.71	-242.38	-58.94
226	MV-LM1(min)	I[210]	-124.13	-73.36	-81.9	-21.36	-85.19	-34.08
226	MV-LM1(min)	J[228]	-124.13	-73.36	-17.75	-21.36	-239.46	-70.1
227	MV-LM1(min)	I[211]	-117.1	-103.28	-76.68	-20.68	-65.26	-49.48
227	MV-LM1(min)	J[229]	-117.1	-103.28	-14.02	-20.68	-203.6	-90.89
228	MV-LM1(min)	I[212]	-113.19	-129.73	-63.21	-21.03	-19.27	-63.7
228	MV-LM1(min)	J[230]	-113.19	-129.73	-7.55	-21.03	-125.75	-103.77
229	MV-LM1(min)	I[213]	-121.69	-350.05	-104.36	-69.61	-224.57	-270.97
229	MV-LM1(min)	J[353]	-121.69	-350.05	-104.36	-69.61	-341.83	-116.65
230	MV-LM1(min)	I[214]	-141.18	-654.15	-118.78	-42.02	-223.53	-513.75
230	MV-LM1(min)	J[370]	-141.18	-654.15	-118.78	-42.02	-334.25	-91.46
231	MV-LM1(min)	I[215]	-102.38	-508.35	-6.51	-30.2	-75.55	-390.47

231	MV-LM1(min)	J[354]	-102.38	-508.35	-6.51	-30.2	-321.55	-120.37
232	MV-LM1(min)	I[216]	-116.84	-427.5	-12.69	-22.83	-166.6	-327.3
232	MV-LM1(min)	J[355]	-116.84	-427.5	-12.69	-22.83	-353.07	-79.79
233	MV-LM1(min)	I[217]	-117.9	-338.5	-20.59	-13.34	-203.63	-256.18
233	MV-LM1(min)	J[356]	-117.9	-338.5	-20.59	-13.34	-374.61	-67.36
234	MV-LM1(min)	I[218]	-117.82	-304.45	-23.31	-15.39	-209.98	-229.87
234	MV-LM1(min)	J[357]	-117.82	-304.45	-23.31	-15.39	-379.09	-84.69
235	MV-LM1(min)	I[219]	-115.93	-338.14	-20.86	-23.63	-201.87	-259.23
235	MV-LM1(min)	J[358]	-115.93	-338.14	-20.86	-23.63	-374.29	-103.39
236	MV-LM1(min)	I[220]	-113.75	-410.29	-17.16	-30.36	-188.85	-317.17
236	MV-LM1(min)	J[359]	-113.75	-410.29	-17.16	-30.36	-366.48	-118.15
237	MV-LM1(min)	I[221]	-112.17	-481.9	-13.48	-34.19	-177.07	-372.87
237	MV-LM1(min)	J[360]	-112.17	-481.9	-13.48	-34.19	-363	-125.13
238	MV-LM1(min)	I[222]	-111.42	-533.68	-10.8	-35.41	-170.17	-413.27
238	MV-LM1(min)	J[361]	-111.42	-533.68	-10.8	-35.41	-360.22	-124.16
239	MV-LM1(min)	I[223]	-111.41	-558.37	-10.42	-34.57	-169.22	-430.93
239	MV-LM1(min)	J[362]	-111.41	-558.37	-10.42	-34.57	-359.9	-116.6
240	MV-LM1(min)	I[224]	-112.15	-551.19	-13.03	-31.83	-174.48	-424.46
240	MV-LM1(min)	J[363]	-112.15	-551.19	-13.03	-31.83	-362.13	-104.25
241	MV-LM1(min)	I[225]	-113.71	-505.92	-16.27	-27.78	-184.95	-387.11
241	MV-LM1(min)	J[364]	-113.71	-505.92	-16.27	-27.78	-364.23	-89.92
242	MV-LM1(min)	I[226]	-115.91	-424.17	-20.25	-23.35	-197.95	-320.11
242	MV-LM1(min)	J[365]	-115.91	-424.17	-20.25	-23.35	-372.19	-76.62
243	MV-LM1(min)	I[227]	-117.84	-329.82	-22.7	-20.85	-207.39	-244.19
243	MV-LM1(min)	J[366]	-117.84	-329.82	-22.7	-20.85	-378.04	-72.53
244	MV-LM1(min)	I[228]	-118.01	-242.3	-20.69	-22.57	-204.06	-178.47
244	MV-LM1(min)	J[367]	-118.01	-242.3	-20.69	-22.57	-375.76	-82.24
245	MV-LM1(min)	I[229]	-117.2	-394.28	-12.82	-28.72	-170.98	-303.63
245	MV-LM1(min)	J[368]	-117.2	-394.28	-12.82	-28.72	-356.11	-102.58
246	MV-LM1(min)	I[230]	-102.91	-616.7	-7.04	-33.88	-77.32	-476.24
246	MV-LM1(min)	J[369]	-102.91	-616.7	-7.04	-33.88	-322.18	-123.29
247	MV-LM1(min)	I[1]	-35.87	-100.22	-502.59	-398.85	-861.44	-231.21
247	MV-LM1(min)	J[231]	-35.87	-100.22	-502.59	-398.85	-807.6	-44.67
248	MV-LM1(min)	I[19]	-39.83	-121.4	-502.08	-504.73	-862.65	-362.06
248	MV-LM1(min)	J[232]	-39.83	-121.4	-502.08	-504.73	-807.84	-100.33
249	MV-LM1(min)	I[231]	-35.87	-100.22	-502.59	-398.85	-807.6	-44.67
249	MV-LM1(min)	J[37]	-35.87	-100.22	-502.59	-398.85	-1055.65	-171.83
250	MV-LM1(min)	I[232]	-39.83	-121.4	-502.08	-504.73	-807.84	-100.33
250	MV-LM1(min)	J[53]	-39.83	-121.4	-502.08	-504.73	-1055.17	-218.65
251	MV-LM1(min)	I[37]	-343.15	-98.47	-381.62	-458.26	-826.31	-234.05
251	MV-LM1(min)	J[233]	-343.15	-98.47	-381.62	-458.26	-1060.36	-57.89
252	MV-LM1(min)	I[53]	-345.38	-76.69	-381.61	-448.95	-825.6	-210.91
252	MV-LM1(min)	J[234]	-345.38	-76.69	-381.61	-448.95	-1059.58	-54.88
253	MV-LM1(min)	I[233]	-343.15	-98.47	-381.62	-458.26	-1060.36	-57.89
253	MV-LM1(min)	J[38]	-343.15	-98.47	-381.62	-458.26	-1318.32	-145.45
254	MV-LM1(min)	I[234]	-345.38	-76.69	-381.61	-448.95	-1059.58	-54.88
254	MV-LM1(min)	J[54]	-345.38	-76.69	-381.61	-448.95	-1317.55	-219.2
255	MV-LM1(min)	I[38]	-662.69	-81.34	-316.9	-407.97	-1164.55	-207.3
255	MV-LM1(min)	J[235]	-662.69	-81.34	-316.9	-407.97	-1300.3	-75.59
256	MV-LM1(min)	I[54]	-664.16	-57.58	-316.94	-389.77	-1164.05	-138.6
256	MV-LM1(min)	J[236]	-664.16	-57.58	-316.94	-389.77	-1299.8	-59.76
257	MV-LM1(min)	I[235]	-662.69	-81.34	-316.9	-407.97	-1300.3	-75.59
257	MV-LM1(min)	J[39]	-662.69	-81.34	-316.9	-407.97	-1445.8	-147.73
258	MV-LM1(min)	I[236]	-664.16	-57.58	-316.94	-389.77	-1299.8	-59.76
258	MV-LM1(min)	J[55]	-664.16	-57.58	-316.94	-389.77	-1445.35	-186.66
259	MV-LM1(min)	I[39]	-847.29	-69.32	-284.21	-339.83	-1374.02	-178.75
259	MV-LM1(min)	J[237]	-847.29	-69.32	-284.21	-339.83	-1401.61	-83.02
260	MV-LM1(min)	I[55]	-848.29	-65.91	-284.23	-338.78	-1373.73	-151.24
260	MV-LM1(min)	J[238]	-848.29	-65.91	-284.23	-338.78	-1401.34	-65.39
261	MV-LM1(min)	I[237]	-847.29	-69.32	-284.21	-339.83	-1401.61	-83.02
261	MV-LM1(min)	J[40]	-847.29	-69.32	-284.21	-339.83	-1437.8	-178.97

262	MV-LM1(min)	I[238]	-848.29	-65.91	-284.23	-338.78	-1401.34	-65.39
262	MV-LM1(min)	J[56]	-848.29	-65.91	-284.23	-338.78	-1437.56	-162.23
263	MV-LM1(min)	I[40]	-884.72	-64.87	-274.7	-314.52	-1444.2	-164.74
263	MV-LM1(min)	J[239]	-884.72	-64.87	-274.7	-314.52	-1374.52	-81.14
264	MV-LM1(min)	I[56]	-885.48	-76.6	-274.71	-315.44	-1444.03	-173.01
264	MV-LM1(min)	J[240]	-885.48	-76.6	-274.71	-315.44	-1374.37	-64.88
265	MV-LM1(min)	I[239]	-884.72	-64.87	-274.7	-314.52	-1374.52	-81.14
265	MV-LM1(min)	J[41]	-884.72	-64.87	-274.7	-314.52	-1325.35	-210.29
266	MV-LM1(min)	I[240]	-885.48	-76.6	-274.71	-315.44	-1374.37	-64.88
266	MV-LM1(min)	J[57]	-885.48	-76.6	-274.71	-315.44	-1325.23	-155.5
267	MV-LM1(min)	I[41]	-797.54	-70.99	-282.29	-346.44	-1392.36	-169.61
267	MV-LM1(min)	J[241]	-797.54	-70.99	-282.29	-346.44	-1245.9	-74.64
268	MV-LM1(min)	I[57]	-798.18	-88.35	-282.3	-358.14	-1392.28	-195.5
268	MV-LM1(min)	J[242]	-798.18	-88.35	-282.3	-358.14	-1245.84	-61.23
269	MV-LM1(min)	I[241]	-797.54	-70.99	-282.29	-346.44	-1245.9	-74.64
269	MV-LM1(min)	J[42]	-797.54	-70.99	-282.29	-346.44	-1118.47	-229.67
270	MV-LM1(min)	I[242]	-798.18	-88.35	-282.3	-358.14	-1245.84	-61.23
270	MV-LM1(min)	J[58]	-798.18	-88.35	-282.3	-358.14	-1118.42	-170.42
271	MV-LM1(min)	I[42]	-604.73	-79.78	-294.98	-382.36	-1241.07	-187.09
271	MV-LM1(min)	J[243]	-604.73	-79.78	-294.98	-382.36	-1026.02	-69.99
272	MV-LM1(min)	I[58]	-605.28	-95.34	-294.98	-413.29	-1241.04	-210.93
272	MV-LM1(min)	J[244]	-605.28	-95.34	-294.98	-413.29	-1026.04	-56.9
273	MV-LM1(min)	I[243]	-604.73	-79.78	-294.98	-382.36	-1026.02	-69.99
273	MV-LM1(min)	J[43]	-604.73	-79.78	-294.98	-382.36	-868.52	-236.22
274	MV-LM1(min)	I[244]	-605.28	-95.34	-294.98	-413.29	-1026.04	-56.9
274	MV-LM1(min)	J[59]	-605.28	-95.34	-294.98	-413.29	-868.6	-191.38
275	MV-LM1(min)	I[43]	-356.15	-88.52	-308.06	-432.36	-1005.06	-207.02
275	MV-LM1(min)	J[245]	-356.15	-88.52	-308.06	-432.36	-784.88	-65.91
276	MV-LM1(min)	I[59]	-356.42	-96.6	-308.06	-452.13	-1005.17	-214.93
276	MV-LM1(min)	J[246]	-356.42	-96.6	-308.06	-452.13	-784.99	-54.25
277	MV-LM1(min)	I[245]	-356.15	-88.52	-308.06	-432.36	-784.88	-65.91
277	MV-LM1(min)	J[44]	-356.15	-88.52	-308.06	-432.36	-635.53	-230.05
278	MV-LM1(min)	I[246]	-356.42	-96.6	-308.06	-452.13	-784.99	-54.25
278	MV-LM1(min)	J[60]	-356.42	-96.6	-308.06	-452.13	-635.61	-207.93
279	MV-LM1(min)	I[44]	-167.88	-95.35	-318.47	-457.49	-768.59	-226.49
279	MV-LM1(min)	J[247]	-167.88	-95.35	-318.47	-457.49	-566.36	-63.98
280	MV-LM1(min)	I[60]	-168.02	-93.04	-318.47	-467.15	-768.73	-209.81
280	MV-LM1(min)	J[248]	-168.02	-93.04	-318.47	-467.15	-566.43	-52.5
281	MV-LM1(min)	I[247]	-167.88	-95.35	-318.47	-457.49	-566.36	-63.98
281	MV-LM1(min)	J[45]	-167.88	-95.35	-318.47	-457.49	-754.05	-217.01
282	MV-LM1(min)	I[248]	-168.02	-93.04	-318.47	-467.15	-566.43	-52.5
282	MV-LM1(min)	J[61]	-168.02	-93.04	-318.47	-467.15	-753.92	-215.62
283	MV-LM1(min)	I[45]	-312.16	-98.59	-323.44	-453.45	-624.67	-239.57
283	MV-LM1(min)	J[249]	-312.16	-98.59	-323.44	-453.45	-772.91	-64.99
284	MV-LM1(min)	I[61]	-312.16	-85.97	-323.44	-450.65	-624.54	-202.73
284	MV-LM1(min)	J[250]	-312.16	-85.97	-323.44	-450.65	-772.75	-53.56
285	MV-LM1(min)	I[249]	-312.16	-98.59	-323.44	-453.45	-772.91	-64.99
285	MV-LM1(min)	J[46]	-312.16	-98.59	-323.44	-453.45	-991.14	-198.25
286	MV-LM1(min)	I[250]	-312.16	-85.97	-323.44	-450.65	-772.75	-53.56
286	MV-LM1(min)	J[62]	-312.16	-85.97	-323.44	-450.65	-991.01	-213.59
287	MV-LM1(min)	I[46]	-478.38	-96.97	-320.47	-416.73	-859.57	-243.35
287	MV-LM1(min)	J[251]	-478.38	-96.97	-320.47	-416.73	-1016.5	-69.44
288	MV-LM1(min)	I[62]	-478.14	-77.08	-320.47	-406.66	-859.39	-185.95
288	MV-LM1(min)	J[252]	-478.14	-77.08	-320.47	-406.66	-1016.4	-60.32
289	MV-LM1(min)	I[251]	-478.38	-96.97	-320.47	-416.73	-1016.5	-69.44
289	MV-LM1(min)	J[47]	-478.38	-96.97	-320.47	-416.73	-1230.84	-177.66
290	MV-LM1(min)	I[252]	-478.14	-77.08	-320.47	-406.66	-1016.4	-60.32
290	MV-LM1(min)	J[63]	-478.14	-77.08	-320.47	-406.66	-1230.8	-209.75
291	MV-LM1(min)	I[47]	-647.4	-89.65	-307.27	-361.4	-1113.04	-235.41
291	MV-LM1(min)	J[253]	-647.4	-89.65	-307.27	-361.4	-1242.23	-75.95
292	MV-LM1(min)	I[63]	-647.16	-68.67	-307.27	-359.8	-1112.97	-165.16

292	MV-LM1(min)	J[254]	-647.16	-68.67	-307.27	-359.8	-1242.2	-67.29
293	MV-LM1(min)	I[253]	-647.4	-89.65	-307.27	-361.4	-1242.23	-75.95
293	MV-LM1(min)	J[48]	-647.4	-89.65	-307.27	-361.4	-1389.78	-160.74
294	MV-LM1(min)	I[254]	-647.16	-68.67	-307.27	-359.8	-1242.2	-67.29
294	MV-LM1(min)	J[64]	-647.16	-68.67	-307.27	-359.8	-1389.76	-195.24
295	MV-LM1(min)	I[48]	-718.54	-77.54	-282.62	-317.57	-1328.82	-214.71
295	MV-LM1(min)	J[255]	-718.54	-77.54	-282.62	-317.57	-1380.86	-83.17
296	MV-LM1(min)	I[64]	-718.33	-63.87	-282.62	-324.92	-1328.8	-155.57
296	MV-LM1(min)	J[256]	-718.33	-63.87	-282.62	-324.92	-1380.85	-74.72
297	MV-LM1(min)	I[255]	-718.54	-77.54	-282.62	-317.57	-1380.86	-83.17
297	MV-LM1(min)	J[49]	-718.54	-77.54	-282.62	-317.57	-1455.59	-158.74
298	MV-LM1(min)	I[256]	-718.33	-63.87	-282.62	-324.92	-1380.85	-74.72
298	MV-LM1(min)	J[65]	-718.33	-63.87	-282.62	-324.92	-1455.63	-174.34
299	MV-LM1(min)	I[49]	-659.68	-66.15	-251.33	-329.96	-1458.21	-182.16
299	MV-LM1(min)	J[257]	-659.68	-66.15	-251.33	-329.96	-1427.57	-87.63
300	MV-LM1(min)	I[65]	-659.48	-68.43	-251.32	-329.86	-1458.26	-163.79
300	MV-LM1(min)	J[258]	-659.48	-68.43	-251.32	-329.86	-1427.64	-78.65
301	MV-LM1(min)	I[257]	-659.68	-66.15	-251.33	-329.96	-1427.57	-87.63
301	MV-LM1(min)	J[50]	-659.68	-66.15	-251.33	-329.96	-1406.43	-175.06
302	MV-LM1(min)	I[258]	-659.48	-68.43	-251.32	-329.86	-1427.64	-78.65
302	MV-LM1(min)	J[66]	-659.48	-68.43	-251.32	-329.86	-1406.55	-153.41
303	MV-LM1(min)	I[50]	-480.4	-59.47	-207.9	-381.67	-1490.57	-149.41
303	MV-LM1(min)	J[259]	-480.4	-59.47	-207.9	-381.67	-1356.82	-83.79
304	MV-LM1(min)	I[66]	-480.43	-80.87	-207.87	-388.11	-1490.72	-187.26
304	MV-LM1(min)	J[260]	-480.43	-80.87	-207.87	-388.11	-1357.03	-79.42
305	MV-LM1(min)	I[259]	-480.4	-59.47	-207.9	-381.67	-1356.82	-83.79
305	MV-LM1(min)	J[51]	-480.4	-59.47	-207.9	-381.67	-1232.46	-209.8
306	MV-LM1(min)	I[260]	-480.43	-80.87	-207.87	-388.11	-1357.03	-79.42
306	MV-LM1(min)	J[67]	-480.43	-80.87	-207.87	-388.11	-1232.76	-171.21
307	MV-LM1(min)	I[51]	-240.85	-88.29	-145.36	-434.06	-1407.35	-143.24
307	MV-LM1(min)	J[261]	-240.85	-88.29	-145.36	-434.06	-1168.4	-66.21
308	MV-LM1(min)	I[67]	-241.04	-98.89	-145.28	-442.25	-1407.7	-219.27
308	MV-LM1(min)	J[262]	-241.04	-98.89	-145.28	-442.25	-1168.95	-85.06
309	MV-LM1(min)	I[261]	-240.85	-88.29	-145.36	-434.06	-1168.4	-66.21
309	MV-LM1(min)	J[52]	-240.85	-88.29	-145.36	-434.06	-950.61	-245.25
310	MV-LM1(min)	I[262]	-241.04	-98.89	-145.28	-442.25	-1168.95	-85.06
310	MV-LM1(min)	J[68]	-241.04	-98.89	-145.28	-442.25	-951.3	-267.88
311	MV-LM1(min)	I[52]	-36.32	-141.24	-122.8	-499.39	-1221.58	-186.96
311	MV-LM1(min)	J[263]	-36.32	-141.24	-122.8	-499.39	-1001.05	-54.25
312	MV-LM1(min)	I[68]	-36.1	-103.34	-122.8	-402.44	-1222.05	-218.69
312	MV-LM1(min)	J[264]	-36.1	-103.34	-122.8	-402.44	-1001.61	-134.14
313	MV-LM1(min)	I[263]	-36.32	-141.24	-122.8	-499.39	-1001.05	-54.25
313	MV-LM1(min)	J[18]	-36.32	-141.24	-122.8	-499.39	-951.87	-251.34
314	MV-LM1(min)	I[264]	-36.1	-103.34	-122.8	-402.44	-1001.61	-134.14
314	MV-LM1(min)	J[36]	-36.1	-103.34	-122.8	-402.44	-952.47	-439.55
315	MV-LM1(min)	I[1]	0	0	0	0	0	0
315	MV-LM1(min)	J[265]	0	0	0	0	0	0
316	MV-LM1(min)	I[18]	0	0	0	0	0	0
316	MV-LM1(min)	J[266]	0	0	0	0	0	0
317	MV-LM1(min)	I[37]	0	0	0	0	0	0
317	MV-LM1(min)	J[267]	0	0	0	0	0	0
318	MV-LM1(min)	I[38]	0	0	0	0	0	0
318	MV-LM1(min)	J[268]	0	0	0	0	0	0
319	MV-LM1(min)	I[39]	0	0	0	0	0	0
319	MV-LM1(min)	J[269]	0	0	0	0	0	0
320	MV-LM1(min)	I[40]	0	0	0	0	0	0
320	MV-LM1(min)	J[270]	0	0	0	0	0	0
321	MV-LM1(min)	I[41]	0	0	0	0	0	0
321	MV-LM1(min)	J[271]	0	0	0	0	0	0
322	MV-LM1(min)	I[42]	0	0	0	0	0	0
322	MV-LM1(min)	J[272]	0	0	0	0	0	0

323	MV-LM1(min)	I[43]	0	0	0	0	0	0
323	MV-LM1(min)	J[273]	0	0	0	0	0	0
324	MV-LM1(min)	I[44]	0	0	0	0	0	0
324	MV-LM1(min)	J[274]	0	0	0	0	0	0
325	MV-LM1(min)	I[45]	0	0	0	0	0	0
325	MV-LM1(min)	J[275]	0	0	0	0	0	0
326	MV-LM1(min)	I[46]	0	0	0	0	0	0
326	MV-LM1(min)	J[276]	0	0	0	0	0	0
327	MV-LM1(min)	I[47]	0	0	0	0	0	0
327	MV-LM1(min)	J[277]	0	0	0	0	0	0
328	MV-LM1(min)	I[48]	0	0	0	0	0	0
328	MV-LM1(min)	J[278]	0	0	0	0	0	0
329	MV-LM1(min)	I[49]	0	0	0	0	0	0
329	MV-LM1(min)	J[279]	0	0	0	0	0	0
330	MV-LM1(min)	I[50]	0	0	0	0	0	0
330	MV-LM1(min)	J[280]	0	0	0	0	0	0
331	MV-LM1(min)	I[51]	0	0	0	0	0	0
331	MV-LM1(min)	J[281]	0	0	0	0	0	0
332	MV-LM1(min)	I[52]	0	0	0	0	0	0
332	MV-LM1(min)	J[282]	0	0	0	0	0	0
333	MV-LM1(min)	I[231]	0	0	0	0	0	0
333	MV-LM1(min)	J[283]	0	0	0	0	0	0
334	MV-LM1(min)	I[233]	0	0	0	0	0	0
334	MV-LM1(min)	J[284]	0	0	0	0	0	0
335	MV-LM1(min)	I[235]	0	0	0	0	0	0
335	MV-LM1(min)	J[285]	0	0	0	0	0	0
336	MV-LM1(min)	I[237]	0	0	0	0	0	0
336	MV-LM1(min)	J[286]	0	0	0	0	0	0
337	MV-LM1(min)	I[239]	0	0	0	0	0	0
337	MV-LM1(min)	J[287]	0	0	0	0	0	0
338	MV-LM1(min)	I[241]	0	0	0	0	0	0
338	MV-LM1(min)	J[288]	0	0	0	0	0	0
339	MV-LM1(min)	I[243]	0	0	0	0	0	0
339	MV-LM1(min)	J[289]	0	0	0	0	0	0
340	MV-LM1(min)	I[245]	0	0	0	0	0	0
340	MV-LM1(min)	J[290]	0	0	0	0	0	0
341	MV-LM1(min)	I[247]	0	0	0	0	0	0
341	MV-LM1(min)	J[291]	0	0	0	0	0	0
342	MV-LM1(min)	I[249]	0	0	0	0	0	0
342	MV-LM1(min)	J[292]	0	0	0	0	0	0
343	MV-LM1(min)	I[251]	0	0	0	0	0	0
343	MV-LM1(min)	J[293]	0	0	0	0	0	0
344	MV-LM1(min)	I[253]	0	0	0	0	0	0
344	MV-LM1(min)	J[294]	0	0	0	0	0	0
345	MV-LM1(min)	I[255]	0	0	0	0	0	0
345	MV-LM1(min)	J[295]	0	0	0	0	0	0
346	MV-LM1(min)	I[257]	0	0	0	0	0	0
346	MV-LM1(min)	J[296]	0	0	0	0	0	0
347	MV-LM1(min)	I[259]	0	0	0	0	0	0
347	MV-LM1(min)	J[297]	0	0	0	0	0	0
348	MV-LM1(min)	I[261]	0	0	0	0	0	0
348	MV-LM1(min)	J[298]	0	0	0	0	0	0
349	MV-LM1(min)	I[263]	0	0	0	0	0	0
349	MV-LM1(min)	J[299]	0	0	0	0	0	0
350	MV-LM1(min)	I[19]	0	0	0	0	0	0
350	MV-LM1(min)	J[300]	0	0	0	0	0	0
351	MV-LM1(min)	I[36]	0	0	0	0	0	0
351	MV-LM1(min)	J[301]	0	0	0	0	0	0
352	MV-LM1(min)	I[53]	0	0	0	0	0	0
352	MV-LM1(min)	J[302]	0	0	0	0	0	0
353	MV-LM1(min)	I[54]	0	0	0	0	0	0

353	MV-LM1(min)	J[303]	0	0	0	0	0	0
354	MV-LM1(min)	I[55]	0	0	0	0	0	0
354	MV-LM1(min)	J[304]	0	0	0	0	0	0
355	MV-LM1(min)	I[56]	0	0	0	0	0	0
355	MV-LM1(min)	J[305]	0	0	0	0	0	0
356	MV-LM1(min)	I[57]	0	0	0	0	0	0
356	MV-LM1(min)	J[306]	0	0	0	0	0	0
357	MV-LM1(min)	I[58]	0	0	0	0	0	0
357	MV-LM1(min)	J[307]	0	0	0	0	0	0
358	MV-LM1(min)	I[59]	0	0	0	0	0	0
358	MV-LM1(min)	J[308]	0	0	0	0	0	0
359	MV-LM1(min)	I[60]	0	0	0	0	0	0
359	MV-LM1(min)	J[309]	0	0	0	0	0	0
360	MV-LM1(min)	I[61]	0	0	0	0	0	0
360	MV-LM1(min)	J[310]	0	0	0	0	0	0
361	MV-LM1(min)	I[62]	0	0	0	0	0	0
361	MV-LM1(min)	J[311]	0	0	0	0	0	0
362	MV-LM1(min)	I[63]	0	0	0	0	0	0
362	MV-LM1(min)	J[312]	0	0	0	0	0	0
363	MV-LM1(min)	I[64]	0	0	0	0	0	0
363	MV-LM1(min)	J[313]	0	0	0	0	0	0
364	MV-LM1(min)	I[65]	0	0	0	0	0	0
364	MV-LM1(min)	J[314]	0	0	0	0	0	0
365	MV-LM1(min)	I[66]	0	0	0	0	0	0
365	MV-LM1(min)	J[315]	0	0	0	0	0	0
366	MV-LM1(min)	I[67]	0	0	0	0	0	0
366	MV-LM1(min)	J[316]	0	0	0	0	0	0
367	MV-LM1(min)	I[68]	0	0	0	0	0	0
367	MV-LM1(min)	J[317]	0	0	0	0	0	0
368	MV-LM1(min)	I[232]	0	0	0	0	0	0
368	MV-LM1(min)	J[318]	0	0	0	0	0	0
369	MV-LM1(min)	I[234]	0	0	0	0	0	0
369	MV-LM1(min)	J[319]	0	0	0	0	0	0
370	MV-LM1(min)	I[236]	0	0	0	0	0	0
370	MV-LM1(min)	J[320]	0	0	0	0	0	0
371	MV-LM1(min)	I[238]	0	0	0	0	0	0
371	MV-LM1(min)	J[321]	0	0	0	0	0	0
372	MV-LM1(min)	I[240]	0	0	0	0	0	0
372	MV-LM1(min)	J[322]	0	0	0	0	0	0
373	MV-LM1(min)	I[242]	0	0	0	0	0	0
373	MV-LM1(min)	J[323]	0	0	0	0	0	0
374	MV-LM1(min)	I[244]	0	0	0	0	0	0
374	MV-LM1(min)	J[324]	0	0	0	0	0	0
375	MV-LM1(min)	I[246]	0	0	0	0	0	0
375	MV-LM1(min)	J[325]	0	0	0	0	0	0
376	MV-LM1(min)	I[248]	0	0	0	0	0	0
376	MV-LM1(min)	J[326]	0	0	0	0	0	0
377	MV-LM1(min)	I[250]	0	0	0	0	0	0
377	MV-LM1(min)	J[327]	0	0	0	0	0	0
378	MV-LM1(min)	I[252]	0	0	0	0	0	0
378	MV-LM1(min)	J[328]	0	0	0	0	0	0
379	MV-LM1(min)	I[254]	0	0	0	0	0	0
379	MV-LM1(min)	J[329]	0	0	0	0	0	0
380	MV-LM1(min)	I[256]	0	0	0	0	0	0
380	MV-LM1(min)	J[330]	0	0	0	0	0	0
381	MV-LM1(min)	I[258]	0	0	0	0	0	0
381	MV-LM1(min)	J[331]	0	0	0	0	0	0
382	MV-LM1(min)	I[260]	0	0	0	0	0	0
382	MV-LM1(min)	J[332]	0	0	0	0	0	0
383	MV-LM1(min)	I[262]	0	0	0	0	0	0
383	MV-LM1(min)	J[333]	0	0	0	0	0	0

384	MV-LM1(min)	I[264]	0	0	0	0	0	0
384	MV-LM1(min)	J[334]	0	0	0	0	0	0
385	MV-LM1(min)	I[69]	-293.03	-124.19	-49.51	-28.41	-99.99	-318.01
385	MV-LM1(min)	J[71]	-293.03	-124.19	-49.51	-28.41	-116.94	-334.13
386	MV-LM1(min)	I[105]	-67.49	-75.73	-35.19	-33.45	-55.88	-208.05
386	MV-LM1(min)	J[107]	-67.49	-75.73	-35.19	-33.45	-50.88	-278.95
387	MV-LM1(min)	I[141]	-29.89	-51.37	-34.09	-31.66	-46.69	-148.62
387	MV-LM1(min)	J[143]	-29.89	-51.37	-34.09	-31.66	-48.33	-109.97
388	MV-LM1(min)	I[177]	-68.48	-125.76	-35.35	-33.73	-56.23	-376.93
388	MV-LM1(min)	J[179]	-68.48	-125.76	-35.35	-33.73	-50.83	-163.91
389	MV-LM1(min)	I[213]	-294.77	-168.15	-49.76	-34.72	-100.54	-526.35
389	MV-LM1(min)	J[215]	-294.77	-168.15	-49.76	-34.72	-116.84	-271.88
390	MV-LM1(min)	I[71]	-724.34	-122.65	-45.12	-29.75	-75.09	-462.98
390	MV-LM1(min)	J[72]	-724.34	-122.65	-45.12	-29.75	-82.37	-314.86
391	MV-LM1(min)	I[107]	-141.7	-86.17	-36.58	-32.58	-49.73	-313.42
391	MV-LM1(min)	J[108]	-141.7	-86.17	-36.58	-32.58	-49.24	-261.11
392	MV-LM1(min)	I[143]	-55.01	-53.91	-38.22	-29.1	-51.91	-157.05
392	MV-LM1(min)	J[144]	-55.01	-53.91	-38.22	-29.1	-55.37	-112.61
393	MV-LM1(min)	I[179]	-142.19	-97.56	-36.58	-29.13	-49.75	-239.23
393	MV-LM1(min)	J[180]	-142.19	-97.56	-36.58	-29.13	-49.07	-166.65
394	MV-LM1(min)	I[215]	-725.46	-108.41	-45.13	-30.84	-75.1	-291.12
394	MV-LM1(min)	J[216]	-725.46	-108.41	-45.13	-30.84	-82.24	-275.22
395	MV-LM1(min)	I[72]	-999.25	-98.74	-36.97	-26.3	-54	-398.55
395	MV-LM1(min)	J[73]	-999.25	-98.74	-36.97	-26.3	-60.7	-329.6
396	MV-LM1(min)	I[108]	-196.45	-77.98	-33.61	-27.78	-40.12	-287.61
396	MV-LM1(min)	J[109]	-196.45	-77.98	-33.61	-27.78	-42.65	-273.29
397	MV-LM1(min)	I[144]	-78.38	-49.15	-36.53	-22.91	-46.25	-131.78
397	MV-LM1(min)	J[145]	-78.38	-49.15	-36.53	-22.91	-48.23	-114.04
398	MV-LM1(min)	I[180]	-196.6	-83.66	-33.61	-23.88	-40.12	-185.5
398	MV-LM1(min)	J[181]	-196.6	-83.66	-33.61	-23.88	-42.61	-141.45
399	MV-LM1(min)	I[216]	-999.38	-74.81	-36.97	-27.39	-53.99	-183.02
399	MV-LM1(min)	J[217]	-999.38	-74.81	-36.97	-27.39	-60.63	-233.62
400	MV-LM1(min)	I[73]	-1091.6	-77.91	-30.83	-22.72	-48.16	-350.04
400	MV-LM1(min)	J[376]	-1091.6	-77.91	-30.83	-22.72	-19.14	-224.12
401	MV-LM1(min)	I[109]	-209.27	-66.48	-30.83	-23.77	-37.33	-264.12
401	MV-LM1(min)	J[377]	-209.27	-66.48	-30.83	-23.77	-19.93	-149.44
402	MV-LM1(min)	I[145]	-82.57	-43.11	-34.89	-18.42	-44.41	-107.91
402	MV-LM1(min)	J[378]	-82.57	-43.11	-34.89	-18.42	-19.13	-50.12
403	MV-LM1(min)	I[181]	-209.26	-75.91	-30.83	-20.94	-37.33	-146.27
403	MV-LM1(min)	J[379]	-209.26	-75.91	-30.83	-20.94	-19.91	-85.26
404	MV-LM1(min)	I[217]	-1091.45	-77.15	-30.83	-24.08	-48.16	-191.86
404	MV-LM1(min)	J[380]	-1091.45	-77.15	-30.83	-24.08	-19.13	-104.32
405	MV-LM1(min)	I[74]	-1043.36	-70.86	-28.74	-23.22	-57.46	-317.75
405	MV-LM1(min)	J[75]	-1043.36	-70.86	-28.74	-23.22	-50.91	-380.51
406	MV-LM1(min)	I[110]	-189.07	-55.53	-29.66	-22.41	-39.8	-243.12
406	MV-LM1(min)	J[111]	-189.07	-55.53	-29.66	-22.41	-41.5	-296.46
407	MV-LM1(min)	I[146]	-68.96	-41.24	-34.08	-16.99	-45.52	-96.79
407	MV-LM1(min)	J[147]	-68.96	-41.24	-34.08	-16.99	-47.75	-117.31
408	MV-LM1(min)	I[182]	-188.89	-80.72	-29.66	-21.55	-39.81	-154.22
408	MV-LM1(min)	J[183]	-188.89	-80.72	-29.66	-21.55	-41.5	-118.44
409	MV-LM1(min)	I[218]	-1042.97	-88.67	-28.74	-23.27	-57.46	-228.48
409	MV-LM1(min)	J[219]	-1042.97	-88.67	-28.74	-23.27	-50.9	-220.93
410	MV-LM1(min)	I[75]	-876.36	-84.81	-30.79	-24.14	-69.4	-316.75
410	MV-LM1(min)	J[76]	-876.36	-84.81	-30.79	-24.14	-64.29	-401.81
411	MV-LM1(min)	I[111]	-134.65	-57.48	-30.39	-22.99	-43.73	-235.79
411	MV-LM1(min)	J[112]	-134.65	-57.48	-30.39	-22.99	-44.7	-306.54
412	MV-LM1(min)	I[147]	-38.31	-40.91	-34.51	-20.19	-47.96	-96.79
412	MV-LM1(min)	J[148]	-38.31	-40.91	-34.51	-20.19	-49.49	-122.98
413	MV-LM1(min)	I[183]	-134.37	-84.02	-30.39	-24.72	-43.74	-173.94
413	MV-LM1(min)	J[184]	-134.37	-84.02	-30.39	-24.72	-44.7	-135.72
414	MV-LM1(min)	I[219]	-876.05	-101.9	-30.8	-23.66	-69.39	-271.76

414	MV-LM1(min)	J[220]	-876.05	-101.9	-30.8	-23.66	-64.28	-254.27
415	MV-LM1(min)	I[76]	-662.26	-103.28	-34.9	-25.26	-79.69	-336.75
415	MV-LM1(min)	J[77]	-662.26	-103.28	-34.9	-25.26	-78.03	-406.3
416	MV-LM1(min)	I[112]	-67.7	-63.8	-31.93	-25.2	-47.71	-244.13
416	MV-LM1(min)	J[113]	-67.7	-63.8	-31.93	-25.2	-47.73	-307.96
417	MV-LM1(min)	I[148]	-1.18	-43.51	-35.49	-24.08	-50.64	-101.92
417	MV-LM1(min)	J[149]	-1.18	-43.51	-35.49	-24.08	-51.14	-127.29
418	MV-LM1(min)	I[184]	-67.42	-87.61	-31.93	-26.81	-47.72	-195.42
418	MV-LM1(min)	J[185]	-67.42	-87.61	-31.93	-26.81	-47.73	-156.43
419	MV-LM1(min)	I[220]	-661.82	-115.77	-34.9	-26.78	-79.68	-307.17
419	MV-LM1(min)	J[221]	-661.82	-115.77	-34.9	-26.78	-78.03	-293.44
420	MV-LM1(min)	I[77]	-489.2	-119.06	-38.59	-27.01	-86.47	-364.33
420	MV-LM1(min)	J[78]	-489.2	-119.06	-38.59	-27.01	-87.39	-394.63
421	MV-LM1(min)	I[113]	-24.94	-71.55	-33.69	-27	-50.64	-261.8
421	MV-LM1(min)	J[114]	-24.94	-71.55	-33.69	-27	-50.87	-296.64
422	MV-LM1(min)	I[149]	0	-47.12	-36.62	-26.8	-52.67	-108.25
422	MV-LM1(min)	J[150]	0	-47.12	-36.62	-26.8	-52.42	-130.29
423	MV-LM1(min)	I[185]	-24.9	-87.71	-33.69	-28.76	-50.65	-205.76
423	MV-LM1(min)	J[186]	-24.9	-87.71	-33.69	-28.76	-50.87	-175.69
424	MV-LM1(min)	I[221]	-488.84	-121.24	-38.58	-28.48	-86.46	-324.43
424	MV-LM1(min)	J[222]	-488.84	-121.24	-38.58	-28.48	-87.39	-323.21
425	MV-LM1(min)	I[78]	-419.72	-129.14	-41.14	-27.91	-88.66	-392.41
425	MV-LM1(min)	J[371]	-419.72	-129.14	-41.14	-27.91	-6.96	-220.47
426	MV-LM1(min)	I[114]	-7.48	-78.87	-35.24	-28.44	-51.77	-281.1
426	MV-LM1(min)	J[372]	-7.48	-78.87	-35.24	-28.44	-10.74	-144.75
427	MV-LM1(min)	I[150]	0	-49.2	-37.63	-27.74	-53.34	-115.27
427	MV-LM1(min)	J[373]	0	-49.2	-37.63	-27.74	-13.72	-49.13
428	MV-LM1(min)	I[186]	-7.76	-85.15	-35.24	-29.17	-51.78	-203.54
428	MV-LM1(min)	J[374]	-7.76	-85.15	-35.24	-29.17	-10.74	-88.79
429	MV-LM1(min)	I[222]	-419.8	-117.22	-41.14	-28.85	-88.64	-322.4
429	MV-LM1(min)	J[375]	-419.8	-117.22	-41.14	-28.85	-6.96	-107.41
430	MV-LM1(min)	I[79]	-491.04	-130.99	-41.95	-28.09	-85.37	-414.31
430	MV-LM1(min)	J[80]	-491.04	-130.99	-41.95	-28.09	-89.83	-343.02
431	MV-LM1(min)	I[115]	-20.02	-84.58	-36.17	-28.51	-50.59	-297.3
431	MV-LM1(min)	J[116]	-20.02	-84.58	-36.17	-28.51	-51.07	-270.84
432	MV-LM1(min)	I[151]	0	-51.04	-38.27	-27.22	-52.42	-120.25
432	MV-LM1(min)	J[152]	0	-51.04	-38.27	-27.22	-52.67	-134.37
433	MV-LM1(min)	I[187]	-20.19	-81.82	-36.18	-28.09	-50.6	-190.61
433	MV-LM1(min)	J[188]	-20.19	-81.82	-36.18	-28.09	-51.06	-194.55
434	MV-LM1(min)	I[223]	-491.28	-105.28	-41.94	-28.01	-85.35	-303.16
434	MV-LM1(min)	J[224]	-491.28	-105.28	-41.94	-28.01	-89.84	-334.69
435	MV-LM1(min)	I[80]	-674.11	-123.35	-40.46	-26.82	-76.77	-424.25
435	MV-LM1(min)	J[81]	-674.11	-123.35	-40.46	-26.82	-83.37	-316.88
436	MV-LM1(min)	I[116]	-76.29	-87.03	-36.18	-27.05	-47.56	-306.2
436	MV-LM1(min)	J[117]	-76.29	-87.03	-36.18	-27.05	-47.87	-256.15
437	MV-LM1(min)	I[152]	-1.18	-52.02	-38.31	-24.74	-51.14	-121.65
437	MV-LM1(min)	J[153]	-1.18	-52.02	-38.31	-24.74	-50.64	-137.45
438	MV-LM1(min)	I[188]	-76.58	-74.88	-36.19	-25.72	-47.57	-171.06
438	MV-LM1(min)	J[189]	-76.58	-74.88	-36.19	-25.72	-47.86	-188.06
439	MV-LM1(min)	I[224]	-674.1	-88.65	-40.45	-26.47	-76.76	-272.13
439	MV-LM1(min)	J[225]	-674.1	-88.65	-40.45	-26.47	-83.39	-314.92
440	MV-LM1(min)	I[81]	-899.49	-108.43	-37.72	-24.02	-63.4	-417.93
440	MV-LM1(min)	J[82]	-899.49	-108.43	-37.72	-24.02	-73.05	-299.53
441	MV-LM1(min)	I[117]	-149.98	-85.6	-35.06	-25.14	-44.55	-304.96
441	MV-LM1(min)	J[118]	-149.98	-85.6	-35.06	-25.14	-44.06	-246.6
442	MV-LM1(min)	I[153]	-38.32	-51.9	-37.66	-21.83	-49.49	-120.18
442	MV-LM1(min)	J[154]	-38.32	-51.9	-37.66	-21.83	-47.96	-144.92
443	MV-LM1(min)	I[189]	-150.26	-68.33	-35.06	-23.77	-44.56	-150.19
443	MV-LM1(min)	J[190]	-150.26	-68.33	-35.06	-23.77	-44.06	-173.07
444	MV-LM1(min)	I[225]	-899.37	-70.59	-37.71	-24.22	-63.38	-238.36
444	MV-LM1(min)	J[226]	-899.37	-70.59	-37.71	-24.22	-73.08	-276.53

445	MV-LM1(min)	I[82]	-1079.05	-92.97	-32.55	-23.38	-50.32	-394.21
445	MV-LM1(min)	J[83]	-1079.05	-92.97	-32.55	-23.38	-60.64	-308.79
446	MV-LM1(min)	I[118]	-206.82	-81.57	-32.96	-22.17	-41.44	-293.69
446	MV-LM1(min)	J[119]	-206.82	-81.57	-32.96	-22.17	-39.99	-249.47
447	MV-LM1(min)	I[154]	-68.98	-51.19	-36.49	-17.97	-47.75	-117.38
447	MV-LM1(min)	J[155]	-68.98	-51.19	-36.49	-17.97	-45.53	-145.22
448	MV-LM1(min)	I[190]	-207.12	-64.33	-32.97	-22.7	-41.45	-134.49
448	MV-LM1(min)	J[191]	-207.12	-64.33	-32.97	-22.7	-39.99	-157.4
449	MV-LM1(min)	I[226]	-1078.86	-61.45	-32.55	-23.41	-50.32	-206.67
449	MV-LM1(min)	J[227]	-1078.86	-61.45	-32.55	-23.41	-60.67	-233.17
450	MV-LM1(min)	I[83]	-1143.31	-80.71	-26.61	-24	-40.84	-359.9
450	MV-LM1(min)	J[381]	-1143.31	-80.71	-26.61	-24	-19.23	-232.6
451	MV-LM1(min)	I[119]	-230.31	-78.03	-30.93	-20.97	-40.75	-281.73
451	MV-LM1(min)	J[382]	-230.31	-78.03	-30.93	-20.97	-19.97	-152.54
452	MV-LM1(min)	I[155]	-82.58	-50.75	-35.52	-17.97	-47.04	-115.91
452	MV-LM1(min)	J[383]	-82.58	-50.75	-35.52	-17.97	-19.12	-54.82
453	MV-LM1(min)	I[191]	-230.6	-70.9	-30.93	-23.35	-40.76	-135.49
453	MV-LM1(min)	J[384]	-230.6	-70.9	-30.93	-23.35	-19.98	-90.6
454	MV-LM1(min)	I[227]	-1143.06	-73	-26.61	-22.35	-40.85	-194.58
454	MV-LM1(min)	J[385]	-1143.06	-73	-26.61	-22.35	-19.23	-117.04
455	MV-LM1(min)	I[84]	-1051.26	-80.37	-21.6	-26.63	-61.51	-337.17
455	MV-LM1(min)	J[85]	-1051.26	-80.37	-21.6	-26.63	-55.12	-406.65
456	MV-LM1(min)	I[120]	-214.96	-75.4	-29.23	-22.93	-43.15	-273.25
456	MV-LM1(min)	J[121]	-214.96	-75.4	-29.23	-22.93	-40.37	-293.61
457	MV-LM1(min)	I[156]	-78.4	-51.55	-34.7	-21.53	-48.23	-118.04
457	MV-LM1(min)	J[157]	-78.4	-51.55	-34.7	-21.53	-46.25	-139.33
458	MV-LM1(min)	I[192]	-215.28	-81.29	-29.24	-26.57	-43.17	-155.27
458	MV-LM1(min)	J[193]	-215.28	-81.29	-29.24	-26.57	-40.39	-179.72
459	MV-LM1(min)	I[228]	-1051.08	-96.39	-21.61	-25.37	-61.53	-221.45
459	MV-LM1(min)	J[229]	-1051.08	-96.39	-21.61	-25.37	-55.11	-240.64
460	MV-LM1(min)	I[85]	-778.15	-125.53	-33.03	-30.2	-87.45	-318.39
460	MV-LM1(min)	J[86]	-778.15	-125.53	-33.03	-30.2	-76.87	-476.31
461	MV-LM1(min)	I[121]	-157.76	-80.62	-28.24	-28.03	-50.38	-265.52
461	MV-LM1(min)	J[122]	-157.76	-80.62	-28.24	-28.03	-50.12	-317.78
462	MV-LM1(min)	I[157]	-55.01	-55.52	-34.24	-28.11	-55.37	-120.77
462	MV-LM1(min)	J[158]	-55.01	-55.52	-34.24	-28.11	-51.91	-144.97
463	MV-LM1(min)	I[193]	-158.07	-90.48	-28.24	-31.59	-50.41	-178.26
463	MV-LM1(min)	J[194]	-158.07	-90.48	-28.24	-31.59	-50.13	-201.04
464	MV-LM1(min)	I[229]	-778.15	-122.58	-33.04	-28.83	-87.49	-265.24
464	MV-LM1(min)	J[230]	-778.15	-122.58	-33.04	-28.83	-76.88	-389.6
465	MV-LM1(min)	I[86]	-325.69	-197.21	-64.7	-34.51	-135.2	-337.51
465	MV-LM1(min)	J[70]	-325.69	-197.21	-64.7	-34.51	-108.01	-343.94
466	MV-LM1(min)	I[122]	-74.26	-111.65	-28.87	-33.38	-58.77	-277.73
466	MV-LM1(min)	J[106]	-74.26	-111.65	-28.87	-33.38	-58.4	-234.32
467	MV-LM1(min)	I[158]	-29.88	-56.81	-20.01	-32.18	-48.33	-127.99
467	MV-LM1(min)	J[142]	-29.88	-56.81	-20.01	-32.18	-46.69	-144.37
468	MV-LM1(min)	I[194]	-74.37	-85.81	-28.86	-34.01	-58.78	-172.42
468	MV-LM1(min)	J[178]	-74.37	-85.81	-28.86	-34.01	-58.46	-309.07
469	MV-LM1(min)	I[230]	-325.74	-129.43	-64.71	-28.11	-135.25	-268.34
469	MV-LM1(min)	J[214]	-325.74	-129.43	-64.71	-28.11	-108.02	-643.61
470	MV-LM1(min)	I[335]	-226.45	-531.91	-622.2	-36.51	-347.72	-116.91
470	MV-LM1(min)	J[69]	-226.45	-531.91	-498.97	-36.51	-246.87	-268.6
471	MV-LM1(min)	I[336]	-101.88	-529.61	-476.04	-33.18	-322.45	-120.5
471	MV-LM1(min)	J[71]	-101.88	-529.61	-426.98	-33.18	-75	-389.88
472	MV-LM1(min)	I[337]	-116.89	-349.39	-446.65	-28.77	-352.46	-79.92
472	MV-LM1(min)	J[72]	-116.89	-349.39	-399.27	-28.77	-164.91	-327.44
473	MV-LM1(min)	I[338]	-117.9	-237.99	-441.2	-22.37	-374.19	-67.42
473	MV-LM1(min)	J[73]	-117.9	-237.99	-395.39	-22.37	-203	-256.32
474	MV-LM1(min)	I[339]	-117.82	-323.29	-441.19	-19.83	-378.97	-84.67
474	MV-LM1(min)	J[74]	-117.82	-323.29	-395.24	-19.83	-209.83	-229.91
475	MV-LM1(min)	I[340]	-115.93	-416.18	-442.68	-21.49	-374.27	-103.37

475	MV-LM1(min)	J[75]	-115.93	-416.18	-396.01	-21.49	-201.87	-259.22
476	MV-LM1(min)	I[341]	-113.75	-494	-443.68	-25.61	-366.5	-118.15
476	MV-LM1(min)	J[76]	-113.75	-494	-396.65	-25.61	-188.88	-317.16
477	MV-LM1(min)	I[342]	-112.17	-536.69	-444.51	-29.77	-363.02	-125.13
477	MV-LM1(min)	J[77]	-112.17	-536.69	-397.21	-29.77	-177.1	-372.85
478	MV-LM1(min)	I[343]	-111.42	-540.53	-444.51	-32.84	-360.23	-124.16
478	MV-LM1(min)	J[78]	-111.42	-540.53	-397.53	-32.84	-170.19	-413.23
479	MV-LM1(min)	I[344]	-111.41	-514.44	-444.6	-34.15	-359.89	-116.61
479	MV-LM1(min)	J[79]	-111.41	-514.44	-397.57	-34.15	-169.21	-430.88
480	MV-LM1(min)	I[345]	-112.15	-459.67	-444.75	-33.38	-362.1	-104.27
480	MV-LM1(min)	J[80]	-112.15	-459.67	-397.36	-33.38	-174.42	-424.41
481	MV-LM1(min)	I[346]	-113.72	-385.48	-444.08	-30.17	-364.16	-89.97
481	MV-LM1(min)	J[81]	-113.72	-385.48	-396.92	-30.17	-184.83	-387.05
482	MV-LM1(min)	I[347]	-115.91	-311.85	-443.29	-23.93	-372.07	-76.67
482	MV-LM1(min)	J[82]	-115.91	-311.85	-396.46	-23.93	-197.73	-320.02
483	MV-LM1(min)	I[348]	-117.84	-280.64	-441.95	-15.6	-377.84	-72.59
483	MV-LM1(min)	J[83]	-117.84	-280.64	-395.87	-15.6	-206.95	-244.11
484	MV-LM1(min)	I[349]	-118.03	-323.05	-441.83	-12.86	-375.41	-82.34
484	MV-LM1(min)	J[84]	-118.03	-323.05	-396.06	-12.86	-203.16	-178.54
485	MV-LM1(min)	I[350]	-117.31	-423.18	-446.9	-23.75	-356.1	-102.71
485	MV-LM1(min)	J[85]	-117.31	-423.18	-399.76	-23.75	-169.55	-303.56
486	MV-LM1(min)	I[351]	-102.71	-524.96	-475.17	-33.46	-322.95	-123.29
486	MV-LM1(min)	J[86]	-102.71	-524.96	-426.7	-33.46	-76.23	-476.43
487	MV-LM1(min)	I[352]	-178.19	-380.38	-546.04	-85.88	-349.11	-91.29
487	MV-LM1(min)	J[70]	-178.19	-380.38	-499.51	-85.88	-226.23	-514.24
488	MV-LM1(min)	I[353]	-121.69	-350.05	-104.36	-69.61	-341.83	-116.65
488	MV-LM1(min)	J[19]	-121.69	-350.05	-104.36	-69.61	-541.09	-380.49
489	MV-LM1(min)	I[354]	-102.38	-508.35	-6.51	-30.2	-321.55	-120.37
489	MV-LM1(min)	J[53]	-102.38	-508.35	-6.51	-30.2	-512.13	-385.08
490	MV-LM1(min)	I[355]	-116.84	-427.5	-12.69	-22.83	-353.07	-79.79
490	MV-LM1(min)	J[54]	-116.84	-427.5	-12.69	-22.83	-513.96	-253.32
491	MV-LM1(min)	I[356]	-117.9	-338.5	-20.59	-13.34	-374.61	-67.36
491	MV-LM1(min)	J[55]	-117.9	-338.5	-20.56	-13.34	-525.56	-185.08
492	MV-LM1(min)	I[357]	-117.82	-304.45	-23.31	-15.39	-379.09	-84.69
492	MV-LM1(min)	J[56]	-117.82	-304.45	-23.28	-15.39	-529.16	-245.96
493	MV-LM1(min)	I[358]	-115.93	-338.14	-20.86	-23.63	-374.29	-103.39
493	MV-LM1(min)	J[57]	-115.93	-338.14	-20.84	-23.63	-528.86	-310.62
494	MV-LM1(min)	I[359]	-113.75	-410.29	-17.16	-30.36	-366.48	-118.15
494	MV-LM1(min)	J[58]	-113.75	-410.29	-17.15	-30.36	-526.54	-365.25
495	MV-LM1(min)	I[360]	-112.17	-481.9	-13.48	-34.19	-363	-125.13
495	MV-LM1(min)	J[59]	-112.17	-481.9	-13.48	-34.19	-523.7	-391.81
496	MV-LM1(min)	I[361]	-111.42	-533.68	-10.8	-35.41	-360.22	-124.16
496	MV-LM1(min)	J[60]	-111.42	-533.68	-10.8	-35.41	-522.09	-393.31
497	MV-LM1(min)	I[362]	-111.41	-558.37	-10.42	-34.57	-359.9	-116.6
497	MV-LM1(min)	J[61]	-111.41	-558.37	-10.42	-34.57	-521.94	-371.93
498	MV-LM1(min)	I[363]	-112.15	-551.19	-13.03	-31.83	-362.13	-104.25
498	MV-LM1(min)	J[62]	-112.15	-551.19	-13.02	-31.83	-523.34	-332.26
499	MV-LM1(min)	I[364]	-113.71	-505.92	-16.27	-27.78	-364.23	-89.92
499	MV-LM1(min)	J[63]	-113.71	-505.92	-16.26	-27.78	-526.14	-279.68
500	MV-LM1(min)	I[365]	-115.91	-424.17	-20.25	-23.35	-372.19	-76.62
500	MV-LM1(min)	J[64]	-115.91	-424.17	-20.23	-23.35	-528.93	-229.38
501	MV-LM1(min)	I[366]	-117.84	-329.82	-22.7	-20.85	-378.04	-72.53
501	MV-LM1(min)	J[65]	-117.84	-329.82	-22.67	-20.85	-529.93	-208.69
502	MV-LM1(min)	I[367]	-118.01	-242.3	-20.69	-22.57	-375.76	-82.24
502	MV-LM1(min)	J[66]	-118.01	-242.3	-20.66	-22.57	-527.16	-240.66
503	MV-LM1(min)	I[368]	-117.2	-394.28	-12.82	-28.72	-356.11	-102.58
503	MV-LM1(min)	J[67]	-117.2	-394.28	-12.81	-28.72	-516.48	-311.41
504	MV-LM1(min)	I[369]	-102.91	-616.7	-7.04	-33.88	-322.18	-123.29
504	MV-LM1(min)	J[68]	-102.91	-616.7	-7.04	-33.88	-515.18	-385.17
505	MV-LM1(min)	I[370]	-141.18	-654.15	-118.78	-42.02	-334.25	-91.46
505	MV-LM1(min)	J[36]	-141.18	-654.15	-118.78	-42.02	-539.48	-279.26

506	MV-LM1(min)	I[371]	-419.72	-129.14	-41.14	-27.91	-6.96	-220.47
506	MV-LM1(min)	J[79]	-419.72	-129.14	-41.14	-27.91	-91.41	-371.5
507	MV-LM1(min)	I[372]	-7.48	-78.87	-35.24	-28.44	-10.74	-144.75
507	MV-LM1(min)	J[115]	-7.48	-78.87	-35.24	-28.44	-52.16	-286.01
508	MV-LM1(min)	I[373]	0	-49.2	-37.63	-27.74	-13.72	-49.13
508	MV-LM1(min)	J[151]	0	-49.2	-37.63	-27.74	-53.34	-132.16
509	MV-LM1(min)	I[374]	-7.76	-85.15	-35.24	-29.17	-10.74	-88.79
509	MV-LM1(min)	J[187]	-7.76	-85.15	-35.24	-29.17	-52.16	-190.15
510	MV-LM1(min)	I[375]	-419.8	-117.22	-41.14	-28.85	-6.96	-107.41
510	MV-LM1(min)	J[223]	-419.8	-117.22	-41.14	-28.85	-91.41	-339.02
511	MV-LM1(min)	I[376]	-1091.6	-77.91	-30.83	-22.72	-19.14	-224.12
511	MV-LM1(min)	J[74]	-1091.6	-77.91	-30.83	-22.72	-41.74	-350.47
512	MV-LM1(min)	I[377]	-209.27	-66.48	-30.83	-23.77	-19.93	-149.44
512	MV-LM1(min)	J[110]	-209.27	-66.48	-30.83	-23.77	-40.69	-284.27
513	MV-LM1(min)	I[378]	-82.57	-43.11	-34.89	-18.42	-19.13	-50.12
513	MV-LM1(min)	J[146]	-82.57	-43.11	-34.89	-18.42	-47.04	-112.72
514	MV-LM1(min)	I[379]	-209.26	-75.91	-30.83	-20.94	-19.91	-85.26
514	MV-LM1(min)	J[182]	-209.26	-75.91	-30.83	-20.94	-40.68	-120.74
515	MV-LM1(min)	I[380]	-1091.45	-77.15	-30.83	-24.08	-19.13	-104.32
515	MV-LM1(min)	J[218]	-1091.45	-77.15	-30.83	-24.08	-41.73	-208.6
516	MV-LM1(min)	I[381]	-1143.31	-80.71	-26.61	-24	-19.23	-232.6
516	MV-LM1(min)	J[84]	-1143.31	-80.71	-26.61	-24	-50.23	-349.88
517	MV-LM1(min)	I[382]	-230.31	-78.03	-30.93	-20.97	-19.97	-152.54
517	MV-LM1(min)	J[120]	-230.31	-78.03	-30.93	-20.97	-37.35	-265.34
518	MV-LM1(min)	I[383]	-82.58	-50.75	-35.52	-17.97	-19.12	-54.82
518	MV-LM1(min)	J[156]	-82.58	-50.75	-35.52	-17.97	-44.41	-144.3
519	MV-LM1(min)	I[384]	-230.6	-70.9	-30.93	-23.35	-19.98	-90.6
519	MV-LM1(min)	J[192]	-230.6	-70.9	-30.93	-23.35	-37.35	-163.91
520	MV-LM1(min)	I[385]	-1143.06	-73	-26.61	-22.35	-19.23	-117.04
520	MV-LM1(min)	J[228]	-1143.06	-73	-26.61	-22.35	-50.24	-193.02

3.6. MÁXIMO MOMENTO POSITIVO Y SUS CONCOMITANTES

Elem	Load	Part	Component	Axial (kN)	Shear-y (kN)	Shear-z (kN)	Torsion (kN*m)	Moment-y (kN*m)	Moment-z (kN*m)
1	MV-LM1(max)	I[1]	Moment-y	-1295.62	0.21	46	8.6	77.47	10.63
1	MV-LM1(max)	J[2]	Moment-y	-395.86	-0.67	-73.01	1.24	351.71	-26.8
2	MV-LM1(max)	I[2]	Moment-y	-348.96	-0.67	-11.41	2.73	351.71	-26.69
2	MV-LM1(max)	J[3]	Moment-y	-611.07	-0.68	-51.72	-2.24	558.74	-20.18
3	MV-LM1(max)	I[3]	Moment-y	-568.23	-0.68	1.67	-1.05	558.74	-20.28
3	MV-LM1(max)	J[4]	Moment-y	-790.9	-0.69	-36.75	-2.54	641.05	-14.71
4	MV-LM1(max)	I[4]	Moment-y	-751.94	-0.69	11.45	-1.62	641.05	-14.84
4	MV-LM1(max)	J[5]	Moment-y	-911.19	-0.68	-19.27	-1.6	651.95	-9.71
5	MV-LM1(max)	I[5]	Moment-y	-877.81	-0.68	25.9	-0.96	651.95	-9.79
5	MV-LM1(max)	J[6]	Moment-y	-1057.41	-0.65	-12.44	-0.39	615.29	-4.13
6	MV-LM1(max)	I[6]	Moment-y	-1029.24	-0.65	30.97	-0.11	615.29	-4.15
6	MV-LM1(max)	J[7]	Moment-y	-1186.82	-0.59	-8.33	0.68	553.55	1.12
7	MV-LM1(max)	I[7]	Moment-y	-1165.33	-0.59	33.69	0.6	553.55	1.17
7	MV-LM1(max)	J[8]	Moment-y	-1240.33	-0.39	-9.62	0.16	490.16	6.79
8	MV-LM1(max)	I[8]	Moment-y	-1227.11	-0.39	32.01	-0.33	490.16	6.78
8	MV-LM1(max)	J[9]	Moment-y	-1246.97	-0.22	-14.25	0.25	452.56	9.43
9	MV-LM1(max)	I[9]	Moment-y	-1242.72	-0.22	27.54	-0.43	452.56	9.42
9	MV-LM1(max)	J[10]	Moment-y	-1243.24	-0.04	-27.32	0.54	451.51	9.67
10	MV-LM1(max)	I[10]	Moment-y	-1247.52	-0.04	14.5	-0.15	451.51	9.68
10	MV-LM1(max)	J[11]	Moment-y	-1230.94	0.14	-31.82	0.41	487.32	7.55
11	MV-LM1(max)	I[11]	Moment-y	-1244.21	0.14	9.86	-0.13	487.32	7.56
11	MV-LM1(max)	J[12]	Moment-y	-1175.67	0.38	-33.63	-0.28	548.8	1.95
12	MV-LM1(max)	I[12]	Moment-y	-1197.31	0.38	8.42	-0.42	548.8	1.93
12	MV-LM1(max)	J[13]	Moment-y	-1041.47	0.48	-31	0.43	610.19	-3.47
13	MV-LM1(max)	I[13]	Moment-y	-1069.86	0.48	12.43	0.66	610.19	-3.44

13	MV-LM1(max)	J[14]	Moment-y	-891.27	0.57	-26.08	1.37	647.79	-9.63
14	MV-LM1(max)	I[14]	Moment-y	-924.9	0.57	19.04	2	647.79	-9.52
14	MV-LM1(max)	J[15]	Moment-y	-764.66	0.62	-11.9	2.15	639.45	-15.21
15	MV-LM1(max)	I[15]	Moment-y	-803.83	0.62	36.11	3.1	639.45	-15.05
15	MV-LM1(max)	J[16]	Moment-y	-580.31	0.66	-2.6	1.76	562.98	-21.64
16	MV-LM1(max)	I[16]	Moment-y	-623.19	0.66	50.31	3.04	562.98	-21.49
16	MV-LM1(max)	J[17]	Moment-y	-360.13	0.68	10.09	-2.01	363.3	-28.67
17	MV-LM1(max)	I[17]	Moment-y	-406.81	0.68	70.83	-0.41	363.3	-28.74
17	MV-LM1(max)	J[18]	Moment-y	-500.39	0.25	31.41	-1.25	30.18	-13.14
18	MV-LM1(max)	I[19]	Moment-y	-1295.52	-0.21	45.89	-8.01	78.23	-10.89
18	MV-LM1(max)	J[20]	Moment-y	-396.07	0.69	-72.84	-1.45	352.66	27.52
19	MV-LM1(max)	I[20]	Moment-y	-349.21	0.69	-11.3	-2.99	352.66	27.4
19	MV-LM1(max)	J[21]	Moment-y	-611.15	0.69	-51.7	1.97	558.82	20.6
20	MV-LM1(max)	I[21]	Moment-y	-568.31	0.69	1.69	0.75	558.82	20.68
20	MV-LM1(max)	J[22]	Moment-y	-790.89	0.7	-36.75	2.34	641.02	14.92
21	MV-LM1(max)	I[22]	Moment-y	-751.93	0.7	11.44	1.41	641.02	15.03
21	MV-LM1(max)	J[23]	Moment-y	-911.15	0.68	-19.28	1.5	651.94	9.77
22	MV-LM1(max)	I[23]	Moment-y	-877.78	0.68	25.89	0.86	651.94	9.84
22	MV-LM1(max)	J[24]	Moment-y	-1057.38	0.65	-12.44	0.49	615.3	4.06
23	MV-LM1(max)	I[24]	Moment-y	-1029.2	0.65	30.97	0.21	615.3	4.08
23	MV-LM1(max)	J[25]	Moment-y	-1186.78	0.59	-8.33	-0.35	553.56	-1.28
24	MV-LM1(max)	I[25]	Moment-y	-1165.29	0.59	33.69	-0.26	553.56	-1.3
24	MV-LM1(max)	J[26]	Moment-y	-1240.21	0.38	-9.62	0.41	490.19	-6.96
25	MV-LM1(max)	I[26]	Moment-y	-1227	0.38	32	0.9	490.19	-6.91
25	MV-LM1(max)	J[27]	Moment-y	-1246.96	0.21	-14.25	0.47	452.58	-9.52
26	MV-LM1(max)	I[27]	Moment-y	-1242.7	0.21	27.54	1.15	452.58	-9.46
26	MV-LM1(max)	J[28]	Moment-y	-1243.25	0.03	-27.32	0.31	451.49	-9.63
27	MV-LM1(max)	I[28]	Moment-y	-1247.53	0.03	14.51	1.01	451.49	-9.58
27	MV-LM1(max)	J[29]	Moment-y	-1231.08	-0.16	-31.82	0.52	487.28	-7.37
28	MV-LM1(max)	I[29]	Moment-y	-1244.34	-0.16	9.86	1.05	487.28	-7.32
28	MV-LM1(max)	J[30]	Moment-y	-1175.74	-0.4	-33.63	1.29	548.77	-1.59
29	MV-LM1(max)	I[30]	Moment-y	-1197.37	-0.4	8.42	1.4	548.77	-1.49
29	MV-LM1(max)	J[31]	Moment-y	-1041.51	-0.5	-31	0.45	610.15	3.92
30	MV-LM1(max)	I[31]	Moment-y	-1069.9	-0.5	12.43	0.18	610.15	3.94
30	MV-LM1(max)	J[32]	Moment-y	-891.29	-0.58	-26.08	-0.64	647.73	10.13
31	MV-LM1(max)	I[32]	Moment-y	-924.92	-0.58	19.05	-1.3	647.73	10.06
31	MV-LM1(max)	J[33]	Moment-y	-764.61	-0.63	-11.9	-1.56	639.38	15.74
32	MV-LM1(max)	I[33]	Moment-y	-803.79	-0.63	36.12	-2.53	639.38	15.61
32	MV-LM1(max)	J[34]	Moment-y	-580.09	-0.67	-2.59	-1.34	562.94	22.11
33	MV-LM1(max)	I[34]	Moment-y	-622.96	-0.67	50.32	-2.65	562.94	21.99
33	MV-LM1(max)	J[35]	Moment-y	-359.5	-0.69	10.1	2.23	363.34	29.06
34	MV-LM1(max)	I[35]	Moment-y	-406.16	-0.69	70.85	0.61	363.34	29.14
34	MV-LM1(max)	J[36]	Moment-y	-498.97	-0.26	31.46	1.29	30.15	13.36
67	MV-LM1(max)	I[1]	Moment-y	-33.73	47.09	43.94	16.55	413.23	52.88
67	MV-LM1(max)	J[335]	Moment-y	11.31	171.06	5.14	5.5	405.52	58.43
68	MV-LM1(max)	I[18]	Moment-y	-60.96	-0.65	47.68	-24.4	414.87	-19.32
68	MV-LM1(max)	J[352]	Moment-y	-27.3	-134.35	10.54	-11.8	406.16	-50.06
69	MV-LM1(max)	I[37]	Moment-y	23.46	98.78	-80.21	-15.9	179.82	61.19
69	MV-LM1(max)	J[336]	Moment-y	25.01	50.71	-98.07	-16.33	231.58	-2.92
70	MV-LM1(max)	I[38]	Moment-y	11.42	133.07	-3.15	-14.15	233.04	88.14
70	MV-LM1(max)	J[337]	Moment-y	5.84	175.85	-45.95	-20.65	254.03	28.61
71	MV-LM1(max)	I[39]	Moment-y	3.6	-121.23	-10.77	-4.22	252.63	-99.5
71	MV-LM1(max)	J[338]	Moment-y	-27.47	-31.98	-213.73	-8.41	277.63	-17.9
72	MV-LM1(max)	I[40]	Moment-y	2.63	-243	-10.41	5.33	260.17	-185.43
72	MV-LM1(max)	J[339]	Moment-y	-27.61	-85.73	-187.67	-0.78	281.43	-24.09
73	MV-LM1(max)	I[41]	Moment-y	5.13	-266.62	-12.06	11	252.6	-196.66
73	MV-LM1(max)	J[340]	Moment-y	-26.43	-150.22	-217.27	5.44	273.48	-35.94
74	MV-LM1(max)	I[42]	Moment-y	7.24	-306.83	-14.23	15.38	238.06	-223.66
74	MV-LM1(max)	J[341]	Moment-y	-24.64	-178.76	-220.91	8.96	260.52	-40.45
75	MV-LM1(max)	I[43]	Moment-y	8.97	-297.12	-16.6	15.6	222.66	-216.14
75	MV-LM1(max)	J[342]	Moment-y	-23.18	-162.74	-224.28	8.67	247.55	-36.56

76	MV-LM1(max)	I[44]	Moment-y	17.24	-239.88	-20.27	9.89	215.51	-177.5
76	MV-LM1(max)	J[343]	Moment-y	-22.65	-100.97	-224.58	4.79	239.47	-23.56
77	MV-LM1(max)	I[45]	Moment-y	17.23	251.84	-20.51	-8.03	213.66	187.4
77	MV-LM1(max)	J[344]	Moment-y	-22.64	119.49	-224.83	-2.31	238	29.46
78	MV-LM1(max)	I[46]	Moment-y	16.35	297.57	-18.96	-11.06	220.75	219.88
78	MV-LM1(max)	J[345]	Moment-y	-23.23	177.22	-224.84	-6.35	243.86	41.3
79	MV-LM1(max)	I[47]	Moment-y	7.34	323.17	-14.6	-14.67	232.43	235.96
79	MV-LM1(max)	J[346]	Moment-y	-24.56	199.09	-221.83	-7.97	255.33	45.73
80	MV-LM1(max)	I[48]	Moment-y	5.1	278.12	-12.09	-11.01	247.59	204.75
80	MV-LM1(max)	J[347]	Moment-y	-2.13	262.47	-38.59	-9.62	268.5	62.34
81	MV-LM1(max)	I[49]	Moment-y	2.25	248.2	-9.99	-5.81	257.67	188.44
81	MV-LM1(max)	J[348]	Moment-y	-27.94	95.46	-188.05	0.48	278.09	25.7
82	MV-LM1(max)	I[50]	Moment-y	2.49	117.68	-9.75	3.71	254.97	95.94
82	MV-LM1(max)	J[349]	Moment-y	-28.5	32.31	-213.08	7.96	278.4	17.02
83	MV-LM1(max)	I[51]	Moment-y	18.81	-116.88	-18.2	18.23	237.77	-73.6
83	MV-LM1(max)	J[350]	Moment-y	-22.31	-115.21	-223	18.29	260.41	-14.56
84	MV-LM1(max)	I[52]	Moment-y	22.8	-111.15	-79.3	16.87	182.63	-69.68
84	MV-LM1(max)	J[351]	Moment-y	23.02	-80.21	-95.77	18.39	234.47	-3.16
85	MV-LM1(max)	I[69]	Moment-y	-52.78	11.45	-171.77	12.11	459.98	14.85
85	MV-LM1(max)	J[87]	Moment-y	-38.57	-16.1	-323.73	-12.69	988.11	11.59
86	MV-LM1(max)	I[70]	Moment-y	-36.92	-2.93	-170.63	-11.23	457.88	-6.42
86	MV-LM1(max)	J[88]	Moment-y	-25.38	17.82	-323.85	12.73	986.48	-12.37
87	MV-LM1(max)	I[71]	Moment-y	-10.15	2.98	-197.17	-8.87	398.61	4.11
87	MV-LM1(max)	J[89]	Moment-y	30.48	-3.93	-267.17	-3.74	815.04	1.56
88	MV-LM1(max)	I[72]	Moment-y	-64.06	-14.04	-176.58	-11.13	423.51	-14.83
88	MV-LM1(max)	J[90]	Moment-y	-13.56	3.26	-287.84	-2.66	813.62	-2.72
89	MV-LM1(max)	I[73]	Moment-y	-75.48	-28.3	-169.52	-11.5	444.01	-28.36
89	MV-LM1(max)	J[91]	Moment-y	-20.12	-10.34	-282.23	-2.37	823.85	4.27
90	MV-LM1(max)	I[74]	Moment-y	-75.36	-30.02	-168.6	-2.85	447.73	-29.89
90	MV-LM1(max)	J[92]	Moment-y	-21.3	-24.58	-281.64	-0.77	825.64	11.72
91	MV-LM1(max)	I[75]	Moment-y	-72.01	-37.2	-170.4	-1.15	440.69	-36.85
91	MV-LM1(max)	J[93]	Moment-y	-17.84	-31.8	-283.31	0.39	822.09	15.46
92	MV-LM1(max)	I[76]	Moment-y	-67.1	-35.81	-173.27	-0.07	429.12	-35.13
92	MV-LM1(max)	J[94]	Moment-y	-13.08	-29.87	-285.74	0.98	816.49	14.77
93	MV-LM1(max)	I[77]	Moment-y	-62.75	-23.64	-176.12	-0.51	417.46	-22.47
93	MV-LM1(max)	J[95]	Moment-y	-8.49	-20.43	-288.17	0.43	811.19	10.45
94	MV-LM1(max)	I[78]	Moment-y	-60.9	0.01	-177.82	-2.01	410.14	1.83
94	MV-LM1(max)	J[96]	Moment-y	-5.41	-1.28	-289.78	-0.66	807.68	1.45
95	MV-LM1(max)	I[79]	Moment-y	-60.88	46.46	-178.07	1.03	408.83	46.95
95	MV-LM1(max)	J[97]	Moment-y	-5.84	35.51	-289.88	-0.1	806.93	-16.77
96	MV-LM1(max)	I[80]	Moment-y	-62.79	65.41	-176.73	-0.48	414.11	66.33
96	MV-LM1(max)	J[98]	Moment-y	-8.41	54.75	-288.68	-1.23	809.31	-25.9
97	MV-LM1(max)	I[81]	Moment-y	-66.89	70.91	-174.14	-1.07	424.45	71.92
97	MV-LM1(max)	J[99]	Moment-y	-12.84	59.58	-286.44	-1.88	813.85	-28.19
98	MV-LM1(max)	I[82]	Moment-y	-72.06	61.96	-171.23	-0.11	436.12	62.79
98	MV-LM1(max)	J[100]	Moment-y	-17.85	53.3	-283.97	-1.43	819.36	-25.18
99	MV-LM1(max)	I[83]	Moment-y	-76.04	44.18	-169.11	1.64	444.73	44.72
99	MV-LM1(max)	J[101]	Moment-y	-21.91	37.26	-282.05	-0.24	823.75	-17.46
100	MV-LM1(max)	I[84]	Moment-y	-77.62	32.39	-169.37	10.43	444.73	32.66
100	MV-LM1(max)	J[102]	Moment-y	-22.86	16.25	-281.97	2.03	824.18	-7.27
101	MV-LM1(max)	I[85]	Moment-y	-68.81	11.22	-175.61	10.28	429.48	11.97
101	MV-LM1(max)	J[103]	Moment-y	-19.26	-6.42	-286.77	1.92	817.63	4.24
102	MV-LM1(max)	I[86]	Moment-y	-17.61	-10.82	-195.87	9.2	402.51	-11.93
102	MV-LM1(max)	J[104]	Moment-y	16.1	-5.82	-264.74	3.54	816.94	3.45
103	MV-LM1(max)	I[87]	Moment-y	-22.78	-12.5	-325.42	-13.26	985.65	9.61
103	MV-LM1(max)	J[105]	Moment-y	42.53	3.88	-249.87	-16.04	1379.36	-5.81
104	MV-LM1(max)	I[88]	Moment-y	-13.94	13.12	-325.8	13.44	984.9	-9.91
104	MV-LM1(max)	J[106]	Moment-y	43.69	-6.43	-250.82	15.76	1380.01	10.95
105	MV-LM1(max)	I[89]	Moment-y	41.84	-10.96	-268.9	-5.6	818	4.99
105	MV-LM1(max)	J[107]	Moment-y	49.43	-13.3	-159.7	-3.87	1128.99	25.97
106	MV-LM1(max)	I[90]	Moment-y	-10.74	2.26	-288.19	-2.62	812.65	-2.23

106	MV-LM1(max)	J[108]	Moment-y	4.98	-6.23	-144.87	-2.75	1088.67	11.63
107	MV-LM1(max)	I[91]	Moment-y	-19.22	-10.3	-282.4	-3.2	822.32	4.25
107	MV-LM1(max)	J[109]	Moment-y	-6.02	-9.64	-140.12	-0.34	1085.21	18.23
108	MV-LM1(max)	I[92]	Moment-y	-20.57	-24.28	-281.8	-2.67	824.01	11.58
108	MV-LM1(max)	J[110]	Moment-y	-8.12	-16.14	-139.43	1.62	1085.16	31.42
109	MV-LM1(max)	I[93]	Moment-y	-17.44	-31.44	-283.4	-2.07	820.71	15.29
109	MV-LM1(max)	J[111]	Moment-y	-6.83	-19.4	-140.7	1.99	1084.65	38.04
110	MV-LM1(max)	I[94]	Moment-y	-12.75	-29.4	-285.82	-1.32	815.48	14.55
110	MV-LM1(max)	J[112]	Moment-y	-4.82	-17.06	-142.74	1.99	1083.83	33.57
111	MV-LM1(max)	I[95]	Moment-y	-8.17	-19.99	-288.23	-1.12	810.54	10.24
111	MV-LM1(max)	J[113]	Moment-y	-2.65	-6.52	-144.31	2.57	1083.16	12.87
112	MV-LM1(max)	I[96]	Moment-y	-4.89	-0.12	-289.89	-0.68	807.28	0.9
112	MV-LM1(max)	J[114]	Moment-y	-1.43	2.57	-145.13	0.03	1082.6	-4.47
113	MV-LM1(max)	I[97]	Moment-y	-5.16	35.23	-290.02	2.65	806.5	-16.63
113	MV-LM1(max)	J[115]	Moment-y	-1.43	17.98	-145.22	-1.63	1082.36	-34.92
114	MV-LM1(max)	I[98]	Moment-y	-7.92	54.22	-288.78	2.99	808.67	-25.64
114	MV-LM1(max)	J[116]	Moment-y	-2.51	33.67	-144.68	-1.13	1082.48	-65.84
115	MV-LM1(max)	I[99]	Moment-y	-12.49	59.36	-286.52	2.74	812.87	-28.08
115	MV-LM1(max)	J[117]	Moment-y	-4.68	41.31	-143.25	-0.83	1082.82	-80.88
116	MV-LM1(max)	I[100]	Moment-y	-17.46	53.28	-284.05	2.72	817.98	-25.16
116	MV-LM1(max)	J[118]	Moment-y	-6.76	39.72	-141.31	-1.16	1083.38	-77.71
117	MV-LM1(max)	I[101]	Moment-y	-21.49	37.4	-282.13	2.67	822.06	-17.51
117	MV-LM1(max)	J[119]	Moment-y	-8.22	31.03	-139.91	-1.25	1083.97	-60.49
118	MV-LM1(max)	I[102]	Moment-y	-22.17	16.65	-282.1	3.33	822.42	-7.44
118	MV-LM1(max)	J[120]	Moment-y	-7.56	24.13	-140.13	3.65	1084.54	-47.26
119	MV-LM1(max)	I[103]	Moment-y	-18.03	-5.72	-286.91	1.52	816.18	3.92
119	MV-LM1(max)	J[121]	Moment-y	1.44	10.01	-144.31	2.36	1089.08	-18.96
120	MV-LM1(max)	I[104]	Moment-y	28.88	8.88	-266.54	4.88	818.73	-3.68
120	MV-LM1(max)	J[122]	Moment-y	49.49	20.74	-159.52	4.13	1128.52	-40.47
121	MV-LM1(max)	I[105]	Moment-y	33.6	3.47	-251.72	-6.28	1351.65	21.1
121	MV-LM1(max)	J[123]	Moment-y	83.96	3.55	-162.51	-7.98	1666.28	14.6
122	MV-LM1(max)	I[106]	Moment-y	41.32	-4.27	-252.56	6.58	1351.3	-22.05
122	MV-LM1(max)	J[124]	Moment-y	81.48	-4.31	-162.74	7.96	1666.72	-14.49
123	MV-LM1(max)	I[107]	Moment-y	126.52	-3.64	-205.13	-5	1079.01	-3.56
123	MV-LM1(max)	J[125]	Moment-y	145.18	-4.76	-155.62	-1.64	1351.72	2.36
124	MV-LM1(max)	I[108]	Moment-y	79.74	-10.67	-195.75	-7.08	1044.96	-14.76
124	MV-LM1(max)	J[126]	Moment-y	99.8	-5.24	-152.37	-1.82	1292.04	1.83
125	MV-LM1(max)	I[109]	Moment-y	60.65	-10.15	-191	-5.29	1042.28	-13.89
125	MV-LM1(max)	J[127]	Moment-y	87.96	-7.5	-151.42	-1.9	1280.1	0.85
126	MV-LM1(max)	I[110]	Moment-y	59.1	-6.21	-190.31	-0.88	1042.45	-9.87
126	MV-LM1(max)	J[128]	Moment-y	84.39	-7.47	-151.16	1.06	1279.29	-0.67
127	MV-LM1(max)	I[111]	Moment-y	61.84	-1.32	-191.22	1.71	1041.37	-0.29
127	MV-LM1(max)	J[129]	Moment-y	86.14	-7.87	-151.33	1.31	1280.01	-0.36
128	MV-LM1(max)	I[112]	Moment-y	67.4	2.97	-193.05	2.61	1039.48	6.32
128	MV-LM1(max)	J[130]	Moment-y	89.83	-6.28	-151.7	1.51	1280.88	-0.39
129	MV-LM1(max)	I[113]	Moment-y	73.6	8.93	-194.62	2.9	1037.69	14.95
129	MV-LM1(max)	J[131]	Moment-y	93.26	-2.92	-152.09	1.6	1281.54	-0.75
130	MV-LM1(max)	I[114]	Moment-y	77.93	15.67	-195.72	2.13	1036.39	24.32
130	MV-LM1(max)	J[132]	Moment-y	95.35	1.57	-152.39	1.54	1281.84	-1.33
131	MV-LM1(max)	I[115]	Moment-y	79.04	19.09	-196	-0.87	1036.08	29.63
131	MV-LM1(max)	J[133]	Moment-y	95.66	3.33	-152.49	-1.34	1281.82	1.34
132	MV-LM1(max)	I[116]	Moment-y	74.55	22.5	-195.12	-2.38	1036.74	32.17
132	MV-LM1(max)	J[134]	Moment-y	93.84	7.34	-152.31	-1.39	1281.45	0.77
133	MV-LM1(max)	I[117]	Moment-y	67.92	23.7	-193.62	-2.5	1038.16	33.63
133	MV-LM1(max)	J[135]	Moment-y	90.03	9.92	-151.84	-1.5	1280.76	0.39
134	MV-LM1(max)	I[118]	Moment-y	61.6	22.03	-191.77	-2.06	1039.89	31.31
134	MV-LM1(max)	J[136]	Moment-y	86.03	10.34	-151.39	-1.44	1279.89	0.36
135	MV-LM1(max)	I[119]	Moment-y	57.13	19.64	-190.52	-0.11	1041.27	28.31
135	MV-LM1(max)	J[137]	Moment-y	83.62	8.96	-151.03	-1.28	1279.22	0.68
136	MV-LM1(max)	I[120]	Moment-y	56.74	18.12	-190.7	3.86	1041.99	25.76
136	MV-LM1(max)	J[138]	Moment-y	85.3	7.14	-150.85	0.81	1280.18	-1.63

137	MV-LM1(max)	I[121]	Moment-y	61.67	17.33	-194.02	6.79	1046.01	25.53
137	MV-LM1(max)	J[139]	Moment-y	94.8	6.52	-151.55	2.1	1292.28	-1.59
138	MV-LM1(max)	I[122]	Moment-y	129.33	12.48	-205.09	5.15	1078.24	16.74
138	MV-LM1(max)	J[140]	Moment-y	147.21	7.86	-155.77	2.16	1351.81	-2.4
139	MV-LM1(max)	I[123]	Moment-y	83.96	3.55	-162.51	-7.98	1666.28	14.6
139	MV-LM1(max)	J[141]	Moment-y	90.54	2.94	-31.9	-11.45	1708.4	8.48
140	MV-LM1(max)	I[124]	Moment-y	81.48	-4.31	-162.74	7.96	1666.72	-14.49
140	MV-LM1(max)	J[142]	Moment-y	91.57	-2.2	-31.07	10.94	1708.09	-9.53
141	MV-LM1(max)	I[125]	Moment-y	145.18	-4.76	-155.62	-1.64	1351.72	2.36
141	MV-LM1(max)	J[143]	Moment-y	138.13	-4.26	-7.59	-0.68	1374.2	8.76
142	MV-LM1(max)	I[126]	Moment-y	99.8	-5.24	-152.37	-1.82	1292.04	1.83
142	MV-LM1(max)	J[144]	Moment-y	89.94	-2.2	-6.3	-0.16	1309.93	5.02
143	MV-LM1(max)	I[127]	Moment-y	87.96	-7.5	-151.42	-1.9	1280.1	0.85
143	MV-LM1(max)	J[145]	Moment-y	79.03	-5.34	-6.53	-0.85	1296.93	9.31
144	MV-LM1(max)	I[128]	Moment-y	84.39	-7.47	-151.16	1.06	1279.29	-0.67
144	MV-LM1(max)	J[146]	Moment-y	76.45	-6.1	-6.59	2.04	1296.08	8.65
145	MV-LM1(max)	I[129]	Moment-y	86.14	-7.87	-151.33	1.31	1280.01	-0.36
145	MV-LM1(max)	J[147]	Moment-y	78.2	-8.32	-6.53	1.49	1297.02	12.23
146	MV-LM1(max)	I[130]	Moment-y	89.83	-6.28	-151.7	1.51	1280.88	-0.39
146	MV-LM1(max)	J[148]	Moment-y	81.44	-8.36	-6.45	1.3	1298.22	12.23
147	MV-LM1(max)	I[131]	Moment-y	93.26	-2.92	-152.09	1.6	1281.54	-0.75
147	MV-LM1(max)	J[149]	Moment-y	84.24	-6.24	-6.38	1.42	1299.17	8.71
148	MV-LM1(max)	I[132]	Moment-y	95.35	1.57	-152.39	1.54	1281.84	-1.33
148	MV-LM1(max)	J[150]	Moment-y	85.69	-2.58	-6.34	1.74	1299.64	2.68
149	MV-LM1(max)	I[133]	Moment-y	95.66	3.33	-152.49	-1.34	1281.82	1.34
149	MV-LM1(max)	J[151]	Moment-y	85.69	-2.52	-6.33	-1.83	1299.64	4.99
150	MV-LM1(max)	I[134]	Moment-y	93.84	7.34	-152.31	-1.39	1281.45	0.77
150	MV-LM1(max)	J[152]	Moment-y	84.22	1.42	-6.35	-1.49	1299.17	-1.47
151	MV-LM1(max)	I[135]	Moment-y	90.03	9.92	-151.84	-1.5	1280.76	0.39
151	MV-LM1(max)	J[153]	Moment-y	81.42	4.13	-6.39	-1.33	1298.22	-5.87
152	MV-LM1(max)	I[136]	Moment-y	86.03	10.34	-151.39	-1.44	1279.89	0.36
152	MV-LM1(max)	J[154]	Moment-y	78.19	4.92	-6.46	-1.46	1297.03	-7.12
153	MV-LM1(max)	I[137]	Moment-y	83.62	8.96	-151.03	-1.28	1279.22	0.68
153	MV-LM1(max)	J[155]	Moment-y	76.45	3.67	-6.54	-1.95	1296.09	-4.99
154	MV-LM1(max)	I[138]	Moment-y	85.3	7.14	-150.85	0.81	1280.18	-1.63
154	MV-LM1(max)	J[156]	Moment-y	79.23	1.96	-6.51	-0.83	1296.93	-4.3
155	MV-LM1(max)	I[139]	Moment-y	94.8	6.52	-151.55	2.1	1292.28	-1.59
155	MV-LM1(max)	J[157]	Moment-y	90.05	1.69	-6.34	0.26	1309.91	-4.26
156	MV-LM1(max)	I[140]	Moment-y	147.21	7.86	-155.77	2.16	1351.81	-2.4
156	MV-LM1(max)	J[158]	Moment-y	138.24	4.42	-7.59	0.67	1374.14	-9
157	MV-LM1(max)	I[141]	Moment-y	92.18	-3.14	31.69	11.13	1708.27	8.03
157	MV-LM1(max)	J[159]	Moment-y	87.59	-3.36	163.02	8.01	1666.41	14.33
158	MV-LM1(max)	I[142]	Moment-y	90.4	3.59	31.96	-11.39	1708.55	-7.44
158	MV-LM1(max)	J[160]	Moment-y	91.17	5.5	163.83	-8.39	1665.78	-14.28
159	MV-LM1(max)	I[143]	Moment-y	138.15	4.01	7.57	0.69	1374.03	8.34
159	MV-LM1(max)	J[161]	Moment-y	147.24	7.05	155.8	2.33	1352	2.42
160	MV-LM1(max)	I[144]	Moment-y	89.78	1.94	6.27	0.13	1309.82	4.62
160	MV-LM1(max)	J[162]	Moment-y	98.21	6.06	152.12	2.13	1292.21	1.74
161	MV-LM1(max)	I[145]	Moment-y	79.16	3.7	6.54	-0.95	1296.9	6.9
161	MV-LM1(max)	J[163]	Moment-y	86.56	7.92	151.15	1.93	1280.17	1.93
162	MV-LM1(max)	I[146]	Moment-y	76.45	6.24	6.6	-2.03	1296.07	8.86
162	MV-LM1(max)	J[164]	Moment-y	84.13	7.8	151.09	-1.05	1279.31	-0.67
163	MV-LM1(max)	I[147]	Moment-y	78.21	8.49	6.53	-1.48	1297.03	12.48
163	MV-LM1(max)	J[165]	Moment-y	86.06	8.08	151.31	-1.31	1280.01	-0.36
164	MV-LM1(max)	I[148]	Moment-y	81.44	8.5	6.45	-1.3	1298.22	12.45
164	MV-LM1(max)	J[166]	Moment-y	89.8	6.44	151.69	-1.51	1280.88	-0.39
165	MV-LM1(max)	I[149]	Moment-y	84.24	6.34	6.38	-1.42	1299.17	8.85
165	MV-LM1(max)	J[167]	Moment-y	93.24	3.01	152.08	-1.6	1281.54	-0.74
166	MV-LM1(max)	I[150]	Moment-y	85.69	2.61	6.34	-1.74	1299.64	2.72
166	MV-LM1(max)	J[168]	Moment-y	95.35	-1.56	152.39	-1.54	1281.83	-1.33
167	MV-LM1(max)	I[151]	Moment-y	85.69	2.5	6.33	1.83	1299.64	4.96

167	MV-LM1(max)	J[169]	Moment-y	95.66	-3.36	152.49	1.34	1281.82	1.34
168	MV-LM1(max)	I[152]	Moment-y	84.22	-1.51	6.35	1.49	1299.17	-1.6
168	MV-LM1(max)	J[170]	Moment-y	93.81	-7.47	152.3	1.39	1281.45	0.76
169	MV-LM1(max)	I[153]	Moment-y	81.42	-4.27	6.39	1.33	1298.21	-6.08
169	MV-LM1(max)	J[171]	Moment-y	90.03	-10.08	151.84	1.5	1280.76	0.39
170	MV-LM1(max)	I[154]	Moment-y	78.19	-5.09	6.46	1.46	1297.01	-7.37
170	MV-LM1(max)	J[172]	Moment-y	86.05	-10.55	151.4	1.44	1279.9	0.36
171	MV-LM1(max)	I[155]	Moment-y	76.44	-3.83	6.54	1.95	1296.05	-5.23
171	MV-LM1(max)	J[173]	Moment-y	83.71	-9.2	151.05	1.28	1279.26	0.68
172	MV-LM1(max)	I[156]	Moment-y	79.34	-2.41	6.51	0.78	1296.86	-4.42
172	MV-LM1(max)	J[174]	Moment-y	85.67	-7.35	150.92	-0.82	1280.25	-1.63
173	MV-LM1(max)	I[157]	Moment-y	89.93	-1.21	6.33	-0.29	1309.78	-3.53
173	MV-LM1(max)	J[175]	Moment-y	95.97	-6.67	151.72	-2.16	1292.4	-1.62
174	MV-LM1(max)	I[158]	Moment-y	138.45	-3.04	7.6	-0.76	1373.99	-6.92
174	MV-LM1(max)	J[176]	Moment-y	147.25	-6.9	155.8	-2.34	1351.97	-2.42
175	MV-LM1(max)	I[159]	Moment-y	87.59	-3.36	163.02	8.01	1666.41	14.33
175	MV-LM1(max)	J[177]	Moment-y	53.81	-3.17	252.71	6.34	1350.88	20.03
176	MV-LM1(max)	I[160]	Moment-y	91.17	5.5	163.83	-8.39	1665.78	-14.28
176	MV-LM1(max)	J[178]	Moment-y	51.71	5.9	253.29	-6.83	1349.67	-24.32
177	MV-LM1(max)	I[161]	Moment-y	147.24	7.05	155.8	2.33	1352	2.42
177	MV-LM1(max)	J[179]	Moment-y	129.3	7.37	205.2	5.64	1078.94	-9.05
178	MV-LM1(max)	I[162]	Moment-y	98.21	6.06	152.12	2.13	1292.21	1.74
178	MV-LM1(max)	J[180]	Moment-y	70.01	12.37	194.92	7.74	1045.67	-17.75
179	MV-LM1(max)	I[163]	Moment-y	86.56	7.92	151.15	1.93	1280.17	1.93
179	MV-LM1(max)	J[181]	Moment-y	60.03	10.41	190.88	5.3	1042.52	-14.3
180	MV-LM1(max)	I[164]	Moment-y	84.13	7.8	151.09	-1.05	1279.31	-0.67
180	MV-LM1(max)	J[182]	Moment-y	58.91	6.38	190.28	0.87	1042.5	-10.13
181	MV-LM1(max)	I[165]	Moment-y	86.06	8.08	151.31	-1.31	1280.01	-0.36
181	MV-LM1(max)	J[183]	Moment-y	61.74	1.44	191.2	-1.72	1041.37	-0.47
182	MV-LM1(max)	I[166]	Moment-y	89.8	6.44	151.69	-1.51	1280.88	-0.39
182	MV-LM1(max)	J[184]	Moment-y	67.36	-2.91	193.04	-2.62	1039.47	6.24
183	MV-LM1(max)	I[167]	Moment-y	93.24	3.01	152.08	-1.6	1281.54	-0.74
183	MV-LM1(max)	J[185]	Moment-y	73.59	-8.96	194.62	-2.9	1037.68	14.99
184	MV-LM1(max)	I[168]	Moment-y	95.35	-1.56	152.39	-1.54	1281.83	-1.33
184	MV-LM1(max)	J[186]	Moment-y	77.97	-15.76	195.72	-2.12	1036.38	24.45
185	MV-LM1(max)	I[169]	Moment-y	95.66	-3.36	152.49	1.34	1281.82	1.34
185	MV-LM1(max)	J[187]	Moment-y	79.05	-19.16	196.01	0.88	1036.08	29.72
186	MV-LM1(max)	I[170]	Moment-y	93.81	-7.47	152.3	1.39	1281.45	0.76
186	MV-LM1(max)	J[188]	Moment-y	74.49	-22.62	195.11	2.39	1036.76	32.34
187	MV-LM1(max)	I[171]	Moment-y	90.03	-10.08	151.84	1.5	1280.76	0.39
187	MV-LM1(max)	J[189]	Moment-y	67.91	-23.85	193.61	2.5	1038.22	33.85
188	MV-LM1(max)	I[172]	Moment-y	86.05	-10.55	151.4	1.44	1279.9	0.36
188	MV-LM1(max)	J[190]	Moment-y	61.63	-22.24	191.77	2.07	1040.01	31.61
189	MV-LM1(max)	I[173]	Moment-y	83.71	-9.2	151.05	1.28	1279.26	0.68
189	MV-LM1(max)	J[191]	Moment-y	57.33	-19.9	190.52	0.11	1041.52	28.7
190	MV-LM1(max)	I[174]	Moment-y	85.67	-7.35	150.92	-0.82	1280.25	-1.63
190	MV-LM1(max)	J[192]	Moment-y	57.74	-19.22	190.73	-4.25	1042.46	27.58
191	MV-LM1(max)	I[175]	Moment-y	95.97	-6.67	151.72	-2.16	1292.4	-1.62
191	MV-LM1(max)	J[193]	Moment-y	63.92	-17.62	194.1	-6.91	1046.93	25.9
192	MV-LM1(max)	I[176]	Moment-y	147.25	-6.9	155.8	-2.34	1351.97	-2.42
192	MV-LM1(max)	J[194]	Moment-y	130.49	-12.38	205.49	-5.63	1079.69	16.47
193	MV-LM1(max)	I[177]	Moment-y	49.09	-7.28	251.4	15.65	1379.81	-12.73
193	MV-LM1(max)	J[195]	Moment-y	-1.13	8.84	326.76	12.64	983.84	7.62
194	MV-LM1(max)	I[178]	Moment-y	49.55	8.71	251.91	-15.8	1379.51	15.49
194	MV-LM1(max)	J[196]	Moment-y	-14.3	-13.74	325.58	-13.76	983.91	-10.3
195	MV-LM1(max)	I[179]	Moment-y	49.66	16.14	159.72	4.39	1129.19	31.52
195	MV-LM1(max)	J[197]	Moment-y	37.49	11.43	268.11	5.53	818.6	5.13
196	MV-LM1(max)	I[180]	Moment-y	4.05	5.69	144.61	2.69	1089.19	10.57
196	MV-LM1(max)	J[198]	Moment-y	-11.13	-3.07	287.98	2.54	814	-2.61
197	MV-LM1(max)	I[181]	Moment-y	-6.05	9.77	140.07	0.34	1085.3	18.47
197	MV-LM1(max)	J[199]	Moment-y	-19.14	10.39	282.36	3.2	822.72	4.29

198	MV-LM1(max)	I[182]	Moment-y	-8.13	16.31	139.41	-1.61	1085.15	31.75
198	MV-LM1(max)	J[200]	Moment-y	-20.62	24.43	281.78	2.68	824.1	11.65
199	MV-LM1(max)	I[183]	Moment-y	-6.84	19.54	140.69	-1.98	1084.62	38.33
199	MV-LM1(max)	J[201]	Moment-y	-17.47	31.55	283.39	2.07	820.72	15.34
200	MV-LM1(max)	I[184]	Moment-y	-4.83	17.16	142.73	-1.98	1083.81	33.76
200	MV-LM1(max)	J[202]	Moment-y	-12.75	29.4	285.81	1.32	815.46	14.55
201	MV-LM1(max)	I[185]	Moment-y	-2.66	6.55	144.31	-2.57	1083.15	12.93
201	MV-LM1(max)	J[203]	Moment-y	-8.17	19.93	288.23	1.12	810.52	10.21
202	MV-LM1(max)	I[186]	Moment-y	-1.43	-2.6	145.13	-0.02	1082.6	-4.54
202	MV-LM1(max)	J[204]	Moment-y	-4.89	-0.02	289.89	0.68	807.26	0.84
203	MV-LM1(max)	I[187]	Moment-y	-1.43	-18.08	145.22	1.63	1082.36	-35.12
203	MV-LM1(max)	J[205]	Moment-y	-5.14	-35.5	290.03	-2.66	806.51	-16.76
204	MV-LM1(max)	I[188]	Moment-y	-2.51	-33.82	144.68	1.13	1082.5	-66.14
204	MV-LM1(max)	J[206]	Moment-y	-7.92	-54.35	288.78	-2.99	808.7	-25.7
205	MV-LM1(max)	I[189]	Moment-y	-4.67	-41.52	143.25	0.82	1082.87	-81.3
205	MV-LM1(max)	J[207]	Moment-y	-12.48	-59.52	286.52	-2.75	812.94	-28.15
206	MV-LM1(max)	I[190]	Moment-y	-6.74	-39.96	141.31	1.15	1083.5	-78.19
206	MV-LM1(max)	J[208]	Moment-y	-17.45	-53.51	284.06	-2.73	818.14	-25.27
207	MV-LM1(max)	I[191]	Moment-y	-8.12	-31.31	139.9	1.25	1084.23	-61.03
207	MV-LM1(max)	J[209]	Moment-y	-21.38	-37.66	282.15	-2.68	822.39	-17.63
208	MV-LM1(max)	I[192]	Moment-y	-6.87	-23.8	140.14	-3.33	1085.06	-46.45
208	MV-LM1(max)	J[210]	Moment-y	-21.56	-16.92	282.12	-3.37	823.07	-7.57
209	MV-LM1(max)	I[193]	Moment-y	2.53	-9.94	144.36	-2.43	1090.05	-18.84
209	MV-LM1(max)	J[211]	Moment-y	-16.54	5.55	286.96	-1.62	817.31	3.84
210	MV-LM1(max)	I[194]	Moment-y	49.99	-21.24	160.07	-4.62	1130	-41.49
210	MV-LM1(max)	J[212]	Moment-y	37.09	-15.07	268.01	-5.92	819.41	-6.73
211	MV-LM1(max)	I[195]	Moment-y	-14.21	13.07	324.72	12.27	984.49	9.88
211	MV-LM1(max)	J[213]	Moment-y	-10.12	-11.88	172.03	-12.39	451.24	15.03
212	MV-LM1(max)	I[196]	Moment-y	-28.64	-19	323.5	-13.1	985.65	-13.08
212	MV-LM1(max)	J[214]	Moment-y	-30.51	2.5	170.65	11.05	455.8	-6.01
213	MV-LM1(max)	I[197]	Moment-y	23.65	0.86	266.13	3.59	816.2	-0.04
213	MV-LM1(max)	J[215]	Moment-y	-15.07	-7.18	196.59	8.98	400.66	8.34
214	MV-LM1(max)	I[198]	Moment-y	-12.99	-3.57	287.75	2.68	814.95	-2.85
214	MV-LM1(max)	J[216]	Moment-y	-62.97	13.57	176.53	11.16	425.22	-14.33
215	MV-LM1(max)	I[199]	Moment-y	-20	10.44	282.2	2.37	824.24	4.31
215	MV-LM1(max)	J[217]	Moment-y	-75.16	28.28	169.51	11.51	444.57	-28.34
216	MV-LM1(max)	I[200]	Moment-y	-21.32	24.72	281.63	0.76	825.74	11.79
216	MV-LM1(max)	J[218]	Moment-y	-75.34	30.19	168.6	2.85	447.86	-30.06
217	MV-LM1(max)	I[201]	Moment-y	-17.86	31.89	283.31	-0.39	822.09	15.5
217	MV-LM1(max)	J[219]	Moment-y	-72.02	37.35	170.4	1.15	440.71	-37
218	MV-LM1(max)	I[202]	Moment-y	-13.09	29.87	285.74	-0.99	816.47	14.77
218	MV-LM1(max)	J[220]	Moment-y	-67.11	35.89	173.27	0.07	429.11	-35.2
219	MV-LM1(max)	I[203]	Moment-y	-8.5	20.36	288.17	-0.42	811.17	10.41
219	MV-LM1(max)	J[221]	Moment-y	-62.76	23.66	176.12	0.51	417.45	-22.49
220	MV-LM1(max)	I[204]	Moment-y	-5.46	0.96	289.77	0.67	807.67	1.3
220	MV-LM1(max)	J[222]	Moment-y	-60.91	-0.05	177.82	2.02	410.14	1.88
221	MV-LM1(max)	I[205]	Moment-y	-5.83	-35.72	289.89	0.11	806.94	-16.87
221	MV-LM1(max)	J[223]	Moment-y	-60.88	-46.63	178.07	-1.02	408.83	47.13
222	MV-LM1(max)	I[206]	Moment-y	-8.4	-54.88	288.68	1.24	809.34	-25.96
222	MV-LM1(max)	J[224]	Moment-y	-62.78	-65.64	176.73	0.49	414.13	66.57
223	MV-LM1(max)	I[207]	Moment-y	-12.83	-59.74	286.44	1.89	813.92	-28.27
223	MV-LM1(max)	J[225]	Moment-y	-66.88	-71.16	174.14	1.08	424.53	72.18
224	MV-LM1(max)	I[208]	Moment-y	-17.84	-53.53	283.97	1.44	819.51	-25.28
224	MV-LM1(max)	J[226]	Moment-y	-72.05	-62.25	171.23	0.12	436.3	63.09
225	MV-LM1(max)	I[209]	Moment-y	-21.83	-37.5	282.05	0.25	824.08	-17.57
225	MV-LM1(max)	J[227]	Moment-y	-75.94	-44.46	169.12	-1.63	445.11	45.02
226	MV-LM1(max)	I[210]	Moment-y	-22.34	-16.47	281.98	-2.05	824.78	-7.37
226	MV-LM1(max)	J[228]	Moment-y	-77.04	-32.47	169.37	-10.46	445.47	32.74
227	MV-LM1(max)	I[211]	Moment-y	-17.9	6.35	286.8	-2	818.65	4.21
227	MV-LM1(max)	J[229]	Moment-y	-67.52	-10.88	175.61	-10.39	430.69	11.6
228	MV-LM1(max)	I[212]	Moment-y	18.09	5.09	265.07	-3.64	817.23	3.04

228	MV-LM1(max)	J[230]	Moment-y	-18.93	13.91	195.7	-9.27	402.59	-15.09
229	MV-LM1(max)	I[213]	Moment-y	13.86	-47.49	166.96	-4.64	437.8	-30.48
229	MV-LM1(max)	J[353]	Moment-y	50.85	-161.49	-8.25	-6.68	396.79	56.18
230	MV-LM1(max)	I[214]	Moment-y	-22.53	-66.05	334.56	5.15	441.45	-46.49
230	MV-LM1(max)	J[370]	Moment-y	48.01	133.94	-8.55	12.02	390.92	-50.17
231	MV-LM1(max)	I[215]	Moment-y	-5.99	-20.3	207.1	12.54	399.35	-27.06
231	MV-LM1(max)	J[354]	Moment-y	23.85	-65.9	96.91	17.23	233.15	0.42
232	MV-LM1(max)	I[216]	Moment-y	-26.26	-115.48	169.32	18.98	398.63	-101.83
232	MV-LM1(max)	J[355]	Moment-y	-19.34	-103.01	224.82	18.12	256.09	10.83
233	MV-LM1(max)	I[217]	Moment-y	-31.08	-3.15	167.31	11.33	414.39	-13.34
233	MV-LM1(max)	J[356]	Moment-y	-27.45	32.05	213.7	8.4	278.34	-17.92
234	MV-LM1(max)	I[218]	Moment-y	-31.84	72.99	166.54	0.15	417.63	52.73
234	MV-LM1(max)	J[357]	Moment-y	-27.61	85.94	187.67	0.78	281.57	-24.15
235	MV-LM1(max)	I[219]	Moment-y	-30.62	137.51	169.14	-6.02	411.98	105.34
235	MV-LM1(max)	J[358]	Moment-y	-26.43	150.35	217.27	-5.44	273.5	-35.97
236	MV-LM1(max)	I[220]	Moment-y	-28.82	164.47	172.89	-9.4	402.68	128.09
236	MV-LM1(max)	J[359]	Moment-y	-24.64	178.8	220.9	-8.96	260.51	-40.46
237	MV-LM1(max)	I[221]	Moment-y	-27.01	161.42	176.65	-10.04	393.3	126.22
237	MV-LM1(max)	J[360]	Moment-y	-23.18	162.78	224.27	-8.67	247.54	-36.57
238	MV-LM1(max)	I[222]	Moment-y	-26.51	94.6	178.44	-5.85	387.14	73.46
238	MV-LM1(max)	J[361]	Moment-y	-22.65	100.98	224.58	-4.8	239.47	-23.56
239	MV-LM1(max)	I[223]	Moment-y	-26.6	-109.3	178.59	2.98	385.94	-83.01
239	MV-LM1(max)	J[362]	Moment-y	-22.64	-119.53	224.83	2.3	238	29.48
240	MV-LM1(max)	I[224]	Moment-y	-27.23	-170.09	177.08	7.19	390.2	-131.3
240	MV-LM1(max)	J[363]	Moment-y	-23.23	-177.53	224.85	6.35	243.88	41.37
241	MV-LM1(max)	I[225]	Moment-y	-28.73	-185.77	173.86	8.3	398.52	-143.78
241	MV-LM1(max)	J[364]	Moment-y	-24.56	-199.16	221.84	7.96	255.41	45.76
242	MV-LM1(max)	I[226]	Moment-y	-30.64	-153.9	170.02	5.67	407.87	-117.98
242	MV-LM1(max)	J[365]	Moment-y	-2.13	-262.58	38.6	9.6	268.66	62.38
243	MV-LM1(max)	I[227]	Moment-y	-32.15	-83.38	166.99	0.06	414.9	-61.3
243	MV-LM1(max)	J[366]	Moment-y	-27.93	-95.55	188.07	-0.5	278.48	25.74
244	MV-LM1(max)	I[228]	Moment-y	-32.31	-27.79	166.44	-9.85	414.63	-10.99
244	MV-LM1(max)	J[367]	Moment-y	-28.39	-32.19	213.11	-8	279.31	17.05
245	MV-LM1(max)	I[229]	Moment-y	-29.04	128.48	167.29	-19.28	402.69	110.98
245	MV-LM1(max)	J[368]	Moment-y	-21.78	115.92	223.05	-18.4	261.87	-14.58
246	MV-LM1(max)	I[230]	Moment-y	-7.16	29.14	205.96	-13.45	399.65	34.26
246	MV-LM1(max)	J[369]	Moment-y	23	85.69	95.59	-18.64	234.14	-4.38
247	MV-LM1(max)	I[1]	Moment-y	-20.17	-33	-30.45	-119.79	31.44	-84.41
247	MV-LM1(max)	J[231]	Moment-y	737.7	-86.93	-473.24	-10.64	592.47	-25.56
248	MV-LM1(max)	I[19]	Moment-y	-19.66	27.68	-32.27	80.66	30.1	67.53
248	MV-LM1(max)	J[232]	Moment-y	726.95	87.79	-472.62	6.21	597.97	25.57
249	MV-LM1(max)	I[231]	Moment-y	737.7	-86.93	-473.24	-10.64	592.47	-25.56
249	MV-LM1(max)	J[37]	Moment-y	839.44	-92	-493.54	10.44	1664.84	178.3
250	MV-LM1(max)	I[232]	Moment-y	726.95	87.79	-472.62	6.21	597.97	25.57
250	MV-LM1(max)	J[53]	Moment-y	829.1	92.9	-492.98	-15.04	1669	-180.27
251	MV-LM1(max)	I[37]	Moment-y	1128.14	-6.88	-10.45	320.18	1510.49	-52.75
251	MV-LM1(max)	J[233]	Moment-y	1464.55	-76.13	-324.95	65.62	1730.6	-40.81
252	MV-LM1(max)	I[53]	Moment-y	1119.94	6.77	-10.15	-321.99	1513.59	52.4
252	MV-LM1(max)	J[234]	Moment-y	1461.41	75.82	-324.84	-67.48	1731.5	40.28
253	MV-LM1(max)	I[233]	Moment-y	1464.55	-76.13	-324.95	65.62	1730.6	-40.81
253	MV-LM1(max)	J[38]	Moment-y	1542.29	-86.19	-372.49	36.7	2498.1	149.29
254	MV-LM1(max)	I[234]	Moment-y	1461.41	75.82	-324.84	-67.48	1731.5	40.28
254	MV-LM1(max)	J[54]	Moment-y	1540.5	85.85	-372.43	-38.49	2498.46	-149.14
255	MV-LM1(max)	I[38]	Moment-y	1781.62	10.43	82.12	279.45	2375.38	-32.48
255	MV-LM1(max)	J[235]	Moment-y	1943.35	-56.82	-242.12	16.7	2241.9	-55.02
256	MV-LM1(max)	I[54]	Moment-y	1779.88	-10.43	82.16	-280.15	2375.68	32.65
256	MV-LM1(max)	J[236]	Moment-y	1943.18	56.79	-242.12	-17.29	2241.85	55.09
257	MV-LM1(max)	I[235]	Moment-y	1943.35	-56.82	-242.12	16.7	2241.9	-55.02
257	MV-LM1(max)	J[39]	Moment-y	1964.03	-67.19	-293.61	-14.24	2788.01	93.93
258	MV-LM1(max)	I[236]	Moment-y	1943.18	56.79	-242.12	-17.29	2241.85	55.09
258	MV-LM1(max)	J[55]	Moment-y	1964.24	67.16	-293.62	13.73	2787.9	-93.82

259	MV-LM1(max)	I[39]	Moment-y	2015.76	42.35	199.77	233.04	2744.62	31.39
259	MV-LM1(max)	J[237]	Moment-y	2102.98	30.96	143.5	202.68	2409.51	-61.46
260	MV-LM1(max)	I[55]	Moment-y	2015.56	-42.34	199.78	-233.25	2744.58	-31.32
260	MV-LM1(max)	J[238]	Moment-y	2103.13	-30.97	143.5	-202.89	2409.45	61.49
261	MV-LM1(max)	I[237]	Moment-y	2102.98	30.96	143.5	202.68	2409.51	-61.46
261	MV-LM1(max)	J[40]	Moment-y	2140.75	-38.45	-189.73	-58.08	2791.11	25.6
262	MV-LM1(max)	I[238]	Moment-y	2103.13	-30.97	143.5	-202.89	2409.45	61.49
262	MV-LM1(max)	J[56]	Moment-y	2141.23	38.44	-189.74	57.95	2791.06	-25.58
263	MV-LM1(max)	I[40]	Moment-y	2064.59	61.77	246.11	153.73	2818.59	76.43
263	MV-LM1(max)	J[239]	Moment-y	2121.82	49.06	186.5	125.18	2365.86	-59.28
264	MV-LM1(max)	I[56]	Moment-y	2065.02	-61.78	246.1	-153.82	2818.56	-76.46
264	MV-LM1(max)	J[240]	Moment-y	2122.31	-49.07	186.5	-125.26	2365.85	59.27
265	MV-LM1(max)	I[239]	Moment-y	2121.82	49.06	186.5	125.18	2365.86	-59.28
265	MV-LM1(max)	J[41]	Moment-y	2096.92	-23.7	-155.71	-125.94	2635.46	-4.38
266	MV-LM1(max)	I[240]	Moment-y	2122.31	-49.07	186.5	-125.26	2365.85	59.27
266	MV-LM1(max)	J[57]	Moment-y	2097.38	23.69	-155.72	125.91	2635.48	4.37
267	MV-LM1(max)	I[41]	Moment-y	1931.12	74.65	274.84	95.92	2706.22	110.37
267	MV-LM1(max)	J[241]	Moment-y	1972.8	60.66	212.29	70.04	2187.07	-54.1
268	MV-LM1(max)	I[57]	Moment-y	1931.56	-74.66	274.84	-95.97	2706.25	-110.4
268	MV-LM1(max)	J[242]	Moment-y	1973.21	-60.67	212.29	-70.08	2187.1	54.08
269	MV-LM1(max)	I[241]	Moment-y	1972.8	60.66	212.29	70.04	2187.07	-54.1
269	MV-LM1(max)	J[42]	Moment-y	1923.01	-15.37	-137.41	-169.8	2407.82	-17.88
270	MV-LM1(max)	I[242]	Moment-y	1973.21	-60.67	212.29	-70.08	2187.1	54.08
270	MV-LM1(max)	J[58]	Moment-y	1923.3	15.37	-137.41	169.81	2407.86	17.86
271	MV-LM1(max)	I[42]	Moment-y	1709.69	80.63	289.58	65.44	2501.3	129.84
271	MV-LM1(max)	J[243]	Moment-y	1745.38	64.66	222.53	45.31	1956.24	-48.48
272	MV-LM1(max)	I[58]	Moment-y	1709.96	-80.63	289.58	-65.45	2501.35	-129.86
272	MV-LM1(max)	J[244]	Moment-y	1745.72	-64.64	222.5	-45.41	1956.31	48.47
273	MV-LM1(max)	I[243]	Moment-y	1745.38	64.66	222.53	45.31	1956.24	-48.48
273	MV-LM1(max)	J[43]	Moment-y	1598.14	-23.3	-151.9	-159.15	2197.63	3.77
274	MV-LM1(max)	I[244]	Moment-y	1745.72	-64.64	222.5	-45.41	1956.31	48.47
274	MV-LM1(max)	J[59]	Moment-y	1599.04	23.28	-151.89	159.08	2197.73	-3.77
275	MV-LM1(max)	I[43]	Moment-y	1467.21	77.43	287.25	73.14	2275.8	127.27
275	MV-LM1(max)	J[245]	Moment-y	1471.74	51.97	201.35	74.12	1765.47	-45.84
276	MV-LM1(max)	I[59]	Moment-y	1467.88	-77.42	287.22	-73.16	2275.9	-127.26
276	MV-LM1(max)	J[246]	Moment-y	1472.42	-51.99	201.36	-74.2	1765.57	45.83
277	MV-LM1(max)	I[245]	Moment-y	1471.74	51.97	201.35	74.12	1765.47	-45.84
277	MV-LM1(max)	J[44]	Moment-y	1331.4	-50.89	-236.03	-161.56	2101.05	68.42
278	MV-LM1(max)	I[246]	Moment-y	1472.42	-51.99	201.36	-74.2	1765.57	45.83
278	MV-LM1(max)	J[60]	Moment-y	1331.59	50.89	-236.02	161.54	2101.08	-68.42
279	MV-LM1(max)	I[44]	Moment-y	1316.12	61.82	261.6	110.21	2125.8	93.94
279	MV-LM1(max)	J[247]	Moment-y	1364	20.88	144.47	36.03	1684.65	-44.14
280	MV-LM1(max)	I[60]	Moment-y	1316.47	-61.83	261.62	-110.23	2125.86	-93.96
280	MV-LM1(max)	J[248]	Moment-y	1364.08	-36.77	175.47	-100.31	1684.67	44.14
281	MV-LM1(max)	I[247]	Moment-y	1364	20.88	144.47	36.03	1684.65	-44.14
281	MV-LM1(max)	J[45]	Moment-y	1297.33	-65.98	-262.3	-133.69	2125.68	102.55
282	MV-LM1(max)	I[248]	Moment-y	1364.08	-36.77	175.47	-100.31	1684.67	44.14
282	MV-LM1(max)	J[61]	Moment-y	1296.98	65.98	-262.29	133.74	2125.63	-102.56
283	MV-LM1(max)	I[45]	Moment-y	1342.35	46.61	235.2	139.69	2094.9	59.98
283	MV-LM1(max)	J[249]	Moment-y	1455.61	-56.22	-202.46	-96.48	1758.25	-45.6
284	MV-LM1(max)	I[61]	Moment-y	1342.19	-46.6	235.22	-139.67	2094.85	-59.97
284	MV-LM1(max)	J[250]	Moment-y	1455.09	56.24	-202.46	96.59	1758.14	45.61
285	MV-LM1(max)	I[249]	Moment-y	1455.61	-56.22	-202.46	-96.48	1758.25	-45.6
285	MV-LM1(max)	J[46]	Moment-y	1432.41	-80.92	-287.34	-91.98	2268.71	134.89
286	MV-LM1(max)	I[250]	Moment-y	1455.09	56.24	-202.46	96.59	1758.14	45.61
286	MV-LM1(max)	J[62]	Moment-y	1431.95	80.95	-287.36	92.07	2268.6	-134.95
287	MV-LM1(max)	I[46]	Moment-y	1591.41	19.39	151.54	141.13	2184.84	-3.51
287	MV-LM1(max)	J[251]	Moment-y	1701.56	-67.89	-222.77	-56.74	1941.77	-48.01
288	MV-LM1(max)	I[62]	Moment-y	1590.92	-19.36	151.54	-141	2184.68	3.57
288	MV-LM1(max)	J[252]	Moment-y	1701.59	67.96	-222.87	56.67	1941.64	48.02
289	MV-LM1(max)	I[251]	Moment-y	1701.56	-67.89	-222.77	-56.74	1941.77	-48.01

289	MV-LM1(max)	J[47]	Moment-y	1658.22	-84.08	-290.78	-72.87	2488.46	137.75
290	MV-LM1(max)	I[252]	Moment-y	1701.59	67.96	-222.87	56.67	1941.64	48.02
290	MV-LM1(max)	J[63]	Moment-y	1658.1	84.09	-290.78	72.93	2488.37	-137.77
291	MV-LM1(max)	I[47]	Moment-y	1890.99	11.75	136.19	167.25	2388.27	-24.62
291	MV-LM1(max)	J[253]	Moment-y	1918.84	-63.73	-213.63	-69.17	2169.79	-53.61
292	MV-LM1(max)	I[63]	Moment-y	1891.07	-11.72	136.15	-167.14	2388.14	24.7
292	MV-LM1(max)	J[254]	Moment-y	1918.74	63.74	-213.64	69.29	2169.66	53.62
293	MV-LM1(max)	I[253]	Moment-y	1918.84	-63.73	-213.63	-69.17	2169.79	-53.61
293	MV-LM1(max)	J[48]	Moment-y	1868.91	-77.4	-276.17	-93.85	2691.71	116.64
294	MV-LM1(max)	I[254]	Moment-y	1918.74	63.74	-213.64	69.29	2169.66	53.62
294	MV-LM1(max)	J[64]	Moment-y	1868.8	77.42	-276.18	93.96	2691.58	-116.66
295	MV-LM1(max)	I[48]	Moment-y	2050.88	20.78	154.29	133.42	2614.99	-9.94
295	MV-LM1(max)	J[255]	Moment-y	2052.46	-51.26	-188.11	-114.8	2349.81	-59.48
296	MV-LM1(max)	I[64]	Moment-y	2050.88	-20.77	154.29	-133.14	2614.82	10.02
296	MV-LM1(max)	J[256]	Moment-y	2052.45	51.28	-188.11	115.05	2349.65	59.53
297	MV-LM1(max)	I[255]	Moment-y	2052.46	-51.26	-188.11	-114.8	2349.81	-59.48
297	MV-LM1(max)	J[49]	Moment-y	1987.02	-63.59	-247.71	-142.41	2806.68	79.82
298	MV-LM1(max)	I[256]	Moment-y	2052.45	51.28	-188.11	115.05	2349.65	59.53
298	MV-LM1(max)	J[65]	Moment-y	1987.03	63.6	-247.71	142.65	2806.52	-79.81
299	MV-LM1(max)	I[49]	Moment-y	2074.38	36.6	187.81	73.72	2774.62	21.04
299	MV-LM1(max)	J[257]	Moment-y	2014.09	-31.93	-145.71	-185.57	2400.94	-63.37
300	MV-LM1(max)	I[65]	Moment-y	2074.56	-36.59	187.81	-73.12	2774.4	-20.88
300	MV-LM1(max)	J[258]	Moment-y	2014.32	31.94	-145.7	186.12	2400.77	63.49
301	MV-LM1(max)	I[257]	Moment-y	2014.09	-31.93	-145.71	-185.57	2400.94	-63.37
301	MV-LM1(max)	J[50]	Moment-y	1918.97	-42.94	-202.13	-215.67	2742.42	30.27
302	MV-LM1(max)	I[258]	Moment-y	2014.32	31.94	-145.7	186.12	2400.77	63.49
302	MV-LM1(max)	J[66]	Moment-y	1919.26	42.94	-202.13	216.19	2742.27	-30.17
303	MV-LM1(max)	I[50]	Moment-y	1879.28	66.66	290.62	33.08	2781.77	90.13
303	MV-LM1(max)	J[259]	Moment-y	1850.34	56.75	239.02	1.81	2244.64	-58.36
304	MV-LM1(max)	I[66]	Moment-y	1879.76	-66.55	290.63	-31.68	2781.5	-89.8
304	MV-LM1(max)	J[260]	Moment-y	1850.84	-56.66	239.03	-0.49	2244.38	58.46
305	MV-LM1(max)	I[259]	Moment-y	1850.34	56.75	239.02	1.81	2244.64	-58.36
305	MV-LM1(max)	J[51]	Moment-y	1672.29	-9.55	-85.52	-262.08	2390.96	-39.21
306	MV-LM1(max)	I[260]	Moment-y	1850.84	-56.66	239.03	-0.49	2244.38	58.46
306	MV-LM1(max)	J[67]	Moment-y	1672.92	9.6	-85.5	263.25	2390.81	39.19
307	MV-LM1(max)	I[51]	Moment-y	1427.05	88.61	367.75	-23.2	2516	147.19
307	MV-LM1(max)	J[261]	Moment-y	1345.6	78.87	320.11	-52.85	1760.78	-48.66
308	MV-LM1(max)	I[67]	Moment-y	1427.85	-88.04	367.79	25.77	2515.79	-147
308	MV-LM1(max)	J[262]	Moment-y	1346.35	-78.38	320.15	55.16	1760.59	47.74
309	MV-LM1(max)	I[261]	Moment-y	1345.6	78.87	320.11	-52.85	1760.78	-48.66
309	MV-LM1(max)	J[52]	Moment-y	1022.62	10.03	6.81	-312.83	1549.77	-67.14
310	MV-LM1(max)	I[262]	Moment-y	1346.35	-78.38	320.15	55.16	1760.59	47.74
310	MV-LM1(max)	J[68]	Moment-y	1023.47	-9.79	6.87	314.71	1549.75	66.08
311	MV-LM1(max)	I[52]	Moment-y	707.6	97.56	486.02	-11.35	1714.11	180.46
311	MV-LM1(max)	J[263]	Moment-y	624.41	93.28	469.54	1.88	655.87	-35.22
312	MV-LM1(max)	I[68]	Moment-y	707.89	-97.98	486.08	15.09	1714.4	-181.98
312	MV-LM1(max)	J[264]	Moment-y	624.67	-93.65	469.59	1.39	656.04	34.71
313	MV-LM1(max)	I[263]	Moment-y	624.41	93.28	469.54	1.88	655.87	-35.22
313	MV-LM1(max)	J[18]	Moment-y	-2.26	2.69	0.12	-8.19	1.07	-11.88
314	MV-LM1(max)	I[264]	Moment-y	624.67	-93.65	469.59	1.39	656.04	34.71
314	MV-LM1(max)	J[36]	Moment-y	-2.32	-2.57	0.02	7.27	0.9	11.54
315	MV-LM1(max)	I[1]	Moment-y	0	0	0	0	0	0
315	MV-LM1(max)	J[265]	Moment-y	0	0	0	0	0	0
316	MV-LM1(max)	I[18]	Moment-y	0	0	0	0	0	0
316	MV-LM1(max)	J[266]	Moment-y	0	0	0	0	0	0
317	MV-LM1(max)	I[37]	Moment-y	0	0	0	0	0	0
317	MV-LM1(max)	J[267]	Moment-y	0	0	0	0	0	0
318	MV-LM1(max)	I[38]	Moment-y	0	0	0	0	0	0
318	MV-LM1(max)	J[268]	Moment-y	0	0	0	0	0	0
319	MV-LM1(max)	I[39]	Moment-y	0	0	0	0	0	0
319	MV-LM1(max)	J[269]	Moment-y	0	0	0	0	0	0

320	MV-LM1(max)	I[40]	Moment-y	0	0	0	0	0	0
320	MV-LM1(max)	J[270]	Moment-y	0	0	0	0	0	0
321	MV-LM1(max)	I[41]	Moment-y	0	0	0	0	0	0
321	MV-LM1(max)	J[271]	Moment-y	0	0	0	0	0	0
322	MV-LM1(max)	I[42]	Moment-y	0	0	0	0	0	0
322	MV-LM1(max)	J[272]	Moment-y	0	0	0	0	0	0
323	MV-LM1(max)	I[43]	Moment-y	0	0	0	0	0	0
323	MV-LM1(max)	J[273]	Moment-y	0	0	0	0	0	0
324	MV-LM1(max)	I[44]	Moment-y	0	0	0	0	0	0
324	MV-LM1(max)	J[274]	Moment-y	0	0	0	0	0	0
325	MV-LM1(max)	I[45]	Moment-y	0	0	0	0	0	0
325	MV-LM1(max)	J[275]	Moment-y	0	0	0	0	0	0
326	MV-LM1(max)	I[46]	Moment-y	0	0	0	0	0	0
326	MV-LM1(max)	J[276]	Moment-y	0	0	0	0	0	0
327	MV-LM1(max)	I[47]	Moment-y	0	0	0	0	0	0
327	MV-LM1(max)	J[277]	Moment-y	0	0	0	0	0	0
328	MV-LM1(max)	I[48]	Moment-y	0	0	0	0	0	0
328	MV-LM1(max)	J[278]	Moment-y	0	0	0	0	0	0
329	MV-LM1(max)	I[49]	Moment-y	0	0	0	0	0	0
329	MV-LM1(max)	J[279]	Moment-y	0	0	0	0	0	0
330	MV-LM1(max)	I[50]	Moment-y	0	0	0	0	0	0
330	MV-LM1(max)	J[280]	Moment-y	0	0	0	0	0	0
331	MV-LM1(max)	I[51]	Moment-y	0	0	0	0	0	0
331	MV-LM1(max)	J[281]	Moment-y	0	0	0	0	0	0
332	MV-LM1(max)	I[52]	Moment-y	0	0	0	0	0	0
332	MV-LM1(max)	J[282]	Moment-y	0	0	0	0	0	0
333	MV-LM1(max)	I[231]	Moment-y	0	0	0	0	0	0
333	MV-LM1(max)	J[283]	Moment-y	0	0	0	0	0	0
334	MV-LM1(max)	I[233]	Moment-y	0	0	0	0	0	0
334	MV-LM1(max)	J[284]	Moment-y	0	0	0	0	0	0
335	MV-LM1(max)	I[235]	Moment-y	0	0	0	0	0	0
335	MV-LM1(max)	J[285]	Moment-y	0	0	0	0	0	0
336	MV-LM1(max)	I[237]	Moment-y	0	0	0	0	0	0
336	MV-LM1(max)	J[286]	Moment-y	0	0	0	0	0	0
337	MV-LM1(max)	I[239]	Moment-y	0	0	0	0	0	0
337	MV-LM1(max)	J[287]	Moment-y	0	0	0	0	0	0
338	MV-LM1(max)	I[241]	Moment-y	0	0	0	0	0	0
338	MV-LM1(max)	J[288]	Moment-y	0	0	0	0	0	0
339	MV-LM1(max)	I[243]	Moment-y	0	0	0	0	0	0
339	MV-LM1(max)	J[289]	Moment-y	0	0	0	0	0	0
340	MV-LM1(max)	I[245]	Moment-y	0	0	0	0	0	0
340	MV-LM1(max)	J[290]	Moment-y	0	0	0	0	0	0
341	MV-LM1(max)	I[247]	Moment-y	0	0	0	0	0	0
341	MV-LM1(max)	J[291]	Moment-y	0	0	0	0	0	0
342	MV-LM1(max)	I[249]	Moment-y	0	0	0	0	0	0
342	MV-LM1(max)	J[292]	Moment-y	0	0	0	0	0	0
343	MV-LM1(max)	I[251]	Moment-y	0	0	0	0	0	0
343	MV-LM1(max)	J[293]	Moment-y	0	0	0	0	0	0
344	MV-LM1(max)	I[253]	Moment-y	0	0	0	0	0	0
344	MV-LM1(max)	J[294]	Moment-y	0	0	0	0	0	0
345	MV-LM1(max)	I[255]	Moment-y	0	0	0	0	0	0
345	MV-LM1(max)	J[295]	Moment-y	0	0	0	0	0	0
346	MV-LM1(max)	I[257]	Moment-y	0	0	0	0	0	0
346	MV-LM1(max)	J[296]	Moment-y	0	0	0	0	0	0
347	MV-LM1(max)	I[259]	Moment-y	0	0	0	0	0	0
347	MV-LM1(max)	J[297]	Moment-y	0	0	0	0	0	0
348	MV-LM1(max)	I[261]	Moment-y	0	0	0	0	0	0
348	MV-LM1(max)	J[298]	Moment-y	0	0	0	0	0	0
349	MV-LM1(max)	I[263]	Moment-y	0	0	0	0	0	0
349	MV-LM1(max)	J[299]	Moment-y	0	0	0	0	0	0
350	MV-LM1(max)	I[19]	Moment-y	0	0	0	0	0	0

350	MV-LM1(max)	J[300]	Moment-y	0	0	0	0	0	0
351	MV-LM1(max)	I[36]	Moment-y	0	0	0	0	0	0
351	MV-LM1(max)	J[301]	Moment-y	0	0	0	0	0	0
352	MV-LM1(max)	I[53]	Moment-y	0	0	0	0	0	0
352	MV-LM1(max)	J[302]	Moment-y	0	0	0	0	0	0
353	MV-LM1(max)	I[54]	Moment-y	0	0	0	0	0	0
353	MV-LM1(max)	J[303]	Moment-y	0	0	0	0	0	0
354	MV-LM1(max)	I[55]	Moment-y	0	0	0	0	0	0
354	MV-LM1(max)	J[304]	Moment-y	0	0	0	0	0	0
355	MV-LM1(max)	I[56]	Moment-y	0	0	0	0	0	0
355	MV-LM1(max)	J[305]	Moment-y	0	0	0	0	0	0
356	MV-LM1(max)	I[57]	Moment-y	0	0	0	0	0	0
356	MV-LM1(max)	J[306]	Moment-y	0	0	0	0	0	0
357	MV-LM1(max)	I[58]	Moment-y	0	0	0	0	0	0
357	MV-LM1(max)	J[307]	Moment-y	0	0	0	0	0	0
358	MV-LM1(max)	I[59]	Moment-y	0	0	0	0	0	0
358	MV-LM1(max)	J[308]	Moment-y	0	0	0	0	0	0
359	MV-LM1(max)	I[60]	Moment-y	0	0	0	0	0	0
359	MV-LM1(max)	J[309]	Moment-y	0	0	0	0	0	0
360	MV-LM1(max)	I[61]	Moment-y	0	0	0	0	0	0
360	MV-LM1(max)	J[310]	Moment-y	0	0	0	0	0	0
361	MV-LM1(max)	I[62]	Moment-y	0	0	0	0	0	0
361	MV-LM1(max)	J[311]	Moment-y	0	0	0	0	0	0
362	MV-LM1(max)	I[63]	Moment-y	0	0	0	0	0	0
362	MV-LM1(max)	J[312]	Moment-y	0	0	0	0	0	0
363	MV-LM1(max)	I[64]	Moment-y	0	0	0	0	0	0
363	MV-LM1(max)	J[313]	Moment-y	0	0	0	0	0	0
364	MV-LM1(max)	I[65]	Moment-y	0	0	0	0	0	0
364	MV-LM1(max)	J[314]	Moment-y	0	0	0	0	0	0
365	MV-LM1(max)	I[66]	Moment-y	0	0	0	0	0	0
365	MV-LM1(max)	J[315]	Moment-y	0	0	0	0	0	0
366	MV-LM1(max)	I[67]	Moment-y	0	0	0	0	0	0
366	MV-LM1(max)	J[316]	Moment-y	0	0	0	0	0	0
367	MV-LM1(max)	I[68]	Moment-y	0	0	0	0	0	0
367	MV-LM1(max)	J[317]	Moment-y	0	0	0	0	0	0
368	MV-LM1(max)	I[232]	Moment-y	0	0	0	0	0	0
368	MV-LM1(max)	J[318]	Moment-y	0	0	0	0	0	0
369	MV-LM1(max)	I[234]	Moment-y	0	0	0	0	0	0
369	MV-LM1(max)	J[319]	Moment-y	0	0	0	0	0	0
370	MV-LM1(max)	I[236]	Moment-y	0	0	0	0	0	0
370	MV-LM1(max)	J[320]	Moment-y	0	0	0	0	0	0
371	MV-LM1(max)	I[238]	Moment-y	0	0	0	0	0	0
371	MV-LM1(max)	J[321]	Moment-y	0	0	0	0	0	0
372	MV-LM1(max)	I[240]	Moment-y	0	0	0	0	0	0
372	MV-LM1(max)	J[322]	Moment-y	0	0	0	0	0	0
373	MV-LM1(max)	I[242]	Moment-y	0	0	0	0	0	0
373	MV-LM1(max)	J[323]	Moment-y	0	0	0	0	0	0
374	MV-LM1(max)	I[244]	Moment-y	0	0	0	0	0	0
374	MV-LM1(max)	J[324]	Moment-y	0	0	0	0	0	0
375	MV-LM1(max)	I[246]	Moment-y	0	0	0	0	0	0
375	MV-LM1(max)	J[325]	Moment-y	0	0	0	0	0	0
376	MV-LM1(max)	I[248]	Moment-y	0	0	0	0	0	0
376	MV-LM1(max)	J[326]	Moment-y	0	0	0	0	0	0
377	MV-LM1(max)	I[250]	Moment-y	0	0	0	0	0	0
377	MV-LM1(max)	J[327]	Moment-y	0	0	0	0	0	0
378	MV-LM1(max)	I[252]	Moment-y	0	0	0	0	0	0
378	MV-LM1(max)	J[328]	Moment-y	0	0	0	0	0	0
379	MV-LM1(max)	I[254]	Moment-y	0	0	0	0	0	0
379	MV-LM1(max)	J[329]	Moment-y	0	0	0	0	0	0
380	MV-LM1(max)	I[256]	Moment-y	0	0	0	0	0	0
380	MV-LM1(max)	J[330]	Moment-y	0	0	0	0	0	0

381	MV-LM1(max)	I[258]	Moment-y	0	0	0	0	0	0
381	MV-LM1(max)	J[331]	Moment-y	0	0	0	0	0	0
382	MV-LM1(max)	I[260]	Moment-y	0	0	0	0	0	0
382	MV-LM1(max)	J[332]	Moment-y	0	0	0	0	0	0
383	MV-LM1(max)	I[262]	Moment-y	0	0	0	0	0	0
383	MV-LM1(max)	J[333]	Moment-y	0	0	0	0	0	0
384	MV-LM1(max)	I[264]	Moment-y	0	0	0	0	0	0
384	MV-LM1(max)	J[334]	Moment-y	0	0	0	0	0	0
385	MV-LM1(max)	I[69]	Moment-y	434.8	163.47	55.35	-12.14	127.29	511.55
385	MV-LM1(max)	J[71]	Moment-y	-290.51	-43.94	-49.5	-0.36	119.42	-121.07
386	MV-LM1(max)	I[105]	Moment-y	106.16	57.05	24.8	-13.35	58.56	173.05
386	MV-LM1(max)	J[107]	Moment-y	-66.94	8.91	-35.17	-1.65	100.5	-152.92
387	MV-LM1(max)	I[141]	Moment-y	40.25	2.94	18.89	1.02	40.84	9.49
387	MV-LM1(max)	J[143]	Moment-y	-28.9	-2.38	-33.99	2.95	104.29	17.47
388	MV-LM1(max)	I[177]	Moment-y	106.59	-58.97	24.82	13.47	58.68	-175.54
388	MV-LM1(max)	J[179]	Moment-y	-67.84	-8.21	-35.32	1.53	100.78	152.33
389	MV-LM1(max)	I[213]	Moment-y	435.06	-167.37	55.34	12.53	127.32	-513.83
389	MV-LM1(max)	J[215]	Moment-y	-293.01	45.93	-49.76	0.15	119.9	116.15
390	MV-LM1(max)	I[71]	Moment-y	805.89	99.33	30.89	-7.38	55.41	264.61
390	MV-LM1(max)	J[72]	Moment-y	-715.34	-21.59	-44.89	0.96	124.68	-108.95
391	MV-LM1(max)	I[107]	Moment-y	9.92	-35.55	27.72	15.27	81.63	-148.83
391	MV-LM1(max)	J[108]	Moment-y	-131.58	26.22	-36.33	-2.15	113.02	-137.93
392	MV-LM1(max)	I[143]	Moment-y	5.03	7.11	33.17	-0.83	97.8	23.17
392	MV-LM1(max)	J[144]	Moment-y	-51.35	-3.92	-37.89	3.08	118.85	16.09
393	MV-LM1(max)	I[179]	Moment-y	8.14	36.31	27.68	-15.27	81.56	152.03
393	MV-LM1(max)	J[180]	Moment-y	-132.01	-26.23	-36.33	2.12	113.01	137.65
394	MV-LM1(max)	I[215]	Moment-y	805.36	-96.98	30.86	7.63	55.41	-251.29
394	MV-LM1(max)	J[216]	Moment-y	-716.67	20.98	-44.89	-1.15	124.68	107.42
395	MV-LM1(max)	I[72]	Moment-y	-333.09	-45.03	20.63	19.1	64.87	-232.85
395	MV-LM1(max)	J[73]	Moment-y	-896.01	11.61	-36.74	-3.78	110.73	-170.62
396	MV-LM1(max)	I[108]	Moment-y	-77.61	-47.08	27.7	12.52	93.73	-186.39
396	MV-LM1(max)	J[109]	Moment-y	-173.15	37.85	-33.22	-4.48	111.09	-161.04
397	MV-LM1(max)	I[144]	Moment-y	-56.94	6.71	32.16	-1.01	109.69	21.82
397	MV-LM1(max)	J[145]	Moment-y	-70.7	-4.65	-36.02	2.68	119.71	16.97
398	MV-LM1(max)	I[180]	Moment-y	-77.79	47.2	27.7	-12.52	93.72	186.88
398	MV-LM1(max)	J[181]	Moment-y	-173.21	-37.91	-33.23	4.46	111.08	160.99
399	MV-LM1(max)	I[216]	Moment-y	-334.59	45.08	20.63	-19.1	64.87	233.19
399	MV-LM1(max)	J[217]	Moment-y	-895.34	-11.8	-36.74	3.75	110.72	170.56
400	MV-LM1(max)	I[73]	Moment-y	-714.99	-34.72	26.04	15.39	84	-222.68
400	MV-LM1(max)	J[376]	Moment-y	-1089.16	-44.4	13.02	13.65	35.81	-183.49
401	MV-LM1(max)	I[109]	Moment-y	-170.85	-39.93	29.28	11.76	104.09	-173.39
401	MV-LM1(max)	J[377]	Moment-y	-194.35	-32.86	22.55	9.89	47.41	-107.43
402	MV-LM1(max)	I[145]	Moment-y	-72.06	-5.77	34.01	1.51	117.13	-19.18
402	MV-LM1(max)	J[378]	Moment-y	-79.11	5.25	27.06	-1.09	50.96	8.43
403	MV-LM1(max)	I[181]	Moment-y	-171.19	40.02	29.28	-11.76	104.08	173.71
403	MV-LM1(max)	J[379]	Moment-y	-194.54	32.9	22.55	-9.89	47.41	107.48
404	MV-LM1(max)	I[217]	Moment-y	-714.64	34.7	26.04	-15.39	84	222.55
404	MV-LM1(max)	J[380]	Moment-y	-1088.98	44.37	13.02	-13.66	35.81	183.43
405	MV-LM1(max)	I[74]	Moment-y	-947.83	-15.22	32.45	11.94	102.31	-185.72
405	MV-LM1(max)	J[75]	Moment-y	-621.28	38.44	-28.1	-11.29	87.47	-225.2
406	MV-LM1(max)	I[110]	Moment-y	-165.1	-29.89	32.54	9.38	111.53	-151.34
406	MV-LM1(max)	J[111]	Moment-y	-114.42	49.6	-28.88	-8.81	100.03	-194.84
407	MV-LM1(max)	I[146]	Moment-y	-64.32	-5.03	35.79	1.95	121.34	-17.39
407	MV-LM1(max)	J[147]	Moment-y	-40.38	5.94	-33.07	-1.94	112.93	-19.29
408	MV-LM1(max)	I[182]	Moment-y	-165.2	29.91	32.54	-9.38	111.53	151.42
408	MV-LM1(max)	J[183]	Moment-y	-114	-49.73	-28.88	8.8	100.04	194.98
409	MV-LM1(max)	I[218]	Moment-y	-947.62	15.2	32.45	-11.94	102.31	185.64
409	MV-LM1(max)	J[219]	Moment-y	-620.49	-38.5	-28.1	11.28	87.48	225.18
410	MV-LM1(max)	I[75]	Moment-y	-813.39	1.62	38.33	8.68	113.32	-145.41
410	MV-LM1(max)	J[76]	Moment-y	-310.8	31.15	-29.62	-12.18	85.82	-203.62
411	MV-LM1(max)	I[111]	Moment-y	-121.87	-23.09	34.89	7.59	114.78	-135.11

411	MV-LM1(max)	J[112]	Moment-y	-45.33	47.28	-28.92	-9.12	96.99	-187.85
412	MV-LM1(max)	I[147]	Moment-y	-36.66	4.44	37.15	-2.24	122.48	15.94
412	MV-LM1(max)	J[148]	Moment-y	-1.48	6.45	-33.31	-1.77	110.1	-20.18
413	MV-LM1(max)	I[183]	Moment-y	-121.88	23.1	34.89	-7.58	114.78	135.15
413	MV-LM1(max)	J[184]	Moment-y	-44.98	-47.37	-28.93	9.11	97	187.95
414	MV-LM1(max)	I[219]	Moment-y	-813.14	-1.63	38.33	-8.69	113.32	145.34
414	MV-LM1(max)	J[220]	Moment-y	-310.78	-31.16	-29.62	12.18	85.82	203.63
415	MV-LM1(max)	I[76]	Moment-y	-608.24	9.03	41.45	6.92	116.97	-124.5
415	MV-LM1(max)	J[77]	Moment-y	-102.33	13.69	-33.45	-11.13	90.85	-162.34
416	MV-LM1(max)	I[112]	Moment-y	-57.75	-21.14	36.09	6.64	114.37	-128.52
416	MV-LM1(max)	J[113]	Moment-y	37.87	35.37	-30.76	-8.57	97.23	-158.08
417	MV-LM1(max)	I[148]	Moment-y	2.46	3.97	37.95	-2.35	121.14	14.77
417	MV-LM1(max)	J[149]	Moment-y	37.58	6.78	-34.04	-1.77	109.17	-20.75
418	MV-LM1(max)	I[184]	Moment-y	-57.77	21.17	36.09	-6.64	114.37	128.61
418	MV-LM1(max)	J[185]	Moment-y	38.03	-35.36	-30.76	8.56	97.24	158.04
419	MV-LM1(max)	I[220]	Moment-y	-608.13	-9.03	41.45	-6.92	116.97	124.48
419	MV-LM1(max)	J[221]	Moment-y	-101.56	-13.71	-33.45	11.12	90.86	162.3
420	MV-LM1(max)	I[77]	Moment-y	-391.27	7.59	42.14	6.58	115.06	-122.63
420	MV-LM1(max)	J[78]	Moment-y	-128.22	-0.92	-36.69	-9.81	98.35	-132.86
421	MV-LM1(max)	I[113]	Moment-y	9.42	-24.39	36.13	6.53	111.24	-133.19
421	MV-LM1(max)	J[114]	Moment-y	80.91	20.48	-33.32	-8	100.97	-123.59
422	MV-LM1(max)	I[149]	Moment-y	43.08	3.67	37.98	-2.31	118.11	14.02
422	MV-LM1(max)	J[150]	Moment-y	75.41	6.97	-35.81	-1.89	110.6	-21.09
423	MV-LM1(max)	I[185]	Moment-y	9.35	24.47	36.13	-6.53	111.24	133.38
423	MV-LM1(max)	J[186]	Moment-y	81.21	-20.52	-33.33	8	100.98	123.63
424	MV-LM1(max)	I[221]	Moment-y	-391.32	-7.58	42.15	-6.58	115.06	122.67
424	MV-LM1(max)	J[222]	Moment-y	-127.86	0.91	-36.69	9.81	98.35	132.82
425	MV-LM1(max)	I[78]	Moment-y	-208.84	-0.91	40.92	7.32	109.48	-136.38
425	MV-LM1(max)	J[371]	Moment-y	-400.82	-28.47	15.38	2.39	24.88	-179.56
426	MV-LM1(max)	I[114]	Moment-y	63.45	-31.95	35.22	7.04	106.52	-147.44
426	MV-LM1(max)	J[372]	Moment-y	12.29	-4.16	8.87	-3.87	38.2	-112.28
427	MV-LM1(max)	I[150]	Moment-y	75.04	3.5	37.36	-2.17	114.25	13.64
427	MV-LM1(max)	J[373]	Moment-y	48.47	3	27.65	-1.66	42.44	7.72
428	MV-LM1(max)	I[186]	Moment-y	63.31	32.07	35.22	-7.04	106.52	147.75
428	MV-LM1(max)	J[374]	Moment-y	12.31	44.49	24.02	-6.41	38.2	112.27
429	MV-LM1(max)	I[222]	Moment-y	-209.02	0.95	40.92	-7.32	109.49	136.5
429	MV-LM1(max)	J[375]	Moment-y	-400.76	41.66	19.68	-7.65	24.88	179.55
430	MV-LM1(max)	I[79]	Moment-y	-93.19	-14.01	38.34	8.68	102.02	-160.71
430	MV-LM1(max)	J[80]	Moment-y	-414.94	-20.32	-40.76	-7.34	111.87	-98.21
431	MV-LM1(max)	I[115]	Moment-y	90.54	-43.36	33.52	7.16	101.46	-170.31
431	MV-LM1(max)	J[116]	Moment-y	2.26	5.37	-35.95	-6.97	110.81	-93.4
432	MV-LM1(max)	I[151]	Moment-y	75.41	3.4	35.81	-2	110.6	13.4
432	MV-LM1(max)	J[152]	Moment-y	43.07	6.87	-37.98	-2.22	118.11	-20.91
433	MV-LM1(max)	I[187]	Moment-y	90.42	43.49	33.52	-7.16	101.45	170.64
433	MV-LM1(max)	J[188]	Moment-y	2.3	-5.37	-35.96	6.97	110.82	93.39
434	MV-LM1(max)	I[223]	Moment-y	-93.42	14.08	38.35	-8.68	102.03	160.9
434	MV-LM1(max)	J[224]	Moment-y	-414.85	20.35	-40.76	7.34	111.86	98.12
435	MV-LM1(max)	I[80]	Moment-y	-61.44	-28.81	35.05	10.12	94.34	-189.6
435	MV-LM1(max)	J[81]	Moment-y	-632.31	-19.79	-40.36	-7.26	114.38	-104.46
436	MV-LM1(max)	I[116]	Moment-y	48.7	-58.89	31	7.79	97.66	-206.13
436	MV-LM1(max)	J[117]	Moment-y	-65.63	5.44	-35.96	-6.82	114.03	-96.23
437	MV-LM1(max)	I[152]	Moment-y	37.58	3.5	34.04	-1.85	109.17	13.69
437	MV-LM1(max)	J[153]	Moment-y	2.46	6.76	-37.95	-2.3	121.14	-20.67
438	MV-LM1(max)	I[188]	Moment-y	48.61	58.97	31	-7.78	97.65	206.3
438	MV-LM1(max)	J[189]	Moment-y	-65.68	-5.42	-35.96	6.82	114.04	96.15
439	MV-LM1(max)	I[224]	Moment-y	-61.52	28.9	35.06	-10.12	94.36	189.84
439	MV-LM1(max)	J[225]	Moment-y	-632.22	19.84	-40.35	7.26	114.37	104.33
440	MV-LM1(max)	I[81]	Moment-y	-269.03	-45.01	31.05	11.34	88.68	-228.17
440	MV-LM1(max)	J[82]	Moment-y	-844.28	-9.92	-37.59	-8.51	111.49	-131.7
441	MV-LM1(max)	I[117]	Moment-y	-39.77	-67.47	29.07	8.68	97.24	-229.7
441	MV-LM1(max)	J[118]	Moment-y	-131.54	11.5	-34.81	-7.47	114.55	-112.54

442	MV-LM1(max)	I[153]	Moment-y	-1.47	3.64	33.31	-1.8	110.1	14.06
442	MV-LM1(max)	J[154]	Moment-y	-36.67	6.62	-37.15	-2.24	122.48	-20.36
443	MV-LM1(max)	I[189]	Moment-y	-40.03	67.64	29.07	-8.68	97.23	230.11
443	MV-LM1(max)	J[190]	Moment-y	-131.63	-11.46	-34.82	7.47	114.55	112.44
444	MV-LM1(max)	I[225]	Moment-y	-269.23	45.1	31.06	-11.34	88.69	228.36
444	MV-LM1(max)	J[226]	Moment-y	-844.15	9.98	-37.58	8.52	111.47	131.53
445	MV-LM1(max)	I[82]	Moment-y	-599.99	-50.45	29.11	11.18	89.41	-247.63
445	MV-LM1(max)	J[83]	Moment-y	-991.25	9.78	-32.04	-11.3	101.23	-180.33
446	MV-LM1(max)	I[118]	Moment-y	-113.42	-65.76	28.94	8.8	100.13	-228.9
446	MV-LM1(max)	J[119]	Moment-y	-177.21	22.87	-32.49	-8.98	111.37	-140.02
447	MV-LM1(max)	I[154]	Moment-y	-40.37	3.81	33.07	-1.86	112.94	14.36
447	MV-LM1(max)	J[155]	Moment-y	-64.34	6.54	-35.79	-2.01	121.34	-20.11
448	MV-LM1(max)	I[190]	Moment-y	-113.71	65.96	28.94	-8.8	100.11	229.37
448	MV-LM1(max)	J[191]	Moment-y	-177.3	-22.85	-32.49	8.98	111.38	139.98
449	MV-LM1(max)	I[226]	Moment-y	-599.99	50.57	29.12	-11.17	89.42	247.9
449	MV-LM1(max)	J[227]	Moment-y	-991.08	-9.73	-32.03	11.31	101.22	180.18
450	MV-LM1(max)	I[83]	Moment-y	-844.85	-40.51	31.07	8.97	97.31	-233.64
450	MV-LM1(max)	J[381]	Moment-y	-1140.37	39.73	-12.69	-12.69	35.67	-191.75
451	MV-LM1(max)	I[119]	Moment-y	-169.62	-58.06	30.37	7.53	105.37	-210.53
451	MV-LM1(max)	J[382]	Moment-y	-207.05	26.66	-22.49	-9.32	47.37	-112.52
452	MV-LM1(max)	I[155]	Moment-y	-68.15	3.73	34.24	-2.16	116.97	14.22
452	MV-LM1(max)	J[383]	Moment-y	-79.09	-6.26	-27.06	1.19	50.96	7.52
453	MV-LM1(max)	I[191]	Moment-y	-169.85	58.25	30.36	-7.53	105.35	210.93
453	MV-LM1(max)	J[384]	Moment-y	-207.16	-26.66	-22.5	9.33	47.36	112.48
454	MV-LM1(max)	I[227]	Moment-y	-844.79	40.71	31.07	-8.95	97.31	233.98
454	MV-LM1(max)	J[385]	Moment-y	-1140.14	-39.63	-12.69	12.72	35.66	191.64
455	MV-LM1(max)	I[84]	Moment-y	-929.94	-16.7	37.19	4.77	111.61	-187.26
455	MV-LM1(max)	J[85]	Moment-y	-356.9	42.25	-20.35	-18.48	64.21	-230.48
456	MV-LM1(max)	I[120]	Moment-y	-182.42	-45.33	33.28	5.15	111.23	-181.18
456	MV-LM1(max)	J[121]	Moment-y	-75.07	43.47	-27.82	-12.24	93.67	-178.79
457	MV-LM1(max)	I[156]	Moment-y	-70.68	3.57	36.02	-2.58	119.72	13.85
457	MV-LM1(max)	J[157]	Moment-y	-56.94	-7.12	-32.16	1.11	109.69	21.22
458	MV-LM1(max)	I[192]	Moment-y	-182.64	45.51	33.28	-5.13	111.2	181.22
458	MV-LM1(max)	J[193]	Moment-y	-75.19	-43.63	-27.82	12.26	93.67	179.03
459	MV-LM1(max)	I[228]	Moment-y	-929.68	17.32	37.18	-4.73	111.57	187.5
459	MV-LM1(max)	J[229]	Moment-y	-356.58	-42.01	-20.37	18.54	64.23	229.22
460	MV-LM1(max)	I[85]	Moment-y	-768.03	21.73	45.82	-0.25	126.89	-121.58
460	MV-LM1(max)	J[86]	Moment-y	936.98	-117.32	-32.82	8.11	59	345.8
461	MV-LM1(max)	I[121]	Moment-y	-140.96	-30.63	36.51	2.7	113.55	-153.02
461	MV-LM1(max)	J[122]	Moment-y	5.8	36.6	-27.52	-13.92	81.64	-149.66
462	MV-LM1(max)	I[157]	Moment-y	-51.34	3.11	37.89	-3.03	118.85	13.23
462	MV-LM1(max)	J[158]	Moment-y	5.02	-7.61	-33.17	0.89	97.8	22.71
463	MV-LM1(max)	I[193]	Moment-y	-141.16	30.65	36.5	-2.66	113.5	152.19
463	MV-LM1(max)	J[194]	Moment-y	5.76	-37.69	-27.52	13.96	81.63	151.9
464	MV-LM1(max)	I[229]	Moment-y	-768.09	-20.52	45.8	0.38	126.83	119.88
464	MV-LM1(max)	J[230]	Moment-y	936.93	117.86	-32.82	-8.03	59	-349.09
465	MV-LM1(max)	I[86]	Moment-y	-321.83	48.86	52.76	0.34	125.81	-125.37
465	MV-LM1(max)	J[70]	Moment-y	521.27	-196.82	-64.7	15.06	150.25	643.84
466	MV-LM1(max)	I[122]	Moment-y	-71.78	-12.89	35.93	1.65	102.02	-164.57
466	MV-LM1(max)	J[106]	Moment-y	127.56	-76.67	-28.86	15.99	68.61	258.71
467	MV-LM1(max)	I[158]	Moment-y	-28.91	1.05	33.99	-3.01	104.29	14.05
467	MV-LM1(max)	J[142]	Moment-y	40.23	2.28	-18.89	1.37	40.84	-4.3
468	MV-LM1(max)	I[194]	Moment-y	-71.85	11.54	35.95	-1.58	102.04	162.05
468	MV-LM1(max)	J[178]	Moment-y	127.35	75.8	-28.85	-15.97	68.55	-257.35
469	MV-LM1(max)	I[230]	Moment-y	-321.84	-50.42	52.76	-0.18	125.78	120.28
469	MV-LM1(max)	J[214]	Moment-y	521.13	194.97	-64.7	-14.89	150.24	-642.73
470	MV-LM1(max)	I[335]	Moment-y	11.31	171.06	5.14	5.5	405.52	58.43
470	MV-LM1(max)	J[69]	Moment-y	-34.71	33.5	-164.38	6.47	447.74	-19.49
471	MV-LM1(max)	I[336]	Moment-y	25.01	50.71	-98.07	-16.33	231.58	-2.92
471	MV-LM1(max)	J[71]	Moment-y	-4.63	10.97	-208.57	-11.93	398.96	-19.77
472	MV-LM1(max)	I[337]	Moment-y	5.84	175.85	-45.95	-20.65	254.03	28.61

472	MV-LM1(max)	J[72]	Moment-y	-26.37	113.59	-169.63	-18.89	396.71	-100.35
473	MV-LM1(max)	I[338]	Moment-y	-27.47	-31.98	-213.73	-8.41	277.63	-17.9
473	MV-LM1(max)	J[73]	Moment-y	-30.15	122.61	-168.2	-9.78	413.81	-97.96
474	MV-LM1(max)	I[339]	Moment-y	-27.61	-85.73	-187.67	-0.78	281.43	-24.09
474	MV-LM1(max)	J[74]	Moment-y	-31.84	-72.76	-166.55	-0.15	417.51	52.56
475	MV-LM1(max)	I[340]	Moment-y	-26.43	-150.22	-217.27	5.44	273.48	-35.94
475	MV-LM1(max)	J[75]	Moment-y	-30.62	-137.36	-169.15	6.02	411.97	105.23
476	MV-LM1(max)	I[341]	Moment-y	-24.64	-178.76	-220.91	8.96	260.52	-40.45
476	MV-LM1(max)	J[76]	Moment-y	-28.82	-164.39	-172.89	9.4	402.69	128.03
477	MV-LM1(max)	I[342]	Moment-y	-23.18	-162.74	-224.28	8.67	247.55	-36.56
477	MV-LM1(max)	J[77]	Moment-y	-27	-161.7	-176.66	10.06	393.31	126.44
478	MV-LM1(max)	I[343]	Moment-y	-22.65	-100.97	-224.58	4.79	239.47	-23.56
478	MV-LM1(max)	J[78]	Moment-y	-26.5	-94.68	-178.44	5.85	387.14	73.52
479	MV-LM1(max)	I[344]	Moment-y	-22.64	119.49	-224.83	-2.31	238	29.46
479	MV-LM1(max)	J[79]	Moment-y	-26.6	109.18	-178.59	-2.98	385.94	-82.92
480	MV-LM1(max)	I[345]	Moment-y	-23.23	177.22	-224.84	-6.35	243.86	41.3
480	MV-LM1(max)	J[80]	Moment-y	-27.23	169.94	-177.07	-7.19	390.18	-131.19
481	MV-LM1(max)	I[346]	Moment-y	-24.56	199.09	-221.83	-7.97	255.33	45.73
481	MV-LM1(max)	J[81]	Moment-y	-28.74	185.7	-173.85	-8.31	398.44	-143.73
482	MV-LM1(max)	I[347]	Moment-y	-2.13	262.47	-38.59	-9.62	268.5	62.34
482	MV-LM1(max)	J[82]	Moment-y	-30.64	153.79	-170.01	-5.68	407.69	-117.91
483	MV-LM1(max)	I[348]	Moment-y	-27.94	95.46	-188.05	0.48	278.09	25.7
483	MV-LM1(max)	J[83]	Moment-y	-32.17	83.27	-166.97	-0.09	414.49	-61.24
484	MV-LM1(max)	I[349]	Moment-y	-28.5	32.31	-213.08	7.96	278.4	17.02
484	MV-LM1(max)	J[84]	Moment-y	-32.45	27.79	-166.4	9.8	413.7	-11.05
485	MV-LM1(max)	I[350]	Moment-y	-22.31	-115.21	-223	18.29	260.41	-14.56
485	MV-LM1(max)	J[85]	Moment-y	-29.72	-127.82	-167.17	19.15	401.12	110.31
486	MV-LM1(max)	I[351]	Moment-y	23.02	-80.21	-95.77	18.39	234.47	-3.16
486	MV-LM1(max)	J[86]	Moment-y	-8.3	-40.87	-204.69	14.04	399.4	43.25
487	MV-LM1(max)	I[352]	Moment-y	-27.3	-134.35	10.54	-11.8	406.16	-50.06
487	MV-LM1(max)	J[70]	Moment-y	-17.28	-6.09	-162.74	-10.86	440.97	-1.79
488	MV-LM1(max)	I[353]	Moment-y	50.85	-161.49	-8.25	-6.68	396.79	56.18
488	MV-LM1(max)	J[19]	Moment-y	18.72	-43.73	-44.36	-16.98	401.44	50.45
489	MV-LM1(max)	I[354]	Moment-y	23.85	-65.9	96.91	17.23	233.15	0.42
489	MV-LM1(max)	J[53]	Moment-y	22.76	-108.26	79.42	16.45	181.52	68
490	MV-LM1(max)	I[355]	Moment-y	-19.34	-103.01	224.82	18.12	256.09	10.83
490	MV-LM1(max)	J[54]	Moment-y	11.46	-135.15	2.99	14.22	234.85	89.66
491	MV-LM1(max)	I[356]	Moment-y	-27.45	32.05	213.7	8.4	278.34	-17.92
491	MV-LM1(max)	J[55]	Moment-y	3.63	121.17	10.78	4.2	253.47	-99.46
492	MV-LM1(max)	I[357]	Moment-y	-27.61	85.94	187.67	0.78	281.57	-24.15
492	MV-LM1(max)	J[56]	Moment-y	2.63	243.14	10.41	-5.33	260.37	-185.53
493	MV-LM1(max)	I[358]	Moment-y	-26.43	150.35	217.27	-5.44	273.5	-35.97
493	MV-LM1(max)	J[57]	Moment-y	5.13	266.75	12.05	-11	252.64	-196.75
494	MV-LM1(max)	I[359]	Moment-y	-24.64	178.8	220.9	-8.96	260.51	-40.46
494	MV-LM1(max)	J[58]	Moment-y	7.24	306.89	14.23	-15.38	238.07	-223.71
495	MV-LM1(max)	I[360]	Moment-y	-23.18	162.78	224.27	-8.67	247.54	-36.57
495	MV-LM1(max)	J[59]	Moment-y	8.97	297.18	16.6	-15.6	222.67	-216.19
496	MV-LM1(max)	I[361]	Moment-y	-22.65	100.98	224.58	-4.8	239.47	-23.56
496	MV-LM1(max)	J[60]	Moment-y	17.24	239.86	20.27	-9.89	215.52	-177.48
497	MV-LM1(max)	I[362]	Moment-y	-22.64	-119.53	224.83	2.3	238	29.48
497	MV-LM1(max)	J[61]	Moment-y	17.23	-251.9	20.52	8.03	213.65	187.45
498	MV-LM1(max)	I[363]	Moment-y	-23.23	-177.53	224.85	6.35	243.88	41.37
498	MV-LM1(max)	J[62]	Moment-y	16.37	-298.5	18.98	11.11	220.77	220.56
499	MV-LM1(max)	I[364]	Moment-y	-24.56	-199.16	221.84	7.96	255.41	45.76
499	MV-LM1(max)	J[63]	Moment-y	7.35	-323.26	14.61	14.66	232.49	236.04
500	MV-LM1(max)	I[365]	Moment-y	-2.13	-262.58	38.6	9.6	268.66	62.38
500	MV-LM1(max)	J[64]	Moment-y	5.1	-278.22	12.12	11	247.73	204.83
501	MV-LM1(max)	I[366]	Moment-y	-27.93	-95.55	188.07	-0.5	278.48	25.74
501	MV-LM1(max)	J[65]	Moment-y	2.26	-248.23	10.05	5.79	258.01	188.48
502	MV-LM1(max)	I[367]	Moment-y	-28.39	-32.19	213.11	-8	279.31	17.05
502	MV-LM1(max)	J[66]	Moment-y	2.56	-117.39	9.9	-3.75	255.7	95.78

503	MV-LM1(max)	I[368]	Moment-y	-21.78	115.92	223.05	-18.4	261.87	-14.58
503	MV-LM1(max)	J[67]	Moment-y	19.24	117.7	18.3	-18.32	238.97	-74.08
504	MV-LM1(max)	I[369]	Moment-y	23	85.69	95.59	-18.64	234.14	-4.38
504	MV-LM1(max)	J[68]	Moment-y	23.03	114.6	79.26	-16.99	181.99	-72.19
505	MV-LM1(max)	I[370]	Moment-y	48.01	133.94	-8.55	12.02	390.92	-50.17
505	MV-LM1(max)	J[36]	Moment-y	13.55	0.79	-45.7	24.53	398.99	-19.64
506	MV-LM1(max)	I[371]	Moment-y	-400.82	-28.47	15.38	2.39	24.88	-179.56
506	MV-LM1(max)	J[79]	Moment-y	-237.04	-13.22	-39.35	-8.36	105.91	-109.39
507	MV-LM1(max)	I[372]	Moment-y	12.29	-4.16	8.87	-3.87	38.2	-112.28
507	MV-LM1(max)	J[115]	Moment-y	56.07	10.71	-35	-7.63	106.03	-103.08
508	MV-LM1(max)	I[373]	Moment-y	48.47	3	27.65	-1.66	42.44	7.72
508	MV-LM1(max)	J[151]	Moment-y	75.04	6.94	-37.36	-2.07	114.25	-21.03
509	MV-LM1(max)	I[374]	Moment-y	12.31	44.49	24.02	-6.41	38.2	112.27
509	MV-LM1(max)	J[187]	Moment-y	56.23	-10.76	-35.01	7.63	106.04	103.14
510	MV-LM1(max)	I[375]	Moment-y	-400.76	41.66	19.68	-7.65	24.88	179.55
510	MV-LM1(max)	J[223]	Moment-y	-236.85	13.24	-39.34	8.36	105.91	109.33
511	MV-LM1(max)	I[376]	Moment-y	-1089.16	-44.4	13.02	13.65	35.81	-183.49
511	MV-LM1(max)	J[74]	Moment-y	-837.64	31.46	-30.48	-8.4	96.24	-214.16
512	MV-LM1(max)	I[377]	Moment-y	-194.35	-32.86	22.55	9.89	47.41	-107.43
512	MV-LM1(max)	J[110]	Moment-y	-164.92	46.18	-30.35	-7.14	105.36	-183.97
513	MV-LM1(max)	I[378]	Moment-y	-79.11	5.25	27.06	-1.09	50.96	8.43
513	MV-LM1(max)	J[146]	Moment-y	-68.18	-5.42	-34.24	2.23	116.97	18.26
514	MV-LM1(max)	I[379]	Moment-y	-194.54	32.9	22.55	-9.89	47.41	107.48
514	MV-LM1(max)	J[182]	Moment-y	-164.6	-46.3	-30.35	7.12	105.36	184.06
515	MV-LM1(max)	I[380]	Moment-y	-1088.98	44.37	13.02	-13.66	35.81	183.43
515	MV-LM1(max)	J[218]	Moment-y	-836.41	-31.54	-30.48	8.39	96.25	214.12
516	MV-LM1(max)	I[381]	Moment-y	-1140.37	39.73	-12.69	-12.69	35.67	-191.75
516	MV-LM1(max)	J[84]	Moment-y	-759.2	31.15	-25.65	-14.84	83.29	-219.63
517	MV-LM1(max)	I[382]	Moment-y	-207.05	26.66	-22.49	-9.32	47.37	-112.52
517	MV-LM1(max)	J[120]	Moment-y	-184.44	37.16	-29.22	-11.24	103.92	-173.14
518	MV-LM1(max)	I[383]	Moment-y	-79.09	-6.26	-27.06	1.19	50.96	7.52
518	MV-LM1(max)	J[156]	Moment-y	-72.07	6.58	-34.01	-1.6	117.13	-20.08
519	MV-LM1(max)	I[384]	Moment-y	-207.16	-26.66	-22.5	9.33	47.36	112.48
519	MV-LM1(max)	J[192]	Moment-y	-184.49	-37.23	-29.22	11.25	103.92	173.26
520	MV-LM1(max)	I[385]	Moment-y	-1140.14	-39.63	-12.69	12.72	35.66	191.64
520	MV-LM1(max)	J[228]	Moment-y	-758.86	-31.06	-25.65	14.85	83.29	219.35

4. ACCIÓN DEL VIENTO

4.1. VIENTO LONGITUDINAL

Elem	Load	Part	Axial (kN)	Shear-y (kN)	Shear-z (kN)	Torsion (kN*m)	Moment-y (kN*m)	Moment-z (kN*m)
1	Vien H Long	I[1]	0.28	0	-0.22	0.04	-2.67	0.16
1	Vien H Long	J[2]	0.28	0	-0.22	0.04	-1.55	0.15
2	Vien H Long	I[2]	0.32	0	-0.14	0.04	-1.55	0.15
2	Vien H Long	J[3]	0.32	0	-0.14	0.04	-0.87	0.13
3	Vien H Long	I[3]	0.34	0	-0.09	0.03	-0.87	0.13
3	Vien H Long	J[4]	0.34	0	-0.09	0.03	-0.45	0.12
4	Vien H Long	I[4]	0.35	0	-0.06	0.02	-0.45	0.12
4	Vien H Long	J[5]	0.35	0	-0.06	0.02	-0.18	0.11
5	Vien H Long	I[5]	0.35	0	-0.04	0.01	-0.18	0.11
5	Vien H Long	J[6]	0.35	0	-0.04	0.01	0	0.09
6	Vien H Long	I[6]	0.35	0	-0.03	0.01	0	0.09
6	Vien H Long	J[7]	0.35	0	-0.03	0.01	0.12	0.08
7	Vien H Long	I[7]	0.35	0	-0.02	0	0.12	0.08
7	Vien H Long	J[8]	0.35	0	-0.02	0	0.2	0.06
8	Vien H Long	I[8]	0.35	0	-0.01	0	0.2	0.06
8	Vien H Long	J[9]	0.35	0	-0.01	0	0.26	0.05
9	Vien H Long	I[9]	0.35	0	-0.01	-0.01	0.26	0.05
9	Vien H Long	J[10]	0.35	0	-0.01	-0.01	0.3	0.04
10	Vien H Long	I[10]	0.35	0	0	-0.01	0.3	0.04
10	Vien H Long	J[11]	0.35	0	0	-0.01	0.31	0.02
11	Vien H Long	I[11]	0.35	0	0	-0.01	0.31	0.02
11	Vien H Long	J[12]	0.35	0	0	-0.01	0.31	0.01
12	Vien H Long	I[12]	0.36	0	0	-0.01	0.31	0.01
12	Vien H Long	J[13]	0.36	0	0	-0.01	0.3	-0.01
13	Vien H Long	I[13]	0.36	0	0.01	-0.01	0.3	-0.01
13	Vien H Long	J[14]	0.36	0	0.01	-0.01	0.27	-0.02
14	Vien H Long	I[14]	0.37	0	0.01	-0.01	0.27	-0.02
14	Vien H Long	J[15]	0.37	0	0.01	-0.01	0.23	-0.04
15	Vien H Long	I[15]	0.38	0	0.01	-0.01	0.23	-0.04
15	Vien H Long	J[16]	0.38	0	0.01	-0.01	0.18	-0.05
16	Vien H Long	I[16]	0.39	0	0.01	0	0.18	-0.05
16	Vien H Long	J[17]	0.39	0	0.01	0	0.12	-0.07
17	Vien H Long	I[17]	0.39	0	0.02	0	0.12	-0.07
17	Vien H Long	J[18]	0.39	0	0.02	0	0.03	-0.09
18	Vien H Long	I[19]	0.28	0	-0.22	-0.04	-2.66	-0.16
18	Vien H Long	J[20]	0.28	0	-0.22	-0.04	-1.54	-0.14
19	Vien H Long	I[20]	0.32	0	-0.14	-0.04	-1.54	-0.15
19	Vien H Long	J[21]	0.32	0	-0.14	-0.04	-0.86	-0.13
20	Vien H Long	I[21]	0.34	0	-0.09	-0.03	-0.86	-0.13
20	Vien H Long	J[22]	0.34	0	-0.09	-0.03	-0.45	-0.12
21	Vien H Long	I[22]	0.35	0	-0.06	-0.02	-0.45	-0.12
21	Vien H Long	J[23]	0.35	0	-0.06	-0.02	-0.18	-0.11
22	Vien H Long	I[23]	0.35	0	-0.04	-0.01	-0.18	-0.11
22	Vien H Long	J[24]	0.35	0	-0.04	-0.01	0	-0.09
23	Vien H Long	I[24]	0.35	0	-0.03	-0.01	0	-0.09
23	Vien H Long	J[25]	0.35	0	-0.03	-0.01	0.12	-0.08
24	Vien H Long	I[25]	0.35	0	-0.02	0	0.12	-0.08
24	Vien H Long	J[26]	0.35	0	-0.02	0	0.2	-0.06
25	Vien H Long	I[26]	0.35	0	-0.01	0	0.2	-0.06
25	Vien H Long	J[27]	0.35	0	-0.01	0	0.26	-0.05
26	Vien H Long	I[27]	0.35	0	-0.01	0.01	0.26	-0.05
26	Vien H Long	J[28]	0.35	0	-0.01	0.01	0.3	-0.04
27	Vien H Long	I[28]	0.35	0	0	0.01	0.3	-0.04
27	Vien H Long	J[29]	0.35	0	0	0.01	0.31	-0.02
28	Vien H Long	I[29]	0.35	0	0	0.01	0.31	-0.02

28	Vien H Long	J[30]	0.35	0	0	0.01	0.31	-0.01
29	Vien H Long	I[30]	0.36	0	0	0.01	0.31	-0.01
29	Vien H Long	J[31]	0.36	0	0	0.01	0.3	0.01
30	Vien H Long	I[31]	0.36	0	0.01	0.01	0.3	0.01
30	Vien H Long	J[32]	0.36	0	0.01	0.01	0.27	0.02
31	Vien H Long	I[32]	0.37	0	0.01	0.01	0.27	0.02
31	Vien H Long	J[33]	0.37	0	0.01	0.01	0.23	0.04
32	Vien H Long	I[33]	0.38	0	0.01	0.01	0.23	0.04
32	Vien H Long	J[34]	0.38	0	0.01	0.01	0.18	0.05
33	Vien H Long	I[34]	0.38	0	0.01	0	0.18	0.05
33	Vien H Long	J[35]	0.38	0	0.01	0	0.12	0.07
34	Vien H Long	I[35]	0.39	0	0.02	0	0.12	0.07
34	Vien H Long	J[36]	0.39	0	0.02	0	0.03	0.09
67	Vien H Long	I[1]	-0.95	-4.65	0.62	0.64	0.33	-3.36
67	Vien H Long	J[335]	-0.95	-4.65	0.62	0.64	0.02	-1.04
68	Vien H Long	I[18]	-0.09	0.24	0.04	-0.01	-0.03	0.17
68	Vien H Long	J[352]	-0.09	0.24	0.04	-0.01	-0.05	0.05
69	Vien H Long	I[37]	0.53	-3.15	-0.48	0.11	-0.48	-2.33
69	Vien H Long	J[336]	0.53	-3.15	-0.48	0.11	-0.24	-0.75
70	Vien H Long	I[38]	0.34	-1.15	-0.1	0.04	0.1	-0.86
70	Vien H Long	J[337]	0.34	-1.15	-0.1	0.04	0.15	-0.29
71	Vien H Long	I[39]	0.12	-0.12	-0.06	-0.01	0.06	-0.09
71	Vien H Long	J[338]	0.12	-0.12	-0.06	-0.01	0.09	-0.03
72	Vien H Long	I[40]	0.06	0.42	-0.03	-0.04	0.04	0.31
72	Vien H Long	J[339]	0.06	0.42	-0.03	-0.04	0.05	0.1
73	Vien H Long	I[41]	0.03	0.69	-0.02	-0.05	0.02	0.51
73	Vien H Long	J[340]	0.03	0.69	-0.02	-0.05	0.03	0.16
74	Vien H Long	I[42]	0.01	0.82	-0.01	-0.05	0.01	0.6
74	Vien H Long	J[341]	0.01	0.82	-0.01	-0.05	0.02	0.2
75	Vien H Long	I[43]	0	0.86	0	-0.05	0.01	0.64
75	Vien H Long	J[342]	0	0.86	0	-0.05	0.01	0.21
76	Vien H Long	I[44]	0	0.86	0	-0.04	0	0.64
76	Vien H Long	J[343]	0	0.86	0	-0.04	0	0.21
77	Vien H Long	I[45]	-0.01	0.84	0	-0.04	0	0.62
77	Vien H Long	J[344]	-0.01	0.84	0	-0.04	0	0.2
78	Vien H Long	I[46]	-0.01	0.8	0	-0.03	0	0.59
78	Vien H Long	J[345]	-0.01	0.8	0	-0.03	0	0.19
79	Vien H Long	I[47]	-0.01	0.75	0.01	-0.03	0	0.55
79	Vien H Long	J[346]	-0.01	0.75	0.01	-0.03	-0.01	0.18
80	Vien H Long	I[48]	-0.01	0.69	0.01	-0.03	0	0.51
80	Vien H Long	J[347]	-0.01	0.69	0.01	-0.03	-0.01	0.17
81	Vien H Long	I[49]	-0.01	0.63	0.01	-0.02	-0.01	0.47
81	Vien H Long	J[348]	-0.01	0.63	0.01	-0.02	-0.01	0.15
82	Vien H Long	I[50]	-0.01	0.56	0.01	-0.02	-0.01	0.42
82	Vien H Long	J[349]	-0.01	0.56	0.01	-0.02	-0.01	0.14
83	Vien H Long	I[51]	-0.01	0.49	0.01	-0.02	-0.01	0.36
83	Vien H Long	J[350]	-0.01	0.49	0.01	-0.02	-0.01	0.12
84	Vien H Long	I[52]	0.01	0.4	0	-0.01	-0.03	0.3
84	Vien H Long	J[351]	0.01	0.4	0	-0.01	-0.03	0.1
85	Vien H Long	I[69]	-2.32	-1	0.23	-0.11	0.08	-0.99
85	Vien H Long	J[87]	-2.32	-1	0.23	-0.11	-0.27	0.51
86	Vien H Long	I[70]	-0.23	0.22	0.03	-0.02	-0.02	0.22
86	Vien H Long	J[88]	-0.23	0.22	0.03	-0.02	-0.06	-0.1
87	Vien H Long	I[71]	1.28	-0.87	-0.17	-0.04	-0.16	-0.89
87	Vien H Long	J[89]	1.28	-0.87	-0.17	-0.04	0.1	0.42
88	Vien H Long	I[72]	0.74	-0.59	-0.02	0.01	0.07	-0.62
88	Vien H Long	J[90]	0.74	-0.59	-0.02	0.01	0.11	0.28
89	Vien H Long	I[73]	0.32	-0.35	-0.02	0.03	0.07	-0.37
89	Vien H Long	J[91]	0.32	-0.35	-0.02	0.03	0.1	0.16
90	Vien H Long	I[74]	0.16	-0.16	-0.02	0.03	0.04	-0.17
90	Vien H Long	J[92]	0.16	-0.16	-0.02	0.03	0.06	0.07

91	Vien H Long	I[75]	0.09	-0.02	-0.01	0.03	0.02	-0.02
91	Vien H Long	J[93]	0.09	-0.02	-0.01	0.03	0.04	0.01
92	Vien H Long	I[76]	0.05	0.09	-0.01	0.03	0.01	0.09
92	Vien H Long	J[94]	0.05	0.09	-0.01	0.03	0.02	-0.04
93	Vien H Long	I[77]	0.02	0.17	-0.01	0.02	0	0.17
93	Vien H Long	J[95]	0.02	0.17	-0.01	0.02	0.01	-0.08
94	Vien H Long	I[78]	0.01	0.22	0	0.01	0	0.23
94	Vien H Long	J[96]	0.01	0.22	0	0.01	0	-0.11
95	Vien H Long	I[79]	0	0.26	0	0.01	-0.01	0.27
95	Vien H Long	J[97]	0	0.26	0	0.01	0	-0.12
96	Vien H Long	I[80]	-0.01	0.29	0	0.01	-0.01	0.29
96	Vien H Long	J[98]	-0.01	0.29	0	0.01	-0.01	-0.13
97	Vien H Long	I[81]	-0.02	0.3	0	0	-0.01	0.31
97	Vien H Long	J[99]	-0.02	0.3	0	0	-0.01	-0.14
98	Vien H Long	I[82]	-0.02	0.3	0	0	-0.01	0.31
98	Vien H Long	J[100]	-0.02	0.3	0	0	-0.01	-0.14
99	Vien H Long	I[83]	-0.02	0.3	0	0	-0.01	0.31
99	Vien H Long	J[101]	-0.02	0.3	0	0	-0.01	-0.14
100	Vien H Long	I[84]	-0.03	0.29	0	0	-0.01	0.3
100	Vien H Long	J[102]	-0.03	0.29	0	0	-0.01	-0.14
101	Vien H Long	I[85]	-0.01	0.28	0	-0.01	-0.02	0.29
101	Vien H Long	J[103]	-0.01	0.28	0	-0.01	-0.02	-0.13
102	Vien H Long	I[86]	0	0.27	0	-0.01	-0.03	0.28
102	Vien H Long	J[104]	0	0.27	0	-0.01	-0.03	-0.12
103	Vien H Long	I[87]	-2.32	-1	0.23	-0.19	-0.45	0.51
103	Vien H Long	J[105]	-2.32	-1	0.23	-0.19	-0.79	2.01
104	Vien H Long	I[88]	-0.23	0.22	0.03	0	-0.08	-0.1
104	Vien H Long	J[106]	-0.23	0.22	0.03	0	-0.12	-0.42
105	Vien H Long	I[89]	1.28	-0.87	-0.17	-0.11	0.2	0.42
105	Vien H Long	J[107]	1.28	-0.87	-0.17	-0.11	0.45	1.73
106	Vien H Long	I[90]	0.74	-0.59	-0.02	-0.04	0.17	0.28
106	Vien H Long	J[108]	0.74	-0.59	-0.02	-0.04	0.2	1.17
107	Vien H Long	I[91]	0.32	-0.35	-0.02	0	0.12	0.16
107	Vien H Long	J[109]	0.32	-0.35	-0.02	0	0.15	0.69
108	Vien H Long	I[92]	0.16	-0.16	-0.02	0.02	0.08	0.07
108	Vien H Long	J[110]	0.16	-0.16	-0.02	0.02	0.1	0.32
109	Vien H Long	I[93]	0.09	-0.02	-0.01	0.03	0.05	0.01
109	Vien H Long	J[111]	0.09	-0.02	-0.01	0.03	0.06	0.04
110	Vien H Long	I[94]	0.05	0.09	-0.01	0.03	0.02	-0.04
110	Vien H Long	J[112]	0.05	0.09	-0.01	0.03	0.04	-0.18
111	Vien H Long	I[95]	0.02	0.17	-0.01	0.03	0.01	-0.08
111	Vien H Long	J[113]	0.02	0.17	-0.01	0.03	0.02	-0.33
112	Vien H Long	I[96]	0.01	0.22	0	0.03	0	-0.11
112	Vien H Long	J[114]	0.01	0.22	0	0.03	0.01	-0.44
113	Vien H Long	I[97]	0	0.26	0	0.03	0	-0.12
113	Vien H Long	J[115]	0	0.26	0	0.03	0	-0.52
114	Vien H Long	I[98]	-0.01	0.29	0	0.03	-0.01	-0.13
114	Vien H Long	J[116]	-0.01	0.29	0	0.03	-0.01	-0.56
115	Vien H Long	I[99]	-0.02	0.3	0	0.03	-0.01	-0.14
115	Vien H Long	J[117]	-0.02	0.3	0	0.03	-0.01	-0.59
116	Vien H Long	I[100]	-0.02	0.3	0	0.02	-0.01	-0.14
116	Vien H Long	J[118]	-0.02	0.3	0	0.02	-0.01	-0.59
117	Vien H Long	I[101]	-0.02	0.3	0	0.02	-0.01	-0.14
117	Vien H Long	J[119]	-0.02	0.3	0	0.02	-0.02	-0.59
118	Vien H Long	I[102]	-0.03	0.29	0	0.02	-0.02	-0.14
118	Vien H Long	J[120]	-0.03	0.29	0	0.02	-0.02	-0.57
119	Vien H Long	I[103]	-0.01	0.28	0	0.02	-0.02	-0.13
119	Vien H Long	J[121]	-0.01	0.28	0	0.02	-0.03	-0.55
120	Vien H Long	I[104]	0	0.27	0	0.01	-0.03	-0.12
120	Vien H Long	J[122]	0	0.27	0	0.01	-0.03	-0.52
121	Vien H Long	I[105]	-3.04	-0.22	0.06	-0.06	-0.49	-0.24

121	Vien H Long	J[123]	-3.04	-0.22	0.06	-0.06	-0.57	0.1
122	Vien H Long	I[106]	-0.42	0.07	0.01	0	-0.05	0.08
122	Vien H Long	J[124]	-0.42	0.07	0.01	0	-0.07	-0.02
123	Vien H Long	I[107]	1.59	-0.21	-0.04	-0.02	0.3	-0.28
123	Vien H Long	J[125]	1.59	-0.21	-0.04	-0.02	0.36	0.04
124	Vien H Long	I[108]	0.88	-0.18	-0.01	-0.01	0.15	-0.24
124	Vien H Long	J[126]	0.88	-0.18	-0.01	-0.01	0.16	0.02
125	Vien H Long	I[109]	0.44	-0.12	0	0	0.1	-0.17
125	Vien H Long	J[127]	0.44	-0.12	0	0	0.11	0.01
126	Vien H Long	I[110]	0.25	-0.07	0	0.01	0.07	-0.1
126	Vien H Long	J[128]	0.25	-0.07	0	0.01	0.07	0.01
127	Vien H Long	I[111]	0.16	-0.03	0	0.01	0.04	-0.05
127	Vien H Long	J[129]	0.16	-0.03	0	0.01	0.04	0
128	Vien H Long	I[112]	0.1	0	0	0.01	0.02	0
128	Vien H Long	J[130]	0.1	0	0	0.01	0.02	0
129	Vien H Long	I[113]	0.06	0.03	0	0.01	0	0.03
129	Vien H Long	J[131]	0.06	0.03	0	0.01	0.01	-0.01
130	Vien H Long	I[114]	0.03	0.05	0	0.01	0	0.06
130	Vien H Long	J[132]	0.03	0.05	0	0.01	0	-0.01
131	Vien H Long	I[115]	0.01	0.06	0	0.01	-0.01	0.09
131	Vien H Long	J[133]	0.01	0.06	0	0.01	-0.01	-0.01
132	Vien H Long	I[116]	0	0.08	0	0.01	-0.01	0.1
132	Vien H Long	J[134]	0	0.08	0	0.01	-0.01	-0.01
133	Vien H Long	I[117]	-0.01	0.08	0	0.01	-0.01	0.11
133	Vien H Long	J[135]	-0.01	0.08	0	0.01	-0.01	-0.01
134	Vien H Long	I[118]	-0.02	0.09	0	0	-0.01	0.12
134	Vien H Long	J[136]	-0.02	0.09	0	0	-0.01	-0.01
135	Vien H Long	I[119]	-0.03	0.09	0	0	-0.01	0.12
135	Vien H Long	J[137]	-0.03	0.09	0	0	-0.01	-0.01
136	Vien H Long	I[120]	-0.03	0.09	0	0	-0.02	0.12
136	Vien H Long	J[138]	-0.03	0.09	0	0	-0.02	-0.01
137	Vien H Long	I[121]	-0.01	0.09	0	0	-0.03	0.12
137	Vien H Long	J[139]	-0.01	0.09	0	0	-0.03	-0.01
138	Vien H Long	I[122]	0.03	0.09	0	0	-0.04	0.12
138	Vien H Long	J[140]	0.03	0.09	0	0	-0.04	-0.01
139	Vien H Long	I[123]	-3.04	-0.22	0.06	-0.06	-0.57	0.1
139	Vien H Long	J[141]	-3.04	-0.22	0.06	-0.06	-0.66	0.43
140	Vien H Long	I[124]	-0.42	0.07	0.01	0	-0.07	-0.02
140	Vien H Long	J[142]	-0.42	0.07	0.01	0	-0.08	-0.12
141	Vien H Long	I[125]	1.59	-0.21	-0.04	-0.02	0.36	0.04
141	Vien H Long	J[143]	1.59	-0.21	-0.04	-0.02	0.43	0.36
142	Vien H Long	I[126]	0.88	-0.18	-0.01	-0.01	0.16	0.02
142	Vien H Long	J[144]	0.88	-0.18	-0.01	-0.01	0.17	0.29
143	Vien H Long	I[127]	0.44	-0.12	0	0	0.11	0.01
143	Vien H Long	J[145]	0.44	-0.12	0	0	0.12	0.19
144	Vien H Long	I[128]	0.25	-0.07	0	0.01	0.07	0.01
144	Vien H Long	J[146]	0.25	-0.07	0	0.01	0.08	0.12
145	Vien H Long	I[129]	0.16	-0.03	0	0.01	0.04	0
145	Vien H Long	J[147]	0.16	-0.03	0	0.01	0.05	0.05
146	Vien H Long	I[130]	0.1	0	0	0.01	0.02	0
146	Vien H Long	J[148]	0.1	0	0	0.01	0.02	0
147	Vien H Long	I[131]	0.06	0.03	0	0.01	0.01	-0.01
147	Vien H Long	J[149]	0.06	0.03	0	0.01	0.01	-0.05
148	Vien H Long	I[132]	0.03	0.05	0	0.01	0	-0.01
148	Vien H Long	J[150]	0.03	0.05	0	0.01	0	-0.08
149	Vien H Long	I[133]	0.01	0.06	0	0.01	-0.01	-0.01
149	Vien H Long	J[151]	0.01	0.06	0	0.01	0	-0.11
150	Vien H Long	I[134]	0	0.08	0	0.01	-0.01	-0.01
150	Vien H Long	J[152]	0	0.08	0	0.01	-0.01	-0.12
151	Vien H Long	I[135]	-0.01	0.08	0	0.01	-0.01	-0.01
151	Vien H Long	J[153]	-0.01	0.08	0	0.01	-0.01	-0.14

152	Vien H Long	I[136]	-0.02	0.09	0	0	-0.01	-0.01
152	Vien H Long	J[154]	-0.02	0.09	0	0	-0.01	-0.14
153	Vien H Long	I[137]	-0.03	0.09	0	0	-0.01	-0.01
153	Vien H Long	J[155]	-0.03	0.09	0	0	-0.02	-0.15
154	Vien H Long	I[138]	-0.03	0.09	0	0	-0.02	-0.01
154	Vien H Long	J[156]	-0.03	0.09	0	0	-0.02	-0.15
155	Vien H Long	I[139]	-0.01	0.09	0	0	-0.03	-0.01
155	Vien H Long	J[157]	-0.01	0.09	0	0	-0.03	-0.15
156	Vien H Long	I[140]	0.03	0.09	0	0	-0.04	-0.01
156	Vien H Long	J[158]	0.03	0.09	0	0	-0.03	-0.14
157	Vien H Long	I[141]	-3.04	0.22	-0.06	0.06	-0.66	0.43
157	Vien H Long	J[159]	-3.04	0.22	-0.06	0.06	-0.57	0.1
158	Vien H Long	I[142]	-0.42	-0.07	-0.01	0	-0.08	-0.13
158	Vien H Long	J[160]	-0.42	-0.07	-0.01	0	-0.07	-0.02
159	Vien H Long	I[143]	1.59	0.21	0.04	0.02	0.43	0.36
159	Vien H Long	J[161]	1.59	0.21	0.04	0.02	0.36	0.04
160	Vien H Long	I[144]	0.88	0.18	0.01	0.01	0.17	0.29
160	Vien H Long	J[162]	0.88	0.18	0.01	0.01	0.16	0.02
161	Vien H Long	I[145]	0.44	0.12	0	0	0.12	0.19
161	Vien H Long	J[163]	0.44	0.12	0	0	0.11	0.01
162	Vien H Long	I[146]	0.25	0.07	0	-0.01	0.08	0.11
162	Vien H Long	J[164]	0.25	0.07	0	-0.01	0.07	0.01
163	Vien H Long	I[147]	0.16	0.03	0	-0.01	0.05	0.05
163	Vien H Long	J[165]	0.16	0.03	0	-0.01	0.04	0
164	Vien H Long	I[148]	0.1	0	0	-0.01	0.02	-0.01
164	Vien H Long	J[166]	0.1	0	0	-0.01	0.02	0
165	Vien H Long	I[149]	0.06	-0.03	0	-0.01	0.01	-0.05
165	Vien H Long	J[167]	0.06	-0.03	0	-0.01	0.01	-0.01
166	Vien H Long	I[150]	0.03	-0.05	0	-0.01	0	-0.09
166	Vien H Long	J[168]	0.03	-0.05	0	-0.01	0	-0.01
167	Vien H Long	I[151]	0.01	-0.07	0	-0.01	0	-0.11
167	Vien H Long	J[169]	0.01	-0.07	0	-0.01	-0.01	-0.01
168	Vien H Long	I[152]	0	-0.08	0	-0.01	-0.01	-0.13
168	Vien H Long	J[170]	0	-0.08	0	-0.01	-0.01	-0.01
169	Vien H Long	I[153]	-0.01	-0.09	0	-0.01	-0.01	-0.14
169	Vien H Long	J[171]	-0.01	-0.09	0	-0.01	-0.01	-0.01
170	Vien H Long	I[154]	-0.02	-0.09	0	0	-0.01	-0.15
170	Vien H Long	J[172]	-0.02	-0.09	0	0	-0.01	-0.01
171	Vien H Long	I[155]	-0.03	-0.09	0	0	-0.02	-0.15
171	Vien H Long	J[173]	-0.03	-0.09	0	0	-0.01	-0.01
172	Vien H Long	I[156]	-0.03	-0.09	0	0	-0.02	-0.15
172	Vien H Long	J[174]	-0.03	-0.09	0	0	-0.02	-0.01
173	Vien H Long	I[157]	-0.01	-0.09	0	0	-0.03	-0.15
173	Vien H Long	J[175]	-0.01	-0.09	0	0	-0.03	-0.01
174	Vien H Long	I[158]	0.03	-0.09	0	0	-0.03	-0.15
174	Vien H Long	J[176]	0.03	-0.09	0	0	-0.04	-0.01
175	Vien H Long	I[159]	-3.04	0.22	-0.06	0.06	-0.57	0.1
175	Vien H Long	J[177]	-3.04	0.22	-0.06	0.06	-0.49	-0.24
176	Vien H Long	I[160]	-0.42	-0.07	-0.01	0	-0.07	-0.02
176	Vien H Long	J[178]	-0.42	-0.07	-0.01	0	-0.05	0.08
177	Vien H Long	I[161]	1.59	0.21	0.04	0.02	0.36	0.04
177	Vien H Long	J[179]	1.59	0.21	0.04	0.02	0.3	-0.28
178	Vien H Long	I[162]	0.88	0.18	0.01	0.01	0.16	0.02
178	Vien H Long	J[180]	0.88	0.18	0.01	0.01	0.15	-0.24
179	Vien H Long	I[163]	0.44	0.12	0	0	0.11	0.01
179	Vien H Long	J[181]	0.44	0.12	0	0	0.1	-0.16
180	Vien H Long	I[164]	0.25	0.07	0	-0.01	0.07	0.01
180	Vien H Long	J[182]	0.25	0.07	0	-0.01	0.07	-0.1
181	Vien H Long	I[165]	0.16	0.03	0	-0.01	0.04	0
181	Vien H Long	J[183]	0.16	0.03	0	-0.01	0.04	-0.04
182	Vien H Long	I[166]	0.1	0	0	-0.01	0.02	0

182	Vien H Long	J[184]	0.1	0	0	-0.01	0.02	0
183	Vien H Long	I[167]	0.06	-0.03	0	-0.01	0.01	-0.01
183	Vien H Long	J[185]	0.06	-0.03	0	-0.01	0	0.04
184	Vien H Long	I[168]	0.03	-0.05	0	-0.01	0	-0.01
184	Vien H Long	J[186]	0.03	-0.05	0	-0.01	0	0.07
185	Vien H Long	I[169]	0.01	-0.07	0	-0.01	-0.01	-0.01
185	Vien H Long	J[187]	0.01	-0.07	0	-0.01	-0.01	0.09
186	Vien H Long	I[170]	0	-0.08	0	-0.01	-0.01	-0.01
186	Vien H Long	J[188]	0	-0.08	0	-0.01	-0.01	0.11
187	Vien H Long	I[171]	-0.01	-0.09	0	-0.01	-0.01	-0.01
187	Vien H Long	J[189]	-0.01	-0.09	0	-0.01	-0.01	0.12
188	Vien H Long	I[172]	-0.02	-0.09	0	0	-0.01	-0.01
188	Vien H Long	J[190]	-0.02	-0.09	0	0	-0.01	0.12
189	Vien H Long	I[173]	-0.03	-0.09	0	0	-0.01	-0.01
189	Vien H Long	J[191]	-0.03	-0.09	0	0	-0.01	0.13
190	Vien H Long	I[174]	-0.03	-0.09	0	0	-0.02	-0.01
190	Vien H Long	J[192]	-0.03	-0.09	0	0	-0.02	0.13
191	Vien H Long	I[175]	-0.01	-0.09	0	0	-0.03	-0.01
191	Vien H Long	J[193]	-0.01	-0.09	0	0	-0.03	0.13
192	Vien H Long	I[176]	0.03	-0.09	0	0	-0.04	-0.01
192	Vien H Long	J[194]	0.03	-0.09	0	0	-0.04	0.13
193	Vien H Long	I[177]	-2.32	1	-0.23	0.19	-0.79	2
193	Vien H Long	J[195]	-2.32	1	-0.23	0.19	-0.45	0.51
194	Vien H Long	I[178]	-0.23	-0.22	-0.03	0	-0.13	-0.43
194	Vien H Long	J[196]	-0.23	-0.22	-0.03	0	-0.08	-0.1
195	Vien H Long	I[179]	1.28	0.87	0.17	0.11	0.45	1.72
195	Vien H Long	J[197]	1.28	0.87	0.17	0.11	0.2	0.42
196	Vien H Long	I[180]	0.74	0.59	0.02	0.04	0.2	1.16
196	Vien H Long	J[198]	0.74	0.59	0.02	0.04	0.17	0.27
197	Vien H Long	I[181]	0.32	0.35	0.02	0	0.15	0.68
197	Vien H Long	J[199]	0.32	0.35	0.02	0	0.12	0.16
198	Vien H Long	I[182]	0.16	0.16	0.02	-0.02	0.1	0.31
198	Vien H Long	J[200]	0.16	0.16	0.02	-0.02	0.08	0.07
199	Vien H Long	I[183]	0.09	0.02	0.01	-0.03	0.06	0.03
199	Vien H Long	J[201]	0.09	0.02	0.01	-0.03	0.05	0
200	Vien H Long	I[184]	0.05	-0.09	0.01	-0.03	0.04	-0.18
200	Vien H Long	J[202]	0.05	-0.09	0.01	-0.03	0.02	-0.05
201	Vien H Long	I[185]	0.02	-0.17	0.01	-0.03	0.02	-0.34
201	Vien H Long	J[203]	0.02	-0.17	0.01	-0.03	0.01	-0.08
202	Vien H Long	I[186]	0.01	-0.23	0	-0.03	0.01	-0.45
202	Vien H Long	J[204]	0.01	-0.23	0	-0.03	0	-0.11
203	Vien H Long	I[187]	0	-0.26	0	-0.03	0	-0.52
203	Vien H Long	J[205]	0	-0.26	0	-0.03	0	-0.13
204	Vien H Long	I[188]	-0.01	-0.29	0	-0.03	-0.01	-0.57
204	Vien H Long	J[206]	-0.01	-0.29	0	-0.03	-0.01	-0.14
205	Vien H Long	I[189]	-0.02	-0.3	0	-0.03	-0.01	-0.59
205	Vien H Long	J[207]	-0.02	-0.3	0	-0.03	-0.01	-0.14
206	Vien H Long	I[190]	-0.02	-0.3	0	-0.02	-0.01	-0.6
206	Vien H Long	J[208]	-0.02	-0.3	0	-0.02	-0.01	-0.14
207	Vien H Long	I[191]	-0.02	-0.3	0	-0.02	-0.02	-0.59
207	Vien H Long	J[209]	-0.02	-0.3	0	-0.02	-0.01	-0.14
208	Vien H Long	I[192]	-0.03	-0.29	0	-0.02	-0.02	-0.58
208	Vien H Long	J[210]	-0.03	-0.29	0	-0.02	-0.02	-0.14
209	Vien H Long	I[193]	-0.01	-0.28	0	-0.02	-0.03	-0.56
209	Vien H Long	J[211]	-0.01	-0.28	0	-0.02	-0.02	-0.13
210	Vien H Long	I[194]	0	-0.27	0	-0.01	-0.03	-0.53
210	Vien H Long	J[212]	0	-0.27	0	-0.01	-0.03	-0.13
211	Vien H Long	I[195]	-2.32	1	-0.23	0.11	-0.27	0.51
211	Vien H Long	J[213]	-2.32	1	-0.23	0.11	0.08	-0.99
212	Vien H Long	I[196]	-0.23	-0.22	-0.03	0.02	-0.06	-0.1
212	Vien H Long	J[214]	-0.23	-0.22	-0.03	0.02	-0.02	0.23

213	Vien H Long	I[197]	1.28	0.87	0.17	0.04	0.1	0.42
213	Vien H Long	J[215]	1.28	0.87	0.17	0.04	-0.16	-0.89
214	Vien H Long	I[198]	0.74	0.59	0.02	-0.01	0.11	0.27
214	Vien H Long	J[216]	0.74	0.59	0.02	-0.01	0.07	-0.61
215	Vien H Long	I[199]	0.32	0.35	0.02	-0.03	0.1	0.16
215	Vien H Long	J[217]	0.32	0.35	0.02	-0.03	0.07	-0.36
216	Vien H Long	I[200]	0.16	0.16	0.02	-0.03	0.06	0.07
216	Vien H Long	J[218]	0.16	0.16	0.02	-0.03	0.04	-0.17
217	Vien H Long	I[201]	0.09	0.02	0.01	-0.03	0.04	0
217	Vien H Long	J[219]	0.09	0.02	0.01	-0.03	0.02	-0.02
218	Vien H Long	I[202]	0.05	-0.09	0.01	-0.03	0.02	-0.05
218	Vien H Long	J[220]	0.05	-0.09	0.01	-0.03	0.01	0.09
219	Vien H Long	I[203]	0.02	-0.17	0.01	-0.02	0.01	-0.08
219	Vien H Long	J[221]	0.02	-0.17	0.01	-0.02	0	0.17
220	Vien H Long	I[204]	0.01	-0.23	0	-0.01	0	-0.11
220	Vien H Long	J[222]	0.01	-0.23	0	-0.01	0	0.23
221	Vien H Long	I[205]	0	-0.26	0	-0.01	0	-0.13
221	Vien H Long	J[223]	0	-0.26	0	-0.01	-0.01	0.27
222	Vien H Long	I[206]	-0.01	-0.29	0	-0.01	-0.01	-0.14
222	Vien H Long	J[224]	-0.01	-0.29	0	-0.01	-0.01	0.3
223	Vien H Long	I[207]	-0.02	-0.3	0	0	-0.01	-0.14
223	Vien H Long	J[225]	-0.02	-0.3	0	0	-0.01	0.31
224	Vien H Long	I[208]	-0.02	-0.3	0	0	-0.01	-0.14
224	Vien H Long	J[226]	-0.02	-0.3	0	0	-0.01	0.31
225	Vien H Long	I[209]	-0.02	-0.3	0	0	-0.01	-0.14
225	Vien H Long	J[227]	-0.02	-0.3	0	0	-0.01	0.31
226	Vien H Long	I[210]	-0.03	-0.29	0	0	-0.02	-0.14
226	Vien H Long	J[228]	-0.03	-0.29	0	0	-0.01	0.3
227	Vien H Long	I[211]	-0.01	-0.28	0	0.01	-0.02	-0.13
227	Vien H Long	J[229]	-0.01	-0.28	0	0.01	-0.02	0.29
228	Vien H Long	I[212]	0	-0.27	0	0.01	-0.03	-0.13
228	Vien H Long	J[230]	0	-0.27	0	0.01	-0.03	0.28
229	Vien H Long	I[213]	-0.96	4.64	-0.62	-0.64	-0.6	3.61
229	Vien H Long	J[353]	-0.96	4.64	-0.62	-0.64	0.02	-1.03
230	Vien H Long	I[214]	-0.08	-0.24	-0.04	0.01	-0.09	-0.19
230	Vien H Long	J[370]	-0.08	-0.24	-0.04	0.01	-0.05	0.05
231	Vien H Long	I[215]	0.53	3.14	0.48	-0.11	0.23	2.39
231	Vien H Long	J[354]	0.53	3.14	0.48	-0.11	-0.24	-0.75
232	Vien H Long	I[216]	0.34	1.14	0.1	-0.04	0.26	0.86
232	Vien H Long	J[355]	0.34	1.14	0.1	-0.04	0.15	-0.28
233	Vien H Long	I[217]	0.12	0.12	0.06	0.01	0.16	0.08
233	Vien H Long	J[356]	0.12	0.12	0.06	0.01	0.09	-0.03
234	Vien H Long	I[218]	0.06	-0.42	0.03	0.04	0.09	-0.33
234	Vien H Long	J[357]	0.06	-0.42	0.03	0.04	0.05	0.1
235	Vien H Long	I[219]	0.03	-0.69	0.02	0.05	0.05	-0.53
235	Vien H Long	J[358]	0.03	-0.69	0.02	0.05	0.03	0.16
236	Vien H Long	I[220]	0.01	-0.82	0.01	0.05	0.02	-0.62
236	Vien H Long	J[359]	0.01	-0.82	0.01	0.05	0.02	0.2
237	Vien H Long	I[221]	0	-0.86	0	0.05	0.01	-0.66
237	Vien H Long	J[360]	0	-0.86	0	0.05	0.01	0.21
238	Vien H Long	I[222]	0	-0.86	0	0.04	0	-0.66
238	Vien H Long	J[361]	0	-0.86	0	0.04	0	0.21
239	Vien H Long	I[223]	-0.01	-0.84	0	0.04	-0.01	-0.64
239	Vien H Long	J[362]	-0.01	-0.84	0	0.04	0	0.2
240	Vien H Long	I[224]	-0.01	-0.8	0	0.03	-0.01	-0.6
240	Vien H Long	J[363]	-0.01	-0.8	0	0.03	0	0.19
241	Vien H Long	I[225]	-0.01	-0.75	-0.01	0.03	-0.01	-0.57
241	Vien H Long	J[364]	-0.01	-0.75	-0.01	0.03	-0.01	0.18
242	Vien H Long	I[226]	-0.01	-0.69	-0.01	0.03	-0.01	-0.52
242	Vien H Long	J[365]	-0.01	-0.69	-0.01	0.03	-0.01	0.17
243	Vien H Long	I[227]	-0.01	-0.63	-0.01	0.02	-0.02	-0.48

243	Vien H Long	J[366]	-0.01	-0.63	-0.01	0.02	-0.01	0.15
244	Vien H Long	I[228]	-0.01	-0.56	-0.01	0.02	-0.02	-0.43
244	Vien H Long	J[367]	-0.01	-0.56	-0.01	0.02	-0.01	0.14
245	Vien H Long	I[229]	-0.01	-0.49	-0.01	0.02	-0.02	-0.37
245	Vien H Long	J[368]	-0.01	-0.49	-0.01	0.02	-0.01	0.12
246	Vien H Long	I[230]	0.01	-0.4	0	0.01	-0.03	-0.3
246	Vien H Long	J[369]	0.01	-0.4	0	0.01	-0.03	0.1
247	Vien H Long	I[1]	15.65	0.96	-0.78	-0.68	-10.02	3.2
247	Vien H Long	J[231]	15.04	0.96	-0.78	-0.68	-8.31	1.09
248	Vien H Long	I[19]	15.61	-0.95	-0.77	0.68	-10	-3.19
248	Vien H Long	J[232]	15.01	-0.95	-0.77	0.68	-8.29	-1.09
249	Vien H Long	I[231]	15.04	0.96	-0.78	-0.68	-8.31	1.09
249	Vien H Long	J[37]	14.43	0.96	-0.78	-0.68	-6.6	-1.02
250	Vien H Long	I[232]	15.01	-0.95	-0.77	0.68	-8.29	-1.09
250	Vien H Long	J[53]	14.4	-0.95	-0.77	0.68	-6.58	1.02
251	Vien H Long	I[37]	11.29	0.43	-0.37	0.02	-5.21	1.31
251	Vien H Long	J[233]	10.68	0.43	-0.37	0.02	-4.38	0.37
252	Vien H Long	I[53]	11.26	-0.43	-0.37	-0.02	-5.19	-1.3
252	Vien H Long	J[234]	10.65	-0.43	-0.37	-0.02	-4.38	-0.36
253	Vien H Long	I[233]	10.68	0.43	-0.37	0.02	-4.38	0.37
253	Vien H Long	J[38]	10.07	0.43	-0.37	0.02	-3.56	-0.57
254	Vien H Long	I[234]	10.65	-0.43	-0.37	-0.02	-4.38	-0.36
254	Vien H Long	J[54]	10.05	-0.43	-0.37	-0.02	-3.56	0.57
255	Vien H Long	I[38]	8.93	0.09	-0.3	0.06	-3.06	0.29
255	Vien H Long	J[235]	8.32	0.09	-0.3	0.06	-2.39	0.09
256	Vien H Long	I[54]	8.9	-0.09	-0.3	-0.06	-3.05	-0.28
256	Vien H Long	J[236]	8.3	-0.09	-0.3	-0.06	-2.39	-0.08
257	Vien H Long	I[235]	8.32	0.09	-0.3	0.06	-2.39	0.09
257	Vien H Long	J[39]	7.71	0.09	-0.3	0.06	-1.72	-0.11
258	Vien H Long	I[236]	8.3	-0.09	-0.3	-0.06	-2.39	-0.08
258	Vien H Long	J[55]	7.69	-0.09	-0.3	-0.06	-1.72	0.11
259	Vien H Long	I[39]	7.59	-0.03	-0.25	0.05	-1.69	-0.02
259	Vien H Long	J[237]	6.99	-0.03	-0.25	0.05	-1.15	0.05
260	Vien H Long	I[55]	7.57	0.03	-0.25	-0.05	-1.69	0.02
260	Vien H Long	J[238]	6.97	0.03	-0.25	-0.05	-1.14	-0.05
261	Vien H Long	I[237]	6.99	-0.03	-0.25	0.05	-1.15	0.05
261	Vien H Long	J[40]	6.38	-0.03	-0.25	0.05	-0.6	0.12
262	Vien H Long	I[238]	6.97	0.03	-0.25	-0.05	-1.14	-0.05
262	Vien H Long	J[56]	6.36	0.03	-0.25	-0.05	-0.6	-0.12
263	Vien H Long	I[40]	6.8	-0.1	-0.21	0.04	-0.81	-0.19
263	Vien H Long	J[239]	6.2	-0.1	-0.21	0.04	-0.35	0.03
264	Vien H Long	I[56]	6.78	0.1	-0.21	-0.03	-0.81	0.19
264	Vien H Long	J[240]	6.18	0.1	-0.21	-0.03	-0.35	-0.03
265	Vien H Long	I[239]	6.2	-0.1	-0.21	0.04	-0.35	0.03
265	Vien H Long	J[41]	5.59	-0.1	-0.21	0.04	0.11	0.24
266	Vien H Long	I[240]	6.18	0.1	-0.21	-0.03	-0.35	-0.03
266	Vien H Long	J[57]	5.57	0.1	-0.21	-0.03	0.11	-0.24
267	Vien H Long	I[41]	6.28	-0.13	-0.18	0.03	-0.22	-0.27
267	Vien H Long	J[241]	5.67	-0.13	-0.18	0.03	0.17	0.01
268	Vien H Long	I[57]	6.26	0.13	-0.18	-0.02	-0.22	0.27
268	Vien H Long	J[242]	5.66	0.13	-0.18	-0.02	0.17	-0.01
269	Vien H Long	I[241]	5.67	-0.13	-0.18	0.03	0.17	0.01
269	Vien H Long	J[42]	5.07	-0.13	-0.18	0.03	0.57	0.29
270	Vien H Long	I[242]	5.66	0.13	-0.18	-0.02	0.17	-0.01
270	Vien H Long	J[58]	5.05	0.13	-0.18	-0.02	0.57	-0.29
271	Vien H Long	I[42]	5.89	-0.14	-0.16	0.02	0.19	-0.31
271	Vien H Long	J[243]	5.28	-0.14	-0.16	0.02	0.53	0
272	Vien H Long	I[58]	5.87	0.14	-0.16	-0.01	0.19	0.31
272	Vien H Long	J[244]	5.26	0.14	-0.16	-0.01	0.53	0
273	Vien H Long	I[243]	5.28	-0.14	-0.16	0.02	0.53	0
273	Vien H Long	J[43]	4.67	-0.14	-0.16	0.02	0.87	0.32

274	Vien H Long	I[244]	5.26	0.14	-0.16	-0.01	0.53	0
274	Vien H Long	J[59]	4.66	0.14	-0.16	-0.01	0.87	-0.32
275	Vien H Long	I[43]	5.54	-0.15	-0.13	0.01	0.47	-0.32
275	Vien H Long	J[245]	4.93	-0.15	-0.13	0.01	0.77	0
276	Vien H Long	I[59]	5.52	0.15	-0.13	-0.01	0.47	0.32
276	Vien H Long	J[246]	4.92	0.15	-0.13	-0.01	0.77	0
277	Vien H Long	I[245]	4.93	-0.15	-0.13	0.01	0.77	0
277	Vien H Long	J[44]	4.32	-0.15	-0.13	0.01	1.07	0.32
278	Vien H Long	I[246]	4.92	0.15	-0.13	-0.01	0.77	0
278	Vien H Long	J[60]	4.31	0.15	-0.13	-0.01	1.07	-0.32
279	Vien H Long	I[44]	5.19	-0.14	-0.12	0.01	0.67	-0.32
279	Vien H Long	J[247]	4.58	-0.14	-0.12	0.01	0.93	0
280	Vien H Long	I[60]	5.17	0.14	-0.12	-0.01	0.67	0.32
280	Vien H Long	J[248]	4.57	0.14	-0.12	-0.01	0.93	0
281	Vien H Long	I[247]	4.58	-0.14	-0.12	0.01	0.93	0
281	Vien H Long	J[45]	3.97	-0.14	-0.12	0.01	1.18	0.31
282	Vien H Long	I[248]	4.57	0.14	-0.12	-0.01	0.93	0
282	Vien H Long	J[61]	3.96	0.14	-0.12	-0.01	1.18	-0.31
283	Vien H Long	I[45]	4.81	-0.14	-0.1	0	0.8	-0.31
283	Vien H Long	J[249]	4.2	-0.14	-0.1	0	1.02	-0.01
284	Vien H Long	I[61]	4.8	0.14	-0.1	0	0.8	0.31
284	Vien H Long	J[250]	4.19	0.14	-0.1	0	1.02	0.01
285	Vien H Long	I[249]	4.2	-0.14	-0.1	0	1.02	-0.01
285	Vien H Long	J[46]	3.6	-0.14	-0.1	0	1.24	0.3
286	Vien H Long	I[250]	4.19	0.14	-0.1	0	1.02	0.01
286	Vien H Long	J[62]	3.58	0.14	-0.1	0	1.23	-0.3
287	Vien H Long	I[46]	4.39	-0.13	-0.08	0	0.88	-0.29
287	Vien H Long	J[251]	3.79	-0.13	-0.08	0	1.06	-0.01
288	Vien H Long	I[62]	4.38	0.13	-0.08	0	0.87	0.29
288	Vien H Long	J[252]	3.78	0.13	-0.08	0	1.05	0.01
289	Vien H Long	I[251]	3.79	-0.13	-0.08	0	1.06	-0.01
289	Vien H Long	J[47]	3.18	-0.13	-0.08	0	1.24	0.28
290	Vien H Long	I[252]	3.78	0.13	-0.08	0	1.05	0.01
290	Vien H Long	J[63]	3.17	0.13	-0.08	0	1.23	-0.28
291	Vien H Long	I[47]	3.93	-0.12	-0.06	0	0.9	-0.27
291	Vien H Long	J[253]	3.32	-0.12	-0.06	0	1.04	-0.01
292	Vien H Long	I[63]	3.92	0.12	-0.06	0	0.9	0.27
292	Vien H Long	J[254]	3.31	0.12	-0.06	0	1.04	0.01
293	Vien H Long	I[253]	3.32	-0.12	-0.06	0	1.04	-0.01
293	Vien H Long	J[48]	2.71	-0.12	-0.06	0	1.19	0.26
294	Vien H Long	I[254]	3.31	0.12	-0.06	0	1.04	0.01
294	Vien H Long	J[64]	2.7	0.12	-0.06	0	1.18	-0.26
295	Vien H Long	I[48]	3.4	-0.11	-0.05	0	0.88	-0.25
295	Vien H Long	J[255]	2.8	-0.11	-0.05	0	0.98	-0.01
296	Vien H Long	I[64]	3.39	0.11	-0.05	0	0.88	0.25
296	Vien H Long	J[256]	2.79	0.11	-0.05	0	0.98	0.01
297	Vien H Long	I[255]	2.8	-0.11	-0.05	0	0.98	-0.01
297	Vien H Long	J[49]	2.19	-0.11	-0.05	0	1.09	0.24
298	Vien H Long	I[256]	2.79	0.11	-0.05	0	0.98	0.01
298	Vien H Long	J[65]	2.18	0.11	-0.05	0	1.09	-0.24
299	Vien H Long	I[49]	2.82	-0.1	-0.03	0	0.81	-0.23
299	Vien H Long	J[257]	2.21	-0.1	-0.03	0	0.88	-0.01
300	Vien H Long	I[65]	2.81	0.1	-0.03	0	0.81	0.23
300	Vien H Long	J[258]	2.2	0.1	-0.03	0	0.88	0.01
301	Vien H Long	I[257]	2.21	-0.1	-0.03	0	0.88	-0.01
301	Vien H Long	J[50]	1.6	-0.1	-0.03	0	0.95	0.21
302	Vien H Long	I[258]	2.2	0.1	-0.03	0	0.88	0.01
302	Vien H Long	J[66]	1.6	0.1	-0.03	0	0.95	-0.21
303	Vien H Long	I[50]	2.16	-0.09	-0.02	0.01	0.7	-0.2
303	Vien H Long	J[259]	1.56	-0.09	-0.02	0.01	0.74	-0.01
304	Vien H Long	I[66]	2.16	0.09	-0.02	-0.01	0.7	0.2

304	Vien H Long	J[260]	1.55	0.09	-0.02	-0.01	0.74	0.01
305	Vien H Long	I[259]	1.56	-0.09	-0.02	0.01	0.74	-0.01
305	Vien H Long	J[51]	0.95	-0.09	-0.02	0.01	0.77	0.19
306	Vien H Long	I[260]	1.55	0.09	-0.02	-0.01	0.74	0.01
306	Vien H Long	J[67]	0.95	0.09	-0.02	-0.01	0.77	-0.19
307	Vien H Long	I[51]	1.44	-0.08	0	0.01	0.56	-0.18
307	Vien H Long	J[261]	0.83	-0.08	0	0.01	0.56	0
308	Vien H Long	I[67]	1.44	0.08	0	-0.01	0.56	0.18
308	Vien H Long	J[262]	0.83	0.08	0	-0.01	0.56	0
309	Vien H Long	I[261]	0.83	-0.08	0	0.01	0.56	0
309	Vien H Long	J[52]	0.23	-0.08	0	0.01	0.56	0.17
310	Vien H Long	I[262]	0.83	0.08	0	-0.01	0.56	0
310	Vien H Long	J[68]	0.22	0.08	0	-0.01	0.56	-0.17
311	Vien H Long	I[52]	0.62	-0.08	0.01	0.04	0.39	-0.13
311	Vien H Long	J[263]	0.02	-0.08	0.01	0.04	0.36	0.06
312	Vien H Long	I[68]	0.62	0.08	0.01	-0.04	0.39	0.13
312	Vien H Long	J[264]	0.02	0.08	0.01	-0.04	0.36	-0.06
313	Vien H Long	I[263]	0.02	-0.08	0.01	0.04	0.36	0.06
313	Vien H Long	J[18]	-0.59	-0.08	0.01	0.04	0.34	0.25
314	Vien H Long	I[264]	0.02	0.08	0.01	-0.04	0.36	-0.06
314	Vien H Long	J[36]	-0.59	0.08	0.01	-0.04	0.34	-0.25
315	Vien H Long	I[1]	0	0	0	0	0	0
315	Vien H Long	J[265]	0	0	0	0	0	0
316	Vien H Long	I[18]	0	0	0	0	0	0
316	Vien H Long	J[266]	0	0	0	0	0	0
317	Vien H Long	I[37]	0	0	0	0	0	0
317	Vien H Long	J[267]	0	0	0	0	0	0
318	Vien H Long	I[38]	0	0	0	0	0	0
318	Vien H Long	J[268]	0	0	0	0	0	0
319	Vien H Long	I[39]	0	0	0	0	0	0
319	Vien H Long	J[269]	0	0	0	0	0	0
320	Vien H Long	I[40]	0	0	0	0	0	0
320	Vien H Long	J[270]	0	0	0	0	0	0
321	Vien H Long	I[41]	0	0	0	0	0	0
321	Vien H Long	J[271]	0	0	0	0	0	0
322	Vien H Long	I[42]	0	0	0	0	0	0
322	Vien H Long	J[272]	0	0	0	0	0	0
323	Vien H Long	I[43]	0	0	0	0	0	0
323	Vien H Long	J[273]	0	0	0	0	0	0
324	Vien H Long	I[44]	0	0	0	0	0	0
324	Vien H Long	J[274]	0	0	0	0	0	0
325	Vien H Long	I[45]	0	0	0	0	0	0
325	Vien H Long	J[275]	0	0	0	0	0	0
326	Vien H Long	I[46]	0	0	0	0	0	0
326	Vien H Long	J[276]	0	0	0	0	0	0
327	Vien H Long	I[47]	0	0	0	0	0	0
327	Vien H Long	J[277]	0	0	0	0	0	0
328	Vien H Long	I[48]	0	0	0	0	0	0
328	Vien H Long	J[278]	0	0	0	0	0	0
329	Vien H Long	I[49]	0	0	0	0	0	0
329	Vien H Long	J[279]	0	0	0	0	0	0
330	Vien H Long	I[50]	0	0	0	0	0	0
330	Vien H Long	J[280]	0	0	0	0	0	0
331	Vien H Long	I[51]	0	0	0	0	0	0
331	Vien H Long	J[281]	0	0	0	0	0	0
332	Vien H Long	I[52]	0	0	0	0	0	0
332	Vien H Long	J[282]	0	0	0	0	0	0
333	Vien H Long	I[231]	0	0	0	0	0	0
333	Vien H Long	J[283]	0	0	0	0	0	0
334	Vien H Long	I[233]	0	0	0	0	0	0
334	Vien H Long	J[284]	0	0	0	0	0	0

335	Vien H Long	I[235]	0	0	0	0	0	0
335	Vien H Long	J[285]	0	0	0	0	0	0
336	Vien H Long	I[237]	0	0	0	0	0	0
336	Vien H Long	J[286]	0	0	0	0	0	0
337	Vien H Long	I[239]	0	0	0	0	0	0
337	Vien H Long	J[287]	0	0	0	0	0	0
338	Vien H Long	I[241]	0	0	0	0	0	0
338	Vien H Long	J[288]	0	0	0	0	0	0
339	Vien H Long	I[243]	0	0	0	0	0	0
339	Vien H Long	J[289]	0	0	0	0	0	0
340	Vien H Long	I[245]	0	0	0	0	0	0
340	Vien H Long	J[290]	0	0	0	0	0	0
341	Vien H Long	I[247]	0	0	0	0	0	0
341	Vien H Long	J[291]	0	0	0	0	0	0
342	Vien H Long	I[249]	0	0	0	0	0	0
342	Vien H Long	J[292]	0	0	0	0	0	0
343	Vien H Long	I[251]	0	0	0	0	0	0
343	Vien H Long	J[293]	0	0	0	0	0	0
344	Vien H Long	I[253]	0	0	0	0	0	0
344	Vien H Long	J[294]	0	0	0	0	0	0
345	Vien H Long	I[255]	0	0	0	0	0	0
345	Vien H Long	J[295]	0	0	0	0	0	0
346	Vien H Long	I[257]	0	0	0	0	0	0
346	Vien H Long	J[296]	0	0	0	0	0	0
347	Vien H Long	I[259]	0	0	0	0	0	0
347	Vien H Long	J[297]	0	0	0	0	0	0
348	Vien H Long	I[261]	0	0	0	0	0	0
348	Vien H Long	J[298]	0	0	0	0	0	0
349	Vien H Long	I[263]	0	0	0	0	0	0
349	Vien H Long	J[299]	0	0	0	0	0	0
350	Vien H Long	I[19]	0	0	0	0	0	0
350	Vien H Long	J[300]	0	0	0	0	0	0
351	Vien H Long	I[36]	0	0	0	0	0	0
351	Vien H Long	J[301]	0	0	0	0	0	0
352	Vien H Long	I[53]	0	0	0	0	0	0
352	Vien H Long	J[302]	0	0	0	0	0	0
353	Vien H Long	I[54]	0	0	0	0	0	0
353	Vien H Long	J[303]	0	0	0	0	0	0
354	Vien H Long	I[55]	0	0	0	0	0	0
354	Vien H Long	J[304]	0	0	0	0	0	0
355	Vien H Long	I[56]	0	0	0	0	0	0
355	Vien H Long	J[305]	0	0	0	0	0	0
356	Vien H Long	I[57]	0	0	0	0	0	0
356	Vien H Long	J[306]	0	0	0	0	0	0
357	Vien H Long	I[58]	0	0	0	0	0	0
357	Vien H Long	J[307]	0	0	0	0	0	0
358	Vien H Long	I[59]	0	0	0	0	0	0
358	Vien H Long	J[308]	0	0	0	0	0	0
359	Vien H Long	I[60]	0	0	0	0	0	0
359	Vien H Long	J[309]	0	0	0	0	0	0
360	Vien H Long	I[61]	0	0	0	0	0	0
360	Vien H Long	J[310]	0	0	0	0	0	0
361	Vien H Long	I[62]	0	0	0	0	0	0
361	Vien H Long	J[311]	0	0	0	0	0	0
362	Vien H Long	I[63]	0	0	0	0	0	0
362	Vien H Long	J[312]	0	0	0	0	0	0
363	Vien H Long	I[64]	0	0	0	0	0	0
363	Vien H Long	J[313]	0	0	0	0	0	0
364	Vien H Long	I[65]	0	0	0	0	0	0
364	Vien H Long	J[314]	0	0	0	0	0	0
365	Vien H Long	I[66]	0	0	0	0	0	0

365	Vien H Long	J[315]	0	0	0	0	0	0
366	Vien H Long	I[67]	0	0	0	0	0	0
366	Vien H Long	J[316]	0	0	0	0	0	0
367	Vien H Long	I[68]	0	0	0	0	0	0
367	Vien H Long	J[317]	0	0	0	0	0	0
368	Vien H Long	I[232]	0	0	0	0	0	0
368	Vien H Long	J[318]	0	0	0	0	0	0
369	Vien H Long	I[234]	0	0	0	0	0	0
369	Vien H Long	J[319]	0	0	0	0	0	0
370	Vien H Long	I[236]	0	0	0	0	0	0
370	Vien H Long	J[320]	0	0	0	0	0	0
371	Vien H Long	I[238]	0	0	0	0	0	0
371	Vien H Long	J[321]	0	0	0	0	0	0
372	Vien H Long	I[240]	0	0	0	0	0	0
372	Vien H Long	J[322]	0	0	0	0	0	0
373	Vien H Long	I[242]	0	0	0	0	0	0
373	Vien H Long	J[323]	0	0	0	0	0	0
374	Vien H Long	I[244]	0	0	0	0	0	0
374	Vien H Long	J[324]	0	0	0	0	0	0
375	Vien H Long	I[246]	0	0	0	0	0	0
375	Vien H Long	J[325]	0	0	0	0	0	0
376	Vien H Long	I[248]	0	0	0	0	0	0
376	Vien H Long	J[326]	0	0	0	0	0	0
377	Vien H Long	I[250]	0	0	0	0	0	0
377	Vien H Long	J[327]	0	0	0	0	0	0
378	Vien H Long	I[252]	0	0	0	0	0	0
378	Vien H Long	J[328]	0	0	0	0	0	0
379	Vien H Long	I[254]	0	0	0	0	0	0
379	Vien H Long	J[329]	0	0	0	0	0	0
380	Vien H Long	I[256]	0	0	0	0	0	0
380	Vien H Long	J[330]	0	0	0	0	0	0
381	Vien H Long	I[258]	0	0	0	0	0	0
381	Vien H Long	J[331]	0	0	0	0	0	0
382	Vien H Long	I[260]	0	0	0	0	0	0
382	Vien H Long	J[332]	0	0	0	0	0	0
383	Vien H Long	I[262]	0	0	0	0	0	0
383	Vien H Long	J[333]	0	0	0	0	0	0
384	Vien H Long	I[264]	0	0	0	0	0	0
384	Vien H Long	J[334]	0	0	0	0	0	0
385	Vien H Long	I[69]	3.65	1.36	0.39	-0.04	0.96	4.61
385	Vien H Long	J[71]	3.65	1.36	0.39	-0.04	-0.77	-1.41
386	Vien H Long	I[105]	0.78	0.72	0.17	-0.03	0.43	2.24
386	Vien H Long	J[107]	0.78	0.72	0.17	-0.03	-0.33	-0.94
387	Vien H Long	I[141]	0.45	0	0.12	0	0.29	0
387	Vien H Long	J[143]	0.45	0	0.12	0	-0.22	0
388	Vien H Long	I[177]	0.77	-0.72	0.17	0.02	0.43	-2.24
388	Vien H Long	J[179]	0.77	-0.72	0.17	0.02	-0.33	0.94
389	Vien H Long	I[213]	3.65	-1.36	0.39	0.04	0.96	-4.59
389	Vien H Long	J[215]	3.65	-1.36	0.39	0.04	-0.76	1.41
390	Vien H Long	I[71]	5.93	0.62	0.09	0.01	0.15	1.88
390	Vien H Long	J[72]	5.93	0.62	0.09	0.01	-0.23	-0.84
391	Vien H Long	I[107]	1.43	0.41	0.04	0.01	0.01	1.07
391	Vien H Long	J[108]	1.43	0.41	0.04	0.01	-0.17	-0.72
392	Vien H Long	I[143]	0.87	0	0.03	0	-0.01	0
392	Vien H Long	J[144]	0.87	0	0.03	0	-0.15	0
393	Vien H Long	I[179]	1.43	-0.41	0.04	-0.01	0.01	-1.06
393	Vien H Long	J[180]	1.43	-0.41	0.04	-0.01	-0.17	0.72
394	Vien H Long	I[215]	5.92	-0.61	0.09	-0.01	0.15	-1.87
394	Vien H Long	J[216]	5.92	-0.61	0.09	-0.01	-0.23	0.84
395	Vien H Long	I[72]	6.48	0.22	0.01	0	0	0.64
395	Vien H Long	J[73]	6.48	0.22	0.01	0	-0.03	-0.31

396	Vien H Long	I[108]	1.85	0.26	0.02	0	0.02	0.68
396	Vien H Long	J[109]	1.85	0.26	0.02	0	-0.09	-0.47
397	Vien H Long	I[144]	1.23	0	0.02	0	0.01	0
397	Vien H Long	J[145]	1.23	0	0.02	0	-0.08	0
398	Vien H Long	I[180]	1.84	-0.26	0.02	0	0.02	-0.68
398	Vien H Long	J[181]	1.84	-0.26	0.02	0	-0.09	0.47
399	Vien H Long	I[216]	6.47	-0.21	0.01	0	0	-0.63
399	Vien H Long	J[217]	6.47	-0.21	0.01	0	-0.03	0.31
400	Vien H Long	I[73]	6.25	0.02	-0.04	0	-0.09	0.14
400	Vien H Long	J[376]	6.25	0.02	-0.04	0	-0.01	0.09
401	Vien H Long	I[109]	2.08	0.14	0.01	0	0	0.38
401	Vien H Long	J[377]	2.08	0.14	0.01	0	-0.01	0.07
402	Vien H Long	I[145]	1.46	0	0.01	0	0.01	0
402	Vien H Long	J[378]	1.46	0	0.01	0	-0.02	0
403	Vien H Long	I[181]	2.08	-0.14	0.01	0	0	-0.37
403	Vien H Long	J[379]	2.08	-0.14	0.01	0	-0.01	-0.07
404	Vien H Long	I[217]	6.24	-0.02	-0.04	0	-0.09	-0.13
404	Vien H Long	J[380]	6.24	-0.02	-0.04	0	-0.01	-0.09
405	Vien H Long	I[74]	5.67	-0.08	-0.06	0	-0.13	-0.11
405	Vien H Long	J[75]	5.67	-0.08	-0.06	0	0.12	0.24
406	Vien H Long	I[110]	2.17	0.05	0	0	-0.01	0.18
406	Vien H Long	J[111]	2.17	0.05	0	0	0.01	-0.06
407	Vien H Long	I[146]	1.6	0	0	0	0	0
407	Vien H Long	J[147]	1.6	0	0	0	-0.01	0
408	Vien H Long	I[182]	2.17	-0.05	0	0	-0.01	-0.18
408	Vien H Long	J[183]	2.17	-0.05	0	0	0.01	0.05
409	Vien H Long	I[218]	5.65	0.08	-0.06	0	-0.13	0.11
409	Vien H Long	J[219]	5.65	0.08	-0.06	0	0.12	-0.24
410	Vien H Long	I[75]	4.95	-0.14	-0.06	0	-0.13	-0.27
410	Vien H Long	J[76]	4.95	-0.14	-0.06	0	0.14	0.35
411	Vien H Long	I[111]	2.16	-0.01	-0.01	0	-0.02	0.03
411	Vien H Long	J[112]	2.16	-0.01	-0.01	0	0.03	0.08
412	Vien H Long	I[147]	1.67	0	0	0	0	0
412	Vien H Long	J[148]	1.67	0	0	0	0.01	0
413	Vien H Long	I[183]	2.15	0.01	-0.01	0	-0.02	-0.02
413	Vien H Long	J[184]	2.15	0.01	-0.01	0	0.03	-0.08
414	Vien H Long	I[219]	4.94	0.14	-0.06	0	-0.13	0.27
414	Vien H Long	J[220]	4.94	0.14	-0.06	0	0.14	-0.35
415	Vien H Long	I[76]	4.22	-0.17	-0.06	0	-0.13	-0.36
415	Vien H Long	J[77]	4.22	-0.17	-0.06	0	0.14	0.41
416	Vien H Long	I[112]	2.07	-0.06	-0.02	0	-0.03	-0.1
416	Vien H Long	J[113]	2.07	-0.06	-0.02	0	0.05	0.18
417	Vien H Long	I[148]	1.66	0	-0.01	0	-0.01	0
417	Vien H Long	J[149]	1.66	0	-0.01	0	0.03	0
418	Vien H Long	I[184]	2.07	0.06	-0.02	0	-0.03	0.11
418	Vien H Long	J[185]	2.07	0.06	-0.02	0	0.05	-0.18
419	Vien H Long	I[220]	4.21	0.18	-0.06	0	-0.13	0.37
419	Vien H Long	J[221]	4.21	0.18	-0.06	0	0.14	-0.41
420	Vien H Long	I[77]	3.53	-0.19	-0.06	0	-0.12	-0.42
420	Vien H Long	J[78]	3.53	-0.19	-0.06	0	0.14	0.44
421	Vien H Long	I[113]	1.93	-0.1	-0.02	0	-0.03	-0.19
421	Vien H Long	J[114]	1.93	-0.1	-0.02	0	0.06	0.25
422	Vien H Long	I[149]	1.6	0	-0.01	0	-0.01	0
422	Vien H Long	J[150]	1.6	0	-0.01	0	0.04	0
423	Vien H Long	I[185]	1.93	0.1	-0.02	0	-0.03	0.2
423	Vien H Long	J[186]	1.93	0.1	-0.02	0	0.06	-0.25
424	Vien H Long	I[221]	3.52	0.2	-0.06	0	-0.12	0.42
424	Vien H Long	J[222]	3.52	0.2	-0.06	0	0.14	-0.44
425	Vien H Long	I[78]	2.89	-0.2	-0.05	0	-0.1	-0.44
425	Vien H Long	J[371]	2.89	-0.2	-0.05	0	0.01	0
426	Vien H Long	I[114]	1.76	-0.13	-0.02	0	-0.03	-0.26

426	Vien H Long	J[372]	1.76	-0.13	-0.02	0	0.02	0.02
427	Vien H Long	I[150]	1.5	0	-0.01	0	-0.01	0
427	Vien H Long	J[373]	1.5	0	-0.01	0	0.02	0
428	Vien H Long	I[186]	1.75	0.13	-0.02	0	-0.03	0.26
428	Vien H Long	J[374]	1.75	0.13	-0.02	0	0.02	-0.02
429	Vien H Long	I[222]	2.88	0.2	-0.05	0	-0.1	0.45
429	Vien H Long	J[375]	2.88	0.2	-0.05	0	0.01	0
430	Vien H Long	I[79]	2.31	-0.2	-0.05	0	-0.09	-0.45
430	Vien H Long	J[80]	2.31	-0.2	-0.05	0	0.12	0.45
431	Vien H Long	I[115]	1.56	-0.14	-0.02	0	-0.03	-0.3
431	Vien H Long	J[116]	1.56	-0.14	-0.02	0	0.07	0.33
432	Vien H Long	I[151]	1.37	0	-0.02	0	-0.02	0
432	Vien H Long	J[152]	1.37	0	-0.02	0	0.05	0
433	Vien H Long	I[187]	1.56	0.15	-0.02	0	-0.03	0.31
433	Vien H Long	J[188]	1.56	0.15	-0.02	0	0.07	-0.33
434	Vien H Long	I[223]	2.31	0.21	-0.05	0	-0.09	0.45
434	Vien H Long	J[224]	2.31	0.21	-0.05	0	0.12	-0.45
435	Vien H Long	I[80]	1.8	-0.2	-0.04	0	-0.08	-0.45
435	Vien H Long	J[81]	1.8	-0.2	-0.04	0	0.11	0.44
436	Vien H Long	I[116]	1.35	-0.15	-0.02	0	-0.03	-0.33
436	Vien H Long	J[117]	1.35	-0.15	-0.02	0	0.07	0.35
437	Vien H Long	I[152]	1.22	0	-0.02	0	-0.02	0
437	Vien H Long	J[153]	1.22	0	-0.02	0	0.06	0
438	Vien H Long	I[188]	1.35	0.16	-0.02	0	-0.03	0.34
438	Vien H Long	J[189]	1.35	0.16	-0.02	0	0.07	-0.35
439	Vien H Long	I[224]	1.8	0.2	-0.04	0	-0.08	0.45
439	Vien H Long	J[225]	1.8	0.2	-0.04	0	0.11	-0.44
440	Vien H Long	I[81]	1.35	-0.19	-0.04	0	-0.07	-0.43
440	Vien H Long	J[82]	1.35	-0.19	-0.04	0	0.1	0.42
441	Vien H Long	I[117]	1.14	-0.16	-0.02	0	-0.03	-0.35
441	Vien H Long	J[118]	1.14	-0.16	-0.02	0	0.07	0.36
442	Vien H Long	I[153]	1.05	0	-0.02	0	-0.02	0
442	Vien H Long	J[154]	1.05	0	-0.02	0	0.06	0
443	Vien H Long	I[189]	1.13	0.16	-0.02	0	-0.03	0.36
443	Vien H Long	J[190]	1.13	0.16	-0.02	0	0.07	-0.36
444	Vien H Long	I[225]	1.35	0.19	-0.04	0	-0.07	0.44
444	Vien H Long	J[226]	1.35	0.19	-0.04	0	0.1	-0.42
445	Vien H Long	I[82]	0.96	-0.18	-0.03	0	-0.06	-0.41
445	Vien H Long	J[83]	0.96	-0.18	-0.03	0	0.09	0.39
446	Vien H Long	I[118]	0.92	-0.16	-0.02	0	-0.03	-0.36
446	Vien H Long	J[119]	0.92	-0.16	-0.02	0	0.07	0.35
447	Vien H Long	I[154]	0.87	0	-0.02	0	-0.02	0
447	Vien H Long	J[155]	0.87	0	-0.02	0	0.06	0
448	Vien H Long	I[190]	0.92	0.16	-0.02	0	-0.03	0.36
448	Vien H Long	J[191]	0.92	0.16	-0.02	0	0.07	-0.36
449	Vien H Long	I[226]	0.96	0.18	-0.03	0	-0.06	0.42
449	Vien H Long	J[227]	0.96	0.18	-0.03	0	0.09	-0.4
450	Vien H Long	I[83]	0.63	-0.17	-0.03	0	-0.05	-0.39
450	Vien H Long	J[381]	0.63	-0.17	-0.03	0	0.01	-0.01
451	Vien H Long	I[119]	0.71	-0.16	-0.02	0	-0.03	-0.35
451	Vien H Long	J[382]	0.71	-0.16	-0.02	0	0.02	0
452	Vien H Long	I[155]	0.69	0	-0.02	0	-0.02	0
452	Vien H Long	J[383]	0.69	0	-0.02	0	0.02	0
453	Vien H Long	I[191]	0.71	0.16	-0.02	0	-0.03	0.36
453	Vien H Long	J[384]	0.71	0.16	-0.02	0	0.02	0
454	Vien H Long	I[227]	0.63	0.17	-0.03	0	-0.05	0.39
454	Vien H Long	J[385]	0.63	0.17	-0.03	0	0.01	0.01
455	Vien H Long	I[84]	0.36	-0.16	-0.02	0	-0.04	-0.36
455	Vien H Long	J[85]	0.36	-0.16	-0.02	0	0.06	0.33
456	Vien H Long	I[120]	0.51	-0.15	-0.02	0	-0.03	-0.35
456	Vien H Long	J[121]	0.51	-0.15	-0.02	0	0.06	0.33

457	Vien H Long	I[156]	0.5	0	-0.02	0	-0.02	0
457	Vien H Long	J[157]	0.5	0	-0.02	0	0.05	0
458	Vien H Long	I[192]	0.51	0.16	-0.02	0	-0.03	0.35
458	Vien H Long	J[193]	0.51	0.16	-0.02	0	0.06	-0.34
459	Vien H Long	I[228]	0.36	0.16	-0.02	0	-0.04	0.36
459	Vien H Long	J[229]	0.36	0.16	-0.02	0	0.06	-0.33
460	Vien H Long	I[85]	0.15	-0.15	-0.02	0	-0.03	-0.33
460	Vien H Long	J[86]	0.15	-0.15	-0.02	0	0.04	0.34
461	Vien H Long	I[121]	0.33	-0.16	-0.02	0	-0.03	-0.34
461	Vien H Long	J[122]	0.33	-0.16	-0.02	0	0.05	0.35
462	Vien H Long	I[157]	0.32	0	-0.02	0	-0.03	0
462	Vien H Long	J[158]	0.32	0	-0.02	0	0.04	0
463	Vien H Long	I[193]	0.33	0.16	-0.02	0	-0.03	0.34
463	Vien H Long	J[194]	0.33	0.16	-0.02	0	0.05	-0.35
464	Vien H Long	I[229]	0.15	0.15	-0.02	0	-0.03	0.33
464	Vien H Long	J[230]	0.15	0.15	-0.02	0	0.04	-0.34
465	Vien H Long	I[86]	0.02	-0.15	-0.01	0	-0.02	-0.24
465	Vien H Long	J[70]	0.02	-0.15	-0.01	0	0.02	0.41
466	Vien H Long	I[122]	0.15	-0.18	-0.02	0	-0.03	-0.3
466	Vien H Long	J[106]	0.15	-0.18	-0.02	0	0.06	0.51
467	Vien H Long	I[158]	0.14	0	-0.02	0	-0.03	0
467	Vien H Long	J[142]	0.14	0	-0.02	0	0.05	0
468	Vien H Long	I[194]	0.15	0.18	-0.02	0	-0.03	0.3
468	Vien H Long	J[178]	0.15	0.18	-0.02	0	0.06	-0.51
469	Vien H Long	I[230]	0.02	0.15	-0.01	0	-0.01	0.24
469	Vien H Long	J[214]	0.02	0.15	-0.01	0	0.02	-0.41
470	Vien H Long	I[335]	-0.95	-4.65	0.62	0.64	0.02	-1.04
470	Vien H Long	J[69]	-0.95	-4.65	0.62	0.64	-0.6	3.62
471	Vien H Long	I[336]	0.53	-3.15	-0.48	0.11	-0.24	-0.75
471	Vien H Long	J[71]	0.53	-3.15	-0.48	0.11	0.23	2.39
472	Vien H Long	I[337]	0.34	-1.15	-0.1	0.04	0.15	-0.29
472	Vien H Long	J[72]	0.34	-1.15	-0.1	0.04	0.26	0.86
473	Vien H Long	I[338]	0.12	-0.12	-0.06	-0.01	0.09	-0.03
473	Vien H Long	J[73]	0.12	-0.12	-0.06	-0.01	0.16	0.09
474	Vien H Long	I[339]	0.06	0.42	-0.03	-0.04	0.05	0.1
474	Vien H Long	J[74]	0.06	0.42	-0.03	-0.04	0.09	-0.32
475	Vien H Long	I[340]	0.03	0.69	-0.02	-0.05	0.03	0.16
475	Vien H Long	J[75]	0.03	0.69	-0.02	-0.05	0.05	-0.53
476	Vien H Long	I[341]	0.01	0.82	-0.01	-0.05	0.02	0.2
476	Vien H Long	J[76]	0.01	0.82	-0.01	-0.05	0.03	-0.62
477	Vien H Long	I[342]	0	0.86	0	-0.05	0.01	0.21
477	Vien H Long	J[77]	0	0.86	0	-0.05	0.01	-0.66
478	Vien H Long	I[343]	0	0.86	0	-0.04	0	0.21
478	Vien H Long	J[78]	0	0.86	0	-0.04	0	-0.65
479	Vien H Long	I[344]	-0.01	0.84	0	-0.04	0	0.2
479	Vien H Long	J[79]	-0.01	0.84	0	-0.04	-0.01	-0.63
480	Vien H Long	I[345]	-0.01	0.8	0	-0.03	0	0.19
480	Vien H Long	J[80]	-0.01	0.8	0	-0.03	-0.01	-0.6
481	Vien H Long	I[346]	-0.01	0.75	0.01	-0.03	-0.01	0.18
481	Vien H Long	J[81]	-0.01	0.75	0.01	-0.03	-0.01	-0.57
482	Vien H Long	I[347]	-0.01	0.69	0.01	-0.03	-0.01	0.17
482	Vien H Long	J[82]	-0.01	0.69	0.01	-0.03	-0.01	-0.52
483	Vien H Long	I[348]	-0.01	0.63	0.01	-0.02	-0.01	0.15
483	Vien H Long	J[83]	-0.01	0.63	0.01	-0.02	-0.02	-0.48
484	Vien H Long	I[349]	-0.01	0.56	0.01	-0.02	-0.01	0.14
484	Vien H Long	J[84]	-0.01	0.56	0.01	-0.02	-0.02	-0.42
485	Vien H Long	I[350]	-0.01	0.49	0.01	-0.02	-0.01	0.12
485	Vien H Long	J[85]	-0.01	0.49	0.01	-0.02	-0.02	-0.37
486	Vien H Long	I[351]	0.01	0.4	0	-0.01	-0.03	0.1
486	Vien H Long	J[86]	0.01	0.4	0	-0.01	-0.03	-0.3
487	Vien H Long	I[352]	-0.09	0.24	0.04	-0.01	-0.05	0.05

487	Vien H Long	J[70]	-0.09	0.24	0.04	-0.01	-0.09	-0.19
488	Vien H Long	I[353]	-0.96	4.64	-0.62	-0.64	0.02	-1.03
488	Vien H Long	J[19]	-0.96	4.64	-0.62	-0.64	0.33	-3.35
489	Vien H Long	I[354]	0.53	3.14	0.48	-0.11	-0.24	-0.75
489	Vien H Long	J[53]	0.53	3.14	0.48	-0.11	-0.48	-2.32
490	Vien H Long	I[355]	0.34	1.14	0.1	-0.04	0.15	-0.28
490	Vien H Long	J[54]	0.34	1.14	0.1	-0.04	0.1	-0.86
491	Vien H Long	I[356]	0.12	0.12	0.06	0.01	0.09	-0.03
491	Vien H Long	J[55]	0.12	0.12	0.06	0.01	0.06	-0.09
492	Vien H Long	I[357]	0.06	-0.42	0.03	0.04	0.05	0.1
492	Vien H Long	J[56]	0.06	-0.42	0.03	0.04	0.04	0.31
493	Vien H Long	I[358]	0.03	-0.69	0.02	0.05	0.03	0.16
493	Vien H Long	J[57]	0.03	-0.69	0.02	0.05	0.02	0.51
494	Vien H Long	I[359]	0.01	-0.82	0.01	0.05	0.02	0.2
494	Vien H Long	J[58]	0.01	-0.82	0.01	0.05	0.01	0.61
495	Vien H Long	I[360]	0	-0.86	0	0.05	0.01	0.21
495	Vien H Long	J[59]	0	-0.86	0	0.05	0.01	0.64
496	Vien H Long	I[361]	0	-0.86	0	0.04	0	0.21
496	Vien H Long	J[60]	0	-0.86	0	0.04	0	0.64
497	Vien H Long	I[362]	-0.01	-0.84	0	0.04	0	0.2
497	Vien H Long	J[61]	-0.01	-0.84	0	0.04	0	0.62
498	Vien H Long	I[363]	-0.01	-0.8	0	0.03	0	0.19
498	Vien H Long	J[62]	-0.01	-0.8	0	0.03	0	0.59
499	Vien H Long	I[364]	-0.01	-0.75	-0.01	0.03	-0.01	0.18
499	Vien H Long	J[63]	-0.01	-0.75	-0.01	0.03	0	0.56
500	Vien H Long	I[365]	-0.01	-0.69	-0.01	0.03	-0.01	0.17
500	Vien H Long	J[64]	-0.01	-0.69	-0.01	0.03	0	0.51
501	Vien H Long	I[366]	-0.01	-0.63	-0.01	0.02	-0.01	0.15
501	Vien H Long	J[65]	-0.01	-0.63	-0.01	0.02	-0.01	0.47
502	Vien H Long	I[367]	-0.01	-0.56	-0.01	0.02	-0.01	0.14
502	Vien H Long	J[66]	-0.01	-0.56	-0.01	0.02	-0.01	0.42
503	Vien H Long	I[368]	-0.01	-0.49	-0.01	0.02	-0.01	0.12
503	Vien H Long	J[67]	-0.01	-0.49	-0.01	0.02	-0.01	0.36
504	Vien H Long	I[369]	0.01	-0.4	0	0.01	-0.03	0.1
504	Vien H Long	J[68]	0.01	-0.4	0	0.01	-0.03	0.3
505	Vien H Long	I[370]	-0.08	-0.24	-0.04	0.01	-0.05	0.05
505	Vien H Long	J[36]	-0.08	-0.24	-0.04	0.01	-0.03	0.17
506	Vien H Long	I[371]	2.89	-0.2	-0.05	0	0.01	0
506	Vien H Long	J[79]	2.89	-0.2	-0.05	0	0.13	0.45
507	Vien H Long	I[372]	1.76	-0.13	-0.02	0	0.02	0.02
507	Vien H Long	J[115]	1.76	-0.13	-0.02	0	0.07	0.3
508	Vien H Long	I[373]	1.5	0	-0.01	0	0.02	0
508	Vien H Long	J[151]	1.5	0	-0.01	0	0.05	0
509	Vien H Long	I[374]	1.75	0.13	-0.02	0	0.02	-0.02
509	Vien H Long	J[187]	1.75	0.13	-0.02	0	0.07	-0.3
510	Vien H Long	I[375]	2.88	0.2	-0.05	0	0.01	0
510	Vien H Long	J[223]	2.88	0.2	-0.05	0	0.13	-0.45
511	Vien H Long	I[376]	6.25	0.02	-0.04	0	-0.01	0.09
511	Vien H Long	J[74]	6.25	0.02	-0.04	0	0.08	0.04
512	Vien H Long	I[377]	2.08	0.14	0.01	0	-0.01	0.07
512	Vien H Long	J[110]	2.08	0.14	0.01	0	-0.03	-0.23
513	Vien H Long	I[378]	1.46	0	0.01	0	-0.02	0
513	Vien H Long	J[146]	1.46	0	0.01	0	-0.04	0
514	Vien H Long	I[379]	2.08	-0.14	0.01	0	-0.01	-0.07
514	Vien H Long	J[182]	2.08	-0.14	0.01	0	-0.03	0.23
515	Vien H Long	I[380]	6.24	-0.02	-0.04	0	-0.01	-0.09
515	Vien H Long	J[218]	6.24	-0.02	-0.04	0	0.08	-0.04
516	Vien H Long	I[381]	0.63	-0.17	-0.03	0	0.01	-0.01
516	Vien H Long	J[84]	0.63	-0.17	-0.03	0	0.07	0.36
517	Vien H Long	I[382]	0.71	-0.16	-0.02	0	0.02	0
517	Vien H Long	J[120]	0.71	-0.16	-0.02	0	0.06	0.35

518	Vien H Long	I[383]	0.69	0	-0.02	0	0.02	0
518	Vien H Long	J[156]	0.69	0	-0.02	0	0.05	0
519	Vien H Long	I[384]	0.71	0.16	-0.02	0	0.02	0
519	Vien H Long	J[192]	0.71	0.16	-0.02	0	0.06	-0.35
520	Vien H Long	I[385]	0.63	0.17	-0.03	0	0.01	0.01
520	Vien H Long	J[228]	0.63	0.17	-0.03	0	0.07	-0.36

4.2. VIENTO TRANSVERSAL

Elem	Load	Part	Axial (kN)	Shear-y (kN)	Shear-z (kN)	Torsion (kN*m)	Moment-y (kN*m)	Moment-z (kN*m)
1	Viento hori trans	I[1]	-12.76	48.89	-0.64	-27.47	-4.54	683.69
1	Viento hori trans	J[2]	-12.76	42.63	-0.64	-27.47	-1.26	450.57
2	Viento hori trans	I[2]	-12.02	42.63	0.01	-52.56	-1.26	448.34
2	Viento hori trans	J[3]	-12.02	36.55	0.01	-52.56	-1.3	252.67
3	Viento hori trans	I[3]	-11.68	36.55	0.03	-67.4	-1.3	249.12
3	Viento hori trans	J[4]	-11.68	30.64	0.03	-67.4	-1.46	87.62
4	Viento hori trans	I[4]	-11.41	30.64	-0.01	-72.72	-1.46	83.25
4	Viento hori trans	J[5]	-11.41	24.87	-0.01	-72.72	-1.44	-46.9
5	Viento hori trans	I[5]	-11.17	24.87	-0.02	-69.51	-1.44	-51.55
5	Viento hori trans	J[6]	-11.17	19.22	-0.02	-69.51	-1.35	-152.77
6	Viento hori trans	I[6]	-10.98	19.22	-0.02	-59	-1.35	-157.13
6	Viento hori trans	J[7]	-10.98	13.67	-0.02	-59	-1.27	-231.35
7	Viento hori trans	I[7]	-10.84	13.67	-0.01	-42.71	-1.27	-234.9
7	Viento hori trans	J[8]	-10.84	8.18	-0.01	-42.71	-1.21	-283.61
8	Viento hori trans	I[8]	-10.76	8.18	-0.01	-22.4	-1.21	-285.93
8	Viento hori trans	J[9]	-10.76	2.74	-0.01	-22.4	-1.16	-310.1
9	Viento hori trans	I[9]	-10.73	2.74	-0.02	-0.02	-1.16	-310.9
9	Viento hori trans	J[10]	-10.73	-2.68	-0.02	-0.02	-1.09	-311.04
10	Viento hori trans	I[10]	-10.75	-2.68	-0.02	22.36	-1.09	-310.24
10	Viento hori trans	J[11]	-10.75	-8.12	-0.02	22.36	-0.98	-286.34
11	Viento hori trans	I[11]	-10.83	-8.12	-0.04	42.7	-0.98	-284.02
11	Viento hori trans	J[12]	-10.83	-13.61	-0.04	42.7	-0.82	-235.59
12	Viento hori trans	I[12]	-10.96	-13.61	-0.06	59.04	-0.82	-232.03
12	Viento hori trans	J[13]	-10.96	-19.16	-0.06	59.04	-0.55	-158.09
13	Viento hori trans	I[13]	-11.14	-19.16	-0.11	69.62	-0.55	-153.72
13	Viento hori trans	J[14]	-11.14	-24.81	-0.11	69.62	-0.07	-52.78
14	Viento hori trans	I[14]	-11.33	-24.81	-0.2	72.91	-0.07	-48.13
14	Viento hori trans	J[15]	-11.33	-30.57	-0.2	72.91	0.89	81.74
15	Viento hori trans	I[15]	-11.52	-30.57	-0.39	67.68	0.89	86.12
15	Viento hori trans	J[16]	-11.52	-36.49	-0.39	67.68	2.75	247.32
16	Viento hori trans	I[16]	-11.73	-36.49	-0.58	52.94	2.75	250.89
16	Viento hori trans	J[17]	-11.73	-42.57	-0.58	52.94	5.6	446.26
17	Viento hori trans	I[17]	-12.27	-42.57	-0.2	27.97	5.6	448.52
17	Viento hori trans	J[18]	-12.27	-48.83	-0.2	27.97	6.62	681.32
18	Viento hori trans	I[19]	10.36	0.03	0.4	-0.78	10.56	-1.05
18	Viento hori trans	J[20]	10.36	0.03	0.4	-0.78	8.5	-1.19
19	Viento hori trans	I[20]	10.15	0.03	0.64	-0.71	8.5	-1.23
19	Viento hori trans	J[21]	10.15	0.03	0.64	-0.71	5.33	-1.37
20	Viento hori trans	I[21]	9.78	0.03	0.51	-0.63	5.33	-1.41
20	Viento hori trans	J[22]	9.78	0.03	0.51	-0.63	2.86	-1.54
21	Viento hori trans	I[22]	9.45	0.03	0.35	-0.53	2.86	-1.58
21	Viento hori trans	J[23]	9.45	0.03	0.35	-0.53	1.22	-1.71
22	Viento hori trans	I[23]	9.19	0.03	0.22	-0.42	1.22	-1.74
22	Viento hori trans	J[24]	9.19	0.03	0.22	-0.42	0.19	-1.86
23	Viento hori trans	I[24]	9	0.03	0.14	-0.3	0.19	-1.89
23	Viento hori trans	J[25]	9	0.03	0.14	-0.3	-0.45	-2.01
24	Viento hori trans	I[25]	8.87	0.03	0.08	-0.15	-0.45	-2.03
24	Viento hori trans	J[26]	8.87	0.03	0.08	-0.15	-0.83	-2.15
25	Viento hori trans	I[26]	8.8	0.03	0.05	0	-0.83	-2.15

25	Viento hori trans	J[27]	8.8	0.03	0.05	0	-1.03	-2.28
26	Viento hori trans	I[27]	8.77	0.03	0.02	0.16	-1.03	-2.27
26	Viento hori trans	J[28]	8.77	0.03	0.02	0.16	-1.1	-2.39
27	Viento hori trans	I[28]	8.79	0.03	-0.01	0.33	-1.1	-2.37
27	Viento hori trans	J[29]	8.79	0.03	-0.01	0.33	-1.06	-2.5
28	Viento hori trans	I[29]	8.87	0.03	-0.03	0.51	-1.06	-2.47
28	Viento hori trans	J[30]	8.87	0.03	-0.03	0.51	-0.91	-2.59
29	Viento hori trans	I[30]	8.99	0.03	-0.06	0.69	-0.91	-2.55
29	Viento hori trans	J[31]	8.99	0.03	-0.06	0.69	-0.62	-2.67
30	Viento hori trans	I[31]	9.16	0.03	-0.1	0.87	-0.62	-2.62
30	Viento hori trans	J[32]	9.16	0.03	-0.1	0.87	-0.17	-2.74
31	Viento hori trans	I[32]	9.37	0.03	-0.14	1.05	-0.17	-2.68
31	Viento hori trans	J[33]	9.37	0.03	-0.14	1.05	0.47	-2.81
32	Viento hori trans	I[33]	9.63	0.03	-0.16	1.22	0.47	-2.74
32	Viento hori trans	J[34]	9.63	0.03	-0.16	1.22	1.22	-2.87
33	Viento hori trans	I[34]	9.86	0.03	-0.07	1.39	1.22	-2.79
33	Viento hori trans	J[35]	9.86	0.03	-0.07	1.39	1.56	-2.93
34	Viento hori trans	I[35]	9.88	0.03	0.44	1.55	1.56	-2.85
34	Viento hori trans	J[36]	9.88	0.03	0.44	1.55	-0.66	-2.99
67	Viento hori trans	I[1]	233.19	-91.15	30.63	5.62	237.56	-103.78
67	Viento hori trans	J[335]	233.19	-91.15	30.63	5.62	222.25	-58.2
68	Viento hori trans	I[18]	202.13	67.96	27.49	-2.65	238.15	87.17
68	Viento hori trans	J[352]	202.13	67.96	27.49	-2.65	224.4	53.19
69	Viento hori trans	I[37]	-126.95	-24.88	-9.74	-3.69	43.99	-18.26
69	Viento hori trans	J[336]	-126.95	-24.88	-9.74	-3.69	48.86	-5.81
70	Viento hori trans	I[38]	-10.18	-13.79	1.36	-1.2	13.11	-11.12
70	Viento hori trans	J[337]	-10.18	-13.79	1.36	-1.2	12.43	-4.22
71	Viento hori trans	I[39]	-13.09	-12.72	-0.74	-1.05	0.75	-9.9
71	Viento hori trans	J[338]	-13.09	-12.72	-0.74	-1.05	1.12	-3.54
72	Viento hori trans	I[40]	-13.18	-10.78	-0.71	-0.84	-3.48	-8.3
72	Viento hori trans	J[339]	-13.18	-10.78	-0.71	-0.84	-3.13	-2.91
73	Viento hori trans	I[41]	-13.21	-9.01	-0.69	-0.69	-4.93	-6.92
73	Viento hori trans	J[340]	-13.21	-9.01	-0.69	-0.69	-4.59	-2.42
74	Viento hori trans	I[42]	-13.19	-7.23	-0.66	-0.55	-5.31	-5.57
74	Viento hori trans	J[341]	-13.19	-7.23	-0.66	-0.55	-4.98	-1.95
75	Viento hori trans	I[43]	-13.17	-5.4	-0.63	-0.42	-5.35	-4.19
75	Viento hori trans	J[342]	-13.17	-5.4	-0.63	-0.42	-5.03	-1.49
76	Viento hori trans	I[44]	-13.17	-3.55	-0.61	-0.29	-5.3	-2.78
76	Viento hori trans	J[343]	-13.17	-3.55	-0.61	-0.29	-4.99	-1.01
77	Viento hori trans	I[45]	-13.17	-1.69	-0.6	-0.16	-5.21	-1.37
77	Viento hori trans	J[344]	-13.17	-1.69	-0.6	-0.16	-4.91	-0.53
78	Viento hori trans	I[46]	-13.2	0.1	-0.58	-0.02	-5.07	-0.01
78	Viento hori trans	J[345]	-13.2	0.1	-0.58	-0.02	-4.78	-0.06
79	Viento hori trans	I[47]	-13.24	1.75	-0.56	0.14	-4.77	1.27
79	Viento hori trans	J[346]	-13.24	1.75	-0.56	0.14	-4.49	0.39
80	Viento hori trans	I[48]	-13.32	3.17	-0.51	0.32	-3.99	2.38
80	Viento hori trans	J[347]	-13.32	3.17	-0.51	0.32	-3.73	0.8
81	Viento hori trans	I[49]	-13.39	4.22	-0.39	0.56	-1.87	3.28
81	Viento hori trans	J[348]	-13.39	4.22	-0.39	0.56	-1.67	1.17
82	Viento hori trans	I[50]	-13.44	4.72	-0.2	0.94	3.45	3.91
82	Viento hori trans	J[349]	-13.44	4.72	-0.2	0.94	3.55	1.55
83	Viento hori trans	I[51]	-10.7	2.99	2.16	1.41	17.2	3.21
83	Viento hori trans	J[350]	-10.7	2.99	2.16	1.41	16.12	1.71
84	Viento hori trans	I[52]	-128.7	7.42	-7.81	4.36	49.37	5.62
84	Viento hori trans	J[351]	-128.7	7.42	-7.81	4.36	53.27	1.91
85	Viento hori trans	I[69]	196.74	-46.45	26.91	-3.09	204.01	-48.89
85	Viento hori trans	J[87]	196.74	-46.45	26.91	-3.09	163.64	20.78
86	Viento hori trans	I[70]	172.76	38.1	25.4	3.14	205.29	40.25
86	Viento hori trans	J[88]	172.76	38.1	25.4	3.14	167.19	-16.89
87	Viento hori trans	I[71]	-92.33	-37.33	-4.07	0.91	46.04	-38.73
87	Viento hori trans	J[89]	-92.33	-37.33	-4.07	0.91	52.15	17.26

88	Viento hori trans	I[72]	-19.58	-30.69	0.49	1.05	16.01	-31.87
88	Viento hori trans	J[90]	-19.58	-30.69	0.49	1.05	15.28	14.16
89	Viento hori trans	I[73]	-10.6	-26.74	-0.83	0.98	0.95	-27.98
89	Viento hori trans	J[91]	-10.6	-26.74	-0.83	0.98	2.19	12.13
90	Viento hori trans	I[74]	-11.41	-22.77	-0.87	0.84	-3.18	-23.87
90	Viento hori trans	J[92]	-11.41	-22.77	-0.87	0.84	-1.87	10.28
91	Viento hori trans	I[75]	-11.86	-18.81	-0.85	0.67	-4.52	-19.73
91	Viento hori trans	J[93]	-11.86	-18.81	-0.85	0.67	-3.25	8.49
92	Viento hori trans	I[76]	-11.89	-14.9	-0.81	0.5	-4.93	-15.63
92	Viento hori trans	J[94]	-11.89	-14.9	-0.81	0.5	-3.7	6.72
93	Viento hori trans	I[77]	-11.87	-10.99	-0.79	0.34	-5	-11.53
93	Viento hori trans	J[95]	-11.87	-10.99	-0.79	0.34	-3.83	4.96
94	Viento hori trans	I[78]	-11.87	-7.09	-0.77	0.19	-4.98	-7.44
94	Viento hori trans	J[96]	-11.87	-7.09	-0.77	0.19	-3.83	3.2
95	Viento hori trans	I[79]	-11.89	-3.19	-0.75	0.04	-4.91	-3.34
95	Viento hori trans	J[97]	-11.89	-3.19	-0.75	0.04	-3.78	1.44
96	Viento hori trans	I[80]	-11.94	0.71	-0.74	-0.11	-4.77	0.75
96	Viento hori trans	J[98]	-11.94	0.71	-0.74	-0.11	-3.66	-0.32
97	Viento hori trans	I[81]	-12.02	4.63	-0.74	-0.25	-4.47	4.86
97	Viento hori trans	J[99]	-12.02	4.63	-0.74	-0.25	-3.37	-2.08
98	Viento hori trans	I[82]	-12.11	8.58	-0.72	-0.4	-3.73	9
98	Viento hori trans	J[100]	-12.11	8.58	-0.72	-0.4	-2.65	-3.87
99	Viento hori trans	I[83]	-11.85	12.63	-0.65	-0.54	-1.84	13.24
99	Viento hori trans	J[101]	-11.85	12.63	-0.65	-0.54	-0.86	-5.7
100	Viento hori trans	I[84]	-11.28	16.82	-0.48	-0.65	3.15	17.6
100	Viento hori trans	J[102]	-11.28	16.82	-0.48	-0.65	3.87	-7.63
101	Viento hori trans	I[85]	-20.52	21.17	0.96	-0.7	19.36	21.93
101	Viento hori trans	J[103]	-20.52	21.17	0.96	-0.7	17.92	-9.82
102	Viento hori trans	I[86]	-96.47	28.45	-3.46	-0.52	50	29.49
102	Viento hori trans	J[104]	-96.47	28.45	-3.46	-0.52	55.19	-13.18
103	Viento hori trans	I[87]	196.74	-46.45	26.91	-6.71	178.99	20.78
103	Viento hori trans	J[105]	196.74	-46.45	26.91	-6.71	138.62	90.46
104	Viento hori trans	I[88]	172.76	38.1	25.4	6.11	180.66	-16.89
104	Viento hori trans	J[106]	172.76	38.1	25.4	6.11	142.57	-74.04
105	Viento hori trans	I[89]	-92.33	-37.33	-4.07	-2	44.95	17.26
105	Viento hori trans	J[107]	-92.33	-37.33	-4.07	-2	51.06	73.25
106	Viento hori trans	I[90]	-19.58	-30.69	0.49	-1.34	13.76	14.16
106	Viento hori trans	J[108]	-19.58	-30.69	0.49	-1.34	13.03	60.19
107	Viento hori trans	I[91]	-10.6	-26.74	-0.83	-1.11	1.36	12.13
107	Viento hori trans	J[109]	-10.6	-26.74	-0.83	-1.11	2.6	52.24
108	Viento hori trans	I[92]	-11.41	-22.77	-0.87	-0.94	-2.76	10.28
108	Viento hori trans	J[110]	-11.41	-22.77	-0.87	-0.94	-1.45	44.43
109	Viento hori trans	I[93]	-11.86	-18.81	-0.85	-0.8	-4.17	8.49
109	Viento hori trans	J[111]	-11.86	-18.81	-0.85	-0.8	-2.89	36.71
110	Viento hori trans	I[94]	-11.89	-14.9	-0.81	-0.66	-4.63	6.72
110	Viento hori trans	J[112]	-11.89	-14.9	-0.81	-0.66	-3.41	29.06
111	Viento hori trans	I[95]	-11.87	-10.99	-0.79	-0.51	-4.75	4.96
111	Viento hori trans	J[113]	-11.87	-10.99	-0.79	-0.51	-3.57	21.44
112	Viento hori trans	I[96]	-11.87	-7.09	-0.77	-0.36	-4.75	3.2
112	Viento hori trans	J[114]	-11.87	-7.09	-0.77	-0.36	-3.61	13.83
113	Viento hori trans	I[97]	-11.89	-3.19	-0.75	-0.21	-4.7	1.44
113	Viento hori trans	J[115]	-11.89	-3.19	-0.75	-0.21	-3.58	6.22
114	Viento hori trans	I[98]	-11.94	0.71	-0.74	-0.05	-4.59	-0.32
114	Viento hori trans	J[116]	-11.94	0.71	-0.74	-0.05	-3.47	-1.39
115	Viento hori trans	I[99]	-12.02	4.63	-0.74	0.11	-4.31	-2.08
115	Viento hori trans	J[117]	-12.02	4.63	-0.74	0.11	-3.2	-9.02
116	Viento hori trans	I[100]	-12.11	8.58	-0.72	0.27	-3.6	-3.87
116	Viento hori trans	J[118]	-12.11	8.58	-0.72	0.27	-2.52	-16.73
117	Viento hori trans	I[101]	-11.85	12.63	-0.65	0.44	-1.78	-5.7
117	Viento hori trans	J[119]	-11.85	12.63	-0.65	0.44	-0.8	-24.64
118	Viento hori trans	I[102]	-11.28	16.82	-0.48	0.66	2.99	-7.63

118	Viento hori trans	J[120]	-11.28	16.82	-0.48	0.66	3.71	-32.85
119	Viento hori trans	I[103]	-20.52	21.17	0.96	0.95	16.32	-9.82
119	Viento hori trans	J[121]	-20.52	21.17	0.96	0.95	14.87	-41.57
120	Viento hori trans	I[104]	-96.47	28.45	-3.46	1.69	47.67	-13.18
120	Viento hori trans	J[122]	-96.47	28.45	-3.46	1.69	52.85	-55.86
121	Viento hori trans	I[105]	137.5	-43.03	24.47	-1.4	160.5	-63.13
121	Viento hori trans	J[123]	137.5	-43.03	24.47	-1.4	123.79	1.41
122	Viento hori trans	I[106]	119.68	38.37	23.72	1.25	161.32	56.37
122	Viento hori trans	J[124]	119.68	38.37	23.72	1.25	125.74	-1.18
123	Viento hori trans	I[107]	-57.92	-43.21	-0.82	1.21	38.78	-64.14
123	Viento hori trans	J[125]	-57.92	-43.21	-0.82	1.21	40	0.67
124	Viento hori trans	I[108]	-19.26	-37.54	-0.16	0.31	12.87	-55.73
124	Viento hori trans	J[126]	-19.26	-37.54	-0.16	0.31	13.1	0.58
125	Viento hori trans	I[109]	-7.63	-32.33	-0.79	0.22	1.45	-48.27
125	Viento hori trans	J[127]	-7.63	-32.33	-0.79	0.22	2.63	0.22
126	Viento hori trans	I[110]	-7.94	-27.64	-0.9	0.12	-2.81	-41.37
126	Viento hori trans	J[128]	-7.94	-27.64	-0.9	0.12	-1.45	0.1
127	Viento hori trans	I[111]	-8.44	-22.91	-0.88	0.05	-4.24	-34.32
127	Viento hori trans	J[129]	-8.44	-22.91	-0.88	0.05	-2.92	0.06
128	Viento hori trans	I[112]	-8.49	-18.15	-0.85	0	-4.74	-27.19
128	Viento hori trans	J[130]	-8.49	-18.15	-0.85	0	-3.47	0.04
129	Viento hori trans	I[113]	-8.46	-13.35	-0.82	-0.05	-4.91	-20
129	Viento hori trans	J[131]	-8.46	-13.35	-0.82	-0.05	-3.67	0.03
130	Viento hori trans	I[114]	-8.45	-8.51	-0.81	-0.09	-4.94	-12.75
130	Viento hori trans	J[132]	-8.45	-8.51	-0.81	-0.09	-3.73	0.02
131	Viento hori trans	I[115]	-8.46	-3.63	-0.8	-0.13	-4.91	-5.44
131	Viento hori trans	J[133]	-8.46	-3.63	-0.8	-0.13	-3.71	0.01
132	Viento hori trans	I[116]	-8.49	1.29	-0.79	-0.17	-4.8	1.93
132	Viento hori trans	J[134]	-8.49	1.29	-0.79	-0.17	-3.61	0.01
133	Viento hori trans	I[117]	-8.56	6.27	-0.79	-0.2	-4.53	9.41
133	Viento hori trans	J[135]	-8.56	6.27	-0.79	-0.2	-3.35	0
134	Viento hori trans	I[118]	-8.56	11.37	-0.78	-0.25	-3.87	17.04
134	Viento hori trans	J[136]	-8.56	11.37	-0.78	-0.25	-2.7	-0.01
135	Viento hori trans	I[119]	-8.12	16.67	-0.74	-0.28	-2.17	24.96
135	Viento hori trans	J[137]	-8.12	16.67	-0.74	-0.28	-1.07	-0.05
136	Viento hori trans	I[120]	-7.8	22.3	-0.52	-0.32	2.51	33.29
136	Viento hori trans	J[138]	-7.8	22.3	-0.52	-0.32	3.3	-0.16
137	Viento hori trans	I[121]	-19.34	28.98	0.23	-0.3	14.65	42.97
137	Viento hori trans	J[139]	-19.34	28.98	0.23	-0.3	14.31	-0.5
138	Viento hori trans	I[122]	-61.25	37.2	-0.76	-0.84	40.64	55.2
138	Viento hori trans	J[140]	-61.25	37.2	-0.76	-0.84	41.79	-0.6
139	Viento hori trans	I[123]	137.5	-43.03	24.47	-1.4	123.79	1.41
139	Viento hori trans	J[141]	137.5	-43.03	24.47	-1.4	87.08	65.96
140	Viento hori trans	I[124]	119.68	38.37	23.72	1.25	125.74	-1.18
140	Viento hori trans	J[142]	119.68	38.37	23.72	1.25	90.16	-58.74
141	Viento hori trans	I[125]	-57.92	-43.21	-0.82	1.21	40	0.67
141	Viento hori trans	J[143]	-57.92	-43.21	-0.82	1.21	41.23	65.49
142	Viento hori trans	I[126]	-19.26	-37.54	-0.16	0.31	13.1	0.58
142	Viento hori trans	J[144]	-19.26	-37.54	-0.16	0.31	13.34	56.89
143	Viento hori trans	I[127]	-7.63	-32.33	-0.79	0.22	2.63	0.22
143	Viento hori trans	J[145]	-7.63	-32.33	-0.79	0.22	3.81	48.71
144	Viento hori trans	I[128]	-7.94	-27.64	-0.9	0.12	-1.45	0.1
144	Viento hori trans	J[146]	-7.94	-27.64	-0.9	0.12	-0.1	41.56
145	Viento hori trans	I[129]	-8.44	-22.91	-0.88	0.05	-2.92	0.06
145	Viento hori trans	J[147]	-8.44	-22.91	-0.88	0.05	-1.6	34.43
146	Viento hori trans	I[130]	-8.49	-18.15	-0.85	0	-3.47	0.04
146	Viento hori trans	J[148]	-8.49	-18.15	-0.85	0	-2.2	27.26
147	Viento hori trans	I[131]	-8.46	-13.35	-0.82	-0.05	-3.67	0.03
147	Viento hori trans	J[149]	-8.46	-13.35	-0.82	-0.05	-2.44	20.05
148	Viento hori trans	I[132]	-8.45	-8.51	-0.81	-0.09	-3.73	0.02
148	Viento hori trans	J[150]	-8.45	-8.51	-0.81	-0.09	-2.52	12.78

149	Viento hori trans	I[133]	-8.46	-3.63	-0.8	-0.13	-3.71	0.01
149	Viento hori trans	J[151]	-8.46	-3.63	-0.8	-0.13	-2.52	5.46
150	Viento hori trans	I[134]	-8.49	1.29	-0.79	-0.17	-3.61	0.01
150	Viento hori trans	J[152]	-8.49	1.29	-0.79	-0.17	-2.42	-1.92
151	Viento hori trans	I[135]	-8.56	6.27	-0.79	-0.2	-3.35	0
151	Viento hori trans	J[153]	-8.56	6.27	-0.79	-0.2	-2.17	-9.41
152	Viento hori trans	I[136]	-8.56	11.37	-0.78	-0.25	-2.7	-0.01
152	Viento hori trans	J[154]	-8.56	11.37	-0.78	-0.25	-1.53	-17.07
153	Viento hori trans	I[137]	-8.12	16.67	-0.74	-0.28	-1.07	-0.05
153	Viento hori trans	J[155]	-8.12	16.67	-0.74	-0.28	0.03	-25.05
154	Viento hori trans	I[138]	-7.8	22.3	-0.52	-0.32	3.3	-0.16
154	Viento hori trans	J[156]	-7.8	22.3	-0.52	-0.32	4.08	-33.6
155	Viento hori trans	I[139]	-19.34	28.98	0.23	-0.3	14.31	-0.5
155	Viento hori trans	J[157]	-19.34	28.98	0.23	-0.3	13.97	-43.97
156	Viento hori trans	I[140]	-61.25	37.2	-0.76	-0.84	41.79	-0.6
156	Viento hori trans	J[158]	-61.25	37.2	-0.76	-0.84	42.93	-56.4
157	Viento hori trans	I[141]	87.24	-39.76	22.99	0.9	107.69	-59.64
157	Viento hori trans	J[159]	87.24	-39.76	22.99	0.9	73.21	-0.01
158	Viento hori trans	I[142]	72.4	35.25	22.24	-1.08	108.89	52.47
158	Viento hori trans	J[160]	72.4	35.25	22.24	-1.08	75.52	-0.41
159	Viento hori trans	I[143]	-34.4	-42.41	1.04	2.05	31.67	-63.44
159	Viento hori trans	J[161]	-34.4	-42.41	1.04	2.05	30.12	0.18
160	Viento hori trans	I[144]	-15.46	-38.03	-0.54	0.6	11.39	-56.8
160	Viento hori trans	J[162]	-15.46	-38.03	-0.54	0.6	12.2	0.25
161	Viento hori trans	I[145]	-5.2	-32.42	-0.77	0.32	2.7	-48.57
161	Viento hori trans	J[163]	-5.2	-32.42	-0.77	0.32	3.85	0.06
162	Viento hori trans	I[146]	-4.87	-27.63	-0.91	0.15	-1.37	-41.46
162	Viento hori trans	J[164]	-4.87	-27.63	-0.91	0.15	-0.01	-0.01
163	Viento hori trans	I[147]	-5.2	-22.91	-0.88	0.06	-2.89	-34.39
163	Viento hori trans	J[165]	-5.2	-22.91	-0.88	0.06	-1.57	-0.03
164	Viento hori trans	I[148]	-5.2	-18.16	-0.85	-0.01	-3.5	-27.26
164	Viento hori trans	J[166]	-5.2	-18.16	-0.85	-0.01	-2.22	-0.03
165	Viento hori trans	I[149]	-5.13	-13.36	-0.82	-0.05	-3.74	-20.06
165	Viento hori trans	J[167]	-5.13	-13.36	-0.82	-0.05	-2.51	-0.02
166	Viento hori trans	I[150]	-5.1	-8.52	-0.81	-0.09	-3.82	-12.8
166	Viento hori trans	J[168]	-5.1	-8.52	-0.81	-0.09	-2.62	-0.02
167	Viento hori trans	I[151]	-5.08	-3.65	-0.8	-0.13	-3.82	-5.48
167	Viento hori trans	J[169]	-5.08	-3.65	-0.8	-0.13	-2.63	-0.01
168	Viento hori trans	I[152]	-5.1	1.27	-0.79	-0.16	-3.74	1.9
168	Viento hori trans	J[170]	-5.1	1.27	-0.79	-0.16	-2.55	-0.01
169	Viento hori trans	I[153]	-5.13	6.25	-0.79	-0.2	-3.49	9.37
169	Viento hori trans	J[171]	-5.13	6.25	-0.79	-0.2	-2.31	-0.01
170	Viento hori trans	I[154]	-5.07	11.33	-0.78	-0.25	-2.88	16.99
170	Viento hori trans	J[172]	-5.07	11.33	-0.78	-0.25	-1.71	-0.02
171	Viento hori trans	I[155]	-4.63	16.62	-0.74	-0.31	-1.32	24.88
171	Viento hori trans	J[173]	-4.63	16.62	-0.74	-0.31	-0.22	-0.04
172	Viento hori trans	I[156]	-4.61	22.34	-0.5	-0.43	2.82	33.37
172	Viento hori trans	J[174]	-4.61	22.34	-0.5	-0.43	3.58	-0.13
173	Viento hori trans	I[157]	-14.36	29.43	-0.15	-0.61	11.84	43.79
173	Viento hori trans	J[175]	-14.36	29.43	-0.15	-0.61	12.06	-0.36
174	Viento hori trans	I[158]	-35.09	36.48	1.08	-1.71	32.74	54.34
174	Viento hori trans	J[176]	-35.09	36.48	1.08	-1.71	31.13	-0.39
175	Viento hori trans	I[159]	87.24	-39.76	22.99	0.9	73.21	-0.01
175	Viento hori trans	J[177]	87.24	-39.76	22.99	0.9	38.73	59.62
176	Viento hori trans	I[160]	72.4	35.25	22.24	-1.08	75.52	-0.41
176	Viento hori trans	J[178]	72.4	35.25	22.24	-1.08	42.16	-53.28
177	Viento hori trans	I[161]	-34.4	-42.41	1.04	2.05	30.12	0.18
177	Viento hori trans	J[179]	-34.4	-42.41	1.04	2.05	28.56	63.8
178	Viento hori trans	I[162]	-15.46	-38.03	-0.54	0.6	12.2	0.25
178	Viento hori trans	J[180]	-15.46	-38.03	-0.54	0.6	13.01	57.3
179	Viento hori trans	I[163]	-5.2	-32.42	-0.77	0.32	3.85	0.06

179	Viento hori trans	J[181]	-5.2	-32.42	-0.77	0.32	4.99	48.69
180	Viento hori trans	I[164]	-4.87	-27.63	-0.91	0.15	-0.01	-0.01
180	Viento hori trans	J[182]	-4.87	-27.63	-0.91	0.15	1.35	41.43
181	Viento hori trans	I[165]	-5.2	-22.91	-0.88	0.06	-1.57	-0.03
181	Viento hori trans	J[183]	-5.2	-22.91	-0.88	0.06	-0.24	34.34
182	Viento hori trans	I[166]	-5.2	-18.16	-0.85	-0.01	-2.22	-0.03
182	Viento hori trans	J[184]	-5.2	-18.16	-0.85	-0.01	-0.95	27.21
183	Viento hori trans	I[167]	-5.13	-13.36	-0.82	-0.05	-2.51	-0.02
183	Viento hori trans	J[185]	-5.13	-13.36	-0.82	-0.05	-1.27	20.01
184	Viento hori trans	I[168]	-5.1	-8.52	-0.81	-0.09	-2.62	-0.02
184	Viento hori trans	J[186]	-5.1	-8.52	-0.81	-0.09	-1.41	12.76
185	Viento hori trans	I[169]	-5.08	-3.65	-0.8	-0.13	-2.63	-0.01
185	Viento hori trans	J[187]	-5.08	-3.65	-0.8	-0.13	-1.44	5.46
186	Viento hori trans	I[170]	-5.1	1.27	-0.79	-0.16	-2.55	-0.01
186	Viento hori trans	J[188]	-5.1	1.27	-0.79	-0.16	-1.36	-1.92
187	Viento hori trans	I[171]	-5.13	6.25	-0.79	-0.2	-2.31	-0.01
187	Viento hori trans	J[189]	-5.13	6.25	-0.79	-0.2	-1.13	-9.38
188	Viento hori trans	I[172]	-5.07	11.33	-0.78	-0.25	-1.71	-0.02
188	Viento hori trans	J[190]	-5.07	11.33	-0.78	-0.25	-0.54	-17.02
189	Viento hori trans	I[173]	-4.63	16.62	-0.74	-0.31	-0.22	-0.04
189	Viento hori trans	J[191]	-4.63	16.62	-0.74	-0.31	0.89	-24.97
190	Viento hori trans	I[174]	-4.61	22.34	-0.5	-0.43	3.58	-0.13
190	Viento hori trans	J[192]	-4.61	22.34	-0.5	-0.43	4.33	-33.64
191	Viento hori trans	I[175]	-14.36	29.43	-0.15	-0.61	12.06	-0.36
191	Viento hori trans	J[193]	-14.36	29.43	-0.15	-0.61	12.29	-44.51
192	Viento hori trans	I[176]	-35.09	36.48	1.08	-1.71	31.13	-0.39
192	Viento hori trans	J[194]	-35.09	36.48	1.08	-1.71	29.52	-55.11
193	Viento hori trans	I[177]	37.57	-34.31	22.71	-0.74	60.25	-66.83
193	Viento hori trans	J[195]	37.57	-34.31	22.71	-0.74	26.2	-15.36
194	Viento hori trans	I[178]	28.2	26.28	21.21	0.09	60.87	50.91
194	Viento hori trans	J[196]	28.2	26.28	21.21	0.09	29.05	11.49
195	Viento hori trans	I[179]	-14.76	-35.63	1.43	-0.56	19.85	-69.68
195	Viento hori trans	J[197]	-14.76	-35.63	1.43	-0.56	17.7	-16.23
196	Viento hori trans	I[180]	-9.32	-32.29	-0.79	-1.13	9.9	-62.98
196	Viento hori trans	J[198]	-9.32	-32.29	-0.79	-1.13	11.09	-14.54
197	Viento hori trans	I[181]	-2.49	-27.4	-0.78	-1	3.65	-53.44
197	Viento hori trans	J[199]	-2.49	-27.4	-0.78	-1	4.82	-12.34
198	Viento hori trans	I[182]	-1.75	-23.16	-0.91	-0.91	0	-45.19
198	Viento hori trans	J[200]	-1.75	-23.16	-0.91	-0.91	1.36	-10.44
199	Viento hori trans	I[183]	-1.85	-19.1	-0.87	-0.79	-1.61	-37.26
199	Viento hori trans	J[201]	-1.85	-19.1	-0.87	-0.79	-0.3	-8.61
200	Viento hori trans	I[184]	-1.78	-15.08	-0.82	-0.65	-2.31	-29.43
200	Viento hori trans	J[202]	-1.78	-15.08	-0.82	-0.65	-1.07	-6.8
201	Viento hori trans	I[185]	-1.7	-11.1	-0.79	-0.51	-2.62	-21.66
201	Viento hori trans	J[203]	-1.7	-11.1	-0.79	-0.51	-1.44	-5.01
202	Viento hori trans	I[186]	-1.65	-7.14	-0.77	-0.36	-2.75	-13.93
202	Viento hori trans	J[204]	-1.65	-7.14	-0.77	-0.36	-1.6	-3.22
203	Viento hori trans	I[187]	-1.63	-3.19	-0.76	-0.21	-2.78	-6.22
203	Viento hori trans	J[205]	-1.63	-3.19	-0.76	-0.21	-1.64	-1.44
204	Viento hori trans	I[188]	-1.63	0.77	-0.75	-0.06	-2.71	1.51
204	Viento hori trans	J[206]	-1.63	0.77	-0.75	-0.06	-1.59	0.34
205	Viento hori trans	I[189]	-1.65	4.76	-0.74	0.1	-2.48	9.28
205	Viento hori trans	J[207]	-1.65	4.76	-0.74	0.1	-1.37	2.14
206	Viento hori trans	I[190]	-1.61	8.8	-0.74	0.25	-1.9	17.16
206	Viento hori trans	J[208]	-1.61	8.8	-0.74	0.25	-0.8	3.96
207	Viento hori trans	I[191]	-1.28	12.95	-0.69	0.4	-0.47	25.24
207	Viento hori trans	J[209]	-1.28	12.95	-0.69	0.4	0.56	5.82
208	Viento hori trans	I[192]	-1.5	17.38	-0.43	0.54	2.97	33.86
208	Viento hori trans	J[210]	-1.5	17.38	-0.43	0.54	3.62	7.79
209	Viento hori trans	I[193]	-7.44	22.68	-0.3	0.7	9.12	44.17
209	Viento hori trans	J[211]	-7.44	22.68	-0.3	0.7	9.58	10.14

210	Viento hori trans	I[194]	-13.7	26.91	2.01	0.2	20.51	52.51
210	Viento hori trans	J[212]	-13.7	26.91	2.01	0.2	17.49	12.14
211	Viento hori trans	I[195]	37.57	-34.31	22.71	1.94	23.27	-15.36
211	Viento hori trans	J[213]	37.57	-34.31	22.71	1.94	-10.79	36.1
212	Viento hori trans	I[196]	28.2	26.28	21.21	-1.96	26.85	11.49
212	Viento hori trans	J[214]	28.2	26.28	21.21	-1.96	-4.96	-27.93
213	Viento hori trans	I[197]	-14.76	-35.63	1.43	2.22	18.86	-16.23
213	Viento hori trans	J[215]	-14.76	-35.63	1.43	2.22	16.71	37.22
214	Viento hori trans	I[198]	-9.32	-32.29	-0.79	1.39	11.82	-14.54
214	Viento hori trans	J[216]	-9.32	-32.29	-0.79	1.39	13	33.9
215	Viento hori trans	I[199]	-2.49	-27.4	-0.78	1.14	5.01	-12.34
215	Viento hori trans	J[217]	-2.49	-27.4	-0.78	1.14	6.18	28.77
216	Viento hori trans	I[200]	-1.75	-23.16	-0.91	0.9	1.5	-10.44
216	Viento hori trans	J[218]	-1.75	-23.16	-0.91	0.9	2.86	24.31
217	Viento hori trans	I[201]	-1.85	-19.1	-0.87	0.7	-0.16	-8.61
217	Viento hori trans	J[219]	-1.85	-19.1	-0.87	0.7	1.15	20.04
218	Viento hori trans	I[202]	-1.78	-15.08	-0.82	0.52	-0.94	-6.8
218	Viento hori trans	J[220]	-1.78	-15.08	-0.82	0.52	0.3	15.83
219	Viento hori trans	I[203]	-1.7	-11.1	-0.79	0.36	-1.3	-5.01
219	Viento hori trans	J[221]	-1.7	-11.1	-0.79	0.36	-0.12	11.65
220	Viento hori trans	I[204]	-1.65	-7.14	-0.77	0.2	-1.47	-3.22
220	Viento hori trans	J[222]	-1.65	-7.14	-0.77	0.2	-0.32	7.49
221	Viento hori trans	I[205]	-1.63	-3.19	-0.76	0.04	-1.52	-1.44
221	Viento hori trans	J[223]	-1.63	-3.19	-0.76	0.04	-0.38	3.34
222	Viento hori trans	I[206]	-1.63	0.77	-0.75	-0.12	-1.46	0.34
222	Viento hori trans	J[224]	-1.63	0.77	-0.75	-0.12	-0.34	-0.82
223	Viento hori trans	I[207]	-1.65	4.76	-0.74	-0.27	-1.24	2.14
223	Viento hori trans	J[225]	-1.65	4.76	-0.74	-0.27	-0.12	-5
224	Viento hori trans	I[208]	-1.61	8.8	-0.74	-0.43	-0.67	3.96
224	Viento hori trans	J[226]	-1.61	8.8	-0.74	-0.43	0.43	-9.25
225	Viento hori trans	I[209]	-1.28	12.95	-0.69	-0.61	0.66	5.82
225	Viento hori trans	J[227]	-1.28	12.95	-0.69	-0.61	1.69	-13.61
226	Viento hori trans	I[210]	-1.5	17.38	-0.43	-0.82	3.74	7.79
226	Viento hori trans	J[228]	-1.5	17.38	-0.43	-0.82	4.38	-18.29
227	Viento hori trans	I[211]	-7.44	22.68	-0.3	-1.06	10.16	10.14
227	Viento hori trans	J[229]	-7.44	22.68	-0.3	-1.06	10.61	-23.88
228	Viento hori trans	I[212]	-13.7	26.91	2.01	-1.9	18.56	12.14
228	Viento hori trans	J[230]	-13.7	26.91	2.01	-1.9	15.55	-28.23
229	Viento hori trans	I[213]	10.24	-42.35	23.67	3.26	4.32	-33.93
229	Viento hori trans	J[353]	10.24	-42.35	23.67	3.26	-19.35	8.42
230	Viento hori trans	I[214]	6.57	19.58	20.54	-0.4	6.9	16.09
230	Viento hori trans	J[370]	6.57	19.58	20.54	-0.4	-13.64	-3.49
231	Viento hori trans	I[215]	-4.13	-36.11	0.29	1	10.71	-28.42
231	Viento hori trans	J[354]	-4.13	-36.11	0.29	1	10.42	7.69
232	Viento hori trans	I[216]	-2.46	-25.68	-1.19	0.02	9.07	-19.95
232	Viento hori trans	J[355]	-2.46	-25.68	-1.19	0.02	10.26	5.73
233	Viento hori trans	I[217]	-0.93	-18	-0.91	-0.4	5.08	-13.76
233	Viento hori trans	J[356]	-0.93	-18	-0.91	-0.4	6	4.24
234	Viento hori trans	I[218]	-0.55	-13.35	-0.89	-0.56	2.11	-10.05
234	Viento hori trans	J[357]	-0.55	-13.35	-0.89	-0.56	3	3.3
235	Viento hori trans	I[219]	-0.5	-10.16	-0.78	-0.57	0.42	-7.56
235	Viento hori trans	J[358]	-0.5	-10.16	-0.78	-0.57	1.21	2.61
236	Viento hori trans	I[220]	-0.42	-7.67	-0.7	-0.51	-0.38	-5.65
236	Viento hori trans	J[359]	-0.42	-7.67	-0.7	-0.51	0.32	2.03
237	Viento hori trans	I[221]	-0.37	-5.53	-0.64	-0.41	-0.76	-4.03
237	Viento hori trans	J[360]	-0.37	-5.53	-0.64	-0.41	-0.11	1.5
238	Viento hori trans	I[222]	-0.35	-3.57	-0.61	-0.29	-0.93	-2.56
238	Viento hori trans	J[361]	-0.35	-3.57	-0.61	-0.29	-0.32	1.01
239	Viento hori trans	I[223]	-0.34	-1.68	-0.6	-0.16	-0.99	-1.15
239	Viento hori trans	J[362]	-0.34	-1.68	-0.6	-0.16	-0.39	0.53
240	Viento hori trans	I[224]	-0.34	0.21	-0.59	-0.03	-0.94	0.25

240	Viento hori trans	J[363]	-0.34	0.21	-0.59	-0.03	-0.35	0.04
241	Viento hori trans	I[225]	-0.36	2.17	-0.6	0.09	-0.73	1.72
241	Viento hori trans	J[364]	-0.36	2.17	-0.6	0.09	-0.14	-0.45
242	Viento hori trans	I[226]	-0.39	4.29	-0.6	0.2	-0.18	3.32
242	Viento hori trans	J[365]	-0.39	4.29	-0.6	0.2	0.42	-0.98
243	Viento hori trans	I[227]	-0.34	6.72	-0.58	0.28	1.15	5.18
243	Viento hori trans	J[366]	-0.34	6.72	-0.58	0.28	1.72	-1.53
244	Viento hori trans	I[228]	-0.53	9.87	-0.37	0.28	3.69	7.67
244	Viento hori trans	J[367]	-0.53	9.87	-0.37	0.28	4.06	-2.2
245	Viento hori trans	I[229]	-1.56	14.65	-0.38	0.17	7.34	11.54
245	Viento hori trans	J[368]	-1.56	14.65	-0.38	0.17	7.72	-3.11
246	Viento hori trans	I[230]	-3.23	18.75	2.18	-0.4	9.94	15
246	Viento hori trans	J[369]	-3.23	18.75	2.18	-0.4	7.76	-3.75
247	Viento hori trans	I[1]	7.45	-100.9	-5.36	123.93	-26.6	-474.61
247	Viento hori trans	J[231]	7.45	-107.65	-5.36	123.93	-14.77	-244.6
248	Viento hori trans	I[19]	-54.29	10.21	-0.19	-35.19	41.38	30.9
248	Viento hori trans	J[232]	-54.29	10.21	-0.19	-35.19	41.8	8.38
249	Viento hori trans	I[231]	7.45	-107.65	-5.36	123.93	-14.77	-244.6
249	Viento hori trans	J[37]	7.45	-114.4	-5.36	123.93	-2.94	0.3
250	Viento hori trans	I[232]	-54.29	10.21	-0.19	-35.19	41.8	8.38
250	Viento hori trans	J[53]	-54.29	10.21	-0.19	-35.19	42.22	-14.14
251	Viento hori trans	I[37]	-17.44	12.55	2.85	28.15	3.52	18.55
251	Viento hori trans	J[233]	-17.44	5.8	2.85	28.15	-2.77	-1.69
252	Viento hori trans	I[53]	-18.19	6.08	0.48	-23.22	26.49	11.6
252	Viento hori trans	J[234]	-18.19	6.08	0.48	-23.22	25.44	-1.82
253	Viento hori trans	I[233]	-17.44	5.8	2.85	28.15	-2.77	-1.69
253	Viento hori trans	J[38]	-17.44	-0.95	2.85	28.15	-9.06	-7.05
254	Viento hori trans	I[234]	-18.19	6.08	0.48	-23.22	25.44	-1.82
254	Viento hori trans	J[54]	-18.19	6.08	0.48	-23.22	24.39	-15.24
255	Viento hori trans	I[38]	-31.23	9.24	0.68	10.89	-4.63	4.07
255	Viento hori trans	J[235]	-31.23	2.49	0.68	10.89	-6.14	-8.86
256	Viento hori trans	I[54]	7.5	3.62	0.08	-11.36	13.88	3.33
256	Viento hori trans	J[236]	7.5	3.62	0.08	-11.36	13.72	-4.65
257	Viento hori trans	I[235]	-31.23	2.49	0.68	10.89	-6.14	-8.86
257	Viento hori trans	J[39]	-31.23	-4.26	0.68	10.89	-7.64	-6.9
258	Viento hori trans	I[236]	7.5	3.62	0.08	-11.36	13.72	-4.65
258	Viento hori trans	J[55]	7.5	3.62	0.08	-11.36	13.55	-12.63
259	Viento hori trans	I[39]	-43.95	8.83	0.69	4.81	-3.5	3
259	Viento hori trans	J[237]	-43.95	2.08	0.69	4.81	-5.03	-9.02
260	Viento hori trans	I[55]	25.5	2.68	-0.02	-4.52	6.6	0.61
260	Viento hori trans	J[238]	25.5	2.68	-0.02	-4.52	6.64	-5.31
261	Viento hori trans	I[237]	-43.95	2.08	0.69	4.81	-5.03	-9.02
261	Viento hori trans	J[40]	-43.95	-4.67	0.69	4.81	-6.57	-6.16
262	Viento hori trans	I[238]	25.5	2.68	-0.02	-4.52	6.64	-5.31
262	Viento hori trans	J[56]	25.5	2.68	-0.02	-4.52	6.68	-11.24
263	Viento hori trans	I[40]	-54.73	8.51	0.64	2.91	-3.01	2.14
263	Viento hori trans	J[239]	-54.73	1.76	0.64	2.91	-4.42	-9.18
264	Viento hori trans	I[56]	38.85	2.13	-0.14	-0.85	1.8	-1.27
264	Viento hori trans	J[240]	38.85	2.13	-0.14	-0.85	2.11	-5.97
265	Viento hori trans	I[239]	-54.73	1.76	0.64	2.91	-4.42	-9.18
265	Viento hori trans	J[41]	-54.73	-4.99	0.64	2.91	-5.83	-5.61
266	Viento hori trans	I[240]	38.85	2.13	-0.14	-0.85	2.11	-5.97
266	Viento hori trans	J[57]	38.85	2.13	-0.14	-0.85	2.43	-10.67
267	Viento hori trans	I[41]	-63.73	8.22	0.55	2.45	-2.84	1.31
267	Viento hori trans	J[241]	-63.73	1.47	0.55	2.45	-4.07	-9.39
268	Viento hori trans	I[57]	49.01	1.64	-0.2	0.95	-1.15	-2.98
268	Viento hori trans	J[242]	49.01	1.64	-0.2	0.95	-0.7	-6.59
269	Viento hori trans	I[241]	-63.73	1.47	0.55	2.45	-4.07	-9.39
269	Viento hori trans	J[42]	-63.73	-5.28	0.55	2.45	-5.29	-5.19
270	Viento hori trans	I[242]	49.01	1.64	-0.2	0.95	-0.7	-6.59
270	Viento hori trans	J[58]	49.01	1.64	-0.2	0.95	-0.26	-10.2

271	Viento hori trans	I[42]	-70.96	7.91	0.43	2.38	-2.89	0.38
271	Viento hori trans	J[243]	-70.96	1.16	0.43	2.38	-3.84	-9.63
272	Viento hori trans	I[58]	56.68	1.22	-0.21	1.79	-2.88	-4.34
272	Viento hori trans	J[244]	56.68	1.22	-0.21	1.79	-2.42	-7.02
273	Viento hori trans	I[243]	-70.96	1.16	0.43	2.38	-3.84	-9.63
273	Viento hori trans	J[43]	-70.96	-5.59	0.43	2.38	-4.79	-4.74
274	Viento hori trans	I[244]	56.68	1.22	-0.21	1.79	-2.42	-7.02
274	Viento hori trans	J[59]	56.68	1.22	-0.21	1.79	-1.96	-9.71
275	Viento hori trans	I[43]	-76.37	7.58	0.29	2.35	-3.01	-0.56
275	Viento hori trans	J[245]	-76.37	0.83	0.29	2.35	-3.65	-9.84
276	Viento hori trans	I[59]	62.22	0.85	-0.18	2.15	-3.81	-5.44
276	Viento hori trans	J[246]	62.22	0.85	-0.18	2.15	-3.42	-7.31
277	Viento hori trans	I[245]	-76.37	0.83	0.29	2.35	-3.65	-9.84
277	Viento hori trans	J[44]	-76.37	-5.92	0.29	2.35	-4.28	-4.23
278	Viento hori trans	I[246]	62.22	0.85	-0.18	2.15	-3.42	-7.31
278	Viento hori trans	J[60]	62.22	0.85	-0.18	2.15	-3.02	-9.18
279	Viento hori trans	I[44]	-79.91	7.25	0.13	2.28	-3.13	-1.45
279	Viento hori trans	J[247]	-79.91	0.5	0.13	2.28	-3.42	-9.99
280	Viento hori trans	I[60]	65.79	0.5	-0.13	2.28	-4.19	-6.38
280	Viento hori trans	J[248]	65.79	0.5	-0.13	2.28	-3.9	-7.48
281	Viento hori trans	I[247]	-79.91	0.5	0.13	2.28	-3.42	-9.99
281	Viento hori trans	J[45]	-79.91	-6.25	0.13	2.28	-3.71	-3.65
282	Viento hori trans	I[248]	65.79	0.5	-0.13	2.28	-3.9	-7.48
282	Viento hori trans	J[61]	65.79	0.5	-0.13	2.28	-3.6	-8.58
283	Viento hori trans	I[45]	-81.6	6.92	-0.04	2.12	-3.18	-2.28
283	Viento hori trans	J[249]	-81.6	0.17	-0.04	2.12	-3.1	-10.1
284	Viento hori trans	I[61]	67.47	0.16	-0.07	2.33	-4.13	-7.22
284	Viento hori trans	J[250]	67.47	0.16	-0.07	2.33	-3.97	-7.57
285	Viento hori trans	I[249]	-81.6	0.17	-0.04	2.12	-3.1	-10.1
285	Viento hori trans	J[46]	-81.6	-6.58	-0.04	2.12	-3.02	-3.03
286	Viento hori trans	I[250]	67.47	0.16	-0.07	2.33	-3.97	-7.57
286	Viento hori trans	J[62]	67.47	0.16	-0.07	2.33	-3.81	-7.92
287	Viento hori trans	I[46]	-81.5	6.62	-0.21	1.81	-3.08	-3.03
287	Viento hori trans	J[251]	-81.5	-0.13	-0.21	1.81	-2.61	-10.18
288	Viento hori trans	I[62]	67.26	-0.18	-0.01	2.42	-3.69	-7.98
288	Viento hori trans	J[252]	67.26	-0.18	-0.01	2.42	-3.67	-7.58
289	Viento hori trans	I[251]	-81.5	-0.13	-0.21	1.81	-2.61	-10.18
289	Viento hori trans	J[47]	-81.5	-6.88	-0.21	1.81	-2.13	-2.45
290	Viento hori trans	I[252]	67.26	-0.18	-0.01	2.42	-3.67	-7.58
290	Viento hori trans	J[63]	67.26	-0.18	-0.01	2.42	-3.65	-7.17
291	Viento hori trans	I[47]	-79.75	6.36	-0.41	1.17	-2.71	-3.71
291	Viento hori trans	J[253]	-79.75	-0.39	-0.41	1.17	-1.81	-10.3
292	Viento hori trans	I[63]	65.09	-0.55	0.06	2.73	-2.86	-8.71
292	Viento hori trans	J[254]	65.09	-0.55	0.06	2.73	-2.99	-7.5
293	Viento hori trans	I[253]	-79.75	-0.39	-0.41	1.17	-1.81	-10.3
293	Viento hori trans	J[48]	-79.75	-7.14	-0.41	1.17	-0.91	-2
294	Viento hori trans	I[254]	65.09	-0.55	0.06	2.73	-2.99	-7.5
294	Viento hori trans	J[64]	65.09	-0.55	0.06	2.73	-3.12	-6.3
295	Viento hori trans	I[48]	-76.59	6.19	-0.62	-0.28	-1.88	-4.38
295	Viento hori trans	J[255]	-76.59	-0.56	-0.62	-0.28	-0.5	-10.59
296	Viento hori trans	I[64]	60.79	-0.93	0.13	3.61	-1.57	-9.42
296	Viento hori trans	J[256]	60.79	-0.93	0.13	3.61	-1.85	-7.36
297	Viento hori trans	I[255]	-76.59	-0.56	-0.62	-0.28	-0.5	-10.59
297	Viento hori trans	J[49]	-76.59	-7.31	-0.62	-0.28	0.87	-1.9
298	Viento hori trans	I[256]	60.79	-0.93	0.13	3.61	-1.85	-7.36
298	Viento hori trans	J[65]	60.79	-0.93	0.13	3.61	-2.14	-5.3
299	Viento hori trans	I[49]	-72.37	6.08	-0.9	-3.87	-0.29	-5.18
299	Viento hori trans	J[257]	-72.37	-0.67	-0.9	-3.87	1.69	-11.15
300	Viento hori trans	I[65]	54.08	-1.28	0.23	5.76	0.32	-10.19
300	Viento hori trans	J[258]	54.08	-1.28	0.23	5.76	-0.18	-7.38
301	Viento hori trans	I[257]	-72.37	-0.67	-0.9	-3.87	1.69	-11.15

301	Viento hori trans	J[50]	-72.37	-7.42	-0.9	-3.87	3.68	-2.22
302	Viento hori trans	I[258]	54.08	-1.28	0.23	5.76	-0.18	-7.38
302	Viento hori trans	J[66]	54.08	-1.28	0.23	5.76	-0.67	-4.56
303	Viento hori trans	I[50]	-67.64	6.02	-1.27	-12.8	2.69	-6.14
303	Viento hori trans	J[259]	-67.64	-0.73	-1.27	-12.8	5.48	-11.98
304	Viento hori trans	I[66]	44.21	-1.8	0.52	10.22	3.07	-11.7
304	Viento hori trans	J[260]	44.21	-1.8	0.52	10.22	1.94	-7.72
305	Viento hori trans	I[259]	-67.64	-0.73	-1.27	-12.8	5.48	-11.98
305	Viento hori trans	J[51]	-67.64	-7.48	-1.27	-12.8	8.27	-2.93
306	Viento hori trans	I[260]	44.21	-1.8	0.52	10.22	1.94	-7.72
306	Viento hori trans	J[67]	44.21	-1.8	0.52	10.22	0.8	-3.74
307	Viento hori trans	I[51]	-64.65	3.23	-3.98	-34.37	8.46	-6.14
307	Viento hori trans	J[261]	-64.65	-3.52	-3.98	-34.37	17.23	-5.82
308	Viento hori trans	I[67]	29.56	-3.37	0.67	18.78	6.61	-14.18
308	Viento hori trans	J[262]	29.56	-3.37	0.67	18.78	5.12	-6.75
309	Viento hori trans	I[261]	-64.65	-3.52	-3.98	-34.37	17.23	-5.82
309	Viento hori trans	J[52]	-64.65	-10.27	-3.98	-34.37	26.01	9.39
310	Viento hori trans	I[262]	29.56	-3.37	0.67	18.78	5.12	-6.75
310	Viento hori trans	J[68]	29.56	-3.37	0.67	18.78	3.64	0.68
311	Viento hori trans	I[52]	-57.23	118.43	2.64	-136.24	27.35	3.78
311	Viento hori trans	J[263]	-57.23	111.68	2.64	-136.24	21.53	-250.01
312	Viento hori trans	I[68]	10.81	-6.59	2.91	26.76	11.68	-12.44
312	Viento hori trans	J[264]	10.81	-6.59	2.91	26.76	5.27	2.1
313	Viento hori trans	I[263]	-57.23	111.68	2.64	-136.24	21.53	-250.01
313	Viento hori trans	J[18]	-57.23	104.93	2.64	-136.24	15.71	-488.91
314	Viento hori trans	I[264]	10.81	-6.59	2.91	26.76	5.27	2.1
314	Viento hori trans	J[36]	10.81	-6.59	2.91	26.76	-1.14	16.65
315	Viento hori trans	I[1]	0	0	0	0	0	0
315	Viento hori trans	J[265]	0	0	0	0	0	0
316	Viento hori trans	I[18]	0	0	0	0	0	0
316	Viento hori trans	J[266]	0	0	0	0	0	0
317	Viento hori trans	I[37]	0	0	0	0	0	0
317	Viento hori trans	J[267]	0	0	0	0	0	0
318	Viento hori trans	I[38]	0	0	0	0	0	0
318	Viento hori trans	J[268]	0	0	0	0	0	0
319	Viento hori trans	I[39]	0	0	0	0	0	0
319	Viento hori trans	J[269]	0	0	0	0	0	0
320	Viento hori trans	I[40]	0	0	0	0	0	0
320	Viento hori trans	J[270]	0	0	0	0	0	0
321	Viento hori trans	I[41]	0	0	0	0	0	0
321	Viento hori trans	J[271]	0	0	0	0	0	0
322	Viento hori trans	I[42]	0	0	0	0	0	0
322	Viento hori trans	J[272]	0	0	0	0	0	0
323	Viento hori trans	I[43]	0	0	0	0	0	0
323	Viento hori trans	J[273]	0	0	0	0	0	0
324	Viento hori trans	I[44]	0	0	0	0	0	0
324	Viento hori trans	J[274]	0	0	0	0	0	0
325	Viento hori trans	I[45]	0	0	0	0	0	0
325	Viento hori trans	J[275]	0	0	0	0	0	0
326	Viento hori trans	I[46]	0	0	0	0	0	0
326	Viento hori trans	J[276]	0	0	0	0	0	0
327	Viento hori trans	I[47]	0	0	0	0	0	0
327	Viento hori trans	J[277]	0	0	0	0	0	0
328	Viento hori trans	I[48]	0	0	0	0	0	0
328	Viento hori trans	J[278]	0	0	0	0	0	0
329	Viento hori trans	I[49]	0	0	0	0	0	0
329	Viento hori trans	J[279]	0	0	0	0	0	0
330	Viento hori trans	I[50]	0	0	0	0	0	0
330	Viento hori trans	J[280]	0	0	0	0	0	0
331	Viento hori trans	I[51]	0	0	0	0	0	0
331	Viento hori trans	J[281]	0	0	0	0	0	0

332	Viento hori trans	I[52]	0	0	0	0	0	0
332	Viento hori trans	J[282]	0	0	0	0	0	0
333	Viento hori trans	I[231]	0	0	0	0	0	0
333	Viento hori trans	J[283]	0	0	0	0	0	0
334	Viento hori trans	I[233]	0	0	0	0	0	0
334	Viento hori trans	J[284]	0	0	0	0	0	0
335	Viento hori trans	I[235]	0	0	0	0	0	0
335	Viento hori trans	J[285]	0	0	0	0	0	0
336	Viento hori trans	I[237]	0	0	0	0	0	0
336	Viento hori trans	J[286]	0	0	0	0	0	0
337	Viento hori trans	I[239]	0	0	0	0	0	0
337	Viento hori trans	J[287]	0	0	0	0	0	0
338	Viento hori trans	I[241]	0	0	0	0	0	0
338	Viento hori trans	J[288]	0	0	0	0	0	0
339	Viento hori trans	I[243]	0	0	0	0	0	0
339	Viento hori trans	J[289]	0	0	0	0	0	0
340	Viento hori trans	I[245]	0	0	0	0	0	0
340	Viento hori trans	J[290]	0	0	0	0	0	0
341	Viento hori trans	I[247]	0	0	0	0	0	0
341	Viento hori trans	J[291]	0	0	0	0	0	0
342	Viento hori trans	I[249]	0	0	0	0	0	0
342	Viento hori trans	J[292]	0	0	0	0	0	0
343	Viento hori trans	I[251]	0	0	0	0	0	0
343	Viento hori trans	J[293]	0	0	0	0	0	0
344	Viento hori trans	I[253]	0	0	0	0	0	0
344	Viento hori trans	J[294]	0	0	0	0	0	0
345	Viento hori trans	I[255]	0	0	0	0	0	0
345	Viento hori trans	J[295]	0	0	0	0	0	0
346	Viento hori trans	I[257]	0	0	0	0	0	0
346	Viento hori trans	J[296]	0	0	0	0	0	0
347	Viento hori trans	I[259]	0	0	0	0	0	0
347	Viento hori trans	J[297]	0	0	0	0	0	0
348	Viento hori trans	I[261]	0	0	0	0	0	0
348	Viento hori trans	J[298]	0	0	0	0	0	0
349	Viento hori trans	I[263]	0	0	0	0	0	0
349	Viento hori trans	J[299]	0	0	0	0	0	0
350	Viento hori trans	I[19]	0	0	0	0	0	0
350	Viento hori trans	J[300]	0	0	0	0	0	0
351	Viento hori trans	I[36]	0	0	0	0	0	0
351	Viento hori trans	J[301]	0	0	0	0	0	0
352	Viento hori trans	I[53]	0	0	0	0	0	0
352	Viento hori trans	J[302]	0	0	0	0	0	0
353	Viento hori trans	I[54]	0	0	0	0	0	0
353	Viento hori trans	J[303]	0	0	0	0	0	0
354	Viento hori trans	I[55]	0	0	0	0	0	0
354	Viento hori trans	J[304]	0	0	0	0	0	0
355	Viento hori trans	I[56]	0	0	0	0	0	0
355	Viento hori trans	J[305]	0	0	0	0	0	0
356	Viento hori trans	I[57]	0	0	0	0	0	0
356	Viento hori trans	J[306]	0	0	0	0	0	0
357	Viento hori trans	I[58]	0	0	0	0	0	0
357	Viento hori trans	J[307]	0	0	0	0	0	0
358	Viento hori trans	I[59]	0	0	0	0	0	0
358	Viento hori trans	J[308]	0	0	0	0	0	0
359	Viento hori trans	I[60]	0	0	0	0	0	0
359	Viento hori trans	J[309]	0	0	0	0	0	0
360	Viento hori trans	I[61]	0	0	0	0	0	0
360	Viento hori trans	J[310]	0	0	0	0	0	0
361	Viento hori trans	I[62]	0	0	0	0	0	0
361	Viento hori trans	J[311]	0	0	0	0	0	0
362	Viento hori trans	I[63]	0	0	0	0	0	0

362	Viento hori trans	J[312]	0	0	0	0	0	0
363	Viento hori trans	I[64]	0	0	0	0	0	0
363	Viento hori trans	J[313]	0	0	0	0	0	0
364	Viento hori trans	I[65]	0	0	0	0	0	0
364	Viento hori trans	J[314]	0	0	0	0	0	0
365	Viento hori trans	I[66]	0	0	0	0	0	0
365	Viento hori trans	J[315]	0	0	0	0	0	0
366	Viento hori trans	I[67]	0	0	0	0	0	0
366	Viento hori trans	J[316]	0	0	0	0	0	0
367	Viento hori trans	I[68]	0	0	0	0	0	0
367	Viento hori trans	J[317]	0	0	0	0	0	0
368	Viento hori trans	I[232]	0	0	0	0	0	0
368	Viento hori trans	J[318]	0	0	0	0	0	0
369	Viento hori trans	I[234]	0	0	0	0	0	0
369	Viento hori trans	J[319]	0	0	0	0	0	0
370	Viento hori trans	I[236]	0	0	0	0	0	0
370	Viento hori trans	J[320]	0	0	0	0	0	0
371	Viento hori trans	I[238]	0	0	0	0	0	0
371	Viento hori trans	J[321]	0	0	0	0	0	0
372	Viento hori trans	I[240]	0	0	0	0	0	0
372	Viento hori trans	J[322]	0	0	0	0	0	0
373	Viento hori trans	I[242]	0	0	0	0	0	0
373	Viento hori trans	J[323]	0	0	0	0	0	0
374	Viento hori trans	I[244]	0	0	0	0	0	0
374	Viento hori trans	J[324]	0	0	0	0	0	0
375	Viento hori trans	I[246]	0	0	0	0	0	0
375	Viento hori trans	J[325]	0	0	0	0	0	0
376	Viento hori trans	I[248]	0	0	0	0	0	0
376	Viento hori trans	J[326]	0	0	0	0	0	0
377	Viento hori trans	I[250]	0	0	0	0	0	0
377	Viento hori trans	J[327]	0	0	0	0	0	0
378	Viento hori trans	I[252]	0	0	0	0	0	0
378	Viento hori trans	J[328]	0	0	0	0	0	0
379	Viento hori trans	I[254]	0	0	0	0	0	0
379	Viento hori trans	J[329]	0	0	0	0	0	0
380	Viento hori trans	I[256]	0	0	0	0	0	0
380	Viento hori trans	J[330]	0	0	0	0	0	0
381	Viento hori trans	I[258]	0	0	0	0	0	0
381	Viento hori trans	J[331]	0	0	0	0	0	0
382	Viento hori trans	I[260]	0	0	0	0	0	0
382	Viento hori trans	J[332]	0	0	0	0	0	0
383	Viento hori trans	I[262]	0	0	0	0	0	0
383	Viento hori trans	J[333]	0	0	0	0	0	0
384	Viento hori trans	I[264]	0	0	0	0	0	0
384	Viento hori trans	J[334]	0	0	0	0	0	0
385	Viento hori trans	I[69]	44.7	36.45	3.72	4.63	12.17	81.83
385	Viento hori trans	J[71]	44.7	36.45	3.72	4.63	-4.25	-78.95
386	Viento hori trans	I[105]	3.42	59.25	2.44	1.18	6.64	153.59
386	Viento hori trans	J[107]	3.42	59.25	2.44	1.18	-4.11	-107.78
387	Viento hori trans	I[141]	3.28	50.26	1.49	-1.05	3.57	125.6
387	Viento hori trans	J[143]	3.28	50.26	1.49	-1.05	-2.98	-96.14
388	Viento hori trans	I[177]	5.45	49.67	0.28	-2.19	0.48	126.45
388	Viento hori trans	J[179]	5.45	49.67	0.28	-2.19	-0.76	-92.69
389	Viento hori trans	I[213]	-8.04	27.33	-0.97	-2.35	-2.43	70.02
389	Viento hori trans	J[215]	-8.04	27.33	-0.97	-2.35	1.83	-50.55
390	Viento hori trans	I[71]	32.26	1.83	-1.94	1.02	-5.46	-21.16
390	Viento hori trans	J[72]	32.26	1.83	-1.94	1.02	3.11	-29.22
391	Viento hori trans	I[107]	-2.47	24.84	-0.82	0.07	-3.18	29.61
391	Viento hori trans	J[108]	-2.47	24.84	-0.82	0.07	0.45	-79.97
392	Viento hori trans	I[143]	4.07	26.74	-0.37	-0.65	-1.83	32.79
392	Viento hori trans	J[144]	4.07	26.74	-0.37	-0.65	-0.22	-85.17

393	Viento hori trans	I[179]	12.23	30.03	-0.11	-1.12	-0.73	40.79
393	Viento hori trans	J[180]	12.23	30.03	-0.11	-1.12	-0.24	-91.71
394	Viento hori trans	I[215]	-8.51	16.69	0.18	-1.31	0.39	15.09
394	Viento hori trans	J[216]	-8.51	16.69	0.18	-1.31	-0.39	-58.55
395	Viento hori trans	I[72]	15.37	11.22	-1.07	0.46	-2.53	12.22
395	Viento hori trans	J[73]	15.37	11.22	-1.07	0.46	2.18	-37.3
396	Viento hori trans	I[108]	-9.32	24.51	-0.18	0.1	-0.58	35.95
396	Viento hori trans	J[109]	-9.32	24.51	-0.18	0.1	0.21	-72.2
397	Viento hori trans	I[144]	3.58	22.94	0.02	-0.18	-0.11	28.52
397	Viento hori trans	J[145]	3.58	22.94	0.02	-0.18	-0.19	-72.68
398	Viento hori trans	I[180]	17.97	23.9	0.14	-0.4	0.26	28.58
398	Viento hori trans	J[181]	17.97	23.9	0.14	-0.4	-0.35	-76.85
399	Viento hori trans	I[216]	-1.9	9.84	0.58	-0.58	1.33	-4.7
399	Viento hori trans	J[217]	-1.9	9.84	0.58	-0.58	-1.23	-48.1
400	Viento hori trans	I[73]	1.34	8.73	-0.98	0.21	-2.35	-0.14
400	Viento hori trans	J[376]	1.34	8.73	-0.98	0.21	-0.18	-19.4
401	Viento hori trans	I[109]	-14.91	21.55	-0.22	0.1	-0.63	28.31
401	Viento hori trans	J[377]	-14.91	21.55	-0.22	0.1	-0.15	-19.22
402	Viento hori trans	I[145]	3.49	20.5	0	-0.01	-0.12	24.6
402	Viento hori trans	J[378]	3.49	20.5	0	-0.01	-0.12	-20.62
403	Viento hori trans	I[181]	22.98	21.19	0.15	-0.12	0.28	25.28
403	Viento hori trans	J[379]	22.98	21.19	0.15	-0.12	-0.05	-21.45
404	Viento hori trans	I[217]	7.5	8.28	0.72	-0.21	1.62	-5.57
404	Viento hori trans	J[380]	7.5	8.28	0.72	-0.21	0.04	-23.84
405	Viento hori trans	I[74]	-10.64	6.96	-0.81	0.14	-1.94	-6.93
405	Viento hori trans	J[75]	-10.64	6.96	-0.81	0.14	1.65	-37.65
406	Viento hori trans	I[110]	-19.79	18.08	-0.19	0.1	-0.51	19.04
406	Viento hori trans	J[111]	-19.79	18.08	-0.19	0.1	0.32	-60.71
407	Viento hori trans	I[146]	3.5	17.43	0	0.07	-0.07	17.18
407	Viento hori trans	J[147]	3.5	17.43	0	0.07	-0.07	-59.72
408	Viento hori trans	I[182]	27.45	18.07	0.15	0.02	0.3	18.43
408	Viento hori trans	J[183]	27.45	18.07	0.15	0.02	-0.37	-61.3
409	Viento hori trans	I[218]	17.32	7.08	0.7	-0.02	1.58	-7.76
409	Viento hori trans	J[219]	17.32	7.08	0.7	-0.02	-1.52	-39.02
410	Viento hori trans	I[75]	-20.45	5.61	-0.65	0.13	-1.57	-11.33
410	Viento hori trans	J[76]	-20.45	5.61	-0.65	0.13	1.31	-36.06
411	Viento hori trans	I[111]	-23.88	14.66	-0.16	0.12	-0.43	10.32
411	Viento hori trans	J[112]	-23.88	14.66	-0.16	0.12	0.26	-54.34
412	Viento hori trans	I[147]	3.5	14.19	0	0.11	-0.06	9.1
412	Viento hori trans	J[148]	3.5	14.19	0	0.11	-0.06	-53.52
413	Viento hori trans	I[183]	31.26	14.73	0.14	0.09	0.27	10.29
413	Viento hori trans	J[184]	31.26	14.73	0.14	0.09	-0.34	-54.67
414	Viento hori trans	I[219]	26.25	5.73	0.62	0.07	1.38	-11.43
414	Viento hori trans	J[220]	26.25	5.73	0.62	0.07	-1.34	-36.69
415	Viento hori trans	I[76]	-28.12	4.31	-0.5	0.13	-1.22	-15.17
415	Viento hori trans	J[77]	-28.12	4.31	-0.5	0.13	0.97	-34.19
416	Viento hori trans	I[112]	-27.14	11.25	-0.12	0.13	-0.35	1.91
416	Viento hori trans	J[113]	-27.14	11.25	-0.12	0.13	0.19	-47.74
417	Viento hori trans	I[148]	3.5	10.9	0	0.13	-0.06	1.01
417	Viento hori trans	J[149]	3.5	10.9	0	0.13	-0.06	-47.08
418	Viento hori trans	I[184]	34.33	11.31	0.11	0.12	0.2	1.96
418	Viento hori trans	J[185]	34.33	11.31	0.11	0.12	-0.29	-47.93
419	Viento hori trans	I[220]	33.66	4.36	0.49	0.11	1.09	-15.22
419	Viento hori trans	J[221]	33.66	4.36	0.49	0.11	-1.08	-34.47
420	Viento hori trans	I[77]	-33.7	3.02	-0.34	0.13	-0.88	-18.74
420	Viento hori trans	J[78]	-33.7	3.02	-0.34	0.13	0.64	-32.05
421	Viento hori trans	I[113]	-29.5	7.84	-0.08	0.13	-0.27	-6.3
421	Viento hori trans	J[114]	-29.5	7.84	-0.08	0.13	0.11	-40.89
422	Viento hori trans	I[149]	3.49	7.57	0	0.13	-0.07	-6.97
422	Viento hori trans	J[150]	3.49	7.57	0	0.13	-0.06	-40.39
423	Viento hori trans	I[185]	36.59	7.87	0.08	0.13	0.13	-6.26

423	Viento hori trans	J[186]	36.59	7.87	0.08	0.13	-0.23	-40.99
424	Viento hori trans	I[221]	39.23	3.03	0.35	0.12	0.76	-18.79
424	Viento hori trans	J[222]	39.23	3.03	0.35	0.12	-0.77	-32.17
425	Viento hori trans	I[78]	-37.25	1.72	-0.19	0.13	-0.54	-22.07
425	Viento hori trans	J[371]	-37.25	1.72	-0.19	0.13	-0.12	-25.87
426	Viento hori trans	I[114]	-30.92	4.42	-0.04	0.13	-0.18	-14.31
426	Viento hori trans	J[372]	-30.92	4.42	-0.04	0.13	-0.08	-24.05
427	Viento hori trans	I[150]	3.48	4.22	0	0.13	-0.07	-14.8
427	Viento hori trans	J[373]	3.48	4.22	0	0.13	-0.07	-24.12
428	Viento hori trans	I[186]	37.97	4.43	0.04	0.13	0.04	-14.29
428	Viento hori trans	J[374]	37.97	4.43	0.04	0.13	-0.05	-24.07
429	Viento hori trans	I[222]	42.8	1.73	0.19	0.13	0.42	-22.12
429	Viento hori trans	J[375]	42.8	1.73	0.19	0.13	-0.01	-25.93
430	Viento hori trans	I[79]	-38.74	0.44	-0.04	0.12	-0.2	-25.15
430	Viento hori trans	J[80]	-38.74	0.44	-0.04	0.12	-0.03	-27.09
431	Viento hori trans	I[115]	-31.37	0.98	0	0.13	-0.08	-22.13
431	Viento hori trans	J[116]	-31.37	0.98	0	0.13	-0.08	-26.46
432	Viento hori trans	I[151]	3.47	0.85	0	0.13	-0.07	-22.49
432	Viento hori trans	J[152]	3.47	0.85	0	0.13	-0.06	-26.24
433	Viento hori trans	I[187]	38.43	0.98	0	0.13	-0.05	-22.16
433	Viento hori trans	J[188]	38.43	0.98	0	0.13	-0.05	-26.49
434	Viento hori trans	I[223]	44.3	0.43	0.04	0.13	0.07	-25.25
434	Viento hori trans	J[224]	44.3	0.43	0.04	0.13	-0.09	-27.17
435	Viento hori trans	I[80]	-38.13	-0.82	0.13	0.11	0.16	-27.99
435	Viento hori trans	J[81]	-38.13	-0.82	0.13	0.11	-0.39	-24.37
436	Viento hori trans	I[116]	-30.79	-2.46	0.05	0.11	0.03	-29.78
436	Viento hori trans	J[117]	-30.79	-2.46	0.05	0.11	-0.18	-18.92
437	Viento hori trans	I[152]	3.45	-2.55	0	0.12	-0.07	-30.06
437	Viento hori trans	J[153]	3.45	-2.55	0	0.12	-0.06	-18.82
438	Viento hori trans	I[188]	37.94	-2.48	-0.04	0.13	-0.14	-29.91
438	Viento hori trans	J[189]	37.94	-2.48	-0.04	0.13	0.04	-18.96
439	Viento hori trans	I[224]	43.74	-0.86	-0.12	0.13	-0.27	-28.24
439	Viento hori trans	J[225]	43.74	-0.86	-0.12	0.13	0.25	-24.47
440	Viento hori trans	I[81]	-35.25	-2.04	0.31	0.08	0.56	-30.59
440	Viento hori trans	J[82]	-35.25	-2.04	0.31	0.08	-0.79	-21.58
441	Viento hori trans	I[117]	-29.15	-5.93	0.1	0.1	0.15	-37.35
441	Viento hori trans	J[118]	-29.15	-5.93	0.1	0.1	-0.3	-11.2
442	Viento hori trans	I[153]	3.43	-5.98	0	0.11	-0.07	-37.59
442	Viento hori trans	J[154]	3.43	-5.98	0	0.11	-0.06	-11.22
443	Viento hori trans	I[189]	36.45	-5.96	-0.09	0.13	-0.24	-37.62
443	Viento hori trans	J[190]	36.45	-5.96	-0.09	0.13	0.15	-11.32
444	Viento hori trans	I[225]	41.15	-2.14	-0.27	0.15	-0.59	-31.19
444	Viento hori trans	J[226]	41.15	-2.14	-0.27	0.15	0.59	-21.74
445	Viento hori trans	I[82]	-29.84	-3.26	0.51	0.01	1.02	-32.96
445	Viento hori trans	J[83]	-29.84	-3.26	0.51	0.01	-1.25	-18.58
446	Viento hori trans	I[118]	-26.36	-9.48	0.16	0.06	0.28	-44.97
446	Viento hori trans	J[119]	-26.36	-9.48	0.16	0.06	-0.45	-3.17
447	Viento hori trans	I[154]	3.39	-9.46	0	0.11	-0.07	-45.28
447	Viento hori trans	J[155]	3.39	-9.46	0	0.11	-0.07	-3.54
448	Viento hori trans	I[190]	33.91	-9.43	-0.13	0.15	-0.34	-45.49
448	Viento hori trans	J[191]	33.91	-9.43	-0.13	0.15	0.24	-3.88
449	Viento hori trans	I[226]	36.64	-3.36	-0.4	0.19	-0.89	-34.3
449	Viento hori trans	J[227]	36.64	-3.36	-0.4	0.19	0.89	-19.47
450	Viento hori trans	I[83]	-21.43	-4.8	0.78	-0.14	1.57	-34.87
450	Viento hori trans	J[381]	-21.43	-4.8	0.78	-0.14	-0.14	-24.28
451	Viento hori trans	I[119]	-22.32	-13.2	0.24	-0.01	0.4	-52.76
451	Viento hori trans	J[382]	-22.32	-13.2	0.24	-0.01	-0.13	-23.64
452	Viento hori trans	I[155]	3.34	-12.96	0	0.11	-0.12	-53.47
452	Viento hori trans	J[383]	3.34	-12.96	0	0.11	-0.12	-24.88
453	Viento hori trans	I[191]	30.25	-12.78	-0.18	0.21	-0.47	-54.09
453	Viento hori trans	J[384]	30.25	-12.78	-0.18	0.21	-0.08	-25.91

454	Viento hori trans	I[227]	30.41	-4.3	-0.51	0.29	-1.14	-38.27
454	Viento hori trans	J[385]	30.41	-4.3	-0.51	0.29	0	-28.78
455	Viento hori trans	I[84]	-9.34	-6.96	1.05	-0.55	2.2	-34.47
455	Viento hori trans	J[85]	-9.34	-6.96	1.05	-0.55	-2.44	-3.76
456	Viento hori trans	I[120]	-16.84	-16.69	0.29	-0.17	0.48	-60.65
456	Viento hori trans	J[121]	-16.84	-16.69	0.29	-0.17	-0.79	12.97
457	Viento hori trans	I[156]	3.38	-16.14	-0.02	0.13	-0.21	-63.27
457	Viento hori trans	J[157]	3.38	-16.14	-0.02	0.13	-0.12	7.94
458	Viento hori trans	I[192]	25.29	-15.89	-0.25	0.35	-0.65	-65.23
458	Viento hori trans	J[193]	25.29	-15.89	-0.25	0.35	0.46	4.87
459	Viento hori trans	I[228]	22.9	-5.28	-0.58	0.53	-1.28	-45.25
459	Viento hori trans	J[229]	22.9	-5.28	-0.58	0.53	1.25	-21.97
460	Viento hori trans	I[85]	8.83	2.86	2.26	-1.37	3.94	-26.96
460	Viento hori trans	J[86]	8.83	2.86	2.26	-1.37	-6.01	-39.57
461	Viento hori trans	I[121]	-9.02	-17.87	1.02	-0.41	1	-71.56
461	Viento hori trans	J[122]	-9.02	-17.87	1.02	-0.41	-3.5	7.27
462	Viento hori trans	I[157]	3.84	-21.12	0.36	0.32	-0.26	-79.82
462	Viento hori trans	J[158]	3.84	-21.12	0.36	0.32	-1.84	13.36
463	Viento hori trans	I[193]	18.54	-22.81	-0.1	0.83	-0.85	-83.81
463	Viento hori trans	J[194]	18.54	-22.81	-0.1	0.83	-0.42	16.82
464	Viento hori trans	I[229]	14.86	-11.15	-0.5	1.06	-1.26	-57.38
464	Viento hori trans	J[230]	14.86	-11.15	-0.5	1.06	0.93	-8.18
465	Viento hori trans	I[86]	29.86	-29.37	-2.09	-5.34	-1.07	-74.57
465	Viento hori trans	J[70]	29.86	-29.37	-2.09	-5.34	8.16	55.02
466	Viento hori trans	I[122]	-0.27	-53.08	-1.68	-1.9	-2.64	-103.78
466	Viento hori trans	J[106]	-0.27	-53.08	-1.68	-1.9	4.76	130.41
467	Viento hori trans	I[158]	3.12	-47.28	-1.48	0.33	-2.98	-97.38
467	Viento hori trans	J[142]	3.12	-47.28	-1.48	0.33	3.54	111.21
468	Viento hori trans	I[194]	8.97	-44.2	-1.03	1.51	-2.24	-90.81
468	Viento hori trans	J[178]	8.97	-44.2	-1.03	1.51	2.32	104.19
469	Viento hori trans	I[230]	6.7	-21.63	-0.67	1.77	-1.39	-51.4
469	Viento hori trans	J[214]	6.7	-21.63	-0.67	1.77	1.57	44.02
470	Viento hori trans	I[335]	233.19	-91.15	30.63	5.62	222.25	-58.2
470	Viento hori trans	J[69]	233.19	-91.15	30.63	5.62	191.62	32.95
471	Viento hori trans	I[336]	-126.95	-24.88	-9.74	-3.69	48.86	-5.81
471	Viento hori trans	J[71]	-126.95	-24.88	-9.74	-3.69	58.6	19.07
472	Viento hori trans	I[337]	-10.18	-13.79	1.36	-1.2	12.43	-4.22
472	Viento hori trans	J[72]	-10.18	-13.79	1.36	-1.2	11.06	9.57
473	Viento hori trans	I[338]	-13.09	-12.72	-0.74	-1.05	1.12	-3.54
473	Viento hori trans	J[73]	-13.09	-12.72	-0.74	-1.05	1.86	9.18
474	Viento hori trans	I[339]	-13.18	-10.78	-0.71	-0.84	-3.13	-2.91
474	Viento hori trans	J[74]	-13.18	-10.78	-0.71	-0.84	-2.42	7.87
475	Viento hori trans	I[340]	-13.21	-9.01	-0.69	-0.69	-4.59	-2.42
475	Viento hori trans	J[75]	-13.21	-9.01	-0.69	-0.69	-3.9	6.59
476	Viento hori trans	I[341]	-13.19	-7.23	-0.66	-0.55	-4.98	-1.95
476	Viento hori trans	J[76]	-13.19	-7.23	-0.66	-0.55	-4.32	5.27
477	Viento hori trans	I[342]	-13.17	-5.4	-0.63	-0.42	-5.03	-1.49
477	Viento hori trans	J[77]	-13.17	-5.4	-0.63	-0.42	-4.4	3.92
478	Viento hori trans	I[343]	-13.17	-3.55	-0.61	-0.29	-4.99	-1.01
478	Viento hori trans	J[78]	-13.17	-3.55	-0.61	-0.29	-4.38	2.54
479	Viento hori trans	I[344]	-13.17	-1.69	-0.6	-0.16	-4.91	-0.53
479	Viento hori trans	J[79]	-13.17	-1.69	-0.6	-0.16	-4.32	1.17
480	Viento hori trans	I[345]	-13.2	0.1	-0.58	-0.02	-4.78	-0.06
480	Viento hori trans	J[80]	-13.2	0.1	-0.58	-0.02	-4.2	-0.15
481	Viento hori trans	I[346]	-13.24	1.75	-0.56	0.14	-4.49	0.39
481	Viento hori trans	J[81]	-13.24	1.75	-0.56	0.14	-3.93	-1.36
482	Viento hori trans	I[347]	-13.32	3.17	-0.51	0.32	-3.73	0.8
482	Viento hori trans	J[82]	-13.32	3.17	-0.51	0.32	-3.22	-2.37
483	Viento hori trans	I[348]	-13.39	4.22	-0.39	0.56	-1.67	1.17
483	Viento hori trans	J[83]	-13.39	4.22	-0.39	0.56	-1.28	-3.05
484	Viento hori trans	I[349]	-13.44	4.72	-0.2	0.94	3.55	1.55

484	Viento hori trans	J[84]	-13.44	4.72	-0.2	0.94	3.75	-3.17
485	Viento hori trans	I[350]	-10.7	2.99	2.16	1.41	16.12	1.71
485	Viento hori trans	J[85]	-10.7	2.99	2.16	1.41	13.96	-1.28
486	Viento hori trans	I[351]	-128.7	7.42	-7.81	4.36	53.27	1.91
486	Viento hori trans	J[86]	-128.7	7.42	-7.81	4.36	61.08	-5.51
487	Viento hori trans	I[352]	202.13	67.96	27.49	-2.65	224.4	53.19
487	Viento hori trans	J[70]	202.13	67.96	27.49	-2.65	196.91	-14.77
488	Viento hori trans	I[353]	10.24	-42.35	23.67	3.26	-19.35	8.42
488	Viento hori trans	J[19]	10.24	-42.35	23.67	3.26	-31.18	29.6
489	Viento hori trans	I[354]	-4.13	-36.11	0.29	1	10.42	7.69
489	Viento hori trans	J[53]	-4.13	-36.11	0.29	1	10.28	25.74
490	Viento hori trans	I[355]	-2.46	-25.68	-1.19	0.02	10.26	5.73
490	Viento hori trans	J[54]	-2.46	-25.68	-1.19	0.02	10.86	18.57
491	Viento hori trans	I[356]	-0.93	-18	-0.91	-0.4	6	4.24
491	Viento hori trans	J[55]	-0.93	-18	-0.91	-0.4	6.45	13.24
492	Viento hori trans	I[357]	-0.55	-13.35	-0.89	-0.56	3	3.3
492	Viento hori trans	J[56]	-0.55	-13.35	-0.89	-0.56	3.45	9.97
493	Viento hori trans	I[358]	-0.5	-10.16	-0.78	-0.57	1.21	2.61
493	Viento hori trans	J[57]	-0.5	-10.16	-0.78	-0.57	1.6	7.69
494	Viento hori trans	I[359]	-0.42	-7.67	-0.7	-0.51	0.32	2.03
494	Viento hori trans	J[58]	-0.42	-7.67	-0.7	-0.51	0.67	5.86
495	Viento hori trans	I[360]	-0.37	-5.53	-0.64	-0.41	-0.11	1.5
495	Viento hori trans	J[59]	-0.37	-5.53	-0.64	-0.41	0.21	4.27
496	Viento hori trans	I[361]	-0.35	-3.57	-0.61	-0.29	-0.32	1.01
496	Viento hori trans	J[60]	-0.35	-3.57	-0.61	-0.29	-0.01	2.79
497	Viento hori trans	I[362]	-0.34	-1.68	-0.6	-0.16	-0.39	0.53
497	Viento hori trans	J[61]	-0.34	-1.68	-0.6	-0.16	-0.09	1.37
498	Viento hori trans	I[363]	-0.34	0.21	-0.59	-0.03	-0.35	0.04
498	Viento hori trans	J[62]	-0.34	0.21	-0.59	-0.03	-0.05	-0.06
499	Viento hori trans	I[364]	-0.36	2.17	-0.6	0.09	-0.14	-0.45
499	Viento hori trans	J[63]	-0.36	2.17	-0.6	0.09	0.16	-1.54
500	Viento hori trans	I[365]	-0.39	4.29	-0.6	0.2	0.42	-0.98
500	Viento hori trans	J[64]	-0.39	4.29	-0.6	0.2	0.72	-3.12
501	Viento hori trans	I[366]	-0.34	6.72	-0.58	0.28	1.72	-1.53
501	Viento hori trans	J[65]	-0.34	6.72	-0.58	0.28	2.01	-4.89
502	Viento hori trans	I[367]	-0.53	9.87	-0.37	0.28	4.06	-2.2
502	Viento hori trans	J[66]	-0.53	9.87	-0.37	0.28	4.25	-7.13
503	Viento hori trans	I[368]	-1.56	14.65	-0.38	0.17	7.72	-3.11
503	Viento hori trans	J[67]	-1.56	14.65	-0.38	0.17	7.91	-10.44
504	Viento hori trans	I[369]	-3.23	18.75	2.18	-0.4	7.76	-3.75
504	Viento hori trans	J[68]	-3.23	18.75	2.18	-0.4	6.67	-13.12
505	Viento hori trans	I[370]	6.57	19.58	20.54	-0.4	-13.64	-3.49
505	Viento hori trans	J[36]	6.57	19.58	20.54	-0.4	-23.91	-13.28
506	Viento hori trans	I[371]	-37.25	1.72	-0.19	0.13	-0.12	-25.87
506	Viento hori trans	J[79]	-37.25	1.72	-0.19	0.13	0.3	-29.66
507	Viento hori trans	I[372]	-30.92	4.42	-0.04	0.13	-0.08	-24.05
507	Viento hori trans	J[115]	-30.92	4.42	-0.04	0.13	0.02	-33.79
508	Viento hori trans	I[373]	3.48	4.22	0	0.13	-0.07	-24.12
508	Viento hori trans	J[151]	3.48	4.22	0	0.13	-0.06	-33.43
509	Viento hori trans	I[374]	37.97	4.43	0.04	0.13	-0.05	-24.07
509	Viento hori trans	J[187]	37.97	4.43	0.04	0.13	-0.15	-33.84
510	Viento hori trans	I[375]	42.8	1.73	0.19	0.13	-0.01	-25.93
510	Viento hori trans	J[223]	42.8	1.73	0.19	0.13	-0.43	-29.75
511	Viento hori trans	I[376]	1.34	8.73	-0.98	0.21	-0.18	-19.4
511	Viento hori trans	J[74]	1.34	8.73	-0.98	0.21	1.98	-38.67
512	Viento hori trans	I[377]	-14.91	21.55	-0.22	0.1	-0.15	-19.22
512	Viento hori trans	J[110]	-14.91	21.55	-0.22	0.1	0.33	-66.76
513	Viento hori trans	I[378]	3.49	20.5	0	-0.01	-0.12	-20.62
513	Viento hori trans	J[146]	3.49	20.5	0	-0.01	-0.11	-65.84
514	Viento hori trans	I[379]	22.98	21.19	0.15	-0.12	-0.05	-21.45
514	Viento hori trans	J[182]	22.98	21.19	0.15	-0.12	-0.38	-68.19

515	Viento hori trans	I[380]	7.5	8.28	0.72	-0.21	0.04	-23.84
515	Viento hori trans	J[218]	7.5	8.28	0.72	-0.21	-1.54	-42.12
516	Viento hori trans	I[381]	-21.43	-4.8	0.78	-0.14	-0.14	-24.28
516	Viento hori trans	J[84]	-21.43	-4.8	0.78	-0.14	-1.86	-13.7
517	Viento hori trans	I[382]	-22.32	-13.2	0.24	-0.01	-0.13	-23.64
517	Viento hori trans	J[120]	-22.32	-13.2	0.24	-0.01	-0.67	5.49
518	Viento hori trans	I[383]	3.34	-12.96	0	0.11	-0.12	-24.88
518	Viento hori trans	J[156]	3.34	-12.96	0	0.11	-0.12	3.7
519	Viento hori trans	I[384]	30.25	-12.78	-0.18	0.21	-0.08	-25.91
519	Viento hori trans	J[192]	30.25	-12.78	-0.18	0.21	0.32	2.27
520	Viento hori trans	I[385]	30.41	-4.3	-0.51	0.29	0	-28.78
520	Viento hori trans	J[228]	30.41	-4.3	-0.51	0.29	1.13	-19.29

4.3. VIENTO VERTICAL

Elem	Load	Part	Axial (kN)	Shear-y (kN)	Shear-z (kN)	Torsion (kN*m)	Moment-y (kN*m)	Moment-z (kN*m)
1	Viento Verti	I[1]	-554.65	0	3.44	1.02	-14.83	1.77
1	Viento Verti	J[2]	-554.65	0	3.44	1.02	-32.33	1.77
2	Viento Verti	I[2]	-541.49	0	-2.79	0.92	-32.33	1.83
2	Viento Verti	J[3]	-541.49	0	-2.79	0.92	-18.53	1.83
3	Viento Verti	I[3]	-526.59	0	-2.94	0.81	-18.53	1.88
3	Viento Verti	J[4]	-526.59	0	-2.94	0.81	-4.4	1.88
4	Viento Verti	I[4]	-513.25	0	-2.09	0.69	-4.4	1.93
4	Viento Verti	J[5]	-513.25	0	-2.09	0.69	5.41	1.93
5	Viento Verti	I[5]	-502.16	0	-1.39	0.57	5.41	1.97
5	Viento Verti	J[6]	-502.16	0	-1.39	0.57	11.78	1.97
6	Viento Verti	I[6]	-493.44	0	-0.91	0.43	11.78	2
6	Viento Verti	J[7]	-493.44	0	-0.91	0.43	15.88	2
7	Viento Verti	I[7]	-487.15	0	-0.57	0.29	15.88	2.03
7	Viento Verti	J[8]	-487.15	0	-0.57	0.29	18.41	2.03
8	Viento Verti	I[8]	-483.35	0	-0.27	0.15	18.41	2.04
8	Viento Verti	J[9]	-483.35	0	-0.27	0.15	19.62	2.04
9	Viento Verti	I[9]	-482.08	0	0	0	19.62	2.05
9	Viento Verti	J[10]	-482.08	0	0	0	19.62	2.05
10	Viento Verti	I[10]	-483.35	0	0.27	-0.15	19.62	2.04
10	Viento Verti	J[11]	-483.35	0	0.27	-0.15	18.41	2.04
11	Viento Verti	I[11]	-487.15	0	0.57	-0.29	18.41	2.03
11	Viento Verti	J[12]	-487.15	0	0.57	-0.29	15.88	2.03
12	Viento Verti	I[12]	-493.44	0	0.91	-0.43	15.88	2
12	Viento Verti	J[13]	-493.44	0	0.91	-0.43	11.78	2
13	Viento Verti	I[13]	-502.16	0	1.39	-0.57	11.78	1.97
13	Viento Verti	J[14]	-502.16	0	1.39	-0.57	5.41	1.97
14	Viento Verti	I[14]	-513.25	0	2.09	-0.69	5.41	1.93
14	Viento Verti	J[15]	-513.25	0	2.09	-0.69	-4.4	1.93
15	Viento Verti	I[15]	-526.59	0	2.94	-0.81	-4.4	1.88
15	Viento Verti	J[16]	-526.59	0	2.94	-0.81	-18.53	1.88
16	Viento Verti	I[16]	-541.49	0	2.79	-0.92	-18.53	1.83
16	Viento Verti	J[17]	-541.49	0	2.79	-0.92	-32.33	1.83
17	Viento Verti	I[17]	-554.65	0	-3.44	-1.02	-32.33	1.77
17	Viento Verti	J[18]	-554.65	0	-3.44	-1.02	-14.83	1.77
18	Viento Verti	I[19]	-554.65	0	3.44	-1.02	-14.83	-1.77
18	Viento Verti	J[20]	-554.65	0	3.44	-1.02	-32.33	-1.77
19	Viento Verti	I[20]	-541.49	0	-2.79	-0.92	-32.33	-1.83
19	Viento Verti	J[21]	-541.49	0	-2.79	-0.92	-18.53	-1.83
20	Viento Verti	I[21]	-526.59	0	-2.94	-0.81	-18.53	-1.88
20	Viento Verti	J[22]	-526.59	0	-2.94	-0.81	-4.4	-1.88
21	Viento Verti	I[22]	-513.25	0	-2.09	-0.69	-4.4	-1.93
21	Viento Verti	J[23]	-513.25	0	-2.09	-0.69	5.41	-1.93
22	Viento Verti	I[23]	-502.16	0	-1.39	-0.57	5.41	-1.97

22	Viento Verti	J[24]	-502.16	0	-1.39	-0.57	11.78	-1.97
23	Viento Verti	I[24]	-493.44	0	-0.91	-0.43	11.78	-2
23	Viento Verti	J[25]	-493.44	0	-0.91	-0.43	15.88	-2
24	Viento Verti	I[25]	-487.15	0	-0.57	-0.29	15.88	-2.03
24	Viento Verti	J[26]	-487.15	0	-0.57	-0.29	18.41	-2.03
25	Viento Verti	I[26]	-483.35	0	-0.27	-0.15	18.41	-2.04
25	Viento Verti	J[27]	-483.35	0	-0.27	-0.15	19.62	-2.04
26	Viento Verti	I[27]	-482.08	0	0	0	19.62	-2.05
26	Viento Verti	J[28]	-482.08	0	0	0	19.62	-2.05
27	Viento Verti	I[28]	-483.35	0	0.27	0.15	19.62	-2.04
27	Viento Verti	J[29]	-483.35	0	0.27	0.15	18.41	-2.04
28	Viento Verti	I[29]	-487.15	0	0.57	0.29	18.41	-2.03
28	Viento Verti	J[30]	-487.15	0	0.57	0.29	15.88	-2.03
29	Viento Verti	I[30]	-493.44	0	0.91	0.43	15.88	-2
29	Viento Verti	J[31]	-493.44	0	0.91	0.43	11.78	-2
30	Viento Verti	I[31]	-502.16	0	1.39	0.57	11.78	-1.97
30	Viento Verti	J[32]	-502.16	0	1.39	0.57	5.41	-1.97
31	Viento Verti	I[32]	-513.25	0	2.09	0.69	5.41	-1.93
31	Viento Verti	J[33]	-513.25	0	2.09	0.69	-4.4	-1.93
32	Viento Verti	I[33]	-526.59	0	2.94	0.81	-4.4	-1.88
32	Viento Verti	J[34]	-526.59	0	2.94	0.81	-18.53	-1.88
33	Viento Verti	I[34]	-541.49	0	2.79	0.92	-18.53	-1.83
33	Viento Verti	J[35]	-541.49	0	2.79	0.92	-32.33	-1.83
34	Viento Verti	I[35]	-554.65	0	-3.44	1.02	-32.33	-1.77
34	Viento Verti	J[36]	-554.65	0	-3.44	1.02	-14.83	-1.77
67	Viento Verti	I[1]	-22.25	-108.42	-9.98	17.33	19.17	-77.69
67	Viento Verti	J[335]	-22.25	-108.42	-8.99	17.33	23.91	-23.48
68	Viento Verti	I[18]	-22.25	108.42	-9.98	-17.33	19.17	77.69
68	Viento Verti	J[352]	-22.25	108.42	-8.99	-17.33	23.91	23.48
69	Viento Verti	I[37]	11.43	-75.88	-48.69	2.59	-19.36	-55.75
69	Viento Verti	J[336]	11.43	-75.88	-47.71	2.59	4.74	-17.81
70	Viento Verti	I[38]	7.84	-30.69	-38.61	1.02	-0.48	-22.86
70	Viento Verti	J[337]	7.84	-30.69	-37.62	1.02	18.58	-7.52
71	Viento Verti	I[39]	2.39	-9.37	-37.75	-0.13	0.12	-7.04
71	Viento Verti	J[338]	2.39	-9.37	-36.76	-0.13	18.75	-2.35
72	Viento Verti	I[40]	1.08	0.7	-37.04	-0.54	0.24	0.42
72	Viento Verti	J[339]	1.08	0.7	-36.05	-0.54	18.52	0.07
73	Viento Verti	I[41]	0.33	4.52	-36.64	-0.62	0.22	3.27
73	Viento Verti	J[340]	0.33	4.52	-35.65	-0.62	18.3	1.01
74	Viento Verti	I[42]	-0.09	4.94	-36.41	-0.52	0.11	3.61
74	Viento Verti	J[341]	-0.09	4.94	-35.43	-0.52	18.07	1.14
75	Viento Verti	I[43]	-0.32	3.55	-36.3	-0.34	0.01	2.6
75	Viento Verti	J[342]	-0.32	3.55	-35.31	-0.34	17.91	0.82
76	Viento Verti	I[44]	-0.41	1.27	-36.25	-0.12	-0.04	0.93
76	Viento Verti	J[343]	-0.41	1.27	-35.27	-0.12	17.83	0.3
77	Viento Verti	I[45]	-0.41	-1.27	-36.25	0.12	-0.04	-0.93
77	Viento Verti	J[344]	-0.41	-1.27	-35.27	0.12	17.83	-0.3
78	Viento Verti	I[46]	-0.32	-3.55	-36.3	0.34	0.01	-2.6
78	Viento Verti	J[345]	-0.32	-3.55	-35.31	0.34	17.91	-0.82
79	Viento Verti	I[47]	-0.09	-4.94	-36.41	0.52	0.11	-3.61
79	Viento Verti	J[346]	-0.09	-4.94	-35.43	0.52	18.07	-1.14
80	Viento Verti	I[48]	0.33	-4.52	-36.64	0.62	0.22	-3.27
80	Viento Verti	J[347]	0.33	-4.52	-35.65	0.62	18.3	-1.01
81	Viento Verti	I[49]	1.08	-0.7	-37.04	0.54	0.24	-0.42
81	Viento Verti	J[348]	1.08	-0.7	-36.05	0.54	18.52	-0.07
82	Viento Verti	I[50]	2.39	9.37	-37.75	0.13	0.12	7.04
82	Viento Verti	J[349]	2.39	9.37	-36.76	0.13	18.75	2.35
83	Viento Verti	I[51]	7.84	30.69	-38.61	-1.02	-0.48	22.86
83	Viento Verti	J[350]	7.84	30.69	-37.62	-1.02	18.58	7.52
84	Viento Verti	I[52]	11.43	75.88	-48.69	-2.59	-19.36	55.75
84	Viento Verti	J[351]	11.43	75.88	-47.71	-2.59	4.74	17.81

85	Viento Verti	I[69]	-56.23	-24.8	-12.08	-1.17	49.53	-24.72
85	Viento Verti	J[87]	-56.23	-24.8	-9.12	-1.17	65.44	12.48
86	Viento Verti	I[70]	-56.23	24.8	-12.08	1.17	49.53	24.72
86	Viento Verti	J[88]	-56.23	24.8	-9.12	1.17	65.44	-12.48
87	Viento Verti	I[71]	30.28	-23.91	-29.49	-0.49	40.99	-24.53
87	Viento Verti	J[89]	30.28	-23.91	-26.54	-0.49	83.01	11.33
88	Viento Verti	I[72]	16.28	-17.72	-25.36	0.46	51.23	-18.39
88	Viento Verti	J[90]	16.28	-17.72	-22.41	0.46	87.06	8.19
89	Viento Verti	I[73]	6.21	-12.48	-25.24	0.86	52.7	-12.99
89	Viento Verti	J[91]	6.21	-12.48	-22.29	0.86	88.34	5.73
90	Viento Verti	I[74]	2.84	-8.62	-25.14	0.86	52.75	-9
90	Viento Verti	J[92]	2.84	-8.62	-22.19	0.86	88.25	3.93
91	Viento Verti	I[75]	1.2	-5.74	-25.04	0.74	52.56	-6.01
91	Viento Verti	J[93]	1.2	-5.74	-22.09	0.74	87.91	2.6
92	Viento Verti	I[76]	0.24	-3.6	-24.98	0.55	52.37	-3.78
92	Viento Verti	J[94]	0.24	-3.6	-22.02	0.55	87.62	1.62
93	Viento Verti	I[77]	-0.29	-1.96	-24.94	0.33	52.24	-2.07
93	Viento Verti	J[95]	-0.29	-1.96	-21.98	0.33	87.43	0.88
94	Viento Verti	I[78]	-0.53	-0.62	-24.92	0.11	52.18	-0.66
94	Viento Verti	J[96]	-0.53	-0.62	-21.96	0.11	87.33	0.28
95	Viento Verti	I[79]	-0.53	0.62	-24.92	-0.11	52.18	0.66
95	Viento Verti	J[97]	-0.53	0.62	-21.96	-0.11	87.33	-0.28
96	Viento Verti	I[80]	-0.29	1.96	-24.94	-0.33	52.24	2.07
96	Viento Verti	J[98]	-0.29	1.96	-21.98	-0.33	87.43	-0.88
97	Viento Verti	I[81]	0.24	3.6	-24.98	-0.55	52.37	3.78
97	Viento Verti	J[99]	0.24	3.6	-22.02	-0.55	87.62	-1.62
98	Viento Verti	I[82]	1.2	5.74	-25.04	-0.74	52.56	6.01
98	Viento Verti	J[100]	1.2	5.74	-22.09	-0.74	87.91	-2.6
99	Viento Verti	I[83]	2.84	8.62	-25.14	-0.86	52.75	9
99	Viento Verti	J[101]	2.84	8.62	-22.19	-0.86	88.25	-3.93
100	Viento Verti	I[84]	6.21	12.48	-25.24	-0.86	52.7	12.99
100	Viento Verti	J[102]	6.21	12.48	-22.29	-0.86	88.34	-5.73
101	Viento Verti	I[85]	16.28	17.72	-25.36	-0.46	51.23	18.39
101	Viento Verti	J[103]	16.28	17.72	-22.41	-0.46	87.06	-8.19
102	Viento Verti	I[86]	30.28	23.91	-29.49	0.49	40.99	24.53
102	Viento Verti	J[104]	30.28	23.91	-26.54	0.49	83.01	-11.33
103	Viento Verti	I[87]	-56.23	-24.8	-9.12	-3.1	61.05	12.48
103	Viento Verti	J[105]	-56.23	-24.8	-6.17	-3.1	72.52	49.68
104	Viento Verti	I[88]	-56.23	24.8	-9.12	3.1	61.05	-12.48
104	Viento Verti	J[106]	-56.23	24.8	-6.17	3.1	72.52	-49.68
105	Viento Verti	I[89]	30.28	-23.91	-26.54	-2.35	85.37	11.33
105	Viento Verti	J[107]	30.28	-23.91	-23.58	-2.35	122.97	47.19
106	Viento Verti	I[90]	16.28	-17.72	-22.41	-0.92	88.33	8.19
106	Viento Verti	J[108]	16.28	-17.72	-19.45	-0.92	119.72	34.77
107	Viento Verti	I[91]	6.21	-12.48	-22.29	-0.12	88.83	5.73
107	Viento Verti	J[109]	6.21	-12.48	-19.33	-0.12	120.04	24.45
108	Viento Verti	I[92]	2.84	-8.62	-22.19	0.19	88.47	3.93
108	Viento Verti	J[110]	2.84	-8.62	-19.23	0.19	119.54	16.86
109	Viento Verti	I[93]	1.2	-5.74	-22.09	0.29	88	2.6
109	Viento Verti	J[111]	1.2	-5.74	-19.13	0.29	118.92	11.21
110	Viento Verti	I[94]	0.24	-3.6	-22.02	0.27	87.64	1.62
110	Viento Verti	J[112]	0.24	-3.6	-19.07	0.27	118.45	7.02
111	Viento Verti	I[95]	-0.29	-1.96	-21.98	0.18	87.4	0.88
111	Viento Verti	J[113]	-0.29	-1.96	-19.03	0.18	118.16	3.82
112	Viento Verti	I[96]	-0.53	-0.62	-21.96	0.06	87.29	0.28
112	Viento Verti	J[114]	-0.53	-0.62	-19.01	0.06	118.02	1.21
113	Viento Verti	I[97]	-0.53	0.62	-21.96	-0.06	87.29	-0.28
113	Viento Verti	J[115]	-0.53	0.62	-19.01	-0.06	118.02	-1.21
114	Viento Verti	I[98]	-0.29	1.96	-21.98	-0.18	87.4	-0.88
114	Viento Verti	J[116]	-0.29	1.96	-19.03	-0.18	118.16	-3.82
115	Viento Verti	I[99]	0.24	3.6	-22.02	-0.27	87.64	-1.62

115	Viento Verti	J[117]	0.24	3.6	-19.07	-0.27	118.45	-7.02
116	Viento Verti	I[100]	1.2	5.74	-22.09	-0.29	88	-2.6
116	Viento Verti	J[118]	1.2	5.74	-19.13	-0.29	118.92	-11.21
117	Viento Verti	I[101]	2.84	8.62	-22.19	-0.19	88.47	-3.93
117	Viento Verti	J[119]	2.84	8.62	-19.23	-0.19	119.54	-16.86
118	Viento Verti	I[102]	6.21	12.48	-22.29	0.12	88.83	-5.73
118	Viento Verti	J[120]	6.21	12.48	-19.33	0.12	120.04	-24.45
119	Viento Verti	I[103]	16.28	17.72	-22.41	0.92	88.33	-8.19
119	Viento Verti	J[121]	16.28	17.72	-19.45	0.92	119.72	-34.77
120	Viento Verti	I[104]	30.28	23.91	-26.54	2.35	85.37	-11.33
120	Viento Verti	J[122]	30.28	23.91	-23.58	2.35	122.97	-47.19
121	Viento Verti	I[105]	-75.85	-5.92	-6.47	-0.83	81.34	-6.86
121	Viento Verti	J[123]	-75.85	-5.92	-3.52	-0.83	88.83	2.02
122	Viento Verti	I[106]	-75.85	5.92	-6.47	0.83	81.34	6.86
122	Viento Verti	J[124]	-75.85	5.92	-3.52	0.83	88.83	-2.02
123	Viento Verti	I[107]	39.03	-6.28	-11.39	-0.29	118.35	-8.61
123	Viento Verti	J[125]	39.03	-6.28	-8.44	-0.29	133.23	0.82
124	Viento Verti	I[108]	18.92	-5.45	-10.39	-0.23	118.73	-7.52
124	Viento Verti	J[126]	18.92	-5.45	-7.44	-0.23	132.1	0.66
125	Viento Verti	I[109]	8.73	-4.17	-10.33	0	119.05	-5.77
125	Viento Verti	J[127]	8.73	-4.17	-7.38	0	132.33	0.48
126	Viento Verti	I[110]	4.58	-3.15	-10.33	0.07	118.85	-4.37
126	Viento Verti	J[128]	4.58	-3.15	-7.38	0.07	132.14	0.36
127	Viento Verti	I[111]	2.53	-2.28	-10.32	0.1	118.41	-3.17
127	Viento Verti	J[129]	2.53	-2.28	-7.36	0.1	131.66	0.25
128	Viento Verti	I[112]	1.28	-1.53	-10.3	0.09	118.05	-2.14
128	Viento Verti	J[130]	1.28	-1.53	-7.35	0.09	131.29	0.16
129	Viento Verti	I[113]	0.55	-0.88	-10.29	0.06	117.83	-1.24
129	Viento Verti	J[131]	0.55	-0.88	-7.34	0.06	131.05	0.09
130	Viento Verti	I[114]	0.22	-0.29	-10.29	0.02	117.73	-0.4
130	Viento Verti	J[132]	0.22	-0.29	-7.33	0.02	130.95	0.03
131	Viento Verti	I[115]	0.22	0.29	-10.29	-0.02	117.73	0.4
131	Viento Verti	J[133]	0.22	0.29	-7.33	-0.02	130.95	-0.03
132	Viento Verti	I[116]	0.55	0.88	-10.29	-0.06	117.83	1.24
132	Viento Verti	J[134]	0.55	0.88	-7.34	-0.06	131.05	-0.09
133	Viento Verti	I[117]	1.28	1.53	-10.3	-0.09	118.05	2.14
133	Viento Verti	J[135]	1.28	1.53	-7.35	-0.09	131.29	-0.16
134	Viento Verti	I[118]	2.53	2.28	-10.32	-0.1	118.41	3.17
134	Viento Verti	J[136]	2.53	2.28	-7.36	-0.1	131.66	-0.25
135	Viento Verti	I[119]	4.58	3.15	-10.33	-0.07	118.85	4.37
135	Viento Verti	J[137]	4.58	3.15	-7.38	-0.07	132.14	-0.36
136	Viento Verti	I[120]	8.73	4.17	-10.33	0	119.05	5.77
136	Viento Verti	J[138]	8.73	4.17	-7.38	0	132.33	-0.48
137	Viento Verti	I[121]	18.92	5.45	-10.39	0.23	118.73	7.52
137	Viento Verti	J[139]	18.92	5.45	-7.44	0.23	132.1	-0.66
138	Viento Verti	I[122]	39.03	6.28	-11.39	0.29	118.35	8.61
138	Viento Verti	J[140]	39.03	6.28	-8.44	0.29	133.23	-0.82
139	Viento Verti	I[123]	-75.85	-5.92	-3.52	-0.83	88.83	2.02
139	Viento Verti	J[141]	-75.85	-5.92	-0.56	-0.83	91.89	10.9
140	Viento Verti	I[124]	-75.85	5.92	-3.52	0.83	88.83	-2.02
140	Viento Verti	J[142]	-75.85	5.92	-0.56	0.83	91.89	-10.9
141	Viento Verti	I[125]	39.03	-6.28	-8.44	-0.29	133.23	0.82
141	Viento Verti	J[143]	39.03	-6.28	-5.48	-0.29	143.67	10.24
142	Viento Verti	I[126]	18.92	-5.45	-7.44	-0.23	132.1	0.66
142	Viento Verti	J[144]	18.92	-5.45	-4.48	-0.23	141.04	8.83
143	Viento Verti	I[127]	8.73	-4.17	-7.38	0	132.33	0.48
143	Viento Verti	J[145]	8.73	-4.17	-4.42	0	141.18	6.73
144	Viento Verti	I[128]	4.58	-3.15	-7.38	0.07	132.14	0.36
144	Viento Verti	J[146]	4.58	-3.15	-4.42	0.07	140.99	5.09
145	Viento Verti	I[129]	2.53	-2.28	-7.36	0.1	131.66	0.25
145	Viento Verti	J[147]	2.53	-2.28	-4.41	0.1	140.49	3.67

146	Viento Verti	I[130]	1.28	-1.53	-7.35	0.09	131.29	0.16
146	Viento Verti	J[148]	1.28	-1.53	-4.39	0.09	140.09	2.46
147	Viento Verti	I[131]	0.55	-0.88	-7.34	0.06	131.05	0.09
147	Viento Verti	J[149]	0.55	-0.88	-4.38	0.06	139.85	1.41
148	Viento Verti	I[132]	0.22	-0.29	-7.33	0.02	130.95	0.03
148	Viento Verti	J[150]	0.22	-0.29	-4.38	0.02	139.73	0.46
149	Viento Verti	I[133]	0.22	0.29	-7.33	-0.02	130.95	-0.03
149	Viento Verti	J[151]	0.22	0.29	-4.38	-0.02	139.73	-0.46
150	Viento Verti	I[134]	0.55	0.88	-7.34	-0.06	131.05	-0.09
150	Viento Verti	J[152]	0.55	0.88	-4.38	-0.06	139.85	-1.41
151	Viento Verti	I[135]	1.28	1.53	-7.35	-0.09	131.29	-0.16
151	Viento Verti	J[153]	1.28	1.53	-4.39	-0.09	140.09	-2.46
152	Viento Verti	I[136]	2.53	2.28	-7.36	-0.1	131.66	-0.25
152	Viento Verti	J[154]	2.53	2.28	-4.41	-0.1	140.49	-3.67
153	Viento Verti	I[137]	4.58	3.15	-7.38	-0.07	132.14	-0.36
153	Viento Verti	J[155]	4.58	3.15	-4.42	-0.07	140.99	-5.09
154	Viento Verti	I[138]	8.73	4.17	-7.38	0	132.33	-0.48
154	Viento Verti	J[156]	8.73	4.17	-4.42	0	141.18	-6.73
155	Viento Verti	I[139]	18.92	5.45	-7.44	0.23	132.1	-0.66
155	Viento Verti	J[157]	18.92	5.45	-4.48	0.23	141.04	-8.83
156	Viento Verti	I[140]	39.03	6.28	-8.44	0.29	133.23	-0.82
156	Viento Verti	J[158]	39.03	6.28	-5.48	0.29	143.67	-10.24
157	Viento Verti	I[141]	-75.85	5.92	0.56	0.83	91.89	10.9
157	Viento Verti	J[159]	-75.85	5.92	3.52	0.83	88.83	2.02
158	Viento Verti	I[142]	-75.85	-5.92	0.56	-0.83	91.89	-10.9
158	Viento Verti	J[160]	-75.85	-5.92	3.52	-0.83	88.83	-2.02
159	Viento Verti	I[143]	39.03	6.28	5.48	0.29	143.67	10.24
159	Viento Verti	J[161]	39.03	6.28	8.44	0.29	133.23	0.82
160	Viento Verti	I[144]	18.92	5.45	4.48	0.23	141.04	8.83
160	Viento Verti	J[162]	18.92	5.45	7.44	0.23	132.1	0.66
161	Viento Verti	I[145]	8.73	4.17	4.42	0	141.18	6.73
161	Viento Verti	J[163]	8.73	4.17	7.38	0	132.33	0.48
162	Viento Verti	I[146]	4.58	3.15	4.42	-0.07	140.99	5.09
162	Viento Verti	J[164]	4.58	3.15	7.38	-0.07	132.14	0.36
163	Viento Verti	I[147]	2.53	2.28	4.41	-0.1	140.49	3.67
163	Viento Verti	J[165]	2.53	2.28	7.36	-0.1	131.66	0.25
164	Viento Verti	I[148]	1.28	1.53	4.39	-0.09	140.09	2.46
164	Viento Verti	J[166]	1.28	1.53	7.35	-0.09	131.29	0.16
165	Viento Verti	I[149]	0.55	0.88	4.38	-0.06	139.85	1.41
165	Viento Verti	J[167]	0.55	0.88	7.34	-0.06	131.05	0.09
166	Viento Verti	I[150]	0.22	0.29	4.38	-0.02	139.73	0.46
166	Viento Verti	J[168]	0.22	0.29	7.33	-0.02	130.95	0.03
167	Viento Verti	I[151]	0.22	-0.29	4.38	0.02	139.73	-0.46
167	Viento Verti	J[169]	0.22	-0.29	7.33	0.02	130.95	-0.03
168	Viento Verti	I[152]	0.55	-0.88	4.38	0.06	139.85	-1.41
168	Viento Verti	J[170]	0.55	-0.88	7.34	0.06	131.05	-0.09
169	Viento Verti	I[153]	1.28	-1.53	4.39	0.09	140.09	-2.46
169	Viento Verti	J[171]	1.28	-1.53	7.35	0.09	131.29	-0.16
170	Viento Verti	I[154]	2.53	-2.28	4.41	0.1	140.49	-3.67
170	Viento Verti	J[172]	2.53	-2.28	7.36	0.1	131.66	-0.25
171	Viento Verti	I[155]	4.58	-3.15	4.42	0.07	140.99	-5.09
171	Viento Verti	J[173]	4.58	-3.15	7.38	0.07	132.14	-0.36
172	Viento Verti	I[156]	8.73	-4.17	4.42	0	141.18	-6.73
172	Viento Verti	J[174]	8.73	-4.17	7.38	0	132.33	-0.48
173	Viento Verti	I[157]	18.92	-5.45	4.48	-0.23	141.04	-8.83
173	Viento Verti	J[175]	18.92	-5.45	7.44	-0.23	132.1	-0.66
174	Viento Verti	I[158]	39.03	-6.28	5.48	-0.29	143.67	-10.24
174	Viento Verti	J[176]	39.03	-6.28	8.44	-0.29	133.23	-0.82
175	Viento Verti	I[159]	-75.85	5.92	3.52	0.83	88.83	2.02
175	Viento Verti	J[177]	-75.85	5.92	6.47	0.83	81.34	-6.86
176	Viento Verti	I[160]	-75.85	-5.92	3.52	-0.83	88.83	-2.02

176	Viento Verti	J[178]	-75.85	-5.92	6.47	-0.83	81.34	6.86
177	Viento Verti	I[161]	39.03	6.28	8.44	0.29	133.23	0.82
177	Viento Verti	J[179]	39.03	6.28	11.39	0.29	118.35	-8.61
178	Viento Verti	I[162]	18.92	5.45	7.44	0.23	132.1	0.66
178	Viento Verti	J[180]	18.92	5.45	10.39	0.23	118.73	-7.52
179	Viento Verti	I[163]	8.73	4.17	7.38	0	132.33	0.48
179	Viento Verti	J[181]	8.73	4.17	10.33	0	119.05	-5.77
180	Viento Verti	I[164]	4.58	3.15	7.38	-0.07	132.14	0.36
180	Viento Verti	J[182]	4.58	3.15	10.33	-0.07	118.85	-4.37
181	Viento Verti	I[165]	2.53	2.28	7.36	-0.1	131.66	0.25
181	Viento Verti	J[183]	2.53	2.28	10.32	-0.1	118.41	-3.17
182	Viento Verti	I[166]	1.28	1.53	7.35	-0.09	131.29	0.16
182	Viento Verti	J[184]	1.28	1.53	10.3	-0.09	118.05	-2.14
183	Viento Verti	I[167]	0.55	0.88	7.34	-0.06	131.05	0.09
183	Viento Verti	J[185]	0.55	0.88	10.29	-0.06	117.83	-1.24
184	Viento Verti	I[168]	0.22	0.29	7.33	-0.02	130.95	0.03
184	Viento Verti	J[186]	0.22	0.29	10.29	-0.02	117.73	-0.4
185	Viento Verti	I[169]	0.22	-0.29	7.33	0.02	130.95	-0.03
185	Viento Verti	J[187]	0.22	-0.29	10.29	0.02	117.73	0.4
186	Viento Verti	I[170]	0.55	-0.88	7.34	0.06	131.05	-0.09
186	Viento Verti	J[188]	0.55	-0.88	10.29	0.06	117.83	1.24
187	Viento Verti	I[171]	1.28	-1.53	7.35	0.09	131.29	-0.16
187	Viento Verti	J[189]	1.28	-1.53	10.3	0.09	118.05	2.14
188	Viento Verti	I[172]	2.53	-2.28	7.36	0.1	131.66	-0.25
188	Viento Verti	J[190]	2.53	-2.28	10.32	0.1	118.41	3.17
189	Viento Verti	I[173]	4.58	-3.15	7.38	0.07	132.14	-0.36
189	Viento Verti	J[191]	4.58	-3.15	10.33	0.07	118.85	4.37
190	Viento Verti	I[174]	8.73	-4.17	7.38	0	132.33	-0.48
190	Viento Verti	J[192]	8.73	-4.17	10.33	0	119.05	5.77
191	Viento Verti	I[175]	18.92	-5.45	7.44	-0.23	132.1	-0.66
191	Viento Verti	J[193]	18.92	-5.45	10.39	-0.23	118.73	7.52
192	Viento Verti	I[176]	39.03	-6.28	8.44	-0.29	133.23	-0.82
192	Viento Verti	J[194]	39.03	-6.28	11.39	-0.29	118.35	8.61
193	Viento Verti	I[177]	-56.23	24.8	6.17	3.1	72.52	49.68
193	Viento Verti	J[195]	-56.23	24.8	9.12	3.1	61.05	12.48
194	Viento Verti	I[178]	-56.23	-24.8	6.17	-3.1	72.52	-49.68
194	Viento Verti	J[196]	-56.23	-24.8	9.12	-3.1	61.05	-12.48
195	Viento Verti	I[179]	30.28	23.91	23.58	2.35	122.97	47.19
195	Viento Verti	J[197]	30.28	23.91	26.54	2.35	85.37	11.33
196	Viento Verti	I[180]	16.28	17.72	19.45	0.92	119.72	34.77
196	Viento Verti	J[198]	16.28	17.72	22.41	0.92	88.33	8.19
197	Viento Verti	I[181]	6.21	12.48	19.33	0.12	120.04	24.45
197	Viento Verti	J[199]	6.21	12.48	22.29	0.12	88.83	5.73
198	Viento Verti	I[182]	2.84	8.62	19.23	-0.19	119.54	16.86
198	Viento Verti	J[200]	2.84	8.62	22.19	-0.19	88.47	3.93
199	Viento Verti	I[183]	1.2	5.74	19.13	-0.29	118.92	11.21
199	Viento Verti	J[201]	1.2	5.74	22.09	-0.29	88	2.6
200	Viento Verti	I[184]	0.24	3.6	19.07	-0.27	118.45	7.02
200	Viento Verti	J[202]	0.24	3.6	22.02	-0.27	87.64	1.62
201	Viento Verti	I[185]	-0.29	1.96	19.03	-0.18	118.16	3.82
201	Viento Verti	J[203]	-0.29	1.96	21.98	-0.18	87.4	0.88
202	Viento Verti	I[186]	-0.53	0.62	19.01	-0.06	118.02	1.21
202	Viento Verti	J[204]	-0.53	0.62	21.96	-0.06	87.29	0.28
203	Viento Verti	I[187]	-0.53	-0.62	19.01	0.06	118.02	-1.21
203	Viento Verti	J[205]	-0.53	-0.62	21.96	0.06	87.29	-0.28
204	Viento Verti	I[188]	-0.29	-1.96	19.03	0.18	118.16	-3.82
204	Viento Verti	J[206]	-0.29	-1.96	21.98	0.18	87.4	-0.88
205	Viento Verti	I[189]	0.24	-3.6	19.07	0.27	118.45	-7.02
205	Viento Verti	J[207]	0.24	-3.6	22.02	0.27	87.64	-1.62
206	Viento Verti	I[190]	1.2	-5.74	19.13	0.29	118.92	-11.21
206	Viento Verti	J[208]	1.2	-5.74	22.09	0.29	88	-2.6

207	Viento Verti	I[191]	2.84	-8.62	19.23	0.19	119.54	-16.86
207	Viento Verti	J[209]	2.84	-8.62	22.19	0.19	88.47	-3.93
208	Viento Verti	I[192]	6.21	-12.48	19.33	-0.12	120.04	-24.45
208	Viento Verti	J[210]	6.21	-12.48	22.29	-0.12	88.83	-5.73
209	Viento Verti	I[193]	16.28	-17.72	19.45	-0.92	119.72	-34.77
209	Viento Verti	J[211]	16.28	-17.72	22.41	-0.92	88.33	-8.19
210	Viento Verti	I[194]	30.28	-23.91	23.58	-2.35	122.97	-47.19
210	Viento Verti	J[212]	30.28	-23.91	26.54	-2.35	85.37	-11.33
211	Viento Verti	I[195]	-56.23	24.8	9.12	1.17	65.44	12.48
211	Viento Verti	J[213]	-56.23	24.8	12.08	1.17	49.53	-24.72
212	Viento Verti	I[196]	-56.23	-24.8	9.12	-1.17	65.44	-12.48
212	Viento Verti	J[214]	-56.23	-24.8	12.08	-1.17	49.53	24.72
213	Viento Verti	I[197]	30.28	23.91	26.54	0.49	83.01	11.33
213	Viento Verti	J[215]	30.28	23.91	29.49	0.49	40.99	-24.53
214	Viento Verti	I[198]	16.28	17.72	22.41	-0.46	87.06	8.19
214	Viento Verti	J[216]	16.28	17.72	25.36	-0.46	51.23	-18.39
215	Viento Verti	I[199]	6.21	12.48	22.29	-0.86	88.34	5.73
215	Viento Verti	J[217]	6.21	12.48	25.24	-0.86	52.7	-12.99
216	Viento Verti	I[200]	2.84	8.62	22.19	-0.86	88.25	3.93
216	Viento Verti	J[218]	2.84	8.62	25.14	-0.86	52.75	-9
217	Viento Verti	I[201]	1.2	5.74	22.09	-0.74	87.91	2.6
217	Viento Verti	J[219]	1.2	5.74	25.04	-0.74	52.56	-6.01
218	Viento Verti	I[202]	0.24	3.6	22.02	-0.55	87.62	1.62
218	Viento Verti	J[220]	0.24	3.6	24.98	-0.55	52.37	-3.78
219	Viento Verti	I[203]	-0.29	1.96	21.98	-0.33	87.43	0.88
219	Viento Verti	J[221]	-0.29	1.96	24.94	-0.33	52.24	-2.07
220	Viento Verti	I[204]	-0.53	0.62	21.96	-0.11	87.33	0.28
220	Viento Verti	J[222]	-0.53	0.62	24.92	-0.11	52.18	-0.66
221	Viento Verti	I[205]	-0.53	-0.62	21.96	0.11	87.33	-0.28
221	Viento Verti	J[223]	-0.53	-0.62	24.92	0.11	52.18	0.66
222	Viento Verti	I[206]	-0.29	-1.96	21.98	0.33	87.43	-0.88
222	Viento Verti	J[224]	-0.29	-1.96	24.94	0.33	52.24	2.07
223	Viento Verti	I[207]	0.24	-3.6	22.02	0.55	87.62	-1.62
223	Viento Verti	J[225]	0.24	-3.6	24.98	0.55	52.37	3.78
224	Viento Verti	I[208]	1.2	-5.74	22.09	0.74	87.91	-2.6
224	Viento Verti	J[226]	1.2	-5.74	25.04	0.74	52.56	6.01
225	Viento Verti	I[209]	2.84	-8.62	22.19	0.86	88.25	-3.93
225	Viento Verti	J[227]	2.84	-8.62	25.14	0.86	52.75	9
226	Viento Verti	I[210]	6.21	-12.48	22.29	0.86	88.34	-5.73
226	Viento Verti	J[228]	6.21	-12.48	25.24	0.86	52.7	12.99
227	Viento Verti	I[211]	16.28	-17.72	22.41	0.46	87.06	-8.19
227	Viento Verti	J[229]	16.28	-17.72	25.36	0.46	51.23	18.39
228	Viento Verti	I[212]	30.28	-23.91	26.54	-0.49	83.01	-11.33
228	Viento Verti	J[230]	30.28	-23.91	29.49	-0.49	40.99	24.53
229	Viento Verti	I[213]	-22.25	108.42	7.02	-17.33	31.92	84.93
229	Viento Verti	J[353]	-22.25	108.42	8.99	-17.33	23.91	-23.48
230	Viento Verti	I[214]	-22.25	-108.42	7.02	17.33	31.92	-84.93
230	Viento Verti	J[370]	-22.25	-108.42	8.99	17.33	23.91	23.48
231	Viento Verti	I[215]	11.43	75.88	45.74	-2.59	51.46	58.08
231	Viento Verti	J[354]	11.43	75.88	47.71	-2.59	4.74	-17.81
232	Viento Verti	I[216]	7.84	30.69	35.65	-1.02	55.22	23.17
232	Viento Verti	J[355]	7.84	30.69	37.62	-1.02	18.58	-7.52
233	Viento Verti	I[217]	2.39	9.37	34.79	0.13	54.53	7.01
233	Viento Verti	J[356]	2.39	9.37	36.76	0.13	18.75	-2.35
234	Viento Verti	I[218]	1.08	-0.7	34.08	0.54	53.58	-0.63
234	Viento Verti	J[357]	1.08	-0.7	36.05	0.54	18.52	0.07
235	Viento Verti	I[219]	0.33	-4.52	33.68	0.62	52.96	-3.51
235	Viento Verti	J[358]	0.33	-4.52	35.65	0.62	18.3	1.01
236	Viento Verti	I[220]	-0.09	-4.94	33.46	0.52	52.52	-3.8
236	Viento Verti	J[359]	-0.09	-4.94	35.43	0.52	18.07	1.14
237	Viento Verti	I[221]	-0.32	-3.55	33.34	0.34	52.24	-2.72

237	Viento Verti	J[360]	-0.32	-3.55	35.31	0.34	17.91	0.82
238	Viento Verti	I[222]	-0.41	-1.27	33.3	0.12	52.12	-0.97
238	Viento Verti	J[361]	-0.41	-1.27	35.27	0.12	17.83	0.3
239	Viento Verti	I[223]	-0.41	1.27	33.3	-0.12	52.12	0.97
239	Viento Verti	J[362]	-0.41	1.27	35.27	-0.12	17.83	-0.3
240	Viento Verti	I[224]	-0.32	3.55	33.34	-0.34	52.24	2.72
240	Viento Verti	J[363]	-0.32	3.55	35.31	-0.34	17.91	-0.82
241	Viento Verti	I[225]	-0.09	4.94	33.46	-0.52	52.52	3.8
241	Viento Verti	J[364]	-0.09	4.94	35.43	-0.52	18.07	-1.14
242	Viento Verti	I[226]	0.33	4.52	33.68	-0.62	52.96	3.51
242	Viento Verti	J[365]	0.33	4.52	35.65	-0.62	18.3	-1.01
243	Viento Verti	I[227]	1.08	0.7	34.08	-0.54	53.58	0.63
243	Viento Verti	J[366]	1.08	0.7	36.05	-0.54	18.52	-0.07
244	Viento Verti	I[228]	2.39	-9.37	34.79	-0.13	54.53	-7.01
244	Viento Verti	J[367]	2.39	-9.37	36.76	-0.13	18.75	2.35
245	Viento Verti	I[229]	7.84	-30.69	35.65	1.02	55.22	-23.17
245	Viento Verti	J[368]	7.84	-30.69	37.62	1.02	18.58	7.52
246	Viento Verti	I[230]	11.43	-75.88	45.74	2.59	51.46	-58.08
246	Viento Verti	J[369]	11.43	-75.88	47.71	2.59	4.74	17.81
247	Viento Verti	I[1]	373.66	22.25	-33.37	-28.25	-285.17	75.64
247	Viento Verti	J[231]	373.66	22.25	-33.37	-28.25	-211.56	26.57
248	Viento Verti	I[19]	373.66	-22.25	-33.37	28.25	-285.17	-75.64
248	Viento Verti	J[232]	373.66	-22.25	-33.37	28.25	-211.56	-26.57
249	Viento Verti	I[231]	373.66	22.25	-33.37	-28.25	-211.56	26.57
249	Viento Verti	J[37]	373.66	22.25	-33.37	-28.25	-137.94	-22.51
250	Viento Verti	I[232]	373.66	-22.25	-33.37	28.25	-211.56	-26.57
250	Viento Verti	J[53]	373.66	-22.25	-33.37	28.25	-137.94	22.51
251	Viento Verti	I[37]	297.78	10.82	-12.37	-4.23	-104.4	33.25
251	Viento Verti	J[233]	297.78	10.82	-12.37	-4.23	-77.11	9.38
252	Viento Verti	I[53]	297.78	-10.82	-12.37	4.23	-104.4	-33.25
252	Viento Verti	J[234]	297.78	-10.82	-12.37	4.23	-77.11	-9.38
253	Viento Verti	I[233]	297.78	10.82	-12.37	-4.23	-77.11	9.38
253	Viento Verti	J[38]	297.78	10.82	-12.37	-4.23	-49.82	-14.48
254	Viento Verti	I[234]	297.78	-10.82	-12.37	4.23	-77.11	-9.38
254	Viento Verti	J[54]	297.78	-10.82	-12.37	4.23	-49.82	14.48
255	Viento Verti	I[38]	267.09	2.98	-8.48	-0.55	-36.28	8.38
255	Viento Verti	J[235]	267.09	2.98	-8.48	-0.55	-17.58	1.81
256	Viento Verti	I[54]	267.09	-2.98	-8.48	0.55	-36.28	-8.38
256	Viento Verti	J[236]	267.09	-2.98	-8.48	0.55	-17.58	-1.81
257	Viento Verti	I[235]	267.09	2.98	-8.48	-0.55	-17.58	1.81
257	Viento Verti	J[39]	267.09	2.98	-8.48	-0.55	1.12	-4.75
258	Viento Verti	I[236]	267.09	-2.98	-8.48	0.55	-17.58	-1.81
258	Viento Verti	J[55]	267.09	-2.98	-8.48	0.55	1.12	4.75
259	Viento Verti	I[39]	257.72	0.59	-6.49	0.3	4.81	2.29
259	Viento Verti	J[237]	257.72	0.59	-6.49	0.3	19.13	0.99
260	Viento Verti	I[55]	257.72	-0.59	-6.49	-0.3	4.81	-2.29
260	Viento Verti	J[238]	257.72	-0.59	-6.49	-0.3	19.13	-0.99
261	Viento Verti	I[237]	257.72	0.59	-6.49	0.3	19.13	0.99
261	Viento Verti	J[40]	257.72	0.59	-6.49	0.3	33.45	-0.3
262	Viento Verti	I[238]	257.72	-0.59	-6.49	-0.3	19.13	-0.99
262	Viento Verti	J[56]	257.72	-0.59	-6.49	-0.3	33.45	0.3
263	Viento Verti	I[40]	258.43	-0.49	-5.02	0.5	32.62	-0.73
263	Viento Verti	J[239]	258.43	-0.49	-5.02	0.5	43.69	0.36
264	Viento Verti	I[56]	258.43	0.49	-5.02	-0.5	32.62	0.73
264	Viento Verti	J[240]	258.43	0.49	-5.02	-0.5	43.69	-0.36
265	Viento Verti	I[239]	258.43	-0.49	-5.02	0.5	43.69	0.36
265	Viento Verti	J[41]	258.43	-0.49	-5.02	0.5	54.76	1.44
266	Viento Verti	I[240]	258.43	0.49	-5.02	-0.5	43.69	-0.36
266	Viento Verti	J[57]	258.43	0.49	-5.02	-0.5	54.76	-1.44
267	Viento Verti	I[41]	262.95	-0.82	-3.68	0.41	52.3	-1.83
267	Viento Verti	J[241]	262.95	-0.82	-3.68	0.41	60.42	-0.02

268	Viento Verti	I[57]	262.95	0.82	-3.68	-0.41	52.3	1.83
268	Viento Verti	J[242]	262.95	0.82	-3.68	-0.41	60.42	0.02
269	Viento Verti	I[241]	262.95	-0.82	-3.68	0.41	60.42	-0.02
269	Viento Verti	J[42]	262.95	-0.82	-3.68	0.41	68.53	1.79
270	Viento Verti	I[242]	262.95	0.82	-3.68	-0.41	60.42	0.02
270	Viento Verti	J[58]	262.95	0.82	-3.68	-0.41	68.53	-1.79
271	Viento Verti	I[42]	267.89	-0.73	-2.41	0.26	66	-1.81
271	Viento Verti	J[243]	267.89	-0.73	-2.41	0.26	71.31	-0.21
272	Viento Verti	I[58]	267.89	0.73	-2.41	-0.26	66	1.81
272	Viento Verti	J[244]	267.89	0.73	-2.41	-0.26	71.31	0.21
273	Viento Verti	I[243]	267.89	-0.73	-2.41	0.26	71.31	-0.21
273	Viento Verti	J[43]	267.89	-0.73	-2.41	0.26	76.63	1.39
274	Viento Verti	I[244]	267.89	0.73	-2.41	-0.26	71.31	0.21
274	Viento Verti	J[59]	267.89	0.73	-2.41	-0.26	76.63	-1.39
275	Viento Verti	I[43]	271.43	-0.41	-1.19	0.12	74.84	-1.21
275	Viento Verti	J[245]	271.43	-0.41	-1.19	0.12	77.47	-0.3
276	Viento Verti	I[59]	271.43	0.41	-1.19	-0.12	74.84	1.21
276	Viento Verti	J[246]	271.43	0.41	-1.19	-0.12	77.47	0.3
277	Viento Verti	I[245]	271.43	-0.41	-1.19	0.12	77.47	-0.3
277	Viento Verti	J[44]	271.43	-0.41	-1.19	0.12	80.1	0.6
278	Viento Verti	I[246]	271.43	0.41	-1.19	-0.12	77.47	0.3
278	Viento Verti	J[60]	271.43	0.41	-1.19	-0.12	80.1	-0.6
279	Viento Verti	I[44]	272.7	0	0	0	79.46	-0.33
279	Viento Verti	J[247]	272.7	0	0	0	79.46	-0.33
280	Viento Verti	I[60]	272.7	0	0	0	79.46	0.33
280	Viento Verti	J[248]	272.7	0	0	0	79.46	0.33
281	Viento Verti	I[247]	272.7	0	0	0	79.46	-0.33
281	Viento Verti	J[45]	272.7	0	0	0	79.46	-0.33
282	Viento Verti	I[248]	272.7	0	0	0	79.46	0.33
282	Viento Verti	J[61]	272.7	0	0	0	79.46	0.33
283	Viento Verti	I[45]	271.43	0.41	1.19	-0.12	80.1	0.6
283	Viento Verti	J[249]	271.43	0.41	1.19	-0.12	77.47	-0.3
284	Viento Verti	I[61]	271.43	-0.41	1.19	0.12	80.1	-0.6
284	Viento Verti	J[250]	271.43	-0.41	1.19	0.12	77.47	0.3
285	Viento Verti	I[249]	271.43	0.41	1.19	-0.12	77.47	-0.3
285	Viento Verti	J[46]	271.43	0.41	1.19	-0.12	74.84	-1.21
286	Viento Verti	I[250]	271.43	-0.41	1.19	0.12	77.47	0.3
286	Viento Verti	J[62]	271.43	-0.41	1.19	0.12	74.84	1.21
287	Viento Verti	I[46]	267.89	0.73	2.41	-0.26	76.63	1.39
287	Viento Verti	J[251]	267.89	0.73	2.41	-0.26	71.31	-0.21
288	Viento Verti	I[62]	267.89	-0.73	2.41	0.26	76.63	-1.39
288	Viento Verti	J[252]	267.89	-0.73	2.41	0.26	71.31	0.21
289	Viento Verti	I[251]	267.89	0.73	2.41	-0.26	71.31	-0.21
289	Viento Verti	J[47]	267.89	0.73	2.41	-0.26	66	-1.81
290	Viento Verti	I[252]	267.89	-0.73	2.41	0.26	71.31	0.21
290	Viento Verti	J[63]	267.89	-0.73	2.41	0.26	66	1.81
291	Viento Verti	I[47]	262.95	0.82	3.68	-0.41	68.53	1.79
291	Viento Verti	J[253]	262.95	0.82	3.68	-0.41	60.42	-0.02
292	Viento Verti	I[63]	262.95	-0.82	3.68	0.41	68.53	-1.79
292	Viento Verti	J[254]	262.95	-0.82	3.68	0.41	60.42	0.02
293	Viento Verti	I[253]	262.95	0.82	3.68	-0.41	60.42	-0.02
293	Viento Verti	J[48]	262.95	0.82	3.68	-0.41	52.3	-1.83
294	Viento Verti	I[254]	262.95	-0.82	3.68	0.41	60.42	0.02
294	Viento Verti	J[64]	262.95	-0.82	3.68	0.41	52.3	1.83
295	Viento Verti	I[48]	258.43	0.49	5.02	-0.5	54.76	1.44
295	Viento Verti	J[255]	258.43	0.49	5.02	-0.5	43.69	0.36
296	Viento Verti	I[64]	258.43	-0.49	5.02	0.5	54.76	-1.44
296	Viento Verti	J[256]	258.43	-0.49	5.02	0.5	43.69	-0.36
297	Viento Verti	I[255]	258.43	0.49	5.02	-0.5	43.69	0.36
297	Viento Verti	J[49]	258.43	0.49	5.02	-0.5	32.62	-0.73
298	Viento Verti	I[256]	258.43	-0.49	5.02	0.5	43.69	-0.36

298	Viento Verti	J[65]	258.43	-0.49	5.02	0.5	32.62	0.73
299	Viento Verti	I[49]	257.72	-0.59	6.49	-0.3	33.45	-0.3
299	Viento Verti	J[257]	257.72	-0.59	6.49	-0.3	19.13	0.99
300	Viento Verti	I[65]	257.72	0.59	6.49	0.3	33.45	0.3
300	Viento Verti	J[258]	257.72	0.59	6.49	0.3	19.13	-0.99
301	Viento Verti	I[257]	257.72	-0.59	6.49	-0.3	19.13	0.99
301	Viento Verti	J[50]	257.72	-0.59	6.49	-0.3	4.81	2.29
302	Viento Verti	I[258]	257.72	0.59	6.49	0.3	19.13	-0.99
302	Viento Verti	J[66]	257.72	0.59	6.49	0.3	4.81	-2.29
303	Viento Verti	I[50]	267.09	-2.98	8.48	0.55	1.12	-4.75
303	Viento Verti	J[259]	267.09	-2.98	8.48	0.55	-17.58	1.81
304	Viento Verti	I[66]	267.09	2.98	8.48	-0.55	1.12	4.75
304	Viento Verti	J[260]	267.09	2.98	8.48	-0.55	-17.58	-1.81
305	Viento Verti	I[259]	267.09	-2.98	8.48	0.55	-17.58	1.81
305	Viento Verti	J[51]	267.09	-2.98	8.48	0.55	-36.28	8.38
306	Viento Verti	I[260]	267.09	2.98	8.48	-0.55	-17.58	-1.81
306	Viento Verti	J[67]	267.09	2.98	8.48	-0.55	-36.28	-8.38
307	Viento Verti	I[51]	297.78	-10.82	12.37	4.23	-49.82	-14.48
307	Viento Verti	J[261]	297.78	-10.82	12.37	4.23	-77.11	9.38
308	Viento Verti	I[67]	297.78	10.82	12.37	-4.23	-49.82	14.48
308	Viento Verti	J[262]	297.78	10.82	12.37	-4.23	-77.11	-9.38
309	Viento Verti	I[261]	297.78	-10.82	12.37	4.23	-77.11	9.38
309	Viento Verti	J[52]	297.78	-10.82	12.37	4.23	-104.4	33.25
310	Viento Verti	I[262]	297.78	10.82	12.37	-4.23	-77.11	-9.38
310	Viento Verti	J[68]	297.78	10.82	12.37	-4.23	-104.4	-33.25
311	Viento Verti	I[52]	373.66	-22.25	33.37	28.25	-137.94	-22.51
311	Viento Verti	J[263]	373.66	-22.25	33.37	28.25	-211.56	26.57
312	Viento Verti	I[68]	373.66	22.25	33.37	-28.25	-137.94	22.51
312	Viento Verti	J[264]	373.66	22.25	33.37	-28.25	-211.56	-26.57
313	Viento Verti	I[263]	373.66	-22.25	33.37	28.25	-211.56	26.57
313	Viento Verti	J[18]	373.66	-22.25	33.37	28.25	-285.17	75.64
314	Viento Verti	I[264]	373.66	22.25	33.37	-28.25	-211.56	-26.57
314	Viento Verti	J[36]	373.66	22.25	33.37	-28.25	-285.17	-75.64
315	Viento Verti	I[1]	0	0	0	0	0	0
315	Viento Verti	J[265]	0	0	0	0	0	0
316	Viento Verti	I[18]	0	0	0	0	0	0
316	Viento Verti	J[266]	0	0	0	0	0	0
317	Viento Verti	I[37]	0	0	0	0	0	0
317	Viento Verti	J[267]	0	0	0	0	0	0
318	Viento Verti	I[38]	0	0	0	0	0	0
318	Viento Verti	J[268]	0	0	0	0	0	0
319	Viento Verti	I[39]	0	0	0	0	0	0
319	Viento Verti	J[269]	0	0	0	0	0	0
320	Viento Verti	I[40]	0	0	0	0	0	0
320	Viento Verti	J[270]	0	0	0	0	0	0
321	Viento Verti	I[41]	0	0	0	0	0	0
321	Viento Verti	J[271]	0	0	0	0	0	0
322	Viento Verti	I[42]	0	0	0	0	0	0
322	Viento Verti	J[272]	0	0	0	0	0	0
323	Viento Verti	I[43]	0	0	0	0	0	0
323	Viento Verti	J[273]	0	0	0	0	0	0
324	Viento Verti	I[44]	0	0	0	0	0	0
324	Viento Verti	J[274]	0	0	0	0	0	0
325	Viento Verti	I[45]	0	0	0	0	0	0
325	Viento Verti	J[275]	0	0	0	0	0	0
326	Viento Verti	I[46]	0	0	0	0	0	0
326	Viento Verti	J[276]	0	0	0	0	0	0
327	Viento Verti	I[47]	0	0	0	0	0	0
327	Viento Verti	J[277]	0	0	0	0	0	0
328	Viento Verti	I[48]	0	0	0	0	0	0
328	Viento Verti	J[278]	0	0	0	0	0	0

329	Viento Verti	I[49]	0	0	0	0	0	0
329	Viento Verti	J[279]	0	0	0	0	0	0
330	Viento Verti	I[50]	0	0	0	0	0	0
330	Viento Verti	J[280]	0	0	0	0	0	0
331	Viento Verti	I[51]	0	0	0	0	0	0
331	Viento Verti	J[281]	0	0	0	0	0	0
332	Viento Verti	I[52]	0	0	0	0	0	0
332	Viento Verti	J[282]	0	0	0	0	0	0
333	Viento Verti	I[231]	0	0	0	0	0	0
333	Viento Verti	J[283]	0	0	0	0	0	0
334	Viento Verti	I[233]	0	0	0	0	0	0
334	Viento Verti	J[284]	0	0	0	0	0	0
335	Viento Verti	I[235]	0	0	0	0	0	0
335	Viento Verti	J[285]	0	0	0	0	0	0
336	Viento Verti	I[237]	0	0	0	0	0	0
336	Viento Verti	J[286]	0	0	0	0	0	0
337	Viento Verti	I[239]	0	0	0	0	0	0
337	Viento Verti	J[287]	0	0	0	0	0	0
338	Viento Verti	I[241]	0	0	0	0	0	0
338	Viento Verti	J[288]	0	0	0	0	0	0
339	Viento Verti	I[243]	0	0	0	0	0	0
339	Viento Verti	J[289]	0	0	0	0	0	0
340	Viento Verti	I[245]	0	0	0	0	0	0
340	Viento Verti	J[290]	0	0	0	0	0	0
341	Viento Verti	I[247]	0	0	0	0	0	0
341	Viento Verti	J[291]	0	0	0	0	0	0
342	Viento Verti	I[249]	0	0	0	0	0	0
342	Viento Verti	J[292]	0	0	0	0	0	0
343	Viento Verti	I[251]	0	0	0	0	0	0
343	Viento Verti	J[293]	0	0	0	0	0	0
344	Viento Verti	I[253]	0	0	0	0	0	0
344	Viento Verti	J[294]	0	0	0	0	0	0
345	Viento Verti	I[255]	0	0	0	0	0	0
345	Viento Verti	J[295]	0	0	0	0	0	0
346	Viento Verti	I[257]	0	0	0	0	0	0
346	Viento Verti	J[296]	0	0	0	0	0	0
347	Viento Verti	I[259]	0	0	0	0	0	0
347	Viento Verti	J[297]	0	0	0	0	0	0
348	Viento Verti	I[261]	0	0	0	0	0	0
348	Viento Verti	J[298]	0	0	0	0	0	0
349	Viento Verti	I[263]	0	0	0	0	0	0
349	Viento Verti	J[299]	0	0	0	0	0	0
350	Viento Verti	I[19]	0	0	0	0	0	0
350	Viento Verti	J[300]	0	0	0	0	0	0
351	Viento Verti	I[36]	0	0	0	0	0	0
351	Viento Verti	J[301]	0	0	0	0	0	0
352	Viento Verti	I[53]	0	0	0	0	0	0
352	Viento Verti	J[302]	0	0	0	0	0	0
353	Viento Verti	I[54]	0	0	0	0	0	0
353	Viento Verti	J[303]	0	0	0	0	0	0
354	Viento Verti	I[55]	0	0	0	0	0	0
354	Viento Verti	J[304]	0	0	0	0	0	0
355	Viento Verti	I[56]	0	0	0	0	0	0
355	Viento Verti	J[305]	0	0	0	0	0	0
356	Viento Verti	I[57]	0	0	0	0	0	0
356	Viento Verti	J[306]	0	0	0	0	0	0
357	Viento Verti	I[58]	0	0	0	0	0	0
357	Viento Verti	J[307]	0	0	0	0	0	0
358	Viento Verti	I[59]	0	0	0	0	0	0
358	Viento Verti	J[308]	0	0	0	0	0	0
359	Viento Verti	I[60]	0	0	0	0	0	0

359	Viento Verti	J[309]	0	0	0	0	0	0
360	Viento Verti	I[61]	0	0	0	0	0	0
360	Viento Verti	J[310]	0	0	0	0	0	0
361	Viento Verti	I[62]	0	0	0	0	0	0
361	Viento Verti	J[311]	0	0	0	0	0	0
362	Viento Verti	I[63]	0	0	0	0	0	0
362	Viento Verti	J[312]	0	0	0	0	0	0
363	Viento Verti	I[64]	0	0	0	0	0	0
363	Viento Verti	J[313]	0	0	0	0	0	0
364	Viento Verti	I[65]	0	0	0	0	0	0
364	Viento Verti	J[314]	0	0	0	0	0	0
365	Viento Verti	I[66]	0	0	0	0	0	0
365	Viento Verti	J[315]	0	0	0	0	0	0
366	Viento Verti	I[67]	0	0	0	0	0	0
366	Viento Verti	J[316]	0	0	0	0	0	0
367	Viento Verti	I[68]	0	0	0	0	0	0
367	Viento Verti	J[317]	0	0	0	0	0	0
368	Viento Verti	I[232]	0	0	0	0	0	0
368	Viento Verti	J[318]	0	0	0	0	0	0
369	Viento Verti	I[234]	0	0	0	0	0	0
369	Viento Verti	J[319]	0	0	0	0	0	0
370	Viento Verti	I[236]	0	0	0	0	0	0
370	Viento Verti	J[320]	0	0	0	0	0	0
371	Viento Verti	I[238]	0	0	0	0	0	0
371	Viento Verti	J[321]	0	0	0	0	0	0
372	Viento Verti	I[240]	0	0	0	0	0	0
372	Viento Verti	J[322]	0	0	0	0	0	0
373	Viento Verti	I[242]	0	0	0	0	0	0
373	Viento Verti	J[323]	0	0	0	0	0	0
374	Viento Verti	I[244]	0	0	0	0	0	0
374	Viento Verti	J[324]	0	0	0	0	0	0
375	Viento Verti	I[246]	0	0	0	0	0	0
375	Viento Verti	J[325]	0	0	0	0	0	0
376	Viento Verti	I[248]	0	0	0	0	0	0
376	Viento Verti	J[326]	0	0	0	0	0	0
377	Viento Verti	I[250]	0	0	0	0	0	0
377	Viento Verti	J[327]	0	0	0	0	0	0
378	Viento Verti	I[252]	0	0	0	0	0	0
378	Viento Verti	J[328]	0	0	0	0	0	0
379	Viento Verti	I[254]	0	0	0	0	0	0
379	Viento Verti	J[329]	0	0	0	0	0	0
380	Viento Verti	I[256]	0	0	0	0	0	0
380	Viento Verti	J[330]	0	0	0	0	0	0
381	Viento Verti	I[258]	0	0	0	0	0	0
381	Viento Verti	J[331]	0	0	0	0	0	0
382	Viento Verti	I[260]	0	0	0	0	0	0
382	Viento Verti	J[332]	0	0	0	0	0	0
383	Viento Verti	I[262]	0	0	0	0	0	0
383	Viento Verti	J[333]	0	0	0	0	0	0
384	Viento Verti	I[264]	0	0	0	0	0	0
384	Viento Verti	J[334]	0	0	0	0	0	0
385	Viento Verti	I[69]	83.62	33.98	5.06	-1.74	20.56	109.66
385	Viento Verti	J[71]	83.62	33.98	13.75	-1.74	-20.93	-40.27
386	Viento Verti	I[105]	18.88	19.62	0.3	-1.18	9.62	56.54
386	Viento Verti	J[107]	18.88	19.62	9	-1.18	-10.89	-30.03
387	Viento Verti	I[141]	11.84	0	-1.13	0	6.26	0
387	Viento Verti	J[143]	11.84	0	7.56	0	-7.94	0
388	Viento Verti	I[177]	18.88	-19.62	0.3	1.18	9.62	-56.54
388	Viento Verti	J[179]	18.88	-19.62	9	1.18	-10.89	30.03
389	Viento Verti	I[213]	83.62	-33.98	5.06	1.74	20.56	-109.66
389	Viento Verti	J[215]	83.62	-33.98	13.75	1.74	-20.93	40.27

390	Viento Verti	I[71]	135.59	15.13	-2.49	-0.07	0.27	42.34
390	Viento Verti	J[72]	135.59	15.13	6.2	-0.07	-7.91	-24.4
391	Viento Verti	I[107]	36.5	10.88	-3.2	0.03	-1.98	25.77
391	Viento Verti	J[108]	36.5	10.88	5.5	0.03	-7.05	-22.22
392	Viento Verti	I[143]	24.41	0	-3.4	0	-2.46	0
392	Viento Verti	J[144]	24.41	0	5.29	0	-6.62	0
393	Viento Verti	I[179]	36.5	-10.88	-3.2	-0.03	-1.98	-25.77
393	Viento Verti	J[180]	36.5	-10.88	5.5	-0.03	-7.05	22.22
394	Viento Verti	I[215]	135.59	-15.13	-2.49	0.07	0.27	-42.34
394	Viento Verti	J[216]	135.59	-15.13	6.2	0.07	-7.91	24.4
395	Viento Verti	I[72]	148.56	6.69	-4.09	-0.03	-2.42	17.16
395	Viento Verti	J[73]	148.56	6.69	4.6	-0.03	-3.54	-12.37
396	Viento Verti	I[108]	48.77	8.23	-3.56	-0.01	-1.58	20.07
396	Viento Verti	J[109]	48.77	8.23	5.13	-0.01	-5.04	-16.25
397	Viento Verti	I[144]	35.31	0	-3.68	0	-1.92	0
397	Viento Verti	J[145]	35.31	0	5.01	0	-4.87	0
398	Viento Verti	I[180]	48.77	-8.23	-3.56	0.01	-1.58	-20.07
398	Viento Verti	J[181]	48.77	-8.23	5.13	0.01	-5.04	16.25
399	Viento Verti	I[216]	148.56	-6.69	-4.09	0.03	-2.42	-17.16
399	Viento Verti	J[217]	148.56	-6.69	4.6	0.03	-3.54	12.37
400	Viento Verti	I[73]	145.45	2.87	-4.95	0.01	-4.01	7.63
400	Viento Verti	J[376]	145.45	2.87	-0.61	0.01	2.12	1.3
401	Viento Verti	I[109]	57.09	5.72	-3.87	0.01	-1.69	13.96
401	Viento Verti	J[377]	57.09	5.72	0.48	0.01	2.06	1.35
402	Viento Verti	I[145]	43.64	0	-3.83	0	-1.63	0
402	Viento Verti	J[378]	43.64	0	0.51	0	2.03	0
403	Viento Verti	I[181]	57.09	-5.72	-3.87	-0.01	-1.69	-13.96
403	Viento Verti	J[379]	57.09	-5.72	0.48	-0.01	2.06	-1.35
404	Viento Verti	I[217]	145.45	-2.87	-4.95	-0.01	-4.01	-7.63
404	Viento Verti	J[380]	145.45	-2.87	-0.61	-0.01	2.12	-1.3
405	Viento Verti	I[74]	136.12	1.11	-5.2	0.02	-4.29	3.33
405	Viento Verti	J[75]	136.12	1.11	3.49	0.02	-0.52	-1.55
406	Viento Verti	I[110]	62.56	3.97	-4.08	0.01	-1.78	9.98
406	Viento Verti	J[111]	62.56	3.97	4.61	0.01	-2.95	-7.56
407	Viento Verti	I[146]	49.94	0	-3.99	0	-1.59	0
407	Viento Verti	J[147]	49.94	0	4.7	0	-3.16	0
408	Viento Verti	I[182]	62.56	-3.97	-4.08	-0.01	-1.78	-9.98
408	Viento Verti	J[183]	62.56	-3.97	4.61	-0.01	-2.95	7.56
409	Viento Verti	I[218]	136.12	-1.11	-5.2	-0.02	-4.29	-3.33
409	Viento Verti	J[219]	136.12	-1.11	3.49	-0.02	-0.52	1.55
410	Viento Verti	I[75]	125.86	0.24	-5.15	0.02	-3.96	0.95
410	Viento Verti	J[76]	125.86	0.24	3.54	0.02	-0.43	-0.09
411	Viento Verti	I[111]	66.02	2.65	-4.21	0.01	-1.8	6.83
411	Viento Verti	J[112]	66.02	2.65	4.48	0.01	-2.41	-4.84
412	Viento Verti	I[147]	54.5	0	-4.11	0	-1.58	0
412	Viento Verti	J[148]	54.5	0	4.58	0	-2.63	0
413	Viento Verti	I[183]	66.02	-2.65	-4.21	-0.01	-1.8	-6.83
413	Viento Verti	J[184]	66.02	-2.65	4.48	-0.01	-2.41	4.84
414	Viento Verti	I[219]	125.86	-0.24	-5.15	-0.02	-3.96	-0.95
414	Viento Verti	J[220]	125.86	-0.24	3.54	-0.02	-0.43	0.09
415	Viento Verti	I[76]	117.32	-0.1	-4.94	0.01	-3.35	-0.11
415	Viento Verti	J[77]	117.32	-0.1	3.75	0.01	-0.74	0.32
416	Viento Verti	I[112]	68.08	1.6	-4.28	0.01	-1.79	4.32
416	Viento Verti	J[113]	68.08	1.6	4.41	0.01	-2.08	-2.74
417	Viento Verti	I[148]	57.57	0	-4.2	0	-1.6	0
417	Viento Verti	J[149]	57.57	0	4.49	0	-2.24	0
418	Viento Verti	I[184]	68.08	-1.6	-4.28	-0.01	-1.79	-4.32
418	Viento Verti	J[185]	68.08	-1.6	4.41	-0.01	-2.08	2.74
419	Viento Verti	I[220]	117.32	0.1	-4.94	-0.01	-3.35	0.11
419	Viento Verti	J[221]	117.32	0.1	3.75	-0.01	-0.74	-0.32
420	Viento Verti	I[77]	111.81	-0.12	-4.66	0.01	-2.64	-0.34

420	Viento Verti	J[78]	111.81	-0.12	4.03	0.01	-1.27	0.19
421	Viento Verti	I[113]	69.16	0.75	-4.32	0	-1.78	2.32
421	Viento Verti	J[114]	69.16	0.75	4.37	0	-1.89	-0.99
422	Viento Verti	I[149]	59.34	0	-4.28	0	-1.67	0
422	Viento Verti	J[150]	59.34	0	4.41	0	-1.97	0
423	Viento Verti	I[185]	69.16	-0.75	-4.32	0	-1.78	-2.32
423	Viento Verti	J[186]	69.16	-0.75	4.37	0	-1.89	0.99
424	Viento Verti	I[221]	111.81	0.12	-4.66	-0.01	-2.64	0.34
424	Viento Verti	J[222]	111.81	0.12	4.03	-0.01	-1.27	-0.19
425	Viento Verti	I[78]	109.92	0	-4.35	0	-1.93	-0.13
425	Viento Verti	J[371]	109.92	0	0	0	2.87	-0.13
426	Viento Verti	I[114]	69.5	0	-4.35	0	-1.8	0.62
426	Viento Verti	J[372]	69.5	0	0	0	2.99	0.62
427	Viento Verti	I[150]	59.91	0	-4.35	0	-1.79	0
427	Viento Verti	J[373]	59.91	0	0	0	3.01	0
428	Viento Verti	I[186]	69.5	0	-4.35	0	-1.8	-0.62
428	Viento Verti	J[374]	69.5	0	0	0	2.99	-0.62
429	Viento Verti	I[222]	109.92	0	-4.35	0	-1.93	0.13
429	Viento Verti	J[375]	109.92	0	0	0	2.87	0.13
430	Viento Verti	I[79]	111.81	0.12	-4.03	-0.01	-1.27	0.19
430	Viento Verti	J[80]	111.81	0.12	4.66	-0.01	-2.64	-0.34
431	Viento Verti	I[115]	69.16	-0.75	-4.37	0	-1.89	-0.99
431	Viento Verti	J[116]	69.16	-0.75	4.32	0	-1.78	2.32
432	Viento Verti	I[151]	59.34	0	-4.41	0	-1.97	0
432	Viento Verti	J[152]	59.34	0	4.28	0	-1.67	0
433	Viento Verti	I[187]	69.16	0.75	-4.37	0	-1.89	0.99
433	Viento Verti	J[188]	69.16	0.75	4.32	0	-1.78	-2.32
434	Viento Verti	I[223]	111.81	-0.12	-4.03	0.01	-1.27	-0.19
434	Viento Verti	J[224]	111.81	-0.12	4.66	0.01	-2.64	0.34
435	Viento Verti	I[80]	117.32	0.1	-3.75	-0.01	-0.74	0.32
435	Viento Verti	J[81]	117.32	0.1	4.94	-0.01	-3.35	-0.11
436	Viento Verti	I[116]	68.08	-1.6	-4.41	-0.01	-2.08	-2.74
436	Viento Verti	J[117]	68.08	-1.6	4.28	-0.01	-1.79	4.32
437	Viento Verti	I[152]	57.57	0	-4.49	0	-2.24	0
437	Viento Verti	J[153]	57.57	0	4.2	0	-1.6	0
438	Viento Verti	I[188]	68.08	1.6	-4.41	0.01	-2.08	2.74
438	Viento Verti	J[189]	68.08	1.6	4.28	0.01	-1.79	-4.32
439	Viento Verti	I[224]	117.32	-0.1	-3.75	0.01	-0.74	-0.32
439	Viento Verti	J[225]	117.32	-0.1	4.94	0.01	-3.35	0.11
440	Viento Verti	I[81]	125.86	-0.24	-3.54	-0.02	-0.43	-0.09
440	Viento Verti	J[82]	125.86	-0.24	5.15	-0.02	-3.96	0.95
441	Viento Verti	I[117]	66.02	-2.65	-4.48	-0.01	-2.41	-4.84
441	Viento Verti	J[118]	66.02	-2.65	4.21	-0.01	-1.8	6.83
442	Viento Verti	I[153]	54.5	0	-4.58	0	-2.63	0
442	Viento Verti	J[154]	54.5	0	4.11	0	-1.58	0
443	Viento Verti	I[189]	66.02	2.65	-4.48	0.01	-2.41	4.84
443	Viento Verti	J[190]	66.02	2.65	4.21	0.01	-1.8	-6.83
444	Viento Verti	I[225]	125.86	0.24	-3.54	0.02	-0.43	0.09
444	Viento Verti	J[226]	125.86	0.24	5.15	0.02	-3.96	-0.95
445	Viento Verti	I[82]	136.12	-1.11	-3.49	-0.02	-0.52	-1.55
445	Viento Verti	J[83]	136.12	-1.11	5.2	-0.02	-4.29	3.33
446	Viento Verti	I[118]	62.56	-3.97	-4.61	-0.01	-2.95	-7.56
446	Viento Verti	J[119]	62.56	-3.97	4.08	-0.01	-1.78	9.98
447	Viento Verti	I[154]	49.94	0	-4.7	0	-3.16	0
447	Viento Verti	J[155]	49.94	0	3.99	0	-1.59	0
448	Viento Verti	I[190]	62.56	3.97	-4.61	0.01	-2.95	7.56
448	Viento Verti	J[191]	62.56	3.97	4.08	0.01	-1.78	-9.98
449	Viento Verti	I[226]	136.12	1.11	-3.49	0.02	-0.52	1.55
449	Viento Verti	J[227]	136.12	1.11	5.2	0.02	-4.29	-3.33
450	Viento Verti	I[83]	145.45	-2.87	-3.74	-0.01	-1.34	-5.03
450	Viento Verti	J[381]	145.45	-2.87	0.61	-0.01	2.12	1.3

451	Viento Verti	I[119]	57.09	-5.72	-4.82	-0.01	-3.79	-11.26
451	Viento Verti	J[382]	57.09	-5.72	-0.48	-0.01	2.06	1.35
452	Viento Verti	I[155]	43.64	0	-4.86	0	-3.9	0
452	Viento Verti	J[383]	43.64	0	-0.51	0	2.03	0
453	Viento Verti	I[191]	57.09	5.72	-4.82	0.01	-3.79	11.26
453	Viento Verti	J[384]	57.09	5.72	-0.48	0.01	2.06	-1.35
454	Viento Verti	I[227]	145.45	2.87	-3.74	0.01	-1.34	5.03
454	Viento Verti	J[385]	145.45	2.87	0.61	0.01	2.12	-1.3
455	Viento Verti	I[84]	148.56	-6.69	-4.6	0.03	-3.54	-12.37
455	Viento Verti	J[85]	148.56	-6.69	4.09	0.03	-2.42	17.16
456	Viento Verti	I[120]	48.77	-8.23	-5.13	0.01	-5.04	-16.25
456	Viento Verti	J[121]	48.77	-8.23	3.56	0.01	-1.58	20.07
457	Viento Verti	I[156]	35.31	0	-5.01	0	-4.87	0
457	Viento Verti	J[157]	35.31	0	3.68	0	-1.92	0
458	Viento Verti	I[192]	48.77	8.23	-5.13	-0.01	-5.04	16.25
458	Viento Verti	J[193]	48.77	8.23	3.56	-0.01	-1.58	-20.07
459	Viento Verti	I[228]	148.56	6.69	-4.6	-0.03	-3.54	12.37
459	Viento Verti	J[229]	148.56	6.69	4.09	-0.03	-2.42	-17.16
460	Viento Verti	I[85]	135.59	-15.13	-6.2	0.07	-7.91	-24.4
460	Viento Verti	J[86]	135.59	-15.13	2.49	0.07	0.27	42.34
461	Viento Verti	I[121]	36.5	-10.88	-5.5	-0.03	-7.05	-22.22
461	Viento Verti	J[122]	36.5	-10.88	3.2	-0.03	-1.98	25.77
462	Viento Verti	I[157]	24.41	0	-5.29	0	-6.62	0
462	Viento Verti	J[158]	24.41	0	3.4	0	-2.46	0
463	Viento Verti	I[193]	36.5	10.88	-5.5	0.03	-7.05	22.22
463	Viento Verti	J[194]	36.5	10.88	3.2	0.03	-1.98	-25.77
464	Viento Verti	I[229]	135.59	15.13	-6.2	-0.07	-7.91	24.4
464	Viento Verti	J[230]	135.59	15.13	2.49	-0.07	0.27	-42.34
465	Viento Verti	I[86]	83.62	-33.98	-13.75	1.74	-20.93	-40.27
465	Viento Verti	J[70]	83.62	-33.98	-5.06	1.74	20.56	109.66
466	Viento Verti	I[122]	18.88	-19.62	-9	1.18	-10.89	-30.03
466	Viento Verti	J[106]	18.88	-19.62	-0.3	1.18	9.62	56.54
467	Viento Verti	I[158]	11.84	0	-7.56	0	-7.94	0
467	Viento Verti	J[142]	11.84	0	1.13	0	6.26	0
468	Viento Verti	I[194]	18.88	19.62	-9	-1.18	-10.89	30.03
468	Viento Verti	J[178]	18.88	19.62	-0.3	-1.18	9.62	-56.54
469	Viento Verti	I[230]	83.62	33.98	-13.75	-1.74	-20.93	40.27
469	Viento Verti	J[214]	83.62	33.98	-5.06	-1.74	20.56	-109.66
470	Viento Verti	I[335]	-22.25	-108.42	-8.99	17.33	23.91	-23.48
470	Viento Verti	J[69]	-22.25	-108.42	-7.02	17.33	31.92	84.93
471	Viento Verti	I[336]	11.43	-75.88	-47.71	2.59	4.74	-17.81
471	Viento Verti	J[71]	11.43	-75.88	-45.74	2.59	51.46	58.08
472	Viento Verti	I[337]	7.84	-30.69	-37.62	1.02	18.58	-7.52
472	Viento Verti	J[72]	7.84	-30.69	-35.65	1.02	55.22	23.17
473	Viento Verti	I[338]	2.39	-9.37	-36.76	-0.13	18.75	-2.35
473	Viento Verti	J[73]	2.39	-9.37	-34.79	-0.13	54.53	7.01
474	Viento Verti	I[339]	1.08	0.7	-36.05	-0.54	18.52	0.07
474	Viento Verti	J[74]	1.08	0.7	-34.08	-0.54	53.58	-0.63
475	Viento Verti	I[340]	0.33	4.52	-35.65	-0.62	18.3	1.01
475	Viento Verti	J[75]	0.33	4.52	-33.68	-0.62	52.96	-3.51
476	Viento Verti	I[341]	-0.09	4.94	-35.43	-0.52	18.07	1.14
476	Viento Verti	J[76]	-0.09	4.94	-33.46	-0.52	52.52	-3.8
477	Viento Verti	I[342]	-0.32	3.55	-35.31	-0.34	17.91	0.82
477	Viento Verti	J[77]	-0.32	3.55	-33.34	-0.34	52.24	-2.72
478	Viento Verti	I[343]	-0.41	1.27	-35.27	-0.12	17.83	0.3
478	Viento Verti	J[78]	-0.41	1.27	-33.3	-0.12	52.12	-0.97
479	Viento Verti	I[344]	-0.41	-1.27	-35.27	0.12	17.83	-0.3
479	Viento Verti	J[79]	-0.41	-1.27	-33.3	0.12	52.12	0.97
480	Viento Verti	I[345]	-0.32	-3.55	-35.31	0.34	17.91	-0.82
480	Viento Verti	J[80]	-0.32	-3.55	-33.34	0.34	52.24	2.72
481	Viento Verti	I[346]	-0.09	-4.94	-35.43	0.52	18.07	-1.14

481	Viento Verti	J[81]	-0.09	-4.94	-33.46	0.52	52.52	3.8
482	Viento Verti	I[347]	0.33	-4.52	-35.65	0.62	18.3	-1.01
482	Viento Verti	J[82]	0.33	-4.52	-33.68	0.62	52.96	3.51
483	Viento Verti	I[348]	1.08	-0.7	-36.05	0.54	18.52	-0.07
483	Viento Verti	J[83]	1.08	-0.7	-34.08	0.54	53.58	0.63
484	Viento Verti	I[349]	2.39	9.37	-36.76	0.13	18.75	2.35
484	Viento Verti	J[84]	2.39	9.37	-34.79	0.13	54.53	-7.01
485	Viento Verti	I[350]	7.84	30.69	-37.62	-1.02	18.58	7.52
485	Viento Verti	J[85]	7.84	30.69	-35.65	-1.02	55.22	-23.17
486	Viento Verti	I[351]	11.43	75.88	-47.71	-2.59	4.74	17.81
486	Viento Verti	J[86]	11.43	75.88	-45.74	-2.59	51.46	-58.08
487	Viento Verti	I[352]	-22.25	108.42	-8.99	-17.33	23.91	23.48
487	Viento Verti	J[70]	-22.25	108.42	-7.02	-17.33	31.92	-84.93
488	Viento Verti	I[353]	-22.25	108.42	8.99	-17.33	23.91	-23.48
488	Viento Verti	J[19]	-22.25	108.42	9.98	-17.33	19.17	-77.69
489	Viento Verti	I[354]	11.43	75.88	47.71	-2.59	4.74	-17.81
489	Viento Verti	J[53]	11.43	75.88	48.69	-2.59	-19.36	-55.75
490	Viento Verti	I[355]	7.84	30.69	37.62	-1.02	18.58	-7.52
490	Viento Verti	J[54]	7.84	30.69	38.61	-1.02	-0.48	-22.86
491	Viento Verti	I[356]	2.39	9.37	36.76	0.13	18.75	-2.35
491	Viento Verti	J[55]	2.39	9.37	37.75	0.13	0.12	-7.04
492	Viento Verti	I[357]	1.08	-0.7	36.05	0.54	18.52	0.07
492	Viento Verti	J[56]	1.08	-0.7	37.04	0.54	0.24	0.42
493	Viento Verti	I[358]	0.33	-4.52	35.65	0.62	18.3	1.01
493	Viento Verti	J[57]	0.33	-4.52	36.64	0.62	0.22	3.27
494	Viento Verti	I[359]	-0.09	-4.94	35.43	0.52	18.07	1.14
494	Viento Verti	J[58]	-0.09	-4.94	36.41	0.52	0.11	3.61
495	Viento Verti	I[360]	-0.32	-3.55	35.31	0.34	17.91	0.82
495	Viento Verti	J[59]	-0.32	-3.55	36.3	0.34	0.01	2.6
496	Viento Verti	I[361]	-0.41	-1.27	35.27	0.12	17.83	0.3
496	Viento Verti	J[60]	-0.41	-1.27	36.25	0.12	-0.04	0.93
497	Viento Verti	I[362]	-0.41	1.27	35.27	-0.12	17.83	-0.3
497	Viento Verti	J[61]	-0.41	1.27	36.25	-0.12	-0.04	-0.93
498	Viento Verti	I[363]	-0.32	3.55	35.31	-0.34	17.91	-0.82
498	Viento Verti	J[62]	-0.32	3.55	36.3	-0.34	0.01	-2.6
499	Viento Verti	I[364]	-0.09	4.94	35.43	-0.52	18.07	-1.14
499	Viento Verti	J[63]	-0.09	4.94	36.41	-0.52	0.11	-3.61
500	Viento Verti	I[365]	0.33	4.52	35.65	-0.62	18.3	-1.01
500	Viento Verti	J[64]	0.33	4.52	36.64	-0.62	0.22	-3.27
501	Viento Verti	I[366]	1.08	0.7	36.05	-0.54	18.52	-0.07
501	Viento Verti	J[65]	1.08	0.7	37.04	-0.54	0.24	-0.42
502	Viento Verti	I[367]	2.39	-9.37	36.76	-0.13	18.75	2.35
502	Viento Verti	J[66]	2.39	-9.37	37.75	-0.13	0.12	7.04
503	Viento Verti	I[368]	7.84	-30.69	37.62	1.02	18.58	7.52
503	Viento Verti	J[67]	7.84	-30.69	38.61	1.02	-0.48	22.86
504	Viento Verti	I[369]	11.43	-75.88	47.71	2.59	4.74	17.81
504	Viento Verti	J[68]	11.43	-75.88	48.69	2.59	-19.36	55.75
505	Viento Verti	I[370]	-22.25	-108.42	8.99	17.33	23.91	23.48
505	Viento Verti	J[36]	-22.25	-108.42	9.98	17.33	19.17	77.69
506	Viento Verti	I[371]	109.92	0	0	0	2.87	-0.13
506	Viento Verti	J[79]	109.92	0	4.35	0	-1.93	-0.13
507	Viento Verti	I[372]	69.5	0	0	0	2.99	0.62
507	Viento Verti	J[115]	69.5	0	4.35	0	-1.8	0.62
508	Viento Verti	I[373]	59.91	0	0	0	3.01	0
508	Viento Verti	J[151]	59.91	0	4.35	0	-1.79	0
509	Viento Verti	I[374]	69.5	0	0	0	2.99	-0.62
509	Viento Verti	J[187]	69.5	0	4.35	0	-1.8	-0.62
510	Viento Verti	I[375]	109.92	0	0	0	2.87	0.13
510	Viento Verti	J[223]	109.92	0	4.35	0	-1.93	0.13
511	Viento Verti	I[376]	145.45	2.87	-0.61	0.01	2.12	1.3
511	Viento Verti	J[74]	145.45	2.87	3.74	0.01	-1.34	-5.03

512	Viento Verti	I[377]	57.09	5.72	0.48	0.01	2.06	1.35
512	Viento Verti	J[110]	57.09	5.72	4.82	0.01	-3.79	-11.26
513	Viento Verti	I[378]	43.64	0	0.51	0	2.03	0
513	Viento Verti	J[146]	43.64	0	4.86	0	-3.9	0
514	Viento Verti	I[379]	57.09	-5.72	0.48	-0.01	2.06	-1.35
514	Viento Verti	J[182]	57.09	-5.72	4.82	-0.01	-3.79	11.26
515	Viento Verti	I[380]	145.45	-2.87	-0.61	-0.01	2.12	-1.3
515	Viento Verti	J[218]	145.45	-2.87	3.74	-0.01	-1.34	5.03
516	Viento Verti	I[381]	145.45	-2.87	0.61	-0.01	2.12	1.3
516	Viento Verti	J[84]	145.45	-2.87	4.95	-0.01	-4.01	7.63
517	Viento Verti	I[382]	57.09	-5.72	-0.48	-0.01	2.06	1.35
517	Viento Verti	J[120]	57.09	-5.72	3.87	-0.01	-1.69	13.96
518	Viento Verti	I[383]	43.64	0	-0.51	0	2.03	0
518	Viento Verti	J[156]	43.64	0	3.83	0	-1.63	0
519	Viento Verti	I[384]	57.09	5.72	-0.48	0.01	2.06	-1.35
519	Viento Verti	J[192]	57.09	5.72	3.87	0.01	-1.69	-13.96
520	Viento Verti	I[385]	145.45	2.87	0.61	0.01	2.12	-1.3
520	Viento Verti	J[228]	145.45	2.87	4.95	0.01	-4.01	-7.63

APÉNDICE 2. ESFUERZOS DE COMBINACIÓN MÁXIMOS, MÍNIMOS Y SUS CONCOMITANTES

1. ELS CARÁCTERÍSTICO

1.1. 1

	Arco	20%L													
		Carga variable vehiculos			Vientos		Temperaturas					Peso propio			
Elemento	4	Objetivo	Concomitantes		Transversal	vertical	Longitudinal	subida	bajada	heat	cool				
	esfuerzo		cortante z	axil											
	M+	651.95	-19.27	-911.19	-1.44	5.41	0	326	-66.1	-69.1	-209	38		M+	1018.655
														M-	-652.1
	M-	-415	3.41	-1342											
			flector	axil											
	C+	35	369	-763	0	-3	0	15	1	-7	-16	-74		C+	-24
	C-	-46.32	411	-1182										C-	-139.32
		objetivo	flector	cortante											
	axil+	1.42	-0.33	0.03	-12	-514	0.35	-1161	37.22	242.94	740	-6453		N+	-5675.07
	axil-	-1764	-120	-10.83										N-	-8731
		objetivo													
	Mz														

1.2. 4

KN															
	arco	arranque													
		Carga variable vehiculos			Vientos		Temperaturas					Peso propio			
elemento	1	Objetivo	Concomitantes		Transversal	vertical	Longitudinal	subida	bajada	heat	cool				
	esfuerzo		cortante z	axil											ELS
	M+	351.71	-73	-395	-4.54	32.33	-2.67	336.47	-41.32	-230.38	-463	-431		M+	141.99
														M-	-915.712
	M-	-246	58	-1700	-4.54	32.33	-2.67	336.47	-41.32	-230.38	-463	-431			
		Objetivo	flector	axil											
	C+	60	-240	-1597	0.64	3.44	0	1.26	4	-160	-250	65		C+	129.464
	C-	-81	326	-576										C-	-266
		objetivo	flector	cortante											
	axil+	1.3	-0.55	-0.37	-12.76	-554.65	0.3	-1267	42.36	257	795	-7000		N+	-6162.64
	axil-	-1891	-168	35.68										N-	-9983.99
		objetivo													
	torsor	16.53			-27.5	2	0	36	-2.5	-3.13	-16	12.66		T	

1.3. 9

KN															
	arco	CL													
		Carga variable vehiculos			Vientos		Temperaturas					Peso propio			
Elemento	9	Objetivo	Concomitantes		Transversal	vertical	Longitudinal	subida	bajada	heat	cool				
	esfuerzo		cortante z	axil											
	M+	452.56	27.54	-1242.72	-1.16	19.62	0	16.74	-66	330	700	195.2		M+	1347.76
														M-	-85.8
	M-	-215	-21.25	-964											
			flector	axil											
	C+	55	309	-1200	0	0	0	0	0	0	0	50		C+	105
	C-	-54.3	305	-1208										C-	-4.3
		objetivo	flector	cortante											
	axil+	1.33	-0.2	-0.01	230.83	-482	0.35	-1098	34.8	230.83	701.25	-6045.2		N+	-5216.818
	axil-	-1656.32	315.29	-11.82										N-	-7990.72

1.4. 281

KN																		
	Viga longitudinal	CL																
		Carga variable vehiculos			Vientos		Temperaturas					Peso propio						
Elemento	281	Objetivo	Concomitantes		Transversal	vertical	Longitudinal	subida	bajada	heat	cool						Concomitante	
	esfuerzo		cortante z	axil													Cortante	axil
	M+	2125.68	-262.3	1297.33	-3.42	79.46	1.2	103	225.93	1125	1718	930		M+	4216.3725	-270.3	750.35	
														M-	359.58	-58.41	3254	
	M-	-567	-50.41	0														
																concomitante		
		Objetivo	flector	axil												flector	axil	
	C+	317.38	1228	1150	0	0	0	0	0	0	0	-8		C+	309.38	4134	5521.9	
	C-	-318.5	1923	1105.34										C-	-326.5	3862.35	5106.06	
		objetivo	flector	cortante												flector	cortante	
	axil+	1450	1533.63	152.21	-80	272.7	4.6	-9400	795	1662	706	3334		N+	4827	3053.094	68.105	
	axil-	-167.88	-222	14.16										N-	-3839.94	894.54	-0.92	
		objetivo																
	Mz	215.61			-10	-0.33	0	29	-2	-6	-17	-4		Mz+	229.01			
		-217												Mz-	-234.45			

1.5. 263

KN																	
	Viga Long	20%L															
		Carga variable vehiculos			Vientos		Temperaturas					Peso propio					
Elemento	263	Objetivo	Concomitantes		Transversal	vertical	Longitudinal	subida	bajada	heat	cool					Concomitante	
	esfuerzo		cortante z	axil												Cortante	axil
	M+	3200	246.11	2064.59	-3	43.69	-1	1216	-2485	925	918	537		M+	4478.45	241.64	1378.33
														M-	-1948	-84	3908.52
	M-	1445	-36	-772													
																concomitante	
		objetivo	flector	axil												flector	axil
	C+	281.51	2477	1670	1	-5	0	183	-6	-42	-121	-78		C+	313.31	3743.6	-674
	C-	-275	1387	1480										C-	-416.27	2531.35	7576.59
		objetivo	flector	cortante												flector	cortante
	axil+	2157.32	2715.42	176.38	-54.73	258.43	6.8	-9240	708.52	1294	5833	3200		N+	8865.966	1837.71	-82.36
	axil-	885	-1295	-7.14										N-	-3757.365	1447.5	-1841.905
		objetivo															
	Mz	172			-9.18	-0.73	0	462	-20	-75	-260	5		Mz+	449		
		-164												Mz-	-216.25		

1.6. 77

KN																
	Viga transve	CL														
	empo	Carga variable vehiculos			Vientos		Temperaturas					Peso propio				
Elemento	77	Objetivo	Concomitantes		Transversal	vertical	Longitudinal	subida	bajada	heat	cool					
	esfuerzo		cortante z	axil												Concomitante
	M+	238	-224.83	-22.64	-5.21	17.83	0	32.58	-1	-31.24	-10	117		M+	382.5715	-558.68
	M-	-2600	-350	-109										M-	-2506.954	-649
		Objetivo	flector	axil												
	C+	11	148	1	-1	-37	0	-27	2	5	16	-301		C+	-279.5	181
	C-	-561.35	325	-85												
														C-	-884.55	452.698

1.7. 149

Viga transve	CL														
CL	Carga variable vehiculos			Vientos		Temperaturas					Peso propio				
149	Objetivo	Concomitantes		Transversal	vertical	Longitudinal	subida	bajada	heat	cool					
esfuerzo		cortante z	axil												Concomitante
M+	2624	-6.33	85.69	-3.71	139.72	0	61.3	-3	-95	-31	1169		M+	3876.832	-74.728
M-	0	0	0										M-	1071.774	-63.6
	objetivo	flector	axil												Concomitante
C+	169.3	804.67	30.51	-1	-7.33	0	-6	0	1	3	-64		C+	105.3	1973.67
C-	-283.73	948	64										C-	-352.128	2200.832

1.8. 72

Viga transve	20%L														
Empo	Carga variable vehiculos			Vientos		Temperaturas					Peso propio				
72	Objetivo	Concomitantes		Transversal	vertical	Longitudinal	subida	bajada	heat	cool					
esfuerzo		cortante z	axil												concomitante
M+	260	-220.91	-24.64	-3.48	18.72	0	42.98	-3	-42.75	-10	126		M+	411.788	-554.91
													M-	-2499.65	-537
M-	-2600	-230	-112												
	objetivo	flector	axil												
C+	24	200	-8	-1	-37	0	-40	3	5	21	-310		C+	-273.4	320
C-	-558.21	-316.31	-87										C-	-908.86	-156.098

1.9. 144

KN																	
	Viga transversal	20%L															
	CL	Carga variable vehiculos			Vientos		Temperaturas					Peso propio					
elemento	144	Objetivo	Concomitantes		Transversal	vertical	Longitudinal	subida	bajada	heat	cool						
	esfuerzo		cortante z	axil													Concomitante
	M+	2617	-6.59	76.45	-1.45	141	0	82.67	-4	-96.8	-36.91	1184		M+	3910.401	-77.818	
	M-	0	-6.43	22										M-	1087.2	-62	
		objetivo	flector	axil												Cocomitantes	
	C+	176.63	813	30	-1	-7.38	0	-6	0	0	3	-65		C+	111.63	1997	
	C-	-287.31	937.16	54										C-	-356.738	2116.732	

2. ELS FRECUENTE

2.1. 1

	arco	arranque													
		Carga variable vehiculos			Vientos		Temperaturas					Peso propio			
elemento	1	Objetivo	Concomitantes		Transversal	vertical	Longitudinal	subida	bajada	heat	cool				
	esfuerzo		cortante z	axil											ELS
	M+	351.71	-73	-395	-4.54	32.33	-2.67	336.47	-41.32	-230.38	-463	-431		M+	-86.91
														M-	-648.0272
	M-	-246	58	-1700	-4.54	32.33	-2.67	336.47	-41.32	-230.38	-463	-431			
		Objetivo	flector	axil											
	C+	60	-240	-1597	0.64	3.44	0	1.26	4	-160	-250	65		C+	97
	C-	-81	326	-576										C-	-85
		objetivo	flector	cortante											
	axil+	1.3	-0.55	-0.37	-12.76	-554.65	0.3	-1267	42.36	257	795	-7000		N+	-6497.584
	axil-	-1891	-168	35.68										N-	-8525.274
		objetivo													
	torsor	16.53			-27.5	2	0	36	-2.5	-3.13	-16	12.66		T	

2.2. 4

KN															
	Arco	20%L													
		Carga variable vehiculos			Vientos		Temperaturas					Peso propio			
Elemento	4	Objetivo	Concomitantes		Transversal	vertical	Longitudinal	subida	bajada	heat	cool				
	esfuerzo		cortante z	axil											
	M+	651.95	-19.27	-911.19	-1.44	5.41	0	326	-66.1	-69.1	-209	38		M+	559.575
														M-	-334.56
	M-	-415	3.41	-1342											
			flector	axil											
	C+	35	369	-763	0	-3	0	15	1	-7	-16	-74		C+	-49
	C-	-46.32	411	-1182										C-	-139.32
		objetivo	flector	cortante											
	axil+	1.42	-0.33	0.03	-12	-514	0.35	-1161	37.22	242.94	740	-6453		N+	-5986.668
	axil-	-1764	-120	-10.83										N-	-7592
		objetivo													
	Mz														

2.3. 9

KN															
	arco	CL													
		Carga variable vehiculos			Vientos		Temperaturas					Peso propio			
Elemento	9	Objetivo	Concomitantes		Transversal	vertical	Longitudinal	subida	bajada	heat	cool				
	esfuerzo		cortante z	axil											
	M+	452.56	27.54	-1242.72	-1.16	19.62	0	16.74	-66	330	700	195.2		M+	466.736
														M-	54.7
	M-	-215	-21.25	-964											
			flector	axil											
	C+	55	309	-1200	0	0	0	0	0	0	0	50		C+	77.5
	C-	-54.3	305	-1208										C-	22.85
		objetivo	flector	cortante											
	axil+	1.33	-0.2	-0.01	230.83	-482	0.35	-1098	34.8	230.83	701.25	-6045.2		N+	-5603.57
	axil-	-1656.32	315.29	-11.82										N-	-6873.36
		objetivo													
	Mz														

2.4. 281

KN																		
	Viga longitudinal	CL																
		Carga variable vehiculos			Vientos		Temperaturas					Peso propio						
Elemento	281	Objetivo	Concomitantes		Transversal	vertical	Longitudinal	subida	bajada	heat	cool						Concomitante	
	esfuerzo		cortante z	axil													Cortante	axil
	M+	2125.68	-262.3	1297.33	-3.42	79.46	1.2	103	225.93	1125	1718	930		M+	2390.5525		-139.15	-2027.48
														M-	589.8		-38.246	3334
	M-	-567	-50.41	0														
																	concomitante	
		Objetivo	flector	axil													flector	axil
	C+	317.38	1228	1150	0	0	0	0	0	0	0	-8		C+	150.69		2403	4262
	C-	-318.5	1923	1105.34										C-	-167.25		3694.125	4442.27
		objetivo	flector	cortante													flector	cortante
	axil+	1450	1533.63	152.21	-80	272.7	4.6	-9400	795	1662	706	3334		N+	3741.85		3277.3974	-8
	axil-	-167.88	-222	14.16										N-	-211		1007.25	-8
		objetivo																
	Mz	215.61			-10	-0.33	0	29	-2	-6	-17	-4		Mz+	118.305			
		-217												Mz-	-225.725			

2.5. 263

KN																	
	Viga Long	20%L															
		Carga variable vehiculos			Vientos		Temperaturas					Peso propio					
Elemento	263	Objetivo	Concomitantes		Transversal	vertical	Longitudinal	subida	bajada	heat	cool					Concomitante	
	esfuerzo		cortante z	axil												Cortante	axil
	M+	2818.6	246.11	2064.59	-3	43.69	-1	1216	-248.5	925	918	537		M+	2564.175	106.33	993.745
														M-	387.9	-81.6	3625.112
	M-	1445	-36	-772													
																concomitante	
		objetivo	flector	axil												flector	axil
	C+	281.51	2477	1670	1	-5	0	183	-6	-42	-121	-78		C+	154.255	2383.5	-585
	C-	-275	1387	1480										C-	-268.225	1736.625	6353.825
		objetivo	flector	cortante												flector	cortante
	axil+	2157.32	2715.42	176.38	-54.73	258.43	6.8	-9240	708.52	1294	5833	3200		N+	5952.3836	905.37	-133.53
	axil-	885	-1295	-7.14										N-	-958	1084.2	-111.825
		objetivo															
	Mz	172			-9.18	-0.73	0	462	-20	-75	-260	5		Mz+	219.8		
		-164												Mz-	-127.75		

2.6. 77

KN																	
	Viga transve	CL															
	empo	Carga variable vehiculos			Vientos		Temperaturas					Peso propio					
Elemento	77	Objetivo	Concomitantes		Transversal	vertical	Longitudinal	subida	bajada	heat	cool						
	esfuerzo		cortante z	axil												Concomitante	
	M+	238	-224.83	-22.64	-5.21	17.83	0	32.58	-1	-31.24	-10	117		M+	252.29	-426.915	
	M-	-2600	-350	-109										M-	-1198.62	-473	
		Objetivo	flector	axil													
	C+	11	148	1	-1	-37	0	-27	2	5	16	-301		C+	-291.4	111	
	C-	-561.35	325	-85													
														C-	-581.675	279.5	

2.7. 149

KN																
	Viga transve	CL														
	CL	Carga variable vehiculos			Vientos		Temperaturas					Peso propio				
Elemento	149	Objetivo	Concomitantes		Transversal	vertical	Longitudinal	subida	bajada	heat	cool					
	esfuerzo		cortante z	axil												Concomitante
	M+	2624	-6.33	85.69	-3.71	139.72	0	61.3	-3	-95	-31	1169		M+	2481	-67.165
	M-	0	0	0										M-	1112	-63.4
		objetivo	flector	axil												Concomitante
	C+	169.3	804.67	30.51	-1	-7.33	0	-6	0	1	3	-64		C+	20.65	1571.335
	C-	-283.73	948	64										C-	-205.865	1643

2.8. 72

KN																
	Viga transve	20%L														
	Empo	Carga variable vehiculos			Vientos		Temperaturas					Peso propio				
Elemento	72	Objetivo	Concomitantes		Transversal	vertical	Longitudinal	subida	bajada	heat	cool					
	esfuerzo		cortante z	axil												concomitante
	M+	260	-220.91	-24.64	-3.48	18.72	0	42.98	-3	-42.75	-10	126		M+	277.49	-440.455
														M-	-1195.375	-422.5
	M-	-2600	-230	-112												
		objetivo	flector	axil												
	C+	24	200	-8	-1	-37	0	-40	3	5	21	-310		C+	-287.5	221
	C-	-558.21	-316.31	-87										C-	-609.105	-10.665

2.9. 144

KN																
	Viga transversal	20%L														
	CL	Carga variable vehiculos			Vientos		Temperaturas					Peso propio				
elemento	144	Objetivo	Concomitantes		Transversal	vertical	Longitudinal	subida	bajada	heat	cool					
	esfuerzo		cortante z	axil												Concomitante
	M+	2617	-6.59	76.45	-1.45	141	0	82.67	-4	-96.8	-36.91	1184		M+	2513.1675	-69.795
	M-	0	-6.43	22										M-	1125.92	-63.2
		objetivo	flector	axil												Cocomitantes
	C+	176.63	813	30	-1	-7.38	0	-6	0	0	3	-65		C+	23.315	1590.5
	C-	-287.31	937.16	54										C-	-208.655	2121.16

3. ELU

3.1. 1

	arco	arranque																			
		Carga variable vehiculos			Vientos		Temperaturas					Peso propio									
elemento	1	Objetivo	Concomitantes		Transversal	vertical	Longitudinal	subida	bajada	heat	cool							Cortante	axil	Tensión flector	tension axil	T total	Fibra mas comprimida
	esfuerzo		cortante z	axil										M+	375.7285	-3.319	-9172.735		3.913838542	-14.3323984	-10.4185599	-18.24623698
														M-	-1290.468	-152.25	-9680.886		13.442375	-15.1263844	-1.68400938	-28.56875938
	M-	-246	58	-1700	-4.54	32.33	-2.67	336.47	-41.32	-230.38	-463	-431									
		Objetivo	flector	axil												flector	axil				
	C+	60	-240	-1597	0.64	3.44	0	1.26	4	-160	-250	65		C+	175.446	-913.941	-12067.011		9.52021875	-18.8547047	-9.33448594	-28.37492344
	C-	-81	326	-576										C-	-419.35	-685.4	-6585.1		7.139583333	-10.2892188	-3.14963542	-17.42880208
		objetivo	flector	cortante												flector	cortante				
	axil+	1.3	-0.55	-0.37	-12.76	-554.65	0.3	-1267	42.36	257	795	-7000		N+	-8848.235	30.94575	-304.24975		-0.322351563	-13.8253672	-14.1477188	-13.50301563
	axil-	-1900	-168	35.68										N-	-14177.325	-406.8615	142.401		4.238140625	-22.1520703	-17.9139297	-26.39021094
		objetivo																			
																axil					
	torsor	16.53			-27.5	2	0	36	-2.5	-3.13	-16	12.66		T	288	-9469.14						

3.2. 4

KN																					
	Arco	20%L																			
		Carga variable vehiculos			Vientos		Temperaturas					Peso propio									
Elemento	4	Objetivo	Concomitantes		Transversal	vertical	Longitudinal	subida	bajada	heat	cool										
	esfuerzo		cortante z	axil												Cortante	axil		Tensión flector	tension axil	T total	Fibra mas comprimida
	M+	651.95	-19.27	-911.19	-1.44	5.41	0	326	-66.1	-69.1	-209	38		M+	1424.49	-105.6645	-12068.6565		14.8384375	-16.76202292	-1.92358542	-31.60046042
														M-	-934.9	-103.8965	-6790.29		9.738541667	-10.60982813	-0.87128646	-20.34836979
	M-	-415	3.41	-1342																		
			flector	axil												flector	axil					
	C+	35	369	-763	0	-3	0	15	1	-7	-16	-74		C+	-4.25	1025.15	-9224.55		10.67864583	-14.41335938	-3.73471354	-25.09200521
	C-	-46.32	411	-1182										C-	-190.932	300.765	-9968.25		3.13296875	-15.57539063	-12.4424219	-18.70835938
		objetivo	flector	cortante												flector	cortante					
	axil+	1.42	-0.33	0.03	-12	-514	0.35	-1161	37.22	242.94	740	-6453		N+	-5286.2115	-374.87275	-96.47975		3.904924479	-8.259705469	-4.35478099	-12.16462995
	axil-	-1824	-120	-10.83										N-	-11944.95	-102.585	-119.0205		1.06859375	-18.66398438	-17.5953906	-19.73257813
		objetivo																				
	Mz																					

3.3. 9

KN																				
	arco	CL																		
		Carga variable vehiculos			Vientos		Temperaturas					Peso propio								
Elemento	9	Objetivo	Concomitantes		Transversal	vertical	Longitudinal	subida	bajada	heat	cool									
	esfuerzo		cortante z	axil											cortante	axil		Tensión flector	tension axil	T total fibra mas traccionada	Fibra mas comprimida
	M+	452.56	27.54	-1242.72	-1.16	19.62	0	16.74	-66	330	700	195.2	M+	1661.976	104.679	-8786.817		12.1589465	-13.72940156	-1.57045506	-25.88834806
													M-	-194.05	21.3125	-7294.4		2.021354167	-11.3975	-9.376145833	-13.41885417
	M-	-215	-21.25	-964																	
			flector	axil											flector	axil					
	C+	55	309	-1200	0	0	0	0	0	0	0	50	C+	141.75	680.67	-9781.02		7.0903125	-15.28284375	-8.19253125	-22.37315625
	C-	-54.3	305	-1208									C-	-23.305	606.95	-7676		6.322395833	-11.99375	-5.671354167	-18.31614583
		objetivo	flector	cortante											flector	cortante					
	axil+	1.33	-0.2	-0.01	230.83	-482	0.35	-1098	34.8	230.83	701.25	-6045.2	N+	-5240.63375	883.004	50		6.460020119	-8.188490234	-1.728470115	-14.64851035
	axil-	-1656.32	315.29	-11.82									N-	-10830.852	706.8195	51.543		7.362703125	-16.92320625	-9.560503125	-24.28590938
		objetivo																			
	Mz																				

3.4. 281

KN																	
	Viga longitudinal	CL															
		Carga variable vehiculos			Vientos		Temperaturas					Peso propio					
Elemento	281	Objetivo	Concomitantes		Transversal	vertical	Longitudinal	subida	bajada	heat	cool					Concomitante	
	esfuerzo		cortante z	axil												Cortante	axil
	M+	2125.68	-262.3	1297.33	-3.42	79.46	1.2	103	225.93	1125	1718	930		M+	4916.988	-364.905	430.8255
														M-	159.42	-76.0535	3214
	M-	-567	-50.41	0													
																concomitante	
		Objetivo	flector	axil												flector	axil
	C+	317.38	1228	1150	0	0	0	0	0	0	0	-8		C+	420.463	4134	5521.9
	C-	-318.5	1923	1105.34										C-	-440.775	5365.575	6993.189
		objetivo	flector	cortante												flector	cortante
	axil+	1450	1533.63	152.21	-80	272.7	4.6	-9400	795	1662	706	3334		N+	5464.75	3999.61875	94.74175
	axil-	-167.88	-222	14.16										N-	-7414.319	893.46	1.558
		objetivo															
	Mz	215.61			-10	-0.33	0	29	-2	-6	-17	-4		Mz+	313.1735		
		-217												Mz-	-318.525		

3.5. 263

KN																	
	Viga Long	20%L															
		Carga variable vehiculos			Vientos		Temperaturas					Peso propio					
Elemento	263	Objetivo	Concomitantes		Transversal	vertical	Longitudinal	subida	bajada	heat	cool					Concomitante	
	esfuerzo		cortante z	axil												Cortante	axil
	M+	3200	246.11	2064.59	-3	43.69	-1	1216	-2485	925	918	537		M+	6096.45	337.2435	1277.8065
														M-	-3190.5	-87	4262.78
	M-	1445	-36	-772													
																concomitante	
		objetivo	flector	axil												flector	axil
	C+	281.51	2477	1670	1	-5	0	183	-6	-42	-121	-78		C+	466.7385	4975.35	-2861.5
	C-	-275	1387	1480										C-	-571.455	3508.425	10662.885
		objetivo	flector	cortante												flector	cortante
	axil+	2157.32	2715.42	176.38	-54.73	258.43	6.8	-9240	708.52	1294	5833	3200		N+	13724.525	2284.4085	-97.7685
	axil-	885	-1295	-7.14										N-	-7236.0475	1902.75	-2762.8575
		objetivo															
	Mz	172			-9.18	-0.73	0	462	-20	-75	-260	5		Mz+	675.45		
		-164												Mz-	-326.875		

3.6. 77

KN																	
	Viga transve	CL															
	empo	Carga variable vehiculos			Vientos		Temperaturas					Peso propio					
Elemento	77	Objetivo	Concomitantes		Transversal	vertical	Longitudinal	subida	bajada	heat	cool						
	esfuerzo		cortante z	axil												Concomitante	
	M+	238	-224.83	-22.64	-5.21	17.83	0	32.58	-1	-31.24	-10	117		M+	516.5955	-750.8205	
	M-	-2600	-350	-109										M-	-3426.326	-770	
		Objetivo	flector	axil													
	C+	11	148	1	-1	-37	0	-27	2	5	16	-301		C+	-271.5	176	
	C-	-561.35	325	-85													
														C-	-1197.4725	612.747	

3.7. 149

KN																
	Viga transve	CL														
	CL	Carga variable vehiculos			Vientos		Temperaturas					Peso propio				
Elemento	149	Objetivo	Concomitantes		Transversal	vertical	Longitudinal	subida	bajada	heat	cool					
	esfuerzo		cortante z	axil												Concomitante
	M+	2624	-6.33	85.69	-3.71	139.72	0	61.3	-3	-95	-31	1169		M+	5246.298	-101.5425
	M-	0	0	0										M-	1023.161	-63.4
		objetivo	flector	axil												Concomitante
	C+	169.3	804.67	30.51	-1	-7.33	0	-6	0	1	3	-64		C+	164.555	2255.3045
	C-	-283.73	948	64										C-	-476.0325	2983.698

3.8. 72

KN																
	Viga transve	20%L														
	Empo	Carga variable vehiculos			Vientos		Temperaturas					Peso propio				
Elemento	72	Objetivo	Concomitantes		Transversal	vertical	Longitudinal	subida	bajada	heat	cool					
	esfuerzo		cortante z	axil												concomitante
	M+	260	-220.91	-24.64	-3.48	18.72	0	42.98	-3	-42.75	-10	126		M+	559.782	-752.7285
														M-	-3422.475	-616
	M-	-2600	-230	-112												
		objetivo	flector	axil												
	C+	24	200	-8	-1	-37	0	-40	3	5	21	-310		C+	-258.7	387
	C-	-558.21	-316.31	-87										C-	-1224.7335	-209.8125

3.9. 144

KN																
	Viga transversal	20%L														
	CL	Carga variable vehiculos			Vientos		Temperaturas					Peso propio				
elemento	144	Objetivo	Concomitantes		Transversal	vertical	Longitudinal	subida	bajada	heat	cool					
	esfuerzo		cortante z	axil											Concomitante	
	M+	2617	-6.59	76.45	-1.45	141	0	82.67	-4	-96.8	-36.91	1184		M+	5295.4515	-105.9885
	M-	0	-6.43	22										M-	1038.8	-60.5
		objetivo	flector	axil											Cocomitantes	
	C+	176.63	813	30	-1	-7.38	0	-6	0	0	3	-65		C+	173.4505	2281.55
	C-	-287.31	937.16	54										C-	-482.2605	2856.924

ANEJO Nº17.-

REVISIÓN DE PRECIOS

Contenido

1. *INTRODUCCION* 2

2. *NORMATIVA DE APLICACIÓN* 2

3. *CONTRATOS EN LOS QUE PROCEDE LA REVISIÓN DE PRECIOS* 2

1. INTRODUCCION

Puesto que transcurre desde que el contratista presenta su oferta y se inician los trabajos y desde este inicio al final de la obra, los precios de materiales maquinaria y mano de obra pueden sufrir variaciones. La ley de CONTRATACIONES CON LA ADMINISTRACIÓN PÚBLICA prevé este tipo de situaciones y deja establecida la forma de proceder en lo referente a la actualización de precios.

Es en este informe donde de manera orientativa se recoge lo que de forma más profusa será expuesto en el pliego de cláusulas administrativas donde figura la fórmula de actualización a aplicar

2. NORMATIVA DE APLICACIÓN

- Ley 13/1995 de 18 de mayo de Contratos de las Administraciones Públicas en texto refundido por el Real Decreto Legislativo 2/2000 de 16 de junio (art. 103 y 104).

- Ley 30/2007 de 30 de octubre de Contratos del Sector Público (art. 77 a 80).

- Reglamento General de la Ley de Contratos de las Administraciones Públicas (Real Decreto 1098/2001, de 12 de octubre, BOE 26/10/2001).

- Decreto 3.650/1970 de 19 de diciembre, el cual aprueba el cuadro de fórmulas tipo generales de revisión de precios de los contratos de obras del estado para el año 1971.

- Real Decreto 3.660/1971 de 23 de diciembre, por el que se prorroga la aplicación del cuadro de fórmulas aprobado en el decreto antes mencionado.

- Real Decreto 2.167/1981 de 20 de agosto, el cual completa el cuadro de fórmulas tipo aprobadas por el Decreto 3.650/70.

- Orden de 13 de marzo de 1979 del MOPU, conteniendo normas de aplicación a las revisiones de precios reguladas por el Decreto Ley 2/64 y desarrollado por el Decreto 461/71.

- Orden Circular 316/91 P y P de 4 de febrero de 1991, en la que se fijan Instrucciones para la propuesta y fijación de fórmulas polinómicas de revisión de precios en los Proyectos de obras de la Dirección General de Carreteras.

3. CONTRATOS EN LOS QUE PROCEDE LA REVISIÓN DE PRECIOS

Según el Artículo 77 del Título III, Capítulo II de la Ley de Contratos del Sector Público, la revisión de precios en los contratos de las Administraciones Públicas tendrá lugar, en los términos establecidos en ese Capítulo y salvo que la improcedencia de la revisión se hubiese previsto expresamente en los pliegos o pactado en el contrato, cuando éste se hubiese ejecutado, al menos, en el 20 por ciento de su importe y hubiese transcurrido un año desde su adjudicación. En consecuencia, el primer 20 por ciento ejecutado y el primer año de ejecución quedarán excluidos de la revisión.

Al tratarse de una obra con un plazo de ejecución que no excede de doce meses (en caso de considerarse el Puente de Acceso a la Isla de Zorrotzaurre como intervención aislada)**, no procede aplicar revisión de precios a las obras que se proyectan.**

ANEJO Nº18 .-

JUSTIFICACIÓN DE PRECIOS

1. INTRODUCCIÓN:

A continuación se recoge el listado de los descompuestos de los precios de las unidades incluidas en el proyecto. Además, se incluye la justificación del coste de la mano de obra, así como los listados de los precios de la maquinaria y de los materiales considerados en los diferentes descompuestos.

2. COSTES INDIRECTOS Y DIRECTOS:

Cada precio total de ejecución material se obtiene mediante la aplicación de una expresión del tipo:

$$P_n = \left(1 + {}^{k}/_{100}\right) C_n$$

En la que: Pn = Precio de ejecución material de la unidad correspondiente. K = Porcentaje que corresponde a los "Costes Indirectos", en tanto por ciento. Cn = "Coste Directo" de la unidad en euros.

2.1. ESTIMACIÓN DE LOS COSTES INDIRECTOS:

Los costes indirectos son todos aquellos gastos que no son imputables directamente a unidades concretas, sino al conjunto de la obra, tales como: instalaciones de oficina a pie de obra, almacenes, talleres, pabellones para obreros, etc., así como los derivados del personal técnico y administrativo, adscrito exclusivamente a la obra y que no intervenga directamente en la ejecución de unidades concretas, como ingenieros, ayudantes, encargados, vigilantes, etc.

$$K = V + j$$

El caso de "K" al que se alude anteriormente, está compuesto por dos sumandos El sumando "V" es el porcentaje que resulta de la relación entre la valoración de los costes indirectos y el importe de los costes directos, que para obras de este tipo suele ser del orden de 5% más un porcentaje "j" de gastos imprevistos siempre presente y, por tanto, a considerar, que en obra terrestre es del 1%. Con ello se obtiene que el valor del coeficiente "K" sea del 6%. Para la determinación de los costes indirectos se aplica lo prescrito en el Artículo correspondiente del Reglamento General de Contratación del Estado 30/2007.

2.2. COSTES DIRECTOS:

Se consideran Se consideran costes directos:

- La mano de obra, con sus pluses, cargos y seguros sociales, que intervienen directamente en la ejecución de la unidad de obra.

- Los materiales a los precios resultantes a pie de obra que quedan integrados en la unidad o que sean necesarios para su ejecución.

- Los gastos de amortización y conservación de la maquinaria, así como los gastos de combustible, energía, gastos de personal, etc, que tengan lugar por el accionamiento o funcionamiento de la misma.

3. PRECIOS ELEMENTALES O DESCOMPUESTOS

CUADRO DE DESCOMPUESTOS

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
01	**EXPLANACIONES**					
01.01	**TRABAJOS PRELIMINARES**					
01.01.01	**Desbroce del terreno**		**m2**			
	Desbroce y limpieza superficial de terreno sin clasificar, por medios mecánicos, con carga y transporte de los productos resultantes a vertedero o lugar de empleo, incluyendo la retirada de arbolado menor de 10 cm. y con p.p. de medios auxiliares.					
MO.001	Capataz.	0,002	h	22,31	0,04	
MQ.131	Motoniveladora 135CV	0,002	h	24,48	0,05	
MQ.110	Pala cargadora cadenas 130CV/1.8m3	0,001	h	43,50	0,04	
MQ.1002	Camión basculante 6x4 20t	0,001	h	39,01	0,04	
CA.008	Canon	0,100	t	0,95	0,10	
CI.001	Costes indirectos (s/total)	0,003	%	4,50	0,01	
				Mano de obra		0,04
				Maquinaria		0,13
				Otros		0,11
				TOTAL PARTIDA		**0,28**
	Asciende el precio total de la partida a la mencionada cantidad de CERO EUROS con VEINTIOCHO CÉNTIMOS					
01.01.02	**Demolición y levantamiento de aceras**		**m2**			
	Demolición y levantado de aceras de loseta hidráulica o equivalente, con solera de hormigón en masa 10/15 cm. de espesor, incluso carga y transporte en camión del escombro resultante al lugar de acopio en obra, para su posterior transporte a planta de RCD. I/p.p. de medios auxiliares.					
MO.001	Capataz.	0,008	h	22,31	0,18	
MO.003	Peón ordinario.	0,050	h	19,74	0,99	
MQ.470	Excavadora hidráulica neumáticos 100CV	0,050	h	50,31	2,52	
MQ.152	Martillo rompedor hidraulico 600kg	0,050	h	11,41	0,57	
MQ.69	Retrocargadora neumáticos 75 cv	0,050	h	29,60	1,48	
MQ.1002	Camión basculante 6x4 20t	0,016	h	39,01	0,62	
CI.001	Costes indirectos (s/total)	0,052	%	4,50	0,23	
				Mano de obra		1,17
				Maquinaria		5,19
				Otros		0,23
				TOTAL PARTIDA		**6,59**
	Asciende el precio total de la partida a la mencionada cantidad de SEIS EUROS con CINCUENTA Y NUEVE CÉNTIMOS					
01.01.03	**Demolición y levantado de bordillo**		**m**			
	Demolición y levantado de bordillo de cualquier tipo y cimientos de hormigón en masa, de espesor variable, incluso carga y transporte en camión del escombro resultante al lugar de acopio en obra, para su posterior transporte a planta de RCD. I/p.p. de medios auxiliares.					
MO.002	Pe	0,005	h	22,81	0,11	
MO.003	Peón ordinario.	0,015	h	19,74	0,30	
MQ.470	Excavadora hidráulica neumáticos 100CV	0,015	h	50,31	0,75	
MQ.152	Martillo rompedor hidraulico 600kg	0,015	h	11,41	0,17	
MQ.69	Retrocargadora neumáticos 75 cv	0,010	h	29,60	0,30	
MQ.1002	Camión basculante 6x4 20t	0,010	h	39,01	0,39	
CI.001	Costes indirectos (s/total)	0,018	%	4,50	0,08	
				Mano de obra		0,41
				Maquinaria		1,61
				Otros		0,08
				TOTAL PARTIDA		**2,10**
	Asciende el precio total de la partida a la mencionada cantidad de DOS EUROS con DIEZ CÉNTIMOS					

CUADRO DE DESCOMPUESTOS

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
01.01.04	**Demolición y levantado de pavimento HA e=15/25cm**		**m2**			
	Demolición y levantado de pavimento de hormigón armado de 15/25 cm. de espesor, incluso carga y transporte en camión del escombro resultante al lugar de acopio en obra, para su posterior transporte a planta de RCD. I/p.p. de medios auxiliares.					
MO.002	Pe	0,015	h	22,81	0,34	
MO.009	Oficial 2º	0,045	h	18,32	0,82	
MQ.999	Equipo oxicorte	0,045	h	2,69	0,12	
MO.003	Peón ordinario.	0,045	h	19,74	0,89	
MQ.470	Excavadora hidráulica neumáticos 100CV	0,045	h	50,31	2,26	
MQ.152	Martillo rompedor hidraulico 600kg	0,045	h	11,41	0,51	
MQ.69	Retrocargadora neumáticos 75 cv	0,010	h	29,60	0,30	
MQ.1002	Camión basculante 6x4 20t	0,020	h	39,01	0,78	
CI.001	Costes indirectos (s/total)	0,058	%	4,50	0,26	
	Mano de obra					2,05
	Maquinaria					3,97
	Otros					0,26
	TOTAL PARTIDA					**6,28**
	Asciende el precio total de la partida a la mencionada cantidad de SEIS EUROS con VEINTIOCHO CÉNTIMOS					
01.01.05	**Demolición y levantado de pavimento MBC e=10/20cm**		**m2**			
	Demolición y levantado de pavimento de M.B.C. de 10/20 cm. de espesor, incluso carga y transporte en camión del escombro resultante al lugar de acopio en obra, para su posterior transporte a planta de RCD. I/p.p. de medios auxiliares.					
MO.002	Pe	0,010	h	22,81	0,23	
MO.003	Peón ordinario.	0,015	h	19,74	0,30	
MQ.470	Excavadora hidráulica neumáticos 100CV	0,015	h	50,31	0,75	
MQ.152	Martillo rompedor hidraulico 600kg	0,015	h	11,41	0,17	
MQ.69	Retrocargadora neumáticos 75 cv	0,005	h	29,60	0,15	
MQ.1002	Camión basculante 6x4 20t	0,035	h	39,01	1,37	
CI.001	Costes indirectos (s/total)	0,029	%	4,50	0,13	
	Mano de obra					0,53
	Maquinaria					2,44
	Otros					0,13
	TOTAL PARTIDA					**3,10**
	Asciende el precio total de la partida a la mencionada cantidad de TRES EUROS con DIEZ CÉNTIMOS					
01.02	**EXCAVACIONES**					
01.02.01	**EXCAVACIÓN DE ESTRIBOS DE PUENTE**		**m3**			
	Excavación de la explanación y préstamos. Excavación en tierras y tránsito.					
MO.001	Capataz.	0,002	h	22,31	0,04	
MO.003	Peón ordinario.	0,006	h	19,74	0,12	
MO.006	Peón señalista.	0,006	h	19,74	0,12	
MQ.132	Bulldozer con escarificador 30/40 Tn	0,006	h	120,92	0,73	
MQ.114	Retroexcavadora sobre orugas 35/45 Tn	0,006	h	130,08	0,78	
MQ.145	Dúmper articulado de 25 Tn	0,015	h	49,10	0,74	
VAR.14	Canon de vertido.	0,500	m3	0,50	0,25	
CI.001	Costes indirectos (s/total)	0,026	%	4,50	0,12	
	Mano de obra					0,28
	Maquinaria					2,50
	Otros					0,12
	TOTAL PARTIDA					**2,90**
	Asciende el precio total de la partida a la mencionada cantidad de DOS EUROS con NOVENTA CÉNTIMOS					
01.03	**RELLENOS**					
01.03.01	**RELLENO TRASDÓS OBRAS FAB. C/MAT EXCAVAC**		**m3**			
	Relleno localizado en trasdós de obras de fábrica con productos procedentes de la					

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
	excavación, extendido, humectación y compactación en capas de 20 cm de espesor, con un grado de compactación del 95% del proctor modificado.					
MO.001	Capataz.	0,025	h	22,31	0,56	
MO.008	Oficial 1º	0,250	h	20,31	5,08	
MQ.69	Retrocargadora neumáticos 75 cv	0,025	h	29,60	0,74	
MQ.263	Rodillo vibrante manual tandem 800kg	0,250	h	6,00	1,50	
MQ.172	Camión cisterna de 9 m3.	0,025	h	32,00	0,80	
CI.001	Costes indirectos (s/total)	0,081	%	4,50	0,36	
	Mano de obra					5,64
	Maquinaria					3,04
	Otros					0,36
	TOTAL PARTIDA					**9,04**
	Asciende el precio total de la partida a la mencionada cantidad de NUEVE EUROS con CUATRO CÉNTIMOS					
01.03.02	**RELLENO TRASDÓS OBRAS FAB. C/MAT FILTRANTE**		**m3**			
	Relleno localizado en trasdós de obras de fábrica con material filtrante, extendido, humectación y compactación en capas de 20 cm de espesor, con un grado de compactación del 95% del proctor modificado.					
MO.001	Capataz.	0,025	h	22,31	0,56	
MO.003	Peón ordinario.	0,150	h	19,74	2,96	
TR.26	Transporte de la zahorra	44,000	km	0,13	5,72	
MQ.69	Retrocargadora neumáticos 75 cv	0,025	h	29,60	0,74	
MQ.263	Rodillo vibrante manual tandem 800kg	0,200	h	6,00	1,20	
MQ.172	Camión cisterna de 9 m3.	0,025	h	32,00	0,80	
MA.26	Zahorra natural ZN(50)/ZN(20), IP=0	2,200	t	4,66	10,25	
CI.001	Costes indirectos (s/total)	0,217	%	4,50	0,98	
	Mano de obra					3,52
	Maquinaria					2,74
	Materiales					10,25
	Otros					6,70
	TOTAL PARTIDA					**23,21**
	Asciende el precio total de la partida a la mencionada cantidad de VEINTITRES EUROS con VEINTIUN CÉNTIMOS					
01.03.03	**RELLENO C/SUELO SELECCIONADO EN CORONACIÓN DE TERRAPLEN**		**m3**			
	Relleno con suelo seleccionado S/PG3 procedente de cantera CBR>20 en coronación de terraplén, incluyendo suministro, extendido, humectación y compactación (según PG3). Totalmente terminado.					
MO.001	Capataz.	0,150	h	22,31	3,35	
MO.008	Oficial 1º	0,006	h	20,31	0,12	
MQ.264	Excavadora hidráulica cadenas 310CV	0,003	h	22,28	0,07	
MQ.1002	Camión basculante 6x4 20t	0,014	h	39,01	0,55	
MQ.263	Rodillo vibrante manual tandem 800kg	0,005	h	6,00	0,03	
MQ.172	Camión cisterna de 9 m3.	0,005	h	32,00	0,16	
MQ.131	Motoniveladora 135CV	0,006	h	24,48	0,15	
MA.25	Suelo seleccionado CBR>20 proc. cantera	1,000	m3	6,20	6,20	
CI.001	Costes indirectos (s/total)	0,174	%	4,50	0,78	
CI.001	Costes indirectos (s/total)	0,174	%	4,50	0,78	
	Mano de obra					3,47
	Maquinaria					0,96
	Materiales					6,20
	Otros					0,78
	TOTAL PARTIDA					**11,41**
	Asciende el precio total de la partida a la mencionada cantidad de ONCE EUROS con CUARENTA Y UN CÉNTIMOS					

CUADRO DE DESCOMPUESTOS

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
02	**FIRMES**					
02.01	**IMPERMEABILIZACIÓN DE TABLEROS**		**m2**			
	Impermeabilización de tableros con membrana impermeabilizante de betún elastómero SBS, o similar, incluso p.p de solapes entre bandas, imprimación asfáltica y todos aquellos elementos o medios auxiliares necesarios para su completa colocación. Medida la superficie totalmente terminada.					
MO.001	Capataz.	0,025	h	22,31	0,56	
MO.008	Oficial 1º	0,155	h	20,31	3,15	
MO.007	Peón especialista	0,155	h	19,94	3,09	
MQ.265	Barredora autopropulsada	0,030	h	57,22	1,72	
MA.27	Brea epoxi	1,200	kg	8,19	9,83	
MA.28	Disolvente	0,060	kg	3,46	0,21	
MA.29	Árido silíceo en impermeabilización	0,002	t	186,42	0,37	
CI.001	Costes indirectos (s/total)	0,189	%	4,50	0,85	
	Mano de obra					6,80
	Maquinaria					1,72
	Materiales					10,41
	Otros					0,85
	TOTAL PARTIDA					**19,78**
	Asciende el precio total de la partida a la mencionada cantidad de DIECINUEVE EUROS con SETENTA Y OCHO CÉNTIMOS					
02.02	**MEZCLA BITUMINOSA CALIENTE EN CAPA DE RODADURA**		**t**			
	Mezcla bituminosa en caliente en capa de rodadura					
MO.001	Capataz.	0,013	h	22,31	0,29	
MO.004	Oficial 1º	0,013	h	22,72	0,30	
MO.007	Peón especialista	0,050	h	19,94	1,00	
MO.006	Peón señalista.	0,025	h	19,74	0,49	
%CP.005	P.P. EPI's (s/mano de obra).	0,021	%	0,50	0,01	
MQ.141	Pala cargadora sobre neumáticos de peso 8/12 Tn	0,013	h	51,60	0,67	
MQ.615	Planta aglomerado 200 Tn/h.	0,013	h	251,75	3,27	
MQ.156	Camión bañera de 15 m3.	0,075	h	42,39	3,18	
MQ.290	Extendedora de aglomerado.	0,013	h	77,19	1,00	
MQ.356	Compactador de neumáticos.	0,013	h	58,69	0,76	
MQ.308	Rodillo vibratorio autopropulsado de 12 Tn	0,013	h	46,51	0,60	
MA.AR030	Arido clasificado para capa de rodadura.	0,997	t	15,43	15,38	
MA.AR004	Polvo mineral.	0,003	t	95,25	0,29	
VAR.06	Plus tte productos de cantera 30-60 km, ida/vuelta.	1,000	t	4,30	4,30	
CI.001	Costes indirectos (s/total)	0,315	%	4,50	1,42	
	Mano de obra					2,08
	Maquinaria					13,78
	Materiales					15,67
	Otros					1,43
	TOTAL PARTIDA					**32,96**
	Asciende el precio total de la partida a la mencionada cantidad de TREINTA Y DOS EUROS con NOVENTA Y SEIS CÉNTIMOS					
02.03	**EMULSIÓN ECR RIEGO DE ADHERENCIA**		**kg**			
	Emulsión bituminosa ECR-1 en rieo de adherencia					
MO.001	Capataz.	0,075	h	22,31	1,67	
MO.007	Peón especialista	0,750	h	19,94	14,96	
MO.006	Peón señalista.	1,500	h	19,74	29,61	
%CP.005	P.P. EPI's (s/mano de obra).	0,462	%	0,50	0,23	
MQ.480	Barredora mecánica con tractor.	0,250	h	40,52	10,13	
MQ.188	Camión bituminador con lanza.	0,750	h	49,43	37,07	
MA.VA608	Emulsión bituminosa ECR-1.	1,050	t	310,00	325,50	
CI.001	Costes indirectos (s/total)	4,192	%	4,50	18,86	
	Mano de obra					46,24
	Maquinaria					47,20
	Materiales					325,50
	Otros					19,09
	TOTAL PARTIDA					**438,03**

Asciende el precio total de la partida a la mencionada cantidad de CUATROCIENTOS TREINTA Y OCHO EUROS con TRES CÉNTIMOS

02.04 EMULSIÓN ECI RIEGO IMPRIMACIÓN — **kg**

Emulsión bituminosa ECI en riego de imprimación

MO.001	Capataz.	0,050	h	22,31	1,12	
MO.007	Peón especialista	0,500	h	19,94	9,97	
MO.006	Peón señalista.	1,000	h	19,74	19,74	
%CP.005	P.P. EPI's (s/mano de obra).	0,308	%	0,50	0,15	
MQ.480	Barredora mecánica con tractor.	0,250	h	40,52	10,13	
MQ.188	Camión bituminador con lanza.	0,500	h	49,43	24,72	
MA.VA604	Emulsión bituminosa ECI.	1,050	t	290,00	304,50	
CI.001	Costes indirectos (s/total)	3,703	%	4,50	16,66	

Mano de obra	30,83
Maquinaria	34,85
Materiales	304,50
Otros	16,81
TOTAL PARTIDA	**386,99**

Asciende el precio total de la partida a la mencionada cantidad de TRESCIENTOS OCHENTA Y SEIS EUROS con NOVENTA Y NUEVE CÉNTIMOS

02.05 PAVIMENTO DE MADERA — **m2**

Pavimento de madera C-24

MO.010	Cuadrilla A	0,300	h	30,14	9,04	
MA.30	Madera Ipé-Lapacho	0,100	m3	69,97	7,00	
MA.32	Acabado superficial por radiación Xiladecor	0,030	m3	61,79	1,85	
MA.31	Protectores Hidrolubles CCA	1,000	m²	7,17	7,17	
CI.001	Costes indirectos (s/total)	0,251	%	4,50	1,13	

Mano de obra	9,04
Materiales	16,02
Otros	1,13
TOTAL PARTIDA	**26,19**

Asciende el precio total de la partida a la mencionada cantidad de VEINTISEIS EUROS con DIECINUEVE CÉNTIMOS

CUADRO DE DESCOMPUESTOS

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
03	**ESTRUCTURAS**					
03.01	**ARCO**					
03.01.01	**HORMIGÓN HA-50/B/20/IIIa PROCEDENTE DE CENTRAL Y BOMBEADO**		**m3**			
	Hormigón HA-50/B/20/Qb procedente de central puesto en obra					
MO.001	Capataz.	0,060	h	22,31	1,34	
MO.007	Peón especialista	0,200	h	19,94	3,99	
MO.004	Oficial 1º	0,100	h	22,72	2,27	
MO.006	Peón señalista.	0,200	h	19,74	3,95	
%CP.005	P.P. EPI's (s/mano de obra).	0,116	%	0,50	0,06	
MA.HM163	Hormigón HA-50/B/20/Qb.	1,000	m3	129,30	129,30	
%CP.008	P.P. producto filmógeno de curado	1,293	%	1,00	1,29	
MQ.582	Camión con bomba de hormigón de 36 m de pluma.	0,070	h	93,50	6,55	
MQ.570	Vibrador de hormigón.	0,200	h	3,50	0,70	
VAR.03	Plus tte hormigón 30-60 km, ida/vuelta.	1,000	m3	5,20	5,20	
CI.001	Costes indirectos (s/total)	1,548	%	4,50	6,97	
	Mano de obra					11,55
	Maquinaria					12,45
	Materiales					129,30
	Otros					8,32
	TOTAL PARTIDA					**161,62**
	Asciende el precio total de la partida a la mencionada cantidad de CIENTO SESENTA Y UN EUROS con SESENTA Y DOS CÉNTIMOS					
03.01.02	**ACERO EN BARRAS CORRUGADAS B-500-S**		**kg**			
	Acero en barras corrugadas, B-500 S, colocado en armaduras pasivas según planos, incluso corte y doblado, colocación, solapes, despuntes y p.p. de atado con alambre recocido y separadores, medido en peso nominal.					
MO.001	Capataz.	0,001	h	22,31	0,02	
MO.003	Peón ordinario.	0,008	h	19,74	0,16	
MO.004	Oficial 1º	0,004	h	22,72	0,09	
%CP.005	P.P. EPI's (s/mano de obra).	0,003	%	0,50	0,00	
MA.VA270	Acero B-500-S.	1,050	kg	0,80	0,84	
MA.VA252	Alambre recocido.	0,004	kg	0,93	0,00	
%CP.001	Medios auxiliares	0,008	%	5,00	0,04	
CI.001	Costes indirectos (s/total)	0,011	%	4,50	0,05	
	Mano de obra					0,27
	Materiales					0,84
	Otros					0,09
	TOTAL PARTIDA					**1,20**
	Asciende el precio total de la partida a la mencionada cantidad de UN EUROS con VEINTE CÉNTIMOS					
03.01.03	**ENCOFRADO CURVO CON MADERA MACHIEMBRADA**		**m²**			
	Encofrado curvo con madera machihembrada.					
AUX.46	Encofrado curvo madera machihembrada.	1,000	m2	33,71	33,71	
CI.001	Costes indirectos (s/total)	0,364	%	4,50	1,64	
	Mano de obra					17,49
	Materiales					14,03
	Otros					3,83
	TOTAL PARTIDA					**35,35**
	Asciende el precio total de la partida a la mencionada cantidad de TREINTA Y CINCO EUROS con TREINTA Y CINCO CÉNTIMOS					
03.01.04	**CIMBRA**		**m3**			
	Cimbra					
MO.001	Capataz.	0,003	h	22,31	0,07	
MO.007	Peón especialista	0,025	h	19,94	0,50	
MO.004	Oficial 1º	0,025	h	22,72	0,57	
%CP.005	P.P. EPI's (s/mano de obra).	0,011	%	0,50	0,01	
%CP.005	P.P. EPI's (s/mano de obra).	0,011	%	0,50	0,01	
MA.VA377	Tubo metálico de 1,5" para cimbra.	1,500	m	3,43	5,15	
MA.VA378	Horquilla con husillo para cimbra.	0,150	ud	4,00	0,60	
MA.VA379	Grapa metálica para cimbra.	0,500	ud	3,59	1,80	
%CP.036	P.P. maquinaria y medios auxiliares para cimbras.	0,076	%	25,00	1,90	

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
CI.001	Costes indirectos (s/total)	0,111	%	4,50	0,50	
	Mano de obra					1,14
	Materiales					7,55
	Otros					2,41
	TOTAL PARTIDA					**11,10**

Asciende el precio total de la partida a la mencionada cantidad de ONCE EUROS con DIEZ CÉNTIMOS

03.01.05 PÉNDOLA ACERO — **u**

Tirante de acero Marca: PFEIFER PV300 55mm

MO.004	Oficial 1º	0,120	h	22,72	2,73	
%CP.005	P.P. EPI's (s/mano de obra).	0,027	%	0,50	0,01	
MA.VA271	Acero galvanizado de alta resistencia en cordones.	8,000	m	10,00	80,00	
MA.VA932	Anclajes, tesado....., por Kg de acero.	1,000	ud	12,10	12,10	
VAR.70	Medios auxiliares por Kilogramo de acero.	1,000	ud	2,67	2,67	
CI.001	Costes indirectos (s/total)	0,199	%	4,50	0,90	
	Mano de obra					2,73
	Maquinaria					2,67
	Materiales					92,10
	Otros					0,91
	TOTAL PARTIDA					**98,41**

Asciende el precio total de la partida a la mencionada cantidad de NOVENTA Y OCHO EUROS con CUARENTA Y UN CÉNTIMOS

03.02 TABLERO

03.02.01 HORMIGÓN HA-35/F/40/IIIa — **m³**

M3. Hormigón HA-35/P/40/IIA pretensar incluso vibrado y colocado.

MO.001	Capataz.	0,110	h	22,31	2,45	
MO.004	Oficial 1º	0,220	h	22,72	5,00	
MO.003	Peón ordinario.	0,600	h	19,74	11,84	
MO.007	Peón especialista	0,220	h	19,94	4,39	
MA.33	Hormigón HA-35/F/20/IIIa	1,000	m3	75,53	75,53	
MQ.001	Camión hormigonera 6m/3	0,070	h	22,71	1,59	
MQ.002	Vibrador de aguja	0,400	h	1,84	0,74	
MQ.003	Bomba para hormigonar	0,080	h	51,67	4,13	
CI.001	Costes indirectos (s/total)	1,057	%	4,50	4,76	
	Mano de obra					23,68
	Maquinaria					6,46
	Materiales					75,53
	Otros					4,76
	TOTAL PARTIDA					**110,43**

Asciende el precio total de la partida a la mencionada cantidad de CIENTO DIEZ EUROS con CUARENTA Y TRES CÉNTIMOS

03.02.02 ENCOFRADO RECTO — **m²**

Encofrado recto.

AUX.41	Encofrado paramentos rectos.	1,000	m2	15,17	15,17	
CI.001	Costes indirectos (s/total)	0,170	%	4,50	0,77	
	Mano de obra					12,50
	Materiales					2,26
	Otros					1,18
	TOTAL PARTIDA					**15,94**

Asciende el precio total de la partida a la mencionada cantidad de QUINCE EUROS con NOVENTA Y CUATRO CÉNTIMOS

03.02.03 ACERO EN BARRAS CORRUGADAS, B-500S — **kg**

Acero en barras corrugadas, B-500 S, colocado en armaduras pasivas según planos, incluso corte y doblado, colocación, solapes, despuntes y p.p. de atado con alambre recocido y separadores, medido en peso nominal.

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
MO.001	Capataz.	0,001	h	22,31	0,02	
MO.003	Peón ordinario.	0,008	h	19,74	0,16	
MO.004	Oficial 1º	0,004	h	22,72	0,09	
%CP.005	P.P. EPI's (s/mano de obra).	0,003	%	0,50	0,00	
MA.VA270	Acero B-500-S.	1,050	kg	0,80	0,84	
MA.VA252	Alambre recocido.	0,004	kg	0,93	0,00	
%CP.001	Medios auxiliares	0,008	%	5,00	0,04	
CI.001	Costes indirectos (s/total)	0,012	%	4,50	0,05	
	Mano de obra					0,27
	Materiales					0,84
	Otros					0,09
	TOTAL PARTIDA					**1,20**

Asciende el precio total de la partida a la mencionada cantidad de UN EUROS con VEINTE CÉNTIMOS

03.02.04 ACERO S 355 J2 ESTRUCTURAL **kg**

Acero S 355 J2 G2 W en estructura de acero.

MO.001	Capataz.	0,003	h	22,31	0,07	
MO.007	Peón especialista	0,027	h	19,94	0,54	
MO.004	Oficial 1º	0,027	h	22,72	0,61	
%CP.005	P.P. EPI's (s/mano de obra).	0,012	%	0,50	0,01	
MQ.414	Grúa autopropulsada 400 Tn	0,001	h	779,21	0,78	
MQ.552	Equipo de soldadura eléctrica.	0,024	h	6,00	0,14	
MA.VA267	Acero S 355 J2 G2 W.	1,000	kg	1,32	1,32	
MA%.035	P.P. pequeño material soldadura.	0,013	%	4,00	0,05	
AUX.76	Protección de estructuras metálicas.	1,000	kg	0,18	0,18	
CI.001	Costes indirectos (s/total)	0,037	%	4,50	0,17	
	Mano de obra					1,22
	Maquinaria					0,92
	Materiales					1,32
	Otros					0,41
	TOTAL PARTIDA					**3,87**

Asciende el precio total de la partida a la mencionada cantidad de TRES EUROS con OCHENTA Y SIETE CÉNTIMOS

03.02.05 CIMBRA **m³**

Cimbra

MO.001	Capataz.	0,003	h	22,31	0,07	
MO.007	Peón especialista	0,025	h	19,94	0,50	
MO.004	Oficial 1º	0,025	h	22,72	0,57	
%CP.005	P.P. EPI's (s/mano de obra).	0,011	%	0,50	0,01	
MA.VA377	Tubo metálico de 1,5" para cimbra.	1,500	m	3,43	5,15	
MA.VA378	Horquilla con husillo para cimbra.	0,150	ud	4,00	0,60	
MA.VA379	Grapa metálica para cimbra.	0,500	ud	3,59	1,80	
%CP.036	P.P. maquinaria y medios auxiliares para cimbras.	0,076	%	25,00	1,90	
CI.001	Costes indirectos (s/total)	0,111	%	4,50	0,50	
	Mano de obra					1,14
	Materiales					7,55
	Otros					2,41
	TOTAL PARTIDA					**11,10**

Asciende el precio total de la partida a la mencionada cantidad de ONCE EUROS con DIEZ CÉNTIMOS

03.02.06 APOYOS ELASTOMÉRICOS TIPO POT **u**

Apoyo deslizante libre, de 200 t de carga y giro admisible de 0,015 rad.

MO.001	Capataz.	0,500	h	22,31	11,16	
MO.007	Peón especialista	1,500	h	19,94	29,91	
MO.004	Oficial 1º	3,500	h	22,72	79,52	
%CP.005	P.P. EPI's (s/mano de obra).	1,206	%	0,50	0,60	
MQ.402	Grúa telescópica sobre neumáticos de 20 Tn	0,500	h	73,34	36,67	
MA.VA032	Apoyo deslizante libre, de 200 t de carga y giro a	1,000	ud	821,16	821,16	
MA.HM013	Mortero M-700 de central.	0,100	m3	113,88	11,39	
AUX.41	Encofrado paramentos rectos.	0,660	m2	15,17	10,01	

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
CI.001	Costes indirectos (s/total)	10,017	%	4,50	45,08	
	Mano de obra					128,84
	Maquinaria					36,67
	Materiales					834,04
	Otros					45,95
	TOTAL PARTIDA					**1.045,50**

Asciende el precio total de la partida a la mencionada cantidad de MIL CUARENTA Y CINCO EUROS con CINCUENTA CÉNTIMOS

03.02.07 JUNTA DE DILATACIÓN 100mm DE RECORRIDO — **m**

Junta de dilatación hasta 102 mm de recorrido.

MO.004	Oficial 1º	1,155	h	22,72	26,24	
MO.007	Peón especialista	1,155	h	19,94	23,03	
MA.34	Junta dilatación E 102mm de recorrido	1,000	m	404,60	404,60	
CI.001	Costes indirectos (s/total)	4,539	%	4,50	20,43	
	Mano de obra					49,27
	Maquinaria					404,60
	Otros					20,43
	TOTAL PARTIDA					**474,30**

Asciende el precio total de la partida a la mencionada cantidad de CUATROCIENTOS SETENTA Y CUATRO EUROS con TREINTA CÉNTIMOS

03.02.08 PRUEBA DE CARGA — **u**

Prueba de carga de puente para carretera.

C695/11/E.01	De prueba de carga estática para la estructura de carretera en...	1,000	ud	1.839,10	1.839,10	
CI.001	Costes indirectos (s/total)	18,310	%	4,50	82,40	
	Otros					1.921,50
	TOTAL PARTIDA					**1.921,50**

Asciende el precio total de la partida a la mencionada cantidad de MIL NOVECIENTOS VEINTIUN EUROS con CINCUENTA CÉNTIMOS

03.02.09 BORDILLO — **m**

Bordillo de hormigón 10x20cm

U01AA010	Peón especializado	0,160	Hr	11,23	1,80	
A01JF006	MORTERO CEMENTO 1/6 M-40	0,001	M3	61,79	0,06	
U37CE001	Bordillo hormigón recto 10x20	1,000	Ml	2,61	2,61	
U37CE001	Bordillo hormigón recto 10x20	1,000	Ml	2,61	2,61	
A02AA510	HORMIGÓN H-200/40 elab. obra	0,010	M3	69,97	0,70	
%0200001	Costes indirectos...(s/total)	0,052	%	3,00	0,16	
	Mano de obra					2,02
	Maquinaria					0,01
	Materiales					3,14
	Otros					0,16
	TOTAL PARTIDA					**5,33**

Asciende el precio total de la partida a la mencionada cantidad de CINCO EUROS con TREINTA Y TRES CÉNTIMOS

03.03 ESTRIBOS

03.03.01 PILOTE H.A. IN SITU 1500mm, LODOS — **m**

Pilote de hormigón armado moldeado in situ de 1500 mm de diámetro nominal perforado con lodos bentoníticos.

MO.001	Capataz.	0,350	h	22,31	7,81	
MO.007	Peón especialista	0,350	h	19,94	6,98	
MO.004	Oficial 1º	0,700	h	22,72	15,90	
%CP.005	P.P. EPI's (s/mano de obra).	0,307	%	0,50	0,15	
MQ.520	Equipo de perforación de pilote "in situ".	0,530	h	467,52	247,79	
MQ.522	Equipo de inyección con batidora y bomba.	0,530	h	29,97	15,88	
MQ.524	Equipo de lodos bentoníticos.	0,530	h	45,80	24,27	
MQ.550	Grupo electrógeno 25 KVA.	0,530	h	11,00	5,83	
MA.VA025	Bentonita.	0,005	t	179,82	0,90	
MA.HM106	Hormigón HNE-25/B/20.	1,767	m3	88,71	156,75	

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
MA.TU559	Tubo de acero de 50/2 mm.	2,000	m	2,94	5,88	
MA.TU600	Tubo de acero de 130/2 mm.	2,000	m	5,88	11,76	
MA.HM011	Mortero M-450 de central.	0,030	m3	75,71	2,27	
%CI.001	Costes indirectos (s/total)	4,713	%	6,00	28,28	

Mano de obra	30,69
Maquinaria	293,77
Materiales	177,56
Otros	28,43
TOTAL PARTIDA	**530,45**

Asciende el precio total de la partida a la mencionada cantidad de QUINIENTOS TREINTA EUROS con CUARENTA Y CINCO CÉNTIMOS

03.03.02 ACERO BARRAS CORRUGAADAS, B-500 S — **kg**

Acero en barras corrugadas, B-500 S, colocado en armaduras pasivas según planos, incluso corte y doblado, colocación, solapes, despuntes y p.p. de atado con alambre recocido y separadores, medido en peso nominal.

MO.001	Capataz.	0,001	h	22,31	0,02	
MO.003	Peón ordinario.	0,008	h	19,74	0,16	
MO.004	Oficial 1º	0,004	h	22,72	0,09	
%CP.005	P.P. EPI's (s/mano de obra).	0,003	%	0,50	0,00	
MA.VA270	Acero B-500-S.	1,050	kg	0,80	0,84	
MA.VA252	Alambre recocido.	0,004	kg	0,93	0,00	
%CP.001	Medios auxiliares	0,008	%	5,00	0,04	
CI.001	Costes indirectos (s/total)	0,012	%	4,50	0,05	

Mano de obra	0,27
Materiales	0,84
Otros	0,09
TOTAL PARTIDA	**1,20**

Asciende el precio total de la partida a la mencionada cantidad de UN EUROS con VEINTE CÉNTIMOS

03.03.03 HORMIGÓN HA-35/b/20/IIIa BOMBEADO — **m3**

Hormigón HA-35/B/20/IIa procedente de central puesto en obra mediante bombeo.

MO.001	Capataz.	0,060	h	22,31	1,34	
MO.007	Peón especialista	0,200	h	19,94	3,99	
MO.004	Oficial 1º	0,100	h	22,72	2,27	
MO.006	Peón señalista.	0,200	h	19,74	3,95	
MO.006	Peón señalista.	0,200	h	19,74	3,95	
%CP.005	P.P. EPI's (s/mano de obra).	0,116	%	0,50	0,06	
MA.HM142	Hormigón HA-35/B/20/IIa.	1,000	m3	100,76	100,76	
%CP.008	P.P. producto filmógeno de curado	1,008	%	1,00	1,01	
MQ.582	Camión con bomba de hormigón de 36 m de pluma.	0,060	h	93,50	5,61	
MQ.570	Vibrador de hormigón.	0,200	h	3,50	0,70	
VAR.03	Plus tte hormigón 30-60 km, ida/vuelta.	1,000	m3	5,20	5,20	
%CI.001	Costes indirectos (s/total)	0,115	%	6,00	0,69	

Mano de obra	11,55
Maquinaria	11,51
Materiales	100,76
Otros	1,76
TOTAL PARTIDA	**125,58**

Asciende el precio total de la partida a la mencionada cantidad de CIENTO VEINTICINCO EUROS con CINCUENTA Y OCHO CÉNTIMOS

03.03.05 ENCOFRADO RECTO — **m2**

AUX.41	Encofrado paramentos rectos.	1,000	m2	15,17	15,17	
CI.001	Costes indirectos (s/total)	0,170	%	4,50	0,77	

Mano de obra	12,50
Materiales	2,26
Otros	1,18
TOTAL PARTIDA	**15,94**

Asciende el precio total de la partida a la mencionada cantidad de QUINCE EUROS con NOVENTA Y CUATRO CÉNTIMOS

CUADRO DE DESCOMPUESTOS

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
04	**SEÑALIZACIÓN Y BALIZAMIENTO**					
04.01	**BARRERA DE SEGURIDAD METÁLICA**		**m**			
	ML. Defensa rígida, totalmente colocada.					
U01AA006	Capataz	0,067	Hr	13,25	0,89	
U01AA007	Oficial primera	0,136	Hr	12,80	1,74	
U01AA011	Peón ordinario	0,136	Hr	11,11	1,51	
U04MA510	Hormigón HM-20/P/40/ I central	0,511	M3	64,39	32,90	
U39HA001	Acero B 400 S	17,775	Kg	0,55	9,78	
U39VÑ004	Barrera rígida Macensa	0,100	H.	40,09	4,01	
%0100000	Costes indirectos...(s/total)	0,508	%	3,00	1,52	
	Mano de obra					4,14
	Materiales					46,69
	Otros					1,52
	TOTAL PARTIDA					**52,35**
	Asciende el precio total de la partida a la mencionada cantidad de CINCUENTA Y DOS EUROS con TREINTA Y CINCO CÉNTIMOS					
04.02	**MARCA VIAL TIPO 2 P-RR 10 CM DE ANCHURA**		**m**			
	ML. Marca vial reflexiva de 10 cm, con pintura reflectante y microesferas de vídrio, con máquina autopropulsada.					
U01AA006	Capataz	0,001	Hr	13,25	0,01	
U01AA007	Oficial primera	0,001	Hr	12,80	0,01	
U01AA011	Peón ordinario	0,002	Hr	11,11	0,02	
U39VA002	Pintura marca vial	0,072	Kg	2,33	0,17	
U39VZ001	Esferitas de vidrio N.V.	0,048	Kg	1,10	0,05	
U39AG001	Barredora nemát autropopulsad	0,001	H.	6,20	0,01	
U39AP001	Marcadora autopropulsada	0,001	H.	6,20	0,01	
%0200001	Costes indirectos...(s/total)	0,003	%	3,00	0,01	
	Mano de obra					0,04
	Maquinaria					0,02
	Materiales					0,22
	Otros					0,01
	TOTAL PARTIDA					**0,29**
	Asciende el precio total de la partida a la mencionada cantidad de CERO EUROS con VEINTINUEVE CÉNTIMOS					
04.03	**BARANDILLA METÁLICA CON VIDRIO**		**m**			
	ML. Barandilla metálica galvanizada suministro y colocación.					
U01AA007	Oficial primera	0,200	Hr	12,80	2,56	
U01AA011	Peón ordinario	0,400	Hr	11,11	4,44	
U39AÑ001	Equipo soldadura	0,200	H.	0,61	0,12	
U39AF002	Camión grua 5 Tm.	0,010	H.	17,72	0,18	
U39AR001	Grupo electrógeno 20/30 kva	0,200	H.	2,45	0,49	
U39MA001	Barandilla galvanizada	1,000	Ml	32,95	32,95	
%0100000	Costes indirectos...(s/total)	0,407	%	3,00	1,22	
	Mano de obra					7,00
	Maquinaria					0,79
	Materiales					32,95
	Otros					1,22
	TOTAL PARTIDA					**41,96**
	Asciende el precio total de la partida a la mencionada cantidad de CUARENTA Y UN EUROS con NOVENTA Y SEIS CÉNTIMOS					
04.04	**SEÑAL CIRCULAR REFLESIVA H.I. D=90 CM**		**u**			
	Señal circular de diámetro 90 cm, reflexiva nivel II (H.I.) y troquelada, incluso poste galvanizado de sustentación y cimentación, colocada.					
U01AA006	Capataz	0,200	Hr	13,25	2,65	
U01AA010	Peón especializado	0,400	Hr	11,23	4,49	
U01AA011	Peón ordinario	1,200	Hr	11,11	13,33	
U39AH003	Camión 5 tm	0,500	H.	9,10	4,55	
U39VF060	Señal reflectante ø=90 cm	1,000	Ud	117,70	117,70	
U39VM003	Poste tubo galvaniz.80x40x2mm	3,500	Ml	7,66	26,81	

CUADRO DE DESCOMPUESTOS

CÓDIGO	RESUMEN	CANTIDAD	UD	PRECIO	SUBTOTAL	IMPORTE
U04MA310	Hormigón HM-15/P/40 central	0,130	M3	57,12	7,43	
%0100000	Costes indirectos...(s/total)	1,770	%	3,00	5,31	
	Mano de obra					20,47
	Maquinaria					4,55
	Materiales					151,94
	Otros					5,31
	TOTAL PARTIDA					**182,27**

Asciende el precio total de la partida a la mencionada cantidad de CIENTO OCHENTA Y DOS EUROS con VEINTISIETE CÉNTIMOS

04.05	**SEÑAL TRIANGULAR REFLEXIVA H.I. L=135 CM**		**u**			
U01AA006	Capataz	0,200	Hr	13,25	2,65	
U01AA010	Peón especializado	0,400	Hr	11,23	4,49	
U01AA011	Peón ordinario	1,200	Hr	11,11	13,33	
U39AH003	Camión 5 tm	0,500	H.	9,10	4,55	
U39VF001	Sñ. peligro triáng. de 135 cm	1,000	Ud	124,60	124,60	
U39VM003	Poste tubo galvaniz.80x40x2mm	3,500	Ml	7,66	26,81	
U04MA310	Hormigón HM-15/P/40 central	0,125	M3	57,12	7,14	
%0100000	Costes indirectos...(s/total)	1,836	%	3,00	5,51	
	Mano de obra					20,47
	Maquinaria					4,55
	Materiales					158,55
	Otros					5,51
	TOTAL PARTIDA					**189,08**

Asciende el precio total de la partida a la mencionada cantidad de CIENTO OCHENTA Y NUEVE EUROS con OCHO CÉNTIMOS

04.06	**CARTEL REFLEXIVO 120X25 CM E.G.**		**u**			
	Cartel de señal informativa y de orientación de 120x25 cm, reflexivo nivel I (E.G.), troquelado, incluso postes galvanizados de sustentación y cimentación, colocado.					
U01AA006	Capataz	0,300	Hr	13,25	3,98	
U01AA007	Oficial primera	0,300	Hr	12,80	3,84	
U01AA010	Peón especializado	1,000	Hr	11,23	11,23	
U01AA011	Peón ordinario	3,000	Hr	11,11	33,33	
U39AH003	Camión 5 tm	0,500	H.	9,10	4,55	
U39VM010	IPN-12	1,500	Ml	14,90	22,35	
U39VW020	Cartel lamas acero reflexivo E.G	1,000	M2	137,93	137,93	
U04MA310	Hormigón HM-15/P/40 central	0,380	M3	57,12	21,71	
%0100000	Costes indirectos...(s/total)	2,389	%	3,00	7,17	
	Mano de obra					52,38
	Maquinaria					4,55
	Materiales					181,99
	Otros					7,17
	TOTAL PARTIDA					**246,09**

Asciende el precio total de la partida a la mencionada cantidad de DOSCIENTOS CUARENTA Y SEIS EUROS con NUEVE CÉNTIMOS

ANEJO Nº19.-

ESTUDIO DE SEGURIDAD Y SALUD

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MEMORIA

1. INTRODUCCIÓN

El presente *estudio de Seguridad y salud* se redacta en cumplimiento de lo dispuesto en el Real Decreto 1627/1.997, de 24 de octubre, sobre disposiciones mínimas de seguridad y salud en las obras de construcción, teniendo como objetivos la prevención de accidentes laborales, enfermedades profesionales y daños a terceros que las actividades y medios materiales previstos puedan ocasionar durante la ejecución del **"Proyecto de construcción: Puente de acceso a la isla de Zorrotzaurre".**

Por ser el presupuesto base de licitación superior al mínimo según el artículo 4 de dicho Real Decreto, el presente proyecto ha de incluir un "estudio de seguridad y salud".

Dicho estudio de seguridad y salud tiene por objeto establecer las directrices que habrán de regir durante la ejecución de las mencionadas obras, en relación con la prevención y evitación de riesgos de accidentes laborales, enfermedades profesionales y daños a terceros.

También se recogen en este estudio las características que habrán de reunir las instalaciones y atenciones de sanidad y bienestar a disposición de los trabajadores afectos a las obras, durante la ejecución de las mismas.

Se incluye el presupuesto de todos los elementos de seguridad y salud en el trabajo que se consideran necesarios para esta obra, con sus correspondientes cuadros de precios y mediciones, así como un pliego de condiciones particulares en el que se indican las normas legales y reglamentarias a tener en cuenta, además de otras prescripciones a cumplir.

Con las directrices que se recogen en el presente estudio y con las que eventualmente complemente la Dirección de Obra, la Empresa Constructora podrá llevar a cabo sus obligaciones en el campo de la prevención y evitación de riesgos y accidentes durante la ejecución de la obra en cuestión.

1.1. DESCRIPCIÓN DE LA OBRA PROYECTADA

1.1.1. SITUACIÓN DE LA OBRA Y DESCRIPCIÓN

Son las que se detallan en el apartado correspondiente de la Memoria.

1.1.2. PRESUPUESTO, PLAZO DE EJECUCIÓN Y PREVISIÓN DE MANO DE OBRA

Atendiendo a las características de este estudio, así como a las de las obras y su entidad, se incluye una planificación de las mismas, estimando como plazo adecuado para la ejecución de la totalidad de ellas el de 12 meses.

En el anejo correspondiente de la memoria se acompaña un diagrama actividades-tiempos, en el que se expresan las actividades a desarrollar en el tiempo. Se prevé un número de personas máximo de 20 obreros en los trabajos de construcción del Puente, aparte del Jefe de Obra, personal administrativo, un encargado y un responsable de las medidas de Seguridad e Higiene en el Trabajo, pudiendo alcanzarse una cifra superior de operarios debido a posibles subcontratas y ampliación de personal en función del transcurso de las obras y el tiempo disponible para las mismas.

El plan de seguridad y salud de la obra incluirá un desarrollo más detallado de esta planificación, señalando mediante diagramas espacio - tiempo los detalles de la misma, especialmente en relación con los trabajos y procesos a realizar en los tajos de mayor significación preventiva (estructuras, voladuras, etc.).

En el establecimiento de los precios de los materiales, la mano de obra y la maquinaria se han tenido en cuenta las características del mercado de la zona, cuidando de que los mismos y los de las unidades de obra resultantes sean adecuados a tal mercado, en las condiciones a la fecha de redacción del presente estudio.

Consta la valoración de las obras a realizar de los correspondientes presupuestos parciales, obtenidos aplicando a la medición de cada una de las unidades que los componen su correspondiente precio del cuadro de precios nº 1. Estos presupuestos parciales dan lugar al correspondiente presupuesto de ejecución material, que asciende a la cantidad 3.1 9. 5 . 9 . El presupuesto base de licitación se obtiene añadiendo al de ejecución material, incrementado con el presupuesto de seguridad y salud, un 13 % en concepto de gastos generales, un 6 % en concepto de beneficio industrial del contratista, e incrementado todo ello con el correspondiente IVA, al tipo del 21 %, ascendiendo dicho presupuesto base de licitación a la cantidad de 4.592.93 €.

1.1.3. INTERFERENCIAS Y SERVICIOS AFECTADOS

Antes del comienzo de las obras será imprescindible contar con la infraestructura necesaria para el desarrollo seguro de los trabajos para trabajadores y terceros, disponiendo los trabajadores de las condiciones de bienestar y salud que se detallan en este Estudio.

Vallado de obra: Antes del inicio de la obra se adoptarán las medidas necesarias para conseguir eliminar el riesgo de daños a terceros por intromisión de estos en la zona de trabajos. Sólo las personas autorizadas podrán acceder a la misma. Se deberá de vallar el área de influencia de los trabajos.

Acometidas para las instalaciones provisionales de los trabajadores: Para el desarrollo normal de los trabajos y las actividades de obra, se realizarán previo al inicio, las acometidas de los servicios necesarios para el desarrollo de los trabajos, para lo que será preciso contar con los permisos de acometida provisional, empleándose personal especializado y autorizado para la realización de estos trabajos.

Abastecimiento de agua: Se contará con información detallada sobre la ubicación de la red general y la llave de corte del ramal. Se contará con la Compañía Suministradora para que indique la localización exacta de las canalizaciones.

La ejecución de acometida se realizará siguiendo las indicaciones de los responsables del suministro.

1.1.4. PLAN DE OBRA

Duración estimada de la obra: 14 Meses

EXPLANACIONES: Número medio de trabajadores: 10

ESTRUCTURAS: Número medio de trabajadores: 20

FIRMES: Número medio de trabajadores: 15

SEÑALIZACIÓN, BALIZAMIENTO Y DEFENSA: Número medio de trabajadores: 5

ILUMINACIÓN: Número medio de trabajadores: 4

El plan de seguridad y salud de la obra incluirá un desarrollo más detallado de esta planificación, señalando mediante diagramas espacio - tiempo los detalles de la misma, especialmente en relación con los trabajos y procesos a realizar en los tajos de mayor significación preventiva (obras de fábrica, voladuras, etc.).

1.1.5. MARCO JURÍDICO

Como queda dicho, este *estudio de Seguridad y salud* se redacta en cumplimiento de lo dispuesto en el *Real Decreto 1627/1.997, de 24 de octubre, sobre disposiciones mínimas de seguridad y salud en las obras de construcción,* cuyo artículo 4 establece las condiciones de obligatoriedad para los proyectos técnicos de construcción, viniendo reglamentariamente exigido en el presente caso.

De acuerdo con ello, este estudio debe ser complementado, antes del comienzo de la obra, por el plan de seguridad y salud elaborado por el contratista. Dicho plan desarrollará las medidas preventivas previstas en el estudio, adaptando éstas a las técnicas y soluciones que han de ponerse finalmente en obra. Eventualmente, el plan de seguridad y salud podrá proponer alternativas preventivas a las medidas planificadas aquí, en las condiciones establecidas en el artículo 7 del ya citado Real Decreto 1627/1997. En su conjunto, el plan de seguridad y salud constituirá el conjunto de medidas y actuaciones preventivas derivadas de este estudio, que el contratista se compromete a disponer en las distintas actividades y fases de la obra, sin perjuicio de las modificaciones y actualizaciones a que pueda haber lugar, en las condiciones reglamentariamente establecidas.

La base legal de este estudio, así como del citado Real Decreto 1627/97, dictado en su desarrollo, es la *Ley 31/1.995, de 10 de noviembre, de prevención de riesgos laborales,* cuyo desarrollo reglamentario, de aplicación directa al estudio de Seguridad y salud, en tanto que establece normas que deben ser observadas parcial o totalmente en su redacción y posterior cumplimiento que, sin perjuicio de las recogidas en el pliego de condiciones de este estudio, se concretan en las siguientes:

- *Estatuto de los Trabajadores (Real Decreto Legislativo 1/1995, de 24 de marzo)*

- *Ley 31/1995, de 8 de noviembre, de Prevención de Riesgos Laborales (BOE del 10-11-95). Modificada por la Ley 50/1998, de 30 de diciembre, de Medidas Administrativas, Fiscales y del Orden Social, por la Ley 39/1999, de 5 de noviembre, para promover la conciliación de la vida familiar y laboral de las personas trabajadoras, por el RD Legislativo 5/2000, de 4 de agosto, por el que se aprueba el texto refundido de la Ley sobre Infracciones y Sanciones en el Orden Social y por la Ley 54/2003, de 12 de diciembre, de reforma del marco normativo de la prevención de riesgos laborales.*
- *Reglamento de los Servicios de Prevención (Real Decreto 39/1997, de 17 de enero, BOE 31-01-97)*
- *Modificación del Reglamento de los Servicios de Prevención (Real Decreto 780/1998, de 30 de abril, BOE 01-05-98)*
- *Desarrollo del Reglamento de los Servicios de Prevención (O.M. de 27-06-97, BOE 04-07-97)*
- *Reglamento sobre disposiciones mínimas de Seguridad y Salud en las obras de Construcción (Real Decreto 1627/1997, de 24 de octubre, BOE 25-10-97)*
- *Reglamento sobre disposiciones mínimas en materia de Señalización de Seguridad y Salud en el Trabajo (Real Decreto 485/1997, de 14 de abril, BOE 23-04-97)*
- *Reglamento sobre disposiciones mínimas de Seguridad y Salud en los Lugares Trabajo [excepto Construcción] (Real Decreto 486/97, de 14 de abril, BOE 23-04-97)*
- *Reglamento sobre disposiciones mínimas de Seguridad y Salud relativas a la Manipulación de Cargas (Real Decreto 487/1997, de 14 de abril, BOE 23-04-97)*
- *Reglamento sobre disposiciones mínimas de Seguridad y Salud relativas al trabajo con Equipos que incluyen Pantallas de Visualización (Real Decreto 488/1997, de 14 de abril, BOE 23-04-97)*
- *Reglamento de Protección de los trabajadores contra los Riesgos relacionados con la Exposición a Agentes Biológicos durante el trabajo (Real Decreto 664/1997, de 12 de mayo, BOE 24-05-97)*
- *Adaptación en función del progreso técnico del Real Decreto 664/1997 (Orden de 25 de marzo de 1998 (corrección de errores del 15 de abril)*
- *Reglamento de Protección de los trabajadores contra los Riesgos relacionados con la Exposición a Agentes Cancerígenos durante el trabajo (Real Decreto 665/1997, de 12 de mayo, BOE 24-05-97)*
- *Reglamento sobre disposiciones mínimas de Seguridad y Salud relativas a la utilización por los trabajadores de Equipos de Protección Individual (Real Decreto 773/1997, de 22 de mayo, BOE 12-06-97)*
- *Reglamento sobre disposiciones mínimas de Seguridad y Salud para la utilización por los trabajadores de los Equipos de Trabajo (Real Decreto 1215/1997, de 18 de julio, BOE 07-08-97)*
- *Real Decreto 949/1997, de 20 de junio, por el que se establece el certificado de profesionalidad de la ocupación de prevencionista de riesgos laborales.*
- *Real Decreto 216/1999, de 5 de febrero, sobre disposiciones mínimas de seguridad y salud en el trabajo en el ámbito de las empresas de trabajo temporal.*
- *Real Decreto 374/2001, de 6 de abril, sobre la protección de la salud y seguridad de los trabajadores contra los riesgos relacionados con los agentes químicos durante el trabajo.*
- *Real Decreto 614/2001, de 8 de junio, sobre disposiciones mínimas para la protección de la salud y seguridad de los trabajadores frente al riesgo eléctrico.*
- *Real Decreto 212/2002, de 22 de febrero, por el que se regulan las emisiones sonoras en el entorno debidas a determinadas máquinas de uso al aire libre.*
- *Real Decreto 1424/2002, de 27 de diciembre, por el que se regula la comunicación del contenido de los contratos de trabajo y de sus copias básicas a los Servicios Públicos de Empleo, y el uso de medios telemáticos en relación con aquella.*

- *Real Decreto 681/2003, de 12 de junio, sobre la protección de la salud y la seguridad de los trabajadores expuestos a los riesgos derivados de atmósferas explosivas en el lugar de trabajo.*
- *Real Decreto 171/2004, de 30 de enero, por el que se desarrolla el articulo 24 de la Ley 31/95, de 8 de noviembre, de prevención de riesgos laborales, en materia de coordinación de actividades empresariales.*
- *Real Decreto 2177/2004, de 12 de noviembre, por el que se modifica el Real Decreto 1215/1997, de 18 de julio, por el que se establecen las disposiciones mínimas de seguridad y salud para la utilización por los trabajadores de los equipos de trabajo, en materia de trabajos temporales en altura.*
- *Real Decreto 1311/2005, de 4 de noviembre, sobre la protección de la salud y la seguridad de los trabajadores frente a los riesgos derivados o que puedan derivarse de la exposición a vibraciones mecánicas.*
- *Real Decreto 286/2006, de 10 de marzo, sobre la protección de la salud y la seguridad de los trabajadores contra los riesgos relacionados con la exposición al ruido.*
- *Real Decreto 396/2006, de 31 de marzo, por el que se establecen las disposiciones mínimas de seguridad y salud aplicables a los trabajos con riesgo de exposición al amianto.*
- *Real Decreto 604/2006, de 19 de mayo, por el que se modifican el Real Decreto 39/1997, de 17 de enero, por el que se aprueba el Reglamento de los Servicios de Prevención, y el Real Decreto 1627/1997, de 24 de octubre, por el que se establecen las disposiciones mínimas de seguridad y salud en las obras de construcción (BOE del 29-5-06).*
- *Ley 32/2006, de 18 de octubre, reguladora de la subcontratación en el Sector de la Construcción (BOE del 19-10-06).*
- *Real Decreto 1109/2007, de 24 de agosto, que desarrolla la Ley 32/2006, de 18 de octubre, reguladora de la subcontratación en el Sector de la Construcción(BOE del 25-8-06, con corrección de errores en el BOE de 12-9-07).*

Adicionalmente, en la redacción del presente estudio, tal y como se especifica en el pliego de condiciones del mismo, se observan las normas, guías y documentos de carácter normativo que han sido adoptadas por otros departamentos ministeriales o por diferentes organismos y entidades relacionadas con la prevención y con la construcción, en particular las que han sido emitidas por el *Instituto Nacional de Seguridad e Higiene del Trabajo, por el Ministerio de Industria,* por la Comunidad Autónoma, así como n*ormas UNE* e *ISO* de aplicación.

2. EVALUACIÓN DE RIESGOS EN EL PROCESO DE LA CONSTRUCCIÓN

El estudio de identificación y evaluación de los *riesgos potenciales* existentes en cada fase de las actividades constructivas o por conjuntos de tajos de la obra proyectada, se lleva a cabo mediante la *detección de necesidades preventivas* en cada uno de dichas fases, a través del análisis del proyecto y de sus definiciones, sus previsiones técnicas y de la formación de los precios de cada unidad de obra, así como de las prescripciones técnicas contenidas en su pliego de condiciones.

El resumen del análisis de necesidades preventivas se desarrolla en las páginas anexas, mediante el estudio de las actividades y tajos del proyecto, la detección e identificación de riesgos y condiciones peligrosas en cada uno de ellos y posterior selección de las medidas preventivas correspondientes en cada caso. Se señala la realización previa de estudios alternativos que, una vez aceptados por el autor del proyecto de construcción, han sido incorporados al mismo, en tanto que son soluciones capaces de evitar riesgos laborales**.** La evaluación, resumida en las siguientes páginas, se refiere obviamente a aquellos riesgos o condiciones insuficientes que no han podido ser resueltas o evitadas totalmente antes de formalizar este estudio de Seguridad y salud. Sí han podido ser evitados y suprimidos, por el contrario, diversos riesgos que, al iniciarse este estudio de Seguridad y Salud, fueron estimados como **evitables** y que, en consecuencia**,** se evitaron y han desaparecido**,** tanto por haber sido modificado el diseño o el proceso constructivo que se propuso inicialmente, como por haberse introducido el preceptivo empleo de procedimientos, sistemas de construcción o equipos auxiliares que eliminan la posibilidad de aparición del riesgo, al anular suficientes factores causales del mismo

como para que éste pueda considerarse eliminado en la futura obra, tal y como el proyecto actual la resuelve.

A partir del ***análisis de las diferentes fases y unidades de obra proyectadas,*** se construyen las *fichas de tajos y riesgos que no han podido ser evitados en proyecto* y sobre los que es preciso establecer las adecuadas previsiones para la adopción de las *medidas preventivas* correspondientes, tal y como se detalla a continuación.

2.1. ACTIVIDADES QUE COMPONEN LA OBRA PROYECTADA

Movimiento de tierras

- **Excavaciones**
  - Excavación por medios mecánicos

Estructuras y obras de fábrica

- **Puentes y viaductos**
  - Cimentaciones superficiales
  - Cimentaciones profundas
  - Tableros mixtos
  - Arcos de hormigón
  - Tesado péndolas
  - Acabados

Firmes y pavimentos

- **Firme bituminoso**
- **Madera**

Servicios afectados

- **Conducciones**
  - Conducciones subterráneas de agua
- **Interferencias con vías en servicio (desvíos, cortes, ...)**
  - Retirada y reposición de elementos

Actividades diversas

- **Replanteo**
  - Replanteo en obras de fábrica o trabajos localizados
- **Señalización, balizamiento y defensa**
- **Actuaciones en la obra de los servicios técnicos**

2.2. EQUIPOS DE TRABAJO, MAQUINARIA E INSTALACIONES PREVISTAS

Las máquinas, instalaciones de obra y equipos de trabajo que pueden ser utilizadas durante la ejecución de la obra, en cuanto que elementos generadores de condiciones de trabajo peligrosas o riesgos para los trabajadores, se relacionan a continuación. Las condiciones de seguridad de dichas máquinas y equipos o de aquéllos que, efectivamente, sean finalmente utilizados por el contratista, serán exigibles en la obra y, como tales, figuran en el pliego de condiciones del presente estudio.

Maquinaria de movimiento de tierras

- Retroexcavadoras
- Pilotadora

- Rodillos vibrantes
- Camiones

Medios de hormigonado

- Camión hormigonera
- Bomba autopropulsada de hormigón
- Vibradores
- Andamios colgados y plataformas voladas
- Andamios tubulares y castilletes
- Plataformas de trabajo

Medios de fabricación y puesta en obra de firmes y pavimentos

- Extendedora de aglomerado asfáltico
- Compactador de neumáticos
- Rodillo vibrante autopropulsado
- Camión basculante

Acopios y almacenamiento

- Acopio de tierras y áridos
- Acopio de tubos, marcos, elementos prefabricados, ferralla, ...
- Almacenamiento de pinturas, desencofrante, combustibles, ...

Instalaciones auxiliares

- Instalaciones eléctricas provisionales de obra

Maquinaria y herramientas diversas

- Camión grúa
- Grúa móvil
- Compresores
- Martillos neumáticos
- Sierra circular de mesa
- Pistola fijaclavos
- Soldadura oxiacetilénica y oxicorte
- Maquinillos elevadores de cargas
- Taladro portátil
- Herramientas manuales
- Máquina hincapostes
- Máquina pintabandas

2.3. IDENTIFICACIÓN DE RIESGOS

Para cada una de las actividades constructivas, máquinas, equipos de trabajo e instalaciones previstos en las diferentes fases de la obra proyectada, se identifican y relacionan los siguientes riesgos y condiciones peligrosas de trabajo que resultan previsibles durante el curso de la obra.

2.3.1. RIESGOS RELACIONADOS CON LAS ACTIVIDADES DE OBRA

Movimiento de tierras

Excavaciones

Excavación por medios mecánicos

Entidad (orden de magnitud): Media alta.

Medios para su ejecución: Tractor de orugas, pala cargadora y camiones. El material resultante irá a vertedero autorizado o lugar de empleo. El transporte se hará con camiones volquete. Las pistas se regarán con camión cuba.

- Atropellos y golpes por maquinaria y vehículos de obra
- Atrapamientos de personas por maquinarias
- Colisiones y vuelcos de maquinaria o vehículos de obra
- Caídas del personal a distinto nivel
- Corrimientos o desprendimientos del terreno
- Hundimientos inducidos en estructuras próximas
- Contactos directos o indirectos con líneas eléctricas
- Golpes por objetos y herramientas
- Caída de objetos
- Inundación por rotura de conducciones de agua
- Incendios o explosiones por escapes o roturas de oleoductos o gasoductos
- Explosión de ingenios enterrados
- Ambiente pulvígeno
- Polvaredas que disminuyan la visibilidad
- Ruido
- Ambiente pulvígeno
- Ruido

Estructuras y obras de fábrica

Puentes y viaductos

Cimentaciones profundas

Entidad (orden de magnitud): Media.

Medios para su ejecución: Se ejecutan con maquinaria especial para la ejecución de pilotes de extracción, lodos bentoníticos y auscultación ultrasónica.

- Caída de personas a distinto nivel
- Caída de personas al mismo nivel
- Atropellos, golpes y vuelcos de las máquinas y vehículos de obra
- Aplastamientos o golpes por cargas suspendidas
- Heridas con objetos punzantes
- Interferencia con servicios enterrados
- Interferencia con vías en servicio
- Caída de personas al mismo nivel
- Caída de herramientas u objetos desde las plataformas de trabajo
- Incendio de los encofrados
- Fallo del encofrado
- Atropellos, golpes y vuelcos de las máquinas y vehículos de obra
- Aplastamientos o golpes por cargas suspendidas
- Heridas con objetos punzantes
- Interferencia con vías en servicio

Tableros metálicos o mixtos

Entidad (orden de magnitud): Elevada.

Medios para su ejecución: Grúas especiales.

- Caída de personas a distinto nivel

- Caída de personas al mismo nivel
- Caída de herramientas u objetos desde las plataformas de trabajo
- Contactos eléctricos directos
- Contactos eléctricos indirectos durante el hormigonado
- Electrocuciones durante la soldadura
- Quemaduras o lesiones oculares por soldadura
- Explosiones del equipo de oxicorte
- Atropellos, golpes y vuelcos de las máquinas y vehículos de obra
- Aplastamientos o golpes por cargas suspendidas
- Heridas con objetos punzantes
- Interferencia con vías en servicio

Acabados

Entidad (orden de magnitud): Media.

Medios para su ejecución: Brigadas de oficios.

- Caída de herramientas u objetos desde las plataformas de trabajo
- Atropellos, golpes y vuelcos de las máquinas y vehículos de obra
- Interferencia con vías en servicio

Firmes y pavimentos

Firme bituminoso nuevo

Entidad (orden de magnitud): Elevada.

Medios para su ejecución: En el tajo de aglomerado asfáltico se dan las siguientes fases:

1. Riego de imprimación, con bituminadora.
2. Extendido de aglomerado, se usa extendedora de tolva sobre la que descargan el material los camiones volquetes.
3. Equipo de compactación. Tándem con rodillos metálicos y compactador de neumático.

- Caídas al mismo nivel
- Atropellos
- Golpes y choques de maquinaria
- Accidentes del tráfico de obra
- Afecciones a vías en servicio
- Quemaduras
- Deshidrataciones
- Atrapamientos por las partes móviles de la maquinaria
- Inhalación de gases tóxicos
- Ambiente pulvígeno
- Polvaredas que disminuyan la visibilidad
- Ruido

Servicios afectados

<u>Conducciones</u>

Conducciones subterráneas de agua

Entidad (orden de magnitud): Reducida.

Medios y procedimientos para su ejecución: Brigada de colocación de tubos.

- Rotura de la canalización
- Inundaciones
- Caídas en profundidad

- Corrimientos de tierras
- Sobreesfuerzos

Interferencias con vías en servicio (desvíos, cortes, ...)

Retirada y reposición de elementos

Entidad (orden de magnitud): Reducida.

Medios y procedimientos para su ejecución: Brigada de señalización.

- Atropellos
- Inhalación de gases tóxicos desprendidos por las pinturas
- Invasión de la calzada con herramientas o elementos
- Heridas con herramientas
- Sobreesfuerzos
- Polvaredas que disminuyan la visibilidad
- Ruido

Actividades diversas

Replanteo

Replanteo de grandes movimientos de tierra

Entidad (orden de magnitud): Media.

Medios y procedimientos para su ejecución: Equipo de topógrafos.

- Accidentes de tráfico "in itinere"
- Deslizamientos de ladera
- Caída de objetos o rocas por el talud
- Atropellos
- Deshidrataciones, insolaciones, quemaduras solares
- Torceduras
- Picaduras de animales o insectos
- Enfermedades causadas por el trabajo bajo condiciones meteorológicas adversas
- Sobreesfuerzos
- Ambiente pulvígeno

Replanteo en obras de fábrica o trabajos localizados

Entidad (orden de magnitud): Media.

Medios y procedimientos para su ejecución: Equipo de topógrafos.

- Caídas a distinto nivel
- Caída de herramientas
- Sobreesfuerzos

Señalización, balizamiento y defensa

Entidad (orden de magnitud): Media.

Medios y procedimientos para su ejecución: Brigada de señalización con herramientas manuales. Máquina hincapostes. Máquina pintabandas.

- Caídas a distinto nivel
- Aplastamiento por desplome de pórticos u otros elementos pesados
- Enfermedades causadas por el trabajo bajo condiciones meteorológicas adversas
- Heridas y cortes con herramientas u objetos punzantes
- Interferencias con el tráfico de obra
- Sobreesfuerzos

Actuaciones en la obra de los servicios técnicos

Entidad (orden de magnitud): Media.

Medios y procedimientos para su ejecución: Personal técnico y medios de transporte.

- Accidentes de tráfico "in itinere"
- Caídas a distinto nivel
- Caídas al mismo nivel
- Atropellos
- Torceduras
- Inhalación de gases tóxicos
- Enfermedades causadas por el trabajo bajo condiciones meteorológicas adversas
- Ambiente pulvígeno
- Ruido

2.3.2 RIESGOS DE LA MAQUINARIA, INSTALACIONES Y EQUIPOS DE TRABAJO

Maquinaria de movimiento de tierras

Retroexcavadoras

- Atropello o golpes a personas por máquinas en movimiento
- Deslizamientos y/o vuelcos de máquinas sobre planos inclinados del terreno
- Desplome de taludes o de frentes de excavación bajo o sobre la máquina
- Máquina sin control, por abandono del conductor sin desconectar ni poner frenos
- Caídas a distinto nivel de personas desde la máquina
- Choques de la máquina con otras o con vehículos
- Contacto de la máquina con líneas eléctricas aéreas o enterradas
- Atrapamientos por útiles o transmisiones
- Quemaduras en trabajos de reparación o mantenimiento
- Golpes o proyecciones de materiales del terreno
- Vibraciones transmitidas por la máquina
- Ambiente pulvígeno
- Polvaredas que disminuyan la visibilidad
- Ruido

Pilotadora

- Caídas a distinto nivel de personas desde la máquina
- Choques de vehículos contra la máquina
- Contacto de la máquina con líneas eléctricas aéreas o enterradas
- Atrapamientos por útiles o transmisiones
- Quemaduras en trabajos de reparación o mantenimiento
- Golpes o proyecciones de materiales del terreno
- Vibraciones transmitidas por la máquina
- Ambiente pulvígeno
- Ruido

Rodillos vibrantes

- Atropello o golpes a personas por máquinas en movimiento
- Deslizamientos y/o vuelcos de máquinas sobre planos inclinados del terreno
- Máquina sin control, por abandono del conductor sin desconectar ni poner frenos
- Caídas a distinto nivel de personas desde la máquina
- Choques de la máquina con otras o con vehículos
- Atrapamientos por útiles o transmisiones
- Golpes o proyecciones de materiales del terreno
- Vibraciones transmitidas por la máquina
- Ambiente pulvígeno
- Polvaredas que disminuyan la visibilidad
- Ruido

Pisones

- Golpes o aplastamientos por el equipo
- Sobreesfuerzos o lumbalgias
- Vibraciones transmitidas por la máquina

- Ambiente pulvígeno
- Polvaredas que disminuyan la visibilidad
- Torceduras por pisadas sobre irregularidades u objetos
- Ruido

Camiones y dúmperes

- Derrame del material transportado
- Atropello o golpes a personas por máquinas en movimiento
- Deslizamientos y/o vuelcos de máquinas sobre planos inclinados del terreno
- Máquina sin control, por abandono del conductor sin desconectar ni poner frenos
- Caídas a distinto nivel de personas desde la máquina
- Choques de la máquina con otras o con vehículos
- Contacto de la máquina con líneas eléctricas aéreas
- Atrapamientos por útiles o transmisiones
- Quemaduras en trabajos de reparación o mantenimiento
- Golpes o proyecciones de materiales del terreno
- Vibraciones transmitidas por la máquina
- Ambiente pulvígeno
- Polvaredas que disminuyan la visibilidad
- Ruido

Motovolquetes

- Accidentes de tráfico en incorporaciones o desvíos desde/hacia la obra
- Derrame del material transportado
- Atropello o golpes a personas por máquinas en movimiento
- Deslizamientos y/o vuelcos de máquinas sobre planos inclinados del terreno
- Máquina sin control, por abandono del conductor sin desconectar ni poner frenos
- Caídas a distinto nivel de personas desde la máquina
- Choques de la máquina con otras o con vehículos
- Atrapamientos por útiles o transmisiones
- Quemaduras en trabajos de reparación o mantenimiento
- Vibraciones transmitidas por la máquina
- Ambiente pulvígeno
- Ruido

Medios de hormigonado

Plantas de hormigonado

- Caídas a distinto nivel
- Caídas al mismo nivel
- Contactos eléctrico directos
- Contacto eléctricos indirectos
- Atrapamientos
- Dermatosis
- Quemaduras
- Heridas con objetos punzantes
- Ruido

Camión hormigonera

- Accidentes de tráfico en incorporaciones o desvíos desde/hacia la obra
- Atropello o golpes a personas por máquinas en movimiento
- Deslizamientos y/o vuelcos de máquinas sobre planos inclinados o zanjas del terreno
- Máquina sin control, por abandono del conductor sin desconectar ni poner frenos
- Caídas a distinto nivel de personas desde la máquina
- Choques de la máquina con otras o con vehículos
- Contacto de la máquina con líneas eléctricas aéreas
- Atrapamientos por útiles o transmisiones
- Quemaduras en trabajos de reparación o mantenimiento

- Vibraciones transmitidas por la máquina
- Ambiente pulvígeno
- Polvaredas que disminuyan la visibilidad
- Ruido

Bomba autopropulsada de hormigón

- Accidentes de tráfico en incorporaciones o desvíos desde/hacia la obra
- Atropello o golpes a personas por máquinas en movimiento
- Deslizamientos y/o vuelcos de máquinas sobre planos inclinados o zanjas del terreno
- Choques de la máquina con otras o con vehículos
- Contacto de la máquina con líneas eléctricas aéreas
- Proyecciones de hormigón bombeado sobre trabajadores o público
- Desprendimientos o latigazos bruscos de mangueras y conductos de hormigón
- Proyección descontrolada de tapones de hormigón seco
- Ruido

Vibradores

- Contactos eléctrico directos
- Contacto eléctricos indirectos
- Golpes a otros operarios con el vibrador
- Sobreesfuerzos
- Lumbalgias
- Reventones en mangueras o escapes en boquillas
- Ruido

Andamios colgados y plataformas voladas

- Caídas a distinto nivel
- Caída de objetos o herramientas
- Descuelgue del andamio durante su montaje o desmontaje
- Heridas con objetos punzantes

Andamios tubulares y castilletes

- Caídas a distinto nivel
- Caída de objetos o herramientas
- Desplome del andamio durante su montaje o desmontaje
- Corrimientos en los acopios de las piezas
- Heridas con objetos punzantes

Plataformas de trabajo

- Caídas a distinto nivel
- Caída de objetos o herramientas
- Desplome del andamio durante su montaje o desmontaje
- Corrimientos en los acopios de las piezas
- Heridas con objetos punzantes

Medios de fabricación y puesta en obra de firmes y pavimentos

Extendedora de aglomerado asfáltico

- Atropello o golpes a personas por máquinas en movimiento
- Caídas a distinto nivel de personas desde la máquina
- Choques de la máquina con otras o con vehículos
- Quemaduras en trabajos de reparación o mantenimiento
- Incendios
- Ambiente insalubre por emanaciones bituminosas
- Ruido

Compactador de neumáticos

- Atropello o golpes a personas por máquinas en movimiento

- Deslizamientos y/o vuelcos de máquinas sobre planos inclinados del terreno
- Máquina sin control, por abandono del conductor sin desconectar ni poner frenos
- Caídas a distinto nivel de personas desde la máquina
- Choques de la máquina con otras o con vehículos
- Atrapamientos por útiles o transmisiones
- Quemaduras en trabajos de reparación o mantenimiento
- Ambiente insalubre por emanaciones bituminosas
- Ruido

Rodillo vibrante autopropulsado

- Atropello o golpes a personas por máquinas en movimiento
- Deslizamientos y/o vuelcos de máquinas sobre planos inclinados del terreno
- Máquina sin control, por abandono del conductor sin desconectar ni poner frenos
- Caídas a distinto nivel de personas desde la máquina
- Choques de la máquina con otras o con vehículos
- Atrapamientos por útiles o transmisiones
- Quemaduras en trabajos de reparación o mantenimiento
- Vibraciones transmitidas por la máquina
- Ambiente insalubre por emanaciones bituminosas
- Ruido

Camión basculante

- Accidentes de tráfico en incorporaciones o desvíos desde/hacia la obra
- Derrame del material transportado
- Atropello o golpes a personas por máquinas en movimiento
- Deslizamientos y/o vuelcos de máquinas sobre planos inclinados del terreno
- Máquina sin control, por abandono del conductor sin desconectar ni poner frenos
- Caídas a distinto nivel de personas desde la máquina
- Choques de la máquina con otras o con vehículos.
- Contacto de la máquina con líneas eléctricas aéreas
- Atrapamientos por útiles o transmisiones
- Quemaduras en trabajos de reparación o mantenimiento
- Golpes o proyecciones de materiales del terreno
- Vibraciones transmitidas por la máquina
- Ambiente pulvígeno
- Polvaredas que disminuyan la visibilidad
- Ruido

Acopios y almacenamiento

Acopio de tierras y áridos

- Inducción de corrimientos de tierras excavaciones próximas
- Corrimientos de tierras del propio acopio
- Accidentes de tráfico por mala ubicación del acopio
- Daños ambientales y/o invasión de propiedades
- Ambiente pulvígeno

Acopio de tubos, marcos, elementos prefabricados, ferralla, ...

- Desplome del propio acopio
- Aplastamiento de articulaciones
- Accidentes de tráfico por mala ubicación del acopio
- Daños ambientales y/o invasión de propiedades
- Sobreesfuerzos
- Torceduras

Almacenamiento de pinturas, desencofrante, combustibles, ...

- Inhalación de vapores tóxicos
- Incendios o explosiones

- Dermatosis e irritación de los ojos por contacto o proyección de sustancias
- Afecciones ambientales por fugas o derrames

Instalaciones auxiliares

Instalaciones eléctricas provisionales de obra

- Contactos eléctricos directos
- Contactos eléctricos indirectos
- Manipulaciones inadecuadas de los interruptores o seccionadores
- Incendios por sobretensión

Maquinaria y herramientas diversas

Camión grúa

- Accidentes en trayecto hacia el punto de trabajo
- Atropellos
- Vuelco de la grúa
- Corrimientos de tierra inducidos en excavaciones próximas
- Aplastamiento por caída de carga suspendida
- Contacto eléctrico de la pluma con líneas aéreas
- Atrapamientos por útiles o transmisiones
- Quemaduras en trabajos de reparación o mantenimiento

Grúa móvil

- Accidentes en trayecto hacia el punto de trabajo
- Atropellos
- Vuelco de la grúa
- Riesgo por impericia
- Aplastamiento por caída de carga suspendida
- Contacto eléctrico de la pluma con líneas aéreas
- Golpes a trabajadores con la pluma o con la carga

Compresores

- Incendios y explosiones
- Golpes de "látigo" por las mangueras
- Proyección de partículas
- Reventones de los conductos
- Inhalación de gases de escape
- Atrapamientos por útiles o transmisiones
- Quemaduras en trabajos de reparación o mantenimiento
- Ruido

Martillos neumáticos

- Proyección de partículas
- Riesgo por impericia
- Golpes con el martillo
- Sobreesfuerzos o lumbalgias
- Vibraciones
- Contacto con líneas eléctricas enterradas
- Reventones en mangueras o boquillas
- Ambiente pulvígeno
- Ruido

Sierra circular de mesa

- Cortes o amputaciones
- Riesgo por impericia
- Golpes con objetos despedidos por el disco
- Caída de la sierra a distinto nivel

- Contactos eléctricos indirectos
- Proyección de partículas
- Heridas con objetos punzantes
- Incendios por sobretensión
- Ambiente pulvígeno
- Ruido

Pistola fijaclavos

- Alcances por disparos accidentales de clavos
- Riesgo por impericia
- Reventón de la manguera a presión
- Contactos eléctricos indirectos
- Caída de la pistola a distinto nivel
- Caídas al mismo nivel por exceso de empuje

Soldadura oxiacetilénica y oxicorte

- Explosiones por sobrecalentamiento de las botellas
- Explosiones por retroceso de la llama
- Intoxicación por fugas en las botellas
- Incendios
- Quemaduras
- Riesgos por impericia
- Caída del equipo a distinto nivel
- Sobreesfuerzos
- Aplastamientos de articulaciones

Maquinillos elevadores de cargas

- Caídas a distinto nivel durante el montaje o el mantenimiento
- Arranque del maquinillo por vuelco
- Riesgo por impericia
- Contactos eléctricos directos
- Contactos eléctricos indirectos
- Aplastamiento por caída de cargas suspendida
- Incendios por sobretensión
- Caídas a diferente nivel por arrastre o empuje de la carga

Taladro portátil

- Taladros accidentales en las extremidades
- Riesgo por impericia
- Contactos eléctricos indirectos
- Caída del taladro a distinto nivel
- Caídas al mismo nivel por tropiezo

Herramientas manuales

- Riesgo por impericia
- Caída de las herramientas a distinto nivel
- Caídas al mismo nivel por tropiezo

Máquina hincapostes

- Caídas a distinto nivel de personas desde la máquina
- Choques de vehículos contra la máquina
- Contacto de la máquina con líneas eléctricas aéreas o enterradas
- Atrapamientos por útiles o transmisiones
- Quemaduras en trabajos de reparación o mantenimiento
- Golpes o proyecciones de materiales del terreno
- Vibraciones transmitidas por la máquina
- Ambiente pulvígeno
- Ruido

Máquina pintabandas

- Caídas a distinto nivel de personas desde la máquina
- Choques de la máquina con otras o con vehículos
- Atrapamientos por útiles o transmisiones
- Quemaduras en trabajos de reparación o mantenimiento
- Vibraciones transmitidas por la máquina
- Incendios

3. MEDIDAS PREVENTIVAS PARA PONER EN OBRA

3.1. MEDIDAS GENERALES

Al objeto de asegurar el adecuado nivel de seguridad laboral en el ámbito de la obra, son necesarias una serie de medidas generales a disponer en la misma, no siendo éstas susceptibles de asociarse inequívocamente a ninguna actividad o maquinaria concreta, sino al conjunto de la obra. Estas medidas generales serán definidas concretamente y con el detalle suficiente en el plan de seguridad y salud de la obra.

3.3.1. MEDIDAS DE CARÁCTER ORGANIZATIVO

Formación en información

En cumplimento del deber de protección, el empresario deberá garantizar que cada trabajador reciba una formación teórica y práctica, suficiente y adecuada, en materia preventiva, centrada específicamente en el puesto de trabajo o función de cada trabajador. En su aplicación, todos los operarios recibirán, al ingresar en la obra o con anterioridad, una exposición detallada de los métodos de trabajo y los riesgos que pudieran entrañar, juntamente con las medidas de prevención y protección que deberán emplear. Los trabajadores serán ampliamente informados de las medidas de seguridad personales y colectivas que deben establecerse en el tajo al que están adscritos, repitiéndose esta información cada vez que se cambie de tajo.

El contratista facilitará una copia del plan de seguridad y salud a todas las subcontratas y trabajadores autónomos integrantes de la obra, así como a los representantes de los trabajadores.

Servicios de prevención y organización de la seguridad y salud de la obra

La empresa constructora viene obligada a disponer de una *organización especializada de prevención de riesgos laborales,* de acuerdo con lo establecido en el Real Decreto 39/1997, citado: cuando posea una plantilla superior a los 250 trabajadores, con Servicio de Prevención propio, mancomunado o ajeno contratado a tales efectos, en cualquier caso debidamente acreditado ante la

Autoridad laboral competente o, en supuestos de menores plantillas, mediante la designación de uno o varios trabajadores, adecuadamente formados y acreditados a nivel básico, según se establece en el mencionado Real Decreto 39/1997.

La empresa contratista encomendará a su organización de prevención la vigilancia de cumplimiento de las obligaciones preventivas de la misma, plasmadas en el *plan de seguridad y salud de la obra,* así como la asistencia y asesoramiento al Jefe de obra en cuantas cuestiones de seguridad se planteen a lo largo de la duración de la obra.

La organización preventiva de la empresa contratista en la obra deberá cumplir las condiciones mínimas establecidas del apartado 4 del Pliego de condiciones del presente Estudio de Seguridad y Salud.

Al menos uno de los trabajadores destinados en la obra poseerá formación y adiestramiento específico en primeros auxilios a accidentados, con la obligación de atender a dicha función en todos aquellos casos en que se produzca un accidente con efectos personales o daños o lesiones, por pequeños que éstos sean.

Todos los trabajadores destinados en la obra poseerán justificantes de haber pasado reconocimientos médicos preventivos y de capacidad para el trabajo a desarrollar, durante los últimos doce meses, realizados en el departamento de Medicina del Trabajo de un Servicio de Prevención acreditado.

El plan de seguridad y salud establecerá las condiciones en que se realizará la información a los trabajadores, relativa a los riesgos previsibles en la obra, así como las acciones formativas pertinentes.

Modelo de organización de la seguridad en la obra

Al objeto de lograr que el conjunto de las empresas concurrentes en la obra posean la información necesaria acerca de su organización en materia de seguridad en esta obra, así como el procedimiento para asegurar el cumplimiento del plan de seguridad y salud de la obra por parte de todos sus trabajadores, dicho plan de seguridad y salud contemplará la obligación de que cada subcontrata designe antes de comenzar a trabajar en la obra, al menos:

- **Técnicos de prevención** designados por su empresa para la obra, que deberán planificar las medidas preventivas, formar e informar a sus trabajadores, investigar los accidentes e incidentes, etc
- **Trabajadores responsables** de mantener actualizado y completo el archivo de seguridad y salud de su empresa en obra.
- **Vigilantes de seguridad y salud,** con la función de vigilar el cumplimiento del plan de seguridad y salud por parte de sus trabajadores y de los de sus subcontratistas, así como de aquéllos que, aun no siendo de sus empresas, puedan generar riesgo para sus trabajadores.

3.1.2. MEDIDAS DE CARÁCTER DOTACIONAL

Servicio médico

La empresa contratista dispondrá de un Servicio de vigilancia de la salud de los trabajadores según lo dispuesto en la Ley de Prevención de Riesgos Laborales.

Todos los operarios que empiecen trabajar en la obra deberán haber pasado un reconocimiento médico general previo en un plazo inferior a un año. Los trabajadores que han de estar ocupados en trabajos que exijan cualidades fisiológicas o psicológicas determinadas deberán pasar reconocimientos médicos específicos para la comprobación y certificación de idoneidad para tales trabajos, entre los que se encuentran los de gruístas, conductores, operadores de máquinas pesadas, trabajos en altura, etc.

Botiquín de obra

La obra dispondrá de material de primeros auxilios en lugar debidamente señalizado y de adecuado acceso y estado de conservación, cuyo contenido será revisado semanalmente, reponiéndose los elementos necesarios

Instalaciones de higiene y bienestar

De acuerdo con el apartado 15 del Anexo 4 del Real Decreto 1627/97, la obra dispondrá de las instalaciones necesarias de higiene y bienestar.

Dadas las características habituales de las obras de carreteras, de linealidad y separación en el espacio de los distintos tajos, y de existir a lo largo de la traza instalaciones públicas de higiene y bienestar, el contratista podrá proponer en su plan de seguridad y salud el uso para los trabajadores de estas instalaciones, previo acuerdo con sus propietarios y siempre que se cumplan las normas establecidas en el Real Decreto mencionado. En todo caso los trabajadores dispondrán de medios de transporte precisos para el uso de estas instalaciones, facilitados por la empresa contratista.

En cualquier caso, las instalaciones propias o ajenas acordadas deberán cumplir las condiciones mínimas establecidas en el apartado 5 del Pliego de condiciones del presente Estudio de Seguridad y Salud.

Se asegurará, en todo caso el suministro de agua potable al personal perteneciente a la obra.

3.1.3. MEDIDAS DE CARÁCTER TÉCNICO

El plan de seguridad y salud de la obra establecerá con el detalle preciso los accesos y las vías de circulación y aparcamiento de vehículos y máquinas en la obra, así como sus condiciones de trazado, drenaje y afirmado, señalización, protección y balizamiento. Las *vallas autónomas* de protección y delimitación de espacios estarán construidas a base de tubos metálicos soldados, tendrán una altura mínima de 90 cm y estarán pintadas en blanco o en colores amarillo o naranja luminosos, manteniéndose su pintura en correcto estado de conservación y no debiendo presentar indicios de óxido ni elementos doblados o rotos.

En relación con las instalaciones eléctricas de obra, la resistencia de las *tomas de tierra* no será superior a aquélla que garantice una tensión máxima de 24 V, de acuerdo con la sensibilidad del interruptor diferencial que, como mínimo, será de 30 mA para alumbrado y de 300 mA para fuerza. Se comprobará periódicamente que se produce la desconexión al accionar el botón de prueba del *diferencial,* siendo absolutamente obligatorio proceder a una revisión de éste por personal especializado, o sustituirlo cuando la desconexión no se produce. Todos los elementos eléctricos, como fusibles, cortacircuitos e interruptores, serán de equipo cerrado, capaces de imposibilitar el contacto eléctrico fortuito de personas o cosas, al igual que los bornes de conexiones, que estarán provistas de protectores adecuados.

Se dispondrán *interruptores,* uno por enchufe, en el cuadro eléctrico general, al objeto de permitir dejar sin corriente los enchufes en los que se vaya a conectar maquinaria de 10 o más amperios, de manera que sea posible enchufar y desenchufar la máquina en ausencia de corriente. Los *tableros portantes de bases de enchufe* de los cuadros eléctricos auxiliares se fijarán eficazmente a elementos rígidos, de forma que se impida el desenganche fortuito de los conductores de alimentación, así como contactos con elementos metálicos que puedan ocasionar descargas eléctricas a personas u objetos.

Las *lámparas eléctricas* portátiles tendrán mango aislante y dispositivo protector de la lámpara, teniendo alimentación de 24 voltios o, en su defecto, estar alimentadas por medio de un transformador de separación de circuitos.

Todas las *máquinas eléctricas* dispondrán de conexión a tierra, con resistencia máxima permitida de los electrodos o placas de 5 a 10 ohmios, disponiendo de cables con doble aislamiento impermeable y de cubierta suficientemente resistente. Las mangueras de conexión a las tomas de tierra llevarán un hilo adicional para conexión al polo de tierra del enchufe.

Los *extintores* de obra serán de polvo polivalente y cumplirán la Norma UNE 23010, colocándose en los lugares de mayor riesgo de incendio, a una altura de 1,50 m sobre el suelo y adecuadamente señalizados.

El plan de seguridad y salud desarrollará detalladamente estas medidas generales a adoptar en el curso de a obra, así como cuantas otras se consideren precisas, proponiendo las alternativas que el contratista estime convenientes, en su caso.

3.2. MEDIDAS PREVENTIVAS A ESTABLECER EN LAS DIFERENTES ACTIVIDADES CONSTRUCTIVAS

En función de los factores de riesgo y de las condiciones de peligro analizadas y que se han de presentar en la ejecución de cada una de las fases y actividades a desarrollar en la obra, las medidas preventivas y protectoras a establecer durante su realización son, en cada caso, las enunciadas en los apartados que siguen.

En todas ellas, y de acuerdo con la NOTA / S. y S. Nº 3 sobre "Prevención de riesgos laborales en relación al amianto", se tendrá en cuenta lo siguiente:

- En caso de que (por descubrimiento de conducciones antiguas, restos de edificación, etc.) se detectará riesgo de exposición a fibras de amianto, los trabajos a realizar en la proximidad de este material (y especialmente los de demolición y retirada) serán realizados por una empresa homologada (inscrita en el Registro de Empresas con Riesgo de Amianto, RERA, según OM de 31-10-84) y previa elaboración de un plan de trabajo especial.

- Se cumplirá en estos casos lo prescrito en el Real Decreto 396/2006 por el que se establecen las disposiciones mínimas de seguridad y salud aplicables a los trabajos con riesgo de exposición al amianto.

3.2.1. MOVIMIENTO DE TIERRAS

Excavaciones

En la realización de los trabajos de excavaciones se tendrán en cuenta las necesarias dotaciones y las normas de empleo obligatorio de los siguientes equipos de protección personal:

- Casco de seguridad no metálico (para todos los trabajos).
- Protectores auditivos de tipo orejeras (para todos los trabajos en que se manipule el martillo neumático sin silenciador en proximidad de equipos ruidosos).
- Gafas de montura tipo universal para la protección contra impactos, con protección en zona temporal con material transparente incoloro, equipado con oculares de protección (para los trabajos con martillo neumático tipo pistolete).
- Arnés o arnés de seguridad para los trabajadores que hayan de situarse en los bordes de zanjas profundas.
- Botas de seguridad contra riesgos mecánicos (para todo tipo de trabajos en ambiente seco).
- Bota de seguridad impermeable al agua y a la humedad (para todo tipo de trabajo húmedo).
- Guantes de cuero y lona contra riesgos mecánicos (para todo tipo de trabajo en la manipulación de materiales).
- Traje de agua (para protegerse de las inclemencias del tiempo).

Esta relación de equipos y prendas de protección personal se ampliará siempre que las condiciones de trabajo exijan otros elementos de protección no reseñados en este capítulo y siempre será imprescindible que dispongan del marcado CE. Su previsión de dotación y empleo efectivo en la obra se incluirá siempre en el plan de seguridad y salud.

Excavación por medios mecánicos

Antes de comenzar la excavación, la dirección técnica aprobará el replanteo realizado, así como los accesos propuestos por el contratista Éstos, que estarán indicados en el plan de seguridad y salud, permitirán ser cerrados, estando separados los destinados a los peatones de los correspondientes a vehículos de carga o máquinas. Las camillas de replanteo serán dobles en los extremos de las alineaciones y estarán separadas del borde del desmonte o vaciado no menos de 1 m.

En vaciados importantes, se dispondrán puntos fijos de referencia en lugares que no puedan ser afectados por el desmonte o vaciado, a los cuales se referirán todas las lecturas de cotas de nivel y desplazamientos horizontales y/o verticales de los puntos del terreno y/o edificaciones próximas señalados en la documentación técnica del proyecto y contemplados en el plan de seguridad y salud. Las lecturas diarias de los desplazamientos referidos a estos puntos se anotarán en un estadillo, para su supervisión por parte de la dirección técnica y por el coordinador de seguridad y salud de la obra.

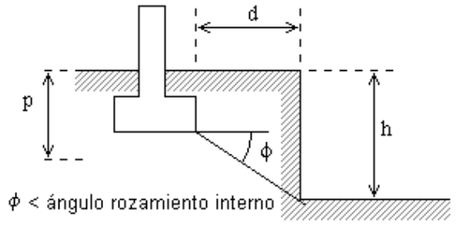
El orden y la forma de ejecución de las excavaciones, así como los medios a emplear en cada caso, se ajustarán a las prescripciones establecidas en este estudio, así como en la documentación técnica del resto del proyecto. El plan de seguridad y salud de la obra contemplará la previsión de sistemas y equipos de movimiento de tierras a utilizar, así como los medios auxiliares previstos y el esquema organizativo de los tajos a disponer.

El plan de seguridad y salud laboral de la obra contendrá, al menos, los puntos siguientes, referentes a las excavaciones:

- Orden y método de realización del trabajo: maquinaria y equipos a utilizar.
- Accesos a cada excavación: rampas de ancho mínimo 4,50 m con sobreancho en curva, pendiente máxima del 12% (8% en curvas) y tramos horizontales de incorporación a vías públicas de 6 m., al menos.
- Establecimiento de las zonas de estacionamiento, espera y maniobra de la maquinaria.
- Señalamiento de la persona a la que se asigna la dirección de las maniobras de excavación.
- Establecimiento de vallas móviles o banderolas a d=2h del borde del vaciado.
- Disponibilidad de información sobre conducciones eléctricas y de agua y gas bajo el terreno.
- Detección y solución de cursos naturales de agua superficiales o profundas.
- Existencia y, en su caso, soluciones de paso bajo líneas eléctricas aéreas.
- Existencia y situación de edificios próximos; profundidad y posible afección por la obra. Medidas a disponer: apeos, apuntalamientos de fachadas, testigos de movimientos de fisuras, etc.
- Previsión de apariciones de lentejones y restos de obras dentro de los límites de excavación.
- Previsión de acotaciones de zonas de acción de cada máquina en el vaciado.
- Colocación de topes de seguridad cuando sea necesario que una máquina se aproxime a los bordes de la excavación, tras la comprobación de la resistencia del terreno.
- Establecimiento, si se aprecia su conveniencia, de un rodapié alrededor del vaciado, para evitar que caigan objetos rodando a su interior.
- Previsión de eliminación de rocas, árboles o postes que puedan quedar descalzados o en situación de inestabilidad en la ladera que deba quedar por encima de zonas de desmonte.
- Previsión de riegos para evitar ambientes pulvígenos.

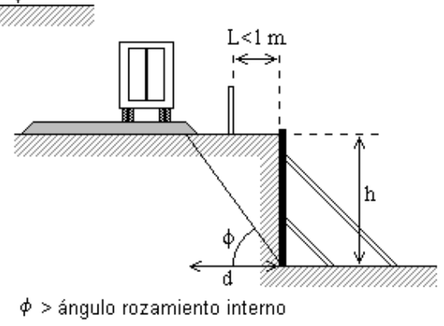
Asimismo, el plan de seguridad y salud laboral de la obra contendrá la definición de las medidas preventivas a adoptar cuando existan edificios próximos a las excavaciones, o sea preciso disponer cargas o circulación de máquinas o camiones en sus inmediaciones, concretamente:

- En excavaciones sin entibar, el ángulo formado por la horizontal y la línea que une el vértice inferior de la carga más próxima a la excavación, con el vértice inferior del mismo lado de ésta, será siempre inferior al ángulo de rozamiento interno de las tierras.
- En los casos en que las cargas o los cimientos de edificios cercanos estén más próximos a la excavación, ésta se entibará y protegerá específicamente.
- El plan de seguridad y salud establecerá, en su caso, la necesidad de apeos en todos los elementos que resulten afectados de los edificios próximos y, siempre, se colocarán testigos que permitan realizar el seguimiento de su estabilidad.



CONDICIÓN DE PROXIMIDAD DE CIMIENTOS A EXCAVACIÓN SIN ENTIBACIÓN ESPECÍFICA

EXCAVACIÓN CON ENTIBACIÓN ESPECÍFICA CALCULADA BAJO CARGA (OBLIGATORIO UTILIZAR MÓDULOS METÁLICOS O BLINDAJES EN ZANJAS)



El plan de seguridad y salud laboral de la obra analizará detalladamente el estudio de la estabilidad de los vaciados, comprobando la validez de sus previsiones y de las de este estudio, a la vista de las definiciones y circunstancias concretas que realmente se den en la obra, teniendo en cuenta las siguientes normas y condiciones previstas a nivel de proyecto:

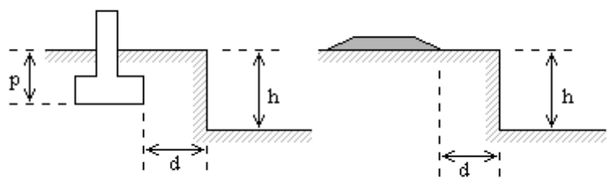
- Los taludes de inclinación igual o inferior a la especificada en la siguiente tabla para los diferentes tipos de terreno, sin estar sometidos a cargas, no precisarán ser entibadas.

TALUDES EN TERRENOS:	Vírgenes o muy compactados		Removidos recientemente	
	Secos	Con infiltraciones	Secos	Con infiltraciones
Roca dura	80º	80º	---	---
Roca blanda o fisurada	55º	55º	---	---
Restos pedregosos y derrubios	45º	40º	45º	40º
Tierra fuerte, mezcla de arenas y arcilla mezclada con piedra y tierra vegetal	45º	30º	35º	30º
Tierra arcillosa, arcilla marga	40º	20º	35º	20º
Grava, arena gruesa no arcillosa	35º	30º	35º	30º
Arena fina no arcillosa	30º	20º	30º	20º

- La entibación definida en el proyecto se considerará válida, salvo en casos de características variantes del terreno o cargas sobre el terreno diferentes de las previstas que, en caso de producirse, habrán de ser estudiadas y resueltas en el plan de seguridad y salud de la obra.
- Se considera necesario definir en este estudio de Seguridad y Salud la entibación a disponer en la excavación proyectada, con las siguientes características y tipos por alturas:
  - Zanja o vaciado en terreno coherente, sin solicitación, con h<2,00 m: entibación ligera.
  - Zanja o vaciado en terreno coherente, sin solicitación, con 2<h<2,50 m: entibación semicuajada.
  - Zanja o vaciado en terreno coherente, sin solicitación, con h>2,50 m: entibación cuajada.
  - Zanja o vaciado en terreno coherente, con carga de vial y h<2,00 m: entibación semicuajada.
  - Zanja o vaciado en terreno coherente, con carga de vial y h>2,00 m: entibación cuajada.
  - Pozo en terreno coherente, sin solicitación y h<2,00 m: entibación semicuajada.
  - Pozo en terreno coherente, sin solicitación y h>2,00 m: entibación cuajada.
  - Pozo en terreno coherente, con carga de vial y cualquier profundidad: entibación cuajada.
  - Zanja, pozo o vaciado en terreno coherente, con carga edificios: entibación cuajada.
  - Zanja, vaciado o pozo en terreno suelto, con cualquier altura y carga: entibación cuajada

Notas:

- Excavaciones sin carga, de h<1,30 m en terreno coherente no precisarán entibación.
- Se considerará corte sin solicitación de cimentación o vial, cuando h<(p+d/2) ó h<d/2, respectivamente.



Siempre que, al excavar, se encuentre alguna anomalía no prevista, como variación de la dirección y/o características de los estratos, cursos de aguas subterráneas, restos de construcciones, valores arqueológicos u otros, se parará la obra, al menos en ese tajo, y se comunicará a la dirección técnica y al coordinador de seguridad y salud.

Merece especial atención, en orden a su peligrosidad, el caso posible de alumbramiento de ingenios enterrados susceptibles de explosionar. En caso de descubrirse un ingenio susceptible de explosionar en la zona de obra, los trabajos deben ser inmediatamente interrumpidos y alejado del lugar el personal de obra y ajeno a la misma, que por su proximidad pudiera ser afectado. Si existen edificios colindantes, se avisará a los propietarios como medida de precaución del posible riesgo. Inmediatamente se comunicará tal hecho a las autoridades competentes para que precedan a desactivar o retirar dicho ingenio.

En relación con los servicios e instalaciones que puedan ser afectados por el desmonte o vaciado, se recabará de sus compañías propietarias o gestoras la definición de las posiciones y soluciones más adecuadas, así como la distancia de seguridad a adoptar en relación con los tendidos aéreos de conducción de energía eléctrica, sin perjuicio de las previsiones adoptadas en este estudio y en el correspondiente plan de seguridad y salud de la obra, que deberá ser actualizado, en su caso, de acuerdo con las decisiones adoptadas en el curso de la excavación.

Se evitará la entrada de aguas superficiales al desmonte o vaciado y se adoptarán las soluciones previstas en el proyecto o en este estudio para el saneamiento de las aguas profundas. En el supuesto de surgir la aparición de aguas profundas no previstas, se recabará la definición técnica complementaria a la dirección técnica y se comunicará al coordinador de seguridad y salud.

Los lentejones de roca que puedan aparecer durante el desmonte o vaciado y que puedan traspasar los límites del mismo, no se quitarán ni descalzarán sin la previa autorización de la dirección técnica y comunicación al coordinador de seguridad y salud de la obra.

De acuerdo con las características establecidas en el plan de seguridad y salud de la obra, la excavación en zona urbana estará rodeada de una valla, verja o muro de altura no menor de 2 m. Las vallas se situarán a una distancia del borde del desmonte o vaciado no inferior a 1,50 m; cuando éstas dificulten el paso, se dispondrán a lo largo del cerramiento luces rojas, distanciadas no más de 10 m y en las esquinas. Cuando entre el cerramiento y el borde del desmonte o vaciado exista separación suficiente, se acotará con vallas móviles o banderolas hasta una distancia no menor de dos veces la altura del desmonte o vaciado en ese borde, salvo que por haber realizado previamente estructura de contención, no sea necesario.

En tanto dure la excavación, cualquiera que sea su ubicación, se dispondrá en la obra de una provisión de palancas, cuñas, barras, puntales, picos, tablones, bridas, cables con terminales como gazas o ganchos y lonas o plásticos, así como cascos, equipo impermeable, botas de suela protegida u otros medios que puedan servir para eventualidades o socorrer a los operarios que puedan accidentarse, al objeto de proporcionar en cada caso el equipo indispensable a los trabajadores, en supuestos de necesidad. Las previsiones de equipos de protección y medios de seguridad y evacuación serán siempre contempladas en el plan de seguridad y salud.

La maquinaria a utilizar mantendrá la distancia de seguridad a las líneas de conducción eléctrica o, en caso de ser preciso, se establecerán las protecciones, topes o dispositivos adecuados, de acuerdo con las previsiones efectuadas en el plan de seguridad y salud, respetando los mínimos establecidos en este estudio.

En caso de disponerse de instalaciones temporales de energía eléctrica, a la llegada de los conductores de acometida se dispondrá un interruptor diferencial según el Reglamento Electrotécnico para Baja Tensión y se consultará la NTE IEP: Instalaciones de Electricidad. Puesta a Tierra, siempre de acuerdo con lo previsto en el plan de seguridad y salud de la obra.

De acuerdo con las previsiones del plan de seguridad y salud o, en su caso, de las actualizaciones precisas del mismo, se acotará la zona de acción de cada máquina en su tajo. Siempre que un vehículo o máquina parada inicie un movimiento imprevisto, lo anunciará con una señal acústica, cuya instalación es obligada y será comprobada al inicio de la obra. Cuando el movimiento sea marcha atrás o el conductor esté falto de visibilidad, éste estará auxiliado por otro operario en el

exterior del vehículo. Se extremarán estas precauciones cuando el vehículo o máquina cambie de tajo y/o se entrecrucen itinerarios.

Cuando sea imprescindible que un vehículo de carga durante o después del desmonte o vaciado se acerque al borde del mismo, se dispondrán topes de seguridad, comprobándose previamente la resistencia del terreno al peso del vehículo, todo ello acorde con lo previsto en el plan de seguridad y salud. Cuando la máquina esté situada por encima de la zona a excavar o en bordes de desmontes o vaciados, siempre que el terreno lo permita, será de tipo retroexcavadora o se hará el refino a mano.

Antes de iniciar el trabajo, se verificarán diariamente los controles y niveles de vehículos y máquinas a utilizar y, antes de abandonarlos, que el bloqueo de seguridad ha sido puesto.

Quedará terminantemente prohibida en la obra la excavación del terreno a tumbo, socavando el pie de un macizo para producir su vuelco. No se permitirán acumulaciones de tierras de excavación, ni de otros materiales, junto al borde del vaciado, debiendo estar separadas de éste una distancia no menor de dos veces la profundidad del desmonte o vaciado en ese borde, salvo autorización, en cada caso, de la dirección técnica y del coordinador de seguridad y salud.

Se evitará la formación de polvo mediante el riego de los tajos y, en todo caso, los trabajadores estarán protegidos contra ambientes pulvígenos y emanaciones de gases, mediante las protecciones previstas en el plan de seguridad y salud.

El refino y saneo de las paredes del desmonte o vaciado se realizará para cada profundidad parcial no superior a 3 m, adoptándose las protecciones que vengan previstas en el plan de seguridad y salud.

En zonas y pasos con riesgo de caída a altura mayor de 2 m, el trabajador afectado estará protegido con arnés de seguridad anclado a puntos fijos o se dispondrán andamios o barandillas provisionales, de acuerdo con lo que establezca el plan de seguridad y salud.

Cuando sea imprescindible la circulación de operarios por el borde de coronación de un talud o corte vertical, las barandillas estarán ancladas hacia el exterior del desmonte o vaciado y los trabajadores circularán siempre sobre entablado de madera o superficies equivalentes de reparto. Todas estas medidas y su dimensionado serán establecidos en el plan de seguridad y salud aprobado para la obra. El conjunto del desmonte o vaciado estará suficientemente iluminado mientras se realicen los trabajos en condiciones de escasa visibilidad natural.

No se trabajará nunca de manera simultánea en la parte inferior o bajo la vertical de otro trabajo en curso.

Diariamente, y antes de comenzar los trabajos, se revisará el estado de las entibaciones, reforzándolas adecuadamente, si fuese necesario. Se comprobará sistemáticamente, asimismo, que no se observan asientos apreciables en las construcciones próximas, ni presentan grietas en las mismas. Se extremarán las medidas anteriores después de interrupciones de trabajo de más de un día y siempre después de alteraciones climáticas, como lluvias o heladas.

Siempre que, por circunstancias imprevistas, se presente un problema de urgencia, el jefe de obra tomará provisionalmente las medidas oportunas a juicio del mismo y se lo comunicará, lo antes posible, a la dirección técnica y al coordinador de seguridad y salud de la obra.

Al finalizar la jornada no deben nunca quedar paños excavados sin entibar, que figuren con esta circunstancia en el proyecto o en el plan de seguridad y salud, y se suprimirán siempre los bloques sueltos que puedan desprenderse.

Los itinerarios de evacuación de trabajadores en caso de emergencia, deberán estar expeditos en todo momento, de acuerdo con las previsiones contenidas en el plan de seguridad y salud.

En tanto se efectúe la consolidación definitiva de las paredes y del fondo de la excavación, se conservarán las contenciones, apuntalamientos y apeos realizados para la sujeción de las construcciones y/o terrenos adyacentes, así como las vallas y cerramientos. En el fondo del desmonte o vaciado se mantendrán los desagües necesarios para impedir acumulaciones de agua que puedan perjudicar a los terrenos, locales o cimentaciones de fincas colindantes.

Se cumplirán, además, todas las medidas previstas en el plan de seguridad y salud y cuantas disposiciones se adopten por la dirección técnica y por el coordinador de seguridad y salud en su aplicación y actualización, en su caso.

3.2.2. ESTRUCTURAS Y OBRAS DE FÁBRICA

3.2.2.1. MEDIDAS GENERALES

Cuando se inician los trabajos de estructuras o de obras de fábrica, la obra comienza una fase de pleno rendimiento y, por tanto, ya se habrán resuelto el acceso a los distintos tajos, los servicios afectados estarán desmantelados, los riesgos a terceros estarán protegidos, todas las protecciones personales y colectivas estarán en obra y habrán sido revisadas y las instalaciones de higiene contarán con suficiente capacidad para acometer esta nueva fase.

En esta etapa de obra es importante que exista una brigada de seguridad, que diariamente, al inicio de los trabajos, revise todas las protecciones colectivas, reponiendo o reparando las que se encuentren deterioradas. Es importante que, cuando se haga entrega de los equipos de protección personal a los trabajadores, se les entreguen también unas normas de actuación durante su estancia en la obra, en el sentido de la obligatoriedad de uso de las protecciones personales, que respeten las protecciones colectivas, etc.

3.2.2.2. PROTECCIONES COLECTIVAS

Las protecciones colectivas más significativas que habrán de disponerse son:

- Cuadros eléctricos con protección diferencial.
- Señalización de obra.
- Iluminación.
- Señalización de gálibo.
- Plataformas de trabajo adecuadas.
- Barandillas, rodapiés y otros elementos de protección de caídas

El plan de seguridad y salud establecerá todas las protecciones colectivas para cada uno de los tajos de estructuras, en función de sus características concretas y de los riesgos identificados en cada caso.

3.2.2.3. MAQUINARIA DE ELEVACIÓN

Para evitar desplazamientos imprevistos de las cargas es imprescindible que las grúas se encuentren bien calzadas y asentadas. Deben realizarse todas las revisiones previstas en el libro de mantenimiento y en las fechas programadas. No se realizarán en obra reparaciones de las plumas o de las estructuras de celosía de las grúas.

Las maniobras de izado deben comenzar lentamente para tensar los cables antes de la elevación. Nunca se manejarán cargas superiores a las capacidades de carga de las grúas. El cable se mantendrá siempre en posición vertical estando prohibido dar tiros sesgados.

Se darán instrucciones a los trabajadores para que no permanezcan debajo de cargas suspendidas y a los maquinistas para que no pasen cargas por encima de los operarios. El señalista será el único operario que dé instrucciones al maquinista. Sólo se levantarán cargas entre dos grúas cuando sea imprescindible y siempre las operaciones se dirigirán por medio de un operario de probada capacidad.

3.2.2.4. CIMENTACIONES SUPERFICIALES

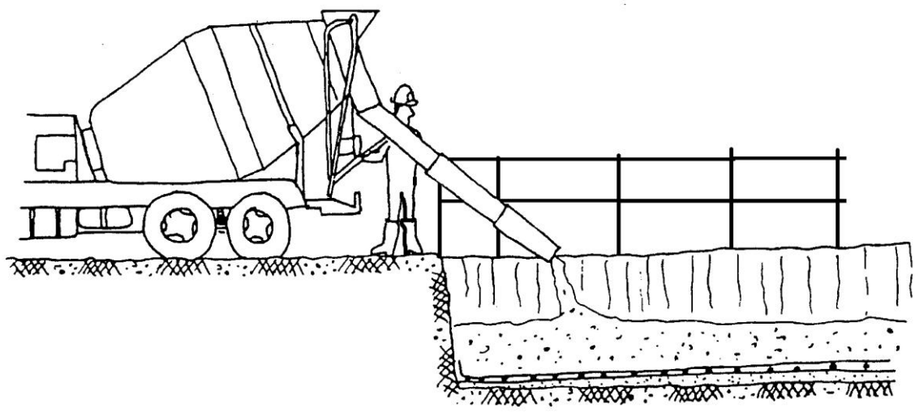
En las cimentaciones superficiales, independientemente de los riesgos derivados del vaciado, deberá preverse en primer lugar un acceso adecuado al fondo de la excavación mediante escaleras de mano. Éstas deberán tener zapatas antideslizantes y estarán ancladas al terreno por medio de una estaca de madera embutida en el terreno y alambre. Los principales riesgos durante esta fase son las caídas a distinto nivel y los derivados de la manipulación de la ferralla y la puesta en obra del hormigón.

En principio la excavación de la cimentación debe permanecer sin hormigonar el menor tiempo posible, siendo preferible que el proceso de excavación, ferrallado y hormigonado sea continuo, o que se realice en el mismo día. Si se excava y se hormigona en el día, si no existe un gran tránsito de obra

en las proximidades de la cimentación o si la altura de caída es menor de dos metros, en principio, será suficiente señalizar la excavación con cinta de plástico bicolor sustentada por redondos verticales embutidos en el terreno. En el caso de que la excavación deba permanecer más de un día abierta o la altura de caída sea mayor de dos metros, deberá protegerse con una barandilla resistente de 90 cm. de altura formada por pasamanos, listón intermedio y rodapié. Dicha barandilla puede construirse por redondos verticales embutidos en el terreno y redondos horizontales. También podría realizarse con tablones de madera. En este último caso no deberán situarse demasiado próximos al borde de la excavación para evitar derrumbamientos.

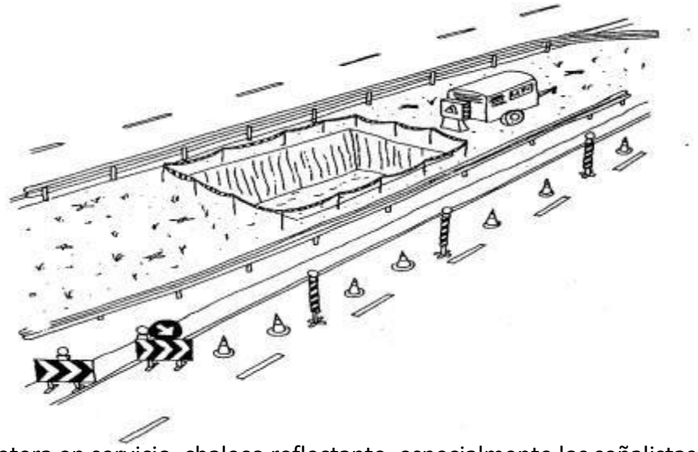
Los riesgos derivados de la manipulación de la ferralla y el hormigón se protegen utilizando los equipos de protección personal adecuados, es decir, casco, mono, botas y guantes. Los camiones de transporte del hormigón deben situarse perpendiculares a la excavación, con objeto de que transmitan las menores cargas dinámicas posibles al corte del terreno.

Además, la instalación eléctrica debe cumplir la normativa vigente teniendo puesta a tierra y protección diferencial.



Si la cimentación se realiza en las proximidades de una vía en servicio, por ejemplo en la mediana de una autovía, la señalización, balizamiento y defensa cumplirá todo lo que se especifica en la Norma 8.3-IC, publicada por el Ministerio de Fomento. En este último caso es imprescindible la colocación de una valla bionda de protección, que se dejará hasta la completa finalización del paso elevado y que servirá de protección, tanto para la unidad de obra como para los medios auxiliares y trabajadores.

Se comprobará que el tráfico, en especial el pesado, no sobrecarga la cabeza de la excavación; en caso de sobrecarga excesiva será necesario realizar un estrechamiento de los carriles correspondientes.



Todo detección a los usuarios de la carretera en servicio, chaleco reflectante, especialmente los señalistas.

3.2.2.5. CIMENTACIONES PROFUNDAS

En la ejecución de pilotes para la cimentación de estructuras u otros elementos, será necesario observar las siguientes normas mínimas, en tanto no sean especificadas otras más concretas en el plan de seguridad y salud:

- Antes de comenzar la ejecución de los pilotes debe comprobarse que no existe ninguna conducción, ni aérea ni enterrada, que pueda ser afectada por los trabajos.
- Todo el personal implicado será especialista en las tareas que haya de realizar.
- Las operaciones de carga y descarga sobre camión de la máquina pilotadora se realizarán en lugares concretos, áreas compactadas, en prevención de los riesgos de vuelco por asiento o desequilibrio.

- Debe planificarse la zona de elaboración de la ferralla y acopio de materiales (camisas metálicas, trépano, morsa, tolva, tubos, etc.) de forma que no interrumpan o dificulten el paso de vehículos o máquinas ni el trabajo normal.

- La boca de una excavación de pilote, cuando no se esté trabajando en ella, debe quedar señalizada y protegida contra posibles caídas o accidentes. En el caso de tratarse de pilotes encamisados, durante las maniobras de acople o desacople de las camisas metálicas, se atenderá al riesgo de caída de los operarios mediante alguno o varios de los métodos siguientes:

  - Sujeción de los trabajadores con arnés de seguridad.

  - Dejar la camisa que queda embutida en el terreno con más de 90 cm sobresaliendo del mismo para facilitar las labores y evitar caídas.

  - Establecimiento de plataformas adecuadas de trabajo.

- Estará prohibido descender a la excavación de un pilote a través de la ferralla o por cualquier otro medio, por representar un riesgo muy elevado de accidente grave. Para evitar este riesgo, la ferralla estará totalmente terminada antes de su colocación, no debiendo requerir ningún trabajo posterior.

- Comprobar los enganches de cualquier pieza (armadura o encofrado) antes de comenzar su izado. Así mismo, se dispondrán los medios adecuados para evitar los tiros oblícuos.

- Estará prohibido permanecer bajo cargas suspendidas, acotándose las zonas habituales de paso de las mismas.

- La maniobra de colocación de la ferralla será dirigida por una sola persona. Esta persona procederá a la corrección y aplomado de la jaula de ferralla, siendo necesario que otras 2 personas guíen la jaula mediante sogas, evitándose los movimientos bruscos o pendulares de la misma. El operario que aplome la jaula deberá utilizar arnés de seguridad anclado a punto fijo.

- Todos los restos de ferralla deberán retirarse fuera de la zona de paso y trabajo. Deberá prestarse especial atención a los restos de mortero y hormigón por las posibles caídas por deslizamiento.

- La maniobra marcha atrás del camión hormigonera deberá ser dirigida por un trabajador dedicado expresamente a ello.

- Para el hormigonado del fondo del pilote se dispondrán los medios precisos para evitar la segregación del hormigón vertido. Estos medios pueden consistir en tubos que llegan al fondo del pilote en los que vierte la hormigonera a través de un embudo superior. Para el montado y desmontado de estos tubos, los operarios se exponen a un riesgo muy alto de caída al interior del pilote y para evitar este riesgo deben seguirse las siguientes precauciones:

  - Se prohibirá terminantemente a los trabajadores subirse a la camisa metálica del pilote para realizar estas labores.

  - Los operarios habrán de ir sujetos convenientemente mediante un arnés de seguridad.

- Una vez hormigonado el pilote, las esperas quedarán señalizadas y protegidas mediante tapones de plástico de color vivo.

- Para la destroza de la cabeza del pilote se avisará a todos los operarios cercanos de que tomen las precauciones frente a la proyección de partículas del hormigón sobre cabeza, cara y ojos, principalmente.

Tableros metálicos o mixtos

Los principales riesgos específicos de este tipo de tablero van asociados al izado y soldadura de elementos. Para obtener la pieza en el taller, deberán adoptarse todas las precauciones para la protección de los trabajadores contra contactos eléctricos, quemaduras, caídas, etc., según las condiciones específicas del taller. Estas precauciones y medidas a adoptar en los talleres, deberán

figurar específicamente en el plan de seguridad y salud, siempre y cuando dicho taller se sitúe en la obra y funcione exclusivamente para la obra en cuestión, sin otras funciones ajenas a ésta, pues en caso contrario esta actividad se debería segregar de la propia obra como actividad ajena y mero proveedor de la obra.

Para la **soldadura** de las piezas se adoptarán las siguientes precauciones:

- Se realizarán revisiones periódicas que aseguren el buen estado del cable de alimentación.
- Los bornes se aislarán adecuadamente.
- Existirán toma a tierra y disyuntor diferencial.
- Los cables tendrán el aislamiento en buen estado.
- Habrá un limitador de tensión de vacío.
- Se separarán los puestos de trabajo para proteger a otros operarios de radiaciones y caída de chispas.
- Para proteger el cuerpo del operario frente a quemaduras se emplearán mandiles, botas, guantes, casco y mono de trabajo.
- Para proteger específicamente los ojos del operario se utilizarán pantallas de mano o de cabeza, con cristal inactínico de características adecuadas y acreditadas.

Antes de iniciar el transporte de las piezas, es necesario un estudio del itinerario a seguir, considerando alturas de gálibos, anchos de carriles, cargas sobre estructuras, etc. Para el izado de las piezas, se adoptarán idénticas precauciones que las tomadas en piezas prefabricadas, es decir, el eslingaje y la colocación de las vigas se realizará siguiendo las instrucciones del fabricante (las cuales habrán de constar explícitamente en el plan de seguridad y salud) y mediante grúas de suficiente capacidad. Se revisará la estabilidad de las grúas, sus bases de apoyo, así como el estado de las eslingas, antes del inicio de las maniobras.

Los accesos a las vigas, si no pueden realizarse desde los estribos, se realizarán por medio de escaleras de mano o escaleras de tiros y mesetas en función de la altura. Si se trata de un tablero mixto con losa superior de hormigón, la propia placa de encofrado perdido debe llevar unas perforaciones para poder colocar unos redondos verticales sobre los que instalar la barandilla. La altura de estos redondos debe calcularse teniendo en cuenta el canto del tablero de forma que tengan 90 cm. respecto del nivel de tablero hormigonado.

3.2.2.6. ACABADOS

Hasta que no comiencen los trabajos de acabado, los accesos a la estructura deben permanecer clausurados mediante señalización y balizamiento acordes a este fin.

Las plataformas de trabajo perimetrales se retirarán lo más tarde posible. Cualquier trabajo que se realice hasta que se coloque la barandilla definitiva se realizará con arnés de seguridad. Si la imposta se construye *in situ,* cuando el puente sea sobre vigas, se mantendrá la plataforma que se adosó durante el hormigonado. Si el puente es una losa, el propio encofrado deberá llevar las plataformas de trabajo.

Cuando la imposta sea prefabricada, en las estructuras sobre vigas, se mantendrá la plataforma de trabajo; si el puente es una losa, probablemente no quede otra alternativa que utilizar el arnés de seguridad. No obstante cuando la imposta sea prefabricada, es preferible que lleve incorporada la barandilla definitiva.

En el resto de trabajos de acabados como barandillas, iluminación, etc., todos los trabajos con riesgo de caída de altura deben protegerse, bien por las barandillas definitivas, bien con arnés de seguridad. En todos estos trabajos de acabado se utilizarán siempre las protecciones personales necesarias, así como los medios auxiliares adecuados, estando unas y otros correctamente definidos en el plan de seguridad y salud.

3.2.3. FIRMES Y PAVIMENTOS

La prevención de accidentes en los trabajos de afirmado y pavimentación se concreta, mayoritariamente, en la adopción y vigilancia de requisitos y medidas preventivas relativas a la

maquinaria de extendido y compactación, tanto intrínsecos a los diversos elementos de las máquinas como a la circulación de éstas a lo largo del tajo. Junto a ellos, los riesgos de exposición a ambientes pulvígenos y a humos y vapores de los productos bituminosos, así como las altas temperaturas del aglomerado en caliente, definen la necesidad de empleo de equipos de protección individual así como de organización y señalización adecuadas de los trabajos.

3.2.3.1. PUESTA EN OBRA DE CAPA DE FIRME BITUMINOSO

La puesta en obra de capas bituminosas es una actividad fundamental en la ejecución de una carretera. Esta puesta en obra incluye el extendido y compactación de la mezcla en caliente. Así, deben observarse las siguientes normas mínimas, sin perjuicio de la obligación de que deban ser desarrolladas y concretadas en el preceptivo plan de seguridad y salud:

Los vehículos y maquinaria utilizados serán revisados antes del comienzo de la obra y durante el desarrollo de la misma se llevarán a cabo revisiones periódicas, a fin de garantizar su buen estado de funcionamiento y seguridad.

No se sobrepasará la carga especificada para cada vehículo.

Se regarán los tajos convenientemente y con la frecuencia necesaria para evitar la formación de ambiente pulvígeno.

En cuanto a los riesgos derivados de la utilización de maquinaria, serán de aplicación las directrices establecidas en los apartados correspondientes a movimiento de tierras y excavaciones, pues los riesgos derivados de la circulación de maquinaria pesada son idénticos en ambos casos.

Si en esta fase de obra aún hubiera interferencias con líneas eléctricas aéreas, se tomarán las precauciones necesarias, cumpliendo al respecto la normativa especificada para este tipo de servicios afectados en el presente estudio de seguridad y salud.

Se mantendrá en todo momento la señalización viaria establecida para el desvío de caminos y carreteras.

Durante la ejecución de esta fase de obra será obligatorio el mantenimiento de las protecciones precisas en cuantos desniveles o zonas de riesgo existan.

No se permitirá la presencia sobre la extendedora en marcha de ninguna otra persona que no sea el conductor, para evitar accidentes por caída.

Las maniobras de aproximación y vertido de producto desde camión estarán dirigida por un especialista, en previsión de riesgos por impericia, como atropellos, choques y aplastamientos contra la extendedora.

Para el extendido de aglomerado con extendedora, el personal auxiliar de estas maniobras utilizará única y exclusivamente las plataformas de las que dicha máquina dispone y se mantendrán en perfecto estado las barandillas y protecciones que impiden el contacto con el tornillo sin fin de reparto de aglomerado.

Durante las operaciones de llenado de la tolva, en prevención de riesgos de atrapamiento y atropello, el resto de personal quedará situado en la cuneta o en zona de la calzada que no sea pavimentada en ese momento, por delante de la máquina,

Los bordes laterales de la extendedora, en prevención de atrapamientos, estarán señalizados con bandas pintadas en colores negro y amarillo alternativamente.

Se prohibirá expresamente el acceso de personal a la regla vibrante durante las operaciones de extendido de aglomerado.

Sobre la máquina, junto a los lugares de paso y en aquéllos con riesgo específico se adherirán las siguientes señales:

- “Peligro, substancias calientes"
- “No tocar, alta temperatura"

Se vigilará sistemáticamente la existencia de extintores de incendios adecuados a bordo de la máquina, así como el estado de éstos, de forma que su funcionamiento quede garantizado.

Durante la ejecución y enlosado de aceras se mantendrán las zonas de trabajo en perfecto estado de limpieza.

El personal de extendido y los operadores de la extendedora y de las máquinas de compactación irán provistos de mono de trabajo, guantes, botas de seguridad y faja antivibratoria, así como polainas y peto cuando puedan recibir proyecciones o vertidos de aglomerado en caliente, con independencia de los equipos de protección individual de uso general en la obra.

A efectos de evitar deshidrataciones, dado que estas actividades suelen desarrollarse en tiempo caluroso y son necesarias las prendas de protección adecuadas a las temperaturas de puesta en obra (superiores a los 100 ºC), habrá que disponer en el tajo de medios para suministrar bebidas frescas no alcohólicas. Del mismo modo, será obligatorio el uso de gorras u otras prendas similares para paliar las sobreexposiciones solares.

En los trabajos de extensión de aglomerado en locales cerrados o en condiciones de escasa ventilación natural, como los túneles, será obligatoria la utilización de filtros protectores de las vías respiratorias por parte de todo el personal ocupado en el extendido y en la compactación de las mezclas en caliente.

3.2.4. SERVICIOS AFECTADOS

En las obras de carreteras, tanto de nueva construcción como en acondicionamientos de trazado o trabajos de conservación y rehabilitación, la propia obra puede interferir con múltiples servicios, que pueden ser conocidos a priori, como ocurre siempre con las líneas aéreas de energía eléctrica o las acequias de riego, pero también pueden permanecer ocultos, incluso a pesar de tener noticias sobre su existencia.

Las actividades que pueden interferir con los citados servicios pueden ser todas las desarrolladas en la obra, pero presentan especial peligrosidad las de excavación, tanto de desmontes, en general, como las zanjas, pozos, galerías o túneles, a causa del frecuente desconocimiento exacto de la ubicación e incluso existencia de los servicios. Aún siendo elementos perfectamente conocidos, las líneas aéreas de energía eléctrica provocan innumerables accidentes laborales en las obras y siempre con terribles consecuencias. Por esto, no es posible reducir el presente estudio a los servicios afectados únicamente a las excavaciones.

Antes de empezar a excavar, se deberán conocer los servicios públicos subterráneos que puedan atravesar la traza, tales como agua, gas, electricidad, saneamiento, etc. Conocidos estos servicios, es preciso conectar con los departamentos a los que pertenecen y proceder en consecuencia.

Los servicios afectados de cuya existencia tengamos noticias habrán de ser correctamente ubicados y señalizados, desviándose los mismos, si ello es posible; pero en aquellas ocasiones en que sea necesario trabajar sin dejar de dar determinado servicio, se adoptarán las siguientes medidas preventivas, entre otras que puedan ser dispuestas en el plan de seguridad y salud y aceptadas por el coordinador y por el director de la obra.

En la realización de los trabajos se tendrán en cuenta las necesarias dotaciones y las normas de empleo obligatorio de los siguientes *equipos de protección personal*:

- Casco de seguridad no metálico (para todos los trabajos).
- Botas de seguridad contra riesgos mecánicos (para todo tipo de trabajos en ambiente seco).
- Bota de seguridad impermeable al agua y a la humedad (para todo tipo de trabajo húmedo).
- Guantes de cuero y lona contra riesgos mecánicos (para todo tipo de trabajo en la manipulación de materiales).
- Traje de agua (para protegerse de las inclemencias del tiempo).
- Chaleco homologado de color claro, amarillo o naranja, provisto de tiras de tejido reflectante (para todos los trabajos en vías con circulación o en sus proximidades).
- Los elementos específicos que se indican para cada una de las actividades siguientes.

3.2.4.1. CONDUCCIONES SUBTERRÁNEAS DE AGUA

Cuando deban realizarse trabajos sobre conducciones de agua, tanto de abastecimiento como de saneamiento, se tomarán las medidas precisas que eviten que accidentalmente se dañen estas

tuberías y, en consecuencia, se suprima el servicio. En caso de no estar disponibles los planos de los servicios afectados, se solicitarán a los Organismos encargados, a fin de poder conocer exactamente el trazado y profundidad de la conducción. Una vez localizada la tubería, se procederá a señalizarla, marcando con piquetas su dirección y profundidad y adoptando las siguientes normas básicas:

No deben realizarse excavaciones con máquina a distancias inferiores a 0.50 m de la tubería en servicio. Por debajo de esta cota se utilizará la pala manual.

Una vez descubierta la tubería, en el caso de que la profundidad de la excavación sea superior a la situación de la conducción, se suspenderá dicha excavación y se apuntalará la tubería, a fin de que no rompa por flexión en tramos de excesiva longitud, y se protegerá y señalizará convenientemente para evitar que sea dañada por maquinaria o herramientas.

Se instalarán sistemas de señalización e iluminación a base de balizas, hitos reflectantes, etc., cuando el caso lo requiera, a juicio de la jefatura de obra y del coordinador de seguridad y salud.

Estará totalmente prohibido manipular válvulas o cualquier otro elemento de la conducción en servicio, si no es con la autorización de la Compañía Instaladora.

No se almacenará ni adosará ningún tipo de material sobre la conducción.

En casos de roturas o fugas en la canalización, se comunicará tal circunstancia, inmediatamente, a la compañía propietaria o instaladora y se paralizarán los trabajos hasta que la conducción haya sido reparada. Se tendrá especial cuidado de desalojar aquellos lugares que se vean amenazados por corrimientos de tierras o hundimientos inducidos por la presión o humedad derivadas de la fuga. Del mismo modo, se atenderán con celeridad las posibles afecciones a vías públicas o privadas derivadas del encharcamiento y/o hundimiento.

3.2.4.2. INTERFERENCIA CON VÍAS EN SERVICIO

De acuerdo con el nivel de interferencia de los trabajos con la calzada en servicio, el plan de seguridad y salud definirá detalladamente las medidas de balizamiento y señalización para el tráfico rodado, así como las zonas de paso y barandillas o barreras precisas para los peatones. El esquema mínimo de señalización, en los casos que nos ocupan, se incluye en los Planos. Las señales y elementos de balizamiento a utilizar cumplirán las normas recogidas en el Pliego de Condiciones y, en particular, respecto de su disposición, la **Norma 8.3 de la Instrucción de Carreteras del Ministerio de Fomento**.

Retirada y reposición elementos señalización, balizamiento y defensa

Al retirar la señalización vertical y los elementos de balizamiento, se procederá en el orden inverso al de su colocación, es decir, de la forma siguiente:

Primero se retirarán todas las señales de delimitación de la zona de obras, cargándolas en un vehículo de obra, que estará estacionado en el arcén derecho, si la zona de obras está en el carril de marcha normal.

Una vez retiradas estas señales, se procederá a retirar las de desviación del tráfico, con lo que la calzada quedará libre. Se desplazarán a continuación las señales de preaviso al extremo del arcén o mediana, de forma que no sean visibles para el tráfico, de donde serán recogidas por un vehículo. Deberán tomarse las mismas precauciones que en el caso de la colocación de las mismas, permaneciendo siempre el operario en la parte de la calzada aislada al tráfico.

Siempre en la ejecución de una operación hubiera que ocupar parcialmente el carril de marcha normal, se colocará previamente la señalización prevista en el caso de trabajos en este carril ocupándolo en su totalidad, evitando dejar libre al tráfico un carril de anchura superior a las que establezcan las marcas viales, ya que podría inducir a algunos usuarios a eventuales maniobras de adelantamiento.

Al finalizar los trabajos se retirarán todos los materiales dejando la zona limpia y libre de obstáculos que pudieran representar algún peligro para el tráfico.

Se señalizarán suficientemente la presencia de todo el personal que esté operando, evitándose la presencia en su área de influencia de personas ajenas a esta operación.

Para eliminar las marcas viales de la calzada se seguirán las mismas precauciones y procedimientos que para el premarcaje y pintado de las marcas viales provisionales, es decir:

- Los operarios que componen los equipos deben de ser especialistas y conocedores de los procedimientos, por el riesgo de trabajos con tráfico de vehículos.
- Para realizar el premarcaje y pintado de la carretera se utilizarán monos de color blanco o amarillo con elementos reflectantes. Se utilizarán mascarillas para afecciones por los vapores de la pintura.
- En el caso de producirse interferencia con el tráfico, no se empezarán los trabajos sin haber estudiado la señalización adecuada a utilizar y sin que se haya producido la colocación correcta de la misma.
- La pintura debe estar envasada. Para su consumo se trasvasará al depósito de la máquina, con protección respiratoria. Sólo se tendrán en el camión las latas para la consumición del día.
- Se evitará fumar o encender cerillas y mecheros durante la manipulación de las pinturas y el extendido de las mismas.
- Se prohibirá realizar trabajos de soldadura y oxicorte en lugares próximos a los tajos en los que se empleen pinturas inflamables para evitar el riesgo de explosión o de incendio.

Medidas de señalización obligatorias

No se utilizarán señales que contengan mensajes escritos del tipo "PELIGRO OBRAS", "DESVIO A 250 M" o "TRAMO EN OBRAS, DISCULPE LAS MOLESTIAS". Se procederá siempre a colocar la señalización reglamentaria que indique cada situación concreta y así definida, ya en el proyecto, ya en el plan de seguridad y salud. Las señales con mensajes como los indicados anteriormente serán sustituidas por las señales de peligro (TP-18) y de indicación (TS-60, TS-61 o TS-62).

Las zonas de trabajo deberán siempre quedar delimitadas en toda su longitud y anchura mediante conos situados a no más de 5 ó 10 m de distancia uno de otro, según los casos. Los extremos de dichas zonas deberán, a su vez, señalarse con paneles direccionales reglamentarios, situados como barreras en la parte de calzada ocupada por las obras.

Cuando sea necesario limitar la velocidad, es conveniente completar la señalización con otros medios, como puede ser el estrechamiento de los carriles o realizar con el debido balizamiento, sinuosidades en el trazado u otros medios. Solamente en casos excepcionales se utilizarán resaltos transversales para limitar la velocidad, colocando la señal indicativa de dicho peligro. La limitación progresiva de la velocidad se hará en escalones máximos de 30 Km/h desde la velocidad normal permitida hasta la máxima autorizada por las obras.

Los paneles direccionales TB-1, TB-2, TB-3 y TB-4 se colocarán perpendiculares a la visual del conductor y nunca sesgados respecto de su trayectoria. Si la situación hiciera necesario mantener dichos paneles direccionales en horas nocturnas o de reducida visibilidad (niebla, lluvia intensa o por estar en un túnel) se complementarán con luminosos intermitentes situados sobre la esquina superior del panel más próximo a la circulación.

Se considerará la conveniencia de establecer barreras de seguridad en el borde longitudinal de la zona de obras, en función de la gravedad de las consecuencias de la invasión de ésta por algún vehículo, especialmente si la IMD rebasase los 7.000 vehículos.

Todos los operarios que realicen trabajos próximos a carreteras con circulación, deberán llevar en todo momento un chaleco de color claro, amarillo o naranja, provisto de tiras de tejido reflectante, de modo que puedan ser percibidos a distancia lo más claramente posible ante cualquier situación atmosférica. Si fuera necesario llevarán una bandera roja para resaltar su presencia y avisar a los conductores.

Cuando un vehículo o maquinaria de la obra se encuentre parado en la zona de trabajo, cualquier operación de entrada o salida de trabajadores, carga o descarga de materiales, apertura de portezuelas, maniobras de vehículos y maquinaria, volcado de cajas basculantes, etc., deberá realizarse exclusivamente en el interior de la demarcación de la zona de trabajo, evitando toda posible ocupación de la parte de la calzada abierta al tráfico.

No se realizarán maniobras de retroceso, si no es en el interior de las zonas de trabajo debidamente señalizadas y delimitadas. Estas maniobras se realizarán siempre con la ayuda de un trabajador que, además de estar provisto de chaleco con cintas reflectantes, utilizará una bandera roja para indicar anticipadamente la maniobra a los vehículos que se acerquen.

Todas las maniobras citadas anteriormente que requieran señalización manual, deberán realizarse a una distancia de, por lo menos, 100 m de la zona en la que se realiza la maniobra, que puede complementarse con otros señalistas que, provistos de chaleco con cintas reflectantes y bandera roja, se situarán en todos los puntos donde puedan surgir interferencias entre los vehículos que circulan por la parte de la calzada abierta al tráfico y el equipo de construcción.

Personal formado y adecuadamente preparado para estas misiones controlará la posición de las señales, realizando su debida colocación en posición cuando las mismas resulten abatidas o desplazadas por la acción del viento o de los vehículos que circulan.

En la colocación de las señales que advierten la proximidad de un tramo en obras o zona donde deba desviarse el tráfico, se empezará con aquellas que tengan que ir situadas en el punto más alejado del emplazamiento de dicha zona y se irá avanzando progresivamente según el sentido de marcha del tráfico. Cuando dicha zona sea el carril de marcha normal, el vehículo con las señales avanzará por el arcén derecho y se irá colocando la señalización según la secuencia del tramo en obras.

Al colocar las señales de limitación de la zona de obras, tales como conos, paneles y otras, el operario deberá proceder de forma que permanezca siempre en el interior de la zona delimitada.

Al retirar la señalización, se procederá en el orden inverso al de su colocación. Primero se retirarán todas las señales de delimitación de la zona de obras, cargándolas en el vehículo de obras que estará estacionado en el arcén derecho, si la zona de obras está en el carril de marcha normal. Una vez retiradas estas señales, se procederá a retirar las de desviación del tráfico (sentido obligatorio, paneles direccionales, señales indicativas de desvío, etc.), con lo que la calzada quedará libre. Se desplazarán a continuación las señales de preaviso al extremo del arcén o mediana, de forma que no sean visibles para el tráfico, de donde serán recogidas posteriormente por un vehículo. Deberán tomarse las mismas precauciones que en el caso anterior, permaneciendo el operario siempre en la parte de la calzada aislada del tráfico.

El personal que esté encargado de realizar trabajos topográficos próximos a vías con circulación utilizará siempre chalecos reflectantes y se dispondrá señalización que informe de su presencia en la calzada.

En un mismo poste no podrán ponerse más de una señal reglamentaria. Como excepción las señales combinadas de “dirección prohibida” y “dirección obligatoria” podrán situarse en un mismo poste y a la misma altura.

Si la situación de las obras coincide en el trazado de una curva, deberá situarse la señalización con la debida antelación, de forma que permita a los conductores reducir su velocidad e informarse sobre la situación en cada caso concreto. Cuando sea necesario colocar la señal de *“adelantamiento prohibido”* (TR-305), se situará también en el arcén derecho e izquierdo y no solamente en el derecho.

Medidas para corte de carril

En ningún caso se invadirá un carril de circulación, aunque sea para trabajos de poca duración, sin antes colocar la señalización adecuada. En carreteras con más de un carril asignado a un sentido de circulación, se evitará en lo posible el cierre de más de uno de ellos y siempre se empezará por cerrar el situado más a la izquierda según dicho sentido.

Con ordenaciones de la circulación en sentido único alternativo, deberá siempre considerarse la longitud de las retenciones de vehículos, de forma que estos no se detengan antes de la señalización y balizamiento previstos.

Ningún vehículo, maquinaria, útiles o materiales serán dejados en la calzada durante la suspensión de las obras.

Normalmente, un trabajador con la bandera roja se colocará en el arcén adyacente al carril cuyo tráfico está controlado o en el carril cerrado al tráfico. A veces puede colocarse en el arcén opuesto a la sección cerrada. Bajo ninguna circunstancia se colocará en el carril abierto al tráfico. Debe ser claramente visible al tráfico que está controlado desde una distancia de 150 m. Por esta razón debe permanecer sólo, no permitiendo nunca que un grupo de trabajadores se congregue a su alrededor.

Para detener el tráfico, el trabajador con la bandera hará frente al mismo y extenderá la bandera horizontalmente a través del carril en una posición fija, de modo que la superficie completa de la bandera sea visible. Para requerir una mayor atención puede levantar el brazo libre, con la palma de la mano vuelta hacia el tráfico portando siempre en la otra mano el disco de "STOP" o "PROHIBIDO EL PASO".

Cuando se permita a los vehículos continuar en su marcha, el hombre se colocará paralelamente al movimiento de tráfico, con el brazo y la bandera mantenidas en posición baja, indicando el movimiento hacia delante con su brazo libre, no debe usarse la bandera roja para hacer la señal de que continúe el tráfico, se utilizará el disco azul de "PASO PERMITIDO".

Medidas para desvío de carril

Las desviaciones deberán proyectarse para que puedan ser recorridas a velocidades que no produzcan retenciones. Si la restricción a la libre circulación se realiza en sentido único alternativo, deberá siempre considerarse la longitud de las retenciones de vehículos, de forma que éstos no deban detenerse antes de la señalización y balizamiento previstos.

Será obligatorio el balizamiento con marcas viales provisionales, color naranja o amarillo, en caso de modificación de carriles. En zona lluviosa deberá reforzarse con elementos captafaros.

3.2.5. ACTIVIDADES DIVERSAS

3.2.5.1. REPLANTEO

Los trabajos de replanteo engloban aquéllos que se realizan desde el inicio de las obras hasta su finalización, por los equipos de topografía, definiendo por medio de los replanteos todos los datos geométricos y medidas referenciadas en el terreno para poder realizar las actividades de los elementos constructivos que componen la obra. Estos trabajos han sido múltiples veces excluidos de los estudios y planes de seguridad y salud de las obras, lo que resulta improcedente, dado que son fuente de numerosos accidentes de gravedad variable.

Los equipos de replanteo han de observar una serie de normas generales como son:

El atuendo de los operarios será el adecuado a la climatología del lugar, teniendo en cuenta la obligada exposición a los elementos atmosféricos.

Deben evitarse subidas o posiciones por zonas muy pendientes, si no se está debidamente amarrado a una cuerda, con arnés de sujeción anclado a un punto fijo en la parte superior de la zona de trabajo.

Para la realización de comprobaciones o tomas y materialización de datos en zonas de encofrado o en alturas de estructuras y obras de fábrica, se accederá siempre por escaleras reglamentarias o accesos adecuados, como estructuras tubulares y escaleras fijas.

Todos los trabajos que se realicen en alturas, de comprobación o replanteo, han de llevarse a cabo con arnés de sujeción anclado a puntos fijos de las estructuras, si no existen protecciones colectivas.

Debe evitarse la estancia durante los replanteos en zonas donde puedan caer objetos, por lo que se avisarán a los equipos de trabajo para que eviten acciones que puedan dar lugar a proyección de objetos o herramientas mientras se esté trabajando en esa zona.

Para clavar las estacas con ayuda de los punteros largos se utilizarán guantes y punteros con protector de golpes en manos.

Deberá evitarse el uso de los punteros que presenten deformaciones en la zona de golpeo, por presentar el riesgo de proyección de partículas de acero en cara y ojos. Se usarán gafas antiproyecciones durante estas operaciones.

En tajos donde la maquinaria esté en movimiento y en zonas donde se aporten materiales mediante camiones, se evitará la estancia de los equipos de replanteo, respetando una distancia de seguridad que se fijará en función de los riesgos previsibles. En casos de necesidad, la posición de los topógrafos y ayudantes se señalará adecuadamente, de manera que sean visibles a los operadores de máquinas y camiones.

Se comprobará, antes de realizar los replanteos, la existencia de cables eléctricos, para evitar contactos directos con los mismos. En cualquier caso, en las zonas donde existan líneas eléctricas las miras utilizadas serán dieléctricas.

Los replanteos en zonas de tráfico se realizarán con chalecos reflectantes, y con el apoyo de señalistas, así como con señalización de obras, si corresponde.

El equipo se desplazará a los tajos en un vehículo todo terreno o furgoneta, dependiendo de las condiciones del terreno. Este vehículo deberá ir equipado con un botiquín, será revisado con periodicidad y conducido normalmente por un mismo operario, que vendrá obligado a circular de forma ordenada por los viales de obra. Cuando sea necesario alejarse del vehículo de obra, éste habrá de ser aparcado en un lugar visible para el resto de personas de la obra.

Se colocarán adecuadamente los equipos de topografía en los vehículos de transporte, evitando que puedan moverse y sean causa de lesiones a los propios ocupantes del vehículo.

Repanteo en obras de fábrica o trabajos localizados

Este tipo de trabajos reúne una serie de características diferenciales respecto a los replanteos de grandes movimientos de tierras. Ello es debido al carácter localizado del replanteo, hecho que a su vez conlleva la aparición de importantes desniveles u obras a medio terminar, lo cual induce unos riesgos especiales. De esta forma, el plan de seguridad y salud de la obra hará especial hincapié en señalar los replanteos que revistan especial dificultad, previendo los medios y consejos adecuados para garantizar las adecuadas condiciones de seguridad.

De forma general, se establecerán las siguientes normas mínimas de seguridad para estos trabajos.

En todos los trabajos que se realicen en altura, así como en comprobaciones o replanteos de estructuras y obras de fábrica, tendrá que accederse por las escaleras reglamentarias o accesos adecuados, como andamios tubulares con descansillos y barandas.

No se procederá a realizar las labores de replanteo sin haber instalado las protecciones colectivas correspondientes para salvar huecos y desniveles.

Se comprobará, antes de realizar los replanteos, la existencia de cables eléctricos afectados o líneas eléctricas aéreas, al objeto de evitar contactos eléctricos directos o indirectos.

Será obligatorio el uso del casco de seguridad en caso de que exista riesgo de caída de objetos.

3.2.5.2. SEÑALIZACIÓN, BALIZAMIENTO Y DEFENSA

Han de seguirse diversas normas en el acopio y almacenaje de los elementos a disponer, así como en la interferencia con el tráfico.

El acopio de los elementos debe hacerse de forma racional, minimizando los desplazamientos y evitando provocar obstáculos a la circulación.

Para el premarcaje y pintado de las marcas viales será necesario observar las siguientes normas mínimas, las cuales serán concretadas y complementadas en el plan de seguridad y salud:

Para realizar el premarcaje y pintado de la carretera se utilizarán monos de color blanco o amarillo con elementos reflectantes. Se utilizarán mascarillas para afecciones por los vapores de la pintura.

La pintura debe estar siempre envasada. Para su consumo se trasvasará al depósito de la máquina, utilizando siempre protección respiratoria. Sólo se tendrán en el camión las latas para el consumo del día.

Se prohibirá fumar o encender cerillas y mecheros durante la manipulación de las pinturas y el extendido de las mismas.

Se prohibirá realizar trabajos de soldadura y oxicorte en lugares próximos a los tajos en los que se empleen pinturas inflamables, para evitar el riesgo de explosión o de incendio.

3.2.5.3. ACTUACIONES EN LA OBRA DE LOS SERVICIOS TÉCNICOS

Todas las obras son objeto de inspecciones y controles periódicos o esporádicos por parte de los servicios técnicos (directores de obra, inspectores, proyectistas, coordinador en materia de seguridad y salud, equipos de control de calidad, etc.). Estas visitas han de hacerse bajo las condiciones adecuadas de seguridad, por lo que han de adoptarse ciertas normas preventivas al respecto.

El plan de seguridad y salud de la obra deberá prever específicamente la forma, condiciones y medios a utilizar para asegurar que las visitas de obra se lleven a cabo bajo las adecuadas condiciones de seguridad. Para ello, cabe dar unas normas generales, las cuales serán concretadas y complementadas en el plan de seguridad y salud:

Antes de que un técnico o profesional de dirección y control se desplace al lugar de visita, deberá velarse por que esté perfectamente informado de los riesgos a que va a estar expuesto en obra. Sobre todo, deberá ser informado de todas aquellas condiciones específicas que se den en la obra y sin cuyo conocimiento previo podrían ser causa de riesgos importantes. Aún así, el visitante será acompañado en todo momento alguna persona que conozca las peculiaridades del entorno.

Todos los visitantes a la obra deberán llevar las protecciones individuales adecuadas que sean necesarias para protegerles adecuadamente.

Las protecciones colectivas suelen ser eliminadas, lógicamente, de aquellos lugares donde cesa el trabajo, pero si dichas zonas han de ser visitadas por los servicios técnicos, las citadas protecciones deben ser repuestas, pudiendo, en caso contrario, negarse el visitante a acceder a dichos lugares o adoptar las decisiones que estime oportunas.

4. MEDIDAS PREVENTIVAS RELATIVAS A LA MAQUINARIA, INSTALACIONES AUXILIARES Y EQUIPOS DE TRABAJO

4.1. MEDIDAS GENERALES PARA LA MAQUINARIA PESADA

Al comienzo de los trabajos, el jefe de obra comprobará que se cumplen las siguientes condiciones preventivas, así como las previstas en su propio plan de seguridad y salud, de las que mostrará, en su caso, comprobantes que el coordinador de seguridad y salud de la obra pueda requerir.

4.1.1. RECEPCIÓN DE LA MÁQUINA

A su llegada a la obra, cada máquina debe llevar en su carpeta de documentación las normas de seguridad para los operadores. Cada máquina irá dotada de un extintor timbrado y con las revisiones al día.

Cada maquinista deberá poseer la formación adecuada para que el manejo de la máquina se realice de forma segura y, en caso contrario, será sustituido o formado adecuadamente.

La maquinaria a emplear en la obra irá provista de cabinas anti-vuelco y anti-impacto.

Las cabinas no presentarán deformaciones como consecuencia de haber sufrido algún vuelco.

La maquinaria irá dotada de luces y bocina o sirena de retroceso, todas ellas en correcto estado de funcionamiento.

4.1.2. UTILIZACIÓN DE LA MÁQUINA

Antes de iniciar cada turno de trabajo, se comprobará siempre que los mandos de la máquina funcionan correctamente.

Se prohibirá el acceso a la cabina de mando de la maquina cuando se utilicen vestimentas sin ceñir y joyas o adornos que puedan engancharse en los salientes y en los controles.

Se impondrá la buena costumbre hacer sonar el claxon antes de comenzar a mover la máquina.

El maquinista ajustará el asiento de manera que alcance todos los controles sin dificultad

Las subidas y bajadas de la máquina se realizarán por el lugar previsto para ello, empleando los peldaños y asideros dispuestos para tal fin y nunca empleando las llantas, cubiertas y guardabarros.

No se saltará de la máquina directamente al suelo, salvo en caso de peligro inminente para el maquinista.

Sólo podrán acceder a la máquina personas autorizadas a ello por el jefe de obra.

Antes de arrancar el motor, el maquinista comprobará siempre que todos los mandos están en su posición neutra, para evitar puestas en marcha imprevistas.

Antes de iniciar la marcha, el maquinista se asegurará de que no existe nadie cerca, que pueda ser arrollado por la máquina en movimiento.

No se permitirá liberar los frenos de la máquina en posición de parada si antes no se han instalado los tacos de inmovilización de las ruedas.

Si fuese preciso arrancar el motor mediante la batería de otra máquina, se extremarán las precauciones, debiendo existir una perfecta coordinación entre el personal que tenga que hacer la maniobra. Nunca se debe conectar a la batería descargada otra de tensión superior.

Cuando se trabaje con máquinas cuyo tren de rodaje sea de neumáticos, será necesario vigilar que la presión de los mismos es la recomendada por el fabricante. Durante el relleno de aire de los neumáticos el operario se situará tras la banda de rodadura, apartado del punto de conexión, pues el reventón de la manguera de suministro o la rotura de la boquilla, pueden hacerla actuar como un látigo.

Siempre que el operador abandone la máquina, aunque sea por breves instantes, deberá antes hacer descender el equipo o útil hasta el suelo y colocar el freno de aparcamiento. Si se prevé una ausencia superior a tres minutos deberá, además, parar el motor.

Se prohibirá encaramarse a la máquina cuando ésta esté en movimiento.

Con objeto de evitar vuelcos de la maquinaria por deformaciones del terreno mal consolidado, se prohibirá circular y estacionar a menos de tres metros del borde de barrancos, zanjas, taludes de terraplén y otros bordes de explanaciones.

Antes de realizar vaciados a media ladera con vertido hacia la pendiente, se inspeccionará detenidamente la zona, en prevención de desprendimientos o aludes sobre las personas o cosas.

Se circulará con las luces encendidas cuando, a causa del polvo, pueda verse disminuida la visibilidad del maquinista o de otras personas hacia la máquina.

Estará terminantemente prohibido transportar personas en la máquina, si no existe un asiento adecuado para ello.

No se utilizará nunca la máquina por encima de sus posibilidades mecánicas, es decir, no se forzará la máquina con cargas o circulando por pendientes excesivas.

4.1.3. REPARACIONES Y MANTENIMIENTO EN OBRA

En los casos de fallos en la máquina, se subsanarán siempre las deficiencias de la misma antes de reanudar el trabajo.

Durante las operaciones de mantenimiento, la maquinaria permanecerá siempre con el motor parado, el útil de trabajo apoyado en el suelo, el freno de mano activado y la maquina bloqueada.

No se guardará combustible ni trapos grasientos sobre la maquina, para evitar riesgos de incendios.

No se levantará en caliente la tapa del radiador. Los vapores desprendidos de forma incontrolada pueden causar quemaduras al operario.

El cambio de aceite del motor y del sistema hidráulico se efectuará siempre con el motor frío, para evitar quemaduras.

El personal que manipule baterías deberá utilizar gafas protectoras y guantes impermeables.

En las proximidades de baterías se prohibirá fumar, encender fuego o realizar alguna maniobra que pueda producir un chispazo eléctrico.

Las herramientas empleadas en el manejo de baterías deben ser aislantes, para evitar cortocircuitos.

Se evitará siempre colocar encima de la batería herramientas o elementos metálicos, que puedan provocar un cortocircuito.

Siempre que sea posible, se emplearán baterías blindadas, que lleven los bornes intermedios totalmente cubiertos.

Al realizar el repostaje de combustible, se evitará la proximidad de focos de ignición, que podrían producir la inflamación del gasoil.

La verificación del nivel de refrigerante en el radiador debe hacerse siempre con las debidas precauciones, teniendo cuidado de eliminar la presión interior antes de abrir totalmente el tapón.

Cuando deba manipularse el sistema eléctrico de la máquina, el operario deberá antes desconectar el motor y extraer la llave del contacto.

Cuando deban soldarse tuberías del sistema hidráulico, siempre será necesario vaciarlas y limpiarlas de aceite.

4.2. MAQUINARIA DE MOVIMIENTO DE TIERRAS

4.2.1. BULLDOZERS Y TRACTORES

Además de las medidas generales de maquinaria, se establecerán, adecuadamente desarrolladas, en su caso, las siguientes medidas preventivas específicas, las cuales deberán ser concretadas a nivel más detallado por el plan de seguridad y salud que desarrolle el presente estudio:

Como norma general, se evitará en lo posible superar los 3 Km/h de velocidad durante el movimiento de tierras.

Como norma general, también, se prohibirá la utilización de los bulldozers en las zonas de la obra con pendientes que alcancen el 50%.

En trabajos de desbroce al pie de taludes ya construidos, se inspeccionarán los materiales (árboles, rocas, etc.) inestables, que pudieran desprenderse accidentalmente sobre el tajo. Solo una vez saneado el talud se procederá al inicio de los trabajos con la máquina.

4.2.2. PALAS CARGADORAS

Además de las medidas generales de maquinaria, se establecerán las siguientes medidas preventivas específicas, las cuales deberán ser concretadas a nivel más detallado por el plan de seguridad y salud que desarrolle el presente estudio:

Las palas cargadoras irán dotadas de un botiquín de primeros auxilios, adecuadamente resguardado y mantenido limpio interna y externamente.

Se revisarán periódicamente todos los puntos de escape del motor, con el fin de asegurar que el conductor no recibe en la cabina gases procedentes de la combustión. Esta precaución se extremará en los motores provistos de ventilador de aspiración para el radiador.

Las palas cargadoras que deban transitar por la vía pública cumplirán con las disposiciones reglamentarias necesarias para estar autorizadas.

Los conductores se cerciorarán siempre de que no existe peligro para los trabajadores que se encuentren en el interior de pozos o zanjas próximos al lugar de trabajo de la máquina.

Los conductores, antes de realizar nuevos recorridos, harán a pie el camino de trabajo, con el fin de observar las irregularidades que puedan dar origen a oscilaciones verticales u horizontales de la cuchara.

El maquinista estará obligado a no arrancar el motor de la máquina sin antes cerciorarse de que no hay nadie en el área de operación de la misma.

Se prohibirá terminantemente transportar personas en el interior de la cuchara.

Se prohibirá terminantemente izar personas para acceder a trabajos puntuales utilizando la cuchara.

Se prohibirá que los conductores abandonen la pala con la cuchara izada y sin apoyar en el suelo.

La cuchara, durante los transportes de tierras, permanecerá lo más baja posible, para que la máquina pueda desplazarse con la máxima estabilidad.

Los ascensos o descensos en carga de la cuchara se efectuarán siempre utilizando marchas cortas.

La circulación sobre terrenos desiguales se efectuará a velocidad lenta.

Se prohibirá el manejo de grandes cargas (cucharas a pleno llenado), cuando existan fuertes vientos en la zona de trabajo. El choque del viento puede hacer inestable la carga.

Se prohibirá dormitar bajo la sombra proyectada por la máquina en reposo.

4.2.3. MOTONIVELADORAS

Además de las medidas generales de maquinaria, se establecerán las siguientes medidas preventivas específicas, las cuales deberán ser concretadas con mayor nivel de detalle por el plan de seguridad y salud que desarrolle el presente estudio:

El operador se asegurará en cada momento de la adecuada posición de la cuchilla, en función de las condiciones del terreno y fase de trabajo en ejecución.

Se circulará siempre a velocidad moderada.

El conductor hará uso del claxon cuando sea necesario apercibir de su presencia y siempre que vaya a iniciar el movimiento de marcha atrás.

Al abandonar la máquina, el conductor se asegurará de que está frenada y de que no puede ser puesta en marcha por persona ajena.

El operador utilizará casco siempre que esté fuera de la cabina.

El operador habrá de cuidar adecuadamente la máquina, dando cuenta de fallos o averías que advierta e interrumpiendo el trabajo siempre que estos fallos afecten a frenos o dirección, hasta que la avería quede subsanada.

Las operaciones de mantenimiento y reparaciones, se harán con la máquina parada y con la cuchilla apoyada en el suelo.

Estará prohibida la permanencia de personas en la zona de trabajo de la máquina.

4.2.4. RETROEXCAVADORAS

Además de las medidas generales de maquinaria, las cuales deberán ser concretadas con más detalle por el plan de seguridad y salud, se entregará por escrito a los maquinistas de las retroexcavadoras que vayan a emplearse en la obra, la normativa de acción preventiva y, específicamente, la que recoja las siguientes normas mínimas:

Las retroexcavadoras a utilizar en esta obra estarán dotadas de luces y bocina de retroceso en correcto estado de funcionamiento.

En el entorno de la máquina, se prohibirá la realización de trabajos o la permanencia de personas. Esta zona se acotará a una distancia igual a la del alcance máximo del brazo excavador. Conforme vaya

avanzando la retroexcavadora, se marcarán con cal o yeso bandas de seguridad. Estas precauciones deberán extremarse en presencia de otras máquinas, en especial, con otras retroexcavadoras trabajando en paralelo. En estos casos será recomendable la presencia de un señalista.

Los caminos de circulación interna de la obra, se cuidarán para evitar blandones y barrizales excesivos, que mermen la seguridad de la circulación de estas máquinas.

El maquinista debe tomar toda clase de precauciones cuando trabaja con cuchara bivalva, que puede oscilar en todas las direcciones y golpear la cabina o a las personas circundantes que trabajan en las proximidades, durante los desplazamientos.

El avance de la excavación de las zanjas se realizará según lo estipulado en los planos correspondientes del proyecto.

Si se emplea cuchara bivalva, el maquinista antes de abandonar la máquina deberá dejar la cuchara cerrada y apoyada en el suelo.

La retroexcavadora deberá llevar apoyada la cuchara sobre la máquina durante los desplazamientos, con el fin de evitar balanceos.

Los ascensos o descensos de las cucharas en carga se realizarán siempre lentamente.

Se prohibirá el transporte de personas sobre la retroexcavadora, en prevención de caídas, golpes y otros riesgos.

Se prohibirá utilizar el brazo articulado o las cucharas para izar personas y acceder así a trabajos elevados y puntuales.

Se prohibirá realizar maniobras de movimiento de tierras sin antes haber puesto en servicio los apoyos hidráulicos de inmovilización.

Antes de abandonar la máquina deberá apoyarse la cuchara en el suelo.

Quedará prohibido el manejo de grandes cargas (cuchara a pleno llenado), bajo régimen de fuertes vientos.

Si, excepcionalmente, se utiliza la retroexcavadora como grúa, deberán tomarse las siguientes precauciones:

La cuchara tendrá en su parte exterior trasera una argolla soldada expresamente para efectuar cuelgues.

El cuelgue se efectuará mediante ganchos o mosquetón de seguridad incorporado al balancín.

Los tubos se suspenderán siempre de los extremos (dos puntos), en posición paralela al eje de la zanja, con la máquina puesta en la dirección de la misma y sobre su directriz. Puede emplearse una uña de montaje directo.

La carga será guiada por cabos manejados por dos operarios.

La maniobra será dirigida por un especialista.

En caso de inseguridad de los paramentos de la zanja, se paralizarán inmediatamente los trabajos.

El cambio de posición de la retroexcavadora se efectuará situando el brazo en el sentido de la marcha (salvo en distancias muy cortas).

Se prohibirá realizar cualquier otro tipo de trabajos en el interior de las trincheras o zanjas, en la zona de alcance del brazo de la retroexcavadora.

Se instalará una señal de peligro sobre un pie derecho, como límite de la zona de seguridad del alcance del brazo de la retroexcavadora. Esta señal se irá desplazando conforme avance la excavación.

Se prohibirá verter los productos de la excavación con la retroexcavadora a menos de 2 m del borde de corte superior de una zanja o trinchera, para evitar los riesgos por sobrecarga del terreno.

Si la retroexcavadora ha de realizar la excavación por debajo de su plano de sustentación, el cazo nunca deberá quedar por debajo del chasis. Para excavar la zona de debajo del chasis de la máquina,

ésta deberá retroceder de forma que, cuando realice la excavación, el cazo nunca quede por debajo del chasis.

En la fase de excavación, la máquina nunca deberá exponerse a peligros de derrumbamientos del frente de excavación.

Con objeto de evitar lesiones durante las operaciones de mantenimiento, el maquinista deberá apoyar primero la cuchara en el suelo, parar el motor, poner en servicio el freno de mano y bloquear la máquina. A continuación, podrá ya realizar las operaciones de servicio que necesite.

4.2.5. PILOTADORA

Además de las medidas generales de maquinaria, se establecen las siguientes medidas preventivas específicas, las cuales deberán ser concretadas a nivel de detalle por el plan de seguridad y salud:

Las operaciones de la máquina serán dirigidas siempre por personal cualificado.

Se establecerá un orden determinado en la excavación de los pilotes.

Las zonas de excavación se mantendrán limpias, en lo posible.

Para subir o bajar de la cabina se debe utilizar los peldaños y asideros dispuestos para tal fin.

Estará prohibido encaramarse sobre el tren de rodadura de cadenas.

No se permitirá que personas no autorizadas accedan a la máquina. Pueden lesionarse o producirse accidentes.

Durante el mantenimiento, se apoyará el trépano en el suelo, se parará el motor, se pondrá el freno de mano y se bloqueará la máquina. A continuación, podrán realizarse las operaciones de servicio.

Estará prohibido arrastrar el trépano o las camisas; se deben izar y transportar en vertical, sin balanceos.

No se admitirán pilotadoras que no vengan provistas de cabina antivuelco y antiimpactos.

Serán revisados periódicamente todos los puntos de escape del motor.

La pilotadora estará dotada de extintores adecuados. Para evitar incendios, no se guardarán trapos grasientos ni combustibles en la misma.

El maquinista, antes de realizar cualquier maniobra, habrá de cerciorarse de que no hay personas en sus alrededores.

En caso de calentamiento del motor, no se abrirá directamente la tapa del radiador. El vapor desprendido puede causar graves lesiones.

4.2.6. RODILLO VIBRANTE

Además de las medidas generales de maquinaria, se establecen las siguientes medidas preventivas específicas, las cuales deberán ser concretadas a nivel de detalle por el plan de seguridad y salud:

El operario deberá haber sido informado de que conduce una máquina peligrosa y de que habrá de tomar precauciones específicas para evitar accidentes.

Los maquinistas de los rodillos vibrantes serán operarios de probada destreza, en prevención de los riesgos por impericia.

Deberá regarse la zona de acción del compactador, para reducir el polvo ambiental. Será necesario el uso de mascarilla antipolvo en casos de gran abundancia y persistencia de éste.

Será obligatorio utilizar cascos o tapones antiruido para evitar posibles lesiones auditivas.

Se dispondrá en obra de fajas elásticas, para su utilización durante el trabajo con pisones o rodillos, al objeto de proteger riesgos de lumbalgias.

La zona en fase de compactación quedará cerrada al paso mediante señalización, según detalle en planos correspondientes en el plan de seguridad y salud de la obra.

4.2.7. PISONES

Al objeto de evitar accidentes, antes de poner en funcionamiento un pisón, el operario deberá asegurarse de que están montadas todas las tapas y carcasas protectoras.

El pisón deberá guiarse en avance frontal, evitando los desplazamientos laterales.

Se exigirá siempre la utilización de botas con puntera reforzada.

Será obligatorio utilizar cascos o tapones antiruido para evitar posibles lesiones auditivas.

4.2.8. CAMIONES

El conductor de cada camión estará en posesión del preceptivo carnet de conducir y actuará con respeto a las normas del código de circulación y cumplirá en todo momento la señalización de la obra.

El acceso y circulación interna de camiones en la obra se efectuará tal y como se describa en los planos del plan de seguridad y salud de la misma.

Las operaciones de carga y de descarga de los camiones, se efectuarán en los lugares señalados en los planos para tal efecto.

Todos los camiones dedicados al transporte de materiales para esta obra, estarán en perfectas condiciones de mantenimiento y conservación.

Antes de iniciar las maniobras de carga y descarga del material, además de haber sido instalado el freno de mano de la cabina del camión, se instalarán calzos de inmovilización en las ruedas, en prevención de accidentes por fallo mecánico.

El ascenso y descenso de las cajas de los camiones se efectuará mediante escalerillas metálicas fabricadas para tal menester, dotadas de ganchos de inmovilización y seguridad.

Las maniobras de carga y descarga mediante plano inclinado, serán gobernadas desde la caja del camión por un mínimo de dos operarios mediante soga de descenso. En el entorno del final del plano no habrá nunca personas, en prevención de lesiones por descontrol durante el descenso.

El colmo máximo permitido para materiales sueltos no superará la pendiente ideal del 5% y se cubrirá con una lona, en previsión de desplomes.

Las cargas se instalarán sobre la caja de forma uniforme compensando los pesos, de la manera más uniformemente repartida posible.

El gancho de la grúa auxiliar, si existe, estará siempre dotado de pestillo de seguridad

A las cuadrillas encargadas de la carga y descarga de los camiones, se les hará entrega de la siguiente normativa de seguridad:

El maquinista deberá utilizar guantes o manoplas de cuero para evitar lesiones en las manos.

El maquinista deberá emplear botas de seguridad para evitar aplastamientos o golpes en los pies.

El acceso a los camiones se realizará siempre por la escalerilla destinada a tal fin.

El maquinista cumplirá en todo momento las instrucciones del jefe de equipo.

Quedará prohibido saltar al suelo desde la carga o desde la caja si no es para evitar un riesgo grave.

A los conductores de los camiones, cuando traspasen la puerta de la obra se les entregará la siguiente normativa de seguridad (para visitantes):

"Atención, penetra usted en una zona de riesgo, siga las instrucciones del señalista. Si desea abandonar la cabina del camión utilice siempre el casco de seguridad que se le ha entregado al llegar junto con esta nota. Circule únicamente por los lugares señalizados hasta llegar al lugar de carga y descarga. Una vez concluida su estancia en la obra, devuelva el casco al salir. Gracias."

4.2.9. MOTOVOLQUETES

El encargado de conducción del motovolquete, será especialista en el manejo de este vehículo.

El encargado del manejo del motovolquete deberá recibir la siguiente normativa preventiva:

Considere que este vehículo no es un automóvil, sino una máquina; trátelo como tal y evitará accidentes.

Antes de comenzar a trabajar, cerciórese de que la presión de los neumáticos es la recomendada por el fabricante. Considere que esta circunstancia es fundamental para la estabilidad y buen rendimiento de la máquina.

Antes de comenzar a trabajar, compruebe el buen estado de los frenos; evitará accidentes.

Cuando ponga el motor en marcha, sujete con fuerza la manivela y evite soltarla de la mano. Los golpes por esta llave suelen ser muy dolorosos y producen lesiones serias.

No ponga el vehículo en marcha sin antes cerciorarse de que tiene el freno de mano en posición de frenado; evitará accidentes por movimientos incontrolados.

No cargue el cubilote del motovolquete por encima de la carga máxima en él grabada. Evitará accidentes.

No transporte personas en su motovolquete, salvo que éste vaya dotado de un sillín lateral adecuado para ser ocupado por un acompañante. Es muy arriesgado.

Debe tener una visibilidad frontal adecuada. El motovolquete debe conducirse mirando al frente, hay que evitar que la carga le haga conducir al maquinista con el cuerpo inclinado mirando por los laterales de la máquina, pues no es seguro y se pueden producir accidentes.

Evite descargar al borde de cortes del terreno si ante éstos no existe instalado un tope final de recorrido. Un despiste puede precipitarles a usted y a la máquina y las consecuencias podrían ser graves.

Respete las señales de circulación interna.

Respete las señales de tráfico si debe cruzar calles o carreteras. Piense que, si bien usted está trabajando, los conductores de los vehículos en tránsito no lo saben; extreme sus precauciones en los cruces. Un minuto más de espera, puede evitar situaciones de alto riesgo.

Cuando el motovolquete cargado discurra por pendientes, es mas seguro hacerlo en marcha hacia atrás, de lo contrario puede volcar.

Cuide seguir los caminos de circulación marcados en los planos de este plan de seguridad y salud.

Se instalarán, según el detalle de planos del plan de seguridad y salud de la obra, topes finales de recorrido de los motovolquetes delante de los taludes de vertido.

Se prohibirán expresamente los colmos del cubilote de los motovolquetes que impidan la visibilidad frontal.

En previsión de accidentes, se prohibirá el transporte de piezas (puntales, tablones) que sobresalgan lateralmente del cubilote del motovolquete.

En la obra se prohibirá conducir los motovolquetes a velocidades superiores a los 20 Km./h.

Los motovolquetes que se dediquen al transporte de masas poseerán en el interior del cubilote una señal que indique el llenado máximo admisible, a fin de evitar los accidentes por sobrecarga de la máquina.

Se prohibirá el transporte de personas sobre el motovolquete.

Los conductores deberán poseer carnet de conducir clase B, cuando el motovolquete pueda acceder al tráfico exterior a la obra.

El motovolquete deberá llevar faros de marcha adelante y de retroceso, siempre que deba ser utilizado en horas de escasa visibilidad o circular en el tráfico exterior.

4.3. MEDIOS DE HORMIGONADO

4.3.1. CAMIÓN HORMIGONERA

La circulación de este camión en el interior de la obra se atendrá escrupulosamente a las instrucciones que reciba su conductor, con total observancia de la señalización en la misma, sin que deban operar en rampas de pendiente superior a los 20º.

La puesta en estación y todos los movimientos del camión hormigonera durante las operaciones de vertido serán dirigidos por un señalista, que cuidará de la seguridad de atropellos o golpes por maniobras súbitas o incorrectas.

Las operaciones de vertido de hormigón a lo largo de zanjas o cortes en el terreno se efectuarán de forma que las ruedas del camión hormigonera no sobrepasen una franja de dos metros de ancho desde el borde.

Los trabajadores que atiendan al vertido, colocación y vibrado del hormigón tendrán la obligación de utilizar en todo momento casco de seguridad, guantes de goma o P.V.C., botas de seguridad impermeables (en el tajo de hormigonado) y guantes de cuero (en vertido).

4.3.2. BOMBA AUTOPROPULSADA DE HORMIGÓN

El personal encargado de su manejo poseerá formación especializada y experiencia en su aplicación y en el mantenimiento del equipo.

El brazo de elevación de la manguera no podrá ser utilizado para ningún tipo de actividad de elevación de cargas u otras diferentes a la que define su función.

La bomba dispondrá de comprobante de haber pasado su revisión anual en taller indicado para ello por el fabricante y tal comprobante se presentará obligatoriamente al jefe de obra, pudiendo ser requerido por el coordinador de seguridad y salud en cualquier momento.

Cuando se utilice en cascos urbanos o semiurbanos, la zona de bombeo quedará totalmente aislada de los peatones, mediante las vallas y separaciones que sean precisas.

Los trabajadores no podrán acercarse a las conducciones de vertido del hormigón por bombeo a distancias menores de 3 m y dichas conducciones estarán protegidas por resguardos de seguridad contra posibles desprendimientos o movimientos bruscos.

Al terminar el tajo de hormigonado, se lavará y limpiará siempre el interior de los tubos de todo el equipo, asegurando la eliminación de tapones de hormigón.

Los trabajadores que atiendan al equipo de bombeo y los de colocación y vibrado del hormigón bombeado tendrán la obligación de utilizar en todo momento casco de seguridad, guantes de goma o P.V.C., botas de seguridad impermeables (en el tajo de hormigonado), calzado de seguridad (en el equipo) y mandil impermeable.

4.3.3. VIBRADORES

El vibrado se realizará siempre con el trabajador colocado en una posición estable y fuera del radio de acción de mangueras o canaletas de vertido.

La manguera de alimentación eléctrica del vibrador estará adecuadamente protegida, vigilándose sistemáticamente su estado de conservación del aislamiento.

El aparato vibrador dispondrá de toma de tierra.

El vibrador no se dejará nunca funcionar en vacío ni se moverá tirando de los cables.

El trabajador utilizará durante el vibrado, casco de seguridad, botas de goma clase III, guantes dieléctricos y gafas de protección contra salpicaduras de mortero.

4.3.4. ANDAMIOS COLGADOS Y PLATAFORMAS VOLADAS

El plan de seguridad y salud laboral de la obra definirá las características y condiciones de montaje y uso de los andamios colgados y plataformas voladas a disponer en la ejecución de la obra, previo el cálculo de todos sus elementos de sujeción y plataforma. Responderán a las prescripciones del Pliego de Condiciones y a los siguientes tipos y modalidades:

- Andamios colgados de pescantes anclados al forjado superior, con plataforma de paneles metálicos grapados a la estructura tubular, con anchura mínima de 60 cm. y barandilla de seguridad de 90 cm. con pasamano y rodapié. Los tramos o góndolas unidos no superarán la longitud de 8,00 m., con uniones de dispositivos de seguridad con trinquetes en los puntos de articulación. Los trabajadores sobre estos andamios utilizarán siempre arnés de seguridad sujeto a puntos fijos de la estructura o a cuerdas salvavidas con nudos de seguridad o frenos de caída.
- Plataformas voladas, de madera o metálicas, con barandilla desmontable y rodapié, para descarga de materiales, adecuadamente apuntaladas y arriostradas. Sobre ellas, se utilizará siempre arnés de seguridad anclado a un punto fijo de la estructura.

4.3.5. ANDAMIOS TUBULARES Y CASTELLETES

El plan de seguridad y salud definirá las características y condiciones de montaje y uso de los andamios y plataformas de trabajo a disponer en las distintas fases de ejecución de la obra. Responderán a las prescripciones del Pliego de Condiciones y a los siguientes tipos y modalidades:

Castilletes de encofrado y hormigonado, de altura adecuada a los muros o pilas a ejecutar y con barandillas de protección, construidos con elementos metálicos o con módulos de andamio tubular, especificándose si serán fijos o móviles.

Andamios tubulares arriostrados, con pisos o plataformas metálicas o de tablones atados de anchura no inferior a 60 cm., con barandillas de altura de 90 cm. con rodapié y escaleras de anchura no inferior a 50 cm. y alturas no superiores a 1,80 m. entre tramos. Cumplirán la Norma UNE 76502/89, quedarán amarrados al paramento vertical y apoyarán siempre sobre durmientes o placas base, con husillos de nivelación ajustables.

Los andamios tubulares cumplirán específicamente el Documento de Amortización HD1000 (UNE 76502/89) de junio de 1988, adoptado por el Comité Europeo de Normalización (CEN) el 921988. En el cálculo de las solicitudes se considerarán los materiales a emplear para realizar el trabajo en sí, los aparejos de elevación y las acciones del viento, lluvia y similares. Si el andamiaje es de construcción industrial, se dispondrá de un certificado del fabricante respecto de estos extremos.

Todo andamio se someterá a las inspecciones y controles establecidos en las normas vigentes de aplicación (a título de ejemplo indicativo puede citarse la Orden 2988/98 de la Consejería de Economía y empleo de la Comunidad Autónoma de Madrid). Los informes derivados de las inspecciones y controles efectuados estarán a disposición de la autoridad laboral competente por si decidiese requerirlos.

Los andamios han de constar de plataformas metálicas de chapa perforada de aluminio y mixtas con marcos de aluminio y tablero aglomerado con tratamiento antideslizante y antihumedad. Dispondrán de marcos, generalmente acartelados, llevando en los elementos verticales unas coronas para anclar los elementos del andamio cada 50 cm. de altura. Las plataformas tendrán un ancho mínimo de 60 cm., irán dotadas de barandillas de 0,90. m de altura mínima más 5 cm. adicionales, rodapié mayor o igual a 15 cm y barra intermedia, con separación vertical entre barras igual o menor a 47 cm. Estas barandillas podrán ser celosías completas que sirvan de arriostramiento.

Los accesos a los andamios se realizarán mediante escaleras interiores o exteriores; las más comunes son las abatibles integradas en las plataformas de trabajo. Los andamios se ajustarán a las irregularidades de la fachada mediante plataformas suplementarias sobre ménsulas especiales, quedando siempre lo más próximas posibles a la fachada.

Para la protección contra caída de materiales se podrán disponer bandejas de recogida que, generalmente, se colocarán en el nivel inferior; en casos de gran altura podrán existir a varios niveles. Alternativamente, se podrán emplear mallas textiles de plásticos cerrando toda la fachada del andamio.

Se cuidará especialmente el grado de corrosión que produce la oxidación en los elementos metálicos, sobre todo en ambientes húmedos.

La estabilidad del andamio quedará garantizada mediante:

- Por un apoyo firme en el suelo, comprobándose la naturaleza del mismo y utilizando durmientes de madera o bases de hormigón que realicen un buen reparto de las cargas en el terreno, manteniendo la horizontalidad del andamio.
- Mediante sujeciones firmes de las plataformas que constituyen el piso del andamio a los elementos metálicos portantes, impidiéndose el basculamiento de las mismas y fijando su posición.
- Por medio de amarres a la fachada del edificio. En el plan de seguridad y salud de la obra quedarán determinados los arriostramientos que deban usarse en los sentidos vertical y horizontal, al igual que el resto de las características técnicas de los andamios.
- Mediante tacos de anclaje de tipo cáncamo adecuado a la naturaleza del soporte, hormigón, ladrillo macizo, ladrillo hueco, piedra, etc.
- Mediante puntales entre balcones, ventanas, etc.

4.3.6. PLATAFORMA DE TRABAJO

El plan de seguridad y salud laboral de la obra definirá las medidas preventivas a adoptar durante las labores de encofrado, ferrallado y hormigonado de los diferentes elementos de la estructura y, en particular, los andamiajes y plataformas de trabajo, así como los puntales de apeo de forjados y los equipos auxiliares de protección, que responderán a las prescripciones contenidas en el Pliego de Condiciones y a criterios mínimos que siguen:

En el encofrado y ferrallado de muros se utilizarán siempre andamios tubulares completos o plataformas de trabajo sólidas y estables, con anchura mínima de 60 cm. y barandillas. La colocación de ferralla se realizará siempre desde fuera del encofrado.

En los forjados tradicionales de edificación, las viguetas y bovedillas se colocarán siempre desde plataformas apoyadas en andamios sobre el suelo del forjado inferior, evitándose la circulación de trabajadores sobre partes del forjado en construcción. Se utilizarán dos andamios para la colocación de viguetas sobre las jácenas (uno en cada extremo) y otro, similar para la colocación de bovedillas, aunque paralelo a las viguetas y de suficiente longitud para que el trabajador pueda llegar a todos los espacios entre las viguetas y siempre en sentido de fuera adentro para evitar trabajos de espaldas al vacío.

El hormigonado de los forjados se realizará siempre desde pasarelas de tablones, de 60 cm de ancho mínimo, evitándose pisadas sobre ferralla, viguetas y bovedillas. En muros, pilares y jácenas se utilizarán pasarelas arriostradas y dispondrán de escaleras, barandillas y rodapiés adecuados.

4.4. MEDIOS DE FABRICACIÓN Y PUESTA EN OBRA DE FIRMES Y PAVIMENTOS

4.4.1. EXTENDEDORA DE AGLOMERADO ASFÁLTICO

No se permitirá la permanencia sobre la extendedora en marcha a otra persona que no sea su operador, a fin de evitar accidentes por caída desde la máquina.

Las maniobras de aproximación y vertido de productos asfálticos en la tolva estarán dirigidas siempre por un especialista con experiencia en este tipo de trabajos.

Todos los operarios de auxilio quedarán en posición en la cuneta o aceras, por delante de la máquina, durante las operaciones de llenado de la tolva, en prevención de los riesgos por atrapamiento y atropello durante estas maniobras.

Los bordes laterales de la extendedora, en prevención de atrapamientos, estarán señalizados mediante paneles de bandas amarillas y negras alternativas.

Todas las plataformas de estancia o para seguimiento y ayuda al extendido asfáltico, estarán bordeadas de barandillas tubulares, en prevención de las posibles caídas, formadas por pasamanos de 90 cm. de altura, barra intermedia y rodapié de 15 cm., desmontables para permitir una mejor limpieza.

Se dispondrán dos extintores polivalentes y en buen estado sobre la plataforma de la máquina.

Se prohibirá expresamente, el acceso de operarios a la regla vibrante durante las operaciones de extendido, en prevención de accidentes.

Sobre la máquina, junto a los lugares de paso y en aquellos con riesgo especifico, se adherirán las siguientes señales:

"Peligro: sustancias y paredes muy calientes".

Rótulo: "NO TOCAR; ALTAS TEMPERATURAS".

4.4.2. COMPACTADOR DE NEUMÁTICOS

No se permitirá la permanencia sobre la compactadora a otra persona que no sea su operador, a fin de evitar accidentes por caída desde la máquina.

Todos los operarios a pie en el tajo de aglomerado quedarán en posición en la cuneta o aceras, por delante de la compactadora, en prevención de los riesgos por atrapamiento y atropello durante los movimientos de ésta.

La compactadora tendrá dotación completa de luces de visibilidad y de indicación de posición de la máquina, así como dotación y buen funcionamiento de la señal acústica de marcha atrás.

Se dispondrá de una escalera metálica para la subida y bajada de las cajas de la máquina.

La escalera de subida a la plataforma de conducción y el borde exterior de ésta tendrán revestimiento antideslizante.

El operador tendrá la obligación estricta de circulación exterior con sujeción plena a las normas de circulación y a las señales de tráfico.

Se comprobará sistemáticamente la presión de los neumáticos antes del comienzo del trabajo diario.

Se vigilará el mantenimiento sistemático del estado de funcionamiento de la máquina.

Se cuidará la instrucción y vigilancia de la prohibición de fumar durante las operaciones de carga de combustible y de comprobación del nivel de la batería de la máquina.

4.4.3. RODILLO VIBRANTE AUTOPROPULSADO

Se permitirá la permanencia sobre el compactador de otra persona que no sea su operador, a fin de evitar accidentes por caída desde la máquina.

Todos los operarios a pie en el tajo de aglomerado quedarán en posición en la cuneta o aceras, por delante de la compactadora, en prevención de los riesgos por atrapamiento y atropello durante los movimientos de ésta.

La escalera de subida a la plataforma de conducción y el borde exterior de ésta tendrán revestimiento antideslizante.

El operador tendrá la obligación de cuidar especialmente la estabilidad del rodillo al circular sobre superficies inclinadas o pisando sobre el borde de la capa de aglomerado.

Se vigilará el mantenimiento sistemático del estado de funcionamiento de la máquina.

Se cuidará la instrucción y vigilancia de la prohibición de fumar durante las operaciones de carga de combustible y de comprobación del nivel de la batería de la máquina.

Se dispondrá de asiento antivibratorio o, en su defecto, será preceptivo el empleo de faja antivibratoria.

4.4.4. CAMIÓN BASCULANTE

El conductor del camión estará en posesión del preceptivo carnet de conducir y actuará con total respeto a las normas del código de circulación y respetará en todo momento la señalización de la obra.

En la maniobra de colocación y acoplamiento ante la extendedora, el conductor actuará con total sujeción a las instrucciones y la dirección del encargado del tajo de extendido de aglomerado, así como a las indicaciones del ayudante de aviso.

Una vez efectuada la descarga, la caja será bajada antes de reemprender la marcha.

Se atenderá a la posible presencia de tendidos aéreos eléctricos o telefónicos antes de comenzar la elevación de la caja.

Todas las operaciones de revisión o mantenimiento que deba realizarse con el basculante elevado se efectuarán asegurando que se impide su descenso, mediante enclavamiento.

4.4.5. ACOPIOS Y ALMACENAMIENTOS

Acopio y almacenamiento de tierras y áridos

Los acopios de tierras y áridos deben efectuarse siguiendo las siguientes normas:

Si el acopio rebasa los 2 m de altura, será necesario el vallado o delimitación de toda la zona de acopio.

Los acopios han de hacerse únicamente para aquellos tajos en los que sean necesarios.

Los montones nunca se ubicarán invadiendo caminos o viales, pero en caso de ser esto inevitable, serán correctamente señalizados.

No se deben acopiar tierras o áridos junto a excavaciones o desniveles que puedan dar lugar a deslizamientos y/o vertidos del propio material acopiado.

No deben situarse montones de tierras o áridos junto a dispositivos de drenaje que puedan obstruirlos, como consecuencia de arrastres en el material acopiado o que puedan obstruirlos por simple obstrucción de la descarga del dispositivo.

Acopio de tubos, marcos, elementos prefabricados y ferralla

En los acopios de tubos, marcos, elementos prefabricados y ferralla se observarán las siguientes normas de seguridad:

El acopio de tuberías se realizará de forma que quede asegurada su estabilidad, empleando para ello calzos preparados al efecto. El transporte de tuberías se realizará empleando útiles adecuados que impidan el deslizamiento y caída de los elementos transportados. Estos útiles se revisarán periódicamente, con el fin de garantizar su perfecto estado de empleo.

La ferralla se acopiará junto al tajo correspondiente, evitando que haga contacto con suelo húmedo para paliar su posible oxidación y consiguiente disminución de resistencia.

Almacenamiento de pinturas, desencofrantes y combustibles

Habrá de preverse un almacén cubierto y separado para los productos combustibles o tóxicos que hayan de emplearse en la obra. A estos almacenes no podrá accederse fumando ni podrán realizarse labores que generen calor intenso, como soldaduras. Si existan materiales que desprendan vapores nocivos, deberán vigilarse periódicamente los orificios de ventilación del recinto. Además, los trabajadores que accedan a estos recintos habrán disponer de filtros respiratorios.

Si los productos revisten toxicidad ecológica intensa, el punto de almacenamiento no se ubicará en vaguadas o terrenos extremadamente permeables para minimizar los efectos de un derrame ocasional.

Los almacenes estarán equipados con extintores adecuados al producto inflamable en cuestión en número suficiente y correctamente mantenidos. En cualquier caso, habrá de tenerse en cuenta la normativa respecto a sustancias tóxicas y peligrosas, en lo referente a la obligatoriedad de disponer de un consejero de seguridad en estos temas.

4.5. INSTALACIONES AUXILIARES

4.5.1. INSTALACIONES ELÉCTRICAS PROVISIONALES DE OBRA

El plan de seguridad y salud definirá detalladamente el tipo y las características de la instalación eléctrica de la obra, así como sus protecciones, distinguiendo las zonas de las instalaciones fijas y las

relativamente móviles, a lo largo de la obra, así como, en el caso de efectuar toma en alta, del transformador necesario. En el caso de toma de red en baja (380 V) se dispondrán, al menos, los siguientes elementos y medidas:

Un armario con el cuadro de distribución general, con protección magnetotérmica, incluyendo el neutro y varias salidas con interruptores magnetotérmicos y diferenciales de media sensibilidad a los armarios secundarios de distribución, en su caso; con cerradura y llave.

La entrada de corriente se realizará mediante toma estanca, con llegada de fuerza en clavija hembra y seccionador general tetrapolar de mando exterior, con enclavamiento magnetotérmico.

Borna general de toma de tierra, con conexión de todas las tomas.

Transformador de 24 V y salidas a ese voltaje, que podrá ser independiente del cuadro.

Enlaces mediante manguera de 3 ó 4 conductores con tomas de corriente multipolares.

4.6. MAQUINARIA Y HERRAMIENTAS DIVERSAS

4.6.1. CAMIÓN GRÚA

Con independencia de otras medidas preventivas que puedan adoptarse en el plan de seguridad y salud, se tendrán en cuenta las siguientes:

Siempre se colocarán calzos inmovilizadores en las cuatro ruedas y en los gatos estabilizadores, antes de iniciar las maniobras de carga que, como las de descarga, serán siempre dirigidas por un especialista.

Todos los ganchos de cuelgue, aparejos, balancines y eslingas o estribos dispondrán siempre de pestillos de seguridad

Se vigilará específicamente que no se sobrepasa la carga máxima admisible fijada por el fabricante del camión.

El gruísta tendrá siempre a la vista la carga suspendida y, si ello no fuera posible en alguna ocasión, todas sus maniobras estarán dirigidas por un señalista experto.

Estará terminantemente prohibido realizar arrastres de la carga o tirones sesgados de la misma

El camión grúa nunca deberá estacionar o circular a distancias inferiores a los dos metros del borde de excavaciones o de cortes del terreno.

Se prohibirá la permanencia de personas alrededor del camión grúa a distancias inferiores a 5 metros del mismo, así como la permanencia bajo cargas en suspensión.

El conductor tendrá prohibido dar marcha atrás sin la presencia y ayuda de un señalista, así como abandonar el camión con una carga suspendida.

No se permitirá que persona alguna ajena al operador acceda a la cabina del camión o maneje sus mandos.

En las operaciones con camión grúa se utilizará casco de seguridad (cuando el operador abandone la cabina), guantes de cuero y calzado antideslizante.

4.6.2. GRÚA MÓVIL

Una vez posicionada la máquina, se extenderán completamente los apoyos telescópicos de la misma, aunque la carga a elevar parezca pequeña en relación con el tipo de grúa utilizado. Si se careciera del espacio suficiente, sólo se dejarán de extender los telescópicos si se tiene exacto conocimiento de la carga a elevar y si existe la garantía del fabricante de suficiente estabilidad para ese peso a elevar y para los ángulos de trabajo con que se utilizará la pluma.

Cuando el terreno ofrezca dudas en cuanto a su resistencia o estabilidad, los estabilizadores se apoyarán sobre tablones, placas o traviesas de reparto

Antes de iniciar el izado, se conocerá con exactitud o se calculará con suficiente aproximación el peso de la carga a elevar, comprobándose la adecuación de la grúa que va a utilizarse

Se comprobará siempre que los materiales a elevar con la grúa están sueltos y libres de ataduras, enganches o esfuerzos que no sean el de su propio peso.

Se vigilará específicamente la estabilidad y sujeción adecuada de las cargas y materiales a izar, garantizándose que no puedan caer o desnivelarse excesivamente.

El operador dejará frenado el vehículo, dispuestos los estabilizadores y calzadas sus ruedas antes de operar la grúa, evitará oscilaciones pendulares de la carga y cuidará de no desplazar las cargas por encima de personas y, cuando ello sea necesario, utilizará la señal acústica que advierta de sus movimientos, a fin de que el personal pueda estar precavido y protegerse adecuadamente.

Siempre que la carga o descarga del material quede fuera del campo de visibilidad del operador, se dispondrá de un encargado de señalizar las maniobras, que será el único que dirija las mismas.

4.6.3 COMPRESORES

El compresor será siempre arrastrado a su posición de trabajo cuidándose que no se rebase nunca la franja de dos metros de ancho desde el borde de cortes o de coronación de taludes y quedará en estación con la lanza de arrastre en posición horizontal, con lo que el aparato estará nivelado, y con las ruedas sujetas mediante tacos antideslizamiento. En caso de que la lanza de arrastre carezca de rueda o de pivote de nivelación, se adaptará éste mediante suplementos firmes y seguros.

Las operaciones de abastecimiento de combustible serán realizadas siempre con el motor parado. Las carcasas protectoras del compresor estarán siempre instaladas y en posición de cerradas.

Cuando el compresor no sea de tipo silencioso, se señalizará claramente y se advertirá el elevado nivel de presión sonora alrededor del mismo, exigiéndose el empleo de protectores auditivos a los trabajadores que deban operar en esa zona.

Se comprobará sistemáticamente el estado de conservación de las mangueras y boquillas, previéndose reventones y escapes en los mismos

4.6.4 MARTILLOS NEUMÁTICOS

Los trabajadores que deban utilizar martillos neumáticos poseerán formación y experiencia en su utilización en obra. Los martillos se conservarán siempre bien cuidados y engrasados, verificándose sistemáticamente el estado de las mangueras y la inexistencia de fugas en las mismas. Cuando deba desarmarse un martillo, se cortará siempre la conexión del aire, pero nunca doblando la manguera.

Antes de iniciarse el trabajo, se inspeccionará el terreno y los elementos estructurales a demoler, a fin de detectar la posibilidad de desprendimientos o roturas a causa de las vibraciones transmitidas por el martillo. En la operación de picado, el trabajador nunca cargará todo su peso sobre el martillo, pues éste podría deslizarse y caer. Se cuidará el correcto acoplamiento de la herramienta de ataque en el martillo y nunca se harán esfuerzos de palanca con el martillo en marcha.

Se prohibirá terminantemente dejar los martillos neumáticos abandonados o hincados en los materiales a romper. El paso de peatones cerca de la obra se alejará tanto como sea posible de los puntos de trabajo de los martillos neumáticos.

Los operadores utilizarán preceptivamente calzado de seguridad, guantes de cuero, gafas de protección contra impactos, protectores auditivos, mascarilla antipolvo y arnés antivibratorio.

SIERRA CIRCULAR DE MESA

No se podrá utilizar sierra circular alguna que carezca de alguno de los siguientes elementos de protección:

- Cuchillo divisor del corte
- Empujador de la pieza a cortar y guía
- Carcasa de cubrición del disco
- Carcasa de protección de las transmisiones y poleas
- Interruptor estanco
- Toma de tierra

Las sierras se dispondrán en lugares acotados, libres de circulación y alejadas de zonas con riesgos de caídas de personas u objetos, de encharcamientos, de batido de cargas y de otros impedimentos

El trabajador que maneje la sierra estará expresamente formado y autorizado por el jefe de obra para ello. Utilizará siempre guantes de cuero, gafas de protección contra impactos de partículas, mascarilla antipolvo, calzado de seguridad y faja elástica (para usar en el corte de tablones).

Se controlará sistemáticamente el estado de los dientes del disco y de la estructura de éste, así como el mantenimiento de la zona de trabajo en condiciones de limpieza, con eliminación habitual de serrín y virutas.

Se evitará siempre la presencia de clavos en las piezas a cortar y existirá siempre un extintor de polvo antibrasa junto a la sierra de disco.

4.6.6 PISTOLA FIJACLAVOS

Los trabajadores que hayan de utilizar estas herramientas conocerán su manejo correcto y tendrá autorización expresa para ello, emitida por el jefe de obra. Al utilizar la pistola fijaclavos se acordonará la zona de trabajo, evitándose la presencia de otros trabajadores que pudieran sufrir daños.

Se exigirá el empleo de casco de seguridad, guantes de cuero, muñequeras o manguitos y gafas de seguridad antiproyecciones.

4.6.7 SOLDADURA OXIACETILÉNICA Y OXICORTE

El suministro, transporte y almacenamiento de botellas o bombonas de gases licuados estarán siempre controlados, vigilándose expresamente que:

Las válvulas estén siempre protegidas por las caperuzas correspondientes.

Se transporten las botellas sobre bateas enjauladas o carros de seguridad, en posición vertical y adecuadamente atadas, evitándose posibles vuelcos.

No se mezclen nunca botellas de gases diferentes en el almacenamiento.

Las botellas vacías se traten siempre como si estuviesen llenas.

Se vigilará que las botellas de gases licuados nunca queden expuestas al sol de forma mantenida. Nunca se utilizarán en posición horizontal o con inclinación menor de 45º. Los mecheros estarán siempre dotados de válvula antirretroceso de llama, colocadas en ambas conducciones y tanto a la salida de las botellas como a la entrada del soplete.

Las mangueras se conservarán en perfecto estado y carentes de cocas o dobleces bruscos, vigilándose sistemáticamente tales condiciones.

4.6.8 TALADRO PORTATIL

Los taladros tendrán siempre doble aislamiento eléctrico y sus conexiones se realizarán mediante manguera antihumedad, a partir de un cuadro secundario, dotada con clavijas macho-hembra estancas

Se prohibirá terminantemente depositar el taladro portátil en el suelo o dejarlo abandonado estando conectado a la red eléctrica. Los taladros sólo serán reparados por personal especializado, estando prohibido desarmarlos en el tajo.

Los trabajadores utilizarán preceptivamente casco y calzado de seguridad, gafas antiproyecciones y guantes de cuero.

4.6.9 HERRAMIENTAS MANUALES

Las herramientas se utilizarán sólo en aquéllas operaciones para las que han sido concebidas y se revisarán siempre antes de su empleo, desechándose cuando se detecten defectos en su estado de conservación. Se mantendrán siempre limpias de grasa u otras materias deslizantes y se colocarán siempre en los portaherramientas o estantes adecuados, evitándose su depósito desordenado o arbitrario o su abandono en cualquier sitio o por los suelos.

En su manejo se utilizarán guantes de cuero o de P.V.C. y botas de seguridad, así como casco y gafas antiproyecciones, en caso necesario.

4.6.10 MÁQUINAS HINCAPOSTES

Además de las medidas generales de maquinaria, se establecen las siguientes medidas preventivas específicas, las cuales deberán ser concretadas a nivel de detalle por el plan de seguridad y salud:

Las operaciones de la máquina serán dirigidas siempre por personal cualificado.

Se establecerá un orden determinado en la hinca.

Estará prohibido encaramarse sobre el tren de rodadura.

No se permitirá que personas no autorizadas accedan a la máquina. Pueden lesionarse o producirse accidentes.

Serán revisados periódicamente todos los puntos de escape del motor.

El maquinista, antes de realizar cualquier maniobra, habrá de cerciorarse de que no hay personas en sus alrededores.

En caso de calentamiento del motor, no se abrirá directamente la tapa del radiador. El vapor desprendido puede causar graves lesiones.

4.6.11 MÁQUINAS PINTABANDAS

No se permitirá la permanencia sobre la máquina en marcha a otra persona que no sea su operador, a fin de evitar accidentes por caída desde la máquina.

Los bordes laterales de la máquina, en prevención de atrapamientos, estarán señalizados mediante paneles de bandas amarillas y negras alternativas.

Se dispondrán dos extintores polivalentes y en buen estado sobre la plataforma de la máquina.

Sobre la máquina, junto a los lugares de paso y en aquellos con riesgo especifico, se adherirán las siguientes señales:

"Peligro: sustancias y paredes muy calientes".

Rótulo: "NO TOCAR; ALTAS TEMPERATURAS".

5. PREVENCIÓN DE RIESGOS EN LAS OPERACIONES DE CONSERVACIÓN, MANTENIMIENTO Y REPARACIÓN

Bajo este epígrafe se agrupan aquellas medidas preventivas cuya adopción va encaminada a reducir y controlar los riesgos que puedan aparecer en la ejecución de los trabajos posteriores a ejecutar en el ámbito de la obra. Asimismo será necesario incluir en el estudio la obligación de recoger, con la finalización de las obras, toda aquella información que pueda resultar necesaria para el correcto desarrollo de los citados trabajos posteriores. Con ello deberán facilitarse tanto las futuras labores de conservación, mantenimiento y reparación de los elementos constituyentes de la obra, como, llegado el caso, futuras modificaciones en la obra primitiva. Con todo ello se da cumplimiento a lo recogido en el artículo 5.6 del Real Decreto 1627/1997, de 24 de octubre.

Se contemplan a continuación algunas previsiones a tener en cuenta en la ejecución de las diferentes unidades de obra de cara a los trabajos posteriores a realizar.

5.1 TALUDES

En general se deberán facilitar posibles actuaciones futuras encaminadas a la estabilización de taludes ya sea mediante anclajes, ya con malla de triple torsión. Para ello será necesario contar tanto con el acceso necesario como con el espacio suficiente para las diferentes maniobras a efectuar. En el caso de taludes ya tratados será necesario ubicar los correspondientes elementos para facilitar tanto el acceso a los mismos como la disposición de los equipos de protección individual y colectiva a utilizar en la conservación del sistema de estabilización utilizado.

En la coronación de los desmontes se dejarán, con el mismo fin, algún medio de anclaje a punto fijo como, por ejemplo, picas con argolla superior clavadas en terreno firme y suficientemente alejadas del borde.

5.2 ESTRUCTURAS Y OBRAS DE FÁBRICA

En las diferentes estructuras y obras de fábrica será necesario garantizar la actuación de los equipos de conservación y mantenimiento, para ello se comprobará que la sección ofrece una geometría adecuada para garantizar la circulación y estacionamiento de los vehículos necesarios para las citadas operaciones de conservación y mantenimiento.

Sea cual sea el tipo de imposta o de pretil previsto, se posibilitará la disposición en su cara exterior de los anclajes suficientes (en número y en resistencia) para permitir el descuelgue seguro de plataformas voladas de trabajo o, simplemente, trabajadores con equipo de protección individual anticaídas.

Si la estructura está situada en lugares con vientos locales significativos, han de preverse igualmente puntos de arriostramiento adecuados para el anclaje de las plataformas de trabajo a utilizar.

5.3 CANALIZACIONES Y ELEMENTOS DE DRENAJE

A la hora de ejecutar las diferentes unidades de obra que alberguen futuras conducciones de cualquier tipo, será necesario garantizar la correcta geometría de la correspondiente canalización.

Los pozos y arquetas de mantenimiento deberán estar dotados tanto de elementos que posibiliten el descenso, escalera de pates, como de sistemas que permitan siempre la apertura desde su interior.

5.4 ELEMENTOS DE SEÑALIZACIÓN, BALIZAMIENTO Y DEFENSA

Se deberán prever las futuras labores de renovación de elementos de balizamiento, señalización y defensa de forma que dichas labores se puedan realizar de acuerdo con la normativa vigente.

5.5 CONDUCCIONES Y SERVICIOS

Será necesario recoger ya sea en el documento de manifestación de obra completa o en otro destinado al efecto las actuaciones llevadas a cabo en relación con los diferentes servicios existentes en la obra, incluyendo planos de canalizaciones, pozos, líneas eléctricas tanto aéreas como subterráneas, líneas telefónicas, conducciones, gasoductos y oleoductos, y en general todos aquellos servicios cuya situación será necesario conocer para la correcta realización de los trabajos posteriores.

5.6 CONCLUSIÓN

El estudio de seguridad y salud que se ha elaborado comprende la previsión de las actividades constructivas proyectadas y los riesgos previsibles en la ejecución de las mismas, así como las normas y medidas preventivas que habrán de adoptarse en la obra, la definición literal y gráfica precisa de las protecciones a utilizar, sus respectivas mediciones y precios y el presupuesto final del estudio.

Sobre la base de tales previsiones, el contratista elaborará y propondrá el plan de seguridad y salud de la obra, como aplicación concreta y desarrollo de este estudio, así como de presentación y justificación de las alternativas preventivas que se juzguen necesarias, en función del método y equipos que en cada caso vayan a utilizarse en la obra.

En relación con tal función y aplicaciones, el autor del presente estudio de seguridad y salud estima que la redacción de las páginas anteriores resulta suficiente para cumplir dichos objetivos y para constituir el conjunto básico de previsiones preventivas de la obra a realizar.

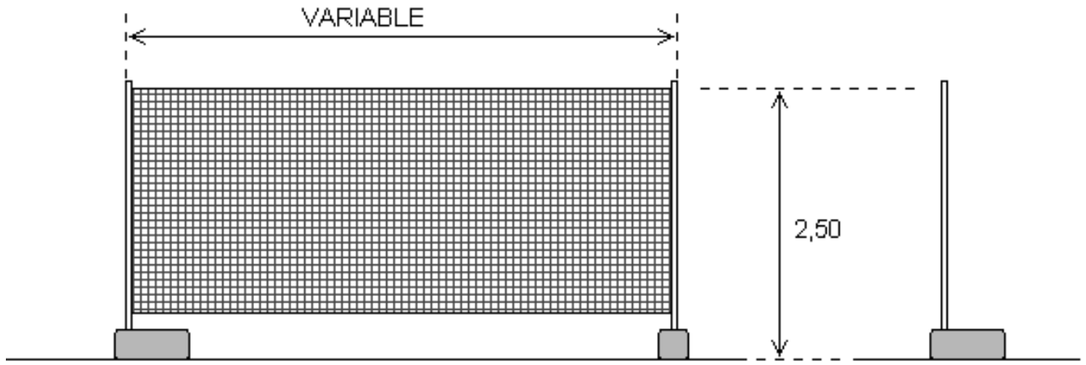
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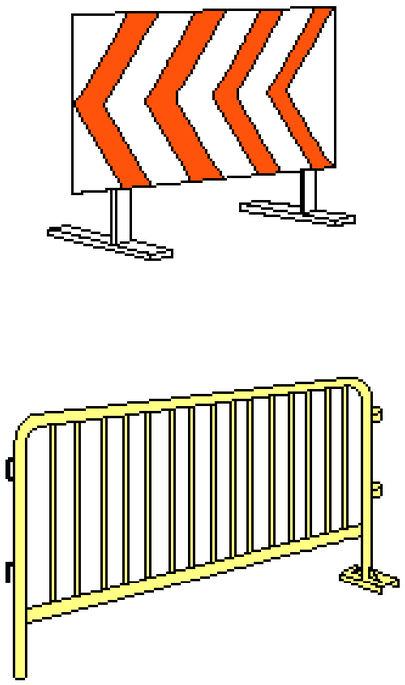
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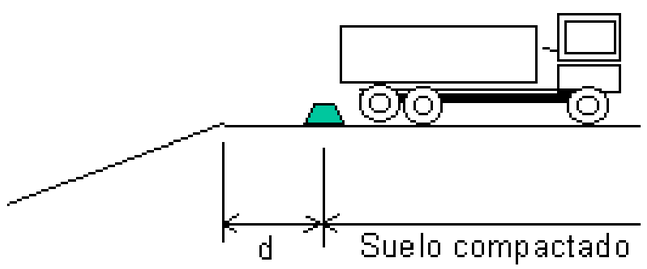
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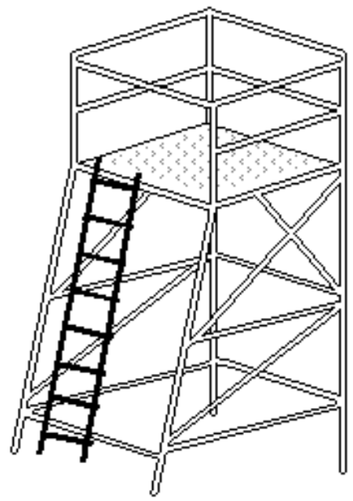
PLANOS



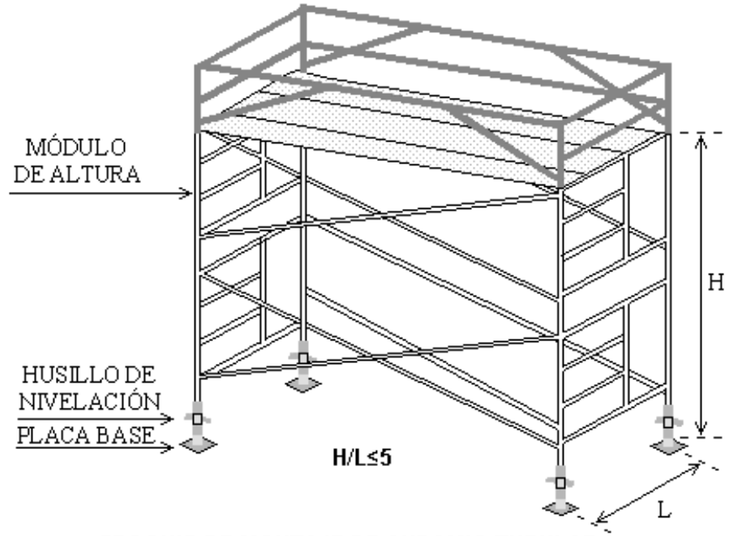


VALLA DE DELIMITACIÓN Y CERRAMIENTO DE LA OBRA (Tipo)

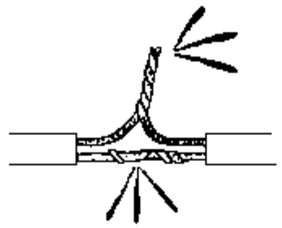


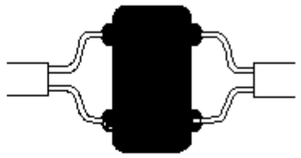


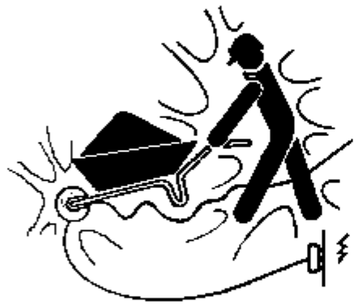
CASTILLETE METÁLICO

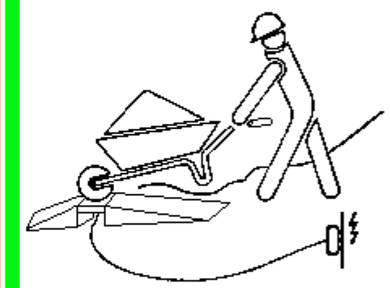


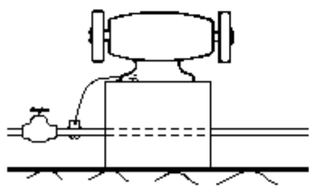
CROQUIS DE MONTAJE DE ANDAMIO TUBULAR

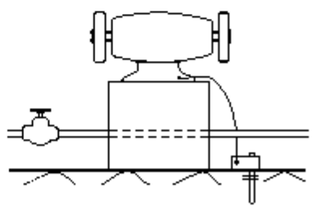






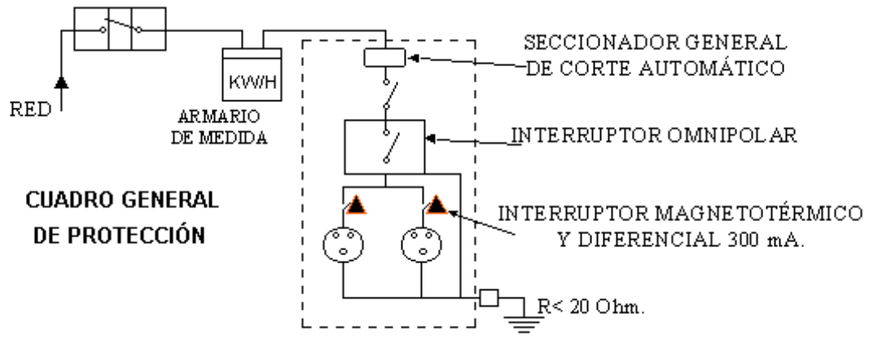




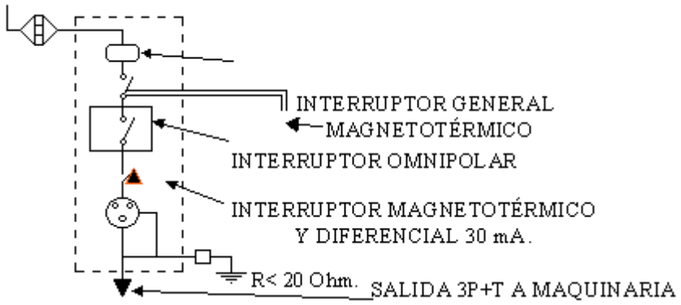


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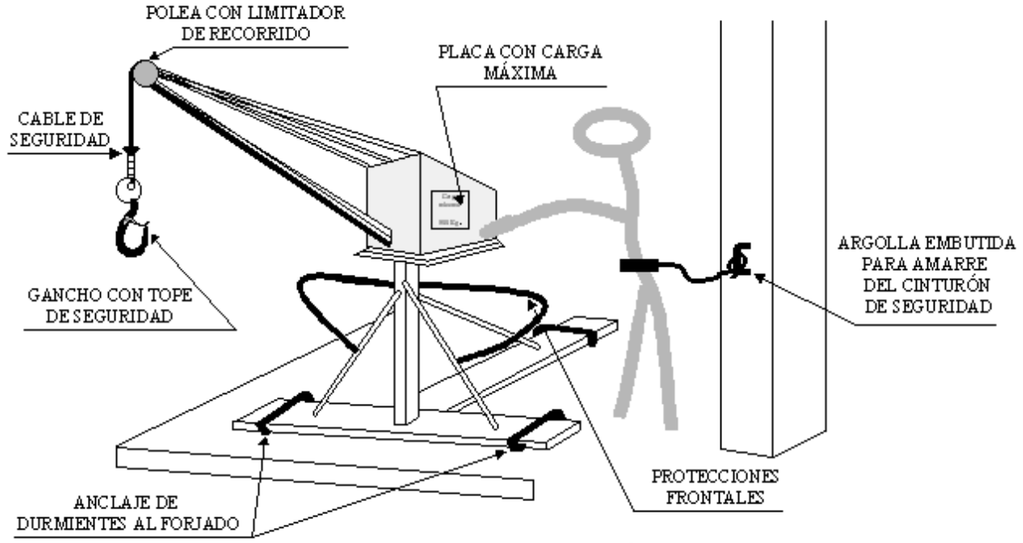
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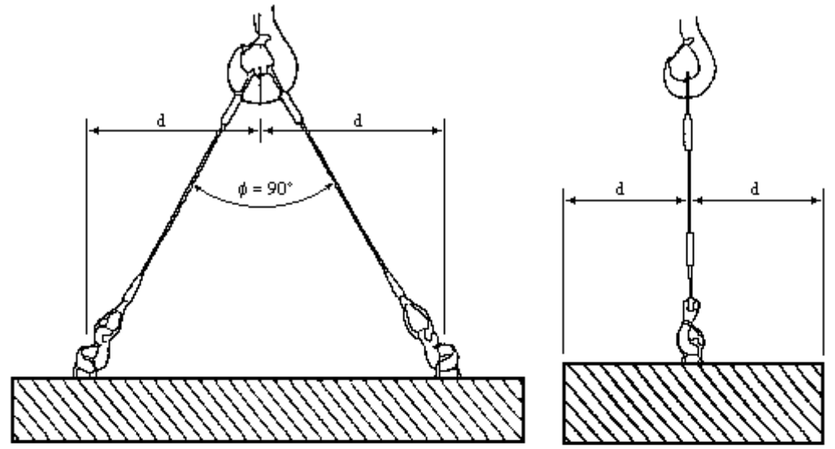
CUADRO GENERAL
DE PROTECCIÓN

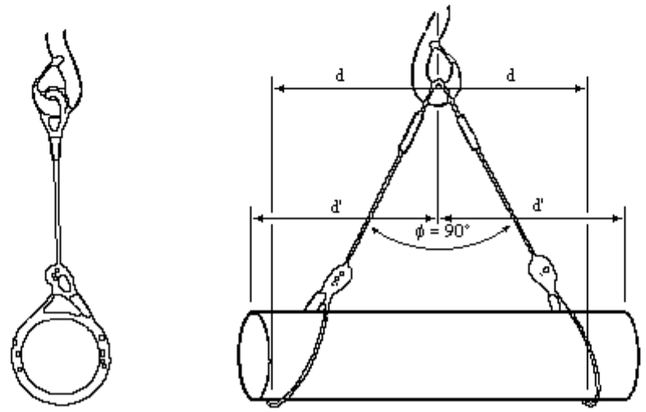


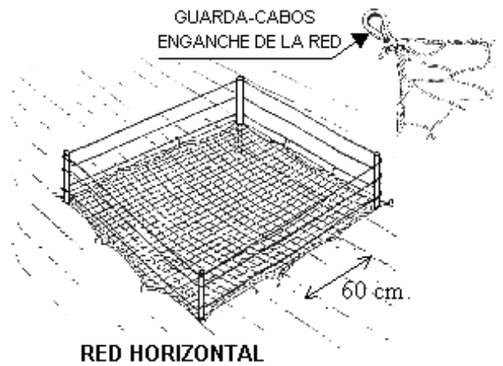
CUADRO SECUNDARIO
PARA ALIMENTACIÓN ÚNICA
(SIERRA, VIBRADOR, MAQUINILLO, ETC.)



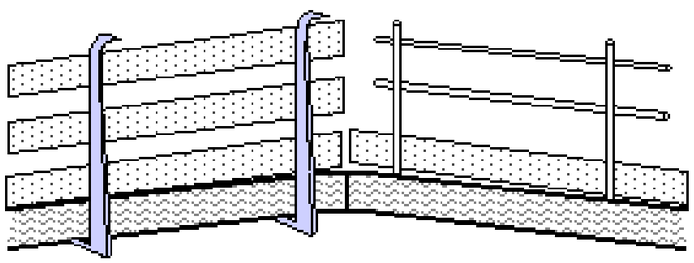
CROQUIS DE DISPOSICIÓN DE MAQUINILLOS





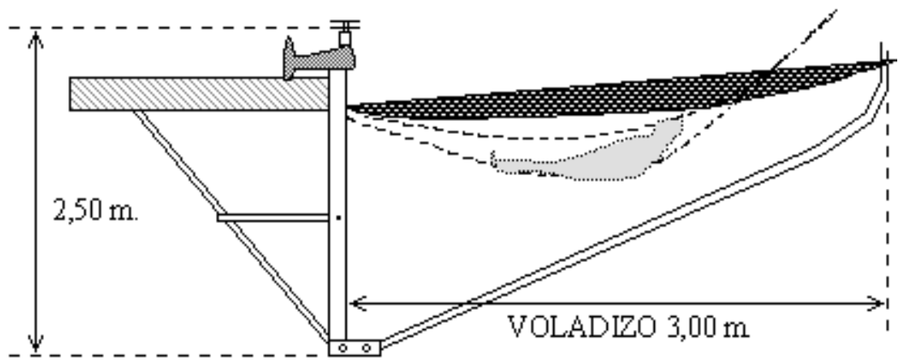


RED HORIZONTAL



GUARDACUERPOS TIPO SARGENTO

ANTEPECHO DE REDONDOS



CROQUIS DE RED DE BANDEJA CON JABALCÓN



DIMENSIONES EN mm		
L 1	L 2	L 3
594	492	30
420	348	21
297	248	15
210	174	11
148	121	8
105	87	5



MATERIAS INFLAMABLES



MATERIAS EXPLOSIVAS



MATERIAS TÓXICAS



MATERIAS CORROSIVAS



MATERIAS RADIACTIVAS



CARGAS SUSPENDIDAS



VEHÍCULOS DE MANUTENCIÓN



RIESGO ELÉCTRICO



PELIGRO GENERAL



RADIACIONES LÁSER



MATERIAS COMBURENTES



RADIACIONES NO IONIZANTES



CAMPO MAGNÉTICO INTENSO



RIESGO DE TROPEZAR



CAIDAS A DISTINTO NIVEL



RIESGO BIOLÓGICO



BAJAS TEMPERATURAS



MATERIAS NOCIVAS O IRRITANTES



DIMENSIONES EN mm		
L 1	L 2	L 3
594	492	30
420	348	21
297	248	15
210	174	11
148	121	8
105	87	5



MATERIAS INFLAMABLES



MATERIAS EXPLOSIVAS



CARGAS SUSPENDIDAS



VEHÍCULOS DE MANUTENCIÓN



MATERIAS COMBURENTES



RADIACIONES NO IONIZANTES



RIESGO BIOLÓGICO



MATERIAS TÓXICAS



MATERIAS CORROSIVAS



MATERIAS RADIACTIVAS



RIESGO ELÉCTRICO



PELIGRO GENERAL



RADIACIONES LÁSER



CAMPO MAGNÉTICO INTENSO



RIESGO DE TROPEZAR



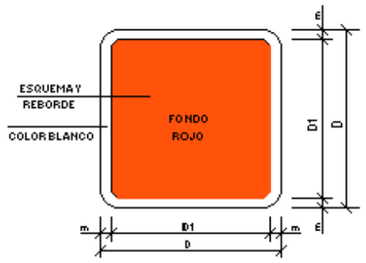
CAIDAS A DISTINTO NIVEL



BAJAS TEMPERATURAS



MATERIAS NOCIVAS O IRRITANTES



DIMENSIONES EN mm		
D	D 1	M
594	534	30
420	378	21
297	267	15
210	188	11
148	132	8
105	95	5



MANGUERA PARA INCENDIOS



ESCALERA DE MANO



EXTINTOR



TELÉFONO PARA LA LUCHA CONTRA INCENDIOS





DIRECCIÓN QUE DEBE SEGUIRSE
(SEÑAL INDICATIVA ADICIONAL A LAS ANTERIORES)







DIMENSIONES EN mm		
D	D 1	Ø
594	420	44
420	297	31
297	210	17
210	148	16
148	105	11
105	74	8



PROHIBIDO FUMAR



PROHIBIDO FUMAR
Y ENCENDER FUEGO



PROHIBIDO PASAR
A LOS PEATONES



PROHIBIDO APAGAR
CON AGUA



AGUA NO POTABLE



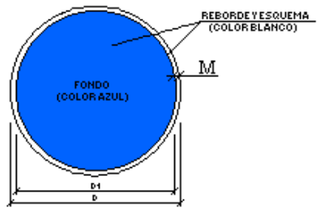
ENTRADA PROHIBIDA
A PERSONAS
NO AUTORIZADAS



PROHIBIDO A LOS
VEHÍCULOS DE
MANUTENCIÓN



NO TOCAR



DIMENSIONES EN mm		
D	D 1	M
594	534	30
420	378	21
297	267	15
210	188	11
148	132	8
105	95	5



OBLIGACIÓN GENERAL (ACOMPAÑADA, SI PROCEDE, DE SEÑAL ADICIONAL)



PROTECCIÓN OBLIGATORIA DE LA VISTA



PROTECCIÓN OBLIGATORIA DE LA CABEZA



PROTECCIÓN OBLIGATORIA DEL OIDO



PROTECCIÓN OBLIGATORIA DE LAS VÍAS RESPIRATORIAS



PROTECCIÓN OBLIGATORIA DE LOS PIES



PROTECCIÓN OBLIGATORIA DE LAS MANOS



PROTECCIÓN OBLIGATORIA DEL CUERPO



PROTECCION OBLIGATORIA DE LA CARA



PROTECCIÓN INDIVIDUAL OBLIGATORIA CONTRA CAÍDAS



VÍA OBLIGATORIA PARA PEATONES



VÍA SALIDA DE SOCORRO



TELÉFONO DE SALVAMENTO



DIRECCIÓN QUE DEBE SEGUIRSE
(SEÑAL INDICATIVA ADICIONAL A LAS SIGUIENTES)



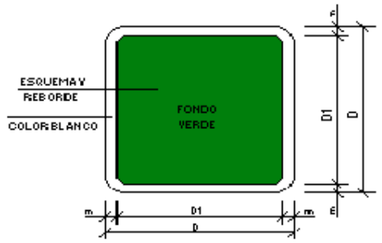
CAMILLA



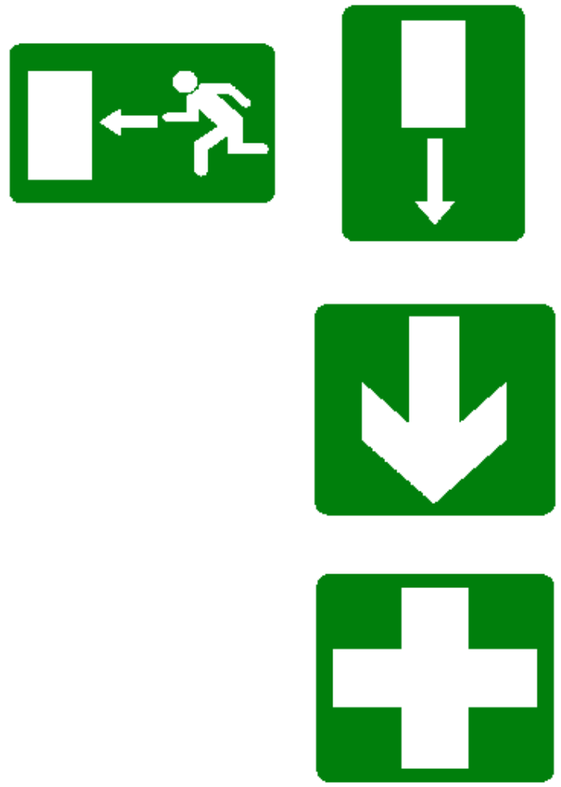
DUCHA DE SEGURIDAD



LAVADO DE OJOS



DIMENSIONES EN mm		
D	D 1	m
594	534	30
420	378	21
297	267	15
210	188	11
148	132	8
105	95	5

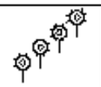


PRIMEROS AUXILIOS

ELEMENTOS LUMINOSOS

CLAVE	SEÑAL	DENOMINACIÓN
TL-1		SEMÁFORO (TRICOLOR)
TL-2		LUZ AMBAR INTERMITENTE
TL-3		LUZ AMBAR ALTERNATIVAMENTE INTERMITENTE
TL-4		TRIPLE LUZ AMBAR INTERMITENTE
TL-5		DISCO LUMINOSO MANUAL DE PASO PERMITIDO
TL-6		DISCO LUMINOSO MANUAL DE STOP O PASO PROHIBIDO
TL-7		LÍNEA DE LUCES AMARILLAS FIJAS

ELEMENTOS LUMINOSOS

CLAVE	SEÑAL	DENOMINACIÓN
TL-8		CASCADA LUMINOSA (LUZ APARENTEMENTE MOVIL)
TL-9		TUBO LUMINOSO (LUZ APARENTEMENTE MOVIL)
TL-10		LUZ AMARILLA FIJA
TL-11		LUZ ROJA FIJA

ELEMENTOS DE DEFENSA

CLAVE	SEÑAL	DENOMINACIÓN
TD-1		BARRERA DE SEGURIDAD RÍGIDA PORTATIL
TD-2		BARRERA DE SEGURIDAD METÁLICA

SEÑALES DE INDICACIÓN

CLAVE	SEÑAL	DENOMINACIÓN
TS-52		REDUCCIÓN DE UN CARRIL POR LA DERECHA (3 a 2)
TS-53		REDUCCIÓN DE UN CARRIL POR LA IZQUIERDA (3 a 2)
TS-54		REDUCCIÓN DE UN CARRIL POR LA DERECHA (2 a 1)
TS-55		REDUCCIÓN DE UN CARRIL POR LA IZQUIERDA (2 a 1)

ELEMENTOS DE BALIZAMIENTO REFLECTANTES

CLAVE	SEÑAL	DENOMINACIÓN
TB-1		PANEL DIRECCIONAL ALTO
TB-2		PANEL DIRECCIONAL ESTRECHO
TB-3		PANEL DOBLE DIRECCIONAL ALTO
TB-4		PANEL DOBLE DIRECCIONAL ESTRECHO
TB-5		PANEL DE ZONA EXCLUIDA AL TRÁFICO
TB-6		CONO
TB-7		PIQUETE

ELEMENTOS DE BALIZAMIENTO REFLECTANTES

CLAVE	SEÑAL	DENOMINACIÓN
TB-8		BALIZA DE BORDE DERECHO
TB-9		BALIZA DE BORDE IZQUIERDO
TB-10		CAPTAFARO LADO DERECHO E IZQUIERDO
TB-11		HITO DE BORDE REFLEXIVO Y LUMINISCENTE
TB-12		MARCA VIAL NARANJA
TB-13		GUIRNALDA
TB-14		BASTIDOR MÓVIL

SEÑALES DE INDICACIÓN

CLAVE	SEÑAL	DENOMINACIÓN
TS-60		DESVIO DE UN CARRIL POR CALZADA OPUESTA
TS-61		DESVIO DE UN CARRIL POR CALZADA OPUESTA MANTENIENDO OTRO POR LAS OBRAS
TS-62		DESVIO DE DOS CARRILES POR CALZADA OPUESTA
TS-210		CARTEL CROQUIS

CODIGO DE SEÑALES DE MANIOBRAS

1 LEVANTAR LA CARGA



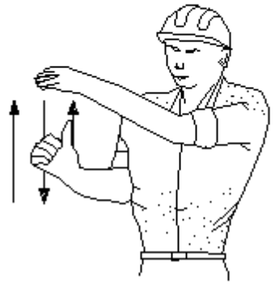
2 LEVANTAR EL AGUILON O PLUMA



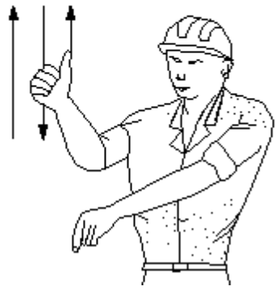
3 LEVANTAR LA CARGA LENTAMENTE



4 LEVANTAR EL AGUILON O PLUMA LENTAMENTE



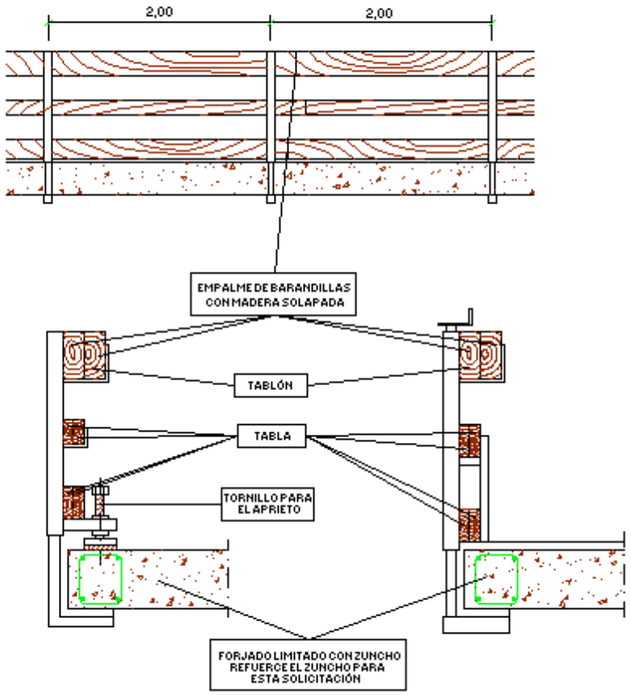
5 LEVANTAR EL AGUILON O PLUMA Y BAJAR LA CARGA

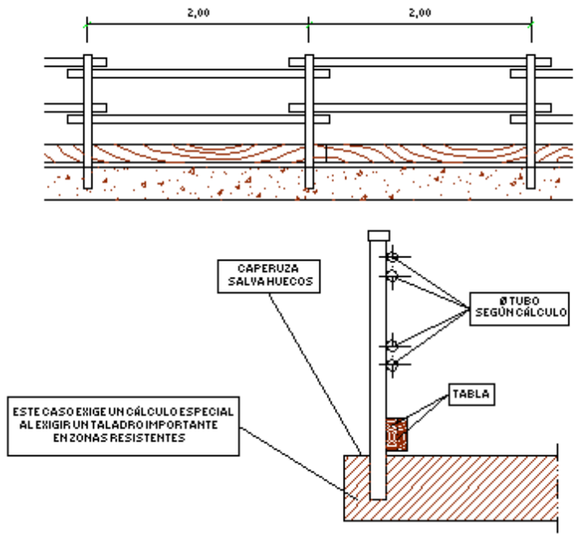


6 BAJAR LA CARGA

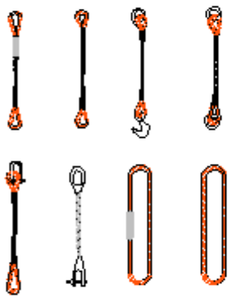


BARANDILLAS

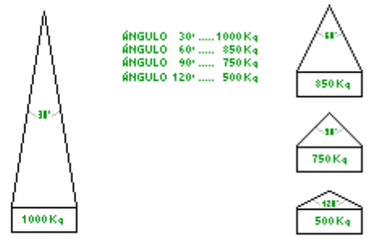




TIPOS DE ESLINGAS



MANEJO DE MATERIALES



GAZAS

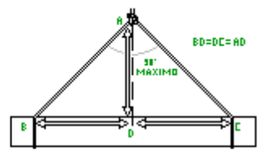




MÉTODO CORRECTO

MÉTODOS INCORRECTOS

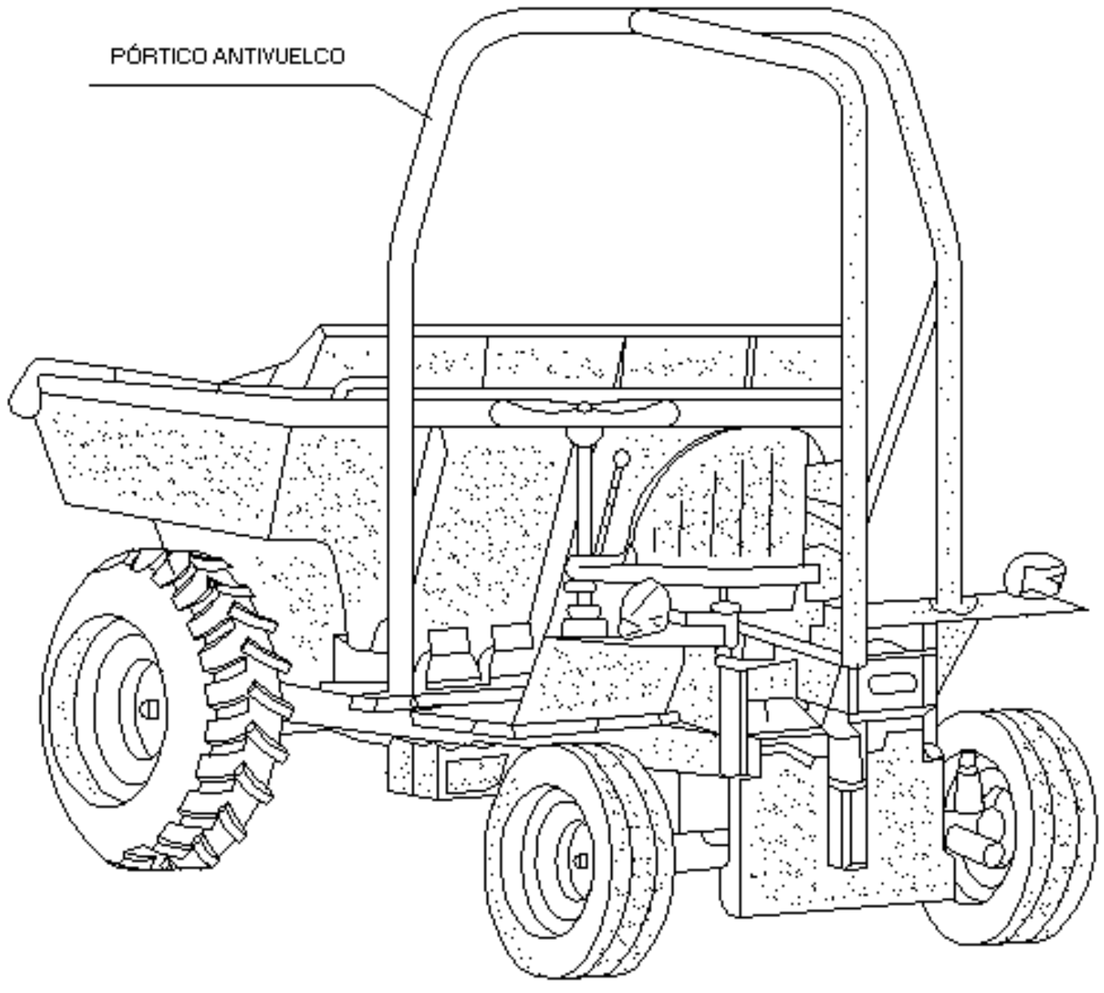
RELACIÓN ENTRE EL ÁNGULO DE LA ESLINGA Y SU CAPACIDAD DE CARGA



LA CARGA DEBE IR BIEN CENTRADA Y LA ESLINGA NO DEBE TRABAJAR CON ÁNGULOS SUPERIORES A 90°

DIÁMETRO DEL CABLE	NÚMERO DE PERRILLOS	DISTANCIA ENTRE PERRILLOS
Hasta 12 mm	3	6 diámetros
12 mm a 20 mm	4	6 diámetros
20 mm a 25 mm	5	6 diámetros
25 mm a 35 mm	6	6 diámetros

DUMPER



LOS VEHÍCULOS SIN CABINAS CUBIERTAS DEBERÁN SER PROVISTOS DE PÓRTICOS ANTIVUELCO

PRESUPUESTO

6.- MEDICIONES

06 SEGURIDAD Y SALUD
SS 01 EPIs

D41EA PROTECCIONES PARA CABEZA

D41EA001 **ud casco de seguridad.**
Ud. Casco de seguridad homologado.

20,00

D41EA220 **ud gafas contra impactos.**
Ud. Gafas contra impactos, homologadas.

10,00

D41EC PROTECCIONES PARA CUERPO

D41EC001 **ud mono de trabajo.**
Ud. Mono de trabajo, homologado

20,00

d41ec010 **ud impermeable.**
Ud. Impermeable de trabajo, homologado.

20,00

D41EC401 **Ud cinturon seguridad clase a.**
Ud. Cinturón de seguridad clase A (sujección), homologado.

5,00

d41ec480 **ud aparato freno.**
Ud. Aparato de freno de paracaidas, homologado.

5,00

d41ec510 **ud faja elastica sobresfuerzos.**
Ud. Faja elástica para protección de sobreesfuerzos, homologada.

5,00

D41EC520 **ud cinturon portaherramientas.**
Ud. Cinturón portaherramientas, homologado.

10,00

D41EE PROTECCIONES PARA MANOS

D41EE001 **ud par guantes goma.**
Ud. Par de guantes de goma.

50,00

D41EE010 **ud par guantes uso general.**
Ud. Par de guantes de uso general.

20,00

D41EE030 **ud par guantes aislantes.**
Ud. Par de guantes aislantes para electricista, homologados.

5,00

D41EG PROTECCIONES PARA PIES

D41EG001 **Ud par botas agua.**
Ud. Par de botas de agua, homologadas.

20,00

D41EG010 **ud par botas seguridad.**
Ud. Par de botas de seguridad con puntera y plantillas metálicas, homologadas.

20,00

D41EG030 **ud par botas aislantes.**
Ud. Par de botas aislantes para electricista, homologadas.

5,00

SS 02 EPC

E002.000 **ud anticaidas retractil automático, compuesto por dos semicárteres**
anticaidas retractil automático, compuesto por dos semicárteres de alta resistencia, cable galvanizado de diametro 4mm y de 15 metros de longitud, con conector de tornillo.

10,00

E002.001 **ML linea de vida horizontal de seguridad para anclaje y desplazamie**
línea de vida horizontal de seguridad para anclaje y desplazamiento de los arneses de seguridad, con cable fiador de acero de 8 m mde diámetro, fijada a apoyos formados por placa de continuidad y tubo de acero de 35 mm de diámetro, incluso tensores de amarre.

250,00

E002.002 **UD TAPÓN DE PLÁSTICO 'SETA CUBRE-ESPERAS' , A COLOCAR EN FERRALLA.**
tapón de plástico 'seta cubre-esperas' , a colocar en ferralla.

4.000,00

E002.003 **M2 TAPA PROVISIONAL PARA ARQUETAS**
tapa provisional para arquetas de diversas dimensiones, huecos horizonatales o asimilables, formada mediante tablones de madera de 20x5 cm, armados mediante clavazón, incluso colocación.

10,00

E002.004 **UD CHAPÓN DE ACERO DE 200X100X25 MM COMO PASO DE VEHÍCULOS PARA PAS**
chapón de acero de 200x100x25 mm como paso de

vehículos para paso medio sobre pequeñas zanjas de anchura máxima 80 cm, amortización en varios usos, sumnistro, montaje y desmontaje.

10,00

E002.007 **ML** **BARANDILLA DE PROTECCION DE H=0.90m,EN ESTR. DE SUELO REFORZADO**

barandilla de protección en perímetro de estructura de suelo reforzado, formado por sargentos metálicos con base de fijación a los módulos prefabricados de la estructura, pasamanos, listón intermedio y rodapié formado por tablones de 250x20x5 cm. (amortizable en varios usos)

300,00

E002.008 **UD** **RED MOSQUITERA A COLOCAR**

red mosquitera a colocar tras barandilla de protección en borde de estructura con el fin de evitar caída de materiales a distinto nivel. incluso suministro, montaje y desmontaje.

50,00

E002.011 **ML** **PASARELA PARA PASOS SOBRE ZANJAS FORMADA POR TRES TABLONES DE 20**

pasarela para pasos sobre zanjas formada por tres tablones de 20x7cm cosidos a clavazon y doble barandilla formada por pasamanos de madera de 20x5 rodapie y travesaño intermedio de 15x5cm, sujetos con pies derechos de madera cada 1mts. incluso colocacion y desmontaje.

15,00

E002.012 **ML** **VALLA METÁLICA PARA CIERRE DE OBRA O TAJOS DE 2 METROS DE ALTURA**

valla metálica para cierre de obra o tajos de 2 metros de altura y 2,50 metros de largo con pies prefabricados de hormigón, con elmentos de unión a otra valla. incluso p.p. de de colocación y retirada de la misma.

150,00

E002.013 **ML** **VALLA AUTÓNOMA METÁLICA DE 2,5 METROS DE LARGO Y 1 METRO DE ALTU**

valla autónoma metálica de 2,5 metros de largo y 1 metro de altura, color amarillo, para contención de peatones (amortizable en varios usos).

30,00

E002.014 **H** **ALQUILER DE DETECTOR ELÉCTRICO DE REDES Y SERVICIOS**

alquiler de detector eléctrico de redes y servicios alimentado por baterías; dotado de mochila de transporte y de cincha de soporte al hombro. operado y calibrado por una entidad de control de calidad.

24,00

E002.015 **UD** **TOPE FINAL DE RECORRIDO DE CAMIONES**

tope final de recorrido de camiones

25,00

E002.01B **UD** **ARO SALVAVIDAS, INCUSO ROLLO DE CUERDA DE NYLON DE 14MM DE DIÁME**

aro salvavidas, incuso rollo de cuerda de nylon de 14mm de diámetro y 35m de longitud con una lanzada para su fijacion

20,00

E002.016 **MES** **CAMION DE RIEGO PARA EVITAR ATMÓSFERAS PULVÍGENAS (2 CAMIONES)**

camion de riego para evitar atmósferas pulvígenas (considerándose 2 camiones)

8,00

E002.017 **UD** **EXTINTOR MANUAL A.F.P.G.**

extintor manual a.f.p.g. de polvo seco polivalente de 6 kg; colocado sobre soporte fijado al parmanento vertical, incluso p.p. de pequeño material y desmontaje.

4,00

E002.018 **UD** **EXTINTOR MANUAL DE CO2 DE**

extintor manual de co2 de 6 kg; colocado sobre soporte fijado al parmanento vertical, incluso p.p. de pequeño material y desmontaje.

4,00

E002.019 **UD** **EXTINTOR PORTATIL**

extintor portatil.

10,00

E002.020 **UD** **MANTA APAGAFUEGOS**

manta apagafuegos de 120x120cm

5,00

E002.021 **UD** **INSTALACION DE PUESTA A T**

instalacion de puesta a tierra compuesta por cable de cobre, pica (o placa de cobre), electrodo, etc. según r.e.b.t.

10,00

E002.022 **UD** **TRANSFORMADOR DE SEGURIDA**

transformador de seguridad de 24 v para alimentacion de maquinas y herramientas en zonas humedas según r.e.b.t.

5,00

E002.023 **UD** **INTERRUPTOR DIFERENCIAL 3**

interruptor diferencial de alta sensibilidad (30 ma) incluida instalación en alumbrado y fuerza, según r.e.b.t.

5,00

E002.024 **UD FUNDA TERMORETRACTIL ANTI**
funda termoretractil antihumedad compuesta por clavija y enchufe. instalada.

5,00

SS 03 SEÑALIZACION Y BALIZAMIENTO DE SEGURIDAD

E005.000 **ud PORTICO PARA PROTECCIÓN DE LÍNEAS AÉREAS, Y DE GÁLIBO PARA PASOS**
portico para protección de líneas aéreas, y de gálibo para pasos bajo estructuras. incluso montaje y desmontaje.

5,00

E005.010 **UD CONO REFLECTANTE DE GRAN RESISTENCIA DE 50 CM DE ALTURA PARA BAL**
cono reflectante de gran resistencia de 50 cm de altura para balizamiento en el interior de la traza de la obra.

40,00

E005.013 **UD PIQUETA REFLECTANTE**
piqueta reflectante de balizamiento tb-7 de 30x10 cm, incluso soporte de 30 cm. totalmente colocada para señalización en el interior de la traza de la obra.

10,00

E005.014 **ML MALLA DE POLIETILENO DE ALTA DENSIDAD, TIPO STOPPER, CON TRATAMI**
malla de polietileno de alta densidad, tipo stopper, con tratamiento ultravioleta, de 1 metro de altura de color naranja reflectante para balizamiento interior de obra.

500,00

E005.015 **UD BOBINA DE CINTA DE POLIET**
bobina de cinta de polietileno no adhesiva de 500 mts de longitud, 80 mm de ancho y 0,06 mm de espesor a dos colores (rojo y blanco), incluso colocacion y desmontaje.

4,00

E005.025 **UD PANEL GENERICO VARIOS RIESGOS**
panel genérico indicativo de varios riesgos de dimensiones 150x100cm. incluso p.p. de suministro, instalacion en tajo, cambios de ubicación y retirada.

1,00

E005.026 **UD PANEL GENÉRICO MEDIDAS PREVENTIVAS**
panel genérico indicativo de medidas preventivas de dimensiones 150x100cm. incluso p.p. de suministro, instalacion en tajo, cambios de ubicación y retirada.

1,00

E005.016 **UD SEÑAL O CARTEL PROTECCION OBLIGATORIA**
señal o carte indicativo de proteccion obligatoria, reflectante de 0,30x0,30mts. incluso p.p. de suministro, instalacion en tajo, cambios en la ubicacion y retirada.

25,00

E005.017 **UD SEÑAL O CARTEL RIESGO**
señal o cartel indicativo de riesgo, reflectante de 0,30x0,30mts. incluso p.p. de suministro, instalacion en tajo, cambios en la ubicacion y retirada.

10,00

E005.018 **UD SEÑAL O CARTEL PELIGRO DETERMINADO**

10,00

E005.019 **UD SEÑAL O CARTEL PROHIBICION DETERMINADA**
señal o cartel indicativo de prohibicion determinada, reflectante de 0,30x0,30mts. incluso p.p. de suministro, instalacion en tajo, cambios en la ubicacion y retirada.

10,00

E005.027 **UD SEÑAL O CARTEL PREVENCION DE INCENDIOS**
señal o cartel indicativo de prevencion de incendios, reflectante de 0,30x0,30mts. incluso p.p. de suministro, instalacion en tajo, cambios en la ubicacion y retirada.

5,00

E005.028 **UD SEÑAL O CARTEL PRIMEROS AUXILIOS**
señal o cartel indicativo de primeros auxilios, reflectante de 0,30x0,30mts. incluso p.p. de suministro, instalacion en tajo, cambios en la ubicacion y retirada.

5,00

E005.029 **UD SEÑAL METÁLICA DE REGULACION DE TRAFICO**
señal metálica de regulacion de trafico, reflectante, en el interior de la obra. incluso p.p. de suministro, instalacion en tajo, cambios en la ubicacion y retirada.

25,00

E005.023 **UD BALIZA LUMINOSA INTERMITE**
baliza luminosa intermitente de luz amarilla tl-10 para su instalacion provisional en obra. incluso p.p. de suministro, instalacion, cambios en la ubicacion y retirada.

20,00

E005.030 **UD PANEL METÁLICO REFLECTANTE DIRECCIONAL**
panel metálico reflectante direccional estrecho, tipo tb-2. incluso p.p. de suministro, instalacion

cambios en la ubicacion y retirada.

8,00

E005.031 **UD MODULO NEW JERSEY PLASTICO**
modulo de barrera de plastico tipo new jersey en dos colores, rojo y blanco, rellena de agua o arena. incluso p.p. de suministro, instalacion, cambios en la ubicacion y retirada.

40,00

SS 04 INSTALACIONES DE HIGIENE Y BIENESTAR

D41AA ALQUILER CASETAS PREFA. OBRA

D41AA210 **Ud ALQUILER CASETA PREFA.OFICINA**
Ud. Més de alquiler de caseta prefabricada para oficina de obra de 6x2.35 m., con estructura metálica mediante perfiles conformados en frio y cerramiento chapa nervada y galvanizada con terminación de pintura prelacada. Aislamiento interior con lana de vidrio combinada con poliestireno expandido. Revestimiento de P.V.C. en suelos y tablero melaminado en paredes. Ventanas de aluminio anodizado, con persianas correderas de protección, incluso instalación eléctrica con distribución interior de alumbrado y fuerza con toma exterior a 220V.

8,00

D41AA310 **Ud ALQUILER CASETA PREFA.COMEDOR**
Ud. Més de alquiler de caseta prefabricada para comedor de obra de 6x2.35 m., con estructura metálica mediante perfiles conformados en frio y cerramiento chapa nervada y galvanizada con terminación de pintura prelacada. Aislamiento interior con lana de vidrio combinada con poliestireno expandido. Revestimiento de P.V.C. en suelos y tablero melaminado en paredes. Ventanas de aluminio anodizado, con persianas correderas de protección, incluso instalación eléctrica con distribución interior de alumbrado y fuerza con toma exterior a 220V.

8,00

D41AA320 **Ud ALQUILER CASETA P.VESTUARIOS.**
Ud. Més de alquiler de caseta prefabricada para vestuarios de obra de 6x2.35 m., con estructura metálica mediante perfiles conformados en frio y cerramiento chapa nervada y galvanizada con terminación de pintura prelacada. Aislamiento interior con lana de vidrio combinada con poliestireno expandido. Revestimiento de P.V.C. en suelos y tablero melaminado en paredes. Ventanas de aluminio anodizado, con persianas correderas de protección, incluso instalación eléctrica con distribución interior de alumbrado y fuerza con toma exterior a 220V.

4,00

D41AA420 **Ud A.A/2INOD,2DUCHA,LAV.3G,TERMO**
Ud. Més de alquiler de caseta prefabricada para aseos de obra de 4.10x1.90 m. con dos inodoros, dos duchas, un lavabo con tres grifos y termo eléctrico de 50 litros de capacidad; con las mismas caracteristicas que las oficinas. Suelo de contrachapado hidrófugo con capa fenólica antideslizante y resistente al desgaste. Piezas sanitarias de fibra de vidrio acabadas en Gel-Coat blanco y pintura antideslizante. Puertas interiores de madera en los compartimentos. Instalación de fontaneria con tuberias de polibutileno e instalación eléctrica para corriente monofásica de 220 V. protegida con interruptor automático.

4,00

D41AA820 **Ud TRANSPORTE CASETA PREFABRICAD**
Ud. Transporte de caseta prefabricada a obra, incluso descarga y posterior recogida.

4,00

D41AE ACOMETIDAS PROVISIONALES

D41AE001 **Ud ACOMET.PROV.ELECT.A CASETA.**
Ud. Acometida provisional de electricidad a casetas de obra.

1,00

D41AE101 **Ud ACOMET.PROV.FONTAN.A CASETA.**
Ud. Acometida provisional de fontaneria a casetas de obra.

1,00

D41AE201 **Ud ACOMET.PROV.SANEAMT.A CASETA.**
Ud. Acometida provisional de saneamiento a casetas de obra.

1,00

D41AG MOBILIARIO Y EQUIPAMIENTO

D41AG201 **Ud TAQUILLA METALICA INDIVIDUAL.**
Ud. Taquilla metálica individual con llave de 1.78 m. de altura colocada.

20,00

D41AG210 **Ud BANCO POLIPROPILENO 5 PERS.**
Ud. Banco de polipropileno para 5 personas con soportes metalicos, colocado.

5,00

D41AG610 **Ud CALIENTA COMIDAS 25 SERVICIOS**
Ud. Calienta comidas para 25 servicios, colocado.

2,00

D41AG630 **Ud MESA MELAMINA 10 PERSONAS.**
Ud. Mesa metálica para comedor con una capacidad de 10 personas, y tablero superior de melamina colocada.

3,00

D41AG700 **Ud DEPOSITO DE BASURAS DE 800 L.**
Ud. Depósito de basuras de 800 litros de capacidad realizado en polietileno inyectado, acero y bandas de caucho, con ruedas para su transporte, colocado.

1,00

D41IA201 **H. EQUIPO DE LIMPIEZA Y CONSERVA**
H. Equipo de limpieza y conservación de instalaciones provisionales de obra, considerando una hora diaria de oficial de 2ª y de ayudante.

300,00

D41IA210 **Ud LIMPIEZA Y DESINFECCION CASET.**
Ud. Limpieza y desinfección de casetas de obra, considerando una limpieza por cada dos semanas.

35,00

SS 05 FORMACIÓN EN SEGURIDAD Y REUNIONES

D41IA001 **H. COMITE DE SEGURIDAD E HIGIENE**
H. Comité de seguridad compuesto por un técnico en materia de seguridad con categoria de encargado, dos trabajadores con categoria de oficial de 2ª, un ayudante y un vigilante de seguridad con categoria de oficial de 1ª, considerando una reunión como mínimo al mes.

15,00

D41IA020 **H. FORMACION SEGURIDAD E HIGIENE**
H. Formación de seguridad e higiene en el trabajo, considerando una hora a la semana y realizada por un encargado.

70,00

SS 06 MEDICINA PREVENTIVA Y PRIMEROS AUXILIOS

D41AG801 **Ud BOTIQUIN DE OBRA.**
Ud. Botiquín de obra instalado.

1,00

D41AG810 **Ud REPOSICION DE BOTIQUIN.**
Ud. Reposición de material de botiquín de obra.

1,00

D41IA040 **Ud RECONOCIMIENTO MEDICO OBLIGAT**
Ud. Reconocimiento médico obligatorio.

25,00

7. CUADRO DE PRECIOS Nº 1

06 SEGURIDAD Y SALUD
SS 01 EPIs

D41EA PROTECCIONES PARA CABEZA

D41EA001 **Ud CASCO DE SEGURIDAD.** **2,25**
Ud. Casco de seguridad homologado.
DOS EUROS con VEINTICINCO CÉNTIMOS

D41EA220 **Ud GAFAS CONTRA IMPACTOS.** **10,82**
Ud. Gafas contra impactos, homologadas.
DIEZ EUROS con OCHENTA Y DOS CÉNTIMOS

D41EC PROTECCIONES PARA CUERPO

D41EC001 **Ud MONO DE TRABAJO.** **12,84**
Ud. Mono de trabajo, homologado
DOCE EUROS con OCHENTA Y CUATRO CÉNTIMOS

D41EC010 **Ud IMPERMEABLE.** **7,75**
Ud. Impermeable de trabajo, homologado.
SIETE EUROS con SETENTA Y CINCO CÉNTIMOS

D41EC401 **Ud CINTURON SEGURIDAD CLASE A.** **50,96**
Ud. Cinturón de seguridad clase A (sujección), homologado.
CINCUENTA EUROS con NOVENTA Y SEIS CÉNTIMOS

D41EC480 **Ud APARATO FRENO.** **60,58**
Ud. Aparato de freno de paracaidas, homologado.
SESENTA EUROS con CINCUENTA Y OCHO CÉNTIMOS

D41EC510 **Ud FAJA ELASTICA SOBRESFUERZOS.** **13,82**
Ud. Faja elástica para protección de sobreesfuerzos, homologada.
TRECE EUROS con OCHENTA Y DOS CÉNTIMOS

D41EC520 **Ud CINTURON PORTAHERRAMIENTAS.** **21,04**
Ud. Cinturón portaherramientas, homologado.
VEINTIUN EUROS con CUATRO CÉNTIMOS

D41EE PROTECCIONES PARA MANOS

D41EE001 **Ud PAR GUANTES GOMA.** **1,35**
Ud. Par de guantes de goma.
UN EUROS con TREINTA Y CINCO CÉNTIMOS

D41EE010 **Ud PAR GUANTES USO GENERAL.** **1,65**
Ud. Par de guantes de uso general.
UN EUROS con SESENTA Y CINCO CÉNTIMOS

D41EE030 **Ud PAR GUANTES AISLANTES.** **27,05**
Ud. Par de guantes aislantes para electricista, homologados.
VEINTISIETE EUROS con CINCO CÉNTIMOS

D41EG PROTECCIONES PARA PIES

D41EG001 **Ud PAR BOTAS AGUA.** **11,42**
Ud. Par de botas de agua, homologadas.
ONCE EUROS con CUARENTA Y DOS CÉNTIMOS

D41EG010 **Ud PAR BOTAS SEGURIDAD.** **21,04**
Ud. Par de botas de seguridad con puntera y plantillas metálicas, homologadas.
VEINTIUN EUROS con CUATRO CÉNTIMOS

D41EG030 **Ud PAR BOTAS AISLANTES.** **24,94**
Ud. Par de botas aislantes para electricista, homologadas.
VEINTICUATRO EUROS con NOVENTA Y CUATRO CÉNTIMOS

SS 02 EPC

E002.000 **UD ANTICAIDAS RETRACTIL AUTOMÁTICO, COMPUESTO POR DOS SEMICÁRTERES** **445,20**
ANTICAIDAS RETRACTIL AUTOMÁTICO, COMPUESTO POR DOS SEMICÁRTERES DE ALTA RESISTENCIA, CABLE GALVANIZADO DE DIAMETRO 4mm Y DE 15 METROS DE LONGITUD, CON CONECTOR DE TORNILLO.
CUATROCIENTOS CUARENTA Y CINCO EUROS con VEINTE CÉNTIMOS

E002.001 **ML LINEA DE VIDA HORIZONTAL DE SEGURIDAD PARA ANCLAJE Y DESPLAZAMIE** **5,27**
LÍNEA DE VIDA HORIZONTAL DE SEGURIDAD PARA ANCLAJE Y DESPLAZAMIENTO DE LOS ARNESES DE SEGURIDAD, CON CABLE FIADOR DE ACERO DE 8 M MDE DIÁMETRO, FIJADA A APOYOS FORMADOS POR PLACA DE CONTINUIDAD Y TUBO DE ACERO DE 35 MM DE DIÁMETRO, INCLUSO TENSORES DE AMARRE.
CINCO EUROS con VEINTISIETE CÉNTIMOS

E002.002 **UD** **TAPÓN DE PLÁSTICO 'SETA CUBRE-ESPERAS' , A COLOCAR EN FERRALLA.** **0,25**

TAPÓN DE PLÁSTICO 'SETA CUBRE-ESPERAS' , A COLOCAR EN FERRALLA.

CERO EUROS con VEINTICINCO CÉNTIMOS

E002.003 **M2** **TAPA PROVISIONAL PARA ARQUETAS** **12,74**

TAPA PROVISIONAL PARA ARQUETAS DE DIVERSAS DIMENSIONES, HUECOS HORIZONATALES O ASIMILABLES, FORMADA MEDIANTE TABLONES DE MADERA DE 20X5 CM, ARMADOS MEDIANTE CLAVAZÓN, INCLUSO COLOCACIÓN.

DOCE EUROS con SETENTA Y CUATRO CÉNTIMOS

E002.004 **UD** **CHAPÓN DE ACERO DE 200X100X25 MM COMO PASO DE VEHÍCULOS PARA PAS** **47,49**

CHAPÓN DE ACERO DE 200X100X25 MM COMO PASO DE VEHÍCULOS PARA PASO MEDIO SOBRE PEQUEÑAS ZANJAS DE ANCHURA MÁXIMA 80 CM, AMORTIZACIÓN EN VARIOS USOS, SUMNISTRO, MONTAJE Y DESMONTAJE.

CUARENTA Y SIETE EUROS con CUARENTA Y NUEVE CÉNTIMOS

E002.007 **ML** **BARANDILLA DE PROTECCION DE H=0.90m,EN ESTR. DE SUELO REFORZADO** **14,59**

BARANDILLA DE PROTECCIÓN EN PERÍMETRO DE ESTRUCTURA DE SUELO REFORZADO, FORMADO POR SARGENTOS METÁLICOS CON BASE DE FIJACIÓN A LOS MÓDULOS PREFABRICADOS DE LA ESTRUCTURA, PASAMANOS, LISTÓN INTERMEDIO Y RODAPIÉ FORMADO POR TABLONES DE 250X20X5 CM. (AMORTIZABLE EN VARIOS USOS)

CATORCE EUROS con CINCUENTA Y NUEVE CÉNTIMOS

E002.008 **UD** **RED MOSQUITERA A COLOCAR** **4,56**

RED MOSQUITERA A COLOCAR TRAS BARANDILLA DE PROTECCIÓN EN BORDE DE ESTRUCTURA CON EL FIN DE EVITAR CAÍDA DE MATERIALES A DISTINTO NIVEL. INCLUSO SUMINISTRO, MONTAJE Y DESMONTAJE.

CUATRO EUROS con CINCUENTA Y SEIS CÉNTIMOS

E002.011 **ML** **PASARELA PARA PASOS SOBRE ZANJAS FORMADA POR TRES TABLONES DE 20** **27,35**

PASARELA PARA PASOS SOBRE ZANJAS FORMADA POR TRES TABLONES DE 20x7cm COSIDOS A CLAVAZON Y DOBLE BARANDILLA FORMADA POR PASAMANOS DE MADERA DE 20x5 RODAPIE Y TRAVESAÑO INTERMEDIO DE 15x5cm, SUJETOS CON PIES DERECHOS DE MADERA CADA 1mts. INCLUSO COLOCACION Y DESMONTAJE.

VEINTISIETE EUROS con TREINTA Y CINCO CÉNTIMOS

E002.012 **ML** **VALLA METÁLICA PARA CIERRE DE OBRA O TAJOS DE 2 METROS DE ALTURA** **16,98**

VALLA METÁLICA PARA CIERRE DE OBRA O TAJOS DE 2 METROS DE ALTURA Y 2,50 METROS DE LARGO CON PIES PREFABRICADOS DE HORMIGÓN, CON ELMENTOS DE UNIÓN A OTRA VALLA. INCLUSO P.P. DE DE COLOCACIÓN Y RETIRADA DE LA MISMA.

DIECISEIS EUROS con NOVENTA Y OCHO CÉNTIMOS

E002.013 **ML** **VALLA AUTÓNOMA METÁLICA DE 2,5 METROS DE LARGO Y 1 METRO DE ALTU** **10,82**

VALLA AUTÓNOMA METÁLICA DE 2,5 METROS DE LARGO Y 1 METRO DE ALTURA, COLOR AMARILLO, PARA CONTENCIÓN DE PEATONES (AMORTIZABLE EN VARIOS USOS).

DIEZ EUROS con OCHENTA Y DOS CÉNTIMOS

E002.014 **H** **ALQUILER DE DETECTOR ELÉCTRICO DE REDES Y SERVICIOS** **120,20**

ALQUILER DE DETECTOR ELÉCTRICO DE REDES Y SERVICIOS ALIMENTADO POR BATERÍAS; DOTADO DE MOCHILA DE TRANSPORTE Y DE CINCHA DE SOPORTE AL HOMBRO. OPERADO Y CALIBRADO POR UNA ENTIDAD DE CONTROL DE CALIDAD.

CIENTO VEINTE EUROS con VEINTE CÉNTIMOS

E002.015 **UD** **TOPE FINAL DE RECORRIDO DE CAMIONES** **35,74**

TOPE FINAL DE RECORRIDO DE CAMIONES

TREINTA Y CINCO EUROS con SETENTA Y CUATRO CÉNTIMOS

E002.01B **UD** **ARO SALVAVIDAS, INCUSO ROLLO DE CUERDA DE NYLON DE 14MM DE DIÁME** **78,94**

ARO SALVAVIDAS, INCUSO ROLLO DE CUERDA DE NYLON DE 14MM DE DIÁMETRO Y 35m DE LONGITUD CON UNA LANZADA PARA SU FIJACION

SETENTA Y OCHO EUROS con NOVENTA Y CUATRO CÉNTIMOS

E002.016 **MES** **CAMION DE RIEGO PARA EVITAR ATMÓSFERAS PULVÍGENAS (2 CAMIONES)** **1.352,27**

CAMION DE RIEGO PARA EVITAR ATMÓSFERAS PULVÍGENAS (CONSIDERÁNDOSE 2 CAMIONES)

MIL TRESCIENTOS CINCUENTA Y DOS EUROS con VEINTISIETE CÉNTIMOS

E002.017 **UD** **EXTINTOR MANUAL A.F.P.G.** **55,98**

EXTINTOR MANUAL A.F.P.G. DE POLVO SECO POLIVALENTE DE 6 KG; COLOCADO SOBRE SOPORTE FIJADO AL PARMANENTO VERTICAL, INCLUSO P.P. DE PEQUEÑO MATERIAL Y DESMONTAJE.

CINCUENTA Y CINCO EUROS con NOVENTA Y OCHO CÉNTIMOS

E002.018 **UD** **EXTINTOR MANUAL DE CO2 DE** **55,98**

EXTINTOR MANUAL DE CO2 DE 6 KG; COLOCADO SOBRE SOPORTE FIJADO AL PARMANENTO VERTICAL, INCLUSO P.P. DE PEQUEÑO MATERIAL Y DESMONTAJE.

CINCUENTA Y CINCO EUROS con NOVENTA Y OCHO CÉNTIMOS

E002.019 **UD** **EXTINTOR PORTATIL** **28,12**

EXTINTOR PORTATIL.

VEINTIOCHO EUROS con DOCE CÉNTIMOS

E002.020 **UD** **MANTA APAGAFUEGOS** **48,08**

MANTA APAGAFUEGOS DE 120x120cm

CUARENTA Y OCHO EUROS con OCHO CÉNTIMOS

E002.021 **UD** **INSTALACION DE PUESTA A T** **89,02**

INSTALACION DE PUESTA A TIERRA COMPUESTA POR CABLE DE COBRE, PICA (O PLACA DE COBRE), ELECTRODO, ETC. SEGÚN R.E.B.T.

OCHENTA Y NUEVE EUROS con DOS CÉNTIMOS

E002.022 **UD** **TRANSFORMADOR DE SEGURIDA** **92,13**

TRANSFORMADOR DE SEGURIDAD DE 24 V PARA ALIMENTACION DE MAQUINAS Y HERRAMIENTAS EN ZONAS HUMEDAS SEGÚN R.E.B.T.

NOVENTA Y DOS EUROS con TRECE CÉNTIMOS

E002.023 UD INTERRUPTOR DIFERENCIAL 3 **42,46**

INTERRUPTOR DIFERENCIAL DE ALTA SENSIBILIDAD (30 MA) INCLUIDA INSTALACIÓN EN ALUMBRADO Y FUERZA, SEGÚN R.E.B.T.

CUARENTA Y DOS EUROS con CUARENTA Y SEIS CÉNTIMOS

E002.024 UD FUNDA TERMORETRACTIL ANTI **15,09**

FUNDA TERMORETRACTIL ANTIHUMEDAD COMPUESTA POR CLAVIJA Y ENCHUFE. INSTALADA.

QUINCE EUROS con NUEVE CÉNTIMOS

SS 03 SEÑALIZACION Y BALIZAMIENTO DE SEGURIDAD

E005.000 ud PORTICO PARA PROTECCIÓN DE LÍNEAS AÉREAS, Y DE GÁLIBO PARA PASOS **270,46**

PORTICO PARA PROTECCIÓN DE LÍNEAS AÉREAS, Y DE GÁLIBO PARA PASOS BAJO ESTRUCTURAS. INCLUSO MONTAJE Y DESMONTAJE.

DOSCIENTOS SETENTA EUROS con CUARENTA Y SEIS CÉNTIMOS

E005.010 UD CONO REFLECTANTE DE GRAN RESISTENCIA DE 50 CM DE ALTURA PARA BAL **3,63**

CONO REFLECTANTE DE GRAN RESISTENCIA DE 50 CM DE ALTURA PARA BALIZAMIENTO EN EL INTERIOR DE LA TRAZA DE LA OBRA.

TRES EUROS con SESENTA Y TRES CÉNTIMOS

E005.013 UD PIQUETA REFLECTANTE **3,76**

PIQUETA REFLECTANTE DE BALIZAMIENTO TB-7 DE 30X10 CM, INCLUSO SOPORTE DE 30 CM. TOTALMENTE COLOCADA PARA SEÑALIZACIÓN EN EL INTERIOR DE LA TRAZA DE LA OBRA.

TRES EUROS con SETENTA Y SEIS CÉNTIMOS

E005.014 ML MALLA DE POLIETILENO DE ALTA DENSIDAD, TIPO STOPPER, CON TRATAMI **0,44**

MALLA DE POLIETILENO DE ALTA DENSIDAD, TIPO STOPPER, CON TRATAMIENTO ULTRAVIOLETA, DE 1 METRO DE ALTURA DE COLOR NARANJA REFLECTANTE PARA BALIZAMIENTO INTERIOR DE OBRA.

CERO EUROS con CUARENTA Y CUATRO CÉNTIMOS

E005.015 UD BOBINA DE CINTA DE POLIET **24,16**

BOBINA DE CINTA DE POLIETILENO NO ADHESIVA DE 500 MTS DE LONGITUD, 80 MM DE ANCHO Y 0,06 MM DE ESPESOR A DOS COLORES (ROJO Y BLANCO), INCLUSO COLOCACION Y DESMONTAJE.

VEINTICUATRO EUROS con DIECISEIS CÉNTIMOS

E005.025 UD PANEL GENERICO VARIOS RIESGOS **20,14**

PANEL GENÉRICO INDICATIVO DE VARIOS RIESGOS DE DIMENSIONES 150X100cm. INCLUSO P.P. DE SUMINISTRO, INSTALACION EN TAJO, CAMBIOS DE UBICACIÓN Y RETIRADA.

VEINTE EUROS con CATORCE CÉNTIMOS

E005.026 UD PANEL GENÉRICO MEDIDAS PREVENTIVAS **20,14**

PANEL GENÉRICO INDICATIVO DE MEDIDAS PREVENTIVAS DE DIMENSIONES 150X100cm. INCLUSO P.P. DE SUMINISTRO, INSTALACION EN TAJO, CAMBIOS DE UBICACIÓN Y RETIRADA.

VEINTE EUROS con CATORCE CÉNTIMOS

E005.016 UD SEÑAL O CARTEL PROTECCION OBLIGATORIA **5,40**

SEÑAL O CARTE INDICATIVO DE PROTECCION OBLIGATORIA, REFLECTANTE DE 0,30X0,30mts. INCLUSO P.P. DE SUMINISTRO, INSTALACION EN TAJO, CAMBIOS EN LA UBICACION Y RETIRADA.

CINCO EUROS con CUARENTA CÉNTIMOS

E005.017 UD SEÑAL O CARTEL RIESGO **5,40**

SEÑAL O CARTEL INDICATIVO DE RIESGO, REFLECTANTE DE 0,30X0,30mts. INCLUSO P.P. DE SUMINISTRO, INSTALACION EN TAJO, CAMBIOS EN LA UBICACION Y RETIRADA.

CINCO EUROS con CUARENTA CÉNTIMOS

E005.018 UD SEÑAL O CARTEL PELIGRO DETERMINADO **5,40**

SEÑAL O CARTEL INDICATIVO DE PELIGRO DETERMINADO, REFLECTANTE DE 0,30X0,30mts. INCLUSO P.P. DE SUMINISTRO, INSTALACION EN TAJO, CAMBIOS EN LA UBICACION Y RETIRADA.

CINCO EUROS con CUARENTA CÉNTIMOS

E005.019 UD SEÑAL O CARTEL PROHIBICION DETERMINADA **5,40**

SEÑAL O CARTEL INDICATIVO DE PROHIBICION DETERMINADA, REFLECTANTE DE 0,30X0,30mts. INCLUSO P.P. DE SUMINISTRO, INSTALACION EN TAJO, CAMBIOS EN LA UBICACION Y RETIRADA.

CINCO EUROS con CUARENTA CÉNTIMOS

E005.027 UD SEÑAL O CARTEL PREVENCION DE INCENDIOS **5,40**

SEÑAL O CARTEL INDICATIVO DE PREVENCION DE INCENDIOS, REFLECTANTE DE 0,30X0,30mts. INCLUSO P.P. DE SUMINISTRO, INSTALACION EN TAJO, CAMBIOS EN LA UBICACION Y RETIRADA.

CINCO EUROS con CUARENTA CÉNTIMOS

E005.028 UD SEÑAL O CARTEL PRIMEROS AUXILIOS **5,40**

SEÑAL O CARTEL INDICATIVO DE PRIMEROS AUXILIOS, REFLECTANTE DE 0,30X0,30mts. INCLUSO P.P. DE SUMINISTRO, INSTALACION EN TAJO, CAMBIOS EN LA UBICACION Y RETIRADA.

CINCO EUROS con CUARENTA CÉNTIMOS

E005.029 UD SEÑAL METÁLICA DE REGULACION DE TRAFICO **12,99**

SEÑAL METÁLICA DE REGULACION DE TRAFICO, REFLECTANTE, EN EL INTERIOR DE LA OBRA. INCLUSO P.P. DE SUMINISTRO, INSTALACION EN TAJO, CAMBIOS EN LA UBICACION Y RETIRADA.

DOCE EUROS con NOVENTA Y NUEVE CÉNTIMOS

E005.023 UD BALIZA LUMINOSA INTERMITE **29,74**

BALIZA LUMINOSA INTERMITENTE DE LUZ AMARILLA TL-10 PARA SU INSTALACION PROVISIONAL EN OBRA. INCLUSO P.P. DE SUMINISTRO, INSTALACION, CAMBIOS EN LA UBICACION Y RETIRADA.

VEINTINUEVE EUROS con SETENTA Y CUATRO CÉNTIMOS

E005.030 UD PANEL METÁLICO REFLECTANTE DIRECCIONAL **12,26**

PANEL METÁLICO REFLECTANTE DIRECCIONAL ESTRECHO, TIPO TB-2. INCLUSO P.P. DE SUMINISTRO, INSTALACION CAMBIOS EN LA UBICACION Y RETIRADA.

DOCE EUROS con VEINTISEIS CÉNTIMOS

E005.031 **UD MODULO NEW JERSEY PLASTICO** **19,84**
MODULO DE BARRERA DE PLASTICO TIPO NEW JERSEY EN DOS COLORES, ROJO Y BLANCO, RELLENA DE AGUA O ARENA. INCLUSO P.P. DE SUMINISTRO, INSTALACION, CAMBIOS EN LA UBICACION Y RETIRADA.

DIECINUEVE EUROS con OCHENTA Y CUATRO CÉNTIMOS

SS 04 INSTALACIONES DE HIGIENE Y BIENESTAR

D41AA ALQUILER CASETAS PREFA. OBRA

D41AA210 **Ud ALQUILER CASETA PREFA.OFICINA** **134,31**
Ud. Més de alquiler de caseta prefabricada para oficina de obra de 6x2.35 m., con estructura metálica mediante perfiles conformados en frio y cerramiento chapa nervada y galvanizada con terminación de pintura prelacada. Aislamiento interior con lana de vidrio combinada con poliestireno expandido. Revestimiento de P.V.C. en suelos y tablero melaminado en paredes. Ventanas de aluminio anodizado, con persianas correderas de protección, incluso instalación eléctrica con distribución interior de alumbrado y fuerza con toma exterior a 220 V.

CIENTO TREINTA Y CUATRO EUROS con TREINTA Y UN CÉNTIMOS

D41AA310 **Ud ALQUILER CASETA PREFA.COMEDOR** **109,26**
Ud. Més de alquiler de caseta prefabricada para comedor de obra de 6x2.35 m., con estructura metálica mediante perfiles conformados en frio y cerramiento chapa nervada y galvanizada con terminación de pintura prelacada. Aislamiento interior con lana de vidrio combinada con poliestireno expandido. Revestimiento de P.V.C. en suelos y tablero melaminado en paredes. Ventanas de aluminio anodizado, con persianas correderas de protección, incluso instalación eléctrica con distribución interior de alumbrado y fuerza con toma exterior a 220 V.

CIENTO NUEVE EUROS con VEINTISEIS CÉNTIMOS

D41AA320 **Ud ALQUILER CASETA P.VESTUARIOS.** **125,26**
Ud. Més de alquiler de caseta prefabricada para vestuarios de obra de 6x2.35 m., con estructura metálica mediante perfiles conformados en frio y cerramiento chapa nervada y galvanizada con terminación de pintura prelacada. Aislamiento interior con lana de vidrio combinada con poliestireno expandido. Revestimiento de P.V.C. en suelos y tablero melaminado en paredes. Ventanas de aluminio anodizado, con persianas correderas de protección, incluso instalación eléctrica con distribución interior de alumbrado y fuerza con toma exterior a 220 V.

CIENTO VEINTICINCO EUROS con VEINTISEIS CÉNTIMOS

D41AA420 **Ud A.A/2INOD,2DUCHA,LAV.3G,TERMO** **212,45**
Ud. Més de alquiler de caseta prefabricada para aseos de obra de 4.10x1.90 m. con dos inodoros, dos duchas, un lavabo con tres grifos y termo eléctrico de 50 litros de capacidad; con las mismas caracteristicas que las oficinas. Suelo de contrachapado hidrófugo con capa fenólica antideslizante y resistente al desgaste. Piezas sanitarias de fibra de vidrio acabadas en Gel-Coat blanco y pintura antideslizante. Puertas interiores de madera en los compartimentos. Instalación de fontaneria con tuberias de polibutileno e instalación eléctrica para corriente monofásica de 220 V. protegida con interruptor automático.

DOSCIENTOS DOCE EUROS con CUARENTA Y CINCO CÉNTIMOS

D41AA820 **Ud TRANSPORTE CASETA PREFABRICAD** **264,47**
Ud. Transporte de caseta prefabricada a obra, incluso descarga y posterior recogida.

DOSCIENTOS SESENTA Y CUATRO EUROS con CUARENTA Y SIETE CÉNTIMOS

D41AE ACOMETIDAS PROVISIONALES

D41AE001 **Ud ACOMET.PROV.ELECT.A CASETA.** **29,32**
Ud. Acometida provisional de electricidad a casetas de obra.

VEINTINUEVE EUROS con TREINTA Y DOS CÉNTIMOS

D41AE101 **Ud ACOMET.PROV.FONTAN.A CASETA.** **35,33**
Ud. Acometida provisional de fontaneria a casetas de obra.

TREINTA Y CINCO EUROS con TREINTA Y TRES CÉNTIMOS

D41AE201 **Ud ACOMET.PROV.SANEAMT.A CASETA.** **41,81**
Ud. Acometida provisional de saneamiento a casetas de obra.

CUARENTA Y UN EUROS con OCHENTA Y UN CÉNTIMOS

D41AG MOBILIARIO Y EQUIPAMIENTO

D41AG201 **Ud TAQUILLA METALICA INDIVIDUAL.** **13,63**
Ud. Taquilla metálica individual con llave de 1.78 m. de altura colocada.

TRECE EUROS con SESENTA Y TRES CÉNTIMOS

D41AG210 **Ud BANCO POLIPROPILENO 5 PERS.** **21,74**
Ud. Banco de polipropileno para 5 personas con soportes metalicos, colocado.

VEINTIUN EUROS con SETENTA Y CUATRO CÉNTIMOS

D41AG610 **Ud CALIENTA COMIDAS 25 SERVICIOS** **87,46**
Ud. Calienta comidas para 25 servicios, colocado.

OCHENTA Y SIETE EUROS con CUARENTA Y SEIS CÉNTIMOS

D41AG630 **Ud MESA MELAMINA 10 PERSONAS.** **22,42**
Ud. Mesa metálica para comedor con una capacidad de 10 personas, y tablero superior de melamina colocada.

VEINTIDOS EUROS con CUARENTA Y DOS CÉNTIMOS

D41AG700 **Ud DEPOSITO DE BASURAS DE 800 L.** **17,52**
Ud. Deposito de basuras de 800 litros de capacidad realizado en polietileno inyectado, acero y bandas de caucho, con ruedas para su transporte, colocado.

DIECISIETE EUROS con CINCUENTA Y DOS CÉNTIMOS

D41IA201 **H. EQUIPO DE LIMPIEZA Y CONSERVA** **20,14**
H. Equipo de limpieza y conservación de instalaciones provisionales de obra, considerando una hora diaria de oficial de 2ª y de ayudante.

VEINTE EUROS con CATORCE CÉNTIMOS

D41IA210 **Ud LIMPIEZA Y DESINFECCION CASET.** **151,75**
Ud. Limpieza y desinfección de casetas de obra, considerando una limpieza por cada dos semanas.

CIENTO CINCUENTA Y UN EUROS con SETENTA Y CINCO CÉNTIMOS

SS 05 FORMACIÓN EN SEGURIDAD Y REUNIONES

D41IA001 **H. COMITE DE SEGURIDAD E HIGIENE** **51,73**
H. Comité de seguridad compuesto por un técnico en materia de seguridad con categoria de encargado, dos trabajadores con categoria de oficial de 2ª, un ayudante y un vigilante de seguridad con categoria de oficial de 1ª, considerando una reunión como mínimo al mes.
CINCUENTA Y UN EUROS con SETENTA Y TRES CÉNTIMOS

D41IA020 **H. FORMACION SEGURIDAD E HIGIENE** **11,47**
H. Formación de seguridad e higiene en el trabajo, considerando una hora a la semana y realizada por un encargado.
ONCE EUROS con CUARENTA Y SIETE CÉNTIMOS

SS 06 MEDICINA PREVENTIVA Y PRIMEROS AUXILIOS

D41AG801 **Ud BOTIQUIN DE OBRA.** **20,40**
Ud. Botiquín de obra instalado.
VEINTE EUROS con CUARENTA CÉNTIMOS

D41AG810 **Ud REPOSICION DE BOTIQUIN.** **39,19**
Ud. Reposición de material de botiquín de obra.
TREINTA Y NUEVE EUROS con DIECINUEVE CÉNTIMOS

D41IA040 **Ud RECONOCIMIENTO MEDICO OBLIGAT** **42,07**
Ud. Reconocimiento médico obligatorio.
CUARENTA Y DOS EUROS con SIETE CÉNTIMOS

8. CUADRO DE PRECIOS Nº 2

06 SEGURIDAD Y SALUD
SS 01 EPIs

D41EA PROTECCIONES PARA CABEZA

D41EA001 **Ud CASCO DE SEGURIDAD.**
Ud. Casco de seguridad homologado.
Resto de obra y materiales 2,25
TOTAL PARTIDA 2,25

D41EA220 **Ud GAFAS CONTRA IMPACTOS.**
Ud. Gafas contra impactos, homologadas.
Resto de obra y materiales 10,82
TOTAL PARTIDA 10,82

D41EC PROTECCIONES PARA CUERPO

D41EC001 **Ud MONO DE TRABAJO.**
Ud. Mono de trabajo, homologado
Resto de obra y materiales 12,84
TOTAL PARTIDA 12,84

D41EC010 **Ud IMPERMEABLE.**
Ud. Impermeable de trabajo, homologado.
Resto de obra y materiales 7,75
TOTAL PARTIDA 7,75

D41EC401 **Ud CINTURON SEGURIDAD CLASE A.**
Ud. Cinturón de seguridad clase A (sujección), homologado.
Resto de obra y materiales 50,96
TOTAL PARTIDA 50,96

D41EC480 **Ud APARATO FRENO.**
Ud. Aparato de freno de paracaidas, homologado.
Resto de obra y materiales 60,58
TOTAL PARTIDA 60,58

D41EC510 **Ud FAJA ELASTICA SOBRESFUERZOS.**
Ud. Faja elástica para protección de sobreesfuerzos, homologada.
Resto de obra y materiales 13,82
TOTAL PARTIDA 13,82

D41EC520 **Ud CINTURON PORTAHERRAMIENTAS.**
Ud. Cinturón portaherramientas, homologado.
Resto de obra y materiales 21,04
TOTAL PARTIDA 21,04

D41EE PROTECCIONES PARA MANOS

D41EE001 **Ud PAR GUANTES GOMA.**
Ud. Par de guantes de goma.
Resto de obra y materiales 1,35
TOTAL PARTIDA 1,35

D41EE010 **Ud PAR GUANTES USO GENERAL.**
Ud. Par de guantes de uso general.
Resto de obra y materiales 1,65
TOTAL PARTIDA 1,65

D41EE030 **Ud PAR GUANTES AISLANTES.**
Ud. Par de guantes aislantes para electricista, homologados.
Resto de obra y materiales 27,05
TOTAL PARTIDA 27,05

D41EG PROTECCIONES PARA PIES

D41EG001 **Ud PAR BOTAS AGUA.**
Ud. Par de botas de agua, homologadas.
Resto de obra y materiales 11,42
TOTAL PARTIDA 11,42

D41EG010 **Ud PAR BOTAS SEGURIDAD.**
Ud. Par de botas de seguridad con puntera y plantillas metálicas, homologadas.
Resto de obra y materiales 21,04
TOTAL PARTIDA 21,04

D41EG030 **Ud PAR BOTAS AISLANTES.**
Ud. Par de botas aislantes para electricista, homologadas.
Resto de obra y materiales 24,94
TOTAL PARTIDA 24,94

SS 02 EPC

E002.000 UD ANTICAIDAS RETRACTIL AUTOMÁTICO, COMPUESTO POR DOS SEMICÁRTERES

ANTICAIDAS RETRACTIL AUTOMÁTICO, COMPUESTO POR DOS SEMICÁRTERES DE ALTA RESISTENCIA, CABLE GALVANIZADO DE DIAMETRO 4mm Y DE 15 METROS DE LONGITUD, CON CONECTOR DE TORNILLO.

TOTAL PARTIDA 445,20

E002.001 ML LINEA DE VIDA HORIZONTAL DE SEGURIDAD PARA ANCLAJE Y DESPLAZAMIE

LÍNEA DE VIDA HORIZONTAL DE SEGURIDAD PARA ANCLAJE Y DESPLAZAMIENTO DE LOS ARNESES DE SEGURIDAD, CON CABLE FIADOR DE ACERO DE 8 M MDE DIÁMETRO, FIJADA A APOYOS FORMADOS POR PLACA DE CONTINUIDAD Y TUBO DE ACERO DE 35 MM DE DIÁMETRO, INCLUSO TENSORES DE AMARRE.

TOTAL PARTIDA 5,27

E002.002 UD TAPÓN DE PLÁSTICO 'SETA CUBRE-ESPERAS' , A COLOCAR EN FERRALLA.

TAPÓN DE PLÁSTICO 'SETA CUBRE-ESPERAS' , A COLOCAR EN FERRALLA.

Resto de obra y materiales 0,25

TOTAL PARTIDA 0,25

E002.003 M2 TAPA PROVISIONAL PARA ARQUETAS

TAPA PROVISIONAL PARA ARQUETAS DE DIVERSAS DIMENSIONES, HUECOS HORIZONATALES O ASIMILABLES, FORMADA MEDIANTE TABLONES DE MADERA DE 20X5 CM, ARMADOS MEDIANTE CLAVAZÓN, INCLUSO COLOCACIÓN.

TOTAL PARTIDA 12,74

E002.004 UD CHAPÓN DE ACERO DE 200X100X25 MM COMO PASO DE VEHÍCULOS PARA PAS

CHAPÓN DE ACERO DE 200X100X25 MM COMO PASO DE VEHÍCULOS PARA PASO MEDIO SOBRE PEQUEÑAS ZANJAS DE ANCHURA MÁXIMA 80 CM, AMORTIZACIÓN EN VARIOS USOS, SUMNISTRO, MONTAJE Y DESMONTAJE.

Resto de obra y materiales 47,49

TOTAL PARTIDA 47,49

E002.007 ML BARANDILLA DE PROTECCION DE H=0.90m,EN ESTR. DE SUELO REFORZADO

BARANDILLA DE PROTECCIÓN EN PERÍMETRO DE ESTRUCTURA DE SUELO REFORZADO, FORMADO POR SARGENTOS METÁLICOS CON BASE DE FIJACIÓN A LOS MÓDULOS PREFABRICADOS DE LA ESTRUCTURA, PASAMANOS, LISTÓN INTERMEDIO Y RODAPIÉ FORMADO POR TABLONES DE 250X20X5 CM. (AMORTIZABLE EN VARIOS USOS)

TOTAL PARTIDA 14,59

E002.008 UD RED MOSQUITERA A COLOCAR

RED MOSQUITERA A COLOCAR TRAS BARANDILLA DE PROTECCIÓN EN BORDE DE ESTRUCTURA CON EL FIN DE EVITAR CAÍDA DE MATERIALES A DISTINTO NIVEL. INCLUSO SUMINISTRO, MONTAJE Y DESMONTAJE.

TOTAL PARTIDA 4,56

E002.011 ML PASARELA PARA PASOS SOBRE ZANJAS FORMADA POR TRES TABLONES DE 20

PASARELA PARA PASOS SOBRE ZANJAS FORMADA POR TRES TABLONES DE 20x7cm COSIDOS A CLAVAZON Y DOBLE BARANDILLA FORMADA POR PASAMANOS DE MADERA DE 20x5 RODAPIE Y TRAVESAÑO INTERMEDIO DE 15x5cm, SUJETOS CON PIES DERECHOS DE MADERA CADA 1mts. INCLUSO COLOCACION Y DESMONTAJE.

Resto de obra y materiales 27,35

TOTAL PARTIDA 27,35

E002.012 ML VALLA METÁLICA PARA CIERRE DE OBRA O TAJOS DE 2 METROS DE ALTURA

VALLA METÁLICA PARA CIERRE DE OBRA O TAJOS DE 2 METROS DE ALTURA Y 2,50 METROS DE LARGO CON PIES PREFABRICADOS DE HORMIGÓN, CON ELMENTOS DE UNIÓN A OTRA VALLA. INCLUSO P.P. DE DE COLOCACIÓN Y RETIRADA DE LA MISMA.

Resto de obra y materiales 16,98

TOTAL PARTIDA 16,98

E002.013 ML VALLA AUTÓNOMA METÁLICA DE 2,5 METROS DE LARGO Y 1 METRO DE ALTU

VALLA AUTÓNOMA METÁLICA DE 2,5 METROS DE LARGO Y 1 METRO DE ALTURA, COLOR AMARILLO, PARA CONTENCIÓN DE PEATONES (AMORTIZABLE EN VARIOS USOS).

Resto de obra y materiales 10,82

TOTAL PARTIDA 10,82

E002.014 H ALQUILER DE DETECTOR ELÉCTRICO DE REDES Y SERVICIOS

ALQUILER DE DETECTOR ELÉCTRICO DE REDES Y SERVICIOS ALIMENTADO POR BATERÍAS; DOTADO DE MOCHILA DE TRANSPORTE Y DE CINCHA DE SOPORTE AL HOMBRO. OPERADO Y CALIBRADO POR UNA ENTIDAD DE CONTROL DE CALIDAD.

TOTAL PARTIDA 120,20

E002.015 UD TOPE FINAL DE RECORRIDO DE CAMIONES

TOPE FINAL DE RECORRIDO DE CAMIONES

TOTAL PARTIDA 35,74

E002.01B UD ARO SALVAVIDAS, INCUSO ROLLO DE CUERDA DE NYLON DE 14MM DE DIÁME

ARO SALVAVIDAS, INCUSO ROLLO DE CUERDA DE NYLON DE 14MM DE DIÁMETRO Y 35m DE LONGITUD CON UNA LANZADA PARA SU FIJACION

TOTAL PARTIDA 78,94

E002.016 MES CAMION DE RIEGO PARA EVITAR ATMÓSFERAS PULVÍGENAS (2 CAMIONES)

CAMION DE RIEGO PARA EVITAR ATMÓSFERAS PULVÍGENAS (CONSIDERÁNDOSE 2 CAMIONES)

TOTAL PARTIDA 1.352,27

E002.017 UD EXTINTOR MANUAL A.F.P.G.

EXTINTOR MANUAL A.F.P.G. DE POLVO SECO POLIVALENTE DE 6 KG; COLOCADO SOBRE SOPORTE FIJADO AL PARMANENTO VERTICAL, INCLUSO P.P. DE PEQUEÑO MATERIAL Y DESMONTAJE.

Resto de obra y materiales 55,98

TOTAL PARTIDA 55,98

E002.018 UD EXTINTOR MANUAL DE CO2 DE

EXTINTOR MANUAL DE CO2 DE 6 KG; COLOCADO SOBRE

SOPORTE FIJADO AL PARMANENTO VERTICAL, INCLUSO P.P. DE PEQUEÑO MATERIAL Y DESMONTAJE.

Resto de obra y materiales 55,98
TOTAL PARTIDA 55,98

E002.019 UD EXTINTOR PORTATIL
EXTINTOR PORTATIL.

TOTAL PARTIDA 28,12

E002.020 UD MANTA APAGAFUEGOS
MANTA APAGAFUEGOS DE 120x120cm

TOTAL PARTIDA 48,08

E002.021 UD INSTALACION DE PUESTA A T
INSTALACION DE PUESTA A TIERRA COMPUESTA POR CABLE DE COBRE, PICA (O PLACA DE COBRE), ELECTRODO, ETC. SEGÚN R.E.B.T.

Resto de obra y materiales 89,02
TOTAL PARTIDA 89,02

E002.022 UD TRANSFORMADOR DE SEGURIDA
TRANSFORMADOR DE SEGURIDAD DE 24 V PARA ALIMENTACION DE MAQUINAS Y HERRAMIENTAS EN ZONAS HUMEDAS SEGÚN R.E.B.T.

Resto de obra y materiales 92,13
TOTAL PARTIDA 92,13

E002.023 UD INTERRUPTOR DIFERENCIAL 3
INTERRUPTOR DIFERENCIAL DE ALTA SENSIBILIDAD (30 MA) INCLUIDA INSTALACIÓN EN ALUMBRADO Y FUERZA, SEGÚN R.E.B.T.

Resto de obra y materiales 42,46
TOTAL PARTIDA 42,46

E002.024 UD FUNDA TERMORETRACTIL ANTI
FUNDA TERMORETRACTIL ANTIHUMEDAD COMPUESTA POR CLAVIJA Y ENCHUFE. INSTALADA.

Resto de obra y materiales 15,09
TOTAL PARTIDA 15,09

SS 03 SEÑALIZACION Y BALIZAMIENTO DE SEGURIDAD

E005.000 ud PORTICO PARA PROTECCIÓN DE LÍNEAS AÉREAS, Y DE GÁLIBO PARA PASOS
PORTICO PARA PROTECCIÓN DE LÍNEAS AÉREAS, Y DE GÁLIBO PARA PASOS BAJO ESTRUCTURAS. INCLUSO MONTAJE Y DESMONTAJE.

TOTAL PARTIDA 270,46

E005.010 UD CONO REFLECTANTE DE GRAN RESISTENCIA DE 50 CM DE ALTURA PARA BAL
CONO REFLECTANTE DE GRAN RESISTENCIA DE 50 CM DE ALTURA PARA BALIZAMIENTO EN EL INTERIOR DE LA TRAZA DE LA OBRA.

Resto de obra y materiales 3,63
TOTAL PARTIDA 3,63

E005.013 UD PIQUETA REFLECTANTE
PIQUETA REFLECTANTE DE BALIZAMIENTO TB-7 DE 30X10 CM, INCLUSO SOPORTE DE 30 CM. TOTALMENTE COLOCADA PARA SEÑALIZACIÓN EN EL INTERIOR DE LA TRAZA DE LA OBRA.

Mano de obra 0,99
Resto de obra y materiales 2,77
TOTAL PARTIDA 3,76

E005.014 ML MALLA DE POLIETILENO DE ALTA DENSIDAD, TIPO STOPPER, CON TRATAMI
MALLA DE POLIETILENO DE ALTA DENSIDAD, TIPO STOPPER, CON TRATAMIENTO ULTRAVIOLETA, DE 1 METRO DE ALTURA DE COLOR NARANJA REFLECTANTE PARA BALIZAMIENTO INTERIOR DE OBRA.

Resto de obra y materiales 0,44
TOTAL PARTIDA 0,44

E005.015 UD BOBINA DE CINTA DE POLIET
BOBINA DE CINTA DE POLIETILENO NO ADHESIVA DE 500 MTS DE LONGITUD, 80 MM DE ANCHO Y 0,06 MM DE ESPESOR A DOS COLORES (ROJO Y BLANCO), INCLUSO COLOCACION Y DESMONTAJE.

Mano de obra 0,99
Resto de obra y materiales 23,17
TOTAL PARTIDA 24,16

E005.025 UD PANEL GENERICO VARIOS RIESGOS
PANEL GENÉRICO INDICATIVO DE VARIOS RIESGOS DE DIMENSIONES 150X100cm. INCLUSO P.P. DE SUMINISTRO, INSTALACION EN TAJO, CAMBIOS DE UBICACIÓN Y RETIRADA.

TOTAL PARTIDA 20,14

E005.026 UD PANEL GENÉRICO MEDIDAS PREVENTIVAS
PANEL GENÉRICO INDICATIVO DE MEDIDAS PREVENTIVAS DE DIMENSIONES 150X100cm. INCLUSO P.P. DE SUMINISTRO, INSTALACION EN TAJO, CAMBIOS DE UBICACIÓN Y RETIRADA.

TOTAL PARTIDA 20,14

E005.016 UD SEÑAL O CARTEL PROTECCION OBLIGATORIA
SEÑAL O CARTE INDICATIVO DE PROTECCION OBLIGATORIA, REFLECTANTE DE 0,30X0,30mts. INCLUSO P.P. DE SUMINISTRO, INSTALACION EN TAJO, CAMBIOS EN LA UBICACION Y RETIRADA.

TOTAL PARTIDA 5,40

E005.017 UD SEÑAL O CARTEL RIESGO
SEÑAL O CARTEL INDICATIVO DE RIESGO, REFLECTANTE DE 0,30X0,30mts. INCLUSO P.P. DE SUMINISTRO, INSTALACION EN TAJO, CAMBIOS EN LA UBICACION Y RETIRADA.

TOTAL PARTIDA 5,40

E005.018 UD SEÑAL O CARTEL PELIGRO DETERMINADO
SEÑAL O CARTEL INDICATIVO DE PELIGRO DETERMINADO, REFLECTANTE DE 0,30X0,30mts. INCLUSO P.P. DE SUMINISTRO, INSTALACION EN TAJO, CAMBIOS EN LA UBICACION Y RETIRADA.

TOTAL PARTIDA 5,40

E005.019 UD SEÑAL O CARTEL PROHIBICION DETERMINADA
SEÑAL O CARTEL INDICATIVO DE PROHIBICION DETERMINADA, REFLECTANTE DE 0,30X0,30mts. INCLUSO P.P. DE SUMINISTRO, INSTALACION EN TAJO, CAMBIOS EN LA UBICACION Y RETIRADA.

TOTAL PARTIDA 5,40

E005.027 UD SEÑAL O CARTEL PREVENCION DE INCENDIOS
SEÑAL O CARTEL INDICATIVO DE PREVENCION DE INCENDIOS, REFLECTANTE DE 0,30X0,30mts. INCLUSO P.P. DE SUMINISTRO, INSTALACION EN TAJO, CAMBIOS EN LA UBICACION Y RETIRADA.

TOTAL PARTIDA 5,40

E005.028 UD SEÑAL O CARTEL PRIMEROS AUXILIOS
SEÑAL O CARTEL INDICATIVO DE PRIMEROS AUXILIOS, REFLECTANTE DE 0,30X0,30mts. INCLUSO P.P. DE SUMINISTRO, INSTALACION EN TAJO, CAMBIOS EN LA UBICACION Y RETIRADA.

TOTAL PARTIDA 5,40

E005.029 UD SEÑAL METÁLICA DE REGULACION DE TRAFICO
SEÑAL METÁLICA DE REGULACION DE TRAFICO, REFLECTANTE, EN EL INTERIOR DE LA OBRA. INCLUSO P.P. DE SUMINISTRO, INSTALACION EN TAJO, CAMBIOS EN LA UBICACION Y RETIRADA.

TOTAL PARTIDA 12,99

E005.023 UD BALIZA LUMINOSA INTERMITE
BALIZA LUMINOSA INTERMITENTE DE LUZ AMARILLA TL-10 PARA SU INSTALACION PROVISIONAL EN OBRA. INCLUSO P.P. DE SUMINISTRO, INSTALACION, CAMBIOS EN LA UBICACION Y RETIRADA.

Resto de obra y materiales 29,74

TOTAL PARTIDA 29,74

E005.030 UD PANEL METÁLICO REFLECTANTE DIRECCIONAL
PANEL METÁLICO REFLECTANTE DIRECCIONAL ESTRECHO, TIPO TB-2. INCLUSO P.P. DE SUMINISTRO, INSTALACION CAMBIOS EN LA UBICACION Y RETIRADA.

TOTAL PARTIDA 12,26

E005.031 UD MODULO NEW JERSEY PLASTICO
MODULO DE BARRERA DE PLASTICO TIPO NEW JERSEY EN DOS COLORES, ROJO Y BLANCO, RELLENA DE AGUA O ARENA. INCLUSO P.P. DE SUMINISTRO, INSTALACION, CAMBIOS EN LA UBICACION Y RETIRADA.

TOTAL PARTIDA 19,84

SS 04 INSTALACIONES DE HIGIENE Y BIENESTAR

D41AA ALQUILER CASETAS PREFA. OBRA

D41AA210 Ud ALQUILER CASETA PREFA.OFICINA
Ud. Més de alquiler de caseta prefabricada para oficina de obra de 6x2.35 m., con estructura metálica mediante perfiles conformados en frio y cerramiento chapa nervada y galvanizada con terminación de pintura prelacada. Aislamiento interior con lana de vidrio combinada con poliestireno expandido. Revestimiento de P.V.C. en suelos y tablero melaminado en paredes. Ventanas de aluminio anodizado, con persianas correderas de protección, incluso instalación eléctrica con distribución interior de alumbrado y fuerza con toma exterior a 220 V.

Resto de obra y materiales 134,31

TOTAL PARTIDA 134,31

D41AA310 Ud ALQUILER CASETA PREFA.COMEDOR
Ud. Més de alquiler de caseta prefabricada para comedor de obra de 6x2.35 m., con estructura metálica mediante perfiles conformados en frio y cerramiento chapa nervada y galvanizada con terminación de pintura prelacada. Aislamiento interior con lana de vidrio combinada con poliestireno expandido. Revestimiento de P.V.C. en suelos y tablero melaminado en paredes. Ventanas de aluminio anodizado, con persianas correderas de protección, incluso instalación eléctrica con distribución interior de alumbrado y fuerza con toma exterior a 220 V.

Resto de obra y materiales 109,26

TOTAL PARTIDA 109,26

D41AA320 Ud ALQUILER CASETA P.VESTUARIOS.
Ud. Més de alquiler de caseta prefabricada para vestuarios de obra de 6x2.35 m., con estructura metálica mediante perfiles conformados en frio y cerramiento chapa nervada y galvanizada con terminación de pintura prelacada. Aislamiento interior con lana de vidrio combinada con poliestireno expandido. Revestimiento de P.V.C. en suelos y tablero melaminado en paredes. Ventanas de aluminio anodizado, con persianas correderas de protección, incluso instalación eléctrica con distribución interior de alumbrado y fuerza con toma exterior a 220 V.

Resto de obra y materiales 125,26

TOTAL PARTIDA 125,26

D41AA420 Ud A.A/2INOD,2DUCHA,LAV.3G,TERMO
Ud. Més de alquiler de caseta prefabricada para aseos de obra de 4.10x1.90 m. con dos inodoros, dos duchas, un lavabo con tres grifos y termo eléctrico de 50 litros de capacidad; con las mismas caracteristicas que las oficinas. Suelo de contrachapado hidrófugo con capa fenólica antideslizante y resistente al desgaste. Piezas sanitarias de fibra de vidrio acabadas en Gel-Coat blanco y pintura antideslizante. Puertas interiores de madera en los compartimentos. Instalación de fontaneria con tuberias de polibutileno e instalación eléctrica para corriente monofásica de 220 V. protegida con interruptor automático.

Resto de obra y materiales 212,45

TOTAL PARTIDA 212,45

D41AA820 Ud TRANSPORTE CASETA PREFABRICAD
Ud. Transporte de caseta prefabricada a obra, incluso descarga y posterior recogida.

Mano de obra 39,48
Resto de obra y materiales 224,99

TOTAL PARTIDA 264,47

D41AE ACOMETIDAS PROVISIONALES

D41AE001 Ud ACOMET.PROV.ELECT.A CASETA.
Ud. Acometida provisional de electricidad a casetas de obra.

Resto de obra y materiales 29,32

TOTAL PARTIDA 29,32

D41AE101 Ud ACOMET.PROV.FONTAN.A CASETA.
Ud. Acometida provisional de fontaneria a casetas de obra.

Resto de obra y materiales 35,33

TOTAL PARTIDA 35,33

D41AE201 Ud ACOMET.PROV.SANEAMT.A CASETA.
Ud. Acometida provisional de saneamiento a casetas de obra.

Resto de obra y materiales 41,81

TOTAL PARTIDA 41,81

D41AG **MOBILIARIO Y EQUIPAMIENTO**

D41AG201 **Ud TAQUILLA METALICA INDIVIDUAL.**
Ud. Taquilla metálica individual con llave de 1.78 m. de altura colocada.

Mano de obra	3,95
Resto de obra y materiales	9,68
TOTAL PARTIDA	**13,63**

D41AG210 **Ud BANCO POLIPROPILENO 5 PERS.**
Ud. Banco de polipropileno para 5 personas con soportes metalicos, colocado.

Mano de obra	3,95
Resto de obra y materiales	17,79
TOTAL PARTIDA	**21,74**

D41AG610 **Ud CALIENTA COMIDAS 25 SERVICIOS**
Ud. Calienta comidas para 25 servicios, colocado.

Mano de obra	3,95
Resto de obra y materiales	83,51
TOTAL PARTIDA	**87,46**

D41AG630 **Ud MESA MELAMINA 10 PERSONAS.**
Ud. Mesa metálica para comedor con una capacidad de 10 personas, y tablero superior de melamina colocada.

Mano de obra	3,95
Resto de obra y materiales	18,47
TOTAL PARTIDA	**22,42**

D41AG700 **Ud DEPOSITO DE BASURAS DE 800 L.**
Ud. Deposito de basuras de 800 litros de capacidad realizado en polietileno inyectado, acero y bandas de caucho, con ruedas para su transporte, colocado.

Mano de obra	0,99
Resto de obra y materiales	16,53
TOTAL PARTIDA	**17,52**

D41IA201 **H. EQUIPO DE LIMPIEZA Y CONSERVA**
H. Equipo de limpieza y conservación de instalaciones provisionales de obra, considerando una hora diaria de oficial de 2ª y de ayudante.

Resto de obra y materiales	20,14
TOTAL PARTIDA	**20,14**

D41IA210 **Ud LIMPIEZA Y DESINFECCION CASET.**
Ud. Limpieza y desinfección de casetas de obra, considerando una limpieza por cada dos semanas.

Resto de obra y materiales	151,75
TOTAL PARTIDA	**151,75**

SS 05 **FORMACIÓN EN SEGURIDAD Y REUNIONES**

D41IA001 **H. COMITE DE SEGURIDAD E HIGIENE**
H. Comité de seguridad compuesto por un técnico en materia de seguridad con categoria de encargado, dos trabajadores con categoria de oficial de 2ª, un ayudante y un vigilante de seguridad con categoria de oficial de 1ª, considerando una reunión como mínimo al mes.

Resto de obra y materiales	51,73
TOTAL PARTIDA	**51,73**

D41IA020 **H. FORMACION SEGURIDAD E HIGIENE**
H. Formación de seguridad e higiene en el trabajo, considerando una hora a la semana y realizada por un encargado.

Resto de obra y materiales	11,47
TOTAL PARTIDA	**11,47**

SS 06 **MEDICINA PREVENTIVA Y PRIMEROS AUXILIOS**

D41AG801 **Ud BOTIQUIN DE OBRA.**
Ud. Botiquín de obra instalado.

Resto de obra y materiales	20,40
TOTAL PARTIDA	**20,40**

D41AG810 **Ud REPOSICION DE BOTIQUIN.**
Ud. Reposición de material de botiquín de obra.

Resto de obra y materiales	39,19
TOTAL PARTIDA	**39,19**

D41IA040 **Ud RECONOCIMIENTO MEDICO OBLIGAT**
Ud. Reconocimiento médico obligatorio.

Resto de obra y materiales	42,07
TOTAL PARTIDA	**42,07**

9. PRESUPUESTO POR CAPÍTULOS

06 SEGURIDAD Y SALUD
SS 01 EPIs

D41EA **PROTECCIONES PARA CABEZA**

D41EA001 **Ud CASCO DE SEGURIDAD.**
Ud. Casco de seguridad homologado.

20,00	2,25	45,00

D41EA220 **Ud GAFAS CONTRA IMPACTOS.**
Ud. Gafas contra impactos, homologadas.

10,00	10,82	108,20
TOTAL D41EA		**153,20**

D41EC **PROTECCIONES PARA CUERPO**

D41EC001 **Ud MONO DE TRABAJO.**
Ud. Mono de trabajo, homologado

20,00	12,84	256,80

D41EC010 **Ud IMPERMEABLE.**
Ud. Impermeable de trabajo, homologado.

		20,00	7,75	155,00
D41EC401	**Ud CINTURON SEGURIDAD CLASE A.** Ud. Cinturón de seguridad clase A (sujección), homologado.			
		5,00	50,96	254,80
D41EC480	**Ud APARATO FRENO.** Ud. Aparato de freno de paracaidas, homologado.			
		5,00	60,58	302,90
D41EC510	**Ud FAJA ELASTICA SOBRESFUERZOS.** Ud. Faja elástica para protección de sobreesfuerzos, homologada.			
		5,00	13,82	69,10
D41EC520	**Ud CINTURON PORTAHERRAMIENTAS.** Ud. Cinturón portaherramientas, homologado.			
		10,00	21,04	210,40
	TOTAL D41EC			**1.249,00**

D41EE PROTECCIONES PARA MANOS

D41EE001	**Ud PAR GUANTES GOMA.** Ud. Par de guantes de goma.			
		50,00	1,35	67,50
D41EE010	**Ud PAR GUANTES USO GENERAL.** Ud. Par de guantes de uso general.			
		20,00	1,65	33,00
D41EE030	**Ud PAR GUANTES AISLANTES.** Ud. Par de guantes aislantes para electricista, homologados.			
		5,00	27,05	135,25
	TOTAL D41EE			**235,75**

D41EG PROTECCIONES PARA PIES

D41EG001	**Ud PAR BOTAS AGUA.** Ud. Par de botas de agua, homologadas.			
		20,00	11,42	228,40
D41EG010	**Ud PAR BOTAS SEGURIDAD.** Ud. Par de botas de seguridad con puntera y plantillas metálicas, homologadas.			
		20,00	21,04	420,80
D41EG030	**Ud PAR BOTAS AISLANTES.** Ud. Par de botas aislantes para electricista, homologadas.			
		5,00	24,94	124,70
	TOTAL D41EG			**773,90**

	TOTAL SS 01			**2.411,85**

SS 02 EPC

E002.000	**UD ANTICAIDAS RETRACTIL AUTOMÁTICO, COMPUESTO POR DOS SEMICÁRTERES** ANTICAIDAS RETRACTIL AUTOMÁTICO, COMPUESTO POR DOS SEMICÁRTERES DE ALTA RESISTENCIA, CABLE GALVANIZADO DE DIAMETRO 4mm Y DE 15 METROS DE LONGITUD, CON CONECTOR DE TORNILLO.			
		10,00	445,20	4.452,00
E002.001	**ML LINEA DE VIDA HORIZONTAL DE SEGURIDAD PARA ANCLAJE Y DESPLAZAMIE** LÍNEA DE VIDA HORIZONTAL DE SEGURIDAD PARA ANCLAJE Y DESPLAZAMIENTO DE LOS ARNESES DE SEGURIDAD, CON CABLE FIADOR DE ACERO DE 8 M MDE DIÁMETRO, FIJADA A APOYOS FORMADOS POR PLACA DE CONTINUIDAD Y TUBO DE ACERO DE 35 MM DE DIÁMETRO, INCLUSO TENSORES DE AMARRE.			
		250,00	5,27	1.317,50
E002.002	**UD TAPÓN DE PLÁSTICO 'SETA CUBRE-ESPERAS' , A COLOCAR EN FERRALLA.** TAPÓN DE PLÁSTICO 'SETA CUBRE-ESPERAS' , A COLOCAR EN FERRALLA.			
		4.000,00	0,25	1.000,00
E002.003	**M2 TAPA PROVISIONAL PARA ARQUETAS** TAPA PROVISIONAL PARA ARQUETAS DE DIVERSAS DIMENSIONES, HUECOS HORIZONATALES O ASIMILABLES, FORMADA MEDIANTE TABLONES DE MADERA DE 20X5 CM, ARMADOS MEDIANTE CLAVAZÓN, INCLUSO COLOCACIÓN.			
		10,00	12,74	127,40
E002.004	**UD CHAPÓN DE ACERO DE 200X100X25 MM COMO PASO DE VEHÍCULOS PARA PAS** CHAPÓN DE ACERO DE 200X100X25 MM COMO PASO DE VEHÍCULOS PARA PASO MEDIO SOBRE PEQUEÑAS ZANJAS DE ANCHURA MÁXIMA 80 CM, AMORTIZACIÓN EN VARIOS USOS, SUMNISTRO, MONTAJE Y DESMONTAJE.			
		10,00	47,49	474,90
E002.007	**ML BARANDILLA DE PROTECCION DE H=0.90m,EN ESTR. DE SUELO REFORZADO** BARANDILLA DE PROTECCIÓN EN PERÍMETRO DE ESTRUCTURA DE SUELO REFORZADO, FORMADO POR SARGENTOS METÁLICOS CON BASE DE FIJACIÓN A LOS MÓDULOS PREFABRICADOS DE LA ESTRUCTURA, PASAMANOS, LISTÓN INTERMEDIO Y RODAPIÉ FORMADO POR TABLONES DE 250X20X5 CM. (AMORTIZABLE EN VARIOS USOS)			
		300,00	14,59	4.377,00
E002.008	**UD RED MOSQUITERA A COLOCAR**			

RED MOSQUITERA A COLOCAR TRAS BARANDILLA DE PROTECCIÓN EN BORDE DE ESTRUCTURA CON EL FIN DE EVITAR CAÍDA DE MATERIALES A DISTINTO NIVEL. INCLUSO SUMINISTRO, MONTAJE Y DESMONTAJE.

50,00	4,56	228,00

E002.011 **ML PASARELA PARA PASOS SOBRE ZANJAS FORMADA POR TRES TABLONES DE 20**

PASARELA PARA PASOS SOBRE ZANJAS FORMADA POR TRES TABLONES DE 20x7cm COSIDOS A CLAVAZON Y DOBLE BARANDILLA FORMADA POR PASAMANOS DE MADERA DE 20x5 RODAPIE Y TRAVESAÑO INTERMEDIO DE 15x5cm, SUJETOS CON PIES DERECHOS DE MADERA CADA 1mts. INCLUSO COLOCACION Y DESMONTAJE.

15,00	27,35	410,25

E002.012 **ML VALLA METÁLICA PARA CIERRE DE OBRA O TAJOS DE 2 METROS DE ALTURA**

VALLA METÁLICA PARA CIERRE DE OBRA O TAJOS DE 2 METROS DE ALTURA Y 2,50 METROS DE LARGO CON PIES PREFABRICADOS DE HORMIGÓN, CON ELMENTOS DE UNIÓN A OTRA VALLA. INCLUSO P.P. DE DE COLOCACIÓN Y RETIRADA DE LA MISMA.

150,00	16,98	2.547,00

E002.013 **ML VALLA AUTÓNOMA METÁLICA DE 2,5 METROS DE LARGO Y 1 METRO DE ALTU**

VALLA AUTÓNOMA METÁLICA DE 2,5 METROS DE LARGO Y 1 METRO DE ALTURA, COLOR AMARILLO, PARA CONTENCIÓN DE PEATONES (AMORTIZABLE EN VARIOS USOS).

30,00	10,82	324,60

E002.014 **H ALQUILER DE DETECTOR ELÉCTRICO DE REDES Y SERVICIOS**

ALQUILER DE DETECTOR ELÉCTRICO DE REDES Y SERVICIOS ALIMENTADO POR BATERÍAS; DOTADO DE MOCHILA DE TRANSPORTE Y DE CINCHA DE SOPORTE AL HOMBRO. OPERADO Y CALIBRADO POR UNA ENTIDAD DE CONTROL DE CALIDAD.

24,00	120,20	2.884,80

E002.015 **UD TOPE FINAL DE RECORRIDO DE CAMIONES**

TOPE FINAL DE RECORRIDO DE CAMIONES

25,00	35,74	893,50

E002.01B **UD ARO SALVAVIDAS, INCUSO ROLLO DE CUERDA DE NYLON DE 14MM DE DIÁME**

ARO SALVAVIDAS, INCUSO ROLLO DE CUERDA DE NYLON DE 14MM DE DIÁMETRO Y 35m DE LONGITUD CON UNA LANZADA PARA SU FIJACION

20,00	78,94	1.578,80

E002.016 **MES CAMION DE RIEGO PARA EVITAR ATMÓSFERAS PULVÍGENAS (2 CAMIONES)**

CAMION DE RIEGO PARA EVITAR ATMÓSFERAS PULVÍGENAS (CONSIDERÁNDOSE 2 CAMIONES)

8,00	1.352,27	10.818,16

E002.017 **UD EXTINTOR MANUAL A.F.P.G.**

EXTINTOR MANUAL A.F.P.G. DE POLVO SECO POLIVALENTE DE 6 KG; COLOCADO SOBRE SOPORTE FIJADO AL PARMANENTO VERTICAL, INCLUSO P.P. DE PEQUEÑO MATERIAL Y DESMONTAJE.

4,00	55,98	223,92

E002.018 **UD EXTINTOR MANUAL DE CO2 DE**

EXTINTOR MANUAL DE CO2 DE 6 KG; COLOCADO SOBRE SOPORTE FIJADO AL PARMANENTO VERTICAL, INCLUSO P.P. DE PEQUEÑO MATERIAL Y DESMONTAJE.

4,00	55,98	223,92

E002.019 **UD EXTINTOR PORTATIL**

EXTINTOR PORTATIL.

10,00	28,12	281,20

E002.020 **UD MANTA APAGAFUEGOS**

MANTA APAGAFUEGOS DE 120x120cm

5,00	48,08	240,40

E002.021 **UD INSTALACION DE PUESTA A T**

INSTALACION DE PUESTA A TIERRA COMPUESTA POR CABLE DE COBRE, PICA (O PLACA DE COBRE), ELECTRODO, ETC. SEGÚN R.E.B.T.

10,00	89,02	890,20

E002.022 **UD TRANSFORMADOR DE SEGURIDA**

TRANSFORMADOR DE SEGURIDAD DE 24 V PARA ALIMENTACION DE MAQUINAS Y HERRAMIENTAS EN ZONAS HUMEDAS SEGÚN R.E.B.T.

5,00	92,13	460,65

E002.023 **UD INTERRUPTOR DIFERENCIAL 3**

INTERRUPTOR DIFERENCIAL DE ALTA SENSIBILIDAD (30 MA) INCLUIDA INSTALACIÓN EN ALUMBRADO Y FUERZA, SEGÚN R.E.B.T.

5,00	42,46	212,30

E002.024 **UD FUNDA TERMORETRACTIL ANTI**

FUNDA TERMORETRACTIL ANTIHUMEDAD COMPUESTA POR CLAVIJA Y ENCHUFE. INSTALADA.

5,00	15,09	75,45

TOTAL SS 02 ..... 34.041,95

SS 03 SEÑALIZACION Y BALIZAMIENTO DE SEGURIDAD

E005.000 **ud PORTICO PARA PROTECCIÓN DE LÍNEAS AÉREAS, Y DE GÁLIBO PARA PASOS**

PORTICO PARA PROTECCIÓN DE LÍNEAS AÉREAS, Y DE GÁLIBO PARA PASOS BAJO ESTRUCTURAS. INCLUSO MONTAJE Y DESMONTAJE.

5,00	270,46	1.352,30

E005.010 **UD CONO REFLECTANTE DE GRAN RESISTENCIA DE 50 CM DE ALTURA PARA BAL**

CONO REFLECTANTE DE GRAN RESISTENCIA DE 50 CM DE ALTURA PARA BALIZAMIENTO EN EL INTERIOR DE LA TRAZA DE LA OBRA.

40,00	3,63	145,20

E005.013 **UD PIQUETA REFLECTANTE**

PIQUETA REFLECTANTE DE BALIZAMIENTO TB-7 DE 30X10 CM, INCLUSO SOPORTE DE 30 CM. TOTALMENTE COLOCADA PARA SEÑALIZACIÓN EN EL INTERIOR DE LA TRAZA DE LA OBRA.

10,00	3,76	37,60

E005.014 **ML MALLA DE POLIETILENO DE ALTA DENSIDAD, TIPO STOPPER, CON TRATAMI**

MALLA DE POLIETILENO DE ALTA DENSIDAD, TIPO STOPPER, CON TRATAMIENTO ULTRAVIOLETA, DE 1 METRO DE ALTURA DE COLOR NARANJA REFLECTANTE PARA BALIZAMIENTO INTERIOR DE OBRA.

500,00	0,44	220,00

E005.015 **UD BOBINA DE CINTA DE POLIET**

BOBINA DE CINTA DE POLIETILENO NO ADHESIVA DE 500 MTS DE LONGITUD, 80 MM DE ANCHO Y 0,06 MM DE ESPESOR A DOS COLORES (ROJO Y BLANCO), INCLUSO COLOCACION Y DESMONTAJE.

4,00	24,16	96,64

E005.025 **UD PANEL GENERICO VARIOS RIESGOS**

PANEL GENÉRICO INDICATIVO DE VARIOS RIESGOS DE DIMENSIONES 150X100cm. INCLUSO P.P. DE SUMINISTRO, INSTALACION EN TAJO, CAMBIOS DE UBICACIÓN Y RETIRADA.

1,00	20,14	20,14

E005.026 **UD PANEL GENÉRICO MEDIDAS PREVENTIVAS**

PANEL GENÉRICO INDICATIVO DE MEDIDAS PREVENTIVAS DE DIMENSIONES 150X100cm. INCLUSO P.P. DE SUMINISTRO, INSTALACION EN TAJO, CAMBIOS DE UBICACIÓN Y RETIRADA.

1,00	20,14	20,14

E005.016 **UD SEÑAL O CARTEL PROTECCION OBLIGATORIA**

SEÑAL O CARTE INDICATIVO DE PROTECCION OBLIGATORIA, REFLECTANTE DE 0,30X0,30mts. INCLUSO P.P. DE SUMINISTRO, INSTALACION EN TAJO, CAMBIOS EN LA UBICACION Y RETIRADA.

25,00	5,40	135,00

E005.017 **UD SEÑAL O CARTEL RIESGO**

SEÑAL O CARTEL INDICATIVO DE RIESGO, REFLECTANTE DE 0,30X0,30mts. INCLUSO P.P. DE SUMINISTRO, INSTALACION EN TAJO, CAMBIOS EN LA UBICACION Y RETIRADA.

10,00	5,40	54,00

E005.018 **UD SEÑAL O CARTEL PELIGRO DETERMINADO**

SEÑAL O CARTEL INDICATIVO DE PELIGRO DETERMINADO, REFLECTANTE DE 0,30X0,30mts. INCLUSO P.P. DE SUMINISTRO, INSTALACION EN TAJO, CAMBIOS EN LA UBICACION Y RETIRADA.

10,00	5,40	54,00

E005.019 **UD SEÑAL O CARTEL PROHIBICION DETERMINADA**

SEÑAL O CARTEL INDICATIVO DE PROHIBICION DETERMINADA, REFLECTANTE DE 0,30X0,30mts. INCLUSO P.P. DE SUMINISTRO, INSTALACION EN TAJO, CAMBIOS EN LA UBICACION Y RETIRADA.

10,00	5,40	54,00

E005.027 **UD SEÑAL O CARTEL PREVENCION DE INCENDIOS**

SEÑAL O CARTEL INDICATIVO DE PREVENCION DE INCENDIOS, REFLECTANTE DE 0,30X0,30mts. INCLUSO P.P. DE SUMINISTRO, INSTALACION EN TAJO, CAMBIOS EN LA UBICACION Y RETIRADA.

5,00	5,40	27,00

E005.028 **UD SEÑAL O CARTEL PRIMEROS AUXILIOS**

SEÑAL O CARTEL INDICATIVO DE PRIMEROS AUXILIOS, REFLECTANTE DE 0,30X0,30mts. INCLUSO P.P. DE SUMINISTRO, INSTALACION EN TAJO, CAMBIOS EN LA UBICACION Y RETIRADA.

5,00	5,40	27,00

E005.029 **UD SEÑAL METÁLICA DE REGULACION DE TRAFICO**

SEÑAL METÁLICA DE REGULACION DE TRAFICO, REFLECTANTE, EN EL INTERIOR DE LA OBRA. INCLUSO P.P. DE SUMINISTRO, INSTALACION EN TAJO, CAMBIOS EN LA UBICACION Y RETIRADA.

25,00	12,99	324,75

E005.023 **UD BALIZA LUMINOSA INTERMITE**

BALIZA LUMINOSA INTERMITENTE DE LUZ AMARILLA TL-10 PARA SU INSTALACION PROVISIONAL EN OBRA. INCLUSO P.P. DE SUMINISTRO, INSTALACION, CAMBIOS EN LA UBICACION Y RETIRADA.

20,00	29,74	594,80

E005.030 **UD PANEL METÁLICO REFLECTANTE DIRECCIONAL**

PANEL METÁLICO REFLECTANTE DIRECCIONAL ESTRECHO, TIPO TB-2. INCLUSO P.P. DE SUMINISTRO, INSTALACION CAMBIOS EN LA UBICACION Y RETIRADA.

8,00	12,26	98,08

E005.031 **UD MODULO NEW JERSEY PLASTICO**
MODULO DE BARRERA DE PLASTICO TIPO NEW JERSEY EN DOS COLORES, ROJO Y BLANCO, RELLENA DE AGUA O ARENA. INCLUSO P.P. DE SUMINISTRO, INSTALACION, CAMBIOS EN LA UBICACION Y RETIRADA.

40,00	19,84	793,60

TOTAL SS 03..... 4.054,25

SS 04 INSTALACIONES DE HIGIENE Y BIENESTAR

D41AA ALQUILER CASETAS PREFA. OBRA

D41AA210 **Ud ALQUILER CASETA PREFA.OFICINA**
Ud. Més de alquiler de caseta prefabricada para oficina de obra de 6x2.35 m., con estructura metálica mediante perfiles conformados en frio y cerramiento chapa nervada y galvanizada con terminación de pintura prelacada. Aislamiento interior con lana de vidrio combinada con poliestireno expandido. Revestimiento de P.V.C. en suelos y tablero melaminado en paredes. Ventanas de aluminio anodizado, con persianas correderas de protección, incluso instalación eléctrica con distribución interior de alumbrado y fuerza con toma exterior a 220V.

8,00	134,31	1.074,48

D41AA310 **Ud ALQUILER CASETA PREFA.COMEDOR**
Ud. Més de alquiler de caseta prefabricada para comedor de obra de 6x2.35 m., con estructura metálica mediante perfiles conformados en frio y cerramiento chapa nervada y galvanizada con terminación de pintura prelacada. Aislamiento interior con lana de vidrio combinada con poliestireno expandido. Revestimiento de P.V.C. en suelos y tablero melaminado en paredes. Ventanas de aluminio anodizado, con persianas correderas de protección, incluso instalación eléctrica con distribución interior de alumbrado y fuerza con toma exterior a 220V.

8,00	109,26	874,08

D41AA320 **Ud ALQUILER CASETA P.VESTUARIOS.**
Ud. Més de alquiler de caseta prefabricada para vestuarios de obra de 6x2.35 m., con estructura metálica mediante perfiles conformados en frio y cerramiento chapa nervada y galvanizada con terminación de pintura prelacada. Aislamiento interior con lana de vidrio combinada con poliestireno expandido. Revestimiento de P.V.C. en suelos y tablero melaminado en paredes. Ventanas de aluminio anodizado, con persianas correderas de protección, incluso instalación eléctrica con distribución interior de alumbrado y fuerza con toma exterior a 220V.

4,00	125,26	501,04

D41AA420 **Ud A.A/2INOD,2DUCHA,LAV.3G,TERMO**
Ud. Més de alquiler de caseta prefabricada para aseos de obra de 4.10x1.90 m. con dos inodoros, dos duchas, un lavabo con tres grifos y termo eléctrico de 50 litros de capacidad; con las mismas caracteristicas que las oficinas. Suelo de contrachapado hidrófugo con capa fenólica antideslizante y resistente al desgaste. Piezas sanitarias de fibra de vidrio acabadas en Gel-Coat blanco y pintura antideslizante. Puertas interiores de madera en los compartimentos. Instalación de fontaneria con tuberias de polibutileno e instalación eléctrica para corriente monofásica de 220 V. protegida con interruptor automático.

4,00	212,45	849,80

D41AA820 **Ud TRANSPORTE CASETA PREFABRICAD**
Ud. Transporte de caseta prefabricada a obra, incluso descarga y posterior recogida.

4,00	264,47	1.057,88

TOTAL D41AA 4.357,28

D41AE ACOMETIDAS PROVISIONALES

D41AE001 **Ud ACOMET.PROV.ELECT.A CASETA.**
Ud. Acometida provisional de electricidad a casetas de obra.

1,00	29,32	29,32

D41AE101 **Ud ACOMET.PROV.FONTAN.A CASETA.**
Ud. Acometida provisional de fontaneria a casetas de obra.

1,00	35,33	35,33

D41AE201 **Ud ACOMET.PROV.SANEAMT.A CASETA.**
Ud. Acometida provisional de saneamiento a casetas de obra.

1,00	41,81	41,81

TOTAL D41AE..... 106,46

D41AG MOBILIARIO Y EQUIPAMIENTO

D41AG201 **Ud TAQUILLA METALICA INDIVIDUAL.**
Ud. Taquilla metálica individual con llave de 1.78 m. de altura colocada.

20,00	13,63	272,60

D41AG210 **Ud BANCO POLIPROPILENO 5 PERS.**
Ud. Banco de polipropileno para 5 personas con soportes metalicos, colocado.

5,00	21,74	108,70

D41AG610 **Ud CALIENTA COMIDAS 25 SERVICIOS**
Ud. Calienta comidas para 25 servicios, colocado.

2,00	87,46	174,92

D41AG630 **Ud MESA MELAMINA 10 PERSONAS.**
Ud. Mesa metálica para comedor con una capacidad de 10 personas, y tablero superior de melamina colocada.

3,00	22,42	67,26

D41AG700 **Ud DEPOSITO DE BASURAS DE 800 L.**
Ud. Deposito de basuras de 800 litros de capacidad realizado en

polietileno inyectado, acero y bandas de caucho, con ruedas para su transporte, colocado.

	1,00	17,52	17,52

TOTAL D41AG..... 641,00

	1,00	641,00	641,00

D41IA201 **H. EQUIPO DE LIMPIEZA Y CONSERVA**
H. Equipo de limpieza y conservación de instalaciones provisionales de obra, considerando una hora diaria de oficial de 2ª y de ayudante.

	300,00	20,14	6.042,00

D41IA210 **Ud LIMPIEZA Y DESINFECCION CASET.**
Ud. Limpieza y desinfección de casetas de obra, considerando una limpieza por cada dos semanas.

	35,00	151,75	5.311,25

TOTAL SS 04..... 16.457,99

SS 05 FORMACIÓN EN SEGURIDAD Y REUNIONES

D41IA001 **H. COMITE DE SEGURIDAD E HIGIENE**
H. Comité de seguridad compuesto por un técnico en materia de seguridad con categoria de encargado, dos trabajadores con categoria de oficial de 2ª, un ayudante y un vigilante de seguridad con categoria de oficial de 1ª, considerando una reunión como mínimo al mes.

	15,00	51,73	775,95

D41IA020 **H. FORMACION SEGURIDAD E HIGIENE**
H. Formación de seguridad e higiene en el trabajo, considerando una hora a la semana y realizada por un encargado.

	70,00	11,47	802,90

TOTAL SS 05..... 1.578,85

SS 06 MEDICINA PREVENTIVA Y PRIMEROS AUXILIOS

D41AG801 **Ud BOTIQUIN DE OBRA.**
Ud. Botiquín de obra instalado.

	1,00	20,40	20,40

D41AG810 **Ud REPOSICION DE BOTIQUIN.**
Ud. Reposición de material de botiquín de obra.

	1,00	39,19	39,19

D41IA040 **Ud RECONOCIMIENTO MEDICO OBLIGAT**
Ud. Reconocimiento médico obligatorio.

	25,00	42,07	1.051,75

TOTAL SS 06..... 1.111,34

TOTAL 06 ..... 59.656,23

10. RESUMEN DEL PRESUPUESTO

RESUMEN DE PRESUPUESTO

CAPÍTULO	RESUMEN	IMPORTE	%
01	EXPLANACIONES	124.507,09	3,90
02	FIRMES	734.401,85	23,02
03	ESTRUCTURAS	2.177.098,90	68,25
04	SEÑALIZACIÓN Y BALIZAMIENTO	23.873,07	0,75
06	VARIOS	19.976,88	0,63
05	PARTIDAS ALZADAS	109.899,00	3,45
	PRESUPUESTO DE EJECUCIÓN MATERIAL	**3.189.756,79**	
	13,00 % Gastos generales 414.668,38		
	6,00 % Beneficio industrial 191.385,41		
	Suma.....	606.053,79	
	PRESUPUESTO BASE DE LICITACIÓN SIN IVA	**3.795.810,58**	
	21% IVA.....	797.120,22	
	PRESUPUESTO BASE DE LICITACIÓN	**4.592.930,80**	

Asciende el presupuesto a la expresada cantidad de CUATRO MILLONES QUINIENTOS NOVENTA Y DOS MIL NOVECIENTOS TREINTA EUROS con OCHENTA CÉNTIMOS

. 3 de iunio de 2017.

Santander, J de 201

E autor del proyecto,



ANEJO Nº20.-

PRESUPUESTO DE INVERSIÓN

Contenido

1. *Presupuesto de ejecución material* 2

2. *Presupuesto base de licitación* 2

3. *Presupuesto de inversión*..... 2

1. PRESUPUESTO DE EJECUCIÓN MATERIAL

El presupuesto de ejecución material asciende a **3.189.756,79 Euros**

01	EXPLANACIONES	124.507,09	3,90
02	FIRMES	734.401,85	23,02
03	ESTRUCTURAS	2.177.098,90	68,25
04	SEÑALIZACIÓN Y BALIZAMIENTO	23.873,07	0,75
06	VARIOS	19.976,88	0,63
05	PARTIDAS ALZADAS	109.899,00	3,45
	PRESUPUESTO DE EJECUCIÓN MATERIAL	**3.189.756,79**	

2. PRESUPUESTO BASE DE LICITACIÓN

Se Obtiene aplicando al PBL los porcentajes de gastos generales y del beneficio industrial

PRESUPUESTO DE EJECUCIÓN MATERIAL			**3.189.756,79**
13,00	% Gastos generales	414.668,38	
6,00	% Beneficio industrial	191.385,41	
	Suma		606.053,79
PRESUPUESTO BASE DE LICITACIÓN SIN IVA			**3.795.810,58**

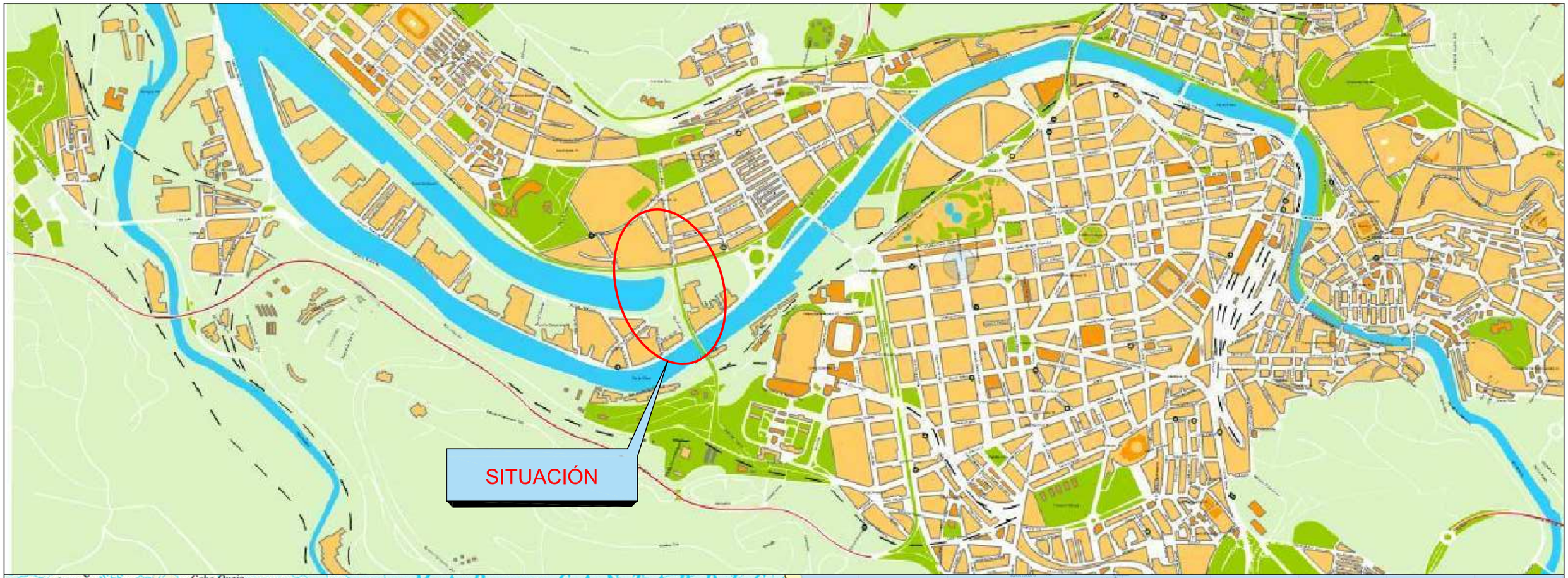
3. PRESUPUESTO DE INVERSIÓN

Este presupuesto se obtendría añadiendo al presupuesto base de licitación el valor de las expropiaciones y el de los de los servicios afectados cuyo coste corre a cargo de la administración.

Las expropiaciones no afectan al proyecto y no se dispone del valor de reposición de los servicios afectados así que mantendremos el valor del presupuesto base de licitación como presupuesto de inversión

DOCUMENTO Nº2:

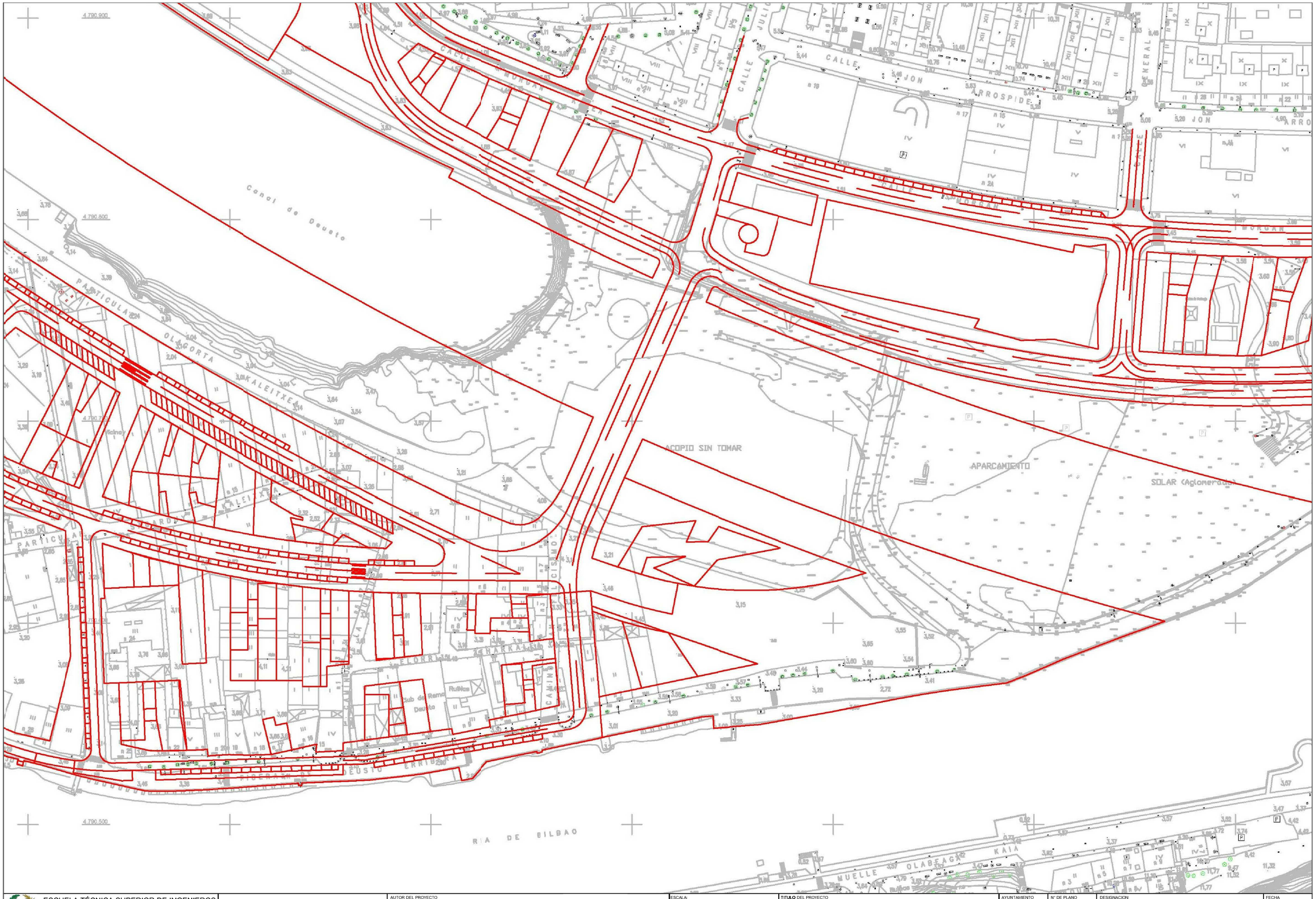
PLANOS



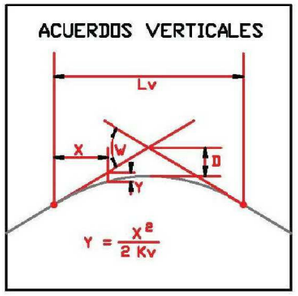




ESCUELA TÉCNICA SUPERIOR DE INGENIEROS DE CAMINOS, CANALES Y PUERTOS UNIVERSIDAD DE CANTABRIA	PROYECTO FIN DE MÁSTER PROYECTO	AUTOR DEL PROYECTO Nicolás Emaldi Algarate	ESCALA: S/E	TÍTULO DEL PROYECTO PROYECTO DE CONSTRUCCIÓN: PUENTE DE ACCESO A LA ISLA DE ZORROTZAURRE	AYUNTAMIENTO Bilbao	Nº DE PLANO 1 HOJA 1 DE 1	DESIGNACION SITUACIÓN	FECHA JUNIO 2017



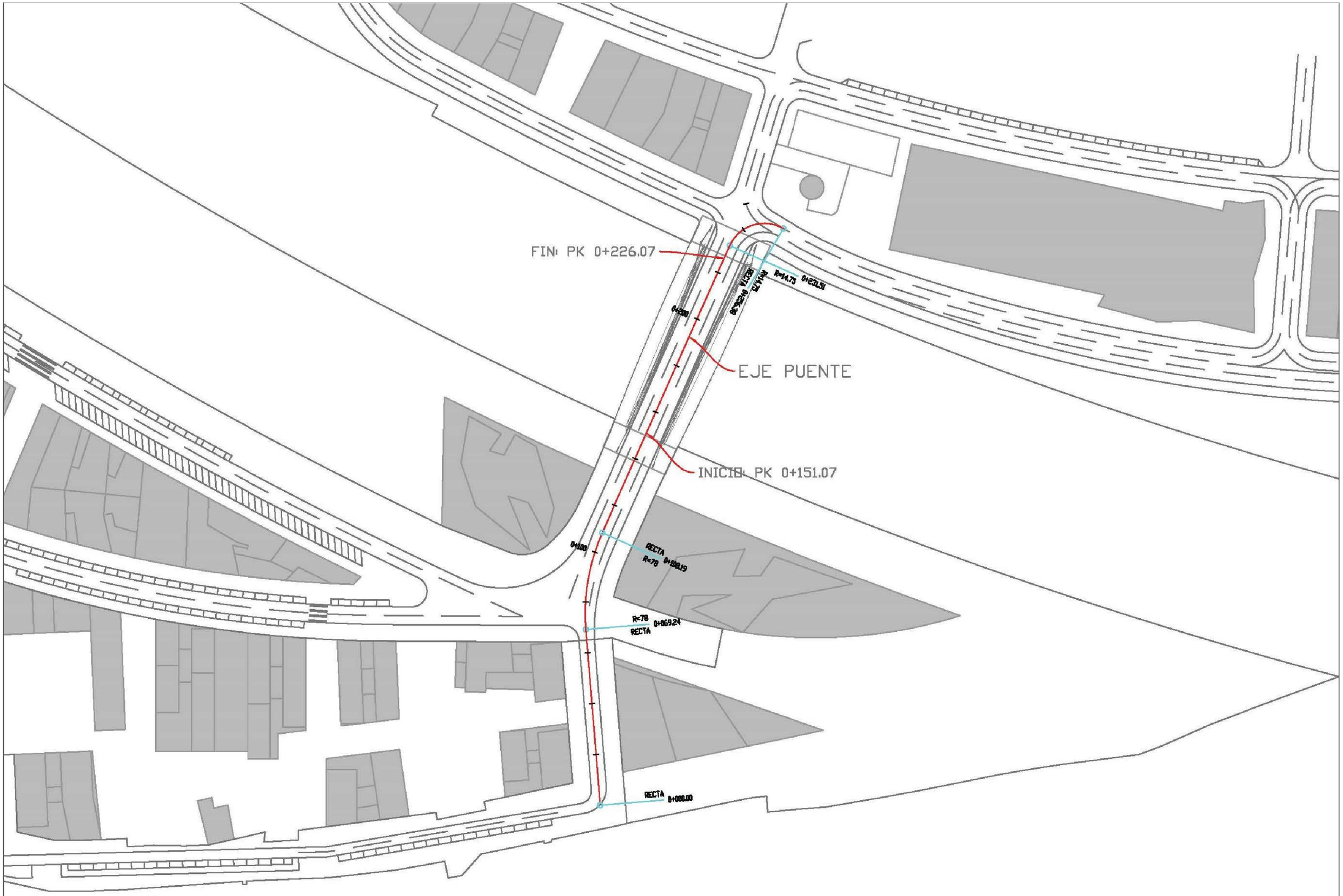
ESCUELA TÉCNICA SUPERIOR DE INGENIEROS DE CAMINOS, CANALES Y PUERTOS UNIVERISDAD DE CANTABRIA	PROYECTO FIN DE MÁSTER PROYECTO	AUTOR DEL PROYECTO Nicolás Emaldi Algarate	ESCALA: 1/1000	TÍTULO DEL PROYECTO PROYECTO DE CONSTRUCCIÓN: PUENTE DE ACCESO A LA ISLA DE ZORROTZAURRE	AYUNTAMIENTO Bilbao	Nº DE PLANO 2 HOJA 1 DE 1	DESIGNACION PLANO DE CONJUNTO	FECHA JUNIO 2017



PERFIL LONGITUDINAL

ESCALA H:1/1500 V:1/300
COTAS EN M

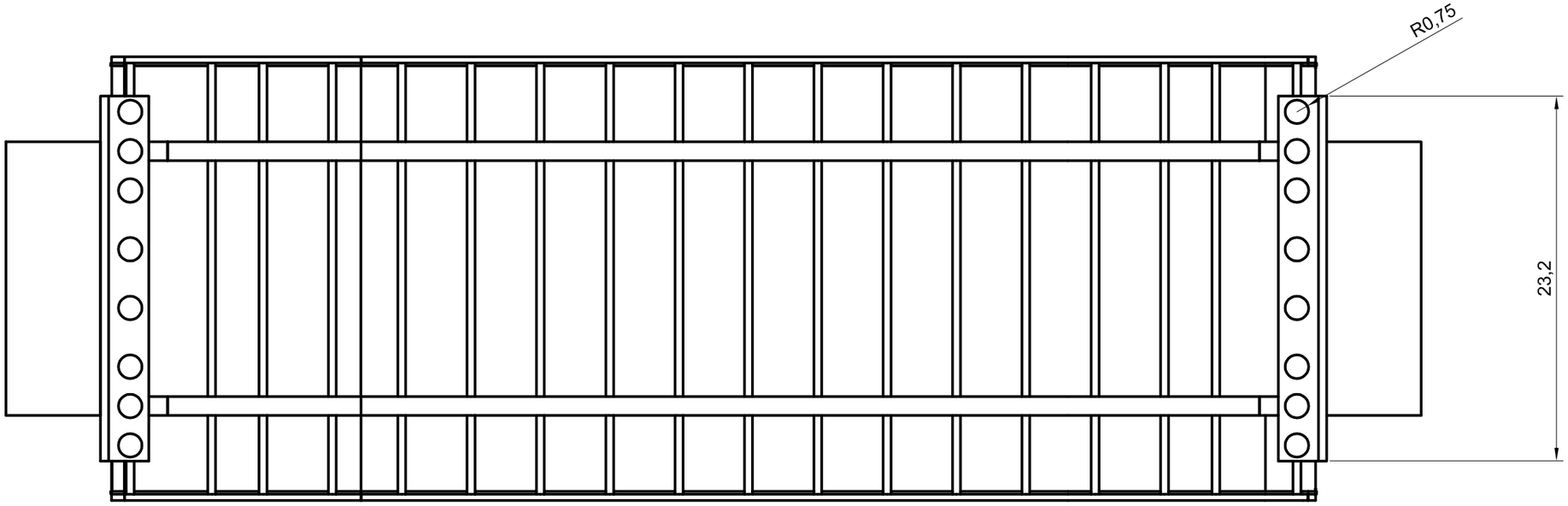
ESCUELA TÉCNICA SUPERIOR DE INGENIEROS DE CAMINOS, CANALES Y PUERTOS UNIVERSIDAD DE CANTABRIA	PROYECTO FIN DE MÁSTER PROYECTO	AUTOR DEL PROYECTO Nicolás Emaldi Algarate	ESCALA: 1/1500 1/300	TITULO DEL PROYECTO PROYECTO DE CONSTRUCCIÓN: PUENTE DE ACCESO A LA ISLA DE ZORROTZAURRE	AYUNTAMIENTO Bilbao	Nº DE PLANO 3 HOJA 1 DE 2	DESIGNACION TRAZADO. ALZADO	FECHA JUNIO 2017



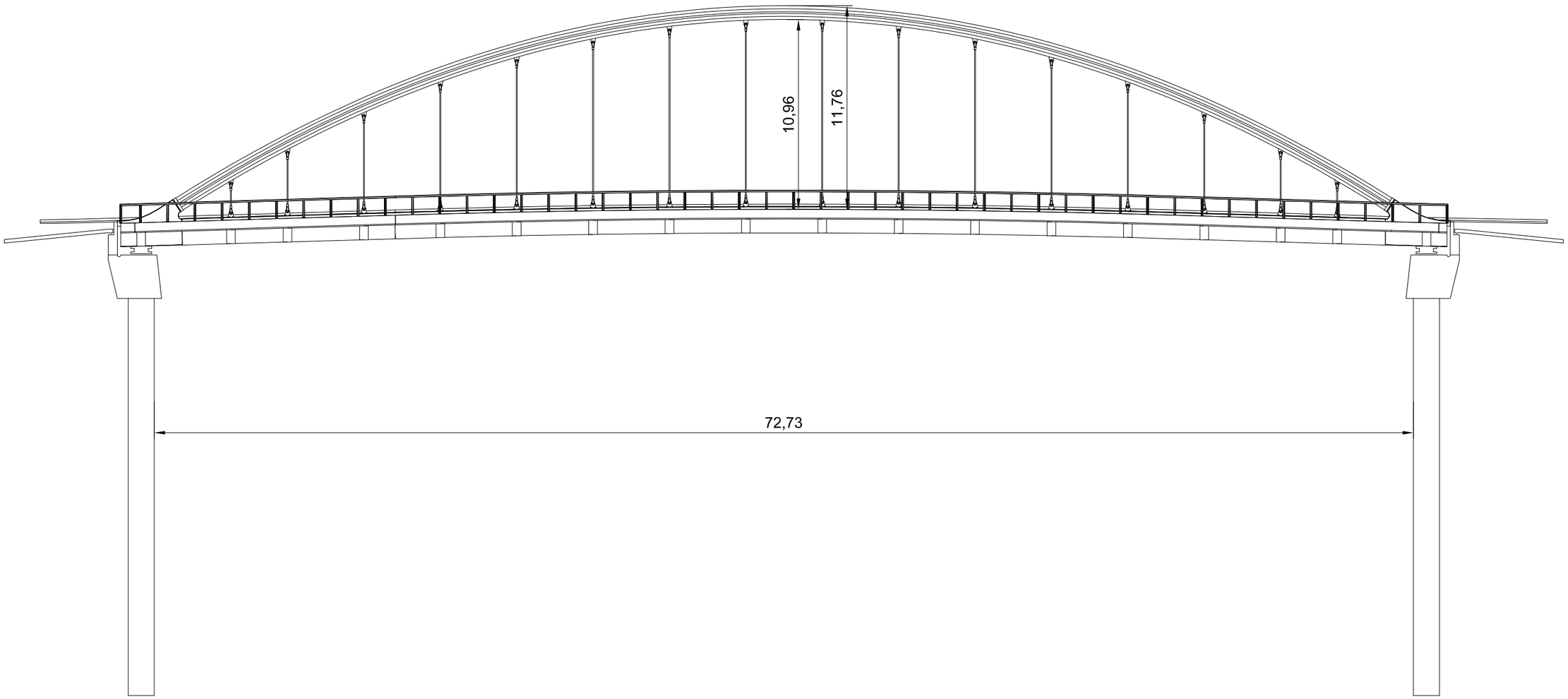
ESCUELA TÉCNICA SUPERIOR DE INGENIEROS DE CAMINOS, CANALES Y PUERTOS UNIVERSIDAD DE CANTABRIA	PROYECTO FIN DE MÁSTER PROYECTO	AUTOR DEL PROYECTO Nicolás Emaldi Algarate	ESCALA: 1/1500	TITULO DEL PROYECTO PROYECTO DE CONSTRUCCIÓN: PUENTE DE ACCESO A LA ISLA DE ZORROTZAURRE	AYUNTAMIENTO Bilbao	Nº DE PLANO 3 HOJA 2 DE 2	DESIGNACION TRAZADO. PLANTA	FECHA JUNIO 2017



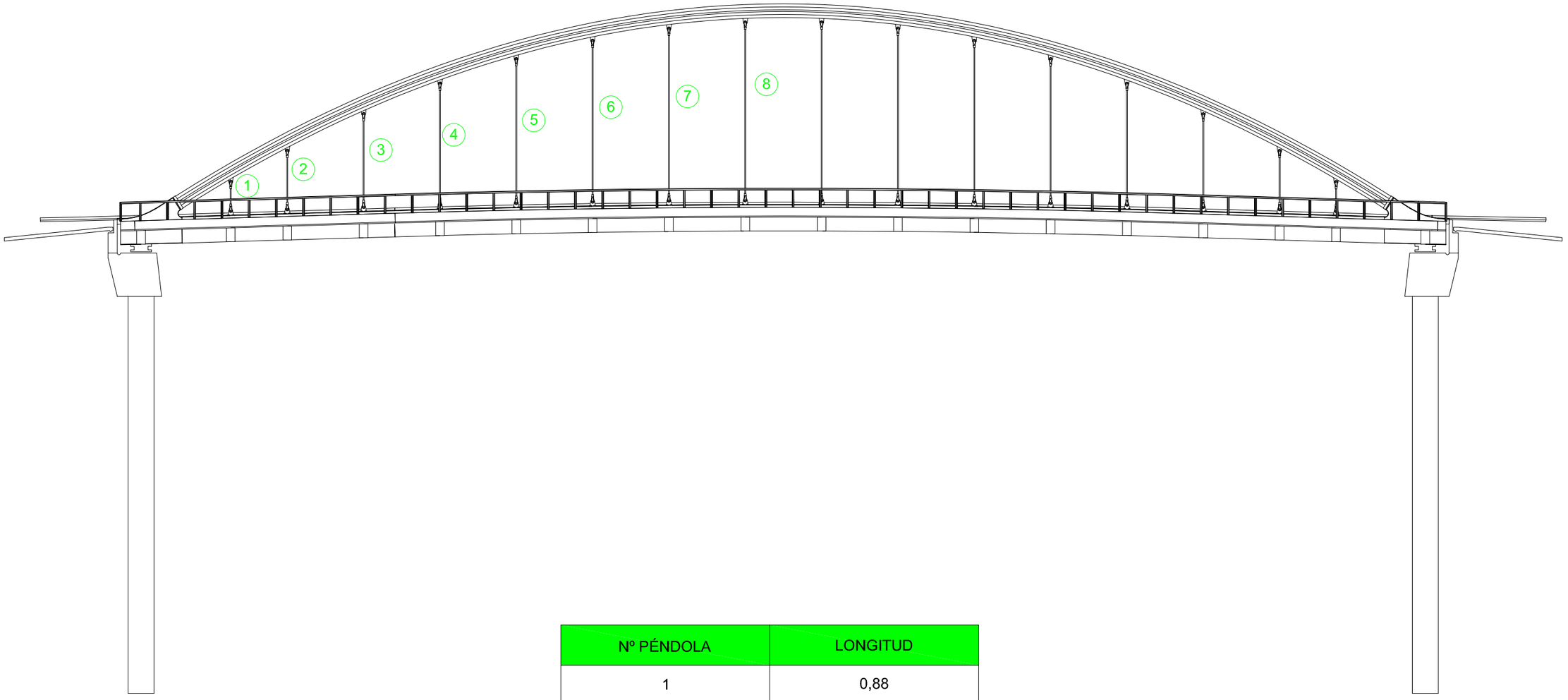
PLANTA ESPEJO



ESCUELA TÉCNICA SUPERIOR DE INGENIEROS DE CAMINOS, CANALES Y PUERTOS UNIVERISDAD DE CANTABRIA	PROYECTO FIN DE MÁSTER PROYECTO	AUTOR DEL PROYECTO Nicolás Emaldi Algarate	ESCALA: 1/350	TITULO DEL PROYECTO PROYECTO DE CONSTRUCCIÓN: PUENTE DE ACCESO A LA ISLA DE ZORROTZAURRE	AYUNTAMIENTO Bilbao	Nº DE PLANO 4 HOJA 1 DE 1	DESIGNACION PLANTAS	FECHA JUNIO 2017



ESCUELA TÉCNICA SUPERIOR DE INGENIEROS DE CAMINOS, CANALES Y PUERTOS UNIVERISDAD DE CANTABRIA	PROYECTO FIN DE MÁSTER PROYECTO	AUTOR DEL PROYECTO Nicolás Emaldi Algarate	ESCALA: 1/250	TÍTULO DEL PROYECTO PROYECTO DE CONSTRUCCIÓN: PUENTE DE ACCESO A LA ISLA DE ZORROTZAURRE	AYUNTAMIENTO Bilbao	Nº DE PLANO 4 HOJA 1 DE 2	DESIGNACION ALZADO	FECHA JUNIO 2017



Nº PÉNDOLA	LONGITUD
1	0,88
2	2,58
3	4,56
4	6,2
5	7,5
6	8,49
7	9,14
8	9,47

ESCUELA TÉCNICA SUPERIOR DE INGENIEROS DE CAMINOS, CANALES Y PUERTOS
UNIVERISDAD DE CANTABRIA

PROYECTO FIN DE MÁSTER

PROYECTO

AUTOR DEL PROYECTO: Nicolás Emaldi Algarate

ESCALA: 1/250

TÍTULO DEL PROYECTO: PROYECTO DE CONSTRUCCIÓN: PUENTE DE ACCESO A LA ISLA DE ZORROTZAURRE

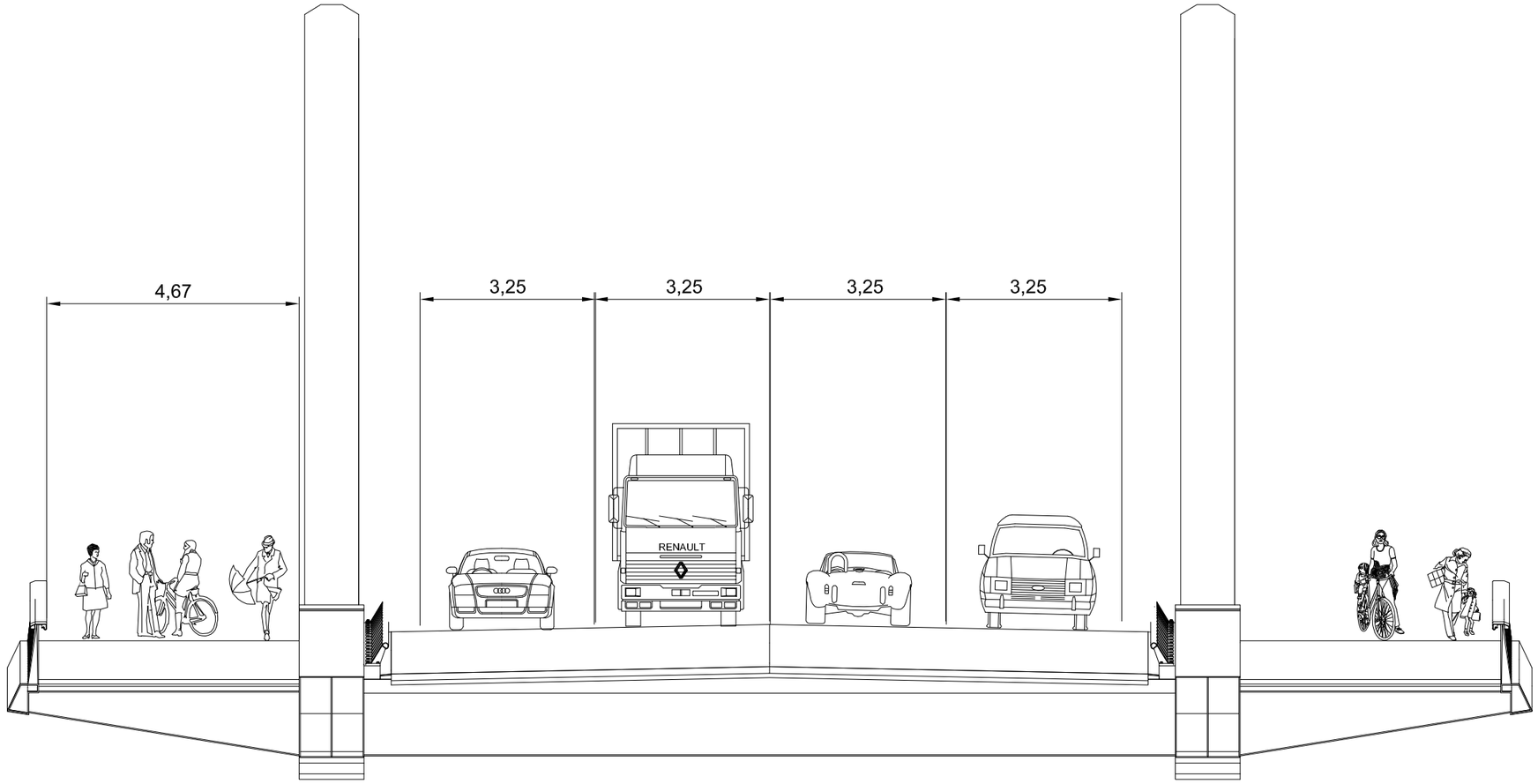
AYUNTAMIENTO: Bilbao

Nº DE PLANO: 5

HOJA 2 DE 2

DESIGNACION: ALZADO. LONGITUD PÉNDOLAS

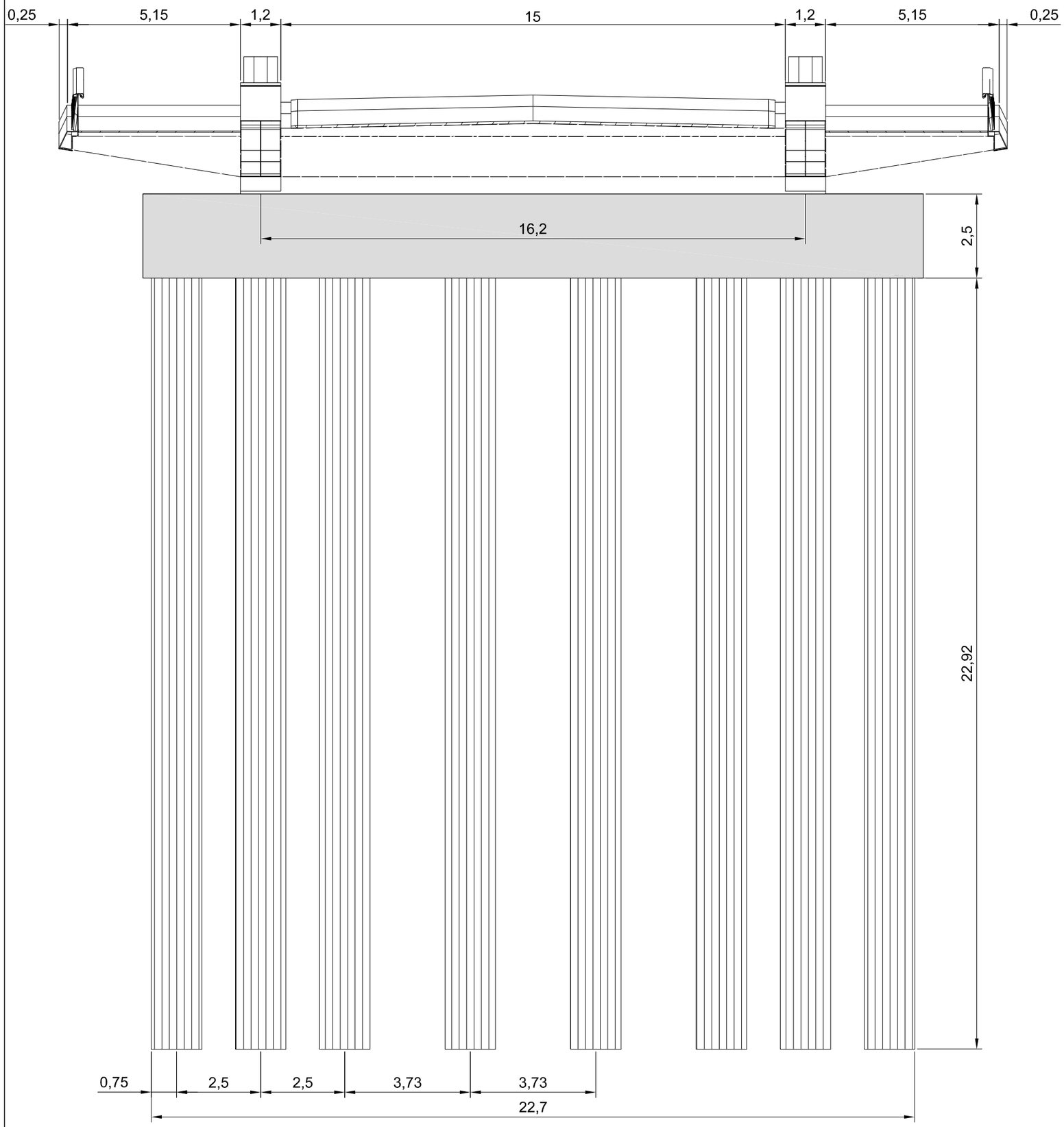
FECHA: JUNIO 2017

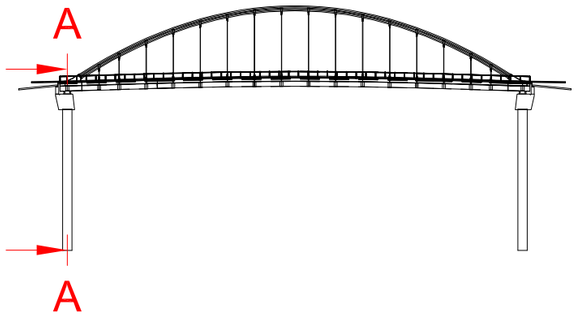


COTAS EN METROS

ESCUELA TÉCNICA SUPERIOR DE INGENIEROS DE CAMINOS, CANALES Y PUERTOS UNIVERISDAD DE CANTABRIA	PROYECTO FIN DE MÁSTER PROYECTO	AUTOR DEL PROYECTO Nicolás Emaldi Algarate	ESCALA: 1/250	TÍTULO DEL PROYECTO PROYECTO DE CONSTRUCCIÓN: PUENTE DE ACCESO A LA ISLA DE ZORROTZAURRE	AYUNTAMIENTO Bilbao	Nº DE PLANO 8 HOJA 1 DE 1	DESIGNACION SECCIÓN CENTRO LUZ	FECHA JUNIO 2017

SECCIÓN A-A

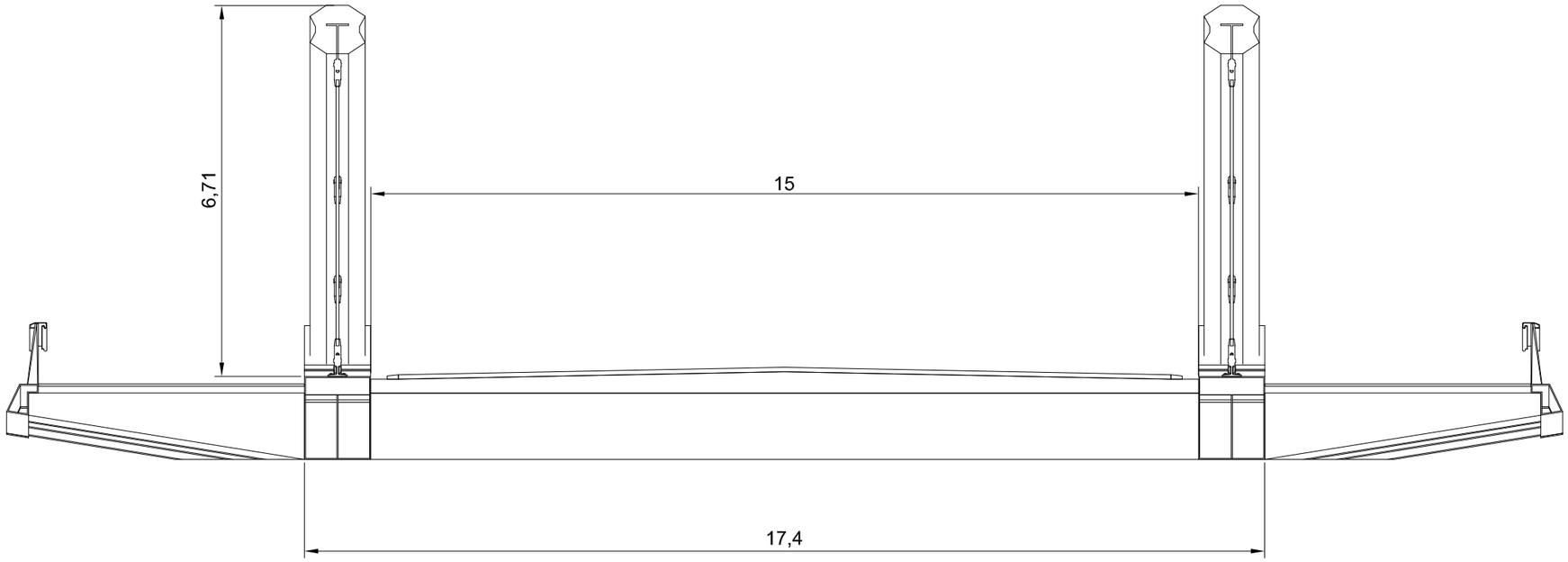


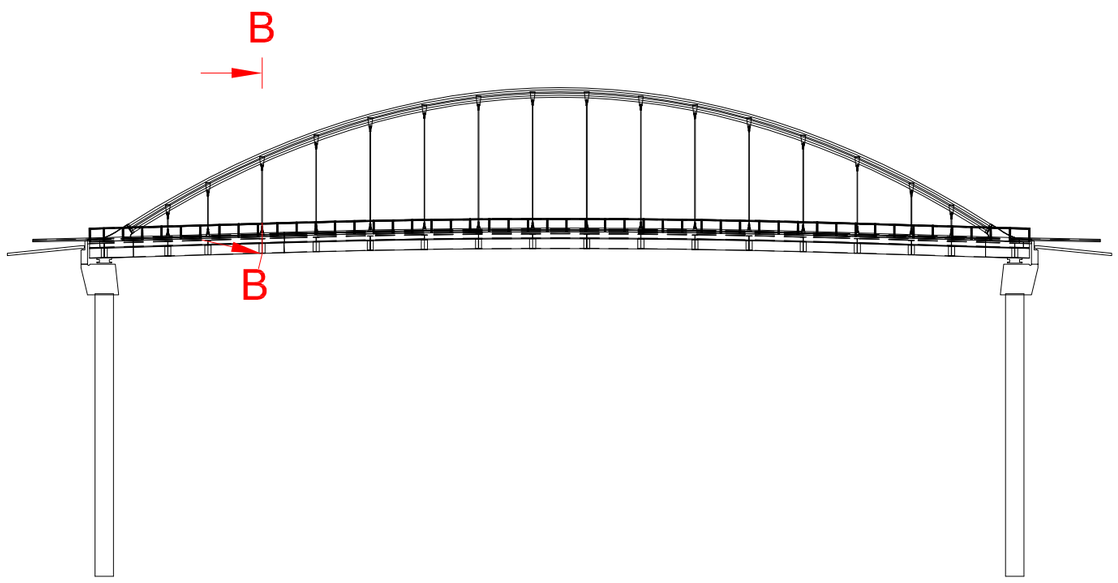


COTAS EN METROS

ESCUELA TÉCNICA SUPERIOR DE INGENIEROS DE CAMINOS, CANALES Y PUERTOS UNIVERISDAD DE CANTABRIA	PROYECTO FIN DE MÁSTER PROYECTO	AUTOR DEL PROYECTO Nicolás Emaldi Algarate	ESCALA: 1/100	TITULO DEL PROYECTO PROYECTO DE CONSTRUCCIÓN: PUENTE DE ACCESO A LA ISLA DE ZORROTZAURRE	AYUNTAMIENTO Bilbao	Nº DE PLANO 7 HOJA 1 DE 1	DESIGNACION SECCIÓN ESTRIBO	FECHA JUNIO 2017

SECCIÓN B-B

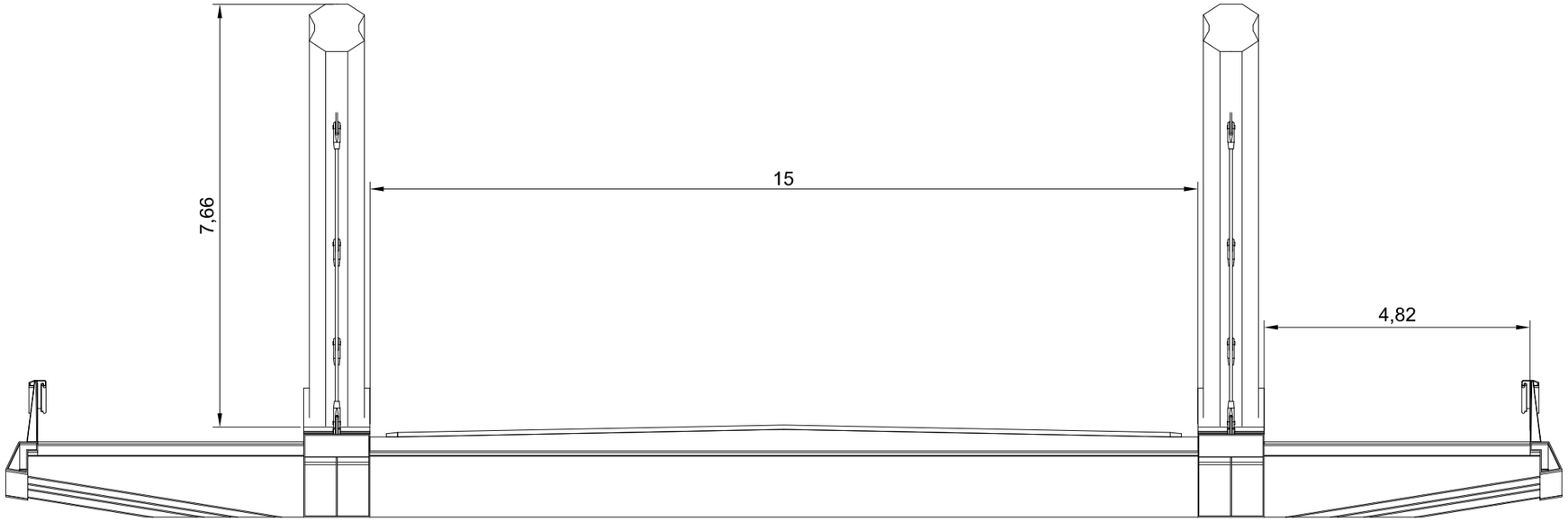


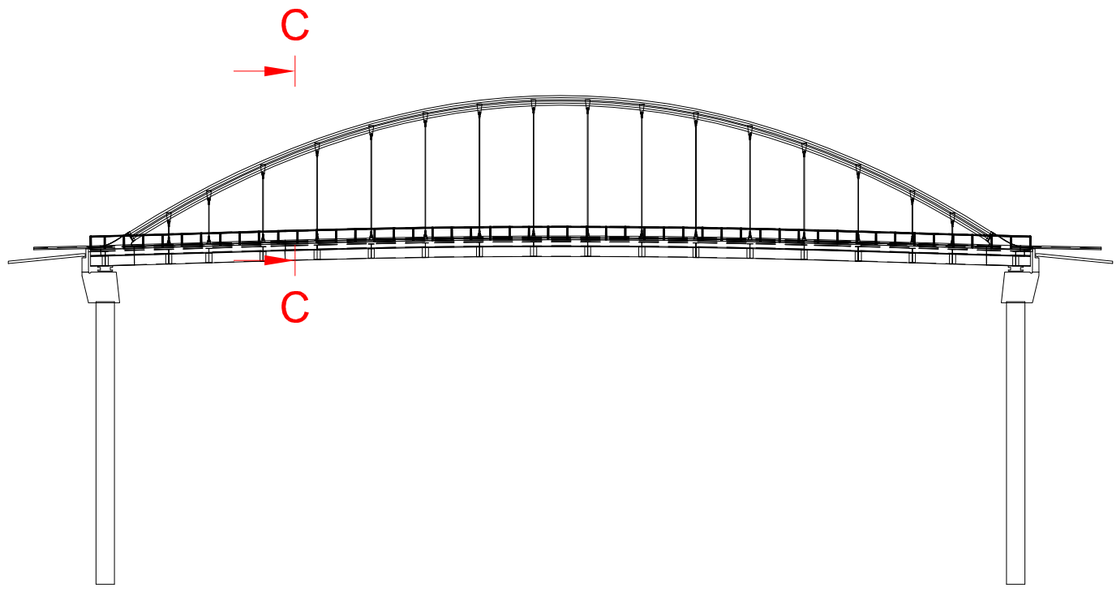


COTAS EN METROS

ESCUELA TÉCNICA SUPERIOR DE INGENIEROS DE CAMINOS, CANALES Y PUERTOS UNIVERISDAD DE CANTABRIA	PROYECTO FIN DE MÁSTER PROYECTO	AUTOR DEL PROYECTO Nicolás Emaldi Algarate	ESCALA: 1/250	TÍTULO DEL PROYECTO PROYECTO DE CONSTRUCCIÓN: PUENTE DE ACCESO A LA ISLA DE ZORROTZAURRE	AYUNTAMIENTO Bilbao	Nº DE PLANO 8 HOJA 1 DE 1	DESIGNACION SECCIÓN A $\frac{1}{6}$ DE LA LUZ	FECHA JUNIO 2017

SECCIÓN C-C

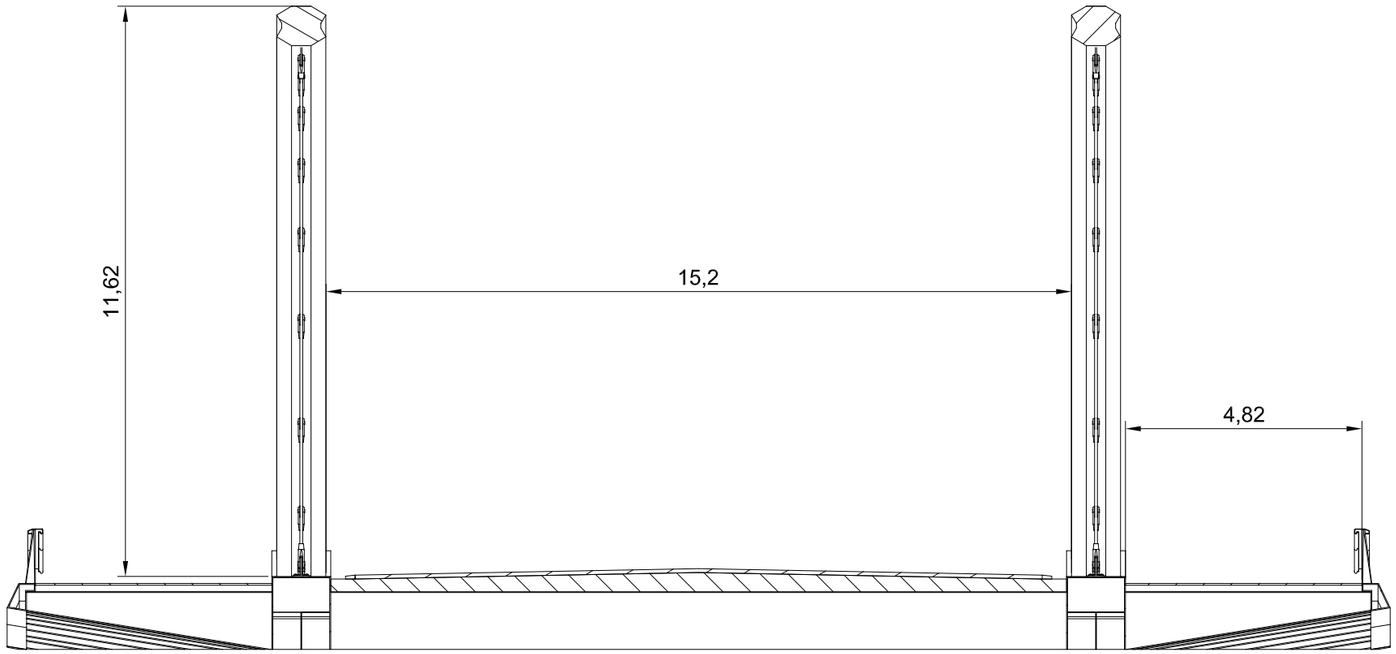


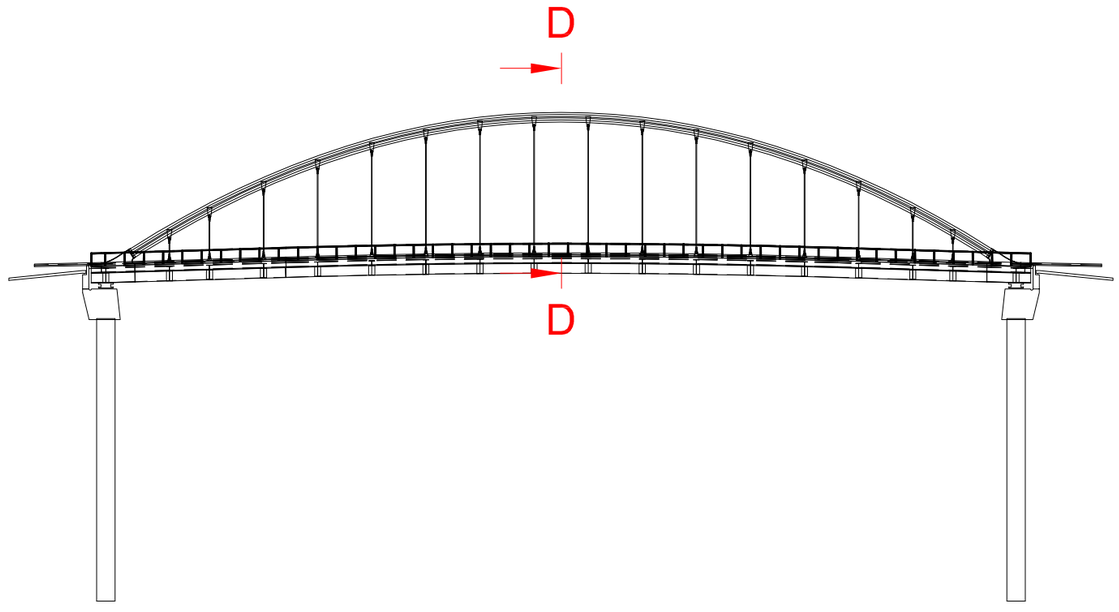


COTAS EN METROS

ESCUELA TÉCNICA SUPERIOR DE INGENIEROS DE CAMINOS, CANALES Y PUERTOS UNIVERISDAD DE CANTABRIA	PROYECTO FIN DE MÁSTER PROYECTO	AUTOR DEL PROYECTO Nicolás Emaldi Algarate	ESCALA: 1/250	TÍTULO DEL PROYECTO PROYECTO DE CONSTRUCCIÓN: PUENTE DE ACCESO A LA ISLA DE ZORROTZAURRE	AYUNTAMIENTO Bilbao	Nº DE PLANO 9 HOJA 1 DE 1	DESIGNACION SECCIÓN INTERMEDIA	FECHA JUNIO 2017

SECCIÓN D-D



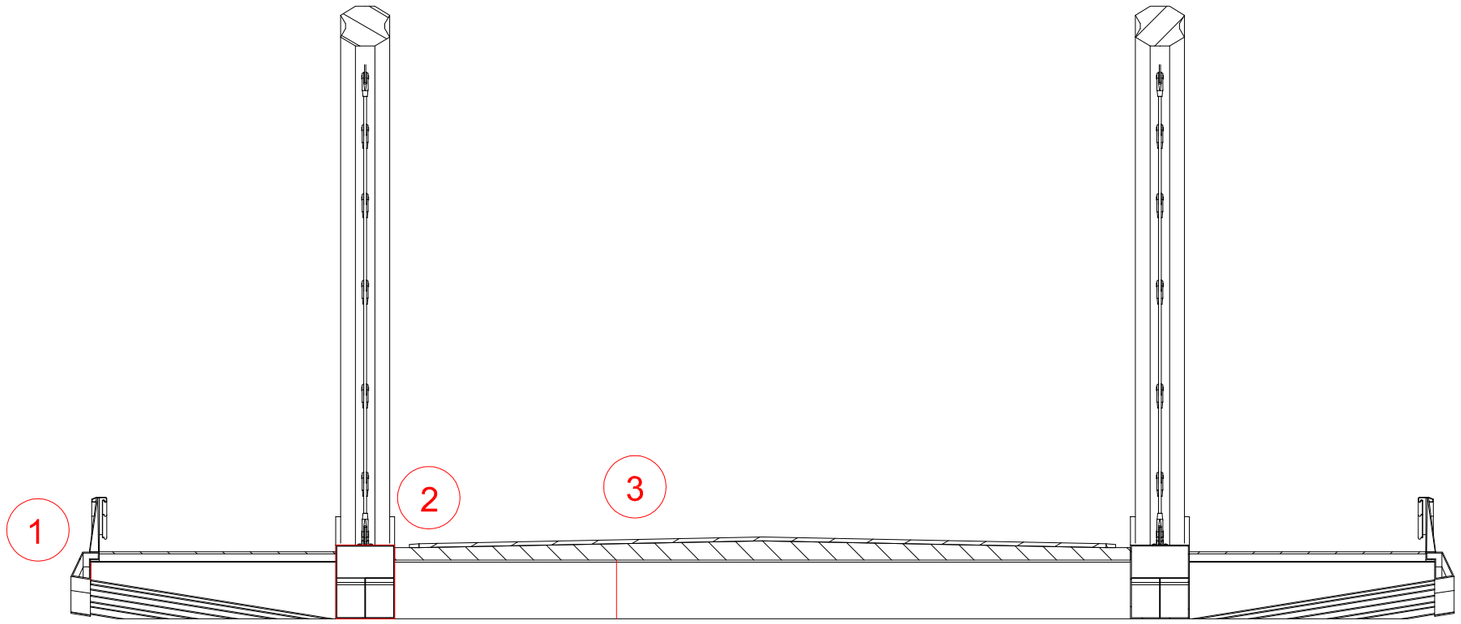


COTAS EN METROS

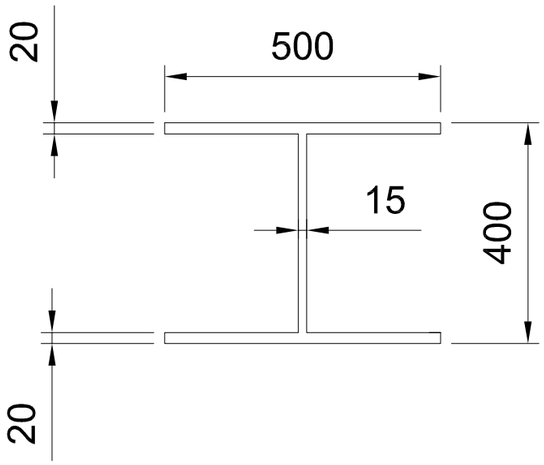
ESCUELA TÉCNICA SUPERIOR DE INGENIEROS DE CAMINOS, CANALES Y PUERTOS UNIVERISDAD DE CANTABRIA	PROYECTO FIN DE MÁSTER PROYECTO	AUTOR DEL PROYECTO Nicolás Emaldi Algarate	ESCALA: 1/250	TÍTULO DEL PROYECTO PROYECTO DE CONSTRUCCIÓN: PUENTE DE ACCESO A LA ISLA DE ZORROTZAURRE	AYUNTAMIENTO Bilbao	Nº DE PLANO 8 HOJA 1 DE 1	DESIGNACION SECCIÓN CENTRO LUZ	FECHA JUNIO 2017

MATERIALES

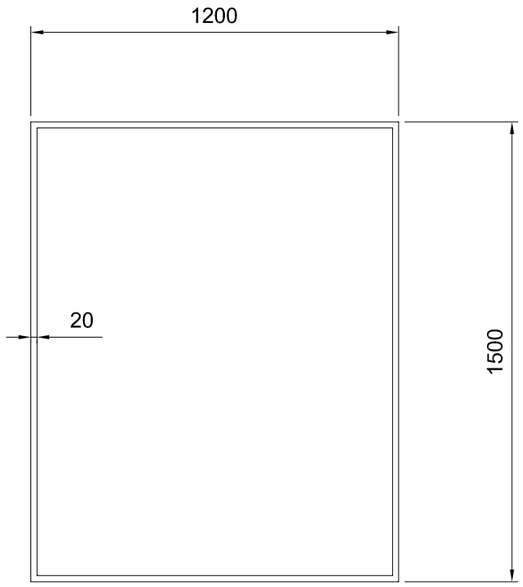
Acero S355
Hormigón HA/50



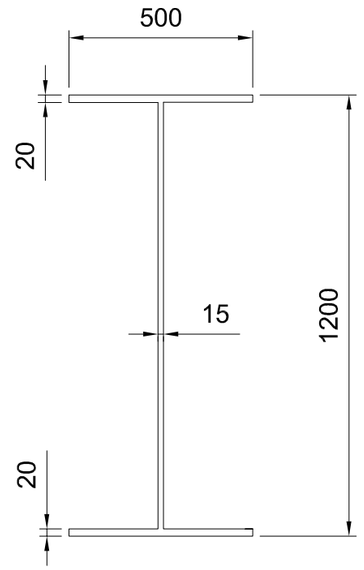
VOLADIZO VARIABLE 1



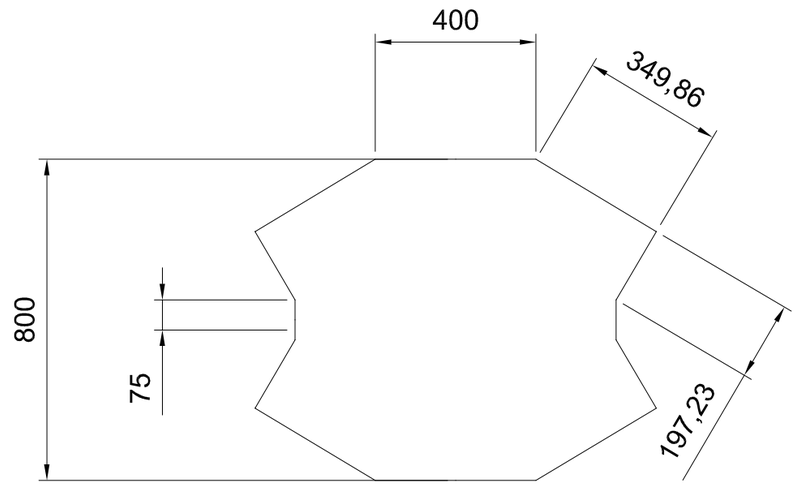
VIGA CAJÓN 2



VIGA TRANSVERSAL 3



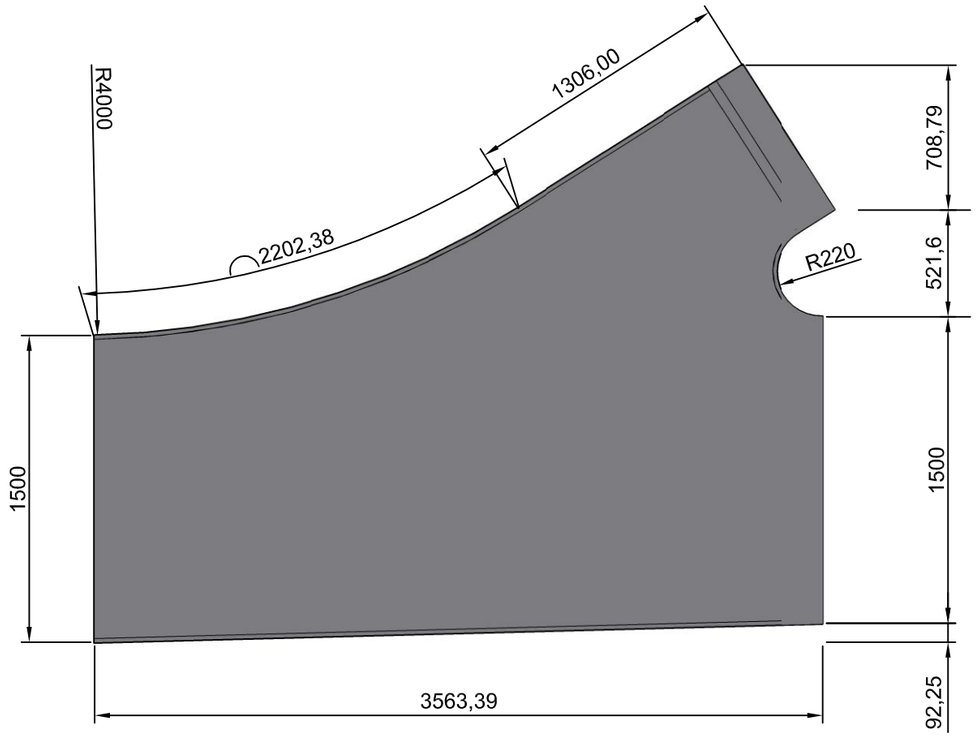
VIGA HORMIGÓN

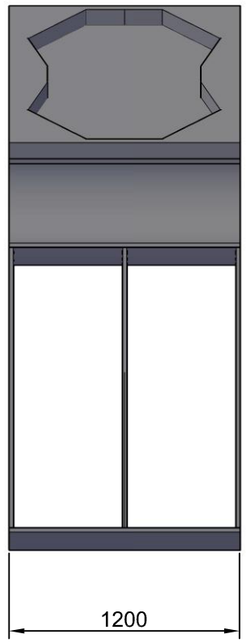


COTAS EN MM

COTAS EN CM

ESCUELA TÉCNICA SUPERIOR DE INGENIEROS DE CAMINOS, CANALES Y PUERTOS UNIVERISDAD DE CANTABRIA	PROYECTO FIN DE MÁSTER PROYECTO	AUTOR DEL PROYECTO Nicolás Emaldi Algarate	ESCALA: 1/20	TÍTULO DEL PROYECTO PROYECTO DE CONSTRUCCIÓN: PUENTE DE ACCESO A LA ISLA DE ZORROTZAURRE	AYUNTAMIENTO Bilbao	Nº DE PLANO 11 HOJA 1 DE 1	DESIGNACION SECCIONES VIGAS	FECHA JUNIO 2017

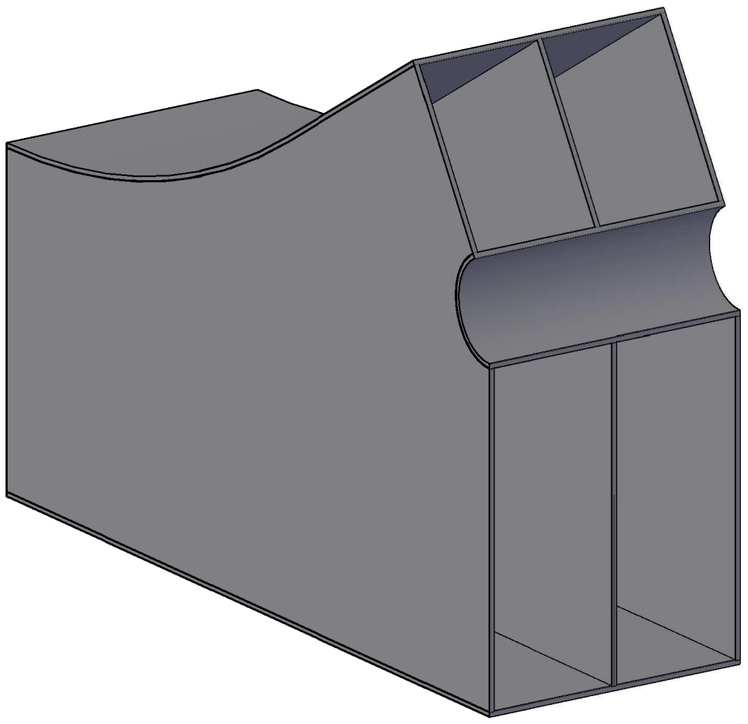


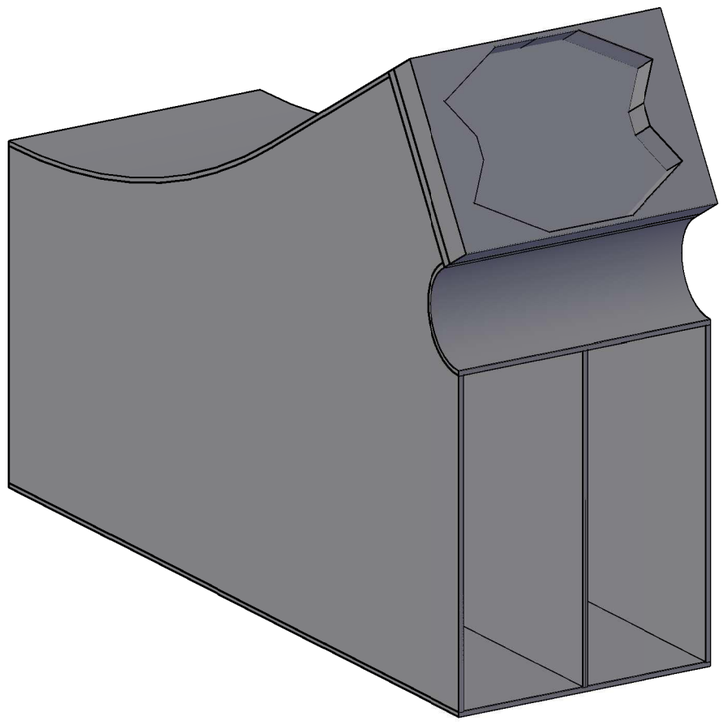


Material: Acero S 355 J2

Espesores de chapa: 50 mm

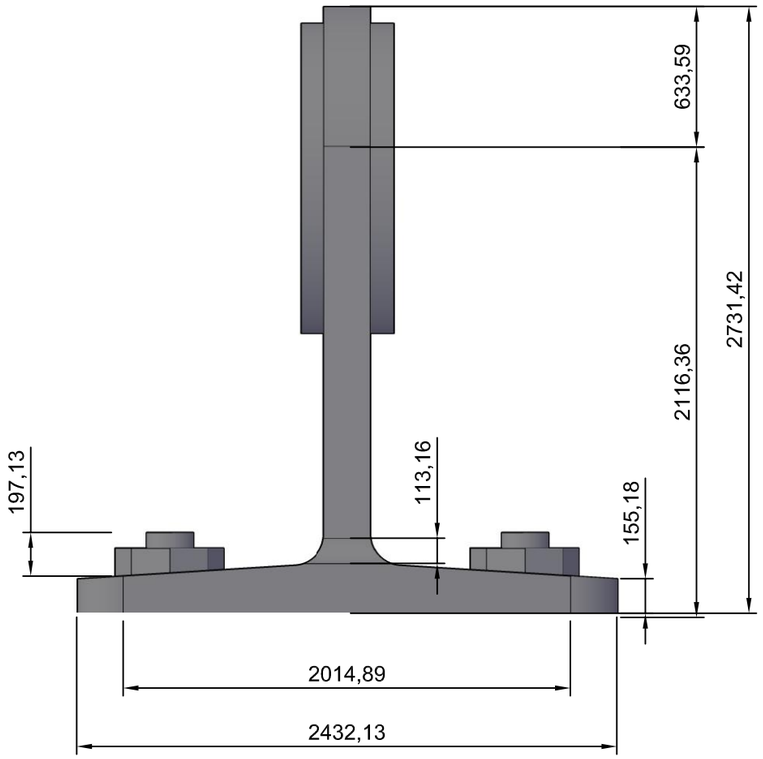
A excepción del chapón de encuentro del arco con el detalle estructural que presenta un espesor de 5mm

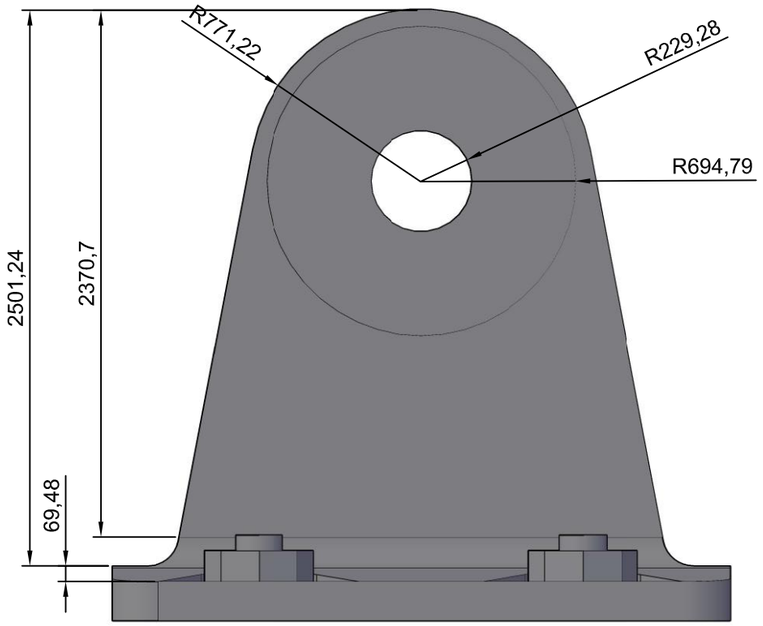




COTAS EN MM

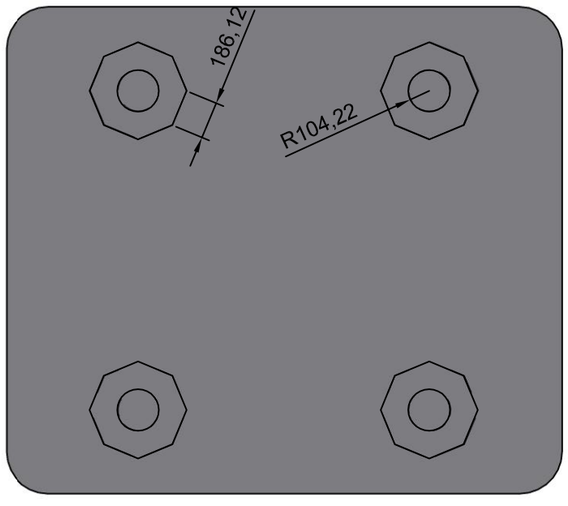
ESCUELA TÉCNICA SUPERIOR DE INGENIEROS DE CAMINOS, CANALES Y PUERTOS UNIVERISDAD DE CANTABRIA	PROYECTO FIN DE MÁSTER PROYECTO	AUTOR DEL PROYECTO Nicolás Emaldi Algarate	ESCALA: 1/30	TITULO DEL PROYECTO PROYECTO DE CONSTRUCCIÓN: PUENTE DE ACCESO A LA ISLA DE ZORROTZAURRE	AYUNTAMIENTO Bilbao	Nº DE PLANO 12 HOJA 1 DE 1	DESIGNACION DETALLE ENCUENTRO ARCO TIRANTE	FECHA JUNIO 2017

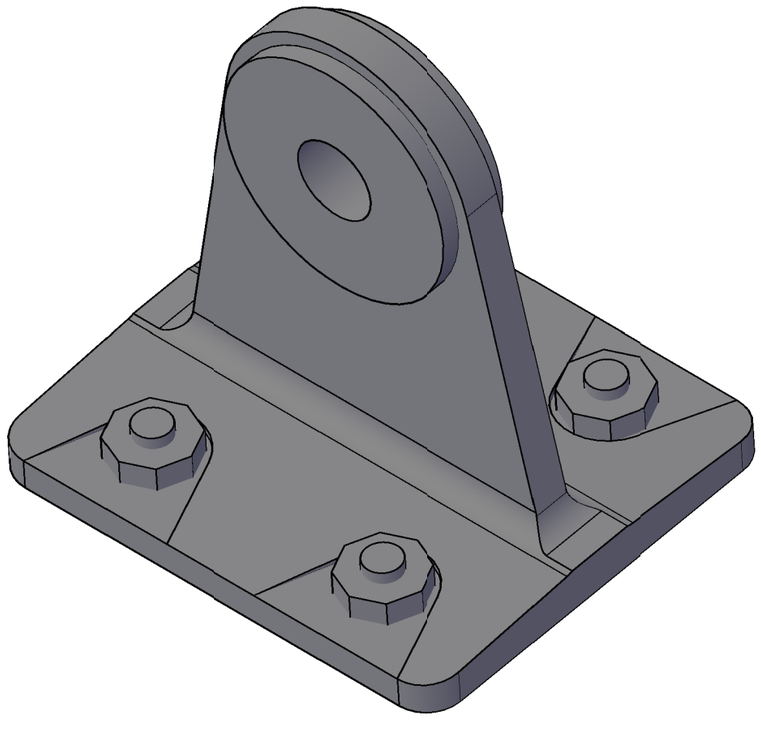


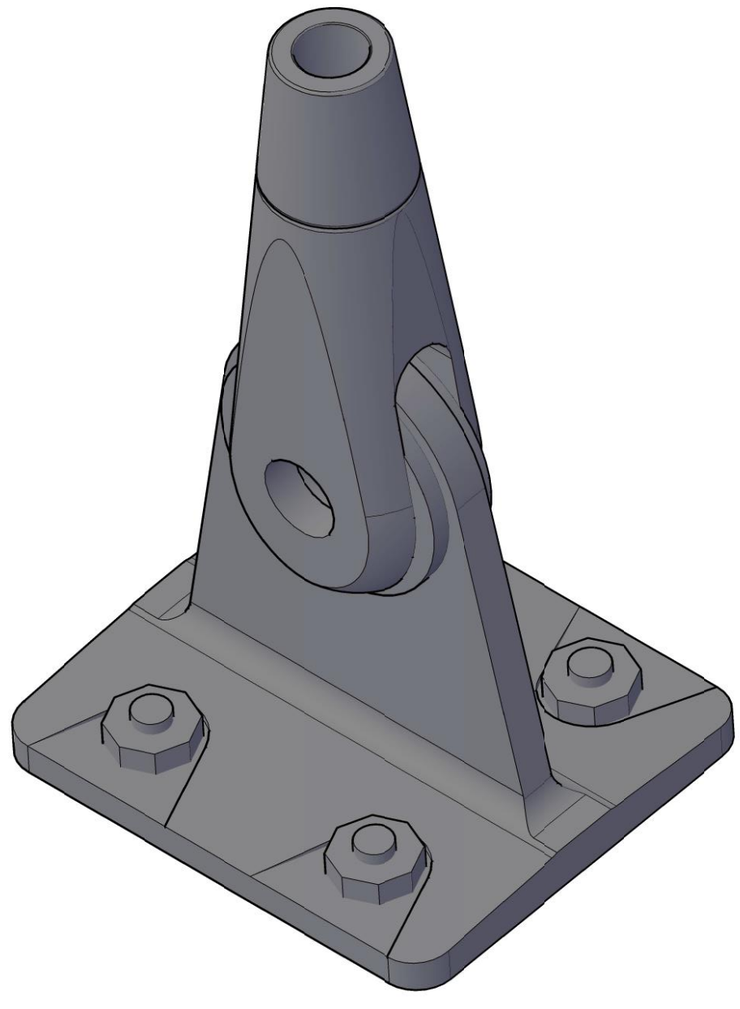


Material: Acero S 355 J2

Las tuercasserán pretensadas para llevar a cabo la maniobra de puesta en carga del arco

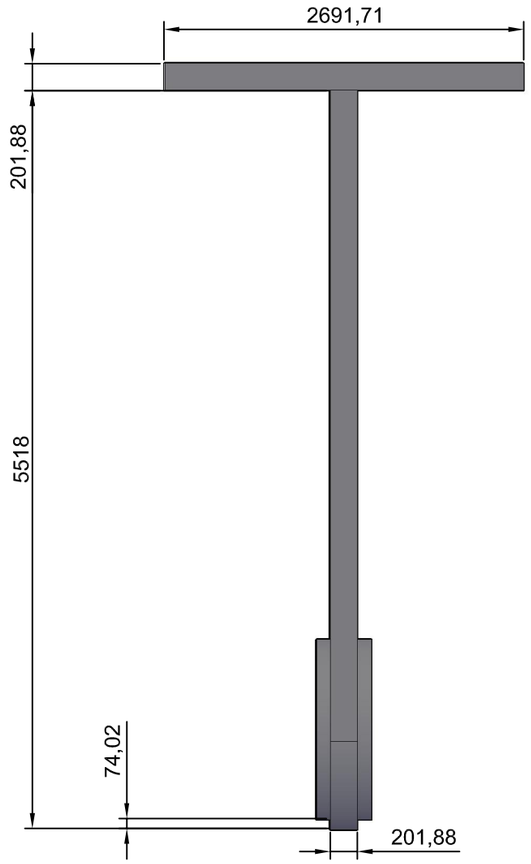


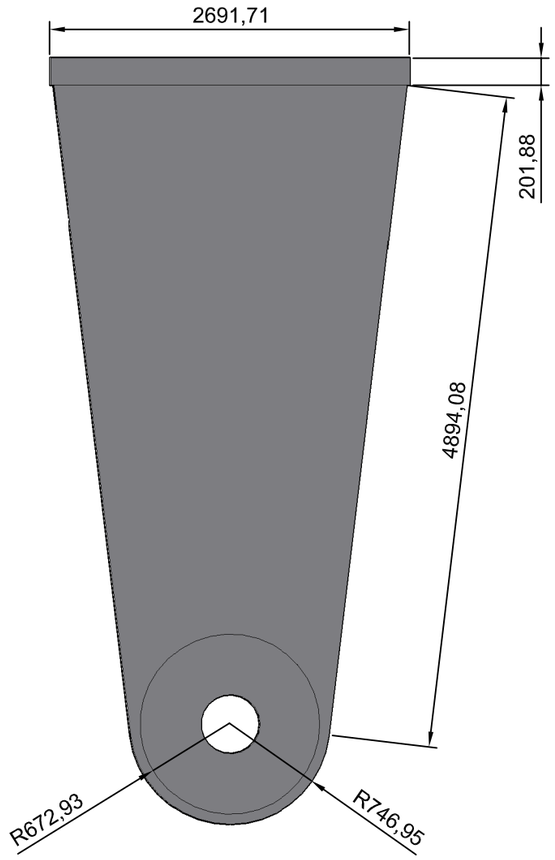




COTAS EN MM

ESCUELA TÉCNICA SUPERIOR DE INGENIEROS DE CAMINOS, CANALES Y PUERTOS UNIVERSIDAD DE CANTABRIA	PROYECTO FIN DE MÁSTER PROYECTO	AUTOR DEL PROYECTO Nicolás Emaldi Algarate	ESCALA: 1/25	TITULO DEL PROYECTO PROYECTO DE CONSTRUCCIÓN: PUENTE DE ACCESO A LA ISLA DE ZORROTZAURRE	AYUNTAMIENTO Bilbao	Nº DE PLANO 13 HOJA 1 DE 1	DESIGNACION DETALLE GANCHO PÉNDOLA CON VIGA LONGITUDINAL	FECHA JUNIO 2017

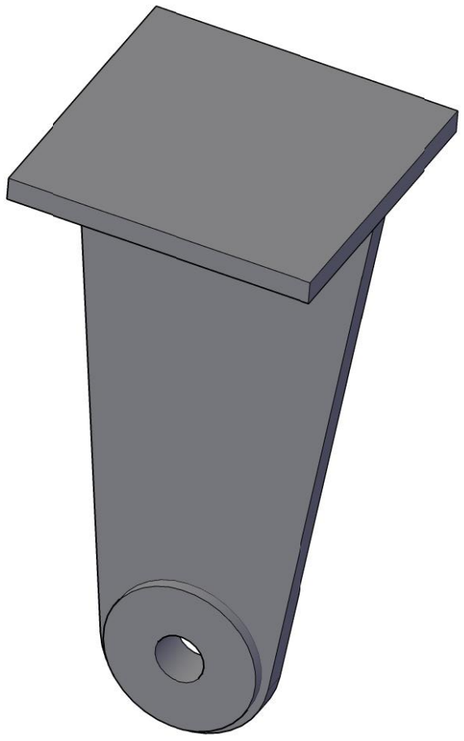


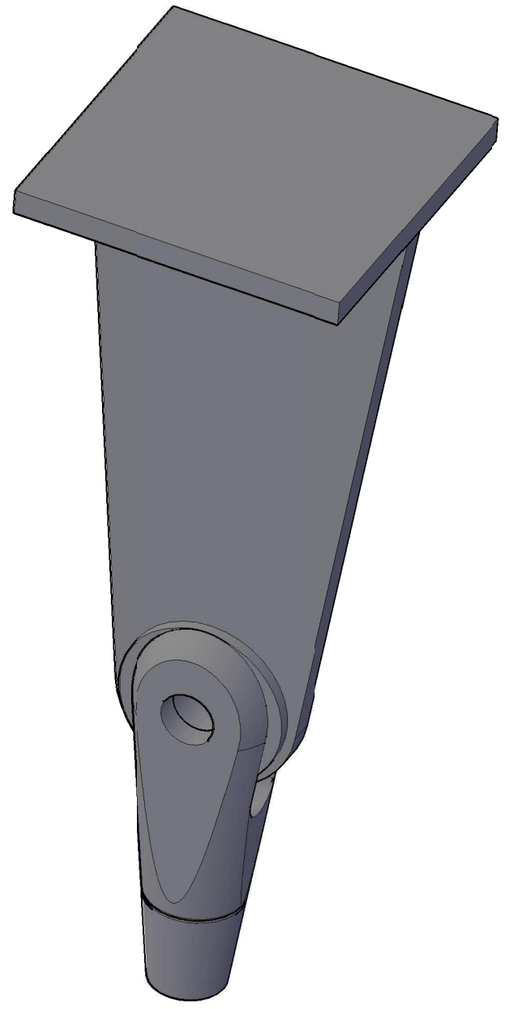


Material: Acero S 355 J2

Espesores de chapa: 50 mm

A excepción del chapón de encuentro del arco con el detalle estructural que presenta un espesor de 5mm



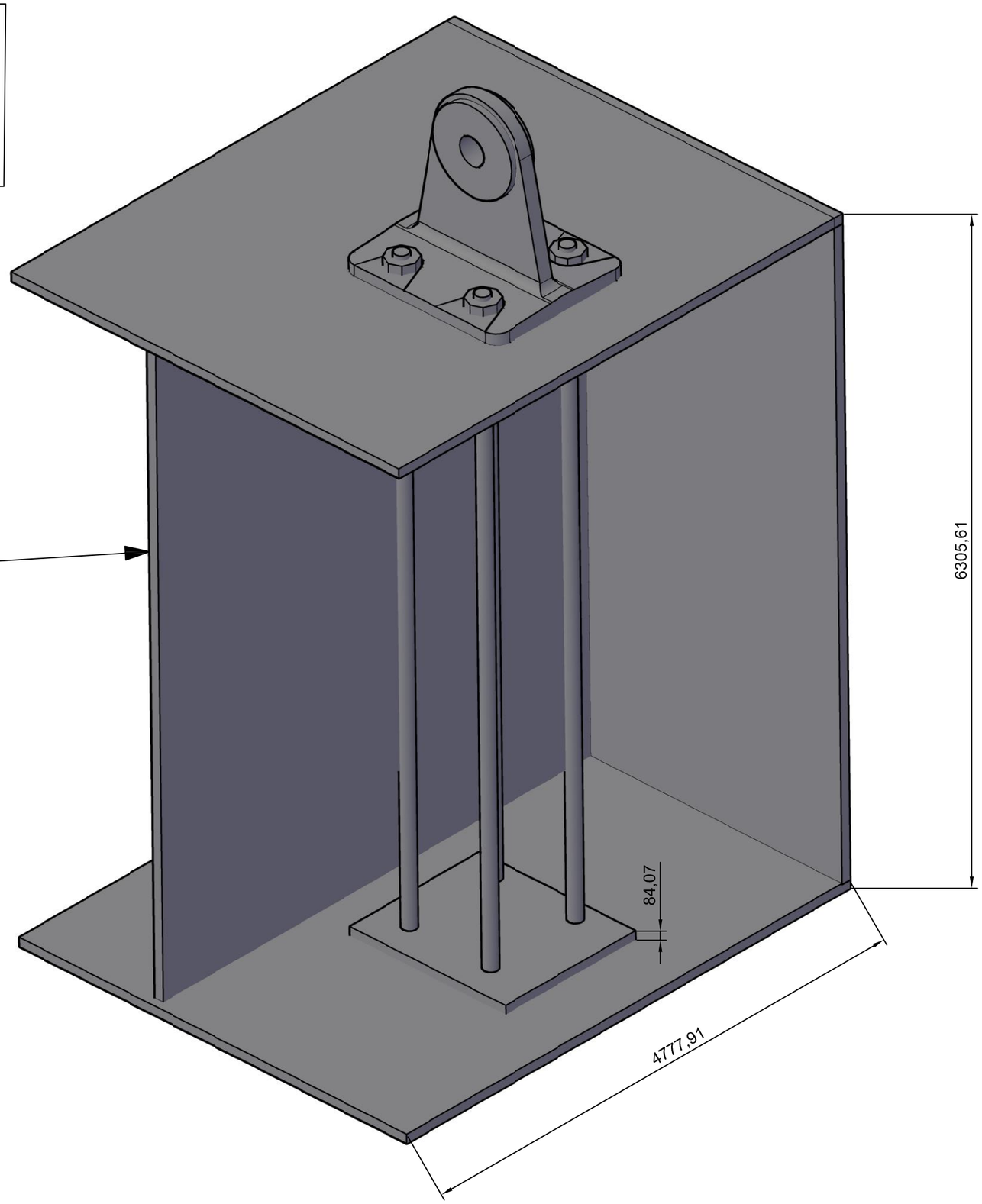


COTAS EN MM

ESCUELA TÉCNICA SUPERIOR DE INGENIEROS DE CAMINOS, CANALES Y PUERTOS UNIVERISDAD DE CANTABRIA	PROYECTO FIN DE MÁSTER PROYECTO	AUTOR DEL PROYECTO Nicolás Emaldi Algarate	ESCALA: 1/30	TITULO DEL PROYECTO PROYECTO DE CONSTRUCCIÓN: PUENTE DE ACCESO A LA ISLA DE ZORROTZAURRE	AYUNTAMIENTO Bilbao	Nº DE PLANO 14 HOJA 1 DE 1	DESIGNACION DETALLE GANCHO PÉNDOLA CON ARCO	FECHA JUNIO 2017

Se dispondrá un rigidizador simétrico al mostrado

Las barras serán tesadas mediante gato de barras o incluso pistolas hidráulicas

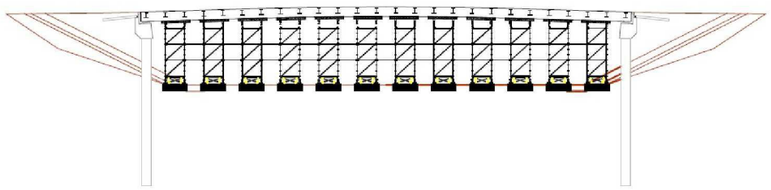


COTAS EN MM

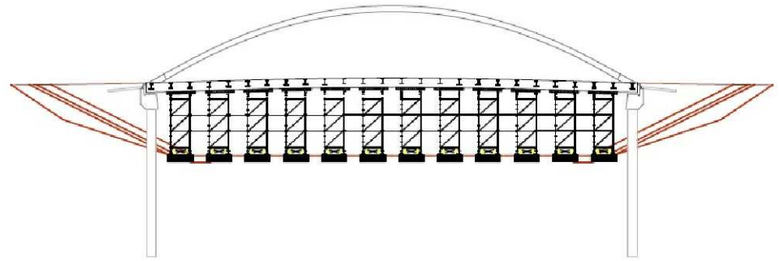
ESCUELA TÉCNICA SUPERIOR DE INGENIEROS DE CAMINOS, CANALES Y PUERTOS UNIVERISDAD DE CANTABRIA	PROYECTO FIN DE MÁSTER PROYECTO	AUTOR DEL PROYECTO Nicolás Emaldi Algarate	ESCALA: 1/30	TITULO DEL PROYECTO PROYECTO DE CONSTRUCCIÓN: PUENTE DE ACCESO A LA ISLA DE ZORROTZAURRE	AYUNTAMIENTO Bilbao	Nº DE PLANO 15 HOJA 1 DE 1	DESIGNACION DETALLE ENCUENTRO VIGA LONGITUDINAL Y PÉNDOLA	FECHA JUNIO 2017



Preparación del terreno



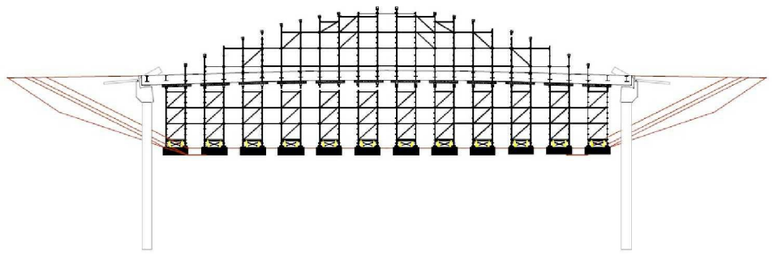
Construcción de estructura metálica sobre cimbra



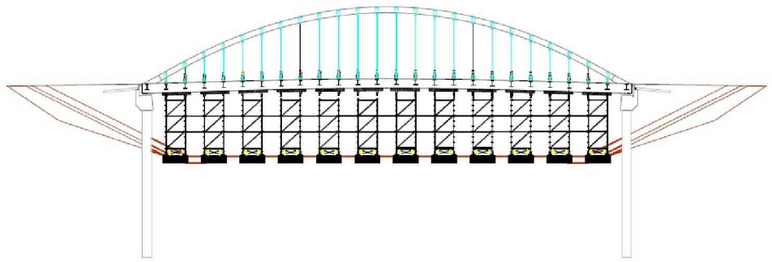
Descimbrado del arco



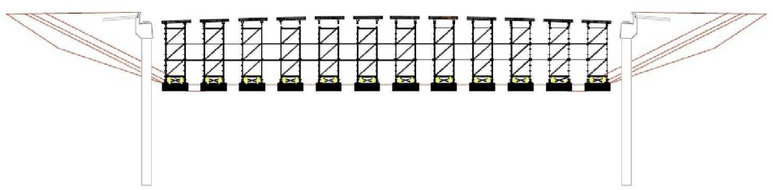
Excavación de pilotes y construcción de estribos



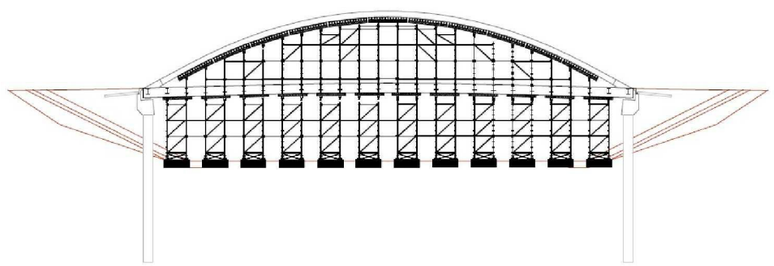
Levantamiento de cimbra sobre la existente para la construcción del arco



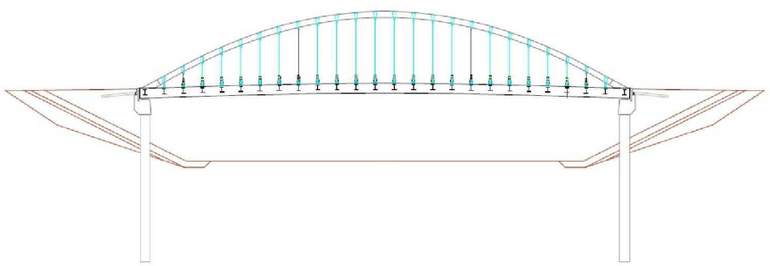
Hormigonado de la losa y emplazamiento de las péndolas



Emplazamiento de cimbra con apoyos cada 3 m

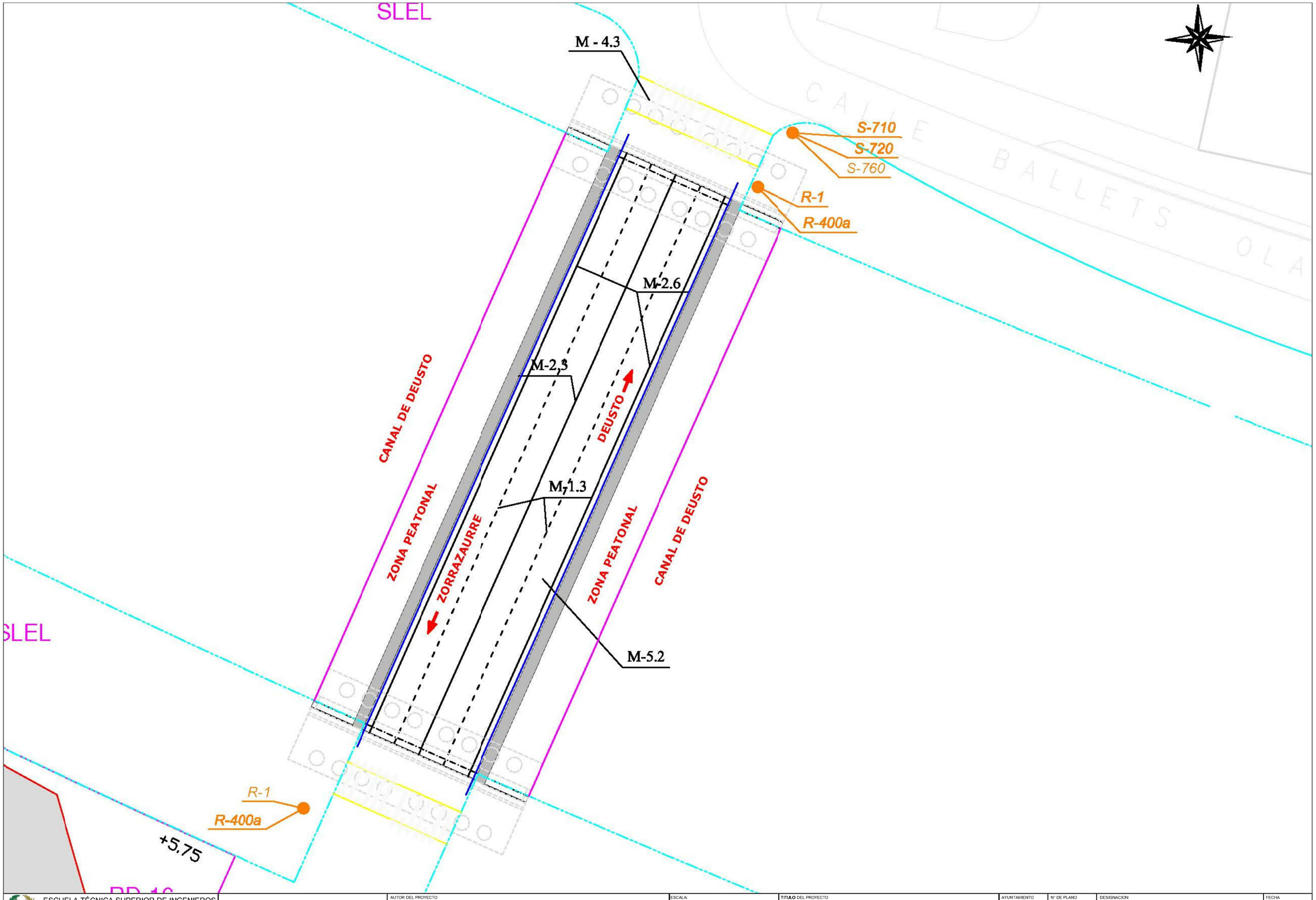


Encofrado y hormigonado del arco



Tesado de las péndolas con la consecuente puesta en carga del arco y descimbrado del tablero

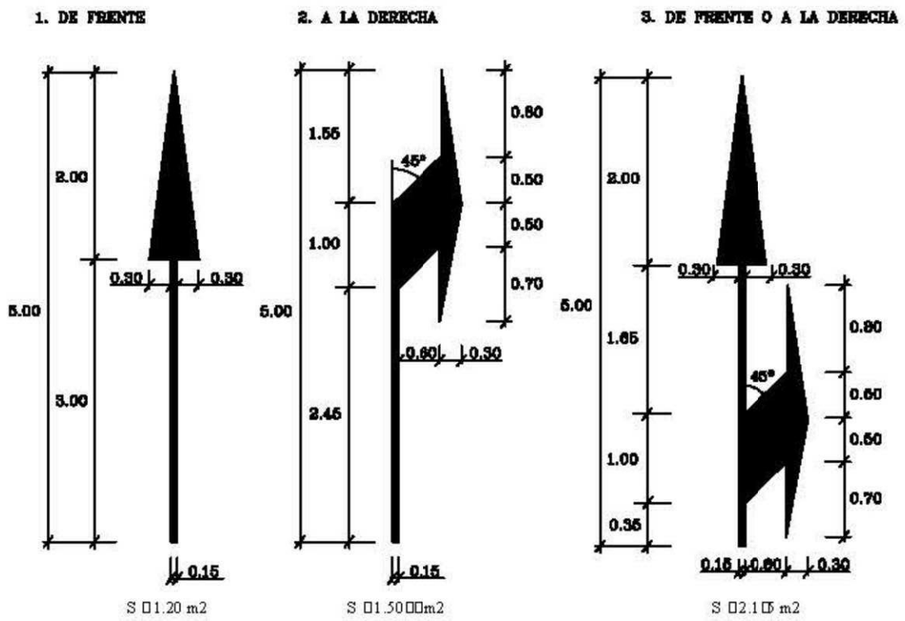
ESCUELA TÉCNICA SUPERIOR DE INGENIEROS DE CAMINOS, CANALES Y PUERTOS UNIVERSIDAD DE CANTABRIA	PROYECTO FIN DE MÁSTER PROYECTO	AUTOR DEL PROYECTO Nicolás Emaldi Algarate	ESCALA: 1/1000	TÍTULO DEL PROYECTO PROYECTO DE CONSTRUCCIÓN: PUENTE DE ACCESO A LA ISLA DE ZORROTZAURRE	AYUNTAMIENTO Bilbao	Nº DE PLANO 16 HOJA 1 DE 1	DESIGNACION PROCESO CONSTRUCTIVO	FECHA JUNIO 2017



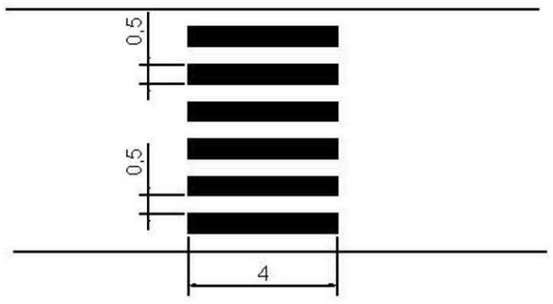
ESCUELA TÉCNICA SUPERIOR DE INGENIEROS DE CAMINOS, CANALES Y PUERTOS UNIVERISDAD DE CANTABRIA	PROYECTO FIN DE MÁSTER PROYECTO	AUTOR DEL PROYECTO Nicolás Emaldi Algarate	ESCALA: 1/500	TITULO DEL PROYECTO PROYECTO DE CONSTRUCCIÓN: PUENTE DE ACCESO A LA ISLA DE ZORROTZAURRE	AYUNTAMIENTO Bilbao	Nº DE PLANO 17 HOJA 1 DE 3	DESIGNACION SEÑALIZACIÓN. SEÑALIZACIÓN GENERAL	FECHA JUNIO 2017

FLECHAS Y SÍMBOLOS

M-5.2 FLECHA DE DIRECCIÓN PARA VÍAS C□N □M □60 □m/□



M-4.3 LÍNEA DE PASO DE PEATONES



Escala: 1/200

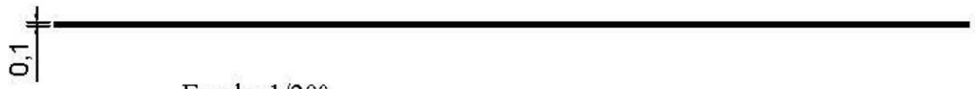
M-2.3 LÍNEA DE SEPARACIÓN DE SENTIDOS EN CALZADAS DE CUATRO O MÁS CARRILES



Escala: 1/200

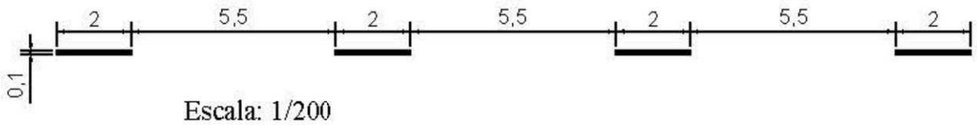
M-2.6 LÍNEA DE BORDE DE CALZADA PARA VÍAS CON VM < 100 km/h

a= 0.15 si arcén > 1.5 m
a= 0.10 si arcén < 1.5 m



Escala: 1/200

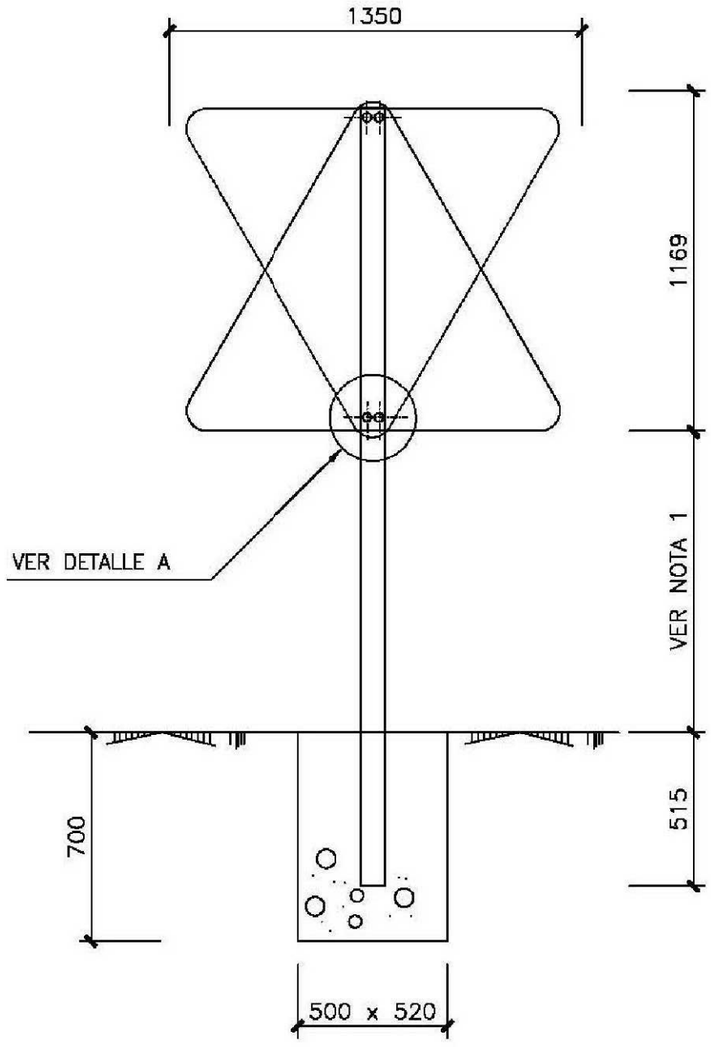
M-1.3 LÍNEA DE SEPARACIÓN DE CARRILES PARA VÍAS CON VM < 60 km/h



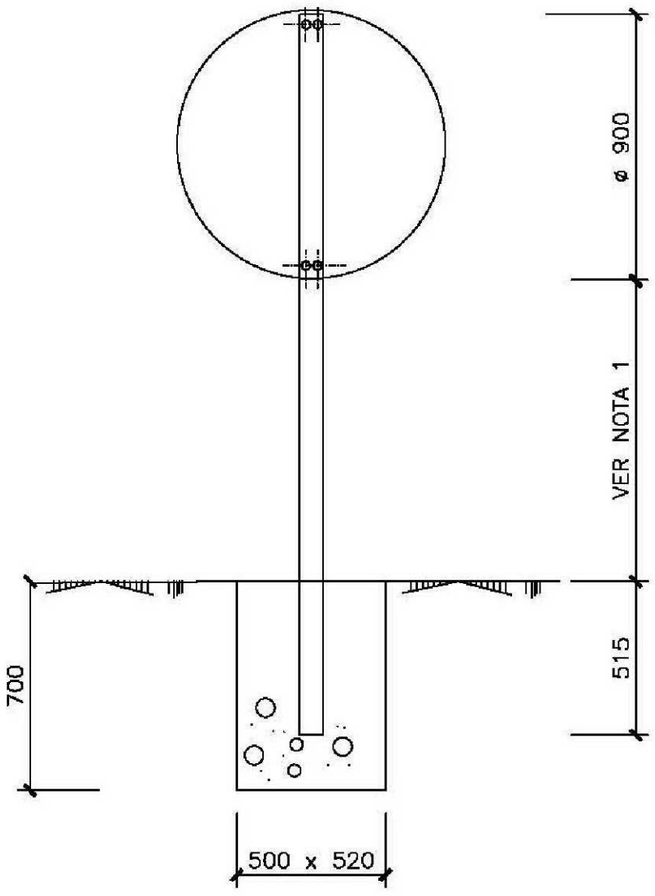
Escala: 1/200

Nota: Cotas en metros (m)

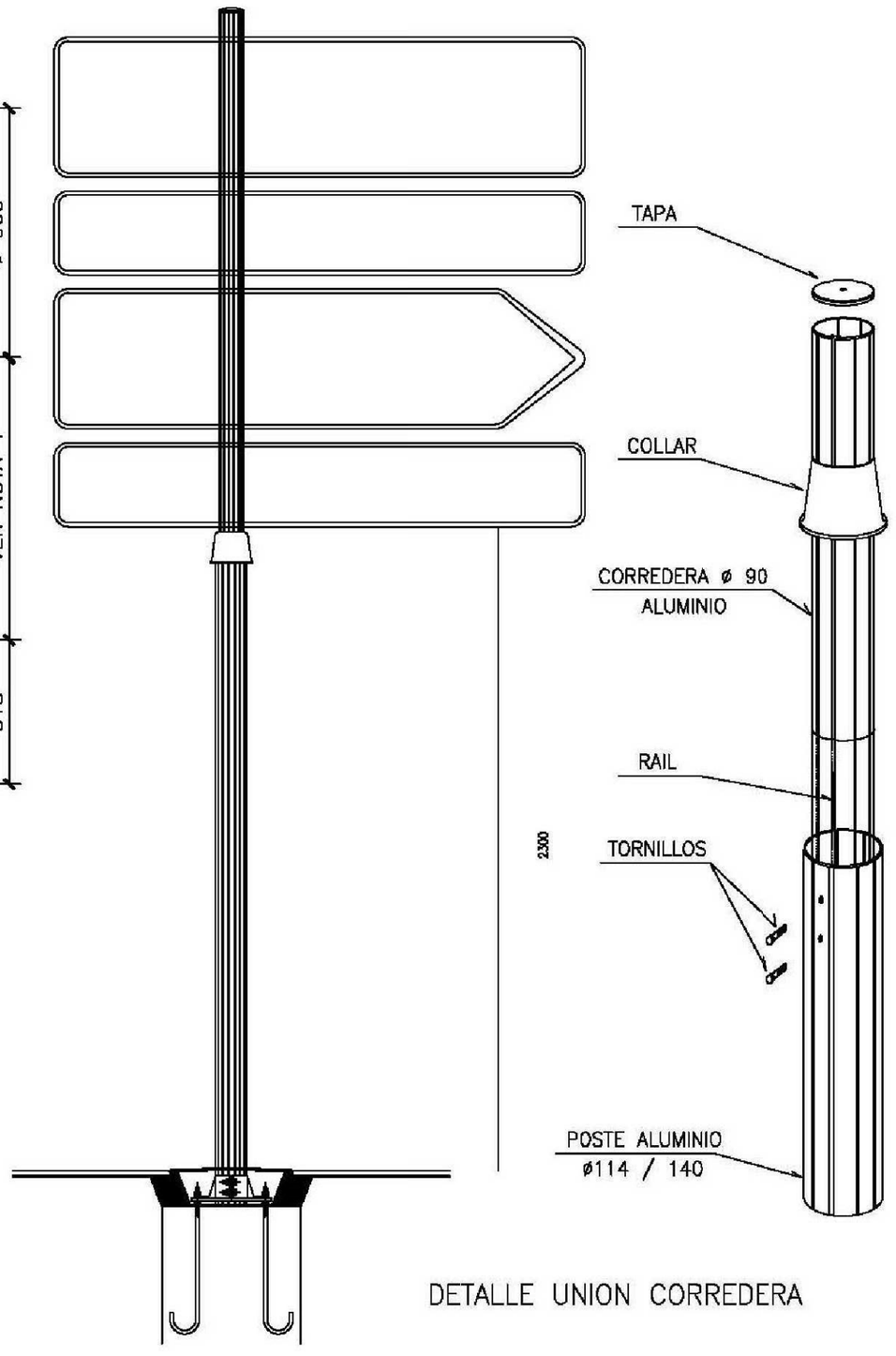
ESCUELA TÉCNICA SUPERIOR DE INGENIEROS DE CAMINOS, CANALES Y PUERTOS UNIVERSIDAD DE CANTABRIA	PROYECTO FIN DE MÁSTER PROYECTO	AUTOR DEL PROYECTO Nicolás Emaldi Algarate	ESCALA: 1/500	TITULO DEL PROYECTO PROYECTO DE CONSTRUCCIÓN: PUENTE DE ACCESO A LA ISLA DE ZORROTZAURRE	AYUNTAMIENTO Bilbao	Nº DE PLANO 17 HOJA 2 DE 3	DESIGNACION SEÑALIZACIÓN. DETALLE HORIZONTAL	FECHA JUNIO 2017



DETALLE DE SEÑAL TRIANGULAR
ESCALA 1/20



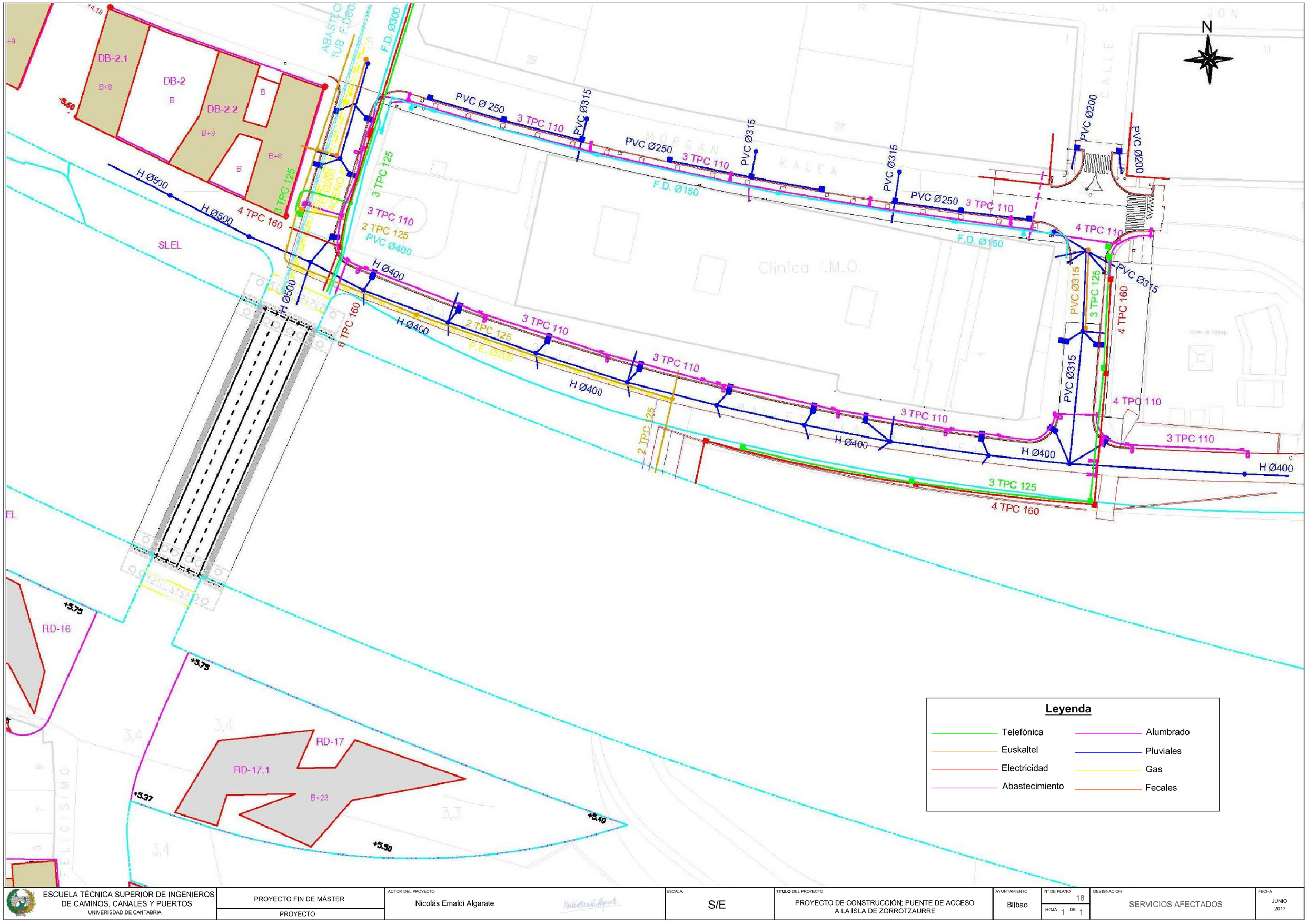
DETALLE DE SEÑAL CIRCULAR
ESCALA 1/20



DETALLE UNION CORREDERA

Nota: Cotas en mm

ESCUELA TÉCNICA SUPERIOR DE INGENIEROS DE CAMINOS, CANALES Y PUERTOS UNIVERISDAD DE CANTABRIA	PROYECTO FIN DE MÁSTER PROYECTO	AUTOR DEL PROYECTO Nicolás Emaldi Algarate	ESCALA: S/E	TITULO DEL PROYECTO PROYECTO DE CONSTRUCCIÓN: PUENTE DE ACCESO A LA ISLA DE ZORROTZAURRE	AYUNTAMIENTO Bilbao	Nº DE PLANO 17 HOJA 3 DE 3	DESIGNACION SEÑALIZACIÓN. DETALLE VERTICAL	FECHA JUNIO 2017



ESCUELA TÉCNICA SUPERIOR DE INGENIEROS DE CAMINOS, CANALES Y PUERTOS UNIVERSIDAD DE CANTABRIA	PROYECTO FIN DE MÁSTER PROYECTO	AUTOR DEL PROYECTO Nicolás Emaldi Algarate	ESCALA: S/E	TITULO DEL PROYECTO PROYECTO DE CONSTRUCCIÓN: PUENTE DE ACCESO A LA ISLA DE ZORROTZAURRE	AYUNTAMIENTO Bilbao	Nº DE PLANO 18 HOJA 1 DE 1	DESIGNACION SERVICIOS AFECTADOS	FECHA JUNIO 2017

CIERRE DE OBRA

CASETAS DE OBRA

ACCESO OBRA

CONTENEDOR PARA RESIDUOS URBANOS

CARTELES PARA EL CONTENEDOR

CONTENEDOR PARA (R.S.U.)
(Polipropileno o similar resistente al agua)

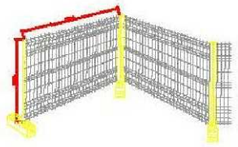
PAPEL Y CARTÓN (Azul)

VIDRIO (Verde)

ENVASES PLÁSTICO Y METÁLICOS (Amarillo)

MATERIA ORGÁNICA (Negro)

CERRAMIENTO METÁLICO EN ZONA DE INSTALACIONES AUXILIARES DE OBRA



SLEL

CALLE BALLETS OLAETA

OFICINA OBRA

VESTUARIOS

TIERRAS

HORMIGONES

MADERAS

PLÁSTICOS

.EL

ESCUELA TÉCNICA SUPERIOR DE INGENIEROS DE CAMINOS, CANALES Y PUERTOS UNIVERSIDAD DE CANTABRIA	PROYECTO FIN DE MÁSTER PROYECTO	AUTOR DEL PROYECTO Nicolás Emaldi Algarate	ESCALA: 1/500	TITULO DEL PROYECTO PROYECTO DE CONSTRUCCIÓN: PUENTE DE ACCESO A LA ISLA DE ZORROTZAURRE	AYUNTAMIENTO Bilbao	Nº DE PLANO 19 HOJA 1 DE 1	DESIGNACION GESTIÓN DE RESIDUOS	FECHA JUNIO 2017

DOCUMENTO Nº3.-

PLIEGO DE PRESCRIPCIONES TÉCNICAS PARTICULARES

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PARTE 0.- CONSIDERACIONES PREVIAS

0. CONSIDERACIONES PREVIAS

Por razones de eficacia y aclaración documental, resulta fundamental iniciar este Pliego con las siguientes consideraciones:

1ª.- Como se establece en el Artículo C100/08.- "Definición y ámbito de aplicación", el presente Pliego de Prescripciones Técnicas Particulares se limita en sí mismo a complementar y, en su caso, a modificar el Pliego de Prescripciones Técnicas Generales para Obras de Carreteras y Puentes (PG-3) actualizado, además de introducir y definir unidades nuevas no existentes en el mismo.

2ª.- En consecuencia, es absolutamente imprescindible para la lectura, interpretación y aplicación de este Pliego, contar también, a la vez, con el PG-3 actualizado en la forma que se establece detalladamente en el Artículo C100/08.- "Definición y ámbito de aplicación".

3ª.- Lo establecido en el RD 1098/2001, de 12 de octubre, por el que se aprueba el Reglamento General de la Ley de Contratos de las Administraciones Públicas (en adelante RGLCAP), será de aplicación siempre que no contradiga lo dispuesto en la Ley 30/2007, de 30 de octubre, de Contratos del Sector Público (en adelante LCSP).

4ª.- Para la definición de las unidades de obra se considerará lo descrito en el Documento nº3: Pliego de Prescripciones Técnicas Particulares, Planos y Cuadros de Precios. En caso de contradicción prevalecerá lo establecido por el D.O.

PARTE 1.- INTRODUCCIÓN Y GENERALIDADES

1. INTRODUCCIÓN Y GENERALIDADES

1.1. ARTÍCULO C100/0501.- DEFINICIÓN Y AMBITO DE APLICACIÓN

Son de aplicación en este Artículo las especificaciones establecidas en el Artículo 100.- "Definición y ámbito de aplicación" del PG-3 vigente, completadas o modificadas con las contenidas en este Artículo del presente Pliego.

Definición

El presente Pliego de Prescripciones Técnicas Particulares (en adelante PPTP) constituye un conjunto de instrucciones para el desarrollo de las condiciones técnicas normalizadas referentes a los materiales y a las unidades de obra, de acuerdo a los Artículos 100 y 101 del Real Decreto Legislativo 30/2007, de 30 de octubre, por el que se aprueba el Texto Refundido de la Ley de Contratos del Sector Publico para la obra siguiente:

"PROYECTO DE CONSTRUCCIÓN DEL PUENTE DE ZORROTZAURRE"

Ámbito de aplicación

Las referencias que en el presente Pliego se hacen al PG-3 vigente o PG-3 se refieren al Pliego de Prescripciones Técnicas Generales para Obras de Carreteras y Puentes (PG-3/75), aprobado por O.M. de 2 de julio de 1976 (BOE del 7), actualizadas a la fecha del presente Proyecto con las modificaciones experimentadas desde entonces, tanto a través de Órdenes Ministeriales como de Órdenes Circulares de la Dirección General de Carreteras del Ministerio de Fomento

El mencionado PG-3 vigente (en adelante PG-3) será de aplicación a la obra definida en el párrafo anterior en todo lo que no sea explícitamente modificado por el presente Pliego, de conformidad con lo que dispone el Artículo 68 del RD 1098/2001, de 12 de octubre, por el que se aprueba el Reglamento General de la Ley de Contratos de las Administraciones Públicas (en adelante RGLCAP).

Si algún Artículo del PG-3 hubiera sido anulado o derogado sin producirse su sustitución por otro, y fuera citado explícitamente en el presente Pliego, con o sin modificaciones, será también de aplicación en la obra.

Por razones de economía documental se emplearán en el Pliego las siguientes abreviaturas:

PPTP, el presente Pliego de Prescripciones Técnicas Particulares.

PCAG, Decreto 3854/1970, de 31 de diciembre, por el que se aprueba el Pliego de Cláusulas Administrativas Generales para la Contratación de Obras del Estado.

PCAP, Pliego de Cláusulas Administrativas Particulares del contrato de obra.

LCSP, Ley 30/2007, de 30 de Octubre, de Contratos del Sector Público.

RGLCAP, RD 1098/2001, de 12 de octubre, por el que se aprueba el Reglamento General de la Ley de Contratos de las Administraciones Públicas.

C., Cláusula del PCAG.

D.O., Director de la Obra.

PG-3 vigente o PG-3, Pliego de Prescripciones Técnicas Generales para Obras de Carreteras y Puentes (PG-3/75), actualizado en la forma descrita anteriormente.

RGC, Decreto 3410/1975, de 2 de noviembre, por el que se aprueba el Reglamento General de Contratación.

LPRL, Ley de 31/1995 de 8 de noviembre, de Prevención de Riesgos Laborales.

Reglamento S.P., RD 39/1997, de 17 de enero, por el que se aprueba el Reglamento de los Servicios de Prevención.

Reglamento C.A.E., RD 171/2004, de 30 de enero, por el que se desarrolla el Artículo 24 de la Ley 31/95, en materia de coordinación de actividades empresariales.

ESS, Estudio de Seguridad y Salud incluido en el Proyecto.

EBSS, Estudio Básico de Seguridad y Salud incluido, en su caso, en el Proyecto.

PSS, Plan de Seguridad y Salud.

EHE-08, Instrucción de Hormigón Estructural.

REBT, Reglamento Electrotécnico para Baja Tensión, aprobado por R.D. 842/2002, de 2 de agosto.

ITC, Instrucciones Técnicas Complementarias del REBT.

Para mayor claridad explicativa, la numeración y denominación de los Artículos del presente Pliego, en las unidades que coincidan con el PG-3, se han mantenido idénticos a los de éste, haciéndose en el presente Pliego expresa referencia a la aplicación de las prescripciones correspondientes del PG-3, además de incluir las complementarias o modificativas establecidas expresamente en el mismo.

Además, se han incorporado las unidades necesarias, no existentes en el PG-3, siguiendo un orden y numeración coherentes con éste; todo ello de acuerdo al Artículo 68 del RGLCAP.

En consecuencia, se indica expresamente que será de aplicación en la presente obra el PG-3, además de las prescripciones complementarias o modificativas que se establecen en el presente Pliego.

La referencia que en el Artículo 100.2 del PG-3 se hace a la Ley de Contratos del Estado y al Reglamento General de Contratación hay que entenderlas referidas al LCSP y al RGLCAP respectivamente.

1.2. ARTÍCULO C101/0501.- DISPOSICIONES GENERALES

Son de aplicación en este Artículo las especificaciones establecidas en el Artículo 101.- *"Disposiciones generales"* del PG-3 completadas o modificadas con las contenidas en este Artículo del presente Pliego.

Personal y medios del contratista

El Contratista dispondrá, al menos, del siguiente personal técnico:

- **Delegado:** Ingeniero de Caminos, Canales y Puertos o Ingeniero Técnico de Obras Públicas con experiencia en obras de construcción superior a 10 años.
- **Jefe de Obra**: Ingeniero de Caminos, Canales y Puertos o Ingeniero Técnico de Obras Públicas con total disponibilidad a la obra, residente en Cantabria y una experiencia mínima de 5 años en obras similares. En su caso, podrá ser coincidente con el anterior.
- **Jefe de Topografía**: Ingeniero Técnico en Topografía con total disponibilidad a la obra, residente en Vizkaya y una experiencia mínima de 5 años en obras similares.
- El establecido en el Artículo C107/0701 del presente Pliego relativo a la Organización Preventiva del Contratista en la Obra para el cumplimiento de sus obligaciones en ese ámbito.
- Medios humanos y materiales necesarios para la correcta ejecución de la obra.

Responsabilidades del contratista

El contratista es el responsable último de la calidad de los materiales utilizados en la ejecución de la obra, así como del resultado del empleo de los medios y métodos de ejecución, aún cuando para la utilización de los materiales y para el empleo de los medios y métodos de ejecución se requiera la aprobación del D.O., y hasta el límite establecido por las normas de aplicación y la

legislación vigente. Responde así el contrato de obras a lo que siempre ha sido, un contrato de "resultado" o de "cuerpo cierto".

Libro de incidencias

Con el fin de evitar interferencias con el Libro de Incidencias regulado por el RD 1627/1997 en el ámbito de la seguridad y salud en las obras de construcción, el también denominado Libro de Incidencias en la C. 9 del PCAG, se denominará Diario de Obra.

1.3. ARTÍCULO C102/0501.- DESCRIPCIÓN DE LAS OBRAS

Son de aplicación en este Artículo las especificaciones establecidas en el Artículo 102.- "Descripción de las obras" del PG-3 completadas o modificadas con las contenidas en este Artículo del presente Pliego.

Pliego de Prescripciones Técnicas Particulares

La referencia al Artículo 66 del RGC, en 102.1 del PG-3, lo es realmente al 68 del RGLCAP.

Planos

La referencia al Artículo 65 del RGC, en 102.2, lo es realmente al 129 del RGLCAP.

Documentos que se entregan al contratista

Documentos contractuales

La referencia a los Artículos 82, 128 y 129 del RGC, en 102.4.1, lo es realmente a los 128, 144 y 140.4 del RGLCAP.

Serán contractuales:

- Las partes de la memoria señaladas en el Artículo 128 del RGLCAP
- Planos
- PPTP
- Cuadros de precios nº1 y nº2

que se citan aquí a modo de propuesta al Órgano de Contratación, por lo que sólo tendrán ese carácter si se incorporan como tal al PCAP, de acuerdo al Artículo 67.3 a) del RGLCAP.

Documentos informativos

Deberá tenerse en cuenta el contenido del Artículo 128 del RGLCAP, y en su caso, el del Artículo 161 del RGLCAP.

Consideración general

El Artículo 107.1.c) de la LCSP establece, entre otras consideraciones, que el PPTP deberá comprender la descripción de las obras. Para cumplir con lo cual, se recoge a continuación la descripción de las obras objeto del presente Proyecto:

Mediante la construcción de este viaducto se pretende mantener la conexión viaria de la zona de Zorrotzaurre con la margen derecha de la ría del Nervión a la altura de Deusto previa a la apertura definitiva del canal de Deusto.

Para ello, se ha proyectado una estructura de 75 m de longitud en un único vano. La tipología del puente es un doble arco de hormigón con relación flecha luz de 1/6 atirantado por su tablero, que es mixto, formado por dos vigas metálicas cajón longitudinales y vigas doble I transversales que trabajan conjuntamente a una losa de 25 cm de hormigón armado. El canto del tablero es de 1,5m , su ancho 26m

El trazado del puente discurre en línea recta tanto en planta mientras que en alzado combina tramos rectos con pendiente máxima del 3% y un acuerdo vertical parabólico.

La sección del puente consta de las siguientes partes:

- Dos aceras de 5m cada una
- Cuatro carriles de 3 m de anchura, dos por sentido.
- Dos arcenes de 0.5 m de anchura a ambos lados de la calzada.

Dado la mala calidad del terreno sobre el que se apoya el puente, la cimentación es de tipo profunda mediante pilotes.

Datos de Proyecto

A los efectos establecidos en las unidades de obra del presente Pliego, se han considerado los siguientes datos de proyecto:

- Categoría de tráfico según la Norma de carreteras de Bizkaia:
  - *T2A*
- Tipo de ambiente según la Norma EHE:
  - *IIIa*

Procedencia de materiales

La procedencia de los materiales a emplear en la obra objeto del presente Proyecto es la siguiente:

- Hormigones :

CENTRAL DE HORMIGONES

- Mezclas bituminosas:

CENTRAL DE AGLOMERADO

- Materiales manufacturados:

TALLERES CERCANOS A LA OBRA

1.4. ARTÍCULO C103/0407.- INICIACIÓN DE LAS OBRAS

Son de aplicación en este Artículo las especificaciones establecidas en el Artículo 103.- "Iniciación de las obras" del PG-3 completadas o modificadas con las contenidas en este Artículo del presente Pliego.

Comprobación del replanteo

La referencia al Artículo 127 del RGC y a las C. 24 y 26 del PCAG, en 103.2, lo es realmente a los Artículos 139, 140 y 141 del RGLCAP.

Programa de trabajos

La referencia en 103.3 a los Artículos 128 y 129 del RGC, lo es realmente a los Artículos 144 y 140.4 del RGLCAP, la de la C. 27 del PCAG, lo es al Artículo 144.3 del RCLCAP, y la del Artículo 74 del RGC, lo es al 124 del RGLCAP.

El Artículo 144 del RGLCAP establece la obligación del Contratista, en obras plurianuales, de presentar un programa de trabajos en el plazo de treinta días, contados desde la formalización del contrato. Si la obra no tiene ese carácter, tal obligación existe sólo cuando así se establezca en el PCAP. A estos efectos, y a modo de propuesta al Órgano de Contratación, dado que la obra no es plurianual, se indica que el programa de trabajos ... sí / no ... debe considerarse necesario, siempre y cuando así se ratifique, en efecto, en el PCAP.

El método a emplear, en su caso, para la elaboración por el Contratista del programa de trabajos

será cualquiera de los establecidos en el PG-3, previa aceptación del D.O.

Orden de iniciación de las obras

La referencia al Artículo 127 del RGC y a la C. 24 del PCAG, en 103.4, lo es realmente a los Artículos 139 y 140 del RGLCAP.

En ningún caso podrán iniciarse las obras si no está aprobado el Plan de Seguridad y Salud correspondiente, incluso en obras con tramitación de urgencia.

1.5. ARTÍCULO C104/0501.- DESARROLLO Y CONTROL DE LAS OBRAS

Son de aplicación en este Artículo las especificaciones establecidas en el Artículo 104.- "Desarrollo y control de las obras" del PG-3 completadas o modificadas con las contenidas en este Artículo del presente Pliego.

Ensayos, en base a los Artículos 145 y 67.3i) del RGLCAP

Serán de cuenta del Contratista los ensayos y análisis necesarios para garantizar que los materiales que aporte y las unidades de obra que realice cumplen las exigencias de calidad establecidas en el presente Pliego y en la normativa técnica que resulte aplicable. También serán de cuenta del Contratista los ensayos y análisis siguientes:

- Los necesarios para adecuar la fórmula de trabajo a utilizar en todos aquellos materiales y unidades de obra que la tengan prevista en el pliego o que resulte necesaria a juicio del D.O.

- Los relacionados con tramos de prueba en todos aquellos materiales y unidades de obra que la tengan prevista en el pliego o que resulte necesario a juicio del D.O.

El D.O. podrá ordenar que se realicen los ensayos y análisis de materiales y unidades de obra y que se recaben los informes específicos que, en cada caso, resulten pertinentes, siendo de cuenta del Contratista los gastos que se originen hasta el 1 % del presupuesto del contrato, que se recoge aquí a modo de propuesta al Órgano de Contratación, por lo que será contractual si así se incluye en el PCAP siguiendo el mandato del Artículo 67. 3 i) del RGLCAP.

Trabajos defectuosos

La rebaja de los precios que, en su caso, el D.O. puede proponer al órgano de contratación no podrá superar el 30 por 100 del precio de la unidad. El D.O., en su propuesta, concretará en cada caso el precio final de abono de la unidad de obra en función del resultado del control de calidad realizado.

Subcontratación

El PCAG determina si puede haber o no subcontratación. En caso afirmativo, dicho Pliego establece la parte o partes de la obra y el tanto por ciento del presupuesto que como máximo podrá ser objeto de la misma, así como las condiciones a exigir.

El PCAP establece la obligación del Contratista adjudicatario, salvo que disponga de la clasificación en la especialidad de que se trate, de subcontratar estas partes con otro u otros clasificados en el subgrupo o subgrupos correspondientes y no le será exigible al principal la clasificación en ellos. Lo que se establece a modo de propuesta al Órgano de Contratación, por lo que será contractual si así es incorporado al PCAP, de acuerdo al Artículo 67.2 u) del RGLCAP.

En cualquier caso, será obligación del Contratista someter a consentimiento previo del D.O. toda parte de la obra que fuera a ser objeto de subcontratación, así como el subcontratista correspondiente, que deberá ser removido a indicación de la D.O. Todo ello sin perjuicio de lo establecido al efecto en el Artículo C107/0501 del presente Pliego.

1.6. ARTÍCULO C105/0407.-RESPONSABILIDADES ESPECIALES DEL CONTRATISTA

Son de aplicación en este Artículo las especificaciones establecidas en el Artículo 105.- "Responsabilidades especiales del Contratista" del PG-3 completadas o modificadas con las contenidas

en este Artículo del presente Pliego.

Daños y perjuicios

La referencia al Artículo 134 del RGC, en 105.1, lo es realmente al 97 del TRLCAP.

Evitación de contaminaciones

En caso de producirse afecciones imprevistas, se suspenderán las obras y se avisará a la D.O.

Permisos y licencias

La referencia al Artículo 131 del RGC, en 105.4, lo es realmente al 142 del RGLCAP.

Dentro de los límites de expropiación no se podrán hacer vertidos no contemplados en el Proyecto, salvo autorización del D.O. En ningún caso, cualquiera que sean los límites de expropiación, se realizarán en zonas próximas a los taludes o laderas naturales que conforman la plataforma y sus elementos funcionales, sobre todo cuando pongan potencialmente en peligro la estabilidad o condiciones de drenaje de la obra.

El Contratista se encargará de la obtención de los permisos necesarios para el vertido del material procedente de la excavación y demás unidades de la obra así como del pago de cánones de ocupación, y de cualquier otro gasto de similar naturaleza.

El Contratista se encargará de obtener los permisos correspondientes en caso de proximidad y posible afección a cualesquiera servicios públicos o privados, así como, en su caso, de mantener el servicio, y de su conservación y reposición.

1.7. ARTÍCULO C106/0501.- MEDICIÓN Y ABONO

Son de aplicación en este Artículo las especificaciones establecidas en el Artículo 106.- *"Medición y abono"* del PG-3 completadas o modificadas con las contenidas en este Artículo del presente Pliego.

Medición de las obras

La referencia a la C. 45 del PCAG, 106.1, lo es realmente al Artículo 147 del RGLCAP.

Abono de las obras

Certificaciones

La referencia en 106.2.1, al Artículo 142 del RGC, lo es realmente al 150 del RGLCAP, y a las C. 46 y siguientes del PCAG a los Artículos 148, 150 y 149 del RGLCAP

En la expedición de certificaciones regirá además lo dispuesto en el TRLCAP, RGLCAP y demás disposiciones de aplicación.

Anualidades

La referencia al Artículo 152 del RGC, en 106.2.2, lo es realmente al Artículo 96 del RGLCAP.

Precios unitarios

La referencia a la C. 51 del PCAG, en 106.2.3, lo es realmente al Artículo 153 del RGLCAP.

Los precios unitarios fijados en el contrato para cada unidad de obra cubren también, en el ámbito de las disposiciones de prevención de riesgos laborales, los costes exigidos por la correcta ejecución profesional de los trabajos, conforme a las normas reglamentarias en vigor y los criterios técnicos generalmente admitidos, emanados de organismos especializados. En consecuencia, están incluidos en los mismos los costes de los equipos de protección individual y demás medidas de la misma naturaleza requeridos para la ejecución de las unidades de obra.

En el mismo ámbito de prevención de riesgos laborales, los costes de las instalaciones de higiene y bienestar, de formación de los trabajadores, de información de los mismos (incluyendo reuniones y similares), de medicina preventiva y reconocimientos médicos, de reuniones de coordinación, así como otros de similar naturaleza, no se encuentran incluidos en los precios unitarios del ESS y tampoco serán de abono directo en la obra al tratarse de gastos de apertura del centro de trabajo al iniciarse la ejecución, o de gastos de tipo general del empresario, independientes de la obra.

Del mismo modo, y en el mismo ámbito, los costes derivados de la presencia de la organización preventiva del Contratista en la obra, exigida con el carácter de mínimos en el Artículo C107/0701 del presente Pliego de acuerdo a la normativa preventiva vigente, tendrán el mismo carácter en cuanto a la imputación de sus costes que los del párrafo anterior.

Partidas alzadas

La referencia a la C. 52 del PCAG, en 106.2.4, lo es realmente al Artículo 154 del RGLCAP.

Las partidas alzadas de abono íntegro constituyen formalmente una unidad de obra, por lo que se han incorporado a la justificación de precios (sin descomposición), a los Cuadros de Precios (en el 2 sin descomposición) y al presente PPTP. Las que son a justificar no constituyen unidad de obra. Las que se abonen de una forma diferente, establecida expresamente en este PPTP, tendrán el carácter correspondiente a su propia definición y forma de abono.

Otros gastos de cuenta del Contratista

Serán a cuenta del Contratista los siguientes gastos, además de los indicados en el Artículo 106.3 del PG-3:

- Los de análisis y ensayos de materiales y unidades de obra, de acuerdo con lo establecido en el Artículo C104/0701 del presente Pliego.
- El de personal y medios técnicos del Contratista exigidos para la ejecución de la obra en el Artículo C101/0701 del presente Pliego.
- Los de limpieza, policía y terminación de las obras, siempre que en el Contrato no se prevea explícitamente lo contrario.
- La obtención de los permisos necesarios para el vertido del material procedente de la excavación y demás unidades de obra, así como el pago de cánones de ocupación y otros similares, de acuerdo al Artículo C105/0601 del presente Pliego.
- Los de prevención de riesgos laborales en la ejecución de la obra de acuerdo a lo estipulado anteriormente en el apartado Precios unitarios de este mismo Artículo, a lo establecido en el Artículo C107/0701 del presente Pliego y en las disposiciones preventivas de aplicación.
- Adquisición, colocación y conservación de carteles anunciadores en la situación, tamaño y texto que sean precisos, según el PCAP.
- Los gastos e impuestos del anuncio o anuncios de licitación de la formalización del contrato, las tasas por prestación de los trabajos facultativos de replanteo, dirección, inspección y liquidación, de acuerdo al Contrato.
- Todos aquellos así establecidos en el TRLCAP, RGLCAP, PCAG, PCAP, PPTP, contrato y demás documentos y disposiciones de aplicación.

- Otros de similar carácter y naturaleza.

1.8. ARTÍCULO C107/0501.- OBLIGACIONES PREVENTIVAS DEL CONTRATISTA

Consideraciones generales

Además de lo establecido en la C. 11 del PCAG, el empresario Contratista adjudicatario, como tal, deberá cumplir las exigencias establecidas con carácter general como de obligado cumplimiento para los empresarios en las disposiciones preventivas, tal como en las siguientes:

- Ley 31/1995, de 8 de noviembre, de Prevención de Riesgos Laborales (actualizada).
- RD Legislativo 5/2000, de 4 de agosto, por el que se aprueba el texto refundido de la Ley sobre Infracciones y Sanciones en el Orden Social (actualizado).
- RD 39/1997, de 17 de enero, por el que se aprueba el Reglamento de los Servicios de Prevención (actualizado).
- RD 171/2004, de 30 de enero, por el que se desarrolla el Artículo 24 de la Ley 31/95.
- Circular 1/02 de la Secretaría General de la Consejería de O.P., de 2 de enero de 2002, sobre procedimiento de gestión a desarrollar desde la adjudicación del contrato hasta el inicio de su ejecución (BOC de 14-03-2002).

Además, el Contratista, para la obra de construcción objeto del presente Pliego, deberá realizar las actuaciones a que le obliga, tanto la legislación anterior como el RD 1627/1997, de 24 de octubre, por el que se establecen disposiciones mínimas de seguridad y salud en las obras de construcción (actualizado), con el fin de armonizar en la obra, (donde también rige el RD 1627/97, basado en la coordinación y su control), las medidas preventivas de toda la empresa, (establecidas en la LPRL y los Reglamentos, basadas en la planificación preventiva) con las reglas sustantivas y técnicas sobre seguridad y salud de los trabajadores en obra.

En cualquier caso, el Contratista cumplirá las siguientes prescripciones en este ámbito, independientemente de que estén o no incluidas en el ESS o en el EBSS:

- Cumplirá de un modo efectivo la normativa de prevención de riesgos laborales de aplicación que establece el Artículo 1 de la LPRL.
- El Plan de Seguridad y Salud (PSS) a presentar por el empresario estará firmado, asumiendo su contenido, como mínimo por las tres figuras siguientes:
  - El Contratista o su Delegado.
  - El Jefe de Obra.
  - El técnico de seguridad de su Servicio de Prevención, propio o ajeno, que haya colaborado en su elaboración o, en su caso, sea su autor. (Este técnico de seguridad será, por un lado facultativo en ingeniería superior o media, y, por otro, competente en la construcción de la obra objeto del presente Proyecto, estando facultado para ejercer la función superior del RD 39/1997 por el que se aprueba el Reglamento de los Servicios de Prevención o acreditará la superación de curso con el programa mínimo de formación establecido en el Anexo 8 de la Guía Técnica para la evaluación y prevención de los riesgos laborales relativos a las obras de construcción del Instituto Oficial de Seguridad e Higiene en el Trabajo).

- Presentará al D.O. el PSS, elaborado de acuerdo a las disposiciones de aplicación, antes de veinticinco (25) días naturales a contar desde el siguiente a la fecha de comunicación de la adjudicación. Si en base a las indicaciones o informes del coordinador de S. y S. o, en su caso, del D.O., hubiera de ser modificado, lo será con la máxima urgencia de modo que la versión definitiva vuelva al D.O. antes de quince (15) días naturales a contar desde la firma del Contrato para que sea informado (en su caso, favorablemente) y tramitado para su aprobación. Todo ello de acuerdo a la Circular 1/02 de la Secretaría General de O.P. (BOC del 14-03-2002).

- Las labores y actividades a desarrollar en la ejecución de la obra se ceñirán en todo momento a la planificación preventiva establecida.

- No se comenzará actividad alguna cuyo procedimiento de ejecución no se ajuste a lo establecido en el citado PSS, siendo, por tanto, obligatorio que el Contratista planifique de manera específica, y a tiempo, todas y cada una de aquellas nuevas actividades que puedan ir surgiendo en el discurrir de las obras. Para ello deberá atenerse a lo establecido al respecto, tanto en el RD 1627/1997 como en la Circular 01/02 de la Secretaría General de O.P.

- Estas consideraciones se harán extensivas a los posibles cambios que se produzcan en los métodos y sistemas de ejecución de las actividades ya planificadas en el PSS vigente. En todo caso, estas variaciones o alteraciones del PSS, sean en calidad de Modificación o Adecuación, deberán ser reglamentariamente aprobadas en la forma establecida con la debida antelación al comienzo de los trabajos en cuestión.

- El Contratista cumplirá escrupulosamente y con el debido rigor sus obligaciones preventivas en circunstancias de concurrencia de actividades establecidas en el Artículo 24 de la LPR y desarrolladas en el RD 171/2004, tanto con subcontratistas y trabajadores autónomos como con otros empresarios concurrentes (para cambio de servicios afectados, etc).

- Asistirá a las Reuniones de Coordinación que convoque el coordinador de S. y S. (o en su caso, el D.O.), en las que se levantará el correspondiente acta recogiendo lo tratado, los acuerdos y compromisos alcanzados, y la firma de los asistentes, incorporándose al archivo de prevención de la obra.

- A través de su organización preventiva en la obra, que incorporará los recursos preventivos cuya presencia es obligada en obra de acuerdo a la legislación vigente, exigirá y vigilará el cumplimiento del PSS por parte de todos y cada uno de sus subcontratistas y trabajadores autónomos, sean del nivel de la cadena de subcontratación que sean, de acuerdo a lo establecido al efecto en los Artículos 15, 17 y 24.3 de la LPRL. Para ello entregará a cada subcontratista, con la antelación suficiente para su análisis, la parte del PSS que le atañe, para que, una vez estudiado, asista a la Reunión de Coordinación siguiente, además de cumplirlo en la ejecución. Asimismo, instará a los subcontratistas a transmitir el contenido del PSS a sus trabajadores, exigiendo el correspondiente Recibí, que pasará al archivo de documentación preventiva de la obra. Tal como se establece en la legislación, el contratista principal estará afectado por la responsabilidad solidaria derivada de incumplimientos de los subcontratistas.

- Informará y proporcionará las instrucciones adecuadas a sus trabajadores, a las empresas subcontratistas y a sus trabajadores autónomos, tanto de las medidas que hayan de adoptarse en lo que se refiere a su seguridad y salud en la obra como de lo tratado en las Reuniones de Coordinación.

- Mantendrá todas las medidas preventivas en correcto estado, teniendo en cuenta que es el responsable de la disposición y correcto uso y empleo de las mismas por los trabajadores en el momento adecuado, de forma que eviten los riesgos antes de que aparezcan. Por lo tanto, antes de comenzar cada actividad algún miembro de la organización preventiva del contratista en la obra comprobará que las medidas de seguridad están realmente dispuestas y preparadas para colocar. Siendo obligación del Contratista garantizar el estado, estabilidad y fiabilidad de las mismas.

- En relación a los equipos de protección individual, el Contratista es el responsable de que todos los trabajadores de la obra cuenten con todos los equipos indicados en el PSS o en las disposiciones de aplicación para cada tipo de actividad; de igual modo, es responsable no sólo de proporcionar los equipos de protección, sino también de que su utilización se realice adecuadamente.

- Sin perjuicio de lo establecido al efecto en el párrafo subcontratación del Artículo C104/0701 del presente Pliego, el Contratista deberá informar al coordinador de seguridad y salud, con la debida antelación, la incorporación de todo contratista, subcontratista o trabajador autónomo a la obra.

- Deberá comunicar al coordinador de seguridad y salud o, en su caso, al D.O., con carácter inmediato, todos los accidentes e incidentes ocurridos en la obra, independientemente de su gravedad, así como de los accidentes en blanco (sin baja). Después de la primera comunicación presentará informe completo al respecto, aportando asimismo la información generada, en su caso, por la intervención de la Inspección de Trabajo y Seguridad Social, el Gabinete de Seguridad y Salud y otras instituciones. La aportación documental anterior se hará igualmente cuando los organismos citados intervengan por cualquier otra causa preventiva, cualquiera que fuera ésta.

Organización preventiva del Contratista en la obra

Para el adecuado cumplimiento de las obligaciones preventivas del contratista en el contexto del Artículo C101/0701, más específicamente las relativas a la integración de la actividad preventiva (tal como establece el Artículo 1 del RD 39/97 y las reformas introducidas en la Ley 54/2003), la presencia de recursos preventivos en la obra (de acuerdo al artículo 32 bis y a la disposición adicional catorce de la Ley 31/95 y a la disposición adicional única del RD 1627/97) y la coordinación de actividades concurrentes (Artículo 24 de la Ley y RD 171/2004), el contratista dispondrá en obra el equipo y organización preventiva que aquí se establecen con carácter mínimo, que deberá ser concretado en el PSS.

Bajo la dependencia y máxima dirección del empresario o, en su caso, del Delegado del Contratista (que podrá en el PSS establecer las jerarquías, organización concreta y responsabilidades en la forma que considere oportuna según su propia organización empresarial, manteniendo las titulaciones y conocimientos aquí requeridos con carácter mínimo en cada puesto) serán nombrados:

- Facultativo Encargado o Responsable del cumplimiento de las obligaciones del empresario en la obra, principalmente vigilar el cumplimiento efectivo del PSS: El Delegado del Contratista o preferiblemente el Jefe de Obra (si no coinciden) para el tipo de obra que así lo requiera; en el resto de obras, mínimo Encargado General o similar.

- Persona designada por la empresa para la presente obra, que tendrá la capacidad requerida para desarrollar las funciones de la actividad preventiva de acuerdo a lo exigido para el PSS en el párrafo b) del punto 3 del apartado anterior denominado consideraciones generales. Deberá planificar las medidas preventivas, formar e informar a sus trabajadores, comunicar e investigar los accidentes e incidentes, estar en contacto con el coordinador de seguridad y salud durante la ejecución de la obra, supervisar al resto del personal preventivo del Contratista, organizar y dirigir la coordinación preventiva con otras empresas concurrentes en la obra, y otras funciones de similar naturaleza.

- Trabajador Encargado de la seguridad en la obra, que tendrá presencia continua en la misma, con las obligaciones de vigilar el cumplimiento de lo prescrito en el PSS en lo concerniente a las actividades realizadas por su empresa, así como de comprobar la aplicación de la normativa de prevención por el resto de subcontratistas y trabajadores autónomos. En función de la magnitud y dispersión de las actividades desarrolladas por la empresa, llegado el caso, se nombrará, en tajos que por su magnitud y complejidad lo demanden, a criterio del Contratista, un trabajador encargado por tajo.

- Trabajador Encargado de la equipación y el mantenimiento del estado de los Equipos de Protección Individual de todos los trabajadores.

- Trabajador Encargado de mantener actualizado y completo el archivo de seguridad y salud de su empresa en la obra.

- Trabajador Encargado de controlar el acceso de personas autorizadas a la obra y forma de desarrollar esta tarea, teniendo en cuenta, en su caso, la compatibilidad con el tráfico público y otras necesidades de uso de la carretera objeto de la obra.

Dependiendo de la magnitud de las actividades a desarrollar, según sea la obra, las figuras recogidas en los párrafos anteriores, a excepción de la del técnico de prevención, podrá recaer, incluso, en un trabajador. El establecimiento definitivo de esta organización se realizará en el PSS.

El contratista dispondrá también, dentro de esta organización, los recursos preventivos con presencia continua en los tajos y actividades de la obra en los que se realicen trabajos de especial riesgo, tal como establece el Artículo 32 bis y la disposición adicional decimocuarta de la Ley 31/95 y la disposición adicional única del RD 1627/97. La formación de estos recursos deberá adecuarse a lo establecido (con carácter mínimo) en el RD 39/97 en la forma que establece la Ley 31/95 y el RD 171/2004. Dichos recursos preventivos deberán integrarse en la organización preventiva del contratista en la obra, pudiendo en su caso, coincidir con las figuras anteriormente expuestas.

El Contratista está obligado a incorporar a su PSS, independientemente de lo que el ESS o el EBSS indique al respecto, la relación de personal que ejercerá estas funciones, así como su dedicación a las mismas, de acuerdo y en las condiciones mínimas establecidas en este Artículo. Antes del comienzo de la obra comunicará al D.O. y al coordinador de S. y S. por escrito dicho personal, sin perjuicio de que durante la ejecución realice cambios justificados, que deberá también comunicar de la misma forma.

PARTE 2. MATERIALES

2. MATERIALES

2.1. MATERIALES PÉTREOS:

2.1.1. HORMIGONES:

Definición

Hormigón elaborado en una central hormigonera legalmente autorizada de acuerdo con la orden ministerial de 3-8-79 del Ministerio de Industria y Energía.

Los componentes del hormigón, su dosificación, el proceso de fabricación y el transporte estarán de acuerdo con las prescripciones de la EHE-08 y el PG 4/88.

La designación del hormigón se indicará según la Instrucción de Hormigón Estructural EHE-08.

Si el hormigón está destinado a obras de hormigón en masa o armado, la D.F. podrá autorizar el uso de cenizas volantes en su elaboración. Si se usan cenizas volantes, no superarán el 35% del peso del cemento. Las cenizas cumplirán en cualquier caso las especificaciones de la norma UNE 83-415 que siguen a continuación:

- Contenido de humedad (UNE 83-431).
- Contenido en SO3 (UNE 83-432).
- Pérdida por calcinación (UNE 83-443).
- Finura (UNE 83-450).
- Índice de actividad resistente (UNE 83-451).
- Demanda de agua (UNE 83-452).
- Estabilidad de volumen (UNE 83-453).

ASIENTO EN EL CONO DE ABRAMS	
Consistencia seca	Nulo
Consistencia plástica o blanda	6-9 cm. (10 cm)

Se utilizarán hormigones fabricados en central. Según su utilización, serán de los siguientes tipos:

ELEMENTO ESTRUCTURAL	CALIDAD HA	F_{ck} (MPa)	γc	r nominal (mm)
Hormigón de limpieza	HL-150/P/20	15	1,5	-
Hormigón de Pilotes	HA-35/F/20/IIIa	35	1,5	
Encepado de Pilotes	HA-35/F/20/IIIa	35	1,5	
Estribos	HA-35/F/20/IIIa	35	1,5	
Losa del Tablero	HA-35/B/20/IIIa	35	1,5	
Arco		50	1,5	

En el caso de que la Dirección Facultativa autorizase la fabricación en obra, el Contratista se atendrá rigurosamente a las dosificaciones que se le prescriban. El precio será siempre el que para cada tipo de mezcla se señale en los cuadros de precios, independientes de las variaciones que dentro de las características generales del tipo sufran las proporciones de los elementos componentes.

Si el batido se hace a brazo, deberá hacerse previamente la mezcla en seco del cemento y de la arena, agregando luego la piedra y, por fin, el agua en la cantidad indispensable.

Para las dosificaciones se emplearán cajones de madera de tal volumen que les corresponda un número entero de unidades de embalaje de cemento, ya sean sacos o barricas u otros medios análogos que consienta dosificar exactamente en la misma forma.

También se dispondrá de los elementos necesarios para que la dosificación del agua sea la que se ordene.

Suministro y almacenaje

No se pueden almacenar

En lo referente al suministro, se realizará en camiones hormigonera. El suministrador entregará con cada carga un albarán donde constarán, como mínimo, los siguientes datos:

- Nombre de la central que ha elaborado el hormigón.
- Fecha de la entrega y número de serie de la hoja.
- Hora de salida de la planta.
- Dirección de suministro y nombre del peticionario.
- Cantidad de hormigón que compone la carga.
- Resistencia característica, consistencia y tamaño máximo del árido.
- Tipo, clase y marca del cemento utilizado.
- Tipos de aditivos utilizados y dosificación.
- Procedencia y clasificación de los hormigones.

No se permitirá añadir agua al hormigón desde que se fabrica hasta que ha fraguado, porque es muy perjudicial para el mismo. Si hay problemas de manejabilidad, se podrán añadir, en central, aditivos específicos dentro de los límites establecidos en la norma.
El hormigón llegará a la obra sin alteraciones en sus características, formando una mezcla homogénea y sin haber iniciado el fraguado.

Normativa de obligado cumplimiento

Instrucción de Hormigón estructural EHE-08.

2.1.2. MORTERO:

Masa constituida por árido fino, cemento y agua. Eventualmente puede contener algún producto de adición para mejorar alguna de sus propiedades. La utilización de estos productos se someterá a la aprobación previa de la Dirección de Obra, de acuerdo con los criterios particulares que se hayan determinado en el Proyecto.

Los distintos materiales que componen el mortero deben cumplir las prescripciones establecidas para ellos en el correspondiente apartado del presente Pliego.

Los morteros deben estar siempre convenientemente mezclados, a máquina o a mano, de manera que siempre resulte una pasta homogénea, sin presentar grumos de arena y/o cemento que indiquen una imperfección en la mezcla, un batido insuficiente o un cribado defectuoso de la arena.

La definición del tipo de mortero se hará de acuerdo con la denominación establecida en la Norma UNE 83800.

Condiciones de suministro y almacenaje

Suministro:

En envases cerrados herméticamente o en silos.

En el envase figurarán los datos siguientes:

- Nombre del fabricante o marca comercial.

- Instrucciones de utilización.

- Composición y características del mortero.

Si el mortero se ejecuta “in situ”, deberá ajustarse a las condiciones establecidas para la definición y el tipo y, en su caso, someterse a los ensayos necesarios.

Almacenamiento:

En su envase de origen y en lugares secos, sin contacto directo con el suelo y protegido de la intemperie, de manera que no se alteren sus condiciones iniciales.

Se prescribe el almacenamiento del mortero fabricado “in situ”.

Normativa:

- PG 3/75 Pliego de Prescripciones Técnicas Generales para Obras de Carreteras y Puentes y actualizaciones.

- Instrucción de Hormigón Estructural EHE, en todo lo que sea de aplicación a la fabricación y el uso de los morteros.

- Norma UNE 83800. Morteros de albañilería. Definiciones y especificaciones.

2.1.3. CEMENTOS:

Definición:
Conglomerante hidráulico formado por materiales artificiales de naturaleza inorgánica y mineral, utilizado en la confección de morteros, hormigones, pastas, lechadas, etc.

Será un material granular muy fino y estadísticamente homogéneo.

No tendrá grumos ni principios de aglomeración.
El cemento estará certificado y las condiciones a cumplir en lo relacionado al tipo, porcentajes en masa de los componentes principales, prescripciones mecánicas y físicas, aditivos, fraguado, etc., serán las estipuladas por las condiciones de Certificación.

Condiciones de suministro y almacenaje:

Suministro:

Se suministrará el cemento de manera que no se alteren sus características.

El fabricante entregará una hoja de características del cemento donde se indique la clase y proporciones nominales de todos sus componentes.

En el albarán figurarán los siguientes datos:

- Nombre del fabricante o marca comercial.
- Fecha de suministro.
- Identificación del vehículo de transporte.
- Cantidad suministrada.
- Designación y Denominación del cemento.
- Referencia del pedido.

Si el cemento se suministra en sacos, en los sacos figurarán los siguientes datos:

- Referencia a la norma UNE 80-301-88 si no es un cemento blanco y a la UNE 80-305-88 si es cemento blanco.
- Peso neto.
- Designación y Denominación del cemento.
- Nombre del fabricante o marca comercial.

El fabricante facilitará, si se le piden, los siguientes datos:

- Inicio y final del fraguado.
- Si se incorporan aditivos, información detallada de todos ellos y de sus efectos.

Si el cemento es de clase 20 también figurará la siguiente inscripción: "NO APTO PARA ESTRUCTURAS DE HORMIGON".

Almacenamiento:

Si el cemento se subministra a granel se almacenará en silos.

Si el cemento se subministra en sacos, se almacenarán en un lugar seco, protegido de la intemperie y sin contacto directo con el suelo, de manera que no se alteren sus condiciones.

Tiempo máximo de almacenamiento de los cementos	
Clases 20, 25, 35, 35A	3 meses
Clases 45, 45A	2 meses
Clases 55, 55A	1 mes

Normativa:

Instrucción para la Recepción de Cementos. RC-97.

- Instrucción de Hormigón Estructural EHE. Anejo 3: “Recomendaciones para la utilización de cementos especificados en la Instrucción para la Recepción de Cementos RC-97”.

2.2. RELLENOS

Definición

Rellenos naturales procedentes de excavación y de préstamos.

Cuando el material para relleno sea "sin clasificar", la composición granulométrica y su tipo serán los adecuados a su uso y a los que se definan en la partida de obra donde intervengan o, si no consta, los que establezca explícitamente la D.F.

Características	Especificación
Elementos de tamaño superior a 8 cm	Nulo
Elementos que pasan por el tamiz 0.08 mm (UNE 7-050)	25%
Limite liquido (LL) (NLT-105/72)	≤30
Índice plasticidad	≤10
Índice CBR (NLT-111/78)	≥ 10
Inflado dentro del ensayo CBR	Nulo
Contenido de materia orgánica	Nulo

Características	Especificación
Elementos de tamaño superior a 10 cm	Nulo
Limite liquido (LL) (NLT-105/72)	≤40
Densidad Proctor normal	$\geq 1{,}750\ \frac{Kg}{dm^3}$
Índice plasticidad	≤10
Índice CBR (NLT-111/78)	≥ 5
Inflado dentro del ensayo CBR	≤2%
Contenido de materia orgánica	≤1%

Suministro y almacenaje

Se suministrará en camión volquete y se distribuirá en montones uniformes en toda el área de trabajo, procurando extenderlas a lo largo de la misma jornada y de forma que no se alteren sus condiciones.

Normativa

PG 3/75 Pliego de Prescripciones Técnicas Generales para Obras de Carreteras y Puentes y actualizaciones.

2.3. MATERIALES METÁLICOS

2.3.1. ACERO PARA ARMADURAS PASIVAS

Definición:

Acero en barras corrugadas para armaduras pasivas.

Las barras no presentarán defectos superficiales, fisuras ni soplados.

Características mecánicas de las barras:

Tipo de acero	Clase de acero	Limite elástico Fγ en MPa	Carga unitaria en rotura Fs en MPa	Alargamiento en rotura (base 5)	Relación $\frac{f_s}{f_y}$
B400S	Soldable	≥400	≥440	≥14	≥1.05
B500S	Soldable	≥500	≥550	≥12	≥1.05
B500T	Soldable	≥500	≥550	≥8	≥1.03

Los aceros llevarán grabadas las marcas de identificación del tipo de acero y del fabricante según la UNE 36-088. Si las barras corrugadas o mallas electrosoldadas están demasiado oxidadas por el

almacenaje se deben cepillar y comprobar su peso antes de colocadas, no admitiéndose más de un 10% de disminución del mismo.

No está permitido soldar la armadura en obra. Asimismo, está prohibido enderezar armaduras dobladas en taller.

Condiciones de suministro y almacenaje:

El fabricante facilitará para cada partida de acero, los certificados de homologación y garantía que justifiquen el cumplimiento de las exigencias de la normativa vigente.

Durante el transporte y el almacenamiento, las armaduras se protegerán adecuadamente de la lluvia, la humedad del suelo y de la agresividad de la atmósfera ambiental.

Se clasificarán según el tipo, calidad, diámetro y procedencia.

Normativa de obligado cumplimiento:

- Instrucción de Hormigón Estructural EHE.
- UNE 36088

Unidades que corresponden a este Artículo:

El presente Artículo es de aplicación a las siguientes unidades de los cuadros de precios del Proyecto:

"kg Acero en barras corrugadas, B 500 S"

2.3.2. ACERO EN PERFILES LAMINADOS Y CHAPAS:

Definición:

Se consideran comprendidos, dentro de la denominación de acero para perfiles laminados y chapas, todos los laminados, aceros comunes al carbono o acero de baja aleación fabricados por cualquiera de los procedimientos usuales: convertidor ácido o básico, conversión por soplado con oxígeno (proceso L. D. etc.) Martín Siemens, horno eléctrico.

También los perfiles de acero conformado en frío a partir de una banda de acero laminado en caliente para usos estructurales.

El fabricante garantizará las características mecánicas y la composición química del perfil. No presentará defectos internos o externos que perjudiquen su correcta utilización.

Normativa:

Son Normas e Instrucciones aplicables, como complemento de estas prescripciones, en el orden de prioridad que se enumeran, las siguientes:

- European Standards (EN)
- Draft of Europan Standards (ENV)
- Instrucción de Acero Estructural (EAE-11)
- Recomendaciones para el Proyecto de Puentes Metálicos y Mixtos para Carreteras (RPM95 y RPX95)
- Pliego de Prescripciones Técnicas Generales PG-3.
- Normas UNE
- Normas MV ó NBE
- Instrucción EM-62
- Normas DIN

Cualquier material y operación especificados haciendo referencia a una norma determinada o catálogo de fabricante, cumplirá con todas y cada una de las exigencias que se indican en la última edición en vigor. En caso de conflicto entre lo allí indicado y lo que se indique en este Pliego, se cumplirá lo que se indique en este último.

La capa de imprimación antioxidante debe cubrir uniformemente todas las superficies de la pieza. No presentará fisuras, bolsas ni otros desperfectos. Antes de aplicar la capa de imprimación se habrán eliminado las incrustaciones de cualquier material, los restos de grasa, óxido y polvo.

El recubrimiento de zinc de los perfiles galvanizados será homogéneo y continuo en toda la superficie. No se apreciarán grietas, exfoliaciones ni desprendimientos del recubrimiento.

La estructura de acero deberá ser homogénea, conseguida por un buen proceso de fabricación y por un correcto laminado, estando exenta de defectos que perjudiquen a la calidad del material.

Los productos laminados tendrán superficie lisa sin defectos superficiales de importancia que afecten a su utilización. Las irregularidades superficiales como rayados, pliegues y fisuras serán reparadas mediante procedimientos adecuados previa aprobación de la Dirección de Obra.

Serán admisibles los defectos superficiales cuando, tras suprimirlos por esmerilado, el perfil en cuestión cumpla las tolerancias exigidas.

Los ensayos y comprobaciones anteriores, así como la presencia de los agentes de la Dirección de Obra, no podrán alegarse como descargo de ninguna de las obligaciones impuestas, pudiéndose hasta después del montaje, desechar las piezas que fuesen reconocidas defectuosas desde el punto de vista del trabajo o de la calidad.

Se prohíbe el empleo de materiales que carezcan de certificado acreditativo de su calidad. Si por razones de fuerza mayor fuera necesaria su utilización, autorizada por el Director de las Obras, estos materiales habrían de ser objeto de programas específicos de contraensayos, a fin de verificar sus características.

Calidad:

Los certificados de garantía deberán cubrir la totalidad de materiales empleados y correlacionar biunívocamente las calidades especificadas con los materiales suministrados. Deberán tener el sello y firma representativos de la entidad que emita dichos certificados.

Las tolerancias dimensionales y de peso, serán las indicadas en las Normas UNE correspondientes a cada producto. Los materiales serán recepcionados mediante ensayos de tracción y resistencia (si es

aplicable), y mediante control geométrico.

Si no se cumple alguno de los requisitos indicados, se recepcionará el material integrante con los criterios indicados en las normas DIN 17100, UNE 36080 y EN 10025. Deberá preverse material suficientemente en exceso para la realización de los ensayos de recepción, sin menoscabo de la producción.

Los perfiles deberán suministrarse amparados por testificación de conformidad del fabricante, según apartado 5.4.1.1. de UNE 36007.

El Director de las obras podrá, a la vista del material suministrado, ordenar la toma de muestras y la ejecución de los ensayos que considere oportunos, con la finalidad de comprobar alguna de las características exigidas al material.

Almacenamiento y suministro

Los aceros laminados para estructuras metálicas se almacenarán de forma que no están expuestos a una oxidación directa, a la acción de atmósferas agresivas ni se manchen de grasa, ligantes o aceites.

Se almacenarán en lugar seco, sin contacto directo con el suelo y protegido contra la intemperie, de manera que no se alteren sus condiciones.

Los perfiles llevarán marcadas en relieve las siglas del fabricante, el símbolo de la clase de acero, el tipo de perfil. Irá acompañado del certificado de garantía del fabricante.

2.3.3. ACEROS EN TABLESTACAS

Definición

Se definen como tablestacados metálicos las paredes formadas por tablestacas metálicas que se hincan en el terreno, para constituir, debidamente enlazadas, pantallas de impermeabilización o resistencia, con carácter provisional o definitivo.

Características técnicas

Las tablestacas serán perfiles laminados de acero al carbono sin aleación especial, cuya resistencia característica a tracción será superior a tres mil quinientos kilopondios por centímetro cuadrado (3.500 kp/cm2).

Los perfiles y peso de las tablestacas serán los que figuren en los Planos o en la Documentación

Técnica del Proyecto; admitiéndose, para su longitud, las tolerancias siguientes: veinte centímetros (20 cm) en más y cinco centímetros (5 cm) en menos.

El corte de las tablestacas a su longitud debida se efectuará por medio de sierra o soplete.

El alargamiento repartido de rotura será igual o superior al cuatro por ciento (4%), medido después del ensayo normal de tracción UNE 36401 sobre una base de diez (10) veces el espesor de la probeta, situada a más de cinco (5) veces dicho espesor desde el cuello de estricción y a más de tres (3) veces dicha magnitud desde el punto de aplicación de la mordaza. El alargamiento mínimo de rotura, medido según dicha Norma UNE, será del veinte por ciento (20%).

Control de recepción

Las tablestacas deberán conservarse en perfecto estado; y a tal fin se recubrirán con una capa de pintura bituminosa que las proteja de la oxidación. Todo ello a criterio de la Dirección de Obra.

El Contratista pondrá todos los medios necesarios para facilitar las inspecciones del personal de supervisión designado por la Dirección. La Dirección de Obra se reserva el derecho de obtener cuantas muestras estime oportunas para realizar todos los análisis o pruebas que considere necesarios, tanto en taller como "in situ".

Las características mínimas indicadas se determinarán de acuerdo con las Normas UNE correspondientes.

2.3.4. TAPAS Y REJILLAS

Definición

Se definen los dispositivos de cubrimiento y cierre instalados en zonas sometidas a circulación peatonal y/o de vehículos como los destinados a proteger los huecos pertenecientes a las distintas instalaciones de servicios urbanos. Están constituidos por un marco y una rejilla, una tapa o ambas combinadas.

Particularmente, se define marco como elemento fijo del dispositivo de cubrimiento o cierre sobre el que se asienta una rejilla y/o una tapa sirviendo de base de las mismas.

Se define rejilla como elemento móvil del dispositivo de cubrimiento o cierre que permite la evacuación de las aguas de escorrentía a través de ella.

Se define tapa como elemento móvil del dispositivo de cubrimiento o cierre que cubre la apertura de un registro de una instalación.

Clasificación

Según el lugar de utilización y las cargas a las que va a ser sometido el dispositivo de cubrimiento y cierre se clasifican en los siguientes grupos:

A-15, B-125, C-250, D-400, E-600 y F-900

Donde la letra determina la clase y el número la Fuerza de Control, o la aplicada sobre el dispositivo en el ensayo de resistencia.

Como criterio general para las obras del Ayuntamiento de Bilbao, debido a la utilización de los espacios peatonales por vehículos de limpieza o de emergencias, la clase mínima del dispositivo de cubrimiento será D-400, para cualquier lugar de utilización.

El material utilizado para la fabricación de las partes componentes de los dispositivos, ya sean marcos, tapas o rejillas, será siempre fundición de grafito esferoidal, cumpliendo las especificaciones de la ISO 1083:1987, independientemente de que sean, o no, rellenables.

La superficie superior de las tapas debe presentar un dibujo en relieve de una altura comprendida entre 3 mm y 8 mm, que no será menor del 10 % ni superior al 70 % de la superficie superior total.

Marcado

Todas las tapas, rejillas y marcos presentarán un marcado que forme parte de la propia pieza, no admitiéndose en ningún caso elementos sueltos anclados o adheridos.

Los elementos mínimos que debe llevar el marcado son los siguientes:

- EN 124
- CLASE Y TIPO. Si el marco es válido para varias, deben marcarse todas.
- GS. Marca de calidad de la fundición dúctil.
- NOMBRE Y/O SIGLA DEL FABRICANTE y lugar de fabricación, que puede ser un código.
- MARCA de un organismo de certificación, en su caso.

Las tapas no rellenables llevarán, además, el escudo de la Villa de Bilbao y el tipo de instalación a la que pertenece.

El marcado se realizará tanto en el marco como en la tapa o rejilla. En las tapas rellenables se realizará en la cara inferior.

En el caso de que el fabricante haya certificado el producto con la Marca AENOR, deberá aparecer, además:

- Logotipo de la Marca AENOR.
- Número del contrato firmado con AENOR.
- Fecha de fabricación o código de trazabilidad.

El revestimiento se realizará con pintura bituminosa de color negro. El acabado será homogéneo y no presentará gotas, rebabas ni picaduras.

Suministro y almacenaje

Suministro

Se realizará de tal forma que no se alteren las características de los materiales, ni se produzcan desperfectos en las distintas operaciones.

El Contratista avisará a la Dirección de Obra del momento de entrega del material, con el objeto de que puedan establecerse lotes a efectos de Control de Calidad.

Almacenamiento

Se garantizará el mantenimiento de las condiciones originales del material, evitando cualquier situación en la que se produzcan daños en el recubrimiento o en la propia naturaleza del elemento.

Hasta el momento de su uso, los dispositivos de cubrición se acopiarán ordenados según su origen, de tal forma que puedan identificarse distintos lotes a efectos de establecer un criterio de Control de Calidad.

Cualquier material que por las malas condiciones de almacenamiento no sea identificable o haya sufrido desperfectos a juicio de la Dirección de Obra será rechazado, debiendo ser sustituido, con el correspondiente Control de Calidad sobre los nuevos elementos, que será en todo caso de cuenta del Contratista.

Normativa de obligado cumplimiento

UNE-EN 124. Dispositivos de cubrimiento y de cierre para zonas de circulación utilizadas por peatones y vehículos.

Para productos certificados por la marca AENOR: RP 00.23. Reglamento particular de la anterior Norma.

2.4. VARIOS

2.4.1 MADERA

Condiciones generales

La madera para entibaciones, apeos, cimbras, andamios, demás medios auxiliares y carpintería de armar, deberá cumplir las condiciones siguientes:

- Proceder de troncos sanos apeados en sazón.

- Haber sido desecada al aire, protegida del sol y la lluvia, durante no menos de dos (2) días.

- No presentar signos de putrefacción, atronaduras, carcomas o ataque de hongos.

- Estar exenta de grietas, lupias y verrugas, manchas, o cualquier otro defecto que perjudique su solidez y resistencia. En particular, contendrá el menor número posible de nudos, los cuales, en todo caso, tendrán un espesor inferior a la séptima parte (1/7) de la menor dimensión de la pieza.

- Tener sus fibras rectas y no reviradas o entrelazadas, y paralelas a la mayor dimensión de la pieza.

- Presentar anillos anuales de aproximada regularidad, sin excentricidad de corazón ni entrecorteza.

- Dar sonido claro por percusión.

Forma y dimensiones

La forma y dimensiones de la madera serán, en cada caso, las adecuadas para garantizar su resistencia y cubrir el posible riesgo de accidentes.

La madera de construcción escuadrada será madera de sierra, de aristas vivas y llenas.

Medición y suministro

La medición y abono de este material se realizará de acuerdo con lo indicado en la unidad de obra de que forme parte.

2.4.2. GEOTEXTILES

Definición

Geotextiles

Material textil plano, permeable, polimérico (sintético o natural) que puede ser no-tejido, tricotado o tejido, y que se emplea en ingeniería civil en contacto tanto con suelos como con otros materiales para aplicaciones geotécnicas.

Geotextil no-tejido

Geotextil en forma de lámina plana, con fibras, filamentos u otros elementos orientados regular o aleatoriamente, unidos químicamente, mecánicamente o por medio de calor, o combinación de ellos. Pueden ser de fibra cortada o de filamento continuo. Dependiendo de la técnica empleada en la unión de sus filamentos, pueden ser:

- Ligados mecánicamente o agujeteados

- Ligados térmicamente o termosoldados

- Ligados químicamente.

Geotextiles no tejidos, ligados mecánicamente (Agujeteados)

La unión es mecánica, y en ella un gran número de agujas provistas de espigas atraviesan la estructura en un movimiento alterno rápido.

Geotextiles no tejidos, ligados térmicamente.

La unión entre los filamentos se consigue por calandrado (acción conjugada de calor y presión).

Geotextiles no tejidos, ligados químicamente

La unión entre sus filamentos se consigue mediante una resina.

Geotextil tricotado.

Geotextil fabricado por el entrelazado de hilos, fibras, filamentos u otros elementos.

Geotextil tejido.

Geotextil fabricado al entrelazar, generalmente en ángulo recto, dos o más conjuntos de hilos, fibras, filamentos, cintas u otros elementos.

Dirección de fabricación (dirección de la máquina).

Dirección paralela a la de fabricación de un geotextil (p.e. para geotextiles tejidos es la dirección de la urdimbre).

Dirección perpendicular a la de fabricación

La dirección, en el plano del geotextil perpendicular a la dirección de fabricación (p.e. en geotextiles tejidos, es la dirección de la trama).

En lo que no quede aquí expuesto, relativo a vocabulario y definiciones, se estará a lo indicado en UNE 40523 hasta que sea sustituida por la correspondiente norma europea UNE EN.

Características generales de los elementos

Naturaleza del geotextil

La masa por unidad de superficie se relaciona con la uniformidad del geotextil e indirectamente con el resto de las características del mismo. La masa por unidad de superficie se medirá según UNE EN 965.

El espesor del geotextil está condicionado por la presión aplicada sobre él. El espesor de los geotextiles se medirá según UNE EN-964.

La durabilidad es la propiedad por la cual el geotextil mantiene sus características con el paso del tiempo y habrá de evaluarse en el caso de usar el geotextil en un ambiente que pueda considerarse agresivo física, química o bacteriológicamente.

La durabilidad de los geotextiles se evalúa como la reducción medida en "tanto por ciento" de los valores de las propiedades iniciales, una vez que el geotextil ha sido sometido, de acuerdo con UNE ENV 12226, a la acción de los agentes físicos, químicos y bacteriológicos a los que previsiblemente vaya a estar sometido.

Salvo indicación en contrario del Proyecto, las normas de aplicación serán; UNE ENV 12224 para la resistencia a la intemperie; ENV ISO 12960 para la resistencia a la degradación química en ambientes agresivos; UNE ENV 12225 para la resistencia a agentes biológicos; UNE ENV 12447 para la resistencia a la hidrólisis; y ENV ISO 13438 para la resistencia a la oxidación, en tanto que esta norma provisional y experimental no sea sustituida por la correspondiente norma UNE EN.

Características mecánicas

La resistencia a tracción (carga máxima) y el alargamiento (en el punto de carga máxima) de los geotextiles, se evaluará mediante el ensayo UNE EN ISO 10319.

La resistencia al punzonamiento mide la resistencia de un geotextil bajo una carga estática, mediante un ensayo tipo CBR que se realizará según UNE EN IS0 12236.

La resistencia a la perforación dinámica mide la resistencia de un geotextil a las cargas dinámicas, mediante un ensayo por caída de cono que se realizará según UNE EN 918.

El ensayo a fluencia mide la deformación de un geotextil al aplicar una carga en tracción constante con el tiempo y se evaluará según EN ISO 13431.

Propiedades hidráulicas

Para determinar las propiedades hidráulicas se evaluarán los siguientes parámetros:

- Permeabilidad normal al plano (permitividad sin carga), según EN ISO 11058.
- Permeabilidad en el plano (transmisividad), según EN ISO 12958.
- Diámetro eficaz de poros O90, según EN ISO 12956.

2.4.3. PLASTIFICANTES PARA EL HORMIGÓN

Definición

Se definen como plastificantes a emplear en hormigones, los productos que se añaden durante elamasado, con el fin de poder reducir la cantidad de agua correspondiente a la consistencia deseada.

Condiciones generales

La aceptación de un producto plastificante, así como su empleo, será decidida por el Director de las obras a la vista de los resultados de los ensayos previos cuya realización ordene, especialmente en el caso de hormigones curados al vapor.

Medición y suministro

La medición y abono de este material se realizará de acuerdo con lo indicado en la unidad de obra de que forme parte.

2.4.4. FILMÓGENOS DE CURADO

Definición

Se definen como productos filmógenos de curado los aptos para su aplicación sobre superficies horizontales y verticales de hormigón con objeto de retardar la pérdida de agua durante su primer período de endurecimiento y reducir, al mismo tiempo, la elevación de temperatura en el hormigón expuesto a los rayos solares. Los productos comprendidos bajo esta definición son aptos para ser usados como medio de curado del hormigón fresco, y pueden ser también utiliza-dos para un posterior curado del hormigón después del desencofrado o de un curado húmedo inicial.

Características

Los productos filmógenos de curado constarán de un pigmento blanco finamente dividido y un vehículo, ya mezclados para su inmediata utilización sin alteración. El producto presentará un aspecto blanco o metálico uniforme cuando sea aplicado uniformemente a una superficie de hormigón nuevo en la dosificación especificada.

El producto filmógeno de curado será de una consistencia tal que pueda ser fácilmente aplicado por medio de un pulverizador en una capa uniforme, a una temperatura superior a cuatro grados centígrados (4 °C).

El producto deberá adherirse al hormigón fresco que haya fraguado o endurecido en un grado suficiente para no sufrir deterioros durante su aplicación, y también al hormigón húmedo endurecido, y deberá formar una película continua cuando se aplique en la dosis especificada.

Una vez seca, la película formada deberá ser continua, flexible, y sin roturas o agujeros visibles, y deberá permanecer intacta al menos siete días (7 d) después de su aplicación. El producto líquido filmógeno pigmentado no deberá reaccionar perjudicialmente con el hormigón; en particular, con el agua y los iones de calcio.

El producto filmógeno de curado deberá poder ser almacenado sin deterioro durante seis (6) meses como mínimo. El producto no deberá sedimentarse ni formar costras en el recipiente, y deberá ser capaz de adquirir una consistencia uniforme después de ser batido moderadamente o agitado con aire comprimido. Al ser ensayada su sedimentación a largo plazo, según el método ASTM D 1309, el producto tendrá una razón de sedimentación no inferior a cuatro (4).

La composición e ingredientes de los productos deberán cumplir con las dos limitaciones siguientes:

- La porción volátil del producto será un material no tóxico mi peligrosamente inflamable.

- La porción volátil contendrá ceras natura-les o de petróleo, o bien resinas. El contenido de sustancias no volátiles se ensayará de acuerdo con la Norma ASTM D 1644, método A.

El producto, ensayado según la Norma ASTMC 156, no tendrá una pérdida de agua superior a cincuenta y cinco miligramos por centímetro cuadrado de superficie (0,055 g/cm2) en setenta y dos (72) horas.

El producto, ensayado según la Norma ASTME 97, tendrá un poder reflectante de la luz natural no inferior al sesenta por ciento (60%) del dióxido de magnesio.

El producto, ensayado según el método que se indica más adelante, aparecerá seco al tacto en menos de cuatro (4) horas. Para ello se aplicará el producto a un tablero impermeable, en la dosis especificada, y se expondrá a una corriente de aire a temperatura de veintitrés más menos un grado y siete décimas de grado centígrado (23 °C±1,7 °C), cincuenta y cinco más menos cinco por ciento (55%±5%) de humedad relativa y a una velocidad aproximada de tres metros por segundo (3 m/s), recorriendo horizontalmente la superficie del tablero de ensayo. Se ensayará la película formada ejerciendo una presión moderada con un dedo. La película se considerará seca cuando no subsista el estado inicial de blandura y viscosidad y la película se mantenga firme.

Después de doce (12) horas de ser aplicado, el producto no permanecerá viscoso, ni se adherirá al calzado dejando huella cuando se camine sobre él, ni tampoco proporcionará una superficie deslizante al hormigón.

Limitación de uso

No se utilizará ningún tipo de productos filmógenos de curado sin la aprobación previa y expresa del Director de las obras.

Medición y suministro

La medición y abono de este material se realizará de acuerdo con lo indicado en la unidad de obra de que forme parte.

2.4.5. AGUA

Aguas utilizadas para alguno de los usos siguientes:

- Elaboración de hormigón.

- Elaboración de mortero.

- Elaboración de pasta de yeso.

- Riego de plantaciones.

- Conglomerados grava-cemento, tierra-cemento, grava-emulsión, etc.

- Humectación de bases o subbases.

- Humectación de piezas cerámicas, de cemento, etc.

Pueden utilizarse las aguas potables y las sancionadas como aceptables por la práctica.

Si tiene que utilizarse para la confección o el curado de hormigón o de mortero y si no hay antecedentes de su utilización o existe alguna duda sobre la misma se verificará que cumple todas y cada una de las siguientes características:

Característica	Normativa	Especificación
Exponente de Hidrógeno PH	UNE 7-234	≥5%
Total de sustancias disueltas	UNE 7-130	≤15 g/l
Sulfatos, expresados en SO_4	UNE 7-131	≤1 g/l
Ion cloro expresado en Cl	UNE 7-178	≤6 g/l
Hidratos de Crabono	UNE 7-132	0
Sustancias orgánicas solubles en Éter		≤15 g/l

Cuando no se posean antecedentes de su utilización, o en caso de duda, al inicio de la obra se tomará una muestra de **8 litros** y se realizarán los ensayos expuestos con anterioridad:

- Exponente de Hidrógeno pH, UNE 7.234

- Sustancias disueltas, UNE 7.130

- Sulfatos expresados en SO4, UNE 7.131

- Ión Cloro, UNE 7.178

- Hidratos de Carbono, UNE 7.132

- Sustancias orgánicas solubles en éter, UNE 7.235

Condiciones de suministro y almacenaje

Suministro y almacenamiento: De manera que no se alteren sus condiciones.

En todo caso se prohíbe el uso de agua de mar, incluso para el curado del hormigón.

12.8.3 Normativa de obligado cumplimiento

- Instrucción de Hormigón Estructural EHE (artículo 27)

- NBE FL-90 Muros resistentes de fábrica de ladrillo.

- Artículo 280 del PG-3

PARTE 3. EXPLANACIONES

3. EXPLANACIONES

3.1. ARTÍCULO C300/0701.- DESBROCE DEL TERRENO

Definición y alcance

Consiste en extraer y retirar de las zonas designadas todos los árboles, tocones, plantas, maleza, broza, maderas caídas, escombros, basura o cualquier otro material indeseable según el Proyecto o a juicio del Director de las Obras.

La ejecución de esta operación incluye las operaciones siguientes:

-Remoción de los materiales objeto de desbroce.

-Retirado y extendido de los mismos en su emplazamiento definitivo.

-La tierra vegetal deberá ser siempre retirada, excepto cuando vaya a ser mantenida según lo indicado en el Proyecto o por el Director de las Obras.

Ejecución de las obras

Se estará, en todo caso, a lo dispuesto en la legislación vigente en materia medioambiental, de seguridad y salud, y de almacenamiento y transporte de productos de construcción.

Debe retirarse la tierra vegetal de las superficies de terreno afectadas por excavaciones o terraplenes, según las profundidades definidas en el Proyecto y verificadas o definidas durante la obra.

En zonas muy blandas o pantanosas la retirada de la capa de tierra vegetal puede ser inadecuada, por poder constituir una costra más resistente y menos deformable que el terreno subyacente. En estos casos y en todos aquellos en que, según el Proyecto o el Director de las Obras, el mantenimiento de dicha capa sea beneficioso, ésta no se retirará.

Las operaciones de remoción se efectuarán con las precauciones necesarias para lograr unas condiciones de seguridad suficientes y evitar daños en las construcciones próximas existentes.

El Contratista deberá disponer las medidas de protección adecuadas para evitar que la vegetación, objetos y servicios considerados como permanentes, resulten dañados. Cuando dichos elementos resulten dañados por el Contratista, éste deberá reemplazarlos, con la aprobación del Director de las Obras, sin costo para la Propiedad.

Todos los tocones o raíces mayores de diez centímetros (10 cm) de diámetro serán eliminados hasta una profundidad no inferior a cincuenta centímetros (50 cm), por debajo de la rasante de la explanación.

Fuera de la explanación los tocones de la vegetación que a juicio del Director de las Obras sea necesario retirar, en función de las necesidades impuestas por la seguridad de la circulación y de la incidencia del posterior desarrollo radicular, podrán dejarse cortados a ras de suelo.

Todas las oquedades causadas por la extracción de tocones y raíces se rellenarán con material análogo al suelo que ha quedado al descubierto al hacer el desbroce, y se compactarán conforme a lo indicado en este Pliego hasta que la superficie se ajuste a la del terreno existente.

Todos los productos o subproductos forestales, no susceptibles de aprovechamiento, serán eliminados de acuerdo con lo que, sobre el particular, establezca el Proyecto u ordene el Director de las Obras. En principio estos elementos serán quemados, cuando esta operación esté permitida y sea aceptada por el Director de las Obras. El Contratista deberá disponer personal especializado para evitar los daños tanto a la vegetación como a bienes próximos. Al finalizar cada fase, el fuego debe quedar completamente apagado.

Los restantes materiales serán utilizados por el Contratista, en la forma y en los lugares que señale el Director de las Obras.

La tierra vegetal procedente del desbroce debe ser dispuesta en su emplazamiento definitivo en el menor intervalo de tiempo posible. En caso de que no sea posible utilizarla directamente, debe guardarse en montones de altura no superior a dos metros (2 m). Debe evitarse que sea sometida al paso de vehículos o a sobrecargas, ni antes de su remoción ni durante su almacenamiento, y los traslados entre puntos deben reducirse al mínimo.

Si se proyecta enterrar los materiales procedentes del desbroce, estos deben extenderse en capas dispuestas de forma que se reduzca al máximo la formación de huecos. Cada capa debe cubrirse o mezclarse con suelo para rellenar los posibles huecos, y sobre la capa superior deben extenderse al menos treinta centímetros (30 cm) de suelo compactado adecuadamente. Estos materiales no se extenderán en zonas donde se prevean afluencias apreciables de agua.

Si el vertido se efectúa fuera de la zona afectada por el Proyecto, el Contratista deberá conseguir, por sus medios, emplazamientos adecuados para este fin, no visibles desde la calzada, que deberán ser aprobados por el Director de las Obras, y deberá asimismo proporcionar al Director de las Obras copias de los contratos con los propietarios de los terrenos afectados.

Medición y abono

El desbroce del terreno se abonará por (m2)

En esta unidad de obra se considera incluida la obtención de los permisos necesarios para el vertido del material procedente del desbroce.

Las medidas de protección de la vegetación y bienes y servicios considerados como permanentes, no serán objeto de abono independiente. Tampoco, se abonará el desbroce de las zonas de préstamo.

3.2. DEMOLICIÓN Y LEVANTADO DE PAVIMENTO MBC E = 10/20 CM

Definición y alcance

Consistirá en demoler y retirar parcialmente el pavimento de los viales adyacentes al presente proyecto que la Dirección de Obra señale.

Se entiende incluida en esta unidad el derribo o demolición del pavimento, así como la carga y transporte de los productos a vertedero y canon de vertido o el extendido y compactación en el vertedero de proyecto.

Ejecución de las obras

Las operaciones de derribo se efectuarán con las precauciones necesarias para lograr unas condiciones de seguridad suficientes y evitar daños en las construcciones existentes, de acuerdo con lo que sobre el particular ordene el Director de la Obra, quien designará y marcará los elementos que haya que conservar intactos.

Si el Director de las obras estimara oportuno emplear alguno de los materiales de la demolición en la obra se encontrarán incluidas las labores de:

- Perforación y troceo, hasta la granulometría que sea necesaria.

- Limpieza de los mismos.

- Acopio y transporte en la forma y lugares que señale el Director de las obras.

Los trabajos se realizarán de forma que produzcan la menor molestia posible a los ocupantes de las zonas próximas a la obra.

Los materiales que resulten de los derribos y que no hayan de ser utilizados en obra serán retirados a vertedero.

Medición y abono

La demolición del pavimento se medirá por metros cuadrados (m2) realmente demolidos, medidos sobre el propio terreno.

Solo serán susceptibles de medición los volúmenes reales de materiales demolidos descontados los huecos.

Deberán entenderse como comprendidos en esta unidad: el derribo o demolición del pavimento, la carga y transporte a vertedero y canon de vertido o extendido y compactación de los materiales en el vertedero de proyecto y cuantas operaciones o medidas auxiliares se requieran para la completa ejecución de esta unidad, de acuerdo con el Pliego de Condiciones.

Esta unidad se abonará según el precio correspondiente del Cuadro de Precios Nº 1.

3.3. DEMOLICIÓN Y LEVANTADO DE PAVIMENTO HA E = 15/25 CM

Definición y alcance

Consistirá en demoler y retirar de la zona comprendida entre los límites de explanación todas las obras de fábrica de hormigón armado o en masa o de mampostería que la Dirección de Obra señale.

Se entiende incluida en esta unidad el derribo o demolición de las obras de fábrica, así como la carga y transporte de los productos a vertedero y canon de vertido o el extendido y compactación en el vertedero de proyecto.

Quedan fuera del alcance de esta unidad aquellas obras incluidas en la unidad: M2. Demolición de edificio o puente.

Ejecución de las obras

Las operaciones de derribo se efectuarán con las precauciones necesarias para lograr unas condiciones de seguridad suficientes y evitar daños en las construcciones existentes, de acuerdo con lo que sobre el particular ordene el Director de la Obra, quien designará y marcará los elementos que haya que conservar intactos.

Dentro de la demolición del elemento quedará incluida la excavación (para aquellos elementos o partes de ellos que estén enterrados) correspondiente para dejar el elemento al descubierto, de manera que pueda ser accesible para su demolición o retirada.

Cuando haya que demoler elementos de contención habrá que vaciar los materiales que graviten sobre el elemento a demoler.

Queda totalmente prohibido el empleo de explosivo, salvo en aquellos lugares en que se especifique explícitamente

En el caso de muros se deberá crear un plano de discontinuidad mediante taladros perforados en la unión de alzado y zapata.

Si el Director de las obras estimara oportuno emplear alguno de los materiales de la demolición en la obra se encontrarán incluidas las labores de:

- Perforación y troceo, hasta la granulometría que sea necesaria para obtener un pedraplén.

- Limpieza de los mismos.

- Acopio y transporte en la forma y lugares que señale el Director de las obras.

Los trabajos se realizarán de forma que produzcan la menor molestia posible a los ocupantes de las zonas próximas a la obra.

Los materiales que resulten de los derribos y que no hayan de ser utilizados en obra serán retirados a vertedero.

Medición y abono

La demolición de obra de fábrica de hormigón se medirá por metros cúbicos (m3) realmente demolidos, medidos sobre la propia estructura.

Solo serán susceptibles de medición los volúmenes reales de materiales demolidos descontados los huecos.

Deberán entenderse como comprendidos en esta unidad: el derribo o demolición de la obra de fábrica de hormigón, la carga y transporte a vertedero y canon de vertido o extendido y compactación de los materiales en el vertedero de proyecto y cuantas operaciones o medidas auxiliares se requieran para la completa ejecución de esta unidad, de acuerdo con el Pliego de Condiciones.

Quedan expresamente excluidos de esta unidad las obras de fábrica que se incluyen en la unidad “M2. Demolición de edificio o puente”, así como la demolición de pavimento o cualquier otra obra de fábrica que no sea de hormigón o mampostería, que se consideran incluidas en la unidad “M3. Excavación en todo tipo de terreno”.

Esta unidad se abonará según el precio correspondiente del Cuadro de Precios Nº 1.

3.4. DEMOLICIÓN Y LEVANTADO DE ACERAS

Definición y alcance

Consistirá en demoler y retirar de la zona que la Dirección de Obra señale.

Se entiende incluida en esta unidad el derribo o demolición de las aceras, así como la carga y transporte de los productos a vertedero y canon de vertido o el extendido y compactación en el vertedero de proyecto.

Ejecución de las obras

Las operaciones de derribo se efectuarán con las precauciones necesarias para lograr unas condiciones de seguridad suficientes y evitar daños en las construcciones existentes, de acuerdo con lo que sobre el particular ordene el Director de la Obra, quien designará y marcará los elementos que haya que conservar intactos.

Los trabajos se realizarán de forma que produzcan la menor molestia posible a los ocupantes de las zonas próximas a la obra.

Los materiales que resulten de los derribos y que no hayan de ser utilizados en obra serán retirados a vertedero.

Medición y abono

La demolición de acera se medirá por metros cuadrados (m2) realmente demolidos, medidos sobre el propio terreno.

Solo serán susceptibles de medición los volúmenes reales de materiales demolidos descontados los huecos.

Deberán entenderse como comprendidos en esta unidad: el derribo o demolición de acera, la carga y transporte a vertedero y canon de vertido o extendido y compactación de los materiales en el vertedero de proyecto y cuantas operaciones o medidas auxiliares se requieran para la completa ejecución de esta unidad, de acuerdo con el Pliego de Condiciones.

Esta unidad se abonará según el precio correspondiente del Cuadro de Precios Nº 1.

Los trabajos se realizarán de forma que produzcan la menor molestia posible a los ocupantes de las zonas próximas a la obra.

Los materiales que resulten de los derribos y que no hayan de ser utilizados en obra serán retirados a vertedero.

Medición y abono

La demolición y levantamiento de bordillo se medirá por metro lineal (m) realmente demolidos, medidos sobre el propio terreno.

Solo serán susceptibles de medición los volúmenes reales de materiales demolidos descontados los huecos.

Deberán entenderse como comprendidos en esta unidad: el derribo o demolición de bordillos, la carga y transporte a vertedero y canon de vertido o extendido y compactación de los materiales en el vertedero de proyecto y cuantas operaciones o medidas auxiliares se requieran para la completa ejecución de esta unidad, de acuerdo con el Pliego de Condiciones.

Esta unidad se abonará según el precio correspondiente del Cuadro de Precios Nº 1.

3.5. DEMOLICIÓN Y LEVANTADO DE BORDILLO

Definición y alcance

Consistirá en demoler y retirar el bordillo que la Dirección de Obra señale.

Se entiende incluida en esta unidad el derribo o demolición de bordillos, así como la carga y transporte de los productos a vertedero y canon de vertido o el extendido y compactación en el vertedero de proyecto.

Ejecución de las obras

Las operaciones de derribo se efectuarán con las precauciones necesarias para lograr unas condiciones de seguridad suficientes y evitar daños en las construcciones existentes, de acuerdo con lo que sobre el particular ordene el Director de la Obra, quien designará y marcará los elementos que haya que conservar intactos.

PARTE 4. EXCAVACIONES

4. EXCAVACIONES

4.1. EXCAVACIÓN DE ESTRIBOS

La excavación del canal queda fuera del alcance de este proyecto y del presente pliego. Solo concierne al mismo la excavación necesaria para la ejecución de los estribos del puente.

La presente unidad de obra cumplirá las especificaciones establecidas en el Artículo 320.- *"Excavación de la explanación y préstamos"* del PG-3, completadas o modificadas con las contenidas en este Artículo del presente Pliego.

Clasificación de las excavaciones

La excavación de la explanación y préstamos es la indicada en el Artículo C102/0601 del presente Pliego en el apartado *"Datos de Proyecto".*

- En el caso de excavación clasificada, se consideran los tipos siguientes:
- Excavación en roca con explosivos: Se considera excavación en roca con explosivos a efectos del presente Pliego y en consecuencia, a efectos de medición y abono, la correspondiente a todas las masas de roca, depósitos estratificados y aquellos materiales que presenten características de roca masiva o que se encuentren cementados tan sólidamente que no puedan excavarse empleando escarificadores profundos y pesados y hayan de ser excavados utilizando explosivos.
- Excavación en roca con martillo hidráulico acoplado a retroexcavadora: Comprende la correspondiente a todas las masas de roca, depósitos estratificados y aquellos materiales que presenten características de roca masiva o que se encuentren cementados tan sólidamente que hayan de ser excavados empleando martillo hidráulico acoplado a retroexcavadora.
- Este tipo de excavación se emplea únicamente para pequeños volúmenes de roca, cuando así sea contemplada en el Proyecto o sea indicado por el D.O., en aquellas zonas en las que por diversas circunstancias no sea posible emplear explosivos. En cualquier caso, el empleo de esta unidad de obra deberá contar, obligatoriamente, con la aprobación previa del D.O.
- Excavación en tierras y tránsito: Comprende la correspondiente a los materiales formados por tierras, rocas descompuestas meteorizadas y estratificadas y en general, todos aquellos que para su excavación no sea necesario el empleo de explosivos o martillo hidráulico acoplado a retroexcavadora.

En el caso de "excavación clasificada", el Contratista informará durante la ejecución, y notificará por escrito, para su aprobación, si procede, al D.O., las unidades que corresponden a excavaciones en roca con explosivos, excavaciones en roca con martillo hidráulico acoplado a retroexcavadora y excavación en tierras y tránsito, teniendo en cuenta para ello las definiciones anteriores, y los criterios definidos por el D.O.

Ejecución de las obras

Tolerancia geométrica de terminación de las obras

Las tolerancias máximas admisibles expresadas en centímetros entre los planos y superficies de taludes previstos en el Proyecto y los realmente construidos serán las siguientes:

- Taludes de hasta 3 m: ± 15 cm
- Taludes de 3 a 10 m: ± 25 cm

- Taludes de más de 10 m: ± 40 cm

Estas tolerancias podrán ser modificadas por el D.O.

La tolerancia máxima admisible en pendientes, fondos de cunetas y drenajes será función de la pendiente definida en el Proyecto para cada unidad de obra.

- Cunetas y drenajes con pendiente entre el 3‰ - 5‰ = ± 1 ‰
- Cunetas y drenajes con pendiente entre el 5‰ - 1% = ± 2 ‰
- Cunetas y drenajes con pendiente mayor del 1% = ± 4 ‰

La desviación máxima en planta de cunetas y drenajes con respecto a lo definido en el Proyecto será de 10 cm.

Medición y abono

La presente unidad se medirá y abonará de acuerdo al Artículo 320.4 del PG-3, con las adiciones siguientes:

- En todos los casos, el precio incluye la terminación de los taludes y la eliminación de los materiales desprendidos o movidos.
- Excavación en roca con martillo hidráulico acoplado a retroexcavadora, excavación tierras y tránsito y excavación no clasificada: El precio incluye el refino de los taludes, salvo que sea objeto de medición y abono de forma independiente.

Artículos de este Pliego relacionados con el presente Artículo

C102/0601.- *"Descripción de las Obras"*

Unidades que corresponden a este Artículo

El presente Artículo es de aplicación a las siguientes unidades de los cuadros de precios del Proyecto:

MOV 02.- "*Excavación no clasificada*".

PARTE 5. RELLENOS

5. RELLENOS

5.1. RELLENO DEL TRASDÓS CON MATERIAL FILTRANTE

Definición y alcance

Los rellenos en terraplén consisten en la extensión y compactación de suelos procedentes de la excavación o de préstamo, en zonas de extensión tal que permita la utilización de maquinaria de elevado rendimiento o de bajo rendimiento en el relleno de cajeos y bataches para asiento de terraplenes.

En esta unidad quedan incluidos:

- Los tramos de ensayo necesarios de acuerdo con el presente Pliego.

- La extensión, humectación o desecación y compactación de los materiales.

- Los escarificados de tongadas, materiales y nuevas compactaciones, cuando sean necesarios.

- Los ensayos necesarios para la aceptación de las tongadas.

- El refino de talud previo al extendido de tierra vegetal sobre el mismo.

- Cualquier trabajo, maquinaria, material o elemento auxiliar necesario para la correcta ejecución de esta unidad de obra.

- No se encuentra afectados por esta unidad de obra la capa de 0,60 m de suelo seleccionado, incluida dentro de la sección tipo de firmes y desarrollada en el correspondiente Artículo de este Pliego.

18.3.2 Materiales

Para la determinación de las características de los materiales, nos referimos a su situación en el terraplen, en el cual se considerarán las siguientes zonas:

-Zona de explanada mejorada (estudiada en el capítulo de firmes).

- Zona de coronación (primer metro bajo explanada mejorada).

- Zona de cimiento y núcleo (resto de terraplén).

- Zona de cajeo (según perfiles).

- Zona de saneo (según perfiles).

En la coronación se dispondrá una zona de un metro (1 m) de espesor, constituida por material catalogado con la categoría de suelo "adecuado" según el artículo 330.3.1 del PG-3, es decir:

- Su límite líquido será inferior a cuarenta (LL < 40).

- Su densidad máxima correspondiente al ensayo Proctor normal, no será inferior a un kilogramo setecientos cincuenta gramos por decímetro cúbico (1,750 kg/dm3).

- El índice C.B.R. será superior a cinco (5) y el hinchamiento, medido en dicho ensayo, será inferior al dos por ciento (2%).

- El contenido de materia orgánica será inferior al uno por ciento (1%).

- Carecerán de elementos de tamaño superior a diez centímetros (10 cm) y su cernido por el tamiz 0,080

UNE será inferior al treinta y cinco por ciento (35%) en peso.

En la zona de cimiento y núcleo, el material tendrá también la categoría de suelo adecuado con las prescripciones especificadas en citado artículo 330.3.1 de PG-3 a excepción de la granulometría cuyo tamaño máximo podrá ser de 60 cm, compactados en tongadas de un 1,00 m, como máximo, si el material proviene de voladuras, o de 30 cm, compactados en tongadas de 0,50 m, como máximo, en caso contrario.

En la zona de cajeo y saneo los materiales tendrán las características de los materiales para pedraplenes especificados en el PG-3.

Como norma general no serán utilizables los materiales que se especifican en el anejo geotécnico como tolerables o inadecuados, o bien no se recomienda su aprovechamiento.

Ejecución de las obras

Se dispondrá un tramo de ensayo, de amplitud suficiente según proyecto aprobado por el Director de las Obras, del que pueden obtenerse conclusiones válidas, respecto a los materiales pétreos de obtención local, en cuanto a humedad, maquinaria, número de pasadas, etc. de compactación, precauciones especiales, espesor de tongadas y demás particularidades necesarias. En dicho tramo de ensayo se deberán probar diferentes combinaciones de humedad y número de pasadas para cada uno de los espesores de tongada hasta un mínimo de cuatro tongadas.

Con dicha información se confeccionará un programa de ejecución, que deberá ser aprobado por el Director de las Obras.

El extendido de tierra vegetal, aunque no es objeto del presente Artículo, se realizará de manera coordinada con la realización del terraplén.

A efectos de denominación se considerará "coronación de terraplen", con específicos requisitos geotécnicos y de ejecución, sus cien centímetros (100 cm) superiores. La capa de suelo seleccionado, en referencia a los fondos de desmonte constituidos con materiales rocosos, en profundidad equivalente a 30 cm se estudiará también en el capítulo de firmes, considerándose como explanada mejorada.

En ningún caso se construirán terraplenes directamente sobre terrenos inestables. En el caso de precisarse, se interpondrá una capa de asiento de naturaleza y espesor tales que garanticen la perfecta cimentación del terraplén.

En el escalonado (cajeo) necesario para preparar la superficie de asiento en los terraplenes a media ladera, ejecutado según las especificaciones de la unidad de excavación, el pedraplén se extenderá por tongadas de espesor comprendido entre sesenta centímetros (60 cm) y cien centímetros (100 cm) con material cuyo tamaño máximo no supere el setenta por ciento (70%) del espesor de la tongada, tras su compactación, y cuyo cernido por el tamiz nº 4 ASTM (4,76 mm) no exceda del cinco por ciento (5%), en peso de la muestra. La humedad de compactación será aprobada por el Director de las Obras con base en los resultados del tramo de ensayo.

La compactación se efectuará con rodillo vibratorio de peso no inferior a doce toneladas (12 t), con un número de pasadas a determinar según los resultados del tramo de ensayo, con una velocidad entre cinco metros por minuto (5 m/min.) y treinta metros por minuto (30 m/min.) y frecuencia de vibración entre mil (1.000 r.p.m.) y dos mil revoluciones por minuto (2.000 r.p.m.).

En los cimientos y núcleos de los terraplenes, la densidad que se alcance no será inferior al noventa y ocho por ciento (98%) de la máxima obtenida en el ensayo Proctor Normal.

La última tongada, una vez compactada, deberá quedar en todo punto cien centímetros (100 cm) como mínimo, por debajo de la rasante final del relleno.

Una vez ejecutada esta última capa, se rellenarán las irregularidades y se extenderá la coronación.

En la coronación de los rellenos se dispondrá la zona de un metro (1 m) de espesor, constituida por material adecuado. En esta zona se exigirá una compactación del ciento tres por ciento (103%) del Proctor

Normal. En la coronación se realizarán ensayos de placas de carga, de acuerdo con la norma NLT-357/86 a dos ciclos de carga - descarga por cada punto a ensayar, obteniéndose el módulo "E" por cada ciclo, debiendo superar, en el segundo de ellos "E2", los seiscientos kilogramos por centímetro cuadrado (E2 > 600 kg/cm2).

Simultáneamente, la relación entre E2 y E1, deberá ser inferior a 2,5.

Los equipos de transporte y extensión de materiales operarán sobre todo el ancho de la capa.

Todos los rellenos a media ladera con pendiente del terreno superior al veinticinco por ciento (25%), deben apoyarse sobre bermas horizontales, de tres a cinco metros (3 a 5 m) de anchura y de uno a dos metros (1 a 2 m) de altura. Si las condiciones son favorables y el Director de las Obras lo autoriza, bastará con excavar estas bermas debajo del talud que tiene pendiente en el mismo sentido que la ladera. Sobre las bermas se construirá una primera capa, de medio metro (0,50 m) de espesor mínimo continuo, con material granular seleccionado procedente de excavaciones en roca sana.

En las zonas en que, a juicio del Director de las Obras, se aprecien manchas de humedad o pequeñas filtraciones al excavar las bermas, el material seleccionado deberá reemplazarse por "todo uno" de cantera de caliza con un contenido de finos menor del diez por ciento (10%).

Todos los manantiales que aparezcan en las excavaciones deben captarse y canalizarse hacia el exterior de los rellenos mediante conducciones de fuerte pendiente (más del 4%).

En todos los cruces de vaguadas, el cauce antiguo de los arroyos (tanto de caudal permanente como temporal), relleno con material filtrante envuelto en geotextil, debe cubrirse con una capa de 0,25 metros de espesor de "todo uno" de cantera, con un porcentaje de finos menor del diez por ciento (10%).

La superficie de las tongadas en suelos seleccionados será convexa, con pendiente transversal mínimo de dos por ciento (2%).

La superficie de las tongadas en suelos adecuados o rocas será convexa, con pendiente transversal comprendida entre el dos por ciento (2%) y el cinco por ciento (5%).

.

Medición y abono

Los rellenos se medirán en metros cúbicos (m3) obtenidos como resultado de la diferencia entre los perfiles iniciales del terreno antes de comenzar el relleno y el perfil teórico correspondiente a la explanación y los taludes definidos en los Planos, sin tener en cuenta excesos producidos por taludes más tendidos o sobreanchos en el terraplén.

El relleno de los bataches de cajeo y saneo se medirá según los perfiles teóricos de proyecto o de definición del Director de las Obras, no dando lugar a medición aquellas zonas que habiéndose rellenado en un batache, hayan de excavarse en el siguiente, para a su vez volver a rellenarse de nuevo. En estos casos sólo se medirá una vez cada volumen.

Esta unidad de obra se abonará según el precio correspondiente que figura en el Cuadro de Precios Nº 1:

"M3 Relleno en terraplén con material procedente de la excavación o de préstamo, incluso extendido y compactación".

5.2. RELLENO PROCEDENTE DE LA EXCAVACIÓN

DEFINICION Y ALCANCE

Esta unidad consiste en la extensión y compactación de suelos procedentes de excavación de obra para el relleno en trasdós de obras de fábrica cuyas dimensiones no permitan la utilización de los mismos equipos de maquinaria con que se lleva a cabo la ejecución de los terraplenes. Quedan específicamente excluidas de esta unidad los rellenos de falsos túneles y bataches de saneo y cajeo para el apoyo de terraplenes, que se consideran incluidas en la unidad: M3. Relleno en terraplén con material procedente de la excavación.

Este tipo de rellenos se realizarán con lo que al respecto indica el PG-3/1.975 en su artículo 321.

En esta unidad de obra quedan incluidos:

- La extensión de cada tongada.

- La humectación o desecación de cada tongada.

- La compactación de cada tongada.

- Cualquier trabajo, maquinaria, material o elemento auxiliar necesario para la correcta y rápida ejecución de esta unidad de obra.

Materiales

El material a utilizar en esta unidad de obra tendrá la categoría de suelo adecuado con las prescripciones especificadas en el artículo 330.3.1 del PG-3 a excepción de la granulometría, cuyo tamaño máximo podrá ser de 18 centímetros, compactados en tongadas de 30 centímetros de espesor, como máximo.

Ejecución de las obras

Las obras se ejecutarán de acuerdo con el PG-3, quedando limitado el espesor de una tongada a un espesor máximo de treinta centímetros (30 cm), condición que se exigirá de forma estricta.

Los rellenos localizados se ejecutarán cuando la temperatura ambiente, a la sombra, sea superior a dos grados centígrados (2□C); debiendo suspenderse los trabajos cuando la temperatura descienda por debajo de dicho límite.

Sobre las capas en ejecución debe prohibirse la acción de todo tipo de tráfico hasta que se haya completado su compactación. Si ello no es factible, el tráfico que necesariamente tenga que pasar sobre ellas se distribuirá de forma que no se concentren huellas de rodadas en la superficie.

Medición y abono

Los rellenos localizados se medirán por metros cúbicos (m3) realmente ejecutados, medidos sobre los planos, entre el talud teórico de la excavación y la superficie de material filtrante o el trasdós de la obra de fábrica.

El abono de esta unidad se realizará de acuerdo con el precio correspondiente del Cuadro de Precios Nº 1, en el que se incluyen los gastos para poder ejecutar la citada unidad con todas las condiciones señaladas en el presente Pliego.

5.3. RELLENO CON SUELO SELECCIONADO

Definición

Este ítem consistirá en la construcción de una sub-base formada por un material natural extraído de yacimiento. Será construida sobre una sub-rasante preparada, en un todo de acuerdo con estas especificaciones, y de conformidad con las indicaciones de los planos y de la inspección.

Materiales

El material a emplear en la construcción de la sub-base será de tosca de consistencia media, de calidad y características tales que cumpla con los requisitos especificados en este Pliego. La utilización de la tosca se hará previa trituración, por cuanto se ha previsto emplear el material total que puede extraerse de cada yacimiento. En caso de no utilizar tosca triturada el Contratista estará obligado a incorporar a la sub-base, tosca cuya trituración o desmenuzado puede efectuarse mediante el pasaje de equipos pesados actuando sobre capas de espesor especificado para la sub-base.

La tosca a emplear en la construcción de la sub-base será aprobada por la Inspección, debiendo además cumplir con los requisitos relativos a granulometría y plasticidad que se consignan:

Pasa tamiz 2" 100%

Pasa tamiz 1" ..... 70% - 95%

Pasa tamiz 3/8 ..... 50% - 75%

Pasa tamiz N° 40 ..... 20 % - 45%

Pasa tamiz N" 200 ..... 10 % - 25%

Debiendo la curva granulométrica obtenida desarrollarse con uniformidad. La fracción librada por el tamiz N° 40 tendrá un límite liquido menor de cuarenta (40), un índice de plasticidad menor de siete (7) y un valor soporte mayor de treinta (30).

Fijación de las cantidades

El material a utilizar será distribuido sobre la sub-rasante en la cantidad necesaria para obtener en toda la longitud de la sub-base o base a construir después de terminada su compactación, el espesor y ancho indicado en el proyecto, y de acuerdo a las normas de diseño utilizadas.

Equipos

El equipo, herramientas y demás implementos usados en la construcción, deberán ser aprobados previamente por la Inspección, que podrá exigir el cambio de los que a su juicio no Sean aceptables, ni convenientes. Todos los implementos deberán reponerse en número suficiente para poder completar el trabajo dentro del plazo contractual, debiendo conservarse en buenas condiciones de uso durante el tiempo de su empleo.

Si durante el desarrollo del trabajo se observara deficiencia o mal funcionamiento de los equipos, la inspección podrá ordenar su sustitución por otros más convenientes o adecuados. El Contratista deberá disponer durante el desarrollo de la construcción de los implementos de provisión y riego de agua necesaria para distribuir doscientos litros (200) por cada tonelada de material a regar, en un plazo máximo de cinco horas (5hs.).

Antes de construirse la sub-base de suelo seleccionado la Inspección determinara las zonas en que deban ser sustituidos los materiales existentes en la superficie de apoyo.

Cualquier deficiencia que ésta presente, exceso de humedad, rotura o desprendimiento en el caso de materiales cementados, falta de compactación o incumplimiento de las demás condiciones oportunamente exigidas, deberá ser subsanada por el Contratista sin percibir pago alguno por tales trabajos.

Si la sub-rasante de apoyo consiste en suelo natural deberá obtenerse en los últimos veinte centésimos de metro (0,20m.) de espesor una compactación que en peso por unidad de volumen seco (P.U.V.S.) no resulte inferior al correspondiente al noventa y ocho por ciento (98%) de la Densidad de

Equilibrio según el Método de la relación de Compactación descripta en la especificación y aplicada al tipo de suelo de apoyo.

Las sustituciones de material o las operaciones constructivas descriptas en el párrafo anterior regirán únicamente en el caso que la sub-rasante de apoyo y la capa de suelo seleccionado formen parte del único contrato. Caso contrario se realizaran y pagaran por ítem separado.

El material a utilizar en la construcción de la sub-base será depositado sobre la sub-rasante preparada.

Con el mismo se formara una sección uniforme en todo el ancho marcado en los planos. A fin de verificar dicha uniformidad, la sección será medida a intervalos frecuentes, debiendo corregirse toda la deficiencia de uniformidad.

El agua se agregara al material de la sub-base en la cantidad necesaria para asegurar una adecuada compactación. Dicha cantidad la indicara la Inspección sobre la base del ensayo de compactación especificado.

Deberán conducirse las operaciones de modo de obtener una mezcla íntima y uniforme del agua con el material a humedecer mediante el empleo de pulverizadores, y de ser necesario, con la aprobación de la inspección, se realizará un riego profundo de toda la superficie, la cual mediante rastras de discos u otros elementos adecuados se logrará homogeneizar con el nuevo material a aportar.

Una vez humedecido el material cada capa será intensamente compactada empleando las maquinarias necesarias, tarea que se iniciara desde los bordes y continuara progresivamente hacia el centro.

Durante la compactación se continuarán los riegos de agua en las cantidades y oportunidades que ordene la Inspección.

En el material que constituye la sub-base, deberá obtenerse por compactación al noventa y ocho por ciento (98%) y verificada en obra de acuerdo a lo especificado en el presente documento.

Limitación en la ejecución

Las mezclas deberán compactarse con la humedad óptima, no comenzándose la compactación hasta que el material distribuido ocupe el ancho total a construir.

Si la sub-base de suelo seleccionado no estuviere aun compactada y fuera humedecida por lluvias, en forma tal que se excediera el contenido de humedad anteriormente indicado, la zona afectada será reconstruida de acuerdo a las presentes especificaciones.

Esta reconstrucción correrá por cuenta del Contratista, si ante factores climáticos adversos y previsibles, el mismo no contara con la autorización por escrito de la Inspección para continuar con los trabajos.

La extensión de la zona escarificada por adelante del proceso de ejecución de la sub-base de suelo seleccionado no deberá exceder en ningún momento a la necesaria para la construcción de la base o sub-base cuya ejecución pueda completarse en 1 (un) día de trabajo, salvo que una autorización por escrito de la Inspección amplíe dicho plazo.

Conservación

El Contratista deberá conservar a su exclusiva cuenta la sub-base a construir, la que hará determinaciones para verificar la densidad, forma y características especificadas.

La conservación consistirá en mantener la sub-base de suelo seleccionado en condiciones óptimas hasta la ejecución de la etapa sucesiva y hasta el momento de finalizar el plazo contractual.

Recepción de los materiales

La sub-base será preparada en cada sector en la forma especificada, no se permitirá la ejecución de la etapa posterior antes de haberse recibido la sub-base por la Inspección, la que deberá expedirse dentro de las veinticuatro horas (24hs) subsiguientes de haber sido solicitada la recepción por el Contratista.

Medición y abono

Se abonara por m3 medido en el terreno en capas de e= 20 cm.

PARTE 6.- FIRMES

6. FIRMES

6.1. IMPERMEABILIZACIÓN DE TABLEROS

Definición y alcance

Esta unidad comprende los trabajos y materiales necesarios para la impermeabilización de tableros de puentes. En ellos se consideran comprendidos:

- Las operaciones de limpieza de la superficie a impermeabilizar.

- Los materiales necesarios para la ejecución de la capa de impermeabilización.

- El suministro, almacenaje y conservación en obra de estos materiales.

- Cualquier trabajo, maquinaria, material o elemento auxiliar necesario para la correcta y rápida ejecución de esta unidad.

El material de impermeabilización consistirá en una pintura de dos componentes basada en una mezcla de resinas epoxi y alquitrán de hulla, con cargas minerales y con un alto contenido de sólidos.

Materiales

Los materiales a emplear cumplirán lo establecido para los mismos en el presente Pliego, y en su defecto lo señalado en la Instrucción EH-08.

Los materiales a emplear así como la proporción de los mismos y las características que adquiere la mezcla deberán ser comunicados con anterioridad a la Dirección de Obra, la cual dispondrá de cinco (5) días para examinar sus características y decidir sobre su validez o no.

Ejecución de las obras

Antes de proceder a la aplicación del producto es necesario proceder a una limpieza manual de la superficie, dejando ésta seca, limpia, libre de polvo, eliminando partículas sueltas, restos de aceites y grasas, etc.

Si es posible, y en caso de que sea necesario, se procederá a una limpieza con chorro de arena, lo cual contribuye a aumentar notablemente la adherencia.

Las coqueras, desconchones, etc. que existan deberán ser reparados previamente con un mortero de reparación adecuado.

A continuación se procederá al mezclado de un endurecedor (alquitrán de hulla) con resina, mezclándose preferiblemente con una batidora eléctrica de baja velocidad (600 r.p.m.), moviéndola de arriba a abajo hasta conseguir una masa homogénea.

Si el endurecedor estuviese cristalizado, se calentará en agua al "baño maría" hasta una temperatura de +40ºC a +50ºC, dejándolo enfriar hasta temperatura normal de +15ºC a +20ºC, antes de mezclarlo con la resina.

Una vez limpia la superficie se aplicará una capa de mezcla impermeabilizante a modo de imprimación con un consumo de trescientos gramos por metro cuadrado (300 gr/m2).

Sobre esta capa se aplicará una capa de acabado constituida por la mezcla anterior con un consumo de seiscientos gramos por metro cuadrado (600 gr/m2).

Por último se procederá al espolvoreo de sílice de granulometría adecuada sobre la capa anterior aún fresca para favorecer la adherencia con el aglomerado asfáltico.

Control de calidad

El producto deberá ser almacenado en lugar seco y fresco, a una temperatura comprendida entre los 5ºC y los 25ºC.

La temperatura mínima de la superficie sobre la que se aplica el soporte será de 5ºC.

El plazo máximo de repintado será de tres (3) días, a 20ºC y sin sol.

El contenido de sólidos, en volumen, de la mezcla será de aproximadamente el 80%.

La proporción de la mezcla en peso será del 88% de resina y del 12% de endurecedor.

La mezcla no será válida si su aplicación se hiciese cuatro (4) horas después de su elaboración.

Medición y abono

La medición se hará por metros cuadrados (m2) de superficie de puente, medidos sobre planos de acuerdo a la anchura y longitud del tablero.

El precio de la unidad se obtiene aplicando a la medición obtenida el correspondiente precio del Cuadro de Precios Nº 1.

En este precio quedan incluidos todos los materiales utilizados para la ejecución de la unidad, así como todas las operaciones necesarias para su correcta puesta en obra.

6.2. ARTICULO C530/0407.- RIEGOS DE IMPRIMACIÓN

La presente unidad de obra cumplirá las especificaciones establecidas en el Artículo 530.- *"Riegos de imprimación"* del PG-3, aprobado por Orden FOM/891/2004 de 1 de marzo, completadas o modificadas con las contenidas en este Artículo del presente Pliego.

Materiales

El tipo de ligante hidrocarbonado a emplear será emulsión bituminosa ECI o ECL-1, del Artículo 213.- *"Emulsiones bituminosas".*

Dotación de los materiales

La dotación del ligante no será inferior en ningún caso a seiscientos gramos por metro cuadrado (600 g/m^2) de ligante residual.

Ejecución de las obras

Preparación de la superficie existente

Para limpiar la superficie a imprimar, se utilizarán barredoras mecánicas, máquinas de aire a presión o cualquier otro medio adecuado para la correcta limpieza de la superficie.

Medición y abono

La presente unidad se medirá y abonará de acuerdo al Artículo 530.9 del PG-3.

Unidades que corresponden a este Artículo

El presente Artículo es de aplicación a las siguientes unidades de los cuadros de precios del Proyecto:

FIR 02.- "t *Emulsión bituminosa ECI en riego de imprimación"*.

6.3. ARTÍCULO C531/0407.- RIEGOS DE ADHERENCIA

La presente unidad de obra cumplirá las especificaciones establecidas en el Artículo 531- "Riegos de adherencia" del PG-3, aprobado por Orden FOM/891/2004 de 1 de marzo, completadas o modificadas con las contenidas en este Artículo del presente Pliego.

Materiales

El tipo de ligante hidrocarbonado a emplear será emulsión bituminosa ECR-1, del Artículo 213.- *"Emulsiones bituminosas".*

Dotación de los materiales

La dotación del ligante no será inferior en ningún caso a doscientos gramos por metro cuadrado (200 g/m^2) de ligante residual.

Ejecución de las obras

Preparación de la superficie existente

Para limpiar la superficie sobre la que se vaya a efectuar el riego de adherencia, se utilizarán barredoras mecánicas, máquinas de aire a presión o cualquier otro medio adecuado para la correcta limpieza de la superficie.

Medición y abono

La presente unidad se medirá y abonará de acuerdo al Artículo 531.9 del PG-3.

Unidad que corresponde a este Artículo

El presente Artículo es de aplicación a la siguiente unidad de los cuadros de precios del Proyecto:

FIR 03.- "t *Emulsión bituminosa ECR-1 en riego de adherencia*".

6.4. ARTICULO C542/0601.- MEZCLAS BITUMINOSAS EN CALIENTE

La presente unidad de obra cumplirá las especificaciones establecidas en el Artículo 542- *"Mezclas bituminosas en caliente"* del PG-3, aprobado por Orden FOM/891/2004 de 1 de marzo, completadas o modificadas con las contenidas en este Artículo del presente Pliego.

Materiales

Ligante hidrocarbonado

El tipo de ligante hidrocarbonado a emplear es el definido en el Proyecto, y será en todo caso betún de penetración del tipo B 60/70 ó B 80/100. En capas de rodadura drenantes deberá emplearse betún modificado BM-3b.

Los betunes de penetración 60/70 y 80/100 podrán ser sustituidos por betunes de penetración que cumplan con los tipos, las especificaciones, y las condiciones nacionales especiales de la norma Europea UNE-EN 12.591, según se indica:

-B 60/70 por B 50/70

-B 80/100 por B 70/100

Árido

Se podrán emplear áridos siderúrgicos que cumplan las especificaciones de la siguiente tabla:

Carascteristicas	Requisitos	
	Sobre capas tratadas con cemento	Demás capas
Estabilidad	<5,0%	<5,0%
Indice IGE	<1,0%	<1,0%
Contenido de cal libre	<0,5%	<0,5%
Contenido ponderal de compuestos de azufre	<0,5%	<1,0%

Tipo y composición de la mezcla

El tipo de mezcla bituminosa en caliente a emplear en función del tipo y del espesor de la capa de firme a la que se destine, es la definida en el Proyecto. La dotación de ligante hidrocarbonado de la mezcla será el establecido en la fórmula de trabajo, cumpliendo las dotaciones mínimas indicadas en la tabla 542.10 del PG-3.

Ejecución:

- *Estudio de la mezcla y obtención de la fórmula de trabajo:*

La dosificación de ligante hidrocarbonado será la establecida en la fórmula de trabajo.

- *Aprovisionamiento de áridos:*

El acopio de los áridos se realizará por separado, según el tipo y el tamaño de los mismos.

Diez días antes del inicio de la ejecución de la unidad, se tendrán acopiados los áridos correspondientes a un 15% del volumen o el equivalente a 1 semana de trabajo, como mínimo.

Diariamente se suministrará, como mínimo, el volumen de áridos correspondiente a la producción de la jornada, sin descargarlos en los acopios que ya hayan sido aprobados.

Equipo necesario para la ejecución de las obras

Central de fabricación

La producción horaria mínima de la central será de 100 t/h.

Extendedoras

Las extendedoras serán autopropulsadas, y estarán dotadas de los dispositivos necesarios para extender la mezcla bituminosa en caliente con la geometría y producción previstas y un mínimo de precompactación del 80 %.

La temperatura de la mezcla en la tolva de la extendedora en el momento previo a su extendido será la indicada en la fórmula de trabajo, no siendo inferior a 145ºC.

La anchura mínima de extensión será 2,75 m, la máxima, la anchura de la plataforma.

Ejecución de las obras

Estudio de la mezcla y obtención de la fórmula de trabajo

La dosificación de ligante hidrocarbonado será la establecida en la fórmula de trabajo.

Acopio de los áridos

El acopio de los áridos se realizará por separado, según el tipo y el tamaño de los mismos.

Diez días antes del inicio de la ejecución de la unidad, se tendrán acopiados los áridos correspondientes a un 15% del volumen o el equivalente a 1 semana de trabajo, como mínimo. Diariamente se suministrará, como mínimo, el volumen de áridos correspondiente a la producción de la jornada, sin descargarlos en los acopios que ya hayan sido aprobados.

Tramo de prueba

El tramo de prueba tendrá una longitud superior a 100 m.

Medición y abono

La mezcla bituminosa en caliente se medirá y abonará de acuerdo al Artículo 542.11 del PG-3. El precio incluye los áridos, el polvo mineral y eventuales adiciones, incluso cuando éstas sean cemento.

Salvo que figure expresamente en los cuadros de precios y presupuesto del presente Proyecto, los costes del traslado a obra del equipo de aglomerado no se abonarán, considerándose incluidos en la unidad correspondiente.

En el caso de que el “traslado a obra de equipo de aglomerado” figure expresamente en los cuadros de precios y presupuesto del presente Proyecto, éste se abonará por las unidades (ud) de traslado realmente realizadas, incluyéndose en el precio el transporte y puesta a punto del equipo de aglomerado (extendedora y medios de compactación) y los elementos auxiliares necesarios para la correcta ejecución de la unidad, así como los desplazamientos del personal especializado.

Unidades que corresponden a este Artículo

El presente Artículo es de aplicación a las siguientes unidades de los cuadros de precios del Proyecto:

FIR 06.- "t *Mezcla bituminosa en caliente, en capa de rodadura"*.

FIR 05.- "t *Mezcla bituminosa en caliente, en capa intermedia"*.

FIR 04.- "t *Mezcla bituminosa en caliente, en capa de base"*.

6.5. PAVIMENTO DE MADERA

Definición

Los elementos de madera aserrada serán de calidad C-24 según EC-5 de madera de Ipé-Lapacho (Famita Bignoniaceae).

Las propiedades mecánicas de dichos elementos serán:

- Resistencia característica a flexión: 24 MPa.

- Resistencia característica a tracción paralela: 14 MPa.

- Resistencia característica a tracción perpendicular: 0,4 MPa.

- Resistencia característica a compresión paralela: 21 MPa.

- Resistencia característica a compresión perpendicular: 5,3 MPa.

- Módulo elástico paralelo medio: 11000 MPa.

La madera aserrada se protegerá según las consideraciones de la norma UNE-EN 355 como Clase de riesgo 3 con protectores hidrosolubles sales tipo CCA mediante autoclave por ciclos vacío-presión-vacío (Sistema Bethell) hasta alcanzar la clase de penetración P7 de la norma UNE-EN 351.

El acabado superficial de la madera laminada encolada se realizará mediante lasurado con pigmentación resistente a fotodegradación por radiación ultravioleta tipo Xiladecor o similar, con color a elegir por la Dirección de Obra

- Resistencia característica a compresión perpendicular: 5,3 MPa.

- Módulo elástico paralelo medio: 11000 MPa.

La madera aserrada se protegerá según las consideraciones de la norma UNE-EN 355 como Clase de riesgo 3 con protectores hidrosolubles sales tipo CCA mediante autoclave por ciclos vacío-presiónvacío (Sistema Bethell) hasta alcanzar la clase de penetración P7 de la norma UNE-EN 351.

El acabado superficial de la madera laminada encolada se realizará mediante lasurado con pigmentación resistente a fotodegradación por radiación ultravioleta tipo Xiladecor o similar, con color a elegir por la Dirección de Obra.

Medición y abono

Se abonará por metros cuadrados (m2) de superficie en horizontal de pavimento realmente ejecutada según planos.

Unidades que corresponden a este Artículo:

El presente Artículo es de aplicación a las siguientes unidades de los cuadros de precios del Proyecto:

"m2 Pavimento de madera C-24"

PARTE 7.- ESTRUCTURAS

7. ESTRUCTURAS

7.1. OBRAS DE HORMIGÓN

7.1.1. ARTÍCULO C600/08.- ARMADURAS A EMPLEAR EN HORMIGÓN ARMADO

Son de aplicación en este Artículo las especificaciones establecidas en el Artículo 600.- "Armaduras a emplear en hormigón armado" del PG-3 vigente, completadas o modificadas con las contenidas en este Artículo del presente Pliego.

Definición

Su ejecución comprende las operaciones que siguen a continuación:

- Preparación de la zona de trabajo.
- Limpieza de las armaduras.
- Limpieza del fondo del encofrado.
- Colocación de los separadores.
- Montaje y colocación de la armadura.
- Sujeción de los elementos que forman la armadura.
- Sujeción de la armadura al encofrado.

Materiales

- Según Artículo C240.- "Barras corrugadas para hormigón estructural" del PG-3.
- Según Artículo C241.- "Mallas electrosoldadas" del PG-3.
- Según Artículo C242.- "Armaduras básicas electrosoldadas en celosía" del PG-3.

Forma y dimensiones

La forma y dimensiones de las armaduras son las definidas en el Proyecto.

Doblado

El doblado de las armaduras a emplear en hormigón armado se realizará de acuerdo con el apartado 69.3.4.- "Doblado" de la vigente Instrucción de Hormigón Estructural (EHE-08).

Almacenamiento

Los aceros serán acopiados por el Contratista en parque adecuado para su conservación, clasificados por tipos y diámetros, de forma que sea fácil su identificación, recuento, pesaje y manipulación.

Colocación

Las armaduras se dispondrán según lo definido en el Proyecto, y de acuerdo con lo establecido en el apartado 69.4.1.-"Distancias entre barras de armaduras pasivas" de la EHE-08.

Control de calidad

El control de calidad se realizará de acuerdo con lo prescrito en el Artículo 87.- "Control del acero para armaduras pasivas" de la EHE-08. El nivel de control de calidad es el definido en el Proyecto para cada estructura.

Medición y abono

Las armaduras de acero empleadas en hormigón armado se abonarán por su peso en kilogramos (kg) deducido de los Planos, aplicando para cada tipo de acero los pesos unitarios correspondientes a las longitudes deducidas de dichos Planos.

El precio incluye las mermas y despuntes, que se consideran incluidos en el kilogramo (kg) de armadura, así como los medios auxiliares (grúas, andamios, etc) y el resto de operaciones y costes necesarios para la completa ejecución de la unidad.

Unidades que corresponden a este Artículo

El presente Artículo es de aplicación a las siguientes unidades de los cuadros de precios del Proyecto:

E.T. 02.- "Kg *Acero B 500 S en barras corrugadas".*

7.1.2. ARTÍCULO C610/11.- HORMIGONES

Son de aplicación en este Artículo las especificaciones establecidas en el Artículo 610.- "Hormigones" del PG-3 vigente, completadas o modificadas con las contenidas en este Artículo del presente Pliego.

Materiales

Los hormigones procederán de central, la cual dispondrá de amasadora fija y de un Control de Producción y, estará en posesión de un Sello o Marca de Calidad oficialmente reconocido por un Centro Directivo de las Administraciones Públicas (General del Estado o Autonómicas), con competencias en el campo de la construcción, por lo que no será necesario el control de los materiales componentes del hormigón, según se recoge en el Artículo 85.- "Criterios específicos para la comprobación de la conformidad de los materiales del hormigón" de la EHE-08.

No se admitirán hormigones procedentes de central que no disponga de amasadora fija en sus instalaciones.

Estudio de la mezcla y obtención de la fórmula de trabajo

La consistencia del hormigón se determinará con el cono de Abrams, según la norma UNE 83313.

Condiciones del proceso de ejecución:

No se admitirán hormigones no fabricados en central, salvo que así lo autorice expresamente la

Dirección de Obra, previa identificación y comprobación de las propiedades de las materias primas y el análisis del procedimiento de fabricación.

El hormigón colocado no tendrá disgregaciones o huecos en la masa.

Después del hormigonado las armaduras mantendrán la posición prevista en los planos de Proyecto.

La sección del elemento no quedará disminuida en ningún punto por la introducción de elementos del encofrado ni de otros.

Los defectos que se hayan producido al hormigonar se repararán enseguida, previa aprobación de la D.F.

Puesta en obra:

- No se hormigonará sin la conformidad de la D.F., una vez se haya revisado la posición de lasarmaduras (si se diera el caso) y demás elementos ya colocados.

- Si el vertido del hormigón se efectúa con bomba, la D.F. aprobará la instalación de bombeo previamente al hormigonado.

- No puede transcurrir más de 1 hora desde la fabricación del hormigón hasta el hormigonado a menos que la D.F. lo crea conveniente por aplicar medios que retardan el fraguado.

- No se pondrán en contacto hormigones fabricados con tipos de cementos incompatibles entre ellos.

- El vertido se realizará desde una altura inferior a 1,5 m, sin que se produzcan disgregaciones.

- El vertido será lento para evitar la segregación y el lavado de la mezcla ya vertida.

- El espesor de la tongada se ajustará a lo prescrito anteriormente o lo fijará la D.F. para poder asegurar el efecto de vibrado en toda la masa.

- Eventualmente, la continuación de los trabajos, en la forma que se proponga, será aprobada por la D.F.

Hormigonado en condiciones especiales:

- Si la superficie sobre la que se vaya a hormigonar ha sufrido helada, se eliminará previamente la parte afectada.

- La temperatura de los elementos donde se hace el vertido será superior a los 0ºC.

- El hormigón se pondrá en obra antes de iniciar el fraguado. Su temperatura será $\geq 5ºC$.

- La temperatura para hormigonar estará entre 5ºC y 40º.C. El hormigonado se suspenderá cuando se prevea que durante las 48 h siguientes la temperatura puede ser inferior a 0º.C. Fuera de estos límites, el hormigonado requiere precauciones explícitas y la autorización de la D.F. En este caso, se harán probetas con las mismas condiciones de la obra, para poder verificar la resistencia realmente conseguida.

- El hormigonado se suspenderá en caso de lluvia o de viento fuerte.

Juntas de hormigonado:

- En ningún caso se detendrá el hormigonado si no se ha llegado a una junta adecuada.

- Las juntas de hormigonado serán aprobadas por la D.F. antes del hormigonado de la junta.

- Al volver a iniciar el hormigonado de la junta se retirará la capa superficial de mortero, dejando los áridos al descubierto y la junta limpia. Para hacerlo no se utilizarán productos corrosivos.

- Antes de hormigonar la junta se humedecerá.

- Cuando la interrupción haya sido superior a 48 h se recubrirá la junta con resina epoxi.

Compactación:

- La compactación se realizará por vibrado. El espesor máximo de la tongada dependerá del vibrador utilizado. Se vibrará hasta conseguir una masa compacta y sin que se produzcan disgregaciones.

- El vibrado se hará más intenso en las zonas de alta densidad de armaduras, en las esquinas y en los paramentos.

- Si se estropean todos los vibradores se continuará la compactación de forma manual hasta llegar a una junta adecuada.

Curado:

- Durante el fraguado y hasta conseguir el 70% de la resistencia prevista, se mantendrán humedecidas las superficies del hormigón. Este proceso será como mínimo de:

o 7 días en tiempo húmedo y condiciones normales.

o 15 días en tiempo caluroso y seco, o cuando la superficie del elemento esté en contacto con aguas o filtraciones agresivas.

- Durante el fraguado se evitarán sobrecargas y vibraciones que puedan provocar la fisuración del elemento.

Bombeo:

- Cuando sea preciso el vertido utilizando mecanismos de impulsión se garantizará que no se produzcan segregaciones debidas al proceso. En el caso de que fueran necesarios aditivos plastificantes o fluidificantes para la puesta en obra, deberá haber sido previamente aprobada la fórmula de trabajo por la Dirección de Obra, previo informe de la planta de hormigonado.

Curado del hormigón

El curado del hormigón se realizará de acuerdo a lo establecido en el Artículo 71.6.- “Curado del hormigón” de la EHE-08. En caso de que dicho curado se realice manteniendo húmedas las superficies de los elementos de hormigón, su duración mínima será de 3 días.

Control de calidad

Será de aplicación todo lo dispuesto en el Título 8º.- “Control” de la vigente “Instrucción de Hormigón Estructural (EHE-08)” o normativa que la sustituya. El nivel de control de calidad es el definido en el Proyecto para cada estructura.

Medición y abono

La presente unidad se medirá y abonará de acuerdo al Artículo 610.10 del PG-3.

Unidades que corresponden a este Artículo

El presente Artículo es de aplicación a las unidades de los cuadros de precios del Proyecto cuyos siete primeros caracteres sean C610/XX, donde XX indica el año de la revisión.

El código de estas unidades es el siguiente:

Hormigones en masa: C610/XX.HRRCYY

H: L = hormigón de limpieza.

NE = hormigón no estructural.

A = hormigón armado.

P = hormigón pretensado.

RR: resistencia característica especificada en N/mm2 (15, 20, 25, 30, 35, 40, 45, 50).

C: consistencia del hormigón.

S: Seca.

P: Plástica.

B: Blanda.

F: Fluida.

YY numeración correlativa (00, 01, 02, 03, etc.) que recoge tanto el tamaño máximo de árido, como los diferentes tipos de ambiente.

Se consideran las siguientes unidades:

"m3 Hormigón HA-50/B/20/IIIa"

"m3 Hormigón HA-35/B/20/IIIa bombeado"

"m3 Hormigón HA-35/F/20/IIIa"

"m3 Hormigón HL-150/B/20 vertido"

7.1.3. ARÍCULO C630/07.- OBRAS DE HORMIGÓN EN MASA O ARMADO

Son de aplicación en este Artículo las especificaciones establecidas en el Artículo 630.- "Obras de hormigón en masa o armado" del PG-3 completadas o modificadas con las contenidas en este Artículo del presente Pliego.

Materiales

Hormigón

El hormigón a emplear cumplirá las especificaciones del Artículo C610/11.- "Hormigones" del presente Pliego.

Armaduras

Las armaduras a emplear cumplirán las especificaciones del Artículo C600/08.- "Armaduras a emplear en hormigón armado" del presente Pliego.

Ejecución

La ejecución de las obras de hormigón en masa o armado incluye con carácter general las operaciones siguientes:

- Colocación de apeos y cimbras. Según Artículo C681/10.- "Apeos y cimbras" del presente Pliego.
- Colocación de encofrados. Según Artículo C680/08.- "Encofrados y moldes" del presente Pliego.
- Colocación de armaduras. Según Artículo C600/08.- "Armaduras a emplear en hormigón armado" del presente Pliego.
- Dosificación y fabricación del hormigón. Según Artículo C610/11.- "Hormigones" del presente Pliego.

- Transporte del hormigón. Según Artículo C610/11.- "Hormigones" del presente Pliego.
- Vertido del hormigón. Según Artículo C610/11.- "Hormigones" del presente Pliego.
- Compactación del hormigón. Según Artículo C610/11.- "Hormigones" del presente Pliego.
- Juntas. Según Artículo C610/11.- "Hormigones" del presente Pliego.
- Curado. Según Artículo C610/11.- "Hormigones" del presente Pliego.
- Desencofrado. Según Artículo C680/08.- "Encofrados y moldes" del presente Pliego.
- Descimbrado. Según Artículo C681/10.- "Apeos y cimbras" del presente Pliego.
- Reparación de defectos. Según Artículo C610/11.- "Hormigones" del presente Pliego.

Control de la ejecución

El control de calidad se realizará de acuerdo con lo prescrito en la EHE-08, en particular en el Título 8º.- "Control". El nivel de control de calidad es el definido en el Proyecto para cada estructura.

Medición y abono

La presente unidad se medirá y abonará, de acuerdo a los cuadros de precios del Proyecto, según las unidades que la constituyen:

- Hormigón. Según Artículo C610/11.- "Hormigones" del presente Pliego.
- Armaduras. Según Artículo C600/08.- "Armaduras a emplear en hormigón armado" del presente Pliego.
- Encofrados. Según Artículo C680/08.- "Encofrados y moldes" del presente Pliego.
- Apeos y cimbras. Según Artículo C681/10.- "Apeos y cimbras" del presente Pliego.

Artículos de este Pliego relacionados con el presente Artículo

C600/08.- *"Armaduras a emplear en hormigón armado"*

C610/11.- *"Hormigones"*

C680/08.- *"Encofrados y moldes"*

C681/10.- *"Apeos y cimbras"*

7.1.4. ARTÍCULO C680/08.- ENCOFRADOS Y MOLDES

Definición y alcance:

Se incluyen en este apartado del Pliego de Prescripciones Técnicas Particulares las especificaciones técnicas para llevar a cabo las siguientes operaciones en obra:

- Encofrado en paramentos ocultos en cimentaciones y/o paramentos.

- Encofrado en paramentos vistos de estructuras, rectos o curvos, con madera machihembrada, cepillada y canteada o láminas de látex de diferentes acabados adosadas a paneles preformados.

- Encofrado en paramentos vistos de estructuras, rectos o curvos, mediante paneles metálicos o mixtos preformados

- Encofrado de distintos elementos estructurales (losas, vigas, pilares, etc.) con paneles metálicos

o mixtos preformados, o con madera, con acabados vistos u ocultos.

Se incluye el montaje y desmontaje de los elementos metálicos o de madera que forman el encofrado, para dejar el hormigón visto o para revestir.

Su ejecución comprende las operaciones que siguen a continuación:

- Limpieza y preparación del plano de apoyo.

- Montaje y colocación de los elementos del encofrado.

- Colocación de los dispositivos de sujeción y arriostramiento.

- Nivelación del encofrado.

- Disposición de aperturas provisionales en la parte inferior del encofrado, cuando haga falta.

- Humectación del encofrado.

- Desmontaje y limpieza, tras el fraguado del hormigón.

La unidad incluye todas las operaciones de montaje y desmontaje del encofrado.

Condiciones del proceso de ejecución:

Los elementos que forman el encofrado y sus uniones serán suficientemente rígidos y resistentes para soportar, sin deformaciones superiores a las admisibles, las acciones estáticas y dinámicas que comporta su hormigonado.

El interior del encofrado estará impregnado con desencofrante antes del montaje, sin que haya goteos.

La Dirección de Obra regulará, en cada caso, la utilización de estos productos, estando especialmente prohibido el empleo de gasoil o productos análogos.

El desencofrante no impedirá la ulterior aplicación de revestimiento ni la posible ejecución de juntas de hormigonado, especialmente cuando sean elementos que posteriormente se hayan de unir para trabajar solidariamente.

Será suficientemente estanco para impedir una pérdida apreciable de pasta entre las juntas.

Estará montado de manera que permita un fácil desencofrado, que se hará sin choques ni sacudidas.

Los moldes ya usados y que hayan de servir para unidades repetidas, serán cuidadosamente rectificados y limpiados.

En el caso de que los encofrados hayan variado sus características geométricas por haber padecido desperfectos, deformaciones, alabeos, etc., no se forzarán para que recuperen su forma correcta y se sustituirán por nuevos.

Llevará marcada la altura para hormigonar.

Antes de empezar a hormigonar, el contratista obtendrá de la D.F. la aprobación por escrito del encofrado.

El fondo del encofrado estará limpio antes de comenzar a hormigonar.

Se adoptarán las medidas oportunas para que los encofrados y moldes no impidan la libre retracciónde hormigón.

Ningún elemento de obra podrá ser desencofrado sin la autorización de la D.F.

El desencofrado de paramentos verticales de elementos de pequeño canto, podrá hacerse a los tres días (3 d) de hormigonada la pieza, si durante este intervalo no se han producido temperaturas bajas u otras causas que puedan alterar el procedimiento normal de endurecimiento del hormigón. Los paramentos verticales de elementos de gran canto o los horizontales no se retirarán antes de los 7 días (7 d), con las mismas salvedades anteriores.

La D.F. podrá reducir los plazos anteriores cuando lo considere oportuno, en función de diversos factores.

Para el control del tiempo de desencofrado, se anotarán en la obra las temperaturas máximas y mínimas diarias mientras duren los trabajos de encofrado y desencofrado, así como la fecha en que se ha hormigonado cada elemento.

El desencofrado del elemento se hará sin golpes ni sacudidas.

En obras de importancia y que no se tenga la experiencia de casos similares o cuando los perjuicios que se puedan derivar de una fisuración prematura fuesen grandes, se harán ensayos de información que determinen la resistencia real del hormigón y poder fijar el momento de desencofrado.

No se rellenarán las coqueras o defectos que se puedan apreciar en el hormigón al desencofrar, sin la autorización de la D.F.

Los alambres y anclajes del encofrado que hayan quedado fijados al hormigón se cortarán a ras del paramento.

En los encofrados de madera se humedecerán antes del hormigonado, con el fin de evitar la absorción del agua contenida en el hormigón y se limpiarán especialmente los fondos, dejándose aperturas provisionales para facilitar esa labor. Las juntas entre las tablas permitirán el hinchamiento de las mismas por la humedad del riego y del hormigón, sin que dejen salir pasta durante el hormigonado.

Para evitarlo, se podrá utilizar un sellante adecuado.

Se colocarán angulares metálicos en las aristas exteriores del encofrado o cualquier otro procedimiento eficaz para que las aristas vivas del hormigón resulten bien acabadas, cuando no esté prevista la utilización de berenjenos para achaflanar las aristas vivas.

El número de puntales de soporte del encofrado y su separación depende de la carga total del elemento. Irán debidamente trabados en los dos sentidos.

Si el hormigón fuera a quedar visto, la superficie resultante de la cara vista será lisa y sin rebabas o irregularidades. Si se utilizan paneles prefabricados metálicos o mixtos, se atenderá a las especificaciones de Proyecto o, en su defecto, a las de la Dirección de Obra con el objeto de disponer los encofrados de acuerdo con el replanteo del acabado previsto. Cuando se prevea la colocación de berenjenos en formación de juntas estructurales u ornamentales, se dispondrán de tal forma que el acabado cumpla las tolerancias especificadas y se rematarán las uniones y los extremos con piezas especiales, si fuera necesario.

Antes de hormigonar se comprobará la situación relativa de las armaduras, el nivel, el aplomado y la solidez del conjunto.

No se transmitirán al encofrado vibraciones de motores, salvo que fueran encofrados dinámicos.

Cuando entre la realización del encofrado y el hormigonado pasen más de tres semanas, se hará una revisión total del encofrado.

Se preverán en las paredes laterales de los encofrados ventanas de control que permitan la compactación del hormigón. Estas aberturas se dispondrán con un espaciamiento vertical y horizontal no más grande de un metro (1 m), y se cerrarán cuando el hormigón llegue a su altura.

En épocas de vientos fuertes se atirantarán con cables o cuerdas los encofrados de los elementos verticales de esbeltez más grande de 10.

En casos particulares en que se utilicen encofrados perdidos, éstos deberán tener la suficiente hermeticidad para que no penetre en su interior lechada de cemento. Habrán de sujetarse adecuadamente a los encofrados exteriores para que no se muevan durante el vertido o la compactación del hormigón. Se adoptarán las medidas necesarias para evitar su flotación en la masa de hormigón fresco.

Criterios de medición y abono

Metros cuadrados (m2) de superficie medida según las especificaciones del Proyecto y que se encuentre en contacto con el hormigón.

El precio incluye encofrado, desencofrado, desencofrante, limpieza del fondo de encofrado previa al hormigonado y todos los materiales, útiles y medios auxiliares precisos para la formación de los moldes, los berenjenos y angulares para la formación de chaflanes y aristas, los apuntalamientos y peos necesarios para la estabilidad del encofrado y las operaciones necesarias para vertido y el vibrado del hormigón, así como la recogida, limpieza y acondicionamiento de los elementos utilizados.

Normativa de obligado cumplimiento:

- Instrucción de Hormigón estructural EHE.

- PG 3/75 Pliego de Prescripciones Técnicas Generales para Obras de Carreteras y Puentes y actualizaciones.

- NTE-EME "Norma Tecnológica de la Edificación. Estructuras de madera. Encofrados".

Unidades que corresponden a este Artículo:

El presente Artículo es de aplicación a las siguientes unidades de los cuadros de precios del Proyecto:

"m2 Encofrado curvo con madera machihembrada" (Para el arco)

"m2 Encofrado recto"

7.1.5. APEOS Y CIMBRAS

La presente unidad de obra cumplirá las especificaciones establecidas en el Artículo 681.- “Apeos y cimbras” del PG-3 y las Recomendaciones y Manuales Técnicos, Estructuras y Edificación (E-11), para el

"Diseño y Utilización de Cimbras".

Definición y alcance:

Se definen como los armazones provisionales que sostienen un elemento estructural mientras se está ejecutando, hasta que alcanza resistencia propia suficiente.

La ejecución de la unidad de obra incluye las siguientes operaciones:

- Proyecto de la cimbra y cálculo estructural.

- Montaje de la cimbra y de sus apuntalamientos.

- Nivelación de la cimbra.

- Pruebas de carga de la cimbra y sus apuntalamientos.

- Descimbrado y retirada de todos los elementos de la cimbra y de los elementos de cimiento que puedan perjudicar al resto de la obra, restituyendo el terreno sobre el que se haya realizado la cimentación a su estado natural inicial.

Ejecución de las obras:

- *Proyecto de medios auxiliares:*

El contratista adjudicatario de la obra deberá redactar un proyecto específico completo de la utilización de apeos y cimbras, que será visado por el Colegio Profesional correspondiente y, deberá estar firmado por un técnico competente, con probados conocimientos en este tipo de medios

auxiliares.

En un anejo a dicho proyecto se incluirán, al menos, memoria de cálculo, planos de definición de todos los elementos y manual con los procedimientos del primer montaje.

La flecha máxima de la cimbra y sus elementos auxiliares deberá ser aprobada por el D.O.

Además, en aquellos casos en que los equipos auxiliares se apoyen o modifiquen la estructura del elemento que se construye, el contratista solicitará al D.O., previamente a su utilización, un informe suscrito por el autor del proyecto de construcción del elemento en el que se compruebe que éste soporta las cargas que le transmite el medio auxiliar en las mismas condiciones de calidad y seguridad previstas en el mencionado proyecto.

No se podrá proceder al montaje de la cimbra hasta que no esté revisado y aprobado el proyecto de la misma por la D.O.

Cumplimiento de la reglamentación vigente:

Todos los apeos y cimbras empleados, y sus elementos componentes, así como los preceptivos proyectos para su utilización, deberán cumplir con la reglamentación específica vigente tanto en España como en la Unión Europea y ostentar el marcado CE, en aquellos casos en que sea de aplicación.

Montaje, funcionamiento y desmontaje de elementos auxiliares:

Durante las fases de montaje, funcionamiento, traslado y desmontaje de cualquier apeo o cimbra, todas las operaciones relativas a dichas fases deberán estar supervisadas y coordinadas por técnicos con la cualificación académica y profesional suficiente, que deberán estar adscritos a la empresa propietaria del elemento auxiliar y a pie de obra, con dedicación permanente y exclusiva a cada elemento auxiliar, y que deberán comprobar, además, que dichos elementos cumplen las especificaciones del proyecto, tanto en su construcción como en su funcionamiento.

Además, después del montaje de la estructura o del elemento auxiliar, y antes de su puesta en carga, se emitirá un certificado por técnico competente de la empresa propietaria del elemento auxiliar, en el que conste que el montaje realizado es correcto y está conforme a proyecto y normas. Dicho certificado deberá contar con la aprobación del contratista en el caso de que no coincida con la empresa propietaria del elemento auxiliar. Copia del certificado correspondiente se remitirá al director facultativo de la obras para su verificación y comprobación.

No se realizará ningún hormigonado sobre cimbra sin la previa autorización del Director de Obra.

El jefe de obra de la empresa contratista se responsabilizará de que la utilización del medio auxiliar, durante la ejecución de la obra, se haga conforme a lo indicado en el Proyecto y en sus correspondientes manuales y establecerá los volúmenes y rendimientos que se pueden alcanzar en cada unidad, acordes con las características del elemento auxiliar de forma que en todo momento estén garantizadas las condiciones de seguridad previstas en el proyecto.

Prevención de riesgos laborales

El PSS, al que se refiere el artículo 7 del R.D. 1627/1997, de 24 de Octubre, por el que se establecen disposiciones mínimas de seguridad y salud en las obras de construcción, que el contratista ha de elaborar, incorporará, en relación con la prevención de riesgos laborales, las previsiones establecidas en este Artículo del presente Pliego.

Descimbrado

El descimbrado de los elementos estructurales que han de soportar cargas a partir del mismo, se llevará a cabo cuando el último hormigón vertido alcance una resistencia igual o superior al 80% de la resistencia característica que se le exige, determinada mediante rotura de probetas como se indica en la EHE-08.

Medición y abono:

La presente unidad se medirá y abonará, de acuerdo a los cuadros de precios del Proyecto, por los metros cúbicos (m3), medidos entre el paramento inferior de la obra y la proyección en planta de la misma sobre el terreno natural.

El precio incluye el proyecto y cálculo estructural de la cimbra con sus apuntalamientos, nivelación, prueba de carga, certificado de montaje, transporte y todos los materiales, operaciones y medios auxiliares necesarios para su construcción, montaje y retirada.

Se consideran incluidas dentro de este precio todas las operaciones y elementos necesarios para asegurar los servicios y servidumbres de paso existentes así como su posterior retirada.

La cimentación se abonará de forma independiente según las unidades de obra que la constituyan, de acuerdo a lo establecido en los cuadros de precios del Proyecto.

Unidades que corresponden a este Artículo:

El presente Artículo es de aplicación a las siguientes unidades de los cuadros de precios del Proyecto: "m3 Cimbra".

7.2. ESTRUCTURAS METÁLICAS

7.2.1. ARTÍCULO C640/07.- ESTRUCTURAS DE ACERO

Son de aplicación en este Artículo las especificaciones establecidas en el Artículo 640.- "Estructuras de acero" del PG-3 completadas o modificadas con las contenidas en este Artículo del presente Pliego.

Se define como estructura de acero los elementos o conjuntos de elementos de acero que forman la parte resistente y sustentante de una construcción.

Las obras consistirán en la ejecución de las estructuras de acero, y de las partes de acero correspondientes a las estructuras mixtas de acero y hormigón.

No es aplicable este Artículo a las armaduras de las obras de hormigón, ni a las estructuras o elementos construidos con perfiles ligeros de chapa plegada.

Esta unidad incluye

- A la ejecución en taller de la estructura.
- A la expedición, transporte y montaje de la misma.
- A la prestación y erección de todos los andamios y elementos de elevación y auxiliares que sean necesarios, tanto para el montaje como para la realización de la función inspectora.
- A la prestación del personal y materiales necesarios para la prueba de carga de la estructura, si ésta viniera impuesta por el Pliego de Prescripciones Técnicas Particulares.
- A enviar al Contratista de las fábricas u hormigones, en caso de ser otro distinto, dentro del plazo previsto en el contrato, todos aquellos elementos de la estructura que hayan de quedar anclados en la obra no metálica, incluidos los correspondientes espárragos o pernos de anclaje.

Cuando el Contratista que haya de realizar el montaje no sea el que se haya ocupado de la ejecución en taller, éste último vendrá especialmente obligado:

- A efectuar en su taller los montajes en blanco, parciales o totales, que estime necesarios para asegurar que el ensamble de las distintas partes de la estructura no presentará dificultades anormales en el momento de efectuar el montaje definitivo, haciéndose responsable de las que puedan surgir.
- A marcar en forma clara e indeleble todas las partes de la estructura, antes de expediría; registrando estas marcas en los planos e instrucciones que debe enviar a la entidad que haya de ocuparse del montaje.
- A suministrar y remitir con la estructura, debidamente embalados y clasificados, todos los elementos de las uniones de montaje, con excepción de los electrodos que se requieran para efectuar las soldaduras de obra,

Forma y dimensiones

La forma y dimensiones de la estructura son las definidas en el Proyecto.

Se llevaran a cabo según lo establecido en el articulo 640.5.2

Uniones Soldadas

Los empalmes a realizar son los definidos en el Proyecto.

Protección

El sistema de pintado para la protección de las estructuras de acero estará constituido por una serie de aplicaciones de diferentes pinturas, cada una de las cuales con una misión específica. Todas las pinturas a emplear en un mismo sistema de pintado serán de un mismo fabricante o suministrador.

Por lo general, y salvo indicación en contra del D.O., las aplicaciones a realizar sobre la estructura serán las siguientes:

Preparación de la estructura

Las superficies metálicas sobre las que se va a aplicar el sistema de pintado se chorrearán hasta grado Sa2 ½ según Norma SIS 05.59.00 del Estándar Sueco (o Metal casi blanco PSC-SP-10 de las Especificaciones de preparación de la superficie 1.971 del Consejo de Pintado de Estructuras de Acero o 2ª Calidad según la Norma Británica BS 4232-1967, o al grado Sa2 ½ según Norma ISO-8501) mínimo en el momento de la aplicación, con un perfil de rugosidad de 30 a 50 micras, empleando un abrasivo silíceo con un diámetro de partícula de 0,8 a 1,5 mm.

El aire a presión a emplear estará seco y libre de contaminación, y con la presión suficiente para mantener el estándar del chorro especificado.

Si el chorreado se efectúa en instalaciones automáticas de granallado, se utilizará granalla metálica.

Los abrasivos empleados estarán libres de agua y contaminantes, y tendrán la dureza apropiada para conseguir la rugosidad requerida.

Una vez efectuado el chorreado, las superficies serán cepilladas con útiles de cerda o fibra totalmente limpios, se soplará con aire comprimido y/o limpiará con por aspiración para eliminar todo resto de residuos que pudieran estar depositados en las cavidades y esquinas del metal tratado. En caso de que quedasen restos de aceites o grasas, se limpiarán mediante lavado con disolventes, limpiadores químicos o detergentes orgánicos.

Imprimación anticorrosiva

La imprimación cumplirá las especificaciones contenidas en el Artículo 272 del PG-3 completadas o modificadas con las contenidas en este Artículo del presente Pliego. Se realizará a base de Epoxi Poliamida pigmentada con fosfato de cinc de rápido secado (mínimo de 3 horas a 20ºC), con un espesor medio de película seca de 75 micras, con un máximo de 100 y un mínimo de 70 micras.

La aplicación de la capa de imprimación se realizará en todos los casos en taller.

Pintura intermedia

Se aplicará una capa de pintura Epoxi Poliamida con hierro micáceo con un espesor medio de película seca de 100 micras, con un máximo de 125 y un mínimo de 90 micras, que cumplirá las especificaciones contenidas en el Artículo 272 del PG-3 completadas o modificadas con las contenidas en este Artículo del presente Pliego.

Previamente se habrá aplicado a brocha una mano de la misma pintura intermedia en cantos, soldaduras, etc., de 100 micras de espesor, para asegurar la cubrición de los puntos conflictivos.

La aplicación de la capa de esta pintura intermedia se realizará en todos los casos en taller.

Pintura de acabado

Se aplicará una capa de pintura Esmalte Poliuretano repintable con un espesor medio de película seca de 50 micras, con un máximo de 100 y un mínimo de 45 micras, en color a determinar por el D.O., que cumplirá las especificaciones contenidas en el Artículo 273 del PG-3 completadas o modificadas con las contenidas en este Artículo del presente Pliego

Previamente se habrá aplicado a brocha una mano de la misma pintura de acabado en cantos, soldaduras, etc., de 50 micras de espesor, para asegurar la cubrición de los puntos conflictivos.

La pintura de acabado será de alta retención de brillo y color, y no tendrá límite de repintabilidad, para posibilitar los trabajos de reparación y futuros trabajos de mantenimiento.

La aplicación de la pintura de acabado se realizará en todos los casos en obra.

Medición y abono

La presente unidad se medirá y abonará de acuerdo al Artículo 640.13 del PG-3.

El precio incluye el sistema de pintado para la protección de la estructura, así como la preparación y limpieza previa de la misma. También incluye los trabajos complementarios: suministro de energía y agua, cimentaciones, explanaciones, etc., necesarios para la correcta ejecución de la unidad, así como la demolición y retirada de los materiales empleados en la realización de esos trabajos complementarios y la reposición del terreno al estado inicial.

Unidades que corresponden a este Artículo

El presente Artículo es de aplicación a las siguientes unidades de los cuadros de precios del Proyecto:

E.T01.- *"*Kg *Acero S 355 J2 en estructura de acero".*

7.2.2. PENDOLAS

Son los elementos constituidos a base de cordones de acero de alta resistencia y que sirven de tirantes de sustentación de distintas estructuras.

20.7.2 Materiales

Cordón

El tipo de cordón a emplear será el indicado en la Documentación Técnica del Proyecto.

El cordón deberá cumplir las siguientes condiciones adicionales:

Resistencia a la fatiga:

El cordón deberá resistir 2 x 106 ciclos de carga de tracción alternada con una variación de esfuerzo de 17,5 kg/mm2, siendo el esfuerzo superior o igual al 80% del esfuerzo de rotura real, medido en una muestra adyacente a la utilizada en el ensayo de fatiga.

Ensayos de homologación:

Para poder ser aceptado, cualquier cordón propuesto para los tirantes será sometido a una serie de ensayos de fatiga para su homologación.

Los ensayos podrán efectuarse en cualquier laboratorio aceptado por el Ingeniero Director. La serie consistirá en dos ensayos hechos con dos muestras de por lo menos un metro (1 m) de longitud. Para ser homologado, el cordón deberá resistir, sin rotura de alambre, 2 ensayos a 2 x 106 ciclos.

Con objeto de acortar la duración de los ensayos, y en consecuencia, el proceso de homologación, el suministrador potencial del cordón podrá realizar los ensayos de tracción alternada con una variación de esfuerzo de 22 kg/mm2, siendo el esfuerzo superior o igual al 80% del esfuerzo de rotura real, medido en una muestra adyacente. Para ser homologado con estas condiciones de ensayo, el cordón deberá resistir, sin rotura de alambre, 4 ensayos a 100.000 ciclos.

Ensayos de recepción:

Cada lote de cordón se someterá, antes de proceder a su expedición, a un control que permita comprobar su resistencia a la fatiga.

Muestreo:

Se tomará una muestra de diez metros (10 m) de cordón debidamente identificada por cada "unidad de producción", tal como se define en la Norma EU 138/79, es decir, la longitud de producción de cordón de una masa equivalente a 7 coronas de alambre.

Entre estas muestras, el Ingeniero Director, o su representante autorizado, seleccionará tres (3) por lote de expedición, con el fin de realizar ensayos de fatiga, tal y como se definen en el párrafo de "Condiciones adicionales", o su variante del párrafo "Ensayos de homologación", antes descritos.

Número de ensayos y criterios de aceptación:

a) Lote inferior a 50 toneladas:

Se realizará un ensayo de fatiga con una de las tres muestras seleccionadas.

El lote es aceptado si el resultado de este ensayo es satisfactorio (nº de ciclos sin rotura, según la variación de esfuerzo aplicada).

Si el ensayo no es satisfactorio se procederá a otros dos ensayos con otras dos muestras seleccionadas:

- El lote se acepta si los dos resultados son satisfactorios.

- l lote se rechaza si uno de los ensayos no es satisfactorio.

b) Lote igual o superior a 50 toneladas:

Se realizarán dos ensayos con dos de las muestras seleccionadas.

El lote se acepta si los dos ensayos son satisfactorios.

El lote se rechaza si ninguno de los ensayos es satisfactorio.

Si solo uno de los ensayos es satisfactorio, se procederá a un tercer ensayo con la tercera muestra del lote:

- El lote se acepta si el tercer ensayo es satisfactorio.

- El lote se rechaza si el tercer ensayo no es satisfactorio.

Cada lote de cordón deberá además satisfacer las otras exigencias de control de calidad definidas en la Norma ASTM A-416-80 o explícitamente definidas en el pedido.

Anclajes

Materiales:

Las piezas resistentes de los anclajes se fabricarán con aceros aleados de gran resistencia, a los que se dará el tratamiento térmico apropiado para obtener las características siguientes:

- Tubo de anillo de reglaje: acero CK35 DIN, 1035 AISI SAE, o equivalente. Resistencia mínima a la rotura 60 kg/mm2; alargamiento mínimo a la rotura 5%.

- Bloques de anclaje: acero tipo 34CrMo4 DIN, 4135 AISI SAE, o equivalente. Resistencia mínima de ruptura 110 kg/mm2; alargamiento mínimo a ruptura 10%.

- Mordazas: acero tipo 17 CrNiMo6 DIN o equivalente. Resistencia mínima a la rotura 105 kg/mm2; alargamiento a la ruptura 8%. Dureza superficial HV5, hasta una profundidad de 0,1 mm, no inferior a 650.

Dureza HV5 en la masa no inferior a 350.

- Placas de apoyo: acero tipo ST 52 DIN, AE-355-D UNE 36-080 o equivalente,, oxicortado de chapa gruesa, no tratado. Resistencia mínima a la rotura 52 kg/mm2; alargamiento mínimo a la rotura 18%.

- Tubos de transición: tubos de calidad comercial, según UNE 36-011 (tipo F-113). Amortiguadores

Como se indica en los planos, se instalará a la salida del mástil y del dintel, alrededor del tubo protector de cada tirante, un amortiguador o guía flexible, a base de neopreno.

Los componentes metálicos de estas guías consistirán en chapa de A-33 a A-34 y tubo de pared gruesa tipo F-113.

El neopreno tendrá una dureza Shore A = 50 ± 5, un alargamiento a la rotura no inferior al 500%, y una resistencia a la rotura no inferior a 100 kg/cm2. El neopreno tendrá además una buena resistencia al ozono.

El amortiguador de neopreno podrá consistir en más de una sola pieza, por ejemplo dos medios casquillos. El ajuste final de posición del amortiguador se hará después de la inyección y fraguado de cada tirante, por soldadura o apriete, siempre y cuando se hayan previsto lumbreras suficientes en las piezas componentes para asegurar el centrado correcto del amortiguador.

Ejecución de las obras

La empresa suministradora de los tirantes deberá proponer los detalles de dos métodos para la ejecución de los mismos, dentro de los treinta días posteriores a la recepción de la orden de aprovisionamiento y fabricación de los componentes de los mismos.

El primer método consistirá en proceder a fabricar completamente cada tirante en un banco de fabricación situado a pie de obra, montarlo en la estructura completo, y proceder a su tesado.

El segundo método consistirá en instalar separadamente en la estructura los anclajes superior e inferior, la vaina vacía, con ayuda de cables portadores u otro método apropiado y enfilar a continuación los cordones uno a uno, hasta completar el tirante. El método propuesto precisará la manera de tesar el tirante, parcial o totalmente, hasta obtener y controlar la fuerza según lo indicado por el Ingeniero Director. Se procederá a continuación al relleno de los anclajes y a la inyección de la vaina con lechada de cemento, como en el primer método.

Las operaciones de tesado y retesado se realizarán estrictamente en las horas del día que fije el Director de las Obras.

Asimismo, se deberá asegurar la protección de los tirantes contra la corrosión, lo cual se asegurará como sigue:

- Anclajes: El interior de los anclajes se inyectará con un compuesto a base de resina, cuyas características técnicas definirá y aportará el suministrador del anclaje.

Además el anclaje se protegerá exteriormente con grasa y el conjunto se cubrirá con una tapa modelo aprobada por el Director de Obra, que se fijará mediante tornillo a la placa de apoyo.

- Otras piezas metálicas: las partes metálicas del tirante, situadas en el interior de la estructura, recibirán 75 micras de película seca de imprimación anticorrosiva de silicato inorgánico de cinc de dos componentes.

Las piezas metálicas expuestas al exterior de la estructura recibirán una capa de cinc metalizado en frío, de un espesor mínimo de 100 micras, seguida de una capa de 60 micras de película seca de pintura epoxi de dos componentes, de color a elegir por el Director de Obra.

La empresa suministradora de los tirantes presentará para su aprobación por el Director de la Obra el procedimiento y programa que se propusiese utilizar para la inyección de los tirantes, y en particular se

detallará:

- El equipo a utilizar: mezcladora, tanque de reserva, bomba (tipo, caudal, presión, dispositivo de

limitación de presión), válvulas, conexiones, presiones máximas permitidas por los distintos componentes.

- Las consignas y disposiciones particulares previstas en caso de incidente o cuando puedan presentarse

condiciones climáticas desfavorables.

Medición y abono

Los tirantes se abonarán por kilogramos (kg) puestos en obra, estableciéndose la medición acorde a la sección nominal del cordón utilizado.

La longitud del tirante se establecerá según la longitud técnica comprendida entre las caras exteriores de las placas de apoyo, sin provisión de sobrelongitudes ni desperdicios.

Se incluye en el precio la provisión de todos los materiales y accesorios citados en esta especificación y mostrados en los planos: cordón, anclajes, tubos, vainas, amortiguadores, protección contra la corrosión y acabados; y asimismo, el suministro, instalación, tesado y montaje y/o reglaje, inyección de los anclajes y de la parte libre, y suministro y colocación de los tubos antivandálicos de acero inoxidable.

Queda entendido que el costo de los ensayos necesarios para la recepción del cordón y la determinación de la fórmula de la lechada de inyección, está incluido en el precio de los tirantes

7.3. CIMENTACIONES

7.3.1. ARTÍCULO C671/10.- CIMENTACIONES POR PILOTES DE HORMIGÓN ARMADO MOLDEADOS IN SITU

Definición y alcance:

Se definen como cimentaciones por pilotes de hormigón armado moldeados "in situ" las realizadas mediante pilotes de hormigón armado, cuya ejecución se ha efectuado perforando previamente el terreno y rellenando la excavación con hormigón fresco y las correspondientes armaduras.

En esta unidad de obra, se consideran incluidas:

- El replanteo.

- La ejecución de un sondeo previo por el eje de cada pilote, con un empotramiento ya expecificado en el anejo de cimentaciones en roca sana.

- La preparación de una superficie, o plataforma de trabajo, para la maquinaria y el adecuado acondicionamiento de las instalaciones necesarias.

- La retirada o aportación del material necesario para la obtención de la plataforma de trabajo de la maquinaria.

- Suministro de agua, lodos tixotrópicos y cualquier otro elemento necesario, así como el mantenimiento de un nivel superior al freático.

- La ejecución de la entubación en suelos, hasta el contacto con la roca, que podrá realizarse mediante hinca o sondeo y relleno con lodos tixotrópicos.

- En los casos que sea necesario, según proyecto o a juicio de la Dirección de Obra, la entubación no recuperable (camisa perdida).

- La perforación y extracción de los suelos de forma simultánea con la ejecución de la entubación.

También se considera incluida dentro de la unidad la perforación de elementos ocultos y elementos estructurales provisionales.

- La perforación en roca mediante trépano o rotativa con picos de widia con un empotramiento mínimo de dos y medio (2,5) diámetros, medidos, no desde el inicio del uso del trépano, sino desde la cota en la que todo el perímetro de la perforación es roca.

- La limpieza del fondo de la perforación de todos los productos existentes mediante un sistema de inyección (de aire) inversa.

- La colocación de la armadura, en forma de jaula, dispuesta uniformemente en el perímetro y con sus correspondientes rigidizadores.

- La instalación de cuatro (4) tubos metálicos, por pilote, de 75 mm de diámetro interior, fijos a la armadura y a la camisa con puntas de soldadura, en toda la longitud de la perforación hasta 20 cm por encima del fondo de la misma.

- El suministro del hormigón.

- El hormigonado continuo del pilote hasta un (1) metro por encima del fondo del encepado, con la retirada simultanea (camisa recuperable) o no (camisa perdida) de la entubación, incluido el exceso de hormigón que se pueda producir en la ejecución del pilote.

- La reperforación de los cuatro (4) tubos de 75 mm observando los contactos, llegando 5 m por debajo del extremo inferior del pilote y, como mínimo un (1) metro por debajo de la última cavidad.

- La inyección de agua en las reperforaciones mencionadas incluyendo la utilización de mangueras y tubos ranurados con posibilidad de seccionamiento, observando si existe recirculación de agua entre dos o más tubos.

- El tratamiento de punta del pilote a base de inyección de mortero en las reperforaciones que haya recirculación, inyectando individualmente las que no la tengan.

- El descabezado del exceso de pilote hasta la cota del fondo del encepado.

- Ensayo sónico de pilotes.

- Desplazamiento de la maquinaria entre tajos.

- Eventualmente, si fuera necesario, cesta de grava en punta de pilotes.

- Cuantas operaciones y medios auxiliares fueran precisos para la realización de las tareas indicadas en el presente pliego, incluso medios marítimos para la ejecución de pilotes con camisa perdida desde pontona.

Materiales:

Hormigón:

Cumplirá las siguientes condiciones:

- Tener una docilidad suficiente para garantizar una continuidad absoluta en su ejecución, aun extrayendo la entubación. En este sentido, se considera que la consistencia media en el cono de Abrams será la correspondiente a un asiento entre 16/18 cm (consistencia fluida). Hormigón previamente aditivado (plastificante en planta y superfluidificante en obra).

- La relación agua/cemento debe ser superior a 0,6 y el diámetro máximo del árido de 20 mm.

- No ser atacable por el terreno circundante.

- La resistencia característica del hormigón será de doscientos kilogramos por centímetro cuadrado (35 N/mm2), salvo prescripción en sentido contrario de los Planos.

- Las condiciones expuestas son difíciles de conseguir con menos de 400 kilogramos de cemento por metro cúbico de hormigón, pero si se consigue, la Dirección de la Obra podrá admitir dosificaciones hasta de 350 kilogramos de cemento por metro cúbico (m3) de hormigón.

- Si el hormigonado es bajo el agua, el contenido de cemento será superior a los 400 kilogramos de cemento por metro cúbico (m3) de hormigón, con un asiento del cono de Abrams inferior a 15 cm.

Armaduras:

Cumplirá las siguientes condiciones:

- Las armaduras llevarán los elementos necesarios para su izado y colocación.

- La armadura se ajustará al tipo de acero y diámetro de barras indicados en los planos del Proyecto.

- El pilote dispondrá de unas armaduras dispuestas uniformemente en el perímetro de la sección formando una jaula.

- El recubrimiento nominal será el precisado en planos, colocándose espaciadores que tengan una resistencia a la corrosión, al menos, igual a la del hormigón empleado.

- Las armaduras se unirán entre sí mediante soldadura, pudiendo utilizar ataduras, únicamente, en los pilotes de menos de 10 m de longitud. Los solapes serán los establecidos por la normativa vigente, con un solape mínimo según su definición en planos, soldándose en toda su longitud.

Mortero para inyecciones

Se empleará mortero 1,5-2: 1 (arena: cemento), con una relación agua/cemento de 0,35 y adicionándoles 4,5 gr de expansivo por kilogramo de cemento.

Cargadero:

El encepado ha de realizarse con cementos de categoría no superior a 35, en una cantidad de 300 a 400 kilogramos de cemento por metro cúbico de hormigón. La resistencia característica mínima a conseguir será de 35 N/mm2.

El árido máximo a emplear no será en ningún caso superior a 40 mm y el asiento en el cono de Abrams será:

- De 3 a 5 cm para hormigón de consistencia plástica, a compactar por vibrado.

- De 6 a 9 cm para hormigón de consistencia blanda, a compactar mediante picado con barra.

Los encepados se construirán sobre un hormigón de limpieza de 15 N/mm2 de resistencia característica.

Las armaduras se situarán con un recubrimiento nominal de 35 mm.

Sobre el hormigón y armaduras del encepado, se efectuarán los controles utilizados en otros elementos de la obra ejecutados con estos materiales.

Ejecución:

Trabajos previos:

Para la construcción del pilote se dispondrá una superficie de trabajo sensiblemente horizontal, libre de obstáculos y de anchura suficiente para el trabajo de la maquinaria. El nivel freático deberá quedar a una profundidad del orden de un metro y medio (1,5 m) por debajo de la superficie del terreno. Si esta condición no se cumple, se construirá un terraplén, con un grado de compactación no inferior al del terreno natural. La superficie de trabajo estará convenientemente drenada para evitar encharcamientos en periodos lluviosos.

Una vez realizada la plataforma de trabajo y efectuado el replanteo, se procederá a la ejecución de un sondeo en el eje de cada pilote, con un empotramiento mínimo, igual al determinado en proyecto, en roca sana.

Perforación del pilote o entubación

La perforación de un pilote no podrá comenzar antes del fraguado del hormigón de otro pilote vecino, si la distancia entre las generatrices más próximas es menos de tres (3) veces el diámetro del pilote. La Dirección de la Obra será la encargada de dictaminar el plazo necesario para el inicio de la nueva perforación.

La entubación se introducirá en el terreno acompañando la excavación y siempre por delante de la misma, salvo en el caso de haya que atravesar capas intermedias que obliguen al uso de trépano.

Durante la excavación se mantendrá el nivel del agua, en el interior de la entubación, un (1) metro por encima del nivel freático. No se admitirá bombeo durante la ejecución del pilote. En caso de que el pilote atravesara corrientes de agua subálvea de velocidad apreciable, será indispensable utilizar entubación no recuperable en la zona afectada por dicha corriente.

En terrenos muy blandos o susceptibles de sifonamiento, durante la excavación, el nivel del agua en el interior de la entubación se mantendrá un metro (1 m) por encima del nivel freático. En terrenos coherentes de gran resistencia no es preciso entubar la longitud de empotramiento de la punta. Se tomarán las precauciones necesarias para evitar el desprendimiento de las paredes.

La entubación se realizará con tubería soldada, en una sola pieza, de 10 mm de espesor y refuerzos en los extremos de 20 mm, hincándola con la ayuda de un vibrohincador, hasta alcanzar el nivel de la roca. La tubería se instalará por lo menos hasta la cota de trabajo de la maquinaria. La entubación debe llegar hasta el final del pilote. La superficie interior de los tubos debe ser completamente lisa. Las

juntas serán roscadas o soldadas y han de ser impermeables. En el caso de pilotes sondeados la excavación en la entubación se hará hasta los 30 ó 50 últimos centímetros del tubo.

Si se emplean entubaciones hincadas la entubación irá profundizándose a golpe de hinca dado sobre un tapón de hormigón colocado en el fondo de la entubación, se llevará a cabo de tal forma que el suelo por el que ésta atraviesa vaya desplazándose hacia los lados, compactándolo al mismo tiempo, sin que se produzca ninguna extracción de material.

Si se encontraran obstáculos durante la hinca o perforación, se eliminarán estos por medios mecánicos. Los explosivos no están permitidos dentro de la perforación. No está permitida tampoco la operación de lavado dentro de la entubación. Perforaciones hechas que no hayan de utilizarse, habrán de ser rellenadas con hormigón.

El vaciado del pilote se realizará por medio de una perforadora que transmite un movimiento de rotación a una herramienta de corte, que puede ser una hélice o cuchara, según el estrato a atravesar.

El empotramiento en la roca, que se realizará mediante trépano de cruz, será de al menos dos y medio (2,5) diámetros a partir del punto en el que todo el perímetro de la perforación se encuentre en roca. Posteriormente, se repasará la perforación con trépano circular.

En la perforación final, no entubada, se tendrá especial cuidado con la limpieza de las paredes y el fondo antes de colocar las armaduras y verter el hormigón, con el fin de garantizar el que no se produzcan desprendimientos en las paredes durante estos trabajos. Para esta limpieza, del fondo del pilote, se utilizará tanto, una cuchara de fondo como un sistema de inyección inversa hasta conseguir la completa limpieza de la perforación.

En el caso de que el pilote atravesara corrientes de agua subálveas de alguna importancia, será indispensable utilizar una entubación no recuperable. El hincado de la misma se realizará previamente a la instalación de la tubería de perforación.

Cuando en la sección de alguno de los pilotes a construir, se encuentre algún pilote anterior o restos de cualquier elemento hincado, que imposibilite la remoción del elemento desde la parte superior, se procederá de la siguiente forma.

Se realizará la entubación y excavación en suelos de un pilote teórico adosado al pilote existente; a continuación se procederá a realizar un vibrado de la entubación recuperable (la cual se habrá dispuesto lo más próxima como sea posible al pilote en cuestión). Una vez hecho esto y asegurado que se haya producido el despegue entre pilote y terreno, se procederá a la extracción en primer lugar de la camisa recuperable y a continuación de los trozos del pilote existente; reanudándose a partir de este punto con las labores de ejecución del nuevo pilote en su emplazamiento definitivo.

En el caso de que los pilotes no cumplan las especificaciones antedichas el Contratista realizará a su cuenta el cálculo y la ejecución de los pilotes y elementos adicionales que compensen los errores cometidos.

Si algún pilote perforado es desechado, deberá ser rellenado siempre con hormigón.

Una vez terminada la excavación se procederá a la extinción del detritus que haya podido almacenarse en el fondo de la cavidad. Sin embargo, si la sedimentación en dicho fondo rebasase los cinco centímetros (5 cm), se echará en el mismo un volumen de gravilla muy limpio y de graduación uniforme, sin nada de arena, equivalente a unos quince centímetros (15 cm) de altura dentro del taladro construido. Esta gravilla formará un apoyo firme para el pilote, absorbiendo en sus huecos la capa de fango que haya sido imposible limpiar. Cuando no pueda garantizarse la eliminación del detritus, se preverán dispositivos para inyectar la punta del pilote, una vez terminado, eventualmente con lavado previo a presión.

Colocación de armaduras

La colocación de la armadura debe efectuarse inmediatamente después de haber limpiado el fondo.

La armadura llevará los elementos necesarios para su izado y colocación, así como para evitar sumovimiento durante el hormigonado.

Para pilotes profundos se podrá dividir la armadura vertical en dos o más partes que se introducirán en la perforación manteniéndolas suspendidas y centradas durante las operaciones de soldadura de todas las barras.

Hormigonado:

Después de la limpieza del fondo del pilote se colocarán las armaduras y cuatro (4) tuberías de 75 mm de diámetro interior (desde 20 cm por encima del fondo hasta la explanada de trabajo), debidamente sujetas entre sí y a la camisa con puntos de soldadura. Estas tuberías se dispondrán según los vértices de un cuadrado inscrito en la armadura y obturados en su parte inferior.

Las armaduras longitudinales se colgarán a una cota que asegure su recubrimiento por el extremo inferior del pilote, y se dispondrán bien centradas y sujetas, con ayuda de separadores a varias alturas si fuera preciso, para garantizar su situación en planta.

Posteriormente, antes de comenzar la excavación se verificará que el movimiento de tierras efectuado para la plataforma de trabajo no altera las hipótesis de cálculo del pilote. Se verificará que no existen desprendimientos en la perforación, comprobando la inexistencia de material suelto en el fondo del pilote.

Después de realizarse la hinca o perforación de la entubación, ésta se revisará y aprobará por el

Director de Obra antes de verter el hormigón. Se procederá al hormigonado continuo del pilote, preferentemente en seco, mediante una tubería de 200 mm de diámetro y roscada por tramos hasta el fondo de la perforación, dejando siempre un resguardo mínimo de dos (2) metros de tubería sumergida en el hormigón, para evitar posibles cortes o discontinuidades en la columna hormigonada.

En los pilotes de entubación recuperable, la entubación se irá extrayendo de manera que siempre quede hormigón dentro de ella en una longitud mínima igual a dos (2) veces el diámetro del pilote, a efectos de impedir la entrada de agua por la parte inferior de la entubación.

Si hay agua, el nivel de ésta en el tubo durante el hormigonado será constantemente superior al nivel estático de la más elevada de las capas freáticas atravesadas. La citada altura se habrá de comprobar continuamente, por medida directa y por comparación entre el volumen del hormigón colocado y el calculado para la altura hormigonada.

Se hormigonará la cabeza del pilote hasta una cota superior en un (1) metro, a la parte inferior del cargadero.

Reperforación, inyección de mortero y descabece

Una vez fraguado el hormigón, se efectuarán, a través de los tubos mencionados, cuatro (4) perforaciones verticales en el substrato rocoso, bajo el extremo inferior del pilote, con una longitud mínima tal que cada perforación alcance los cuatro (4) metros por debajo del pilote. Si entre 4 y 5 metros, las referidas perforaciones detectarán intercalaciones blandas en el substrato rocoso, se prolongarán de modo que, el espesor de roca atravesado bajo la última intercalación blanda no sea inferior a un (1) metro.

Al objeto de eliminar parcialmente el material blando intercalado entre estratos de consistencia rocosa, y sustituirlo por la inyección de mortero que ha de formar el puente resistente, se seleccionarán dos perforaciones diagonalmente opuestas. Sucesiva o simultáneamente se inyectará agua a presión (quedando, específicamente prohibida la inyección de aire) a través de dichas perforaciones, obturando a nivel del hormigón del pilote, hasta alcanzar un máximo de 5 atmósferas de presión de agua a nivel del extremo inferior de pilote y 3 atmósferas a nivel de rasante, salvo que antes de alcanzar dicha presión ascendiera el agua por los otros dos taladros. La circulación en este caso, deberá mantenerse hasta que el agua salga prácticamente limpia.

Esta operación deberá repetirse de igual forma en las otras dos perforaciones diagonalmente opuestas.

No se permitirá la perforación de un pilote a menos de tres diámetros (3 Ø) de distancia del centro de otro pilote que lleve menos de cuarenta y ocho horas (48 h) hormigonado.

El tiempo transcurrido entre el inicio de colocación de armaduras y vertido de hormigón será el menor posible.

A continuación se comenzará la inyección de mortero por uno de los tubos (previamente obturados con tubos pasantes dotados de llave de paso). Si se produjera ascensión de mortero por alguno de los restantes taladros se cerrará la llave de los correspondientes al mismo, continuándose la inyección.

Deberá alcanzarse una presión de 2 atmósferas en boca superior del tubo de inyección (nivel de rasante) y mantener dicha presión durante un tiempo mínimo de 15 minutos.

Seguidamente, y previo cierre de la llave de paso del tubo inyectado, se desplazará la inyección a un tubo en que no se hubiera producido comunicación de lechada.

El proceso se repetirá sucesivamente (cambiando la inyección, si ello fuera posible, a tubos diagonalmente opuestos) hasta asegurar que el tratamiento a presión de los cuatro taladros de pie de pilote hubiera sido completado.

La ejecución del pilote termina con el descabezado del exceso del pilote hasta la parte inferior del cargadero que asume las funciones de encepado.

Medición y abono:

El contratista someterá a la aprobación de la Dirección de Obra, con la antelación suficiente, el tipo de pilotaje, equipo y plan de trabajo que tenga previsto aplicar, modificando lo que la Dirección de Obra ordene hasta conseguir su aceptación, lo cual no exime al Contratista de su responsabilidad.

Si la Empresa Constructora quiere emplear, por disponibilidad o mejora de reconocimientos de sus equipos, otros diámetros u otro sistema que el previsto en el Proyecto puede presentarlo con la debida antelación y con todos los detalles, cálculos y planos, a la aprobación del Director de Obra. En cualquier caso, el abono se realizará al precio por ml. del tipo de pilote incluido en proyecto.

Como la construcción de los pilotes exige conocimientos y cuidados especiales, en la ejecución habrá de estar presente un ingeniero especializado. Han de evitarse toda clase de trabajos nocturnos y a destajo, por el peligro que pueda presentarse en la calidad de ejecución de los pilotes.

Se define como diámetro del pilote construido "in situ", el diámetro interior de la excavación o, en su caso, de la entubación recuperable. El posible ensanchamiento del fuste del pilote, por apisonado o compresión del hormigonado, no se tendrá en cuenta para admitir un aumento de la carga admisible del mismo, considerado como elemento estructural. En cualquier caso, debe existir un encepado que reciba las cargas de la estructura y las transmita a los pilotes.

Todo ello será realizado de acuerdo con las presentes especificaciones y con los datos que sobre el particular incluyen los planos o aporte el Director de Obra.

Unidades que corresponden a este Artículo:

El presente Artículo es de aplicación a las siguientes unidades de los cuadros de precios del Proyecto:

"m Pilote HA-35 ejectuado in situ".

7.3.2. ARTÍCULO C673/05.- TABLESCADOS METÁLICOS

Son de aplicación en este Artículo las especificaciones establecidas en el Artículo 673.- "Tablestacados metálicos" del PG-3 completadas o modificadas con las contenidas en este Artículo del presente Pliego.

Medición y abono

El tablestacado metálico se medirá y abonará de acuerdo al Artículo 673.7 del PG-3.

El traslado a obra de equipo de hinca de tablestacas y el traslado entre tajos dentro de la obra se medirán y abonarán, de acuerdo a los cuadros de precios del Proyecto, por las unidades (ud) de traslado realmente realizadas. El precio incluye el transporte y montaje por unidad de equipo de hinca de tablestacas y los elementos auxiliares necesarios para la correcta ejecución de la unidad, así como los desplazamientos del personal especializado.

Unidad que corresponde a este Artículo

El presente Artículo es de aplicación a las siguientes unidades de los cuadros de precios del Proyecto:

E.P 05.- "m^2 *Tablestacado metálico perdido de 6 mm de espesor".*

PARTE 8.- ELEMENTOS AUXILIARE

8. ELEMENTOS AUXILIARES

8.1. ARTÍCULO C680/08.- ENCOFRADOS Y MOLDES

La presente unidad de obra cumplirá las especificaciones establecidas en el Artículo 680.- "Encofrados y moldes" del PG-3, completadas o modificadas con las contenidas en este Artículo del presente Pliego, que aunque derogado por Orden FOM/3818/2007 de 10 de diciembre, se aplicará a cualquier elemento constructivo, excepto a aquellos que se empleen en la ejecución de puentes, en los que será de aplicación el Artículo C683/08.- "Elementos auxiliares de obra en la construcción de puentes de carretera", del presente Pliego.

Definición

Se define como el elemento destinado al moldeo in situ de hormigón y morteros.

- La ejecución de la unidad de obra incluye las siguientes operaciones:
  - Proyecto de encofrado y cálculo estructural.
  - Montaje y apuntalamiento del encofrado.
  - Preparado de las superficies interiores del encofrado con desencofrante.
  - Tapado de juntas entre piezas.
  - Desmontaje y retirada del encofrado y todo el material auxiliar, una vez la pieza estructural esté en disposición de soportar los esfuerzos previstos.

Cuando el acabado superficial sea para que el hormigón quede visto, los encofrados serán de madera machihembrada.

Proyecto de montaje, funcionamiento y desmontaje de elementos auxiliares

En todos los elementos que precisen cálculo estructural para su diseño será preceptivo lo siguiente:

Proyecto de medios auxiliares

El contratista adjudicatario de la obra deberá redactar un proyecto específico completo de la utilización de encofrados y moldes, que será visado por el Colegio Profesional correspondiente y, deberá estar firmado por un técnico competente, con probados conocimientos en este tipo de medios auxiliares.

En un anejo a dicho proyecto se incluirán, al menos, memoria de cálculo, planos de definición de todos los elementos y manual con los procedimientos del primer montaje.

Además, en aquellos casos en que los equipos auxiliares se apoyen o modifiquen la estructura del elemento que se construye, el contratista solicitará al D.O., previamente a su utilización, un informe suscrito por el autor del proyecto de construcción del elemento en el que se compruebe que éste soporta las cargas que le transmite el medio auxiliar en las mismas condiciones de calidad y seguridad previstas en el mencionado proyecto.

Montaje, funcionamiento y desmontaje de elementos auxiliares

Durante las fases de montaje, funcionamiento, traslado y desmontaje de cualquier encofrado o molde, todas las operaciones relativas a dichas fases deberán estar supervisadas y coordinadas por técnicos con la cualificación académica y profesional suficiente, que deberán estar adscritos a la empresa propietaria del elemento auxiliar y a pie de obra, con dedicación permanente y exclusiva a cada elemento auxiliar, y que deberán comprobar, además, que dichos elementos cumplen las especificaciones del proyecto, tanto en su construcción como en su funcionamiento.

Además, después del montaje de la estructura o del elemento auxiliar, y antes de su puesta en carga, se emitirá un certificado por técnico competente de la empresa propietaria del elemento auxiliar, en el que conste que el montaje realizado es correcto y está conforme a proyecto y normas. Dicho certificado deberá contar con la aprobación del contratista en el caso de que no coincida con la empresa propietaria del elemento auxiliar. Copia del certificado correspondiente se remitirá al director facultativo de la obras designado por el promotor.

El jefe de obra de la empresa contratista se responsabilizará de que la utilización del medio auxiliar, durante la ejecución de la obra, se haga conforme a lo indicado en el Proyecto y en sus correspondiente manuales y establecerá los volúmenes y rendimientos que se pueden alcanzar en cada unidad, acordes con las características del elemento auxiliar de forma que en todo momento estén garantizadas las condiciones de seguridad previstas en el proyecto.

Cumplimiento de la reglamentación vigente

Todos los encofrados y moldes empleados, y sus elementos componentes, así como los preceptivos proyectos para su utilización, deberán cumplir con la reglamentación específica vigente tanto en España como en la Unión Europea y ostentar el marcado CE, en aquellos casos en que sea de aplicación.

Prevención de riesgos laborales

El PSS, al que se refiere el artículo 7 del R.D. 1627/1997, de 24 de Octubre, por el que se establecen disposiciones mínimas de seguridad y salud en las obras de construcción, que el contratista ha de elaborar, incorporará, en relación con la prevención de riesgos laborales, las previsiones establecidas en este Artículo del presente Pliego.

Vida útil del encofrado

Cuando los encofrados sean de madera, el número máximo de puestas admitido, salvo que en la descripción del precio se indique otra cosa, será el siguiente:

- Encofrados rectos o curvos: 5.
- Encofrados de madera machihembrada: 3.

Medición y abono

La presente unidad se medirá y abonará de acuerdo al Artículo 680.3 del PG-3. El precio incluye el proyecto, el cálculo estructural del molde o encofrado y el certificado de montaje, todos los materiales, medios auxiliares, operaciones y costes necesarios para su construcción, montaje y retirada.

Artículo de este Pliego relacionado con el presente Artículo

C683/08.- *"Elementos auxiliares de obra en la construcción de puentes de carretera"*

Unidades que corresponden a este Artículo

El presente Artículo es de aplicación a las siguientes unidades de los cuadros de precios del Proyecto:

E.E1 07.- "m^2 *Encofrado recto".*

E.P 09.- "m^2 *Encofrado curvo".*

E.E1 08.- "m^2 *Encofrado recto con madera machihembrada".*

PARTE 9.- OBRAS VARIAS

9. OBRAS VARIAS

9.1. ARTÍCULO C690/06.- IMPERMEABILIZACIÓN DE PARAMENTOS

Son de aplicación en este Artículo las especificaciones establecidas en el Artículo 690.- "Impermeabilización de paramentos" del PG-3 completadas o modificadas con las contenidas en este Artículo del presente Pliego.

Definición

Consiste en la impermeabilización de paramentos de obra de fábricas de hormigón, u otros materiales, en estribos, pilas, tableros, bóvedas, aletas, muros, etc.

La ejecución de la unidad de obra incluye las siguientes operaciones:

- Preparación de la superficie.
- Capa de imprimación.
- Capa de acabado.
- Curado.

Se distinguen los tipos de impermeabilización de paramentos de hormigón siguientes:

- Con brea-epoxi, que puede ser empleada en la impermeabilización de cualquier tipo de paramento de hormigón.
- Con mortero bituminoso, que se emplea en la impermeabilización de tableros de puentes de hormigón.
- Con resina metacrílica, que se emplea en la impermeabilización de tableros de puentes de hormigón.

El tipo de impermeabilización a emplear en cada paramento es el definido en el Proyecto.

Materiales

Brea-epoxi

Constituido por dos componentes, a base de resinas epoxi modificadas con brea.

Mortero bituminoso

Constituido por una mezcla de emulsión bituminosa EAL-1 (betún 80/100), fibras especiales y áridos silíceos y calizos.

Resina metacrílica

Sus características serán las que figuren el Proyecto o, en su defecto, las definidas por el D.O.

Ejecución

La superficie del hormigón estará limpia y perfectamente seca, sin elementos sueltos, polvo, grasa, aceite, agua, así como contaminantes que tiendan a disminuir la adherencia del sistema de impermeabilización al soporte. No presentará huecos ni resaltes de más de 20 mm, y las irregularidades se corregirán utilizando mortero epoxi para rellenar cavidades.

Impermeabilización de paramentos de hormigón con brea-epoxi

Se aplicarán dos capas de brea-epoxi, una capa de imprimación, y una capa de acabado que se ejecutará una vez curada la anterior. Sobre ésta se espolvoreará árido de cuarzo para mejorar la adherencia.

Capa de imprimación

Se aplicará una capa de imprimación a base de brea-epoxi con un espesor de película seca de 150 micras.

Capa de acabado

Una vez ejecutada y curada la capa anterior, se aplicará una segunda capa a base de brea-epoxi con un espesor de película seca de 150 micras. Sobre esta capa se espolvoreará árido de cuarzo.

Medición y abono

La presente unidad se medirá y abonará de acuerdo al Artículo 690.4 del PG-3.

Unidades que corresponden a este Artículo

El presente Artículo es de aplicación a las siguientes unidades de los cuadros de precios del Proyecto:

E.E1 09.- "m^2 *Impermeabilización de paramentos mediante brea-epoxi".*

9.2. ARTÍCULO C692/05.- APOYOS DE MATERIAL ELASTOMÉRICO

Son de aplicación en este Artículo las especificaciones establecidas en el Artículo 692.- "Apoyos de material elastomérico" del PG-3 completadas o modificadas con las contenidas en este Artículo del presente Pliego.

Definición

Elementos a través de los que se transmiten las cargas del tablero de un puente a los estribos o pilas, según el caso, permitiendo, con su deformación elástica, traslaciones o giros de los elementos estructurales que soportan.

Según la "Nota técnica sobre aparatos de apoyo para puentes de carretera" del Ministerio de Obras Públicas , Transporte y Medio Ambiente, de 1995, se distinguen los tipos de apoyo de material elastomérico siguientes:

- *Apoyo de neopreno zunchado*, constituido por un bloque de elastómero que lleva intercaladas en su masa y vulcanizadas con la goma unas chapas de acero.
- *Aparato de apoyo tipo "Pot" o caja*, consiste en una lámina cilíndrica de neopreno de poco espesor que está completamente encapsulada en una caja o cápsula de acero. Sobre la lámina de neopreno actúa un pistón de acero, que es solidario al tablero mediante pernos.
- *Aparato deslizante*, consiste en una tipología derivada de cualquiera de las dos anteriores, a las que se adhiere en su parte superior una lámina de teflón, mientras que el tablero lleva solidario con él un palastro de acero con una lámina de acero inoxidable en su parte inferior, constituyendo este conjunto (palastro de acero más lámina de acero inoxidable) la placa de deslizamiento que desliza sobre el teflón. Este tipo de apoyo puede ser a su vez:
  - Libre: Cuando se permite su desplazamiento en todas las direcciones.
  - Guiado: Cuando sólo se permite el desplazamiento en una dirección.
- *Aparato de apoyo pretensado verticalmente*, que además de anclar el tablero a la subestructura, precomprime el apoyo.

La transmisión de cargas del tablero a la subestructura en las dos alineaciones de apoyo, se realizará por medio de apoyos tipo POT o caja. Los apoyos tipo POT son apoyos estructurales que soportan cargas verticales y horizontales a la vez que permiten pequeñas rotaciones con referencia a cualquier eje horizontal

Se empleará un apoyo POT fijo, dos Guiados y uno Multidireccional.

Los Fijos restringen el movimiento en cualquier dirección horizontal. Los Guiados permiten el movimiento en una dirección horizontal y lo restringen en la otra. Los Multidireccionales permiten el movimiento en cualquier dirección horizontal. Los tres tipos utilizan un disco elastomérico confinado

en una cazoleta de acero capaz de soportar elevadas presiones. El material elastomérico confinado se comporta como un líquido viscoso que ofrece una resistencia mínima a la rotación.

Materiales:

- Cazoleta, pistón y bandeja superior: S355J2, S275J2, S355JR, S275JR (EN10025).
- Cojín elastomérico: Caucho natural de acuerdo a la AASHTO 50Sh±5, y a la ISO6446.
- Láminas de PTFE: Politetrafluoroetileno puro alveolado.
- Acero inoxidable: X5CrNiMo17.12.2 (1.4401) EN10088-2
- Metal antifricción (DU): Material composite con bronce y PTFE.
- Lubricante: Grasa de silicona.
- Aros de sellado: Bronce.

Ejecución:

1. Preparación de estribos:

Antes del hormigonado en estribos, se deben preparar unos huecos de espera para alojar los pernos de los apoyos, utilizando para ello tubos de plástico cerrados en su parte inferior mediante tapones de celulosa. Los tubos deben sobresalir para evitar el vertido de hormigón dentro de los mismos durante el hormigonado.

2. Colocación y nivelación del apoyo:

Posicionar el apoyo en su emplazamiento definitivo mediante topografía. Es muy importante asegurar que el apoyo esté en posición horizontal. Para esta operación se pueden utilizar calas de nivelación o cuñas de madera. Además, se deberá dejar espacio libre entre el tubo de espera y la base del apoyo para garantizar que el mortero de nivelación fluya libremente y rellene completamente los tubos.

3. Relleno de mortero:

Para asegurar una correcta ejecución de la meseta de nivelación se deberá construir un pequeño encofrado y verter en él, vibrando si es necesario, mortero de alta resistencia autonivelante.

4. Encofrado de tablero y refuerzo:

El encofrado del tablero se montará enrasado con la cara superior de la bandeja, quedando los pernos superiores embebidos una vez hormigonada la estructura.

5. Eliminación de bloqueos provisionales: Finalmente, después del fraguado del hormigón del tablero, el apoyo debe de ser liberado de los bloqueos temporales. Para ello se deberán desmontar y retirar los accesorios laterales de bloqueo.

Medición y abono:

Los aparatos de apoyo de neopreno zunchado se medirán y abonarán, de acuerdo a los cuadros de precios del Proyecto, por los decímetros cúbicos (dm3) de material elastómero realmente colocados y medidos sobre los planos. El precio incluye el mortero de asiento, y el conjunto de operaciones y costes necesarios para la completa ejecución de la unidad.

Los aparatos de apoyo de tipo deslizante se medirán y abonarán, de acuerdo a los cuadros de precios del Proyecto, por las unidades (ud) realmente colocadas. El precio incluye el mortero de asiento, la lámina de teflón, la placa de deslizamiento, y el conjunto de operaciones y costes necesarios para la completa ejecución de la unidad.

Unidades que corresponden a este Artículo:

El presente Artículo es de aplicación a las siguientes unidades de los cuadros de precios del Proyecto:

"dm Apoyos elastoméricos tipo POT".

9.3. ARTÍCULO C694/05.- JUNTAS DE TABLERO

Son de aplicación en este Artículo las especificaciones establecidas en el Artículo 694.- “Juntas de tablero” del PG-3 completadas o modificadas con las contenidas en este Artículo del presente Pliego.

Definición

Se definen como los dispositivos que entran en los bordes de dos tableros contiguos, o de un tablero y un estribo, de forma que permitan los movimientos por cambios de temperatura, deformaciones reológicas en caso de hormigón y deformaciones de la estructura, al tiempo que presentan una superficie lo más continua posible a la rodadura.

Se distinguen los tipos de juntas de tablero siguientes:

- *Junta de mortero elástico,* obtenida mediante la aplicación de un mortero asfáltico.
- *Junta con perfil de neopreno,* consistente en un perfil de neopreno prefabricado por extrusión cuyo ancho nominal coincide con la apertura neutra del hueco. Este perfil se une a los labios de la junta mediante un adhesivo epoxi de dos componentes.
- *Junta de neopreno armado*, consistente en una banda de material elastómero, con unos refuerzos de acero. El conjunto se ancla mediante pernos al borde de la estructura.
- *Junta de placa dentada,* consistente en la unión de dos placas metálicas dentadas que posee un sistema de canal para recoger el agua que llega a la junta.

Condiciones generales

El tipo de juntas y el material que las constituyen son los definidos en el Proyecto.

Medición y abono

La presente unidad se medirá y abonará de acuerdo al Artículo 694.4 del PG-3.

El presente Artículo es de aplicación a las unidades de los cuadros de precios del Proyecto cuyos siete primeros caracteres sean C694/05

El código de estas unidades es el siguiente:

Juntas de tablero: C694/05/XXYYY

XX: ME para junta de mortero elástico.
PN para junta con perfil de neopreno.
NA para junta de neopreno armado.
PD para junta de placa dentada.

YYY: movimiento máximo permitido por la junta (en mm).

Se consideran las siguientes unidades:

E.T. 05.- *"*m *Junta de neopreno con 100 mm de movimiento máximo permitido".*

9.4. ARTÍCULO C695/04.- PRUEBAS DE CARGA

Son de aplicación en este Artículo las especificaciones establecidas en el Artículo 695.- "Pruebas de carga" del PG-3 completadas o modificadas con las contenidas en este Artículo del presente Pliego.

Definición

Se definen como tal al conjunto de operaciones de control para comprobar la adecuada concepción, estabilidad y buen comportamiento de un puente o una pasarela antes de su apertura al tráfico.

Se distinguen los dos tipos de prueba de carga siguientes, según se recoge en la vigente "Instrucción sobre las acciones a considerar en el proyecto de puentes de carretera (IAP)", Ministerio de Fomento, 1998.

- *Prueba de carga estática,* será siempre obligatoria.
- *Prueba de carga dinámica,* preceptiva en aquellas estructuras en las que sea necesario verificar que las vibraciones que se puedan producir no afectarán a la funcionalidad de la obra.

La ejecución de la unidad de obra incluye las siguientes operaciones, de acuerdo a lo establecido en el proyecto de prueba de carga:

- Preparación de la prueba de carga.
- Desarrollo de la prueba.
- Informe de resultados.
- Acta de la prueba de carga.

Condiciones generales

Se tendrán en cuenta las directrices generales incluidas en las "Recomendaciones para el Proyecto y Ejecución de Pruebas de Carga en Puentes de Carretera", Ministerio de Fomento, 1999.

Los camiones y los equipos de medida a utilizar en la prueba de carga cumplirán los requisitos establecidos en las citadas Recomendaciones.

Se utilizarán, al menos, los siguientes aparatos de medida:

- Flexímetros para medida de deformaciones verticales: serán adecuados en cada puente a las posibilidades de observación existente, pero en ningún caso tendrán menos de 5 cm de recorrido y 0,01 mm de precisión. Si las condiciones físicas del puente no permiten utilizar flexímetros, se usarán picas o elementos topográficos que garanticen una sensibilidad de lectura similar a la anterior.
- Lupas graduadas para observar y medir la formación de fisuras: permitirán observar décimas de milímetro.

El Contratista presentará al D.O. para su aprobación, con quince días de antelación a la prueba de carga, una memoria en la que se indique la forma de ejecución del proyecto de la misma.

Ejecución

Preparación de la prueba de carga

- *Referencias fijas y mediciones precisas.*

  Antes de proceder a la realización de las pruebas se nivelarán los puntos de medición concretados en la memoria mencionada en el apartado anterior, referidos a puntos de referencia fijos fuera del puente y no afectados por la prueba de carga, de forma que sea lo más sencillo posible referir a éstos las deformaciones de un punto cualquiera de cada escalón de carga.

- *Observación previa de la estructura.*

  Antes de comenzar las pruebas se recorrerá detenidamente la estructura, observando concienzudamente las fisuras que existan, midiendo su tamaño con lupas y marcando los puntos en que se hagan estas medidas para realizar posteriores mediciones en cada escalón de carga.

Desarrollo de la prueba

La prueba de carga estática se desarrollará de acuerdo con el Apartado 6.- "Desarrollo de la prueba" de las Recomendaciones citadas anteriormente, mientras que la prueba de carga dinámica, caso de que sea necesaria, se desarrollará conforme a lo establecido en el Apartado 8.- "Prueba dinámica" de las mismas.

Se comprobará que los elementos auxiliares de acceso a las zonas de control y trabajo estén correctamente adaptados con el fin de no retrasar o entorpecer el proceso de la prueba.

Una vez colocados los camiones se harán las mediciones correspondientes.

Se controlarán especialmente y anotarán las condiciones generales del ambiente, especialmente los cambios climatológicos y las situaciones de soleamiento, previo y durante el proceso de ensayo.

Informe de resultados

Una vez finalizada la prueba de carga se redactará un informe en el que figurarán los aspectos que se recogen en el Apartado 9.- "Informe de resultados" de las Recomendaciones mencionadas.

En las conclusiones figurarán expresamente la aceptación o no del puente ensayado, la exigencia de nuevas pruebas de carga, puesta en servicio provisional o definitiva, refuerzo, etc.

Acta de la prueba de carga

Con base en el Informe, se redactará el acta de la prueba según lo establecido en las "Recomendaciones para el Proyecto y Ejecución de Pruebas de Carga en Puentes de Carretera", Ministerio de Fomento, 1999.

Medición y abono

La presente unidad se medirá y abonará, de acuerdo a los cuadros de precios del Proyecto, por las unidades (ud) de prueba de carga realmente ejecutadas.

El precio incluye el coste de andamiaje para la inspección antes y durante la ejecución de la prueba, vehículos, equipo humano y aparatos de medida, accesorios y material fungible, así como el informe correspondiente.

Unidades que corresponden a este Artículo

El presente Artículo es de aplicación a las unidades de los cuadros de precios del Proyecto cuyos siete primeros caracteres sean C695/04

El código de estas unidades es el siguiente:

Prueba de carga: C695/04/X.YY

X: E para prueba de carga estática.

D para prueba de carga dinámica.

YY: numero asignado en el Proyecto al puente sobre el que se realiza la prueba de carga (01, 02, 03, etc).

Se consideran las siguientes unidades:

E.T. 07.- "ud *de prueba de carga estática para la estructura de carretera en..."*

PARTE 10.- ELEMENTOS DE SEÑALIZACIÓN, BALIZAMIENTO Y DEFENSA

9.1. ARTÍCULO C700/11.- MARCAS VIALES

Son de aplicación en este Artículo las especificaciones establecidas en el Artículo 700.- "Marcas viales" del PG-3, en las Normas 8.2-IC.- "Marcas viales" de la Instrucción de Carreteras (BOE de 4 de agosto de 1987) y 8.3-IC.- "Señalización de Obras" (aprobada por Orden Ministerial de 31 de agosto de 1987), así como las especificaciones contenidas en la Nota de Servicio 2/2007 del Ministerio de Fomento sobre los criterios de aplicación y de mantenimiento de las características de la señalización horizontal, completadas o modificadas con las contenidas en este Artículo del presente Pliego.

Tipos

Durante la ejecución de las obras se emplearán marcas viales de empleo temporal de pintura o prefabricadas, de color amarillo o naranja, a juicio del D.O. y dependiendo de las circunstancias que concurren en la misma.

Una vez ejecutada la obra, se aplicarán marcas viales de empleo permanente según establece la Norma 8.2-IC.- "Marcas viales".

Las marcas viales temporales y permanentes serán de tipo 2.

Materiales

Cuando se empleen marcas viales de empleo permanente, se realizarán dos aplicaciones:

- Primera aplicación con pintura acrílica con base agua.
- Segunda aplicación a base de productos termoplásticos en caliente o plásticos de aplicación en frío.

Ejecución

Una vez ejecutada la capa de rodadura de la calzada, se procederá a la ejecución de la señalización horizontal definitiva, para lo cual se emplearán marcas viales tipo 2 de empleo permanente, que consistirán en dos aplicaciones.

En una primera aplicación, se empleará pintura.

Transcurridos entre ocho y diez meses contados a partir de la recepción de la obra, siempre dentro del período de garantía, se realizará una segunda aplicación a base de productos termoplásticos en caliente o plásticos de aplicación en frío.

Maquinaria de aplicación

Las características de la maquinaria a emplear en la aplicación de las marcas viales cumplirá lo especificado en la UNE 135 277(1).

Seguridad y señalización de las obras

Se cumplirán las medidas de seguridad y señalización establecidas en la Norma 8.3-IC y demás legislación vigente en la materia.

Medición y abono

La presente unidad se medirá y abonará de acuerdo al Artículo 700.10 del PG-3. El precio incluye las esferas de vidrio.

Unidades que corresponden a este Artículo

El presente Artículo es de aplicación a las siguientes unidades de los cuadros de precios del Proyecto:

SB 01.- "m *Marca vial tipo 2 P-RR de pintura de 10 cm de anchura".*

10. ARTÍCULO C702/04.- CAPTAFAROS RETRORREFLECTANTES DE UTILIZACIÓN EN SEÑALIZACIÓN HORIZONTAL

Son de aplicación en este Artículo las especificaciones establecidas en el Artículo 702.- "Captafaros reflectantes de utilización en señalización horizontal" del PG-3 completadas o modificadas con las contenidas en este Artículo del presente Pliego.

Materiales

El tipo y dimensiones de los captafaros, así como su número de caras retrorreflectantes, que podrán ser una o dos, son los definidos en el Proyecto. El color de las caras retrorreflectantes del captafaro será el que se define a continuación, según éste sea de uso temporal o permanente:

Tipo de uso	Nº caras retrorreflectantes	Color
Temporal	1	Amarillo
Permanente	1	Amarillo o blanco, según proceda
Permanente	2	Amarillo y blanco

El captafaro situado a la derecha del vehículo en el sentido de la circulación se apreciará de color amarillo por parte del conductor, mientras que el situado a su izquierda será blanco.

El captafaro será tipo 3 en función de la naturaleza de su retrorreflector.

La fijación de los captafaros al pavimento se realizará mediante adhesivo de dos componentes, que se aplicará con una dotación no inferior a 150 g/ud.

Especificaciones de la unidad terminada

Para el período de garantía, el número máximo permitido de captafaros no adheridos a la superficie del pavimento o que hayan perdido su posición original con respecto a la dirección del tráfico no será superior al 2% del total de los instalados, y no serán más de cinco los captafaros retrorreflectantes consecutivos en tramo recto, ni más de tres consecutivos en curva, que hayan perdido su posición original.

Ejecución

Preparación de la superficie de aplicación

La superficie sobre la que se ha de efectuar la aplicación del captafaro deberá estar limpia, seca y desprovista de manchas de aceite, grasa y carburantes. Para su limpieza se emplearán los medios que en cada caso se precisen, debiendo como mínimo, efectuarse un enérgico cepillado previo.

Limitaciones a la ejecución

Los captafaros se fijarán a la superficie del pavimento mediante adhesivo, que se aplicará tanto a dicha superficie como a la base del captafaro.

Una vez colocados en su posición definitiva, se protegerán del tráfico durante 20-40 minutos.

Seguridad y señalización de las obras

Se cumplirán las medidas de seguridad y señalización establecidas en la Norma 8.3-IC y demás legislación vigente en la materia.

Medición y abono

La presente unidad se medirá y abonará de acuerdo al Artículo 702.10 del PG-3.

Unidades que corresponden a este Artículo

El presente Artículo es de aplicación a las siguientes unidades de los cuadros de precios del Proyecto:

SB 02.- "ud *Captafaro para pavimento con dos caras retrorreflectantes, de 101x89x16 mm^3, de empleo permanente".*

11. ARTÍCULO C704/11.- BARRERAS DE SEGURIDAD

Son de aplicación en este Artículo las especificaciones establecidas en la siguiente normativa:

- Artículo 704.- *"Barreras de seguridad"* del PG-3
- Para las barreras de hormigón: O.C. 321/95 T y P "Recomendaciones sobre sistemas de contención de vehículos".
- O.C. 23/08 sobre "Recomendaciones sobre criterios de aplicación de pretiles metálicos en carretera"
- O.C. 28/09 sobre "Criterios de aplicación de barreras de seguridad metálicas"
- Norma UNE-EN 1317-5:2008+A1:2008: "Sistemas de contención para carreteras. Parte 5: Requisitos de producto y evaluación de la conformidad para sistemas de contención de vehículos".
- O.C. 18/04 y O.C. 18bis/08 sobre "Criterios de empleo de sistemas para protección de motociclistas"

Tipos

La clase y nivel de contención, anchura de trabajo e índice de severidad de impacto de los pretiles y las barreras de seguridad metálicas a emplear son los definidos en el Proyecto. Las barreras metálicas tendrán, en todo caso, índice de severidad de impacto A; los pretiles metálicos tendrán índice de severidad de impacto A o B.

Barreras de seguridad metálicas

Única y exclusivamente deberán emplearse barreras de seguridad metálicas que lleven marcado CE.

Las barreras de seguridad metálicas podrán estar pintadas en su cara posterior, es decir, en la parte no visible desde la calzada; en este caso, deberán ir pintados también los postes y elementos de sustentación. La pintura será termolacada y deberá aplicarse en fábrica.

Otras barreras de seguridad

Se podrán emplear barreras de seguridad mixtas madera – metal, que son aquellas en las que tanto los elementos longitudinales (vallas) como los soportes (postes) son de madera, reforzados por perfiles metálicos.

Las barreras de seguridad mixtas madera-metal deberán disponer del marcado CE.

Pretiles metálicos

Única y exclusivamente deberán emplearse pretiles metálicos que dispongan del marcado CE.

Materiales

En las barreras de seguridad metálicas, los parámetros que obligatoriamente han de estar incluidos en el marcado CE, según la Norma UNE EN 1317-5, son los siguientes:

- Breve descripción de empleo del producto.
- Nivel de contención del sistema.
- Severidad del impacto.
- Anchura de trabajo.

- Deflexión dinámica.
- Condiciones de durabilidad del producto.

En lo relativo a identificación, los pretiles y las barreras de seguridad metálicas cumplirán los siguientes requisitos:

- El fabricante deberá marcar todas las vallas elaboradas según las especificaciones de la norma UNE EN 1317-5.
- En dicha marca deberá figurar la identificación del fabricante, así como un código para la trazabilidad del producto. En el caso de que los procesos de conformación y/o galvanización sean subcontratados, en las vallas deberá figurar también la identificación de las empresas que realicen estos procesos.
- El marcado deberá ser legible a simple vista e indeleble. Todas las vallas se deberán marcar en un mismo lugar determinado, cuidando que las marcas no puedan quedar ocultas una vez que la barrera haya sido montada.

Las barreras de seguridad metálicas pintadas su cara posterior, si es el caso, deberán venir pintadas de fábrica. La pintura será termolacada y el color empleado será RAL 6014 o el que establezca el D.O., siempre con acabado mate.

Cuando se trate de barrera de seguridad metálica galvanizada y pintada, además de ésta, estarán pintados los amortiguadores, los postes, la tornillería y la placa de anclaje, caso de que exista, siendo todos estos elementos, incluida la barrera, suministrados de fábrica ya pintados.

Tanto las imprimaciones y las pinturas como el soporte sobre el que se apliquen cumplirán las condiciones fijadas en la Norma Tecnológica NTE-RPP y las normas UNE a que se hace referencia en dicha norma. Cuando el material llegue a la obra con Certificado de Origen Industrial que acredite el cumplimiento de dichas condiciones, normas y disposiciones, su recepción se hará comprobando únicamente sus características aparentes.

La madera a emplear en las barreras de seguridad mixtas madera – metal deberá cumplir las especificaciones de la Norma UNE 56544, con calidad mínima MEG para las barandas y ME-2 para las fundas, con un tratamiento de preservación ante ataque biológico para clase de riesgo 4. Las piezas metálicas se fabricarán a partir de chapa de acero laminada en caliente, del tipo y grado S235JR según Norma Europea UNE-EN 10025 y galvanizada en caliente por inmersión según la Norma UNE-EN ISO 1461.

Ejecución

En las barreras de seguridad metálicas se colocarán captafaros cada 4 m. Sus características y diseño serán autorizados por el D.O.

Seguridad y señalización de las obras

Se cumplirán las medidas de seguridad y señalización establecidas en la Norma 8.3-IC y demás legislación vigente en la materia.

Medición y abono

La presente unidad se medirá y abonará de acuerdo al Artículo 704.9 del PG-3. El precio incluye la placa y elementos de anclaje en el caso de barrera instalada mediante placa de anclaje, y la pintura, independientemente del color empleado, cuando se trate de barrera de seguridad metálica pintada en su cara posterior.

Unidades que corresponden a este Artículo

El presente Artículo es de aplicación a las siguientes unidades de los cuadros de precios del Proyecto.

Las barreras de seguridad metálicas se designarán mediante el siguiente código: “Clase de contención/Nivel de contención/Anchura de trabajo/Índice de severidad de impacto”.

Las barreras de seguridad metálicas con valla para protección de motoristas se designarán mediante el siguiente código: “Clase de contención/Nivel de contención/Anchura de trabajo/Índice de severidad de impacto (según normas UNE EN 1317 y UNE 135900)”.

SB 04.- "m *Barrera semi-rígida tipo 2".*

12. ARTÍCULO C705/11.- BARANDILLAS

La presente unidad de obra cumplirá las especificaciones establecidas en la Orden VIV/561/2010, de 1 de febrero, por la que se desarrolla el documento técnico de condiciones básicas de accesibilidad y no discriminación para el acceso y utilización de los espacios públicos urbanizados, completadas o modificadas con las contenidas en este Artículo del presente Pliego.

Definición

Se definen como barandillas los sistemas constituidos por una serie de elementos horizontales sostenidos en elementos verticales, instalados en los puentes y otros lugares próximos al margen de una carretera, cuya finalidad es proporcionar seguridad a los peatones.

La ejecución de la unidad de obra incluye las siguientes operaciones:

- Replanteo de los elementos que constituyen la barandilla.
- Montaje, alineación y colocación de la barandilla.

Materiales

Barandillas y placas de anclaje

Los tipos de material de las barandillas y placas de anclaje, así como su respectivo tratamiento anticorrosión, acabado exterior y pintura, en caso necesario, son los definidos en el Proyecto.

Forma y dimensiones

La forma y dimensiones de las barandillas son las definidas en el Proyecto.

Condiciones de ejecución

En el proceso de manipulación se evitará golpear la superficie para evitar oxidaciones posteriores.

El anclaje de la barandilla podrá ser de diferentes formas, embutiendo el poste en la cimentación (en un tubo de PVC, que posteriormente se rellenará de hormigón), o con placa de anclaje.

Medición y abono

La presente unidad se medirá y abonará, de acuerdo a los cuadros de precios del Proyecto, por los metros (m) de barandilla realmente colocados. El precio incluye cualquier elemento necesario para su anclaje a la cimentación, colocación y puesta en obra, así como los correspondientes tratamientos que lleve: tratamiento anticorrosión, acabado exterior y pintura, en su caso, definidos en el Proyecto.

Unidades que corresponden a este Artículo

El presente Artículo es de aplicación a las siguientes unidades de los cuadros de precios del Proyecto:

SB 05.- "m *Barandilla tipo 8".*

PARTE 11.- PARTIDAS ALZADAS

1. ARTÍCULO C900/07.- PARTIDAS ALZADAS

Las partidas alzadas cumplirán lo establecido en el Artículo C106/10.- "Medición y Abono" del presente Pliego.

Las partidas alzadas de abono íntegro constituyen formalmente una unidad de obra, por lo que se han incorporado a la justificación de precios (sin descomposición), a los Cuadros de Precios (en el 2 sin descomposición) y al presente PPTP. Las que son a justificar no constituyen unidad de obra. Las que se abonen de una forma diferente, establecida expresamente en este PPTP, tendrán el carácter correspondiente a su propia definición y forma de abono.

Artículo de este Pliego relacionado con el presente Artículo

C106/10.- *"Medición y Abono"*

2. ARTÍCULO C901/11.- PARTIDA ALZADA DE SEGURIDAD Y SALUD PARA LA EJECUCIÓN DE LA OBRA

La presente p.a. se destina al pago de las medidas preventivas específicas que ha de disponer el contratista y que ha de definir pormenorizadamente en el PSS. Este PSS será elaborado partiendo del ESS incluido en el Proyecto en la forma establecida en la legislación preventiva (concretamente en el RD 1627/97). Su valoración se ha determinado en el ESS, y no incluye otra serie de medidas de prevención y protección necesarias que se han considerado como costes directos o indirectos de las unidades de obra, y como gastos generales o costes indirectos de la obra (equipos de protección individual, instalaciones de higiene y bienestar, reconocimientos médicos, reuniones, información y formación de los trabajadores y otros de similar naturaleza), es decir, el importe de esta p.a. se corresponde con el abono de las protecciones preventivas que específicamente se establecen en el ESS como si fueran unidades de obra, cuyo coste está imputado directamente a este Proyecto a través del presupuesto propio del ESS.

Dado que las disposiciones preventivas establecen que el contratista, antes del comienzo de los trabajos, deberá presentar el PSS inicial para la aprobación, en su caso, de la Administración, previo informe del CSS/O, será este PSS el que concrete, a partir del ESS y de los procedimientos constructivos que haya de emplear, las medidas preventivas o adecuaciones del PSS inicial que se hayan de realizar de acuerdo a las disposiciones preventivas de aplicación. El importe de EM que figura como valoración de esta p.a. será la cantidad total a abonar al contratista. Solamente en los casos en que se produzcan modificaciones del contrato, se podrá modificar este importe (como ocurre con cualesquiera otras unidades de obra), siempre que la citada modificación justifique la alteración preventiva.

Por lo tanto, el contratista adjudicatario, al igual que el resto de licitadores, deberá tenerlo muy en cuenta en la licitación, de modo que valore los sistemas y medios constructivos que va a emplear realmente en la obra, así como las medidas preventivas, y su coste, con el fin de que todo ello sea tenido en cuenta en la oferta que presente.

Será de aplicación el segundo párrafo del Artículo 154.3 del RLCAP.

Es decir, el contratista está obligado al cumplimiento de las disposiciones vigentes en materia laboral, de Seguridad Social y prevención de riesgos laborales. En lo concerniente a las medidas de prevención y protección de riesgos laborales, que son obligación del contratista, y que deberá establecer en el plan de seguridad y salud (PSS), a presentar por él una vez elaborado a partir del estudio de seguridad y salud (ESS) y de los métodos constructivos que ha de emplear en la ejecución, se estará a lo que se establece, además de en las disposiciones de aplicación, en el propio ESS y en el PPTP del Proyecto, habiéndose incorporado el presupuesto del ESS al del Proyecto como una partida alzada, cuyo objeto y forma de abono se concretan en el presente Pliego.

Medición y abono

Esta p.a. se abonará al contratista en su totalidad, en términos de adjudicación, mes a mes durante el plazo de ejecución de la obra, a medida que se vayan disponiendo las medidas preventivas que correspondan, por importe mensual proporcional al empleo de estas medidas, según criterio de la D.O.

Las protecciones preventivas que específicamente se establecen en el ESS, al finalizar la obra quedarán en poder del contratista.

Unidad que corresponde a este Artículo

El presente Artículo es de aplicación a la siguiente unidad de los cuadros de precios del Proyecto:

CAPÍTULO 06.- *"Seguridad y Salud"*

Santander, junio de 2017

EL AUTOR DEL PROYECTO



DOCUMENTO Nº 4:

PRESUPUESTO

Contenido

4.1. Mediciones por capítulos: .....

4.2. Cuadro de precios Nº1: .....

4.3. Cuadro de precios Nº2: .....

4.4. Presupuesto por capítulos: .....

4.5. Resumen del presupuesto: .....

PRESUPUESTO Y MEDICIONES

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
01	**EXPLANACIONES**							
01.01	**TRABAJOS PRELIMINARES**							
01.01.01	**m2 Desbroce del terreno**							
	Desbroce y limpieza superficial de terreno sin clasificar, por medios mecánicos, con carga y transporte de los productos resultantes a vertedero o lugar de empleo, incluyendo la retirada de arbolado menor de 10 cm. y con p.p. de medios auxiliares.							
			75,00	50,00		3.750,00		
						3.750,00	0,28	1.050,00
01.01.02	**m2 Demolición y levantamiento de aceras**							
	Demolición y levantado de aceras de loseta hidráulica o equivalente, con solera de hormigón en masa 10/15 cm. de espesor, incluso carga y transporte en camión del escombro resultante al lugar de acopio en obra, para su posterior transporte a planta de RCD. I/p.p. de medios auxiliares.							
		2	13,00	8,00		208,00		
						208,00	6,59	1.370,72
01.01.03	**m Demolición y levantado de bordillo**							
	Demolición y levantado de bordillo de cualquier tipo y cimientos de hormigón en masa, de espesor variable, incluso carga y transporte en camión del escombro resultante al lugar de acopio en obra, para su posterior transporte a planta de RCD. I/p.p. de medios auxiliares.							
		2	14,00			28,00		
						28,00	2,10	58,80
01.01.04	**m2 Demolición y levantado de pavimento HA e=15/25cm**							
	Demolición y levantado de pavimento de hormigón armado de 15/25 cm. de espesor, incluso carga y transporte en camión del escombro resultante al lugar de acopio en obra, para su posterior transporte a planta de RCD. I/p.p. de medios auxiliares.							
			22,00	17,40		382,80		
			20,00	15,00		300,00		
						682,80	6,28	4.287,98
01.01.05	**m2 Demolición y levantado de pavimento MBC e=10/20cm**							
	Demolición y levantado de pavimento de M.B.C. de 10/20 cm. de espesor, incluso carga y transporte en camión del escombro resultante al lugar de acopio en obra, para su posterior transporte a planta de RCD. I/p.p. de medios auxiliares.							
			20,00	15,00		300,00		
			22,00	17,40		382,80		
						682,80	3,10	2.116,68
	TOTAL 01.01							**8.884,18**

PRESUPUESTO Y MEDICIONES

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
01.02	**EXCAVACIONES**							
01.02.01	**m3 EXCAVACIÓN DE ESTRIBOS DE PUENTE**							
	Excavación de la explanación y préstamos. Excavación en tierras y tránsito.							
	Excavación de ambos estribos	2	25,00	20,00	11,65	11.650,00		
						11.650,00	2,90	33.785,00
	TOTAL 01.02							**33.785,00**
01.03	**RELLENOS**							
01.03.01	**m3 RELLENO TRASDÓS OBRAS FAB. C/MAT EXCAVAC**							
	Relleno localizado en trasdós de obras de fábrica con productos procedentes de la excavación, extendido, humectación y compactación en capas de 20 cm de espesor, con un grado de compactación del 95% del proctor modificado.							
		2	20,00	25,00	3,98	3.980,00		
						3.980,00	9,04	35.979,20
01.03.02	**m3 RELLENO TRASDÓS OBRAS FAB. C/MAT FILTRANTE**							
	Relleno localizado en trasdós de obras de fábrica con material filtrante, extendido, humectación y compactación en capas de 20 cm de espesor, con un grado de compactación del 95% del proctor modificado.							
		2	20,00	25,00	1,93	1.930,00		
						1.930,00	23,21	44.795,30
01.03.03	**m3 RELLENO C/SUELO SELECCIONADO EN CORONACIÓN DE TERRAPLEN**							
	Relleno con suelo seleccionado S/PG3 procedente de cantera CBR>20 en coronación de terraplén, incluyendo suministro, extendido, humectación y compactación (según PG3). Totalmente terminado.							
		2	11,65	20,00	0,20	93,20		
						93,20	11,41	1.063,41
	TOTAL 01.03							**81.837,91**
	TOTAL 01							**124.507,09**

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
02	**FIRMES**							
02.01	**m2 IMPERMEABILIZACIÓN DE TABLEROS**							
	Impermeabilización de tableros con membrana impermeabilizante de betún elastómero SBS, o similar, incluso p.p de solapes entre bandas, imprimación asfáltica y todos aquellos elementos o medios auxiliares necesarios para su completa colocación. Medida la superficie totalmente terminada.							
			75,00	15,00		1.125,00		
						1.125,00	19,78	22.252,50
02.02	**t MEZCLA BITUMINOSA CALIENTE EN CAPA DE RODADURA**							
	Mezcla bituminosa en caliente en capa de rodadura							
	La anchura corresponde a los 15 m de tablero por 0,23 t/m3		75,00	34,50	0,08	207,00		
						207,00	32,96	6.822,72
02.03	**kg EMULSIÓN ECR RIEGO DE ADHERENCIA**							
	Emulsión bituminosa ECR-1 en rieo de adherencia							
	La anchura es 15m por 0,5 kg/m2 dotación del material		75,00	7,50		562,50		
						562,50	438,03	246.391,88
02.04	**kg EMULSIÓN ECI RIEGO IMPRIMACIÓN**							
	Emulsión bituminosa ECI en riego de imprimación							
	La anchura es 15m por 1 kg/m2 dotación del material		75,00	15,00		1.125,00		
						1.125,00	386,99	435.363,75
02.05	**m2 PAVIMENTO DE MADERA**							
	Pavimento de madera C-24							
		2	75,00	6,00		900,00		
						900,00	26,19	23.571,00
	TOTAL 02							**734.401,85**

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
03	**ESTRUCTURAS**							
03.01	**ARCO**							
03.01.01	**m3 HORMIGÓN HA-50/B/20/IIIa PROCEDENTE DE CENTRAL Y BOMBEADO**							
	Hormigón HA-50/B/20/Qb procedente de central puesto en obra							
		2	80,56	0,80	0,80	103,12		
						103,12	161,62	16.666,25
03.01.02	**kg ACERO EN BARRAS CORRUGADAS B-500-S**							
	Acero en barras corrugadas, B-500 S, colocado en armaduras pasivas según planos, incluso corte y doblado, colocación, solapes, despuntes y p.p. de atado con alambre recocido y separadores, medido en peso nominal.							
	Flexión: La anchura se toma kg/m	16	80,65	2,45		3.161,48		
	Torsión: la anchura se toma como kg/m	520	3,00	1,57		2.449,20		
						5.610,68	1,20	6.732,82
03.01.03	**m² ENCOFRADO CURVO CON MADERA MACHIEMBRADA**							
	Encofrado curvo con madera machihembrada.							
		2	80,56	1,60	1,60	412,47		
						412,47	35,35	14.580,81
03.01.04	**m3 CIMBRA**							
	Cimbra							
		2	75,00	2,00	12,00	3.600,00		
						3.600,00	11,10	39.960,00
03.01.05	**u PÉNDOLA ACERO**							
	Tirante de acero Marca: PFEIFER PV300 55mm							
		32				32,00		
						32,00	98,41	3.149,12
	TOTAL 03.01							**81.089,00**
03.02	**TABLERO**							
03.02.01	**m³ HORMIGÓN HA-35/F/40/IIIa**							
	M3. Hormigón HA-35/P/40/IIA pretensar incluso vibrado y colocado.							
			75,00	15,00	0,32	360,00		
						360,00	110,43	39.754,80
03.02.02	**m² ENCOFRADO RECTO**							
	Encofrado recto.							
			75,00	15,00		1.125,00		
						1.125,00	15,94	17.932,50
03.02.03	**kg ACERO EN BARRAS CORRUGADAS, B-500S**							
	Acero en barras corrugadas, B-500 S, colocado en armaduras pasivas según planos, incluso corte y doblado, colocación, solapes, despuntes y p.p. de atado con alambre recocido y separadores, medido en peso nominal.							
						38.920,57	1,20	46.704,68
03.02.04	**kg ACERO S 355 J2 ESTRUCTURAL**							

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
	Acero S 355 J2 G2 W en estructura de acero.							
	Vigas trans: Anchura = area; altura=densidad	18	15,00	0,04	7.850,00	84.780,00		
	Viga long	2	75,00	0,11	7.850,00	129.525,00		
	detalle arranque	4	0,69		7.850,00	21.666,00		
	Voladizos	36		0,16	7.850,00	45.216,00		
	Imposta	2	2,98		7.850,00	46.786,00		
						327.973,00	3,87	1.269.255,51
03.02.05	**m³ CIMBRA**							
	Cimbra							
			75,00	15,00	4,00	4.500,00		
						4.500,00	11,10	49.950,00
03.02.06	**u APOYOS ELASTOMÉRICOS TIPO POT**							
	Apoyo deslizante libre, de 200 t de carga y giro admisible de 0,015 rad.							
						4,00	1.045,50	4.182,00
03.02.07	**m JUNTA DE DILATACIÓN 100mm DE RECORRIDO**							
	Junta de dilatación hasta 102 mm de recorrido.							
		2	15,00			30,00		
						30,00	474,30	14.229,00
03.02.08	**u PRUEBA DE CARGA**							
	Prueba de carga de puente para carretera.							
						1,00	1.921,50	1.921,50
03.02.09	**m BORDILLO**							
	Bordillo de hormigón 10x20cm							
		2	75,00			150,00		
						150,00	5,33	799,50
	TOTAL 03.02							**1.444.729,49**

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
03.03	**ESTRIBOS**							
03.03.01	**m PILOTE H.A. IN SITU 1500mm, LODOS**							
	Pilote de hormigón armado moldeado in situ de 1500 mm de diámetro nominal perforado con lodos bentoníticos.							
	Estribo derecho	8	25,00			200,00		
	estribo izq	8	25,00			200,00		
						400,00	530,45	212.180,00
03.03.02	**kg ACERO BARRAS CORRUGAADAS, B-500 S**							
	Acero en barras corrugadas, B-500 S, colocado en armaduras pasivas según planos, incluso corte y doblado, colocación, solapes, despuntes y p.p. de atado con alambre recocido y separadores, medido en peso nominal.							
						278.222,00	1,20	333.866,40
03.03.03	**m3 HORMIGÓN HA-35/b/20/IIIa BOMBEADO**							
	Hormigón HA-35/B/20/IIa procedente de central puesto en obra mediante bombeo.							
						772,00	125,58	96.947,76
03.03.05	**m2 ENCOFRADO RECTO**							
		4	23,20		2,50	232,00		
		4	23,20		2,80	259,84		
		4		2,80	2,50	28,00		
						519,84	15,94	8.286,25
	TOTAL 03.03							**651.280,41**
	TOTAL 03							**2.177.098,90**

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
04	**SEÑALIZACIÓN Y BALIZAMIENTO**							
04.01	**m BARRERA DE SEGURIDAD METÁLICA**							
	ML. Defensa rígida, totalmente colocada.							
		2	150,00			300,00		
						300,00	52,35	15.705,00
04.02	**m MARCA VIAL TIPO 2 P-RR 10 CM DE ANCHURA**							
	ML. Marca vial reflexiva de 10 cm, con pintura reflectante y microesferas de vídrio, con máquina autopropulsada.							
			75,00			75,00		
						75,00	0,29	21,75
04.03	**m BARANDILLA METÁLICA CON VIDRIO**							
	ML. Barandilla metálica galvanizada suministro y colocación.							
		2	75,00			150,00		
						150,00	41,96	6.294,00
04.04	**u SEÑAL CIRCULAR REFLESIVA H.I. D=90 CM**							
	Señal circular de diámetro 90 cm, reflexiva nivel II (H.I.) y troquelada, incluso poste galvanizado de sustentación y cimentación, colocada.							
		3				3,00		
						3,00	182,27	546,81
04.05	**u SEÑAL TRIANGULAR REFLEXIVA H.I. L=135 CM**							
		3				3,00		
						3,00	189,08	567,24
04.06	**u CARTEL REFLEXIVO 120X25 CM E.G.**							
	Cartel de señal informativa y de orientación de 120x25 cm, reflexivo nivel I (E.G.), troquelado, incluso postes galvanizados de sustentación y cimentación, colocado.							
		3				3,00		
						3,00	246,09	738,27
	TOTAL 04							**23.873,07**

PRESUPUESTO Y MEDICIONES

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
06	**VARIOS**							
06.01	**GESTIÓN DE RESIDUOS**							
						1,00	19.976,88	19.976,88
	TOTAL 06							**19.976,88**

CÓDIGO	RESUMEN	UDS	LONGITUD	ANCHURA	ALTURA	CANTIDAD	PRECIO	IMPORTE
05	**PARTIDAS ALZADAS**							
05.02	**ILUMINACIÓN DEL PUENTE**							
	TOTAL 05.02							**24.000,00**
05.01	**SEGURIDAD Y SALUD**							
	TOTAL 05.01							**85.899,00**
	TOTAL 05							**109.899,00**
	TOTAL							**3.189.756,79**

Santander, junio de 2017

EL AUTOR DEL PROYECTO



CUADRO DE PRECIOS 1

Nº	CÓDIGO	UD.	RESUMEN	PRECIO EN LETRA	IMPORTE
0001	01.01.01 0,28	m2	Desbroce y limpieza superficial de terreno sin clasificar, por medios mecánicos, con carga y transporte de los productos resultantes a vertedero o lugar de empleo, incluyendo la retirada de arbolado menor de 10 cm. y con p.p. de medios auxiliares.	CERO EUROS con VEINTIOCHO CÉNTIMOS	
0002	01.01.02 6,59	m2	Demolición y levantado de aceras de loseta hidráulica o equivalente, con solera de hormigón en masa 10/15 cm. de espesor, incluso carga y transporte en camión del escombro resultante al lugar de acopio en obra, para su posterior transporte a planta de RCD. I/p.p. de medios auxiliares.	SEIS EUROS con CINCUENTA Y NUEVE CÉNTIMOS	
0003	01.01.03 2,10	m	Demolición y levantado de bordillo de cualquier tipo y cimientos de hormigón en masa, de espesor variable, incluso carga y transporte en camión del escombro resultante al lugar de acopio en obra, para su posterior transporte a planta de RCD. I/p.p. de medios auxiliares.	DOS EUROS con DIEZ CÉNTIMOS	
0004	01.01.04 6,28	m2	Demolición y levantado de pavimento de hormigón armado de 15/25 cm. de espesor, incluso carga y transporte en camión del escombro resultante al lugar de acopio en obra, para su posterior transporte a planta de RCD. I/p.p. de medios auxiliares.	SEIS EUROS con VEINTIOCHO CÉNTIMOS	
0005	01.01.05 3,10	m2	Demolición y levantado de pavimento de M.B.C. de 10/20 cm. de espesor, incluso carga y transporte en camión del escombro resultante al lugar de acopio en obra, para su posterior transporte a planta de RCD. I/p.p. de medios auxiliares.	TRES EUROS con DIEZ CÉNTIMOS	
0006	01.02.01 2,90	m3	Excavación de la explanación y préstamos. Excavación en tierras y tránsito.	DOS EUROS con NOVENTA CÉNTIMOS	
0007	01.03.01 9,04	m3	Relleno localizado en trasdós de obras de fábrica con productos procedentes de la excavación, extendido, humectación y compactación en capas de 20 cm de espesor, con un grado de compactación del 95% del proctor modificado.	NUEVE EUROS con CUATRO CÉNTIMOS	

Nº	CÓDIGO	UD.	RESUMEN	PRECIO EN LETRA	IMPORTE
0008	01.03.02 23,21	m3	Relleno localizado en trasdós de obras de fábrica con material filtrante, extendido, humectación y compactación en capas de 20 cm de espesor, con un grado de compactación del 95% del proctor modificado.	VEINTITRES EUROS con VEINTIUN CÉNTIMOS	
0009	01.03.03 11,41	m3	Relleno con suelo seleccionado S/PG3 procedente de cantera CBR>20 en coronación de terraplén, incluyendo suministro, extendido, humectación y compactación (según PG3). Totalmente terminado.	ONCE EUROS con CUARENTA Y UN CÉNTIMOS	
0010	02.01 19,78	m2	Impermeabilización de tableros con membrana impermeabilizante de betún elastómero SBS, o similar, incluso p.p de solapes entre bandas, imprimación asfáltica y todos aquellos elementos o medios auxiliares necesarios para su completa colocación. Medida la superficie totalmente terminada.	DIECINUEVE EUROS con SETENTA Y OCHO CÉNTIMOS	
0011	02.02 32,96	t	Mezcla bituminosa en caliente en capa de rodadura	TREINTA Y DOS EUROS con NOVENTA Y SEIS CÉNTIMOS	
0012	02.03 438,03	kg	Emulsión bituminosa ECR-1 en rieo de adherencia	CUATROCIENTOS TREINTA Y OCHO EUROS con TRES CÉNTIMOS	
0013	02.04 386,99	kg	Emulsión bituminosa ECI en riego de imprimación	TRESCIENTOS OCHENTA Y SEIS EUROS con NOVENTA Y NUEVE CÉNTIMOS	
0014	02.05 26,19	m2	Pavimento de madera C-24	VEINTISEIS EUROS con DIECINUEVE CÉNTIMOS	
0015	03.01.01 161,62	m3	Hormigón HA-50/B/20/Qb procedente de central puesto en obra	CIENTO SESENTA Y UN EUROS con SESENTA Y DOS CÉNTIMOS	
0016	03.01.02 1,20	kg	Acero en barras corrugadas, B-500 S, colocado en armaduras pasivas según planos, incluso corte y doblado,		

Nº	CÓDIGO	UD.	RESUMEN	PRECIO EN LETRA	IMPORTE
			colocación, solapes, despuntes y p.p. de atado con alambre recocido y separadores, medido en peso nominal.		
0017	03.01.03 35,35	m²	Encofrado curvo con madera machihembrada.	UN EUROS con VEINTE CÉNTIMOS	
0018	03.01.04 11,10	m3	Cimbra	TREINTA Y CINCO EUROS con TREINTA Y CINCO CÉNTIMOS	
0019	03.01.05 98,41	u	Tirante de acero Marca: PFEIFER PV300 55mm	ONCE EUROS con DIEZ CÉNTIMOS	
0020	03.02.01 110,43	m³	M3. Hormigón HA-35/P/40/IIA pretensar incluso vibrado y colocado.	NOVENTA Y OCHO EUROS con CUARENTA Y UN CÉNTIMOS	
0021	03.02.02 15,94	m²	Encofrado recto.	CIENTO DIEZ EUROS con CUARENTA Y TRES CÉNTIMOS	
0022	03.02.03 1,20	kg	Acero en barras corrugadas, B-500 S, colocado en armaduras pasivas según planos, incluso corte y doblado, colocación, solapes, despuntes y p.p. de atado con alambre recocido y separadores, medido en peso nominal.	QUINCE EUROS con NOVENTA Y CUATRO CÉNTIMOS	
0023	03.02.04 3,87	kg	Acero S 355 J2 G2 W en estructura de acero.	UN EUROS con VEINTE CÉNTIMOS	
0024	03.02.05 11,10	m³	Cimbra	TRES EUROS con OCHENTA Y SIETE CÉNTIMOS	
0025	03.02.06 1.045,50	u	Apoyo deslizante libre, de 200 t de carga y giro admisible de 0,015 rad.	ONCE EUROS con DIEZ CÉNTIMOS	
				MIL CUARENTA Y CINCO EUROS con CINCUENTA	

Nº	CÓDIGO	UD.	RESUMEN	PRECIO EN LETRA	IMPORTE
				CÉNTIMOS	
0026	03.02.07 474,30	m	Junta de dilatación hasta 102 mm de recorrido.	CUATROCIENTOS SETENTA Y CUATRO EUROS con TREINTA CÉNTIMOS	
0027	03.02.08 1.921,50	u	Prueba de carga de puente para carretera.	MIL NOVECIENTOS VEINTIUN EUROS con CINCUENTA CÉNTIMOS	
0028	03.02.09 5,33	m	Bordillo de hormigón 10x20cm	CINCO EUROS con TREINTA Y TRES CÉNTIMOS	
0029	03.03.01 530,45	m	Pilote de hormigón armado moldeado in situ de 1500 mm de diámetro nominal perforado con lodos bentoníticos.	QUINIENTOS TREINTA EUROS con CUARENTA Y CINCO CÉNTIMOS	
0030	03.03.02 1,20	kg	Acero en barras corrugadas, B-500 S, colocado en armaduras pasivas según planos, incluso corte y doblado, colocación, solapes, despuntes y p.p. de atado con alambre recocido y separadores, medido en peso nominal.	UN EUROS con VEINTE CÉNTIMOS	
0031	03.03.03 125,58	m3	Hormigón HA-35/B/20/IIa procedente de central puesto en obra mediante bombeo.	CIENTO VEINTICINCO EUROS con CINCUENTA Y OCHO CÉNTIMOS	
0032	03.03.05	m2			15,94
				QUINCE EUROS con NOVENTA Y CUATRO CÉNTIMOS	
0033	04.01 52,35	m	ML. Defensa rígida, totalmente colocada.	CINCUENTA Y DOS EUROS con TREINTA Y CINCO CÉNTIMOS	
0034	04.02 0,29	m	ML. Marca vial reflexiva de 10 cm, con pintura reflectante y microesferas de vídrio, con máquina autopropulsada.	CERO EUROS con VEINTINUEVE CÉNTIMOS	
0035	04.03	m	ML. Barandilla metálica galvanizada suministro y		

Nº	CÓDIGO	UD.	RESUMEN	PRECIO EN LETRA	IMPORTE
	41,96		colocación.		
				CUARENTA Y UN EUROS con NOVENTA Y SEIS CÉNTIMOS	
0036	04.04 182,27	u	Señal circular de diámetro 90 cm, reflexiva nivel II (H.I.) y troquelada, incluso poste galvanizado de sustentación y cimentación, colocada.		
				CIENTO OCHENTA Y DOS EUROS con VEINTISIETE CÉNTIMOS	
0037	04.05	u		CIENTO OCHENTA Y NUEVE EUROS con OCHO CÉNTIMOS	189,08
0038	04.06 246,09	u	Cartel de señal informativa y de orientación de 120x25 cm, reflexivo nivel I (E.G.), troquelado, incluso postes galvanizados de sustentación y cimentación, colocado.		
				DOSCIENTOS CUARENTA Y SEIS EUROS con NUEVE CÉNTIMOS	
0039	06.01			DIECINUEVE MIL NOVECIENTOS SETENTA Y SEIS EUROS con OCHENTA Y OCHO CÉNTIMOS	19.976,88

Santander, junio de 2017

EL AUTOR DEL PROYECTO



CUADRO DE PRECIOS 2

Nº	CÓDIGO	UD.	RESUMEN	IMPORTE
0001	01.01.01	m2	Desbroce y limpieza superficial de terreno sin clasificar, por medios mecánicos, con carga y transporte de los productos resultantes a vertedero o lugar de empleo, incluyendo la retirada de arbolado menor de 10 cm. y con p.p. de medios auxiliares.	
			Mano de obra	0,04
			Maquinaria	0,13
			Resto de obra y materiales	0,11
			TOTAL PARTIDA	**0,28**
0002	01.01.02	m2	Demolición y levantado de aceras de loseta hidráulica o equivalente, con solera de hormigón en masa 10/15 cm. de espesor, incluso carga y transporte en camión del escombro resultante al lugar de acopio en obra, para su posterior transporte a planta de RCD. I/p.p. de medios auxiliares.	
			Mano de obra	1,17
			Maquinaria	5,19
			Resto de obra y materiales	0,23
			TOTAL PARTIDA	**6,59**
0003	01.01.03	m	Demolición y levantado de bordillo de cualquier tipo y cimientos de hormigón en masa, de espesor variable, incluso carga y transporte en camión del escombro resultante al lugar de acopio en obra, para su posterior transporte a planta de RCD. I/p.p. de medios auxiliares.	
			Mano de obra	0,41
			Maquinaria	1,61
			Resto de obra y materiales	0,08
			TOTAL PARTIDA	**2,10**
0004	01.01.04	m2	Demolición y levantado de pavimento de hormigón armado de 15/25 cm. de espesor, incluso carga y transporte en camión del escombro resultante al lugar de acopio en obra, para su posterior transporte a planta de RCD. I/p.p. de medios auxiliares.	
			Mano de obra	2,05
			Maquinaria	3,97
			Resto de obra y materiales	0,26
			TOTAL PARTIDA	**6,28**
0005	01.01.05	m2	Demolición y levantado de pavimento de M.B.C. de 10/20 cm. de espesor, incluso carga y transporte en camión del escombro resultante al lugar de acopio en obra, para su posterior transporte a planta de RCD. I/p.p. de medios auxiliares.	
			Mano de obra	0,53
			Maquinaria	2,44
			Resto de obra y materiales	0,13
			TOTAL PARTIDA	**3,10**
0006	01.02.01	m3	Excavación de la explanación y préstamos. Excavación en tierras y tránsito.	

Nº	CÓDIGO	UD.	RESUMEN	IMPORTE
			Mano de obra	0,28
			Maquinaria	2,50
			Resto de obra y materiales	0,12
			TOTAL PARTIDA	**2,90**
0007	01.03.01	m3	Relleno localizado en trasdós de obras de fábrica con productos procedentes de la excavación, extendido, humectación y compactación en capas de 20 cm de espesor, con un grado de compactación del 95% del proctor modificado.	
			Mano de obra	5,64
			Maquinaria	3,04
			Resto de obra y materiales	0,36
			TOTAL PARTIDA	**9,04**
0008	01.03.02	m3	Relleno localizado en trasdós de obras de fábrica con material filtrante, extendido, humectación y compactación en capas de 20 cm de espesor, con un grado de compactación del 95% del proctor modificado.	
			Mano de obra	3,52
			Maquinaria	2,74
			Resto de obra y materiales	16,95
			TOTAL PARTIDA	**23,21**
0009	01.03.03	m3	Relleno con suelo seleccionado S/PG3 procedente de cantera CBR>20 en coronación de terraplén, incluyendo suministro, extendido, humectación y compactación (según PG3). Totalmente terminado.	
			Mano de obra	3,47
			Maquinaria	0,96
			Resto de obra y materiales	6,98
			TOTAL PARTIDA	**11,41**
0010	02.01	m2	Impermeabilización de tableros con membrana impermeabilizante de betún elastómero SBS, o similar, incluso p.p de solapes entre bandas, imprimación asfáltica y todos aquellos elementos o medios auxiliares necesarios para su completa colocación. Medida la superficie totalmente terminada.	
			Mano de obra	6,80
			Maquinaria	1,72
			Resto de obra y materiales	11,26
			TOTAL PARTIDA	**19,78**
0011	02.02	t	Mezcla bituminosa en caliente en capa de rodadura	
			Mano de obra	2,08
			Maquinaria	13,78
			Resto de obra y materiales	17,10
			TOTAL PARTIDA	**32,96**
			Mano de obra	2,08
			Maquinaria	13,78
			Resto de obra y materiales	17,10
			TOTAL PARTIDA	**32,96**
0012	02.03	kg	Emulsión bituminosa ECR-1 en rieo de	

Nº	CÓDIGO	UD.	RESUMEN	IMPORTE
			adherencia	
			Mano de obra	46,24
			Maquinaria	47,20
			Resto de obra y materiales	344,59
			TOTAL PARTIDA	**438,03**
0013	02.04	kg	Emulsión bituminosa ECI en riego de imprimación	
			Mano de obra	30,83
			Maquinaria	34,85
			Resto de obra y materiales	321,31
			TOTAL PARTIDA	**386,99**
0014	02.05	m2	Pavimento de madera C-24	
			Mano de obra	9,04
			Resto de obra y materiales	17,15
			TOTAL PARTIDA	**26,19**
0015	03.01.01	m3	Hormigón HA-50/B/20/Qb procedente de central puesto en obra	
			Mano de obra	11,55
			Maquinaria	12,45
			Resto de obra y materiales	137,62
			TOTAL PARTIDA	**161,62**
0016	03.01.02	kg	Acero en barras corrugadas, B-500 S, colocado en armaduras pasivas según planos, incluso corte y doblado, colocación, solapes, despuntes y p.p. de atado con alambre recocido y separadores, medido en peso nominal.	
			Mano de obra	0,27
			Resto de obra y materiales	0,93
			TOTAL PARTIDA	**1,20**
0017	03.01.03	m²	Encofrado curvo con madera machihembrada.	
			Mano de obra	17,49
			Resto de obra y materiales	17,86
			TOTAL PARTIDA	**35,35**
0018	03.01.04	m3	Cimbra	
			Mano de obra	1,14
			Resto de obra y materiales	9,96
			TOTAL PARTIDA	**11,10**
0019	03.01.05	u	Tirante de acero Marca: PFEIFER PV300 55mm	
			Mano de obra	2,73
			Maquinaria	2,67
			Resto de obra y materiales	93,01
			TOTAL PARTIDA	**98,41**
			Mano de obra	2,73
			Maquinaria	2,67
			Resto de obra y materiales	93,01
			TOTAL PARTIDA	**98,41**

Nº	CÓDIGO	UD.	RESUMEN	IMPORTE
0020	03.02.01	m³	M3. Hormigón HA-35/P/40/IIA pretensar incluso vibrado y colocado.	
			Mano de obra	23,68
			Maquinaria	6,46
			Resto de obra y materiales	80,29
			TOTAL PARTIDA	**110,43**
0021	03.02.02	m²	Encofrado recto.	
			Mano de obra	12,50
			Resto de obra y materiales	3,44
			TOTAL PARTIDA	**15,94**
0022	03.02.03	kg	Acero en barras corrugadas, B-500 S, colocado en armaduras pasivas según planos, incluso corte y doblado, colocación, solapes, despuntes y p.p. de atado con alambre recocido y separadores, medido en peso nominal.	
			Mano de obra	0,27
			Resto de obra y materiales	0,93
			TOTAL PARTIDA	**1,20**
0023	03.02.04	kg	Acero S 355 J2 G2 W en estructura de acero.	
			Mano de obra	1,22
			Maquinaria	0,92
			Resto de obra y materiales	1,73
			TOTAL PARTIDA	**3,87**
0024	03.02.05	m³	Cimbra	
			Mano de obra	1,14
			Resto de obra y materiales	9,96
			TOTAL PARTIDA	**11,10**
0025	03.02.06	u	Apoyo deslizante libre, de 200 t de carga y giro admisible de 0,015 rad.	
			Mano de obra	128,84
			Maquinaria	36,67
			Resto de obra y materiales	879,99
			TOTAL PARTIDA	**1.045,50**
0026	03.02.07	m	Junta de dilatación hasta 102 mm de recorrido.	
			Mano de obra	49,27
			Maquinaria	404,60
			Resto de obra y materiales	20,43
			TOTAL PARTIDA	**474,30**
			Mano de obra	49,27
			Maquinaria	404,60
			Resto de obra y materiales	20,43

Nº	CÓDIGO	UD.	RESUMEN	IMPORTE
			TOTAL PARTIDA.....	**474,30**
0027	03.02.08	u	Prueba de carga de puente para carretera.	
			Resto de obra y materiales.....	1.921,50
			TOTAL PARTIDA.....	**1.921,50**
0028	03.02.09	m	Bordillo de hormigón 10x20cm	
			Mano de obra.....	2,02
			Maquinaria.....	0,01
			Resto de obra y materiales.....	3,30
			TOTAL PARTIDA.....	**5,33**
0029	03.03.01	m	Pilote de hormigón armado moldeado in situ de 1500 mm de diámetro nominal perforado con lodos bentoníticos.	
			Mano de obra.....	30,69
			Maquinaria.....	293,77
			Resto de obra y materiales.....	205,99
			TOTAL PARTIDA.....	**530,45**
0030	03.03.02	kg	Acero en barras corrugadas, B-500 S, colocado en armaduras pasivas según planos, incluso corte y doblado, colocación, solapes, despuntes y p.p. de atado con alambre recocido y separadores, medido en peso nominal.	
			Mano de obra.....	0,27
			Resto de obra y materiales.....	0,93
			TOTAL PARTIDA.....	**1,20**
0031	03.03.03	m3	Hormigón HA-35/B/20/IIa procedente de central puesto en obra mediante bombeo.	
			Mano de obra.....	11,55
			Maquinaria.....	11,51
			Resto de obra y materiales.....	102,52
			TOTAL PARTIDA.....	**125,58**
0032	03.03.05	m2		
			Mano de obra.....	12,50
			Resto de obra y materiales.....	3,44
			TOTAL PARTIDA.....	**15,94**
0033	04.01	m	ML. Defensa rígida, totalmente colocada.	
			Mano de obra.....	4,14
			Resto de obra y materiales.....	48,21
			TOTAL PARTIDA.....	**52,35**
0034	04.02	m	ML. Marca vial reflexiva de 10 cm, con pintura reflectante y microesferas de vídrio, con máquina autopropulsada.	

Nº	CÓDIGO	UD.	RESUMEN	IMPORTE
			Mano de obra	0,04
			Maquinaria	0,02
			Resto de obra y materiales	0,23
			TOTAL PARTIDA	**0,29**
0035	04.03	m	ML. Barandilla metálica galvanizada suministro y colocación.	
			Mano de obra	7,00
			Maquinaria	0,79
			Resto de obra y materiales	34,17
			TOTAL PARTIDA	**41,96**
0036	04.04	u	Señal circular de diámetro 90 cm, reflexiva nivel II (H.I.) y troquelada, incluso poste galvanizado de sustentación y cimentación, colocada.	
			Mano de obra	20,47
			Maquinaria	4,55
			Resto de obra y materiales	157,25
			TOTAL PARTIDA	**182,27**
0037	04.05	u		
			Mano de obra	20,47
			Maquinaria	4,55
			Resto de obra y materiales	164,06
			TOTAL PARTIDA	**189,08**
0038	04.06	u	Cartel de señal informativa y de orientación de 120x25 cm, reflexivo nivel I (E.G.), troquelado, incluso postes galvanizados de sustentación y cimentación, colocado.	
			Mano de obra	52,38
			Maquinaria	4,55
			Resto de obra y materiales	189,16
			TOTAL PARTIDA	**246,09**
0039	06.01			
			Resto de obra y materiales	19.976,88
			TOTAL PARTIDA	**19.976,88**

Santander, junio de 2017

EL AUTOR DEL PROYECTO



PRESUPUESTO

CÓDIGO	RESUMEN	CANTIDAD	PRECIO	IMPORTE
01	**EXPLANACIONES**			
01.01	**TRABAJOS PRELIMINARES**			
01.01.01	**m2 Desbroce del terreno** Desbroce y limpieza superficial de terreno sin clasificar, por medios mecánicos, con carga y transporte de los productos resultantes a vertedero o lugar de empleo, incluyendo la retirada de arbolado menor de 10 cm. y con p.p. de medios auxiliares.	3.750,00	0,28	1.050,00
01.01.02	**m2 Demolición y levantamiento de aceras** Demolición y levantado de aceras de loseta hidráulica o equivalente, con solera de hormigón en masa 10/15 cm. de espesor, incluso carga y transporte en camión del escombro resultante al lugar de acopio en obra, para su posterior transporte a planta de RCD. I/p.p. de medios auxiliares.	208,00	6,59	1.370,72
01.01.03	**m Demolición y levantado de bordillo** Demolición y levantado de bordillo de cualquier tipo y cimientos de hormigón en masa, de espesor variable, incluso carga y transporte en camión del escombro resultante al lugar de acopio en obra, para su posterior transporte a planta de RCD. I/p.p. de medios auxiliares.	28,00	2,10	58,80
01.01.04	**m2 Demolición y levantado de pavimento HA e=15/25cm** Demolición y levantado de pavimento de hormigón armado de 15/25 cm. de espesor, incluso carga y transporte en camión del escombro resultante al lugar de acopio en obra, para su posterior transporte a planta de RCD. I/p.p. de medios auxiliares.	682,80	6,28	4.287,98
01.01.05	**m2 Demolición y levantado de pavimento MBC e=10/20cm** Demolición y levantado de pavimento de M.B.C. de 10/20 cm. de espesor, incluso carga y transporte en camión del escombro resultante al lugar de acopio en obra, para su posterior transporte a planta de RCD. I/p.p. de medios auxiliares.	682,80	3,10	2.116,68
	TOTAL 01.01			**8.884,18**
01.02	**EXCAVACIONES**			
01.02.01	**m3 EXCAVACIÓN DE ESTRIBOS DE PUENTE** Excavación de la explanación y préstamos. Excavación en tierras y tránsito.	11.650,00	2,90	33.785,00
	TOTAL 01.02			**33.785,00**

PRESUPUESTO

CÓDIGO	RESUMEN	CANTIDAD	PRECIO	IMPORTE
01.03	**RELLENOS**			
01.03.01	m3 RELLENO TRASDÓS OBRAS FAB. C/MAT EXCAVAC Relleno localizado en trasdós de obras de fábrica con productos procedentes de la excavación, extendido, humectación y compactación en capas de 20 cm de espesor, con un grado de compactación del 95% del proctor modificado.	3.980,00	9,04	35.979,20
01.03.02	m3 RELLENO TRASDÓS OBRAS FAB. C/MAT FILTRANTE Relleno localizado en trasdós de obras de fábrica con material filtrante, extendido, humectación y compactación en capas de 20 cm de espesor, con un grado de compactación del 95% del proctor modificado.	1.930,00	23,21	44.795,30
01.03.03	m3 RELLENO C/SUELO SELECCIONADO EN CORONACIÓN DE TERRAPLEN Relleno con suelo seleccionado S/PG3 procedente de cantera CBR>20 en coronación de terraplén, incluyendo suministro, extendido, humectación y compactación (según PG3). Totalmente terminado.	93,20	11,41	1.063,41
	TOTAL 01.03			**81.837,91**
	TOTAL 01			**124.507,09**

PRESUPUESTO

CÓDIGO	RESUMEN	CANTIDAD	PRECIO	IMPORTE
02	**FIRMES**			
02.01	m2 IMPERMEABILIZACIÓN DE TABLEROS Impermeabilización de tableros con membrana impermeabilizante de betún elastómero SBS, o similar, incluso p.p de solapes entre bandas, imprimación asfáltica y todos aquellos elementos o medios auxiliares necesarios para su completa colocación. Medida la superficie totalmente terminada.	1.125,00	19,78	22.252,50
02.02	t MEZCLA BITUMINOSA CALIENTE EN CAPA DE RODADURA Mezcla bituminosa en caliente en capa de rodadura	207,00	32,96	6.822,72
02.03	kg EMULSIÓN ECR RIEGO DE ADHERENCIA Emulsión bituminosa ECR-1 en rieo de adherencia	562,50	438,03	246.391,88
02.04	kg EMULSIÓN ECI RIEGO IMPRIMACIÓN Emulsión bituminosa ECI en riego de imprimación	1.125,00	386,99	435.363,75
02.05	m2 PAVIMENTO DE MADERA Pavimento de madera C-24	900,00	26,19	23.571,00
	TOTAL 02			**734.401,85**

PRESUPUESTO

CÓDIGO	RESUMEN	CANTIDAD	PRECIO	IMPORTE
03	**ESTRUCTURAS**			
03.01	**ARCO**			
03.01.01	m3 HORMIGÓN HA-50/B/20/IIIa PROCEDENTE DE CENTRAL Y BOMBEADO Hormigón HA-50/B/20/Qb procedente de central puesto en obra	103,12	161,62	16.666,25
03.01.02	kg ACERO EN BARRAS CORRUGADAS B-500-S Acero en barras corrugadas, B-500 S, colocado en armaduras pasivas según planos, incluso corte y doblado, colocación, solapes, despuntes y p.p. de atado con alambre recocido y separadores, medido en peso nominal.	5.610,68	1,20	6.732,82
03.01.03	m² ENCOFRADO CURVO CON MADERA MACHIEMBRADA Encofrado curvo con madera machihembrada.	412,47	35,35	14.580,81
03.01.04	m3 CIMBRA Cimbra	3.600,00	11,10	39.960,00
03.01.05	u PÉNDOLA ACERO Tirante de acero Marca: PFEIFER PV300 55mm	32,00	98,41	3.149,12
	TOTAL 03.01			**81.089,00**
03.02	**TABLERO**			
03.02.01	m³ HORMIGÓN HA-35/F/40/IIIa M3. Hormigón HA-35/P/40/IIA pretensar incluso vibrado y colocado.	360,00	110,43	39.754,80
03.02.02	m² ENCOFRADO RECTO Encofrado recto.	1.125,00	15,94	17.932,50
03.02.03	kg ACERO EN BARRAS CORRUGADAS, B-500S Acero en barras corrugadas, B-500 S, colocado en armaduras pasivas según planos, incluso corte y doblado, colocación, solapes, despuntes y p.p. de atado con alambre recocido y separadores, medido en peso nominal.	38.920,57	1,20	46.704,68
03.02.04	kg ACERO S 355 J2 ESTRUCTURAL Acero S 355 J2 G2 W en estructura de acero.	327.973,00	3,87	1.269.255,51
03.02.05	m³ CIMBRA Cimbra	4.500,00	11,10	49.950,00

CÓDIGO	RESUMEN	CANTIDAD	PRECIO	IMPORTE
03.02.06	u APOYOS ELASTOMÉRICOS TIPO POT Apoyo deslizante libre, de 200 t de carga y giro admisible de 0,015 rad.	4,00	1.045,50	4.182,00
03.02.07	m JUNTA DE DILATACIÓN 100mm DE RECORRIDO Junta de dilatación hasta 102 mm de recorrido.	30,00	474,30	14.229,00
03.02.08	u PRUEBA DE CARGA Prueba de carga de puente para carretera.	1,00	1.921,50	1.921,50
03.02.09	m BORDILLO Bordillo de hormigón 10x20cm	150,00	5,33	799,50
	TOTAL 03.02			**1.444.729,49**
03.03	**ESTRIBOS**			
03.03.01	m PILOTE H.A. IN SITU 1500mm, LODOS Pilote de hormigón armado moldeado in situ de 1500 mm de diámetro nominal perforado con lodos bentoníticos.	400,00	530,45	212.180,00
03.03.02	kg ACERO BARRAS CORRUGAADAS, B-500 S Acero en barras corrugadas, B-500 S, colocado en armaduras pasivas según planos, incluso corte y doblado, colocación, solapes, despuntes y p.p. de atado con alambre recocido y separadores, medido en peso nominal.	278.222,00	1,20	333.866,40
03.03.03	m3 HORMIGÓN HA-35/b/20/IIIa BOMBEADO Hormigón HA-35/B/20/IIa procedente de central puesto en obra mediante bombeo.	772,00	125,58	96.947,76
03.03.05	m2 ENCOFRADO RECTO	519,84	15,94	8.286,25
	TOTAL 03.03			**651.280,41**
	TOTAL 03			**2.177.098,90**

PRESUPUESTO

CÓDIGO	RESUMEN		CANTIDAD	PRECIO	IMPORTE
04	**SEÑALIZACIÓN Y BALIZAMIENTO**				
04.01	m	**BARRERA DE SEGURIDAD METÁLICA** ML. Defensa rígida, totalmente colocada.	300,00	52,35	15.705,00
04.02	m	**MARCA VIAL TIPO 2 P-RR 10 CM DE ANCHURA** ML. Marca vial reflexiva de 10 cm, con pintura reflectante y microesferas de vídrio, con máquina autopropulsada.	75,00	0,29	21,75
04.03	m	**BARANDILLA METÁLICA CON VIDRIO** ML. Barandilla metálica galvanizada suministro y colocación.	150,00	41,96	6.294,00
04.04	u	**SEÑAL CIRCULAR REFLESIVA H.I. D=90 CM** Señal circular de diámetro 90 cm, reflexiva nivel II (H.I.) y troquelada, incluso poste galvanizado de sustentación y cimentación, colocada.	3,00	182,27	546,81
04.05	u	**SEÑAL TRIANGULAR REFLEXIVA H.I. L=135 CM**	3,00	189,08	567,24
04.06	u	**CARTEL REFLEXIVO 120X25 CM E.G.** Cartel de señal informativa y de orientación de 120x25 cm, reflexivo nivel I (E.G.), troquelado, incluso postes galvanizados de sustentación y cimentación, colocado.	3,00	246,09	738,27
		TOTAL 04			**23.873,07**

PRESUPUESTO

CÓDIGO	RESUMEN	CANTIDAD	PRECIO	IMPORTE
06	**VARIOS**			
06.01	GESTIÓN DE RESIDUOS	1,00	19.976,88	19.976,88
	TOTAL 06			**19.976,88**

PRESUPUESTO

CÓDIGO	RESUMEN	CANTIDAD	PRECIO	IMPORTE
05	**PARTIDAS ALZADAS**			
05.02	**ILUMINACIÓN DEL PUENTE**			
	TOTAL 05.02			**24.000,00**
05.01	**SEGURIDAD Y SALUD**			
	TOTAL 05.01			**85.899,00**
	TOTAL 05			**109.899,00**
	TOTAL			**3.189.756,79**

Santander, junio de 2017

EL AUTOR DEL PROYECTO



RESUMEN DE PRESUPUESTO

CAPÍTULO	RESUMEN	IMPORTE	%
01	EXPLANACIONES	124.507,09	3,90
02	FIRMES	734.401,85	23,02
03	ESTRUCTURAS	2.177.098,90	68,25
04	SEÑALIZACIÓN Y BALIZAMIENTO	23.873,07	0,75
06	VARIOS	19.976,88	0,63
05	PARTIDAS ALZADAS	109.899,00	3,45

PRESUPUESTO DE EJECUCIÓN MATERIAL		**3.189.756,79**
13,00 % Gastos generales	414.668,38	
6,00 % Beneficio industrial	191.385,41	
Suma		606.053,79
PRESUPUESTO BASE DE LICITACIÓN SIN IVA		**3.795.810,58**
21% IVA		797.120,22
PRESUPUESTO BASE DE LICITACIÓN		**4.592.930,80**

Asciende el presupuesto a la expresada cantidad de CUATRO MILLONES QUINIENTOS NOVENTA Y DOS MIL NOVECIENTOS TREINTA EUROS con OCHENTA CÉNTIMOS

, 3 de junio de 2017.

Santander, junio de 2017

EL AUTOR DEL PROYECTO

