Base Load Power Hub (BLPH)

BLPH Platform
Technical Note on Validation of TP Grillage and Sea Fastening on Vervece Barge

Document Number: 123A90-DDL-TI-RE-99003

Document Class: 3

00	24/02/2025	Issued for Information (IFI)	A.Balzarotti	A.Balzarotti	D.LoSterzo
Rev.	Date	Description	Prepared	Reviewed	Approved
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A. 123A90-DDL-TI-RE-99004 TP – Grillage and SF Design report

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1 INTRODUCTION

1.1 PROJECT OVERVIEW

Crosswind, a Shell and Eneco joint venture, was awarded the tender to develop the offshore Hollandse Kust Noord (HKN) wind farm, located 18.5km off the coast of Netherlands near the town of Egmond aan Zee. The consortium plans to have HKN operational in 2023 with an installed capacity of 759MW generating at least 3.3TWh per year. This is sufficient renewable power to supply more than 1 million Dutch households with green electricity.

Offshore wind farms produce intermittent electricity and balancing these dips and peaks and integrating this electricity into the national energy system requires new technologies. For this reason, the offshore wind farm will include several new technologies that could be implemented at full-scale in the future. The new technologies being explored include a floating solar park, a short-duration battery storage as well as long-term storage via green hydrogen produced by water electrolysis and subsequently consumed in a fuel cell. The combination of these individual measures, herein referred to as the Base Load Power Hub (BLPH) will ensure a continuous power supply regardless of the wind situation.

1.1.1 Project Location

The Hollandse Kust Noord (HKN) wind farm is located 18.5km off the coast of the Netherlands near the town of Egmond aan Zee.

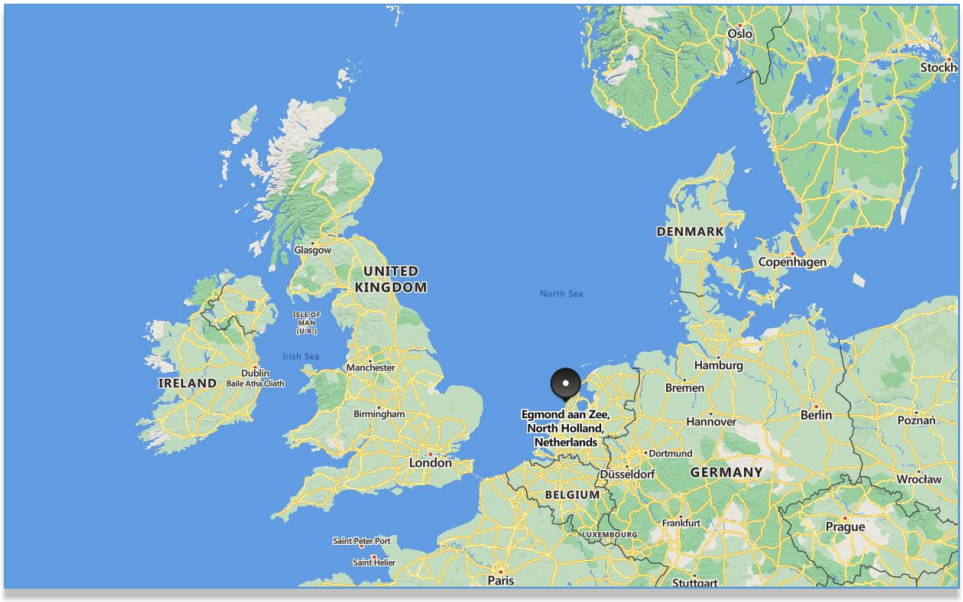


Figure 1.1 HOLLANDSE KUST NOORD WIND PARK Location Map

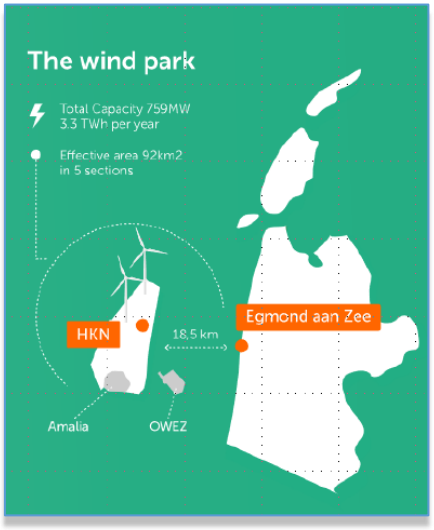


Figure 1.2 - Wind Park Details

The wind farm consist of No. 69 x 11.5MW wind turbine generators each to be installed on a dedicated monopile structure. A 70th monopile located on coordinates E 590719.1, N 5841602.3 is reserved for installing the platform accommodating the BLPH. The monopile structure was designed and installed by Van Oord Offshore Wind (VooW) and therefore not part of the BLPH scope.

1.1.2 Project Concept

All components included in the BLPH will be integrated onshore on a topsides and installed in an offshore location within the boundaries of the HKN wind farm. At its simplest, the BLPH will store energy during periods of high electricity generation from renewable sources (a wind turbine generator and the floating solar PV farm) and release it during periods of low generation. In practice. It is expected that the energy stored will supplement generation from renewable sources to ensure that at least 1.0MW of power is exported to the electrical grid regardless of wind/solar availability.

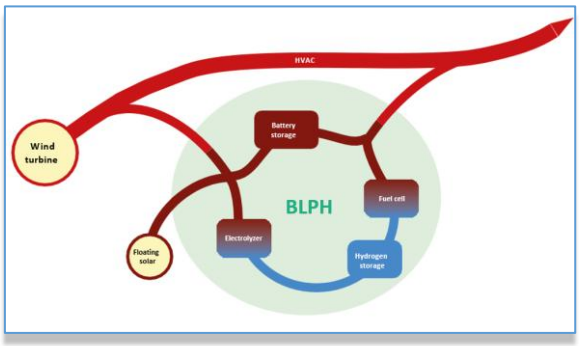


Figure 1.3 – BLPH Concept

Electricity in the BLPH will be stored in the form of electrons in a battery energy storage system (BESS) as well as converted into green hydrogen via water electrolysis. When the power output from the connecting wind turbine drops to below 1 MWe, the BLPH will return its stored energy to supplement the remaining power output. This will be by discharging the BESS, while stored hydrogen will be converted back into electricity using a fuel cell to extend the discharge duration.

The purpose of the BLPH s to function as a testbed for the integration of energy storage technologies with renewable generation. It is expected that equipment installed on the BLPH will operate as Normally Unmanned Installation for at least two (2) years with no or minimal maintenance and it will have its own independent control room with the ability to communicate with Crosswind's control room.

2 DOCUMENT SCOPE

The objective of this technical note is to outline arguments to confirm that the grillage and sea fastening structures designed for the transportation of Transition piece on cargo barge P-MAK, are still valid for the new appointed cargo barge, named VERVECE, without re-assessing the structural calculations.

The selected cargo barge is VERVECE, a standard 300ft barge having approx. the same characteristic of previous P-MAK barge, in detail:

- Same overall dimensions
- Deck capacity 25 t/m2 instead of 20 t/m2 of P-MAK
- Frame spacing 2286mm (VERVECE) instead of 2250mm (P-MAK)
- Deck point load capacity discussed in Section 3.

Structural checks of the TP grillage and SF are detailed in a separate report, ref./10/. Document is attached to this tech. note for easy reference.

2.1 DESIGN LOADS

All the permanent design loads described in /8/ are still valid. The inertial loads during transport are evaluated according to the new TP position on the barge.

Figure 2.1 below shows the barges layouts. It is easy to see that TP has been:

- Moved forward by about 6.50m – to avoiding the grillage over pump room
- Moved towards the barge CL by about 1m – to align the SPMT path of TP and Topside avoiding cutting the stern double bollard.

The new position of the TP centre of gravity, closer to barge centre of motion, results in a lower (at least equal) inertia loads acting on TP during transport. Therefore, no re-assess of structural analysis is required and the previously calculated actions on barge are still valid on VERVECE.

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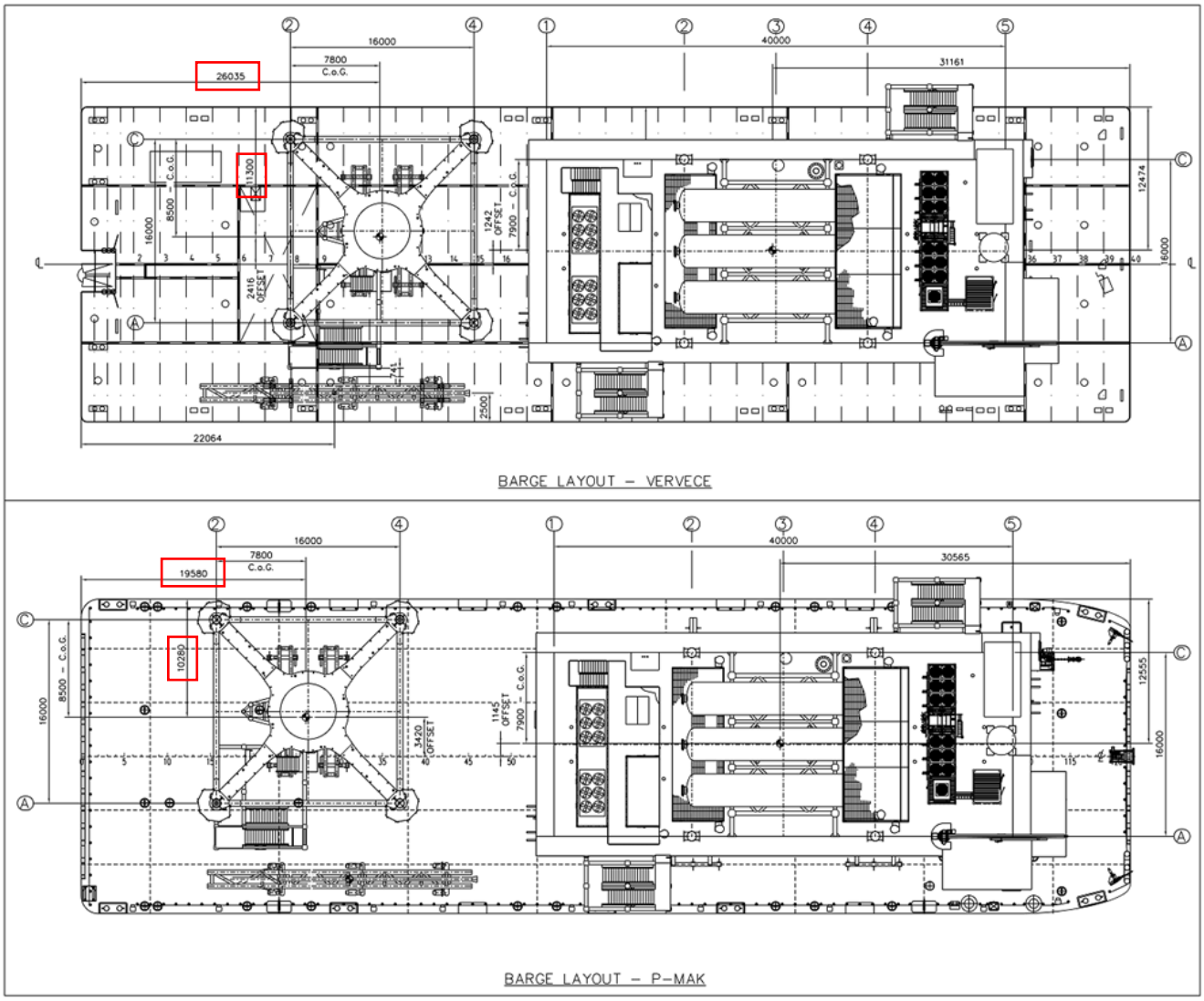


Figure 2.1 -Barge Layout comparison

2.2 LOWER GRILLAGE ARRANGEMENT

The Vervece frame spacing requires repositioning of the grillage gusset plates. There is no change in the length of the grillage beams given the difference in frame spacing of 2286-2250 = 36mm.

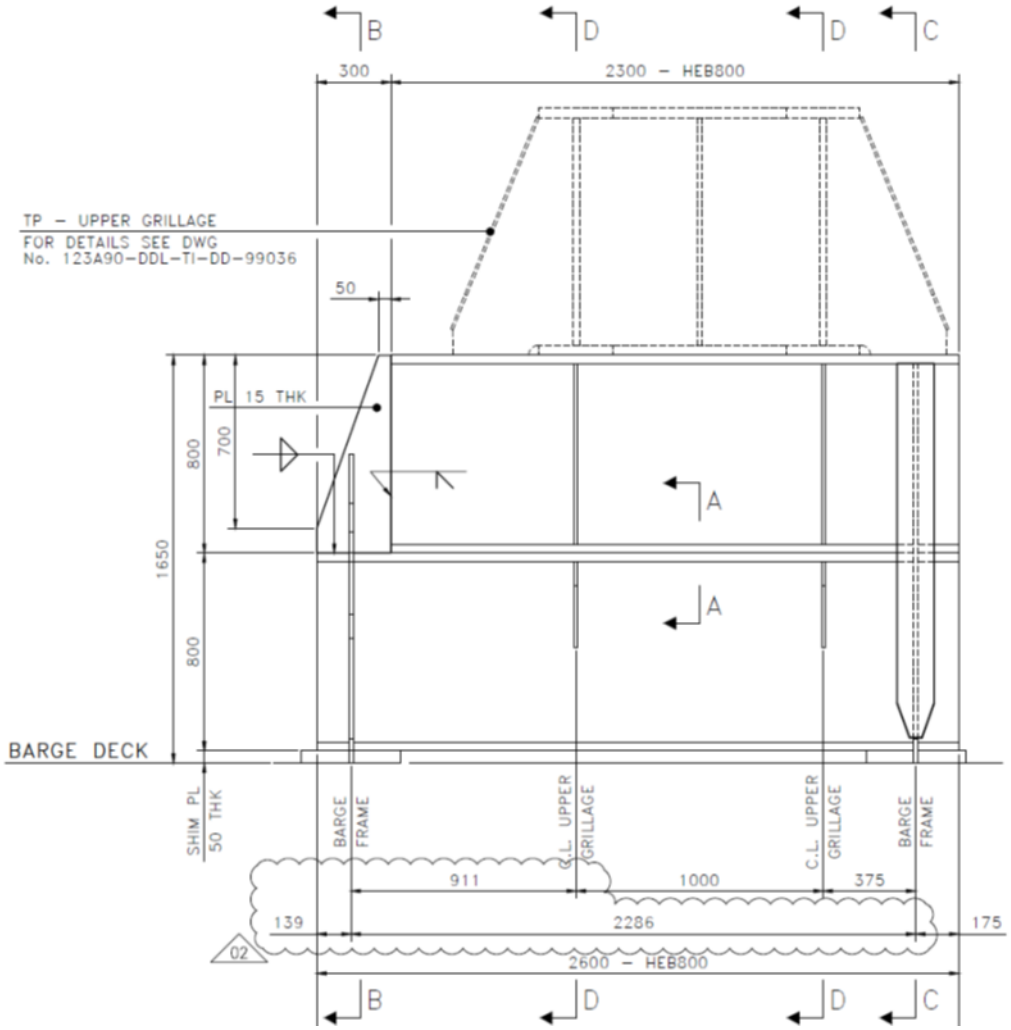


Figure 2.2 -Lower grillage - revised

2.3 BARGE DECK CHECK

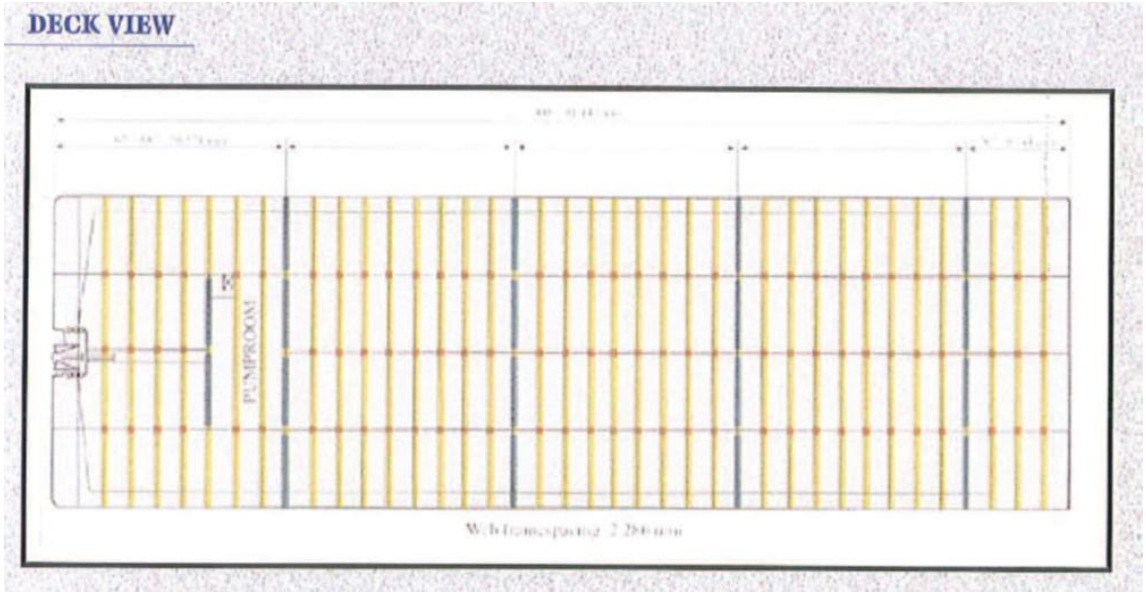
Maximum and minimum base reaction forces for Transition Piece in transportation conditions, are reported in the following tables, from report /10/. Reactions are read in correspondence of sea fastening and lower grillage connections to barge deck in global reference system.

JOINT	Rx [kN]				Ry [kN]				Rz [kN]				MOMENT(X) [kNm]				MOMENT(Y) [kNm]				MOMENT(Z) [kNm]			
	MAX	LCOND	MIN	LCOND	MAX	LCOND	MIN	LCOND	MAX	LCOND	MIN	LCOND	MAX	LCOND	MIN	LCOND	MAX	LCOND	MIN	LCOND	MAX	LCOND	MIN	LCOND
SFA2	498	C210	-476	C213	608	C210	-581	C213	531	C210	-506	C213	0	C101	0	C101	0	C101	0	C101	0	C101	0	C101
SFA4	400	C213	-417	C210	509	C210	-488	C213	444	C210	-425	C213	0	C101	0	C101	0	C101	0	C101	0	C101	0	C101
SFC2	505	C213	-483	C210	590	C210	-617	C213	539	C213	-515	C210	0	C101	0	C101	0	C101	0	C101	0	C101	0	C101
SFC4	409	C210	-427	C213	500	C210	-521	C213	455	C213	-436	C210	0	C101	0	C101	0	C101	0	C101	0	C101	0	C101
Z000	195	C206	-163	C203	52	C210	-58	C213	810	C206	11	C303	0	C101	0	C101	0	C101	0	C101	0	C101	0	C101
Z001	33	C205	-27	C204	13	C213	-13	C210	182	C105	57	C311	0	C101	0	C101	0	C101	0	C101	0	C101	0	C101
Z002	97	C206	-81	C203	47	C206	-48	C201	344	C206	31	C303	0	C101	0	C101	0	C101	0	C101	0	C101	0	C101
Z003	118	C201	-119	C208	42	C201	-42	C206	765	C201	27	C308	0	C101	0	C101	0	C101	0	C101	0	C101	0	C101
Z004	33	C214	-35	C211	9	C209	-9	C214	298	C213	-21	C312	0	C101	0	C101	0	C101	0	C101	0	C101	0	C101
Z005	33	C206	-36	C216	47	C206	-47	C201	459	C110	94	C315	0	C101	0	C101	0	C101	0	C101	0	C101	0	C101
Z006	69	C208	-73	C201	48	C201	-47	C206	602	C110	67	C315	0	C101	0	C101	0	C101	0	C101	0	C101	0	C101
Z007	69	C207	-52	C202	42	C206	-42	C201	850	C102	250	C307	0	C101	0	C101	0	C101	0	C101	0	C101	0	C101
Z008	65	C212	-66	C213	40	C210	-37	C213	445	C213	-43	C312	0	C101	0	C101	0	C101	0	C101	0	C101	0	C101
Z009	55	C212	-56	C213	21	C210	-24	C213	178	C213	-26	C312	0	C101	0	C101	0	C101	0	C101	0	C101	0	C101
Z010	241	C208	-276	C201	42	C206	-42	C201	845	C201	-261	C308	0	C101	0	C101	0	C101	0	C101	0	C101	0	C101
Z011	124	C208	-142	C201	47	C201	-47	C206	381	C201	-82	C308	0	C101	0	C101	0	C101	0	C101	0	C101	0	C101

Table 2.1 – TP base reaction forces in Transportation Conditions – Summary Envelope

Deck load plan is shown in Fig. 2.3 below, from the figure:

- the resistance of barge deck is 160t anywhere of transverse frame
- load is to be distributed at least 1m in frame direction



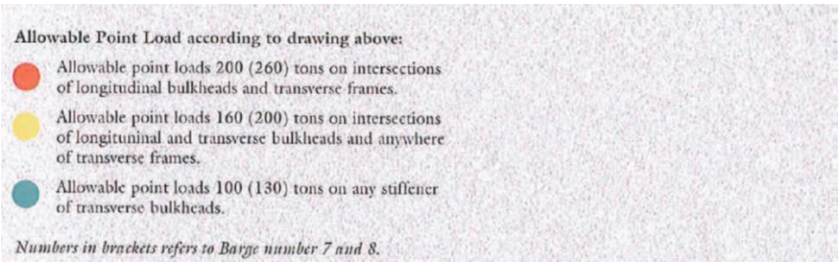


Figure 2.3 -TP – Deck Load Plan

The max. reaction at lower grillage: Fmax = 85t (ULS) in compression, 27t (ULS) in tension.

The max. vertical reaction at Sea fastening: Fmax = 55t (ULS) both Tension and Compression

- 85 < 160 t considering load distributed over 500+500+400 mm = 1400mm > 1m
- 55 < 160*0.82 = 131 t considering load distributed over 820 mm

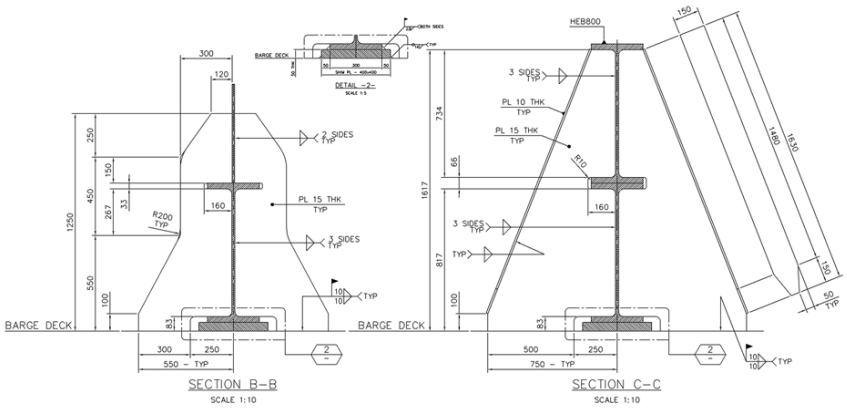


Figure 2.4 -TP – Lower grillage to barge intersection

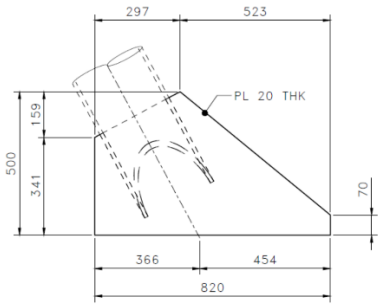


Figure 2.5 -TP – SF to barge intersection

3 REFERENCES

Doc. No.	Description
/1/ 123A90-DDL-TI-DD-99015	BLPH Platform – Barge Layout
/2/ 123A90-DDL-TI-DD-99036	Base Load Power Hub (BLPH) - TP - Upper Grillage - Plan View
/3/ 123A90-DDL-TI-DD-99037	Base Load Power Hub (BLPH) - TP - Upper Grillage – Sections
/4/ 123A90-DDL-TI-DD-99038	Base Load Power Hub (BLPH) - TP - Upper Grillage - Sections and Details
/5/ 123A90-DDL-TI-DD-99039	Base Load Power Hub (BLPH) - TP - Lower Grillage – Assembly
/6/ 123A90-DDL-TI-DD-99040	Base Load Power Hub (BLPH) - TP - Lower Grillage – Section and Details
/7/ 123A90-DDL-TI-DD-99041	Base Load Power Hub (BLPH) - TP – Seafastening Assembly & Details
/8/ 123A90-DDL-ST-RE-90009	TP – Transportation Analysis
/9/ 123A90-DDL-ST-RE-90010	TP – Transportation Fatigue Analysis
/10/ 123A90-DDL-TI-RE-99004	TP – Grillage and SF Design Report

A APPENDIX A – REPORT 123A90-DDL-TI-RE-99004

Base Load Power Hub (BLPH)

BLPH Platform
TP - Grillage and Sea Fastening Design Report

Document Number: 123A90-DDL-TI-RE-99004

Document Class: 1

01	07/02/2025	Accepted for Construction (AFC)	F.Biancheri	A.Balzarotti	D.LoSterzo
00	18/12/2024	Issued for Approval (IFA)	F.Biancheri	A.Balzarotti	D.LoSterzo
Rev.	Date	Description	Prepared	Reviewed	Approved
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1 INTRODUCTION

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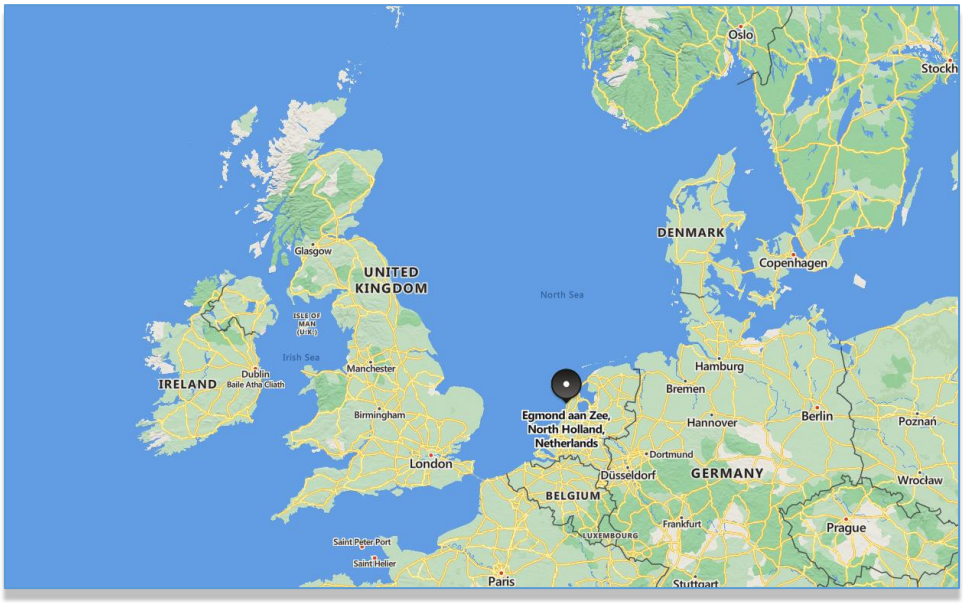


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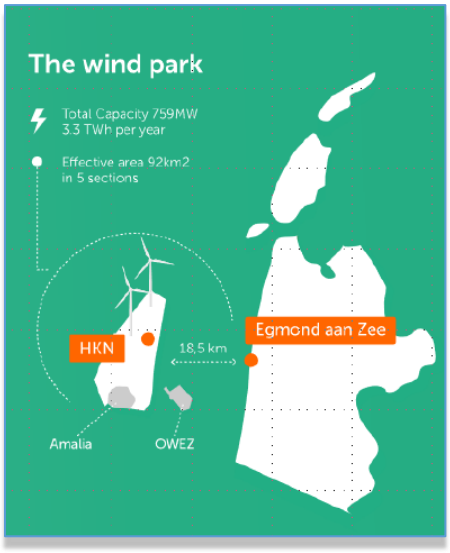


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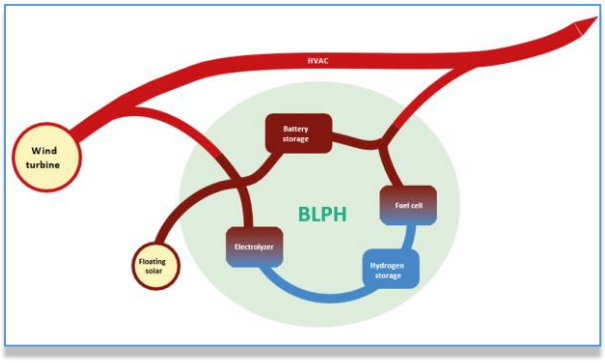


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2 DOCUMENT SCOPE

The objective of this report is to present the results of the Grillage and Sea Fastening system of the Transition Piece (TP) of the BLPH platform during transportation to the installation site.

Structural checks of the TP during transportation is detailed in a separate dedicated report, ref./33/. Results have been used in the present report to perform checks on Grillage and Sea Fastening.

Fatigue checks in transportation conditions are detailed in a separate report, Ref./34/.

The Transition Piece is to be moved on 300ft barge by means of the hydraulic trailers (SPMT) and loaded on board of the cargo barge over preinstalled lower grillage with the Rows A and C aligned with the barge longitudinal axis.

The analysis has been performed in compliance with the requirements, criteria and parameters reported in the Structural Design Premises, Ref./19/.

Transportation analysis is performed in accordance with DNV-ST-N001, Ref./9/ motion criteria for unrestricted tow.

Structural Code checks are performed according to EN ISO 19902 for tubular members and tubular joints, Ref./6/, and according to Eurocode 3 for non-tubular structural elements, Ref./8/.

All structural analyses have been carried out using the structural analysis program SACS, the proprietary software developed by Bentley, Ref. /35/.

The International System of Units (SI) has been used in all engineering assessments and calculations.

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3 REFERENCES

3.1 CODES AND STANDARDS

Doc. No.	Description
/1/ BS EN ISO 19900	General requirements for offshore structures - 2019
/2/ BS EN ISO 19901-1	Specific requirements for offshore structures - Part 1: Metocean design and operating considerations - 2015
/3/ BS EN ISO 19901-3	Specific requirements for offshore structures – Part 3: Topsides structure - 2014
/4/ BS EN ISO 19901-5	Specific requirements for offshore structures – Part 5: Weight Management - 2021
/5/ BS EN ISO 19901-6	Specific requirements for offshore structures – Part 6: Marine Operations – 2009
/6/ BS EN ISO 19902	Petroleum and natural gas industries - Fixed steel offshore structures – 2020
/7/ ISO 19906:2019	Petroleum and natural gas industries – Arctic offshore structures
/8/ UNI EN 1993-1-1	Design of steel structures - Part 1-1: General rules and rules for buildings
/9/ DNV-ST-N001	DNV - Marine operation and marine warranty - 2021
/10/ DNV-ST-0145	DNV, Offshore substations
/11/ DNV-RP-C201	DNV, Buckling Strength of Plated Structures, October 2010.
/12/ DNV-RP-C203	DNV, Fatigue design of offshore steel structures, September 2019 and Amendment January 2020
/13/ DNV-RP-C204	DNV-RP-C204 Design against accidental loads – 2019
/14/ DNV-RP-C205	DNV - Environmental conditions and environmental loads - September 2019, amended September 2021.
/15/ DNV-ST-0126	Support structures for wind turbine, 2018

3.2 COMPANY SPECIFICATIONS

Doc. No.	Description
/16/ DEP 37.19.00.12	Gen - Offshore Topsides Structures
/17/ DEP 37.19.00.30	Gen - Fixed Steel Offshore Structures (Adoption of IOGP S-631-11, Amendments / Supplements to ISO 19902:2020).

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/18/ DEP 37.81.10.19	Gen - Marine Operations Requirements – Loadout, Transportation and Installation of Offshore Structures (Amendments / Supplements to ISO 19901-6)

3.3 PROJECT DOCUMENTS

Doc. No.	Description
/19/ 123A90-DDL-ST-SP-90017	Structural Design Basis
/20/ 123A90-DDL-MD-RE-01006	Monthly Weight Report – rev. July 24
/21/ 123A90-DDL-PP-DS-70070	BLPH Platform - Plot Plan Lower & Upper Deck
/22/ 123A90-DDL-ST-SP-90018	Structural Material Specification for Topside and TP
/23/ 123A90-DDL-ST-SP-90118	Structural Material Specification for Flange and Bolts
/24/ 123A90-DDL-TI-SP-99014	Specification for TP, Topside and Caissons Transportation and Installation
/25/ 123A90-DDL-TI-DD-99015	BLPH Platform – Barge Layout
/26/ 123A90-DDL-ST-TN-90119	Evaluating ISO and DNV Approaches
/27/ 123A90-DDL-TI-DD-99036	Base Load Power Hub (BLPH) - TP - Upper Grillage - Plan View
/28/ 123A90-DDL-TI-DD-99037	Base Load Power Hub (BLPH) - TP - Upper Grillage – Sections
/29/ 123A90-DDL-TI-DD-99038	Base Load Power Hub (BLPH) - TP - Upper Grillage - Sections and Details
/30/ 123A90-DDL-TI-DD-99039	Base Load Power Hub (BLPH) - TP - Lower Grillage – Assembly
/31/ 123A90-DDL-TI-DD-99040	Base Load Power Hub (BLPH) - TP - Lower Grillage – Section and Details
/32/ 123A90-DDL-ST-RE-90008	TP – Loadout Analysis
/33/ 123A90-DDL-ST-RE-90009	TP – Transportation Analysis
/34/ 123A90-DDL-ST-RE-90010	TP – Transportation Fatigue Analysis

3.4 SOFTWARE

Doc. No.	Description
/35/ SACS	Structural Analysis Computer System – BENTLEY Inc- v15

4 DEFINITIONS AND ABBREVIATIONS

COMPANY or Client (CPY)	Crosswind
CONTRACTOR (CTR)	ROSETTI MARINO S.p.A.
PROJECT	HOLLANDSE KUST NOORD WIND PARK Project
T&I CONTRACTOR	DEME
ALS	Accidental Limit State
BLPH	Base Load Power Hub
BESS	BATTERY ENERGY STORAGE SYSTEM
BHD	Bulkhead
BLPH	Base Load Power Hub
CF	Caisson Frame
CL	Concentrated Load
CoG	Centre of Gravity
CW	CrossWind
DAF	Dynamic Amplification Factor
DNV	Det Norske Veritas
DOP	Dropped Object Protection
El.	Elevation
FEED	Front End Engineering Design
HAT	Highest Astronomical Tide
HKN	Hollandse Kust Noord
ICCP	Impressed Current Corrosion Protection
LAT	Lowest Astronomical Tide
LRFD	Load and Resistance Factor Design
MSL	Mean Sea Level
NTE	Not-to-Exceed
OD	Outside Diameter
PAU	Pre-Assembled Unit (H2 Vessels)
PG	Plate Girder

T&I	Transport & Installation
ToS	Top of Steel
TP	Transition Piece
UC	Unity Check
ULS	Ultimate Limit state
UDL	Uniformly Distributed Load
VIV	Vortex Induced Vibration
VOOW	Van Oord Offshore Wind
W2W	Walk to Work

Table 4.1 - Definitions and Abbreviations

5 SUMMARY AND CONCLUSIONS

The analyses performed show that the Grillage and Sea Fastening of Transition Piece (TP) can withstand all possible combinations of environmental, operating and transient loads occurring during transportation, according to the applicable codes. The software SACS™, ref./35/, is used for all global analyses of the structures in the SOW.

Structural model of TP includes lower grillage beams, stoppers and Sea Fastening pipes, ref drawings /27/ to/31/.

5.1 REACTION FORCES

5.1.1 TP base reaction forces in Transportation Conditions

Maximum and minimum base reaction forces for Grillage and Sea Fastening of Transition Piece in transportation conditions, are reported in the following table. Reactions are read in global reference system.

JOINT	Rx [kN]				Ry [kN]				Rz [kN]				MOMENT(X) [kNm]				MOMENT(Y) [kNm]				MOMENT(Z) [kNm]			
	MAX	LCOND	MIN	LCOND	MAX	LCOND	MIN	LCOND	MAX	LCOND	MIN	LCOND	MAX	LCOND	MIN	LCOND	MAX	LCOND	MIN	LCOND	MAX	LCOND	MIN	LCOND
SFA2	498	C210	-476	C213	608	C210	-581	C213	531	C210	-506	C213	0	C101	0	C101	0	C101	0	C101	0	C101	0	C101
SFA4	400	C213	-417	C210	509	C210	-488	C213	444	C210	-425	C213	0	C101	0	C101	0	C101	0	C101	0	C101	0	C101
SFC2	505	C213	-483	C210	590	C210	-617	C213	539	C213	-515	C210	0	C101	0	C101	0	C101	0	C101	0	C101	0	C101
SFC4	409	C210	-427	C213	500	C210	-521	C213	455	C213	-436	C210	0	C101	0	C101	0	C101	0	C101	0	C101	0	C101
Z000	195	C206	-163	C203	52	C210	-58	C213	810	C206	11	C303	0	C101	0	C101	0	C101	0	C101	0	C101	0	C101
Z001	33	C205	-27	C204	13	C213	-13	C210	182	C105	57	C311	0	C101	0	C101	0	C101	0	C101	0	C101	0	C101
Z002	97	C206	-81	C203	47	C206	-48	C201	344	C206	31	C303	0	C101	0	C101	0	C101	0	C101	0	C101	0	C101
Z003	118	C201	-119	C208	42	C201	-42	C206	765	C201	27	C308	0	C101	0	C101	0	C101	0	C101	0	C101	0	C101
Z004	33	C214	-35	C211	9	C209	-9	C214	298	C213	-21	C312	0	C101	0	C101	0	C101	0	C101	0	C101	0	C101
Z005	33	C206	-36	C216	47	C206	-47	C201	459	C110	94	C315	0	C101	0	C101	0	C101	0	C101	0	C101	0	C101
Z006	69	C208	-73	C201	48	C201	-47	C206	602	C110	67	C315	0	C101	0	C101	0	C101	0	C101	0	C101	0	C101
Z007	69	C207	-52	C202	42	C206	-42	C201	850	C102	250	C307	0	C101	0	C101	0	C101	0	C101	0	C101	0	C101
Z008	65	C212	-66	C213	40	C210	-37	C213	445	C213	-43	C312	0	C101	0	C101	0	C101	0	C101	0	C101	0	C101
Z009	55	C212	-56	C213	21	C210	-24	C213	178	C213	-26	C312	0	C101	0	C101	0	C101	0	C101	0	C101	0	C101
Z010	241	C208	-276	C201	42	C206	-42	C201	845	C201	-261	C308	0	C101	0	C101	0	C101	0	C101	0	C101	0	C101
Z011	124	C208	-142	C201	47	C201	-47	C206	381	C201	-82	C308	0	C101	0	C101	0	C101	0	C101	0	C101	0	C101

Table 5.1 – TP base reaction forces in Transportation Conditions – STEP 3 – Transportation Conditions

5.1.2 TP – Upper to Lower Grillage connection forces in Transportation Conditions

The connection between Upper Grillage and Lower Grillage is made effective through dummy elements, simulating stoppers at upper grillage's top flange level. Maximum and minimum internal forces of dummy elements connecting Upper and Lower Grillage in transportation conditions are reported in the following table.

	MEMBER	MEMBER END	GROUP	LOAD CASE	Fx [kN]	Fy [kN]	Fz [kN]	Mx [kNm]	My [kNm]	Mz [kNm]	REMARK
ALL LC	V400-R400	V400	UD1	C308	**255**	61	1	-42	0	-55	MAX Fx
	V400-R400	V400	UD1	C201	**-933**	**-79**	1	52	0	**71**	min Fx - MAX Myz - MAX Mxz - MAX Mz - MAX Fyz - MAX Fxz - MAX Fxy - min Fy
	V400-R400	V400	UD1	C206	113	**77**	1	-51	0	**-69**	MAX Fy - min Mz
	V302-R302	V302	UD1	C101	-481	-52	**6**	-38	0	46	MAX Fz
	V402-R402	V402	UD1	C101	-232	-50	**-6**	-47	0	45	min Fz
	V401-R401	V401	UD1	C311	0	-2	1	-1	0	1	min Fxy - min Fxz
	V011-R300	V011	UD1	C311	-154	0	-1	5	0	0	min Fyz
	V102-R102	V102	UD1	C206	-212	66	-4	**61**	0	-59	MAX Mx
	V402-R402	V402	UD1	C201	-228	-67	-5	**-62**	0	60	min Mx - MAX Mxy
	V011-R300	V011	UD1	C101	-612	-51	-1	31	**0**	46	MAX My - min My
	V201-R201	V201	UD1	C106	-261	8	0	0	0	-8	min Mxy
	V402-R402	V402	UD1	C316	-55	-1	-4	0	0	1	min Mxz
	V100-R100	V100	UD1	C113	-707	0	1	-43	0	0	min Myz

Table 5.2 – TP – Upper to Lower Grillage connection – dummy element internal forces - STEP 3 – Transportation Conditions

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5.2 MEMBER CHECKS

Structural members with maximum Unity Check (UC) are detailed in the following table.

MEMBER	GROUP	DESCRIPTION	SECTION	COMBINATION	UC
SFC2-R1L5	SF1	Sea Fastening	273.1 x 12.7	C213	0.37
SFA2-R1L6	SF1	Sea Fastening	273.1 x 12.7	C210	0.37
SFC4-R4L5	SF1	Sea Fastening	273.1 x 12.7	C213	0.32
R4L6-R400	UG1	Upper Grillage WPG1000x300x25x40	UG1000	C201	0.31
SFA4-R4L6	SF1	Sea Fastening	273.1 x 12.7	C210	0.31
R1L6-R100	UG1	Sea Fastening	UG1000	C206	0.30
R102-R1L6	UG1	Sea Fastening	UG1000	C201	0.24
R402-R4L6	UG1	Upper Grillage WPG1000x300x25x40	UG1000	C201	0.23
R207-R206	UG1	Upper Grillage WPG1000x300x25x40	UG1000	C201	0.22
R307-R306	UG1	Upper Grillage WPG1000x300x25x40	UG1000	C201	0.21

Table 5.3 – Member UC Summary

5.3 LOCAL CHECKS

Maximum Unity Check for Upper Grillage is UC = 0.53 < 1.00.

Maximum Unity Check for Lower Grillage is UC = 0.32 < 1.00.

The max. reaction at lower grillage: F_{max} = 85t (ULS) < 310t (ULS) at barge strongpoint crossing of 2 BHDs.

The max. vertical reaction at Sea fastening: F_{max} = 54t over BHD, equivalent to a distributed load = 54/0.82 = 65 t/m (ULS) < 80 t/m (SWL).

See section 11.4 for details.

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6 BLPH TRANSITION PIECE DESCRIPTION

The connection of BLPH Topside with Monopile is realized through a Transition Piece (TP) structure. The interface level between the Monopile and the Topsides is at El.+17.050m relative to LAT.

TP is composed by a central column with an outer diameter of 7m and four (4) boxed girders with height ranging from 2.5 m to 1.4 m, oriented along the main diagonals of the TP and accommodating at their ends four (4) tubular receptacles for supporting the Topside. The four diagonal arms of the TP are connected along the perimeter by other four (4) boxed girders forming a stiff deck 16m x 16m with TOS. El. +21.71m from LAT.

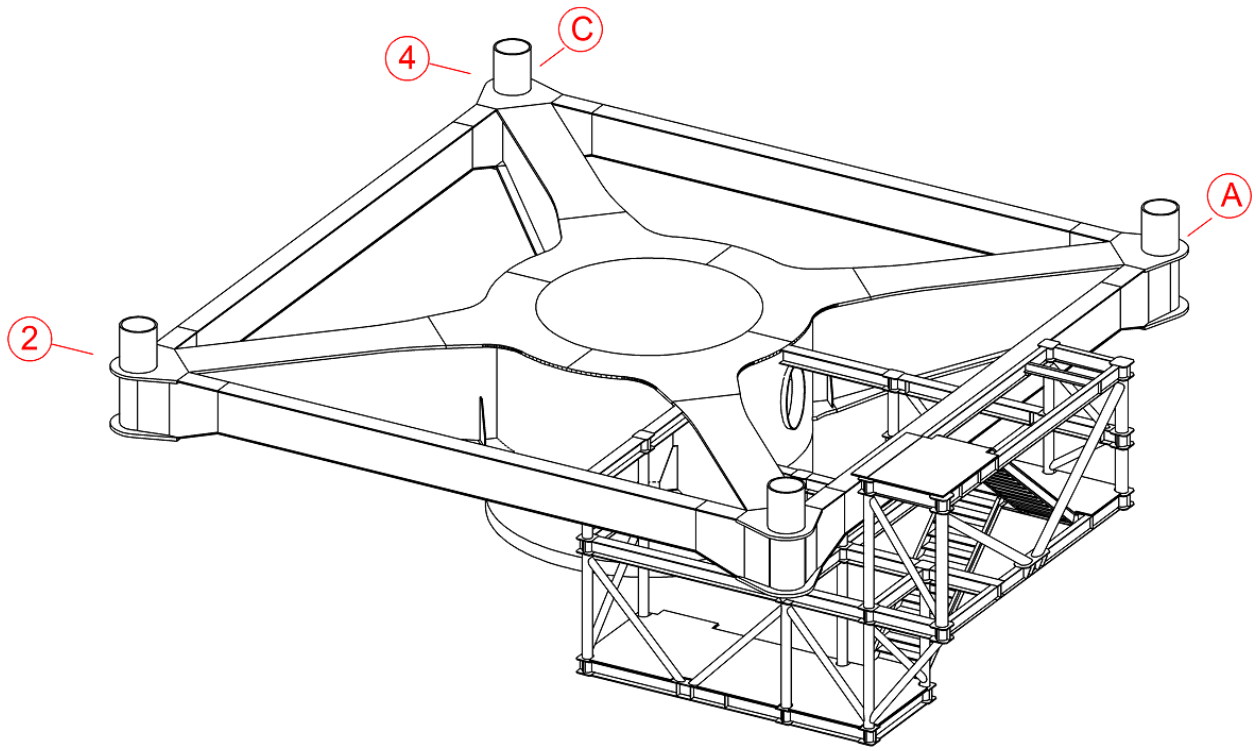


Figure 6.1 - Base Load Power Hub - Transition Piece – 3D View

7 MATERIALS

7.1 STRUCTURAL STEEL PROPERTIES

For the structural analyses, steel types and grades to be used for the platform structures are summarised in Table 8.1 and specified in Ref./22/. The material selection criteria are based on the requirements of ISO 19906:2019, ISO 19902:2020 and ISO 19901-3:2014. The materials are in accordance with the EN standard 10225:2019 and 10025:2019 and are suitable for plates, rolled sections and welded / seamless tubulars.

			EN10025-3	ISO EN 19902:2020						
Design Class	**Complexity**	**SQL**	**Hot rolled bar**	**Plates and Welded Tubular**	**Sections**	**SMLS pipes**	**THK**	**CVN inpact test**	**Material Designation**	**List of Options (EN10225-1 to -4) & EN10025-3**
DC1 TP to monopile flange connection	High	**I (Z properties)**	EN 10025 S420 NL	NA	NA	NA	t > 50	-40	DC1-I-420-40_Z	1, 2, 3, 4, 6, 12, 18, 24, 30
DC1 Complex lift-nodes and element connection to topside, Lift points, main complex joints	High	**I (Z properties)**	NA	EN 10225 S420 QLO / ML	NA	NA	25 < t <= 50 t > 50	-40 -40	DC1-I-420-40_Z	2, 7, 8, 11, 12, 17, 18
DC2 simple joints, primary deck girders and beams of Topside and TP, column and diagonal to lift points, main columns, Davit crane support, Bolts	Low	**II**	NA	EN 10225 S420 QLO / MLO	NA	NA	t < = 12 12 < t <= 25 25 < t <= 50 t > 50	0 -20 -40 -40	NA DC2-II-420-20 DC2-II-420-40	- 2, 7, 8, 11 17 for t > 40mm
DC3 all other columns and diagonals, stiffeners, Secondary deck beams, Grillage and sea fastening	High	**II**	NA	EN 10225 S355 NLO / MLO	EN 10025 S355 MLO	EN 10225 S355 NLHHO / QLHHO API 5L X52	t < = 12 12 < t <= 25 25 < t <= 50 t > 50	0 -20 -40 -40	DC3-II-355-0 / DC3-II-X52-0 DC3-II-355-20 / DC3-II-X52-20 DC3-II-355-40 / DC3-II-X52-40	2, 7, 8 11 for plate 17 for t > 40mm
DC4 Equipment and vessel supports, modules supports, equipment fixing bolts	Low	**III**	NA	EN 10025 S355 J2	EN 10025 S355 J2	API 5L X52 EN 10210 S355 J2H	t < = 12 12 < t <= 25	0 0	DC4-III-355-0 / DC4-III-X52-0 / DC4-III-X60-0	-
DC5 floor plating, grating, Walkways, stairs, handrails	Any	**IV**	NA	EN 10025 S235 JR EN 10025 S275 J0 EN 10025 S355 J0	EN 10025 S235 JR EN 10025 S275 J0 EN 10025 S355 J0	API 5L Gr.B EN 10210 S235 JRH / EN 10210 S275 J0H / EN 10210 S355 J0H	t < = 12 12 < t <= 25	10 10	DC5-IV-235-10 / DC5-IV-275-10 / DC5-IV-355-10 / DC5-IV-GRB-10	-

Table 7.1 - Material Selection, Ref /22/

Mechanical properties for structural materials are presented in Table 8-2, Table 8-3 and Table 8-4.

- Young's Modulus = 205,000 N/mm^2
- Density = 7850 kg/m^3
- Poisson's Ratio = 0.3

Thickness (mm)	Min. Tensile Strength (N/mm^2)	Min. Yield Strength (N/mm2)	Steel Type (1)
t ≤ 16	500	420	I & II
16 < t ≤ 40	500	400	I & II
40 < t ≤ 63	480	390	I & II
63 < t ≤ 100	480	380	I & II
Note: 1) Type I steel has Z (through the thickness) properties.			

Table 7.2 – Mechanical properties of Plates

Thickness (mm)	Min. Tensile Strength (N/mm²)	Min. Yield Strength (N/mm2)	Steel Type
t ≤ 20	460	355	III
20 < t ≤ 40	460	345	III

Table 7.3 – Mechanical properties of Structural Seamless Tubulars

Thickness (mm)	Min. Tensile Strength (N/mm2)	Min. Yield Strength (N/mm2)	Steel Type
t ≤ 16	460/360	355/275	IV
16 < t ≤ 40	460	345	IV

Table 7.4 – Mechanical properties for Structural Sections

7.2 PLATING

Plate thicknesses for primary structural steel starts at a minimum of 10 mm and increase in 5 mm steps Secondary steel lower and upper deck plates are 8 mm thick and 10mm for laydown areas for Dropped Object Protection (DOP).

Blast walls are not to be provided on a hydrogen processing facility, as free ventilation and free explosion venting is more important, and supportable, than obstruction walls.

7.3 GRATING

Gratings are characterized by bearing bars 30 mm x 5 mm and mesh 30 mm x 50 mm.

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8 DESIGN CRITERIA AND REQUIREMENTS

8.1 GENERAL

Structures in SOW are designed in accordance with limit states approach of ISO codes 19901 and 19902, Refs./2/, /3/and /6/. For non-tubular sections, Eurocode, Ref./8/, is adopted. Member forces and moments derived from the global analyses are used for checking member strength and stability, and joint strength.

8.2 PARTIAL RESISTANCE FACTORS

8.2.1 Partial Resistance Factors for Tubular Sections:

The partial resistance factors for tubular sections from ISO 19902, Ref./6/, are listed below.

Resistance factor	Value	Definition
$\gamma_{R,t}$	1.05	Partial resistance factor for axial tensile strength
$\gamma_{R,c}$	1.18	Partial resistance factor for axial compressive strength
$\gamma_{R,b}$	1.05	Partial resistance factor for bending strength
$\gamma_{R,v}$	1.05	Partial resistance factor for shear strength
$\gamma_{R,h}$	1.25	Partial resistance factor for hoop buckling strength

Table 8.1- Resistance Factors for Tubular Sections

8.2.2 Partial Resistance Factors for Non-tubular Sections

Referring to ISO 19901-3, Ref./3/, section 8, to be consistent with ISO 19900 inherent the level of safety, a "building code correspondence factor" is to be applied to the AISC partial factors.

The partial resistance factors for non-tubular sections from Eurocode 3, Ref./8/, are listed below

Resistance factor	Value	Definition
Resistance of members and cross sections		
γ_{M0}	1.10	Cross-section resistance to excessive yield strain including local buckling
γ_{M1}	1.10	Resistance of unstable elements measured during element inspection
γ_{M2}	1.25	Tensile cross-section resistance to mechanical breakdown
Resistance of connections		
γ_{M2}	1.25	Bolts, rivets, pins, welds and slabs on supporting surface
γ_{M3}	1.25	Sliding resistance at Ultimate Limit State Category C
$\gamma_{M3,SER}$	1.10	Sliding resistance at Serviceability Limit State
γ_{M4}	1.10	Injection bolt collapse resistance
γ_{M5}	1.10	Resistance of connections in open lattice trusses

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$\gamma_{M6,SER}$	1.00	Resistance of pins at Serviceability Limit State
γ_{M7}	1.10	Preload of high strength bolts

Table 8.2- Resistance for Non Tubular Section

8.2.3 Partial Resistance Factors for Tubular Joints Check

The partial resistance factors for tubular joints checks are provided in following table according to ISO 19902, Ref./6/.

Resistance factor	Value	Definition
$\gamma_{R,j}$	1.05	Partial resistance factor for joints
$\gamma_{z,j}$	1.17	Additional partial resistance factor for members during joint pre-strain collapse

Table 8.3 - Resistance Factors for Tubular Joints

8.3 LOAD CLASSIFICATIONS

Design loads are classified as either global or local within ISO 19901-3, Ref. /3/ and ISO 19902, Ref./6/ and summarized in Table 8.4.

Load Type	ISO Designation	Description
Permanent (Dead)	G1	Structure self-weight; Equipment & piping dry weight; Any actions due to misalignment of structures such as between the topside and TP
Permanent (Dead)	G2	permanent action imposed on the topsides structure by self-weight of equipment and other objects that remain constant for long periods of time, but which can change from one mode of operation to another, or during a mode of operation, bulk loads
Variable (Live)	Q1	Equipment & piping contents weight; Superimposed area loads; Ice and snow accretions
Environmental Transient	T_{Eo}	1-yr storm wind (wind in transportation conditions is assimilated to a Transient Load)
Transient	T	Transient Loads for Pre-Service Analyses (inertial loads from barge motion)

Table 8.4 - ISO Loads Classification

8.4 PARTIAL ACTION FACTORS

8.4.1 Partial Action Factors for Pre-Service Analysis

Partial Action Factors for Pre-Service analysis (e.g. Lifting, Transportation, Load-out) conditions are shown in Table 8.5 with reference to three design situations, according to ISO 19902, Ref./6/. where:

- G_T are the permanent actions during the transient situation;
- Q_T are the variable actions during the transient situation;
- T represents the actions from the transient situation being considered.

SITUATION	ACTION		
	Permanent (GT)	**Variable (QT)**	Transient (T)
1	1.3	1.3	1.0
2	1.1	1.1	1.35
3	0.95	0.9	1.35

Table 8.5 – Partial action factors for Pre-service Analyses

8.5 ACCEPTANCE CRITERIA

The maximum member Unity Check (UC) will be less than unity.

9 STRUCTURAL ANALYSIS

9.1 TRANSPORTATION ANALYSIS

The Transition Piece analysis in transportation conditions include permanent, variable and transient actions as wind loads and accelerations from barge motions, according to design data reported in ref./33/.

The transportation analysis is performed considering a two steps analysis with different restraint conditions, in order to ensure that the whole mass is reacted by the grillages only and the dynamic loads by grillages and by sea-fastening suitably designed for horizontal loads.

Partial action factors for pre-service analyses as per Table 8.5 will be considered and sixteen (16) basic combinations of wind and inertia loads are therefore defined for each design situation (± Pitch ± Heave ± Wind and ± R ± H ± Wind).

The members and joints of the TP structure are checked in accordance with ISO 19902 and Eurocode 3, Ref./6/ and /8/, respectively for tubular and non-tubular elements.

Transportation analysis have been performed, and results are reported in ref./33/.

9.2 TRANSPORTATION ARRANGEMENT

The Transition Piece is to be transported on 300ft cargo barge supported by upper and lower grillages structures with Rows A and C aligned with the barge longitudinal axis. The position of TP is shown in figure 10-1.

The 300ft barge (P-MAK) is characterized by following main dimensions:

- Length: 91.5m
- Breadth: 27.40m
- Side height: 6.10m

The centre of rotation is assumed to be at the centre of the barge at water level.

The barge motion axes are defined as follows:

- the pitch axis (barge transverse axis) corresponds to the model Y-axis;
- the roll axis (barge longitudinal axis) corresponds to the model X-axis;
- along the x axis of TP model, the barge centre of motion is assumed at X=25.875 m;
- along the y axis of TP model, the barge centre of motion is assumed at Y=+0.000 m;
- along the z axis of TP model, the barge centre of motion is assumed at Z=-3.0 m, 3.0 m below the barge deck.

An overview of the transportation layout is shown in the following figure from Ref./25/.

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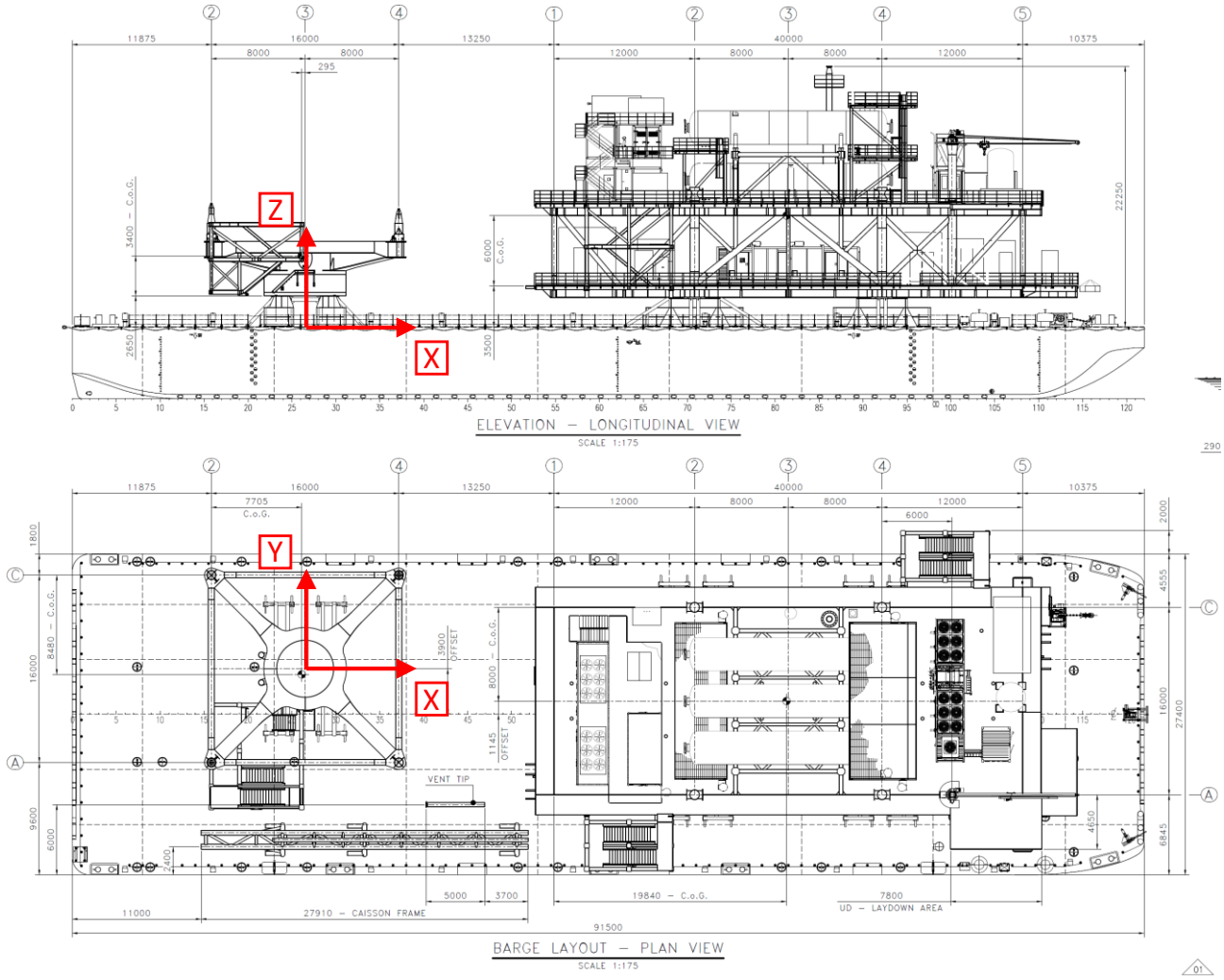
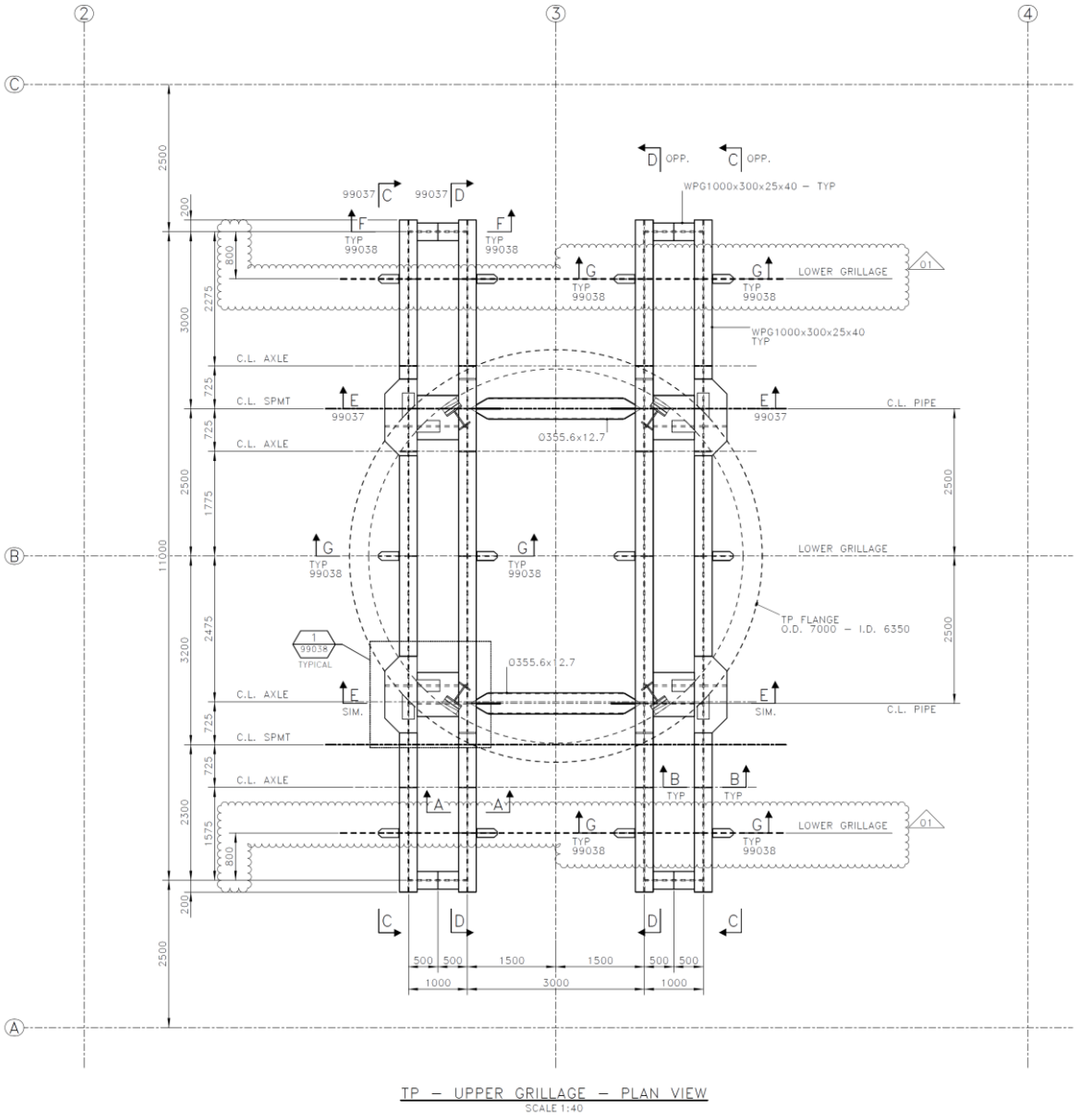


Figure 9.1 – Transportation Arrangement – Side and Plan views

9.3 GRILLAGE AND SEAFASTENINGS ARRANGEMENT

In the following figures, grillage and sea fastening layout for TP are shown.

Grillage is composed of an upper grillage and a lower grillage. Upper grillage beams are supporting the TP in yard and will be transferred to the barge together with the TP during loadout.



TP – UPPER GRILLAGE – PLAN VIEW
SCALE 1:40

Figure 9.2 – Upper grillage layout

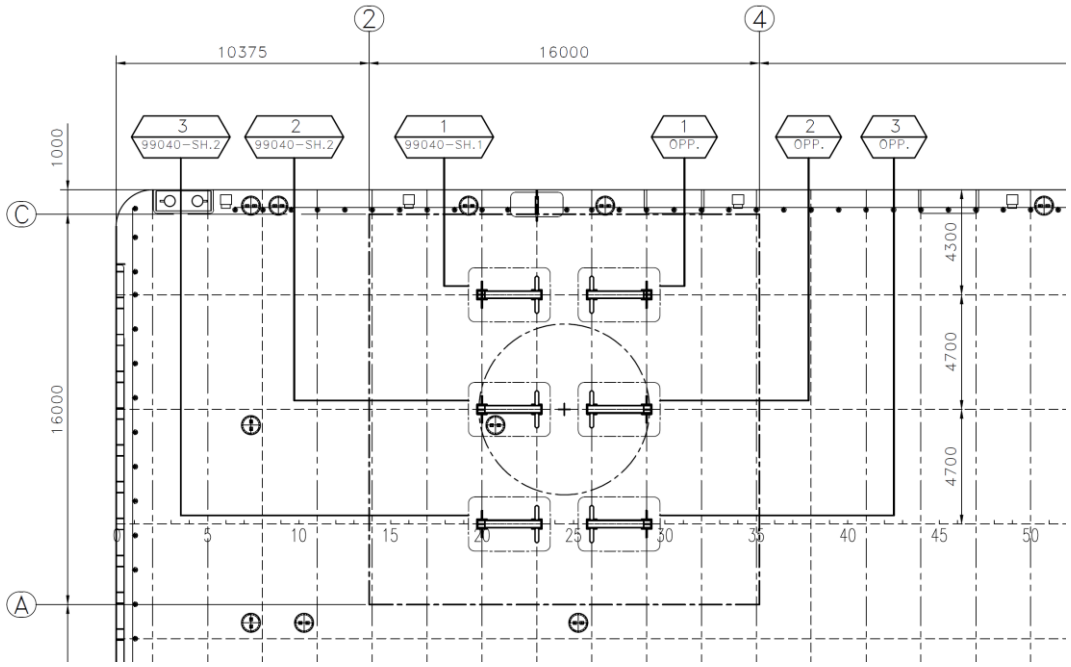


Figure 9.3 – Lower grillage layout

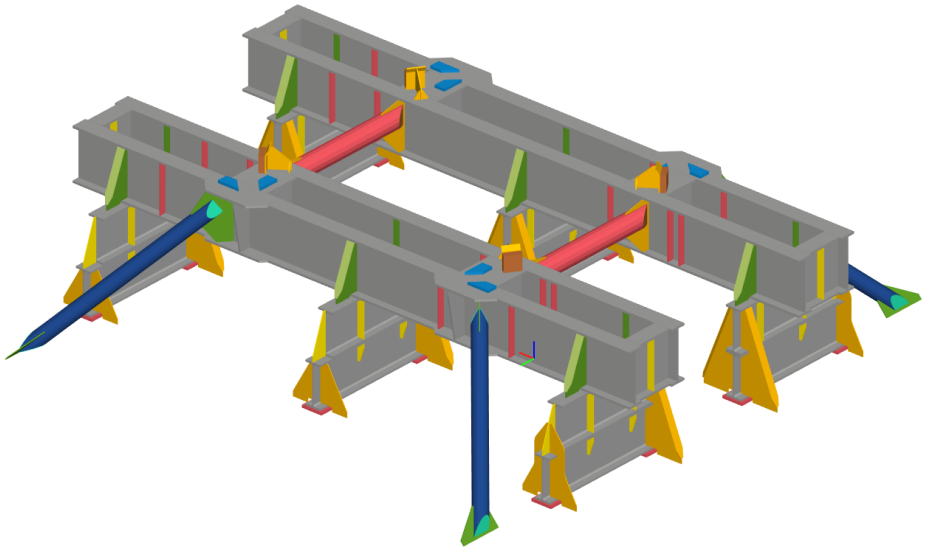


Figure 9.4 – Grillage and Sea fastening - -Tekla 3D view

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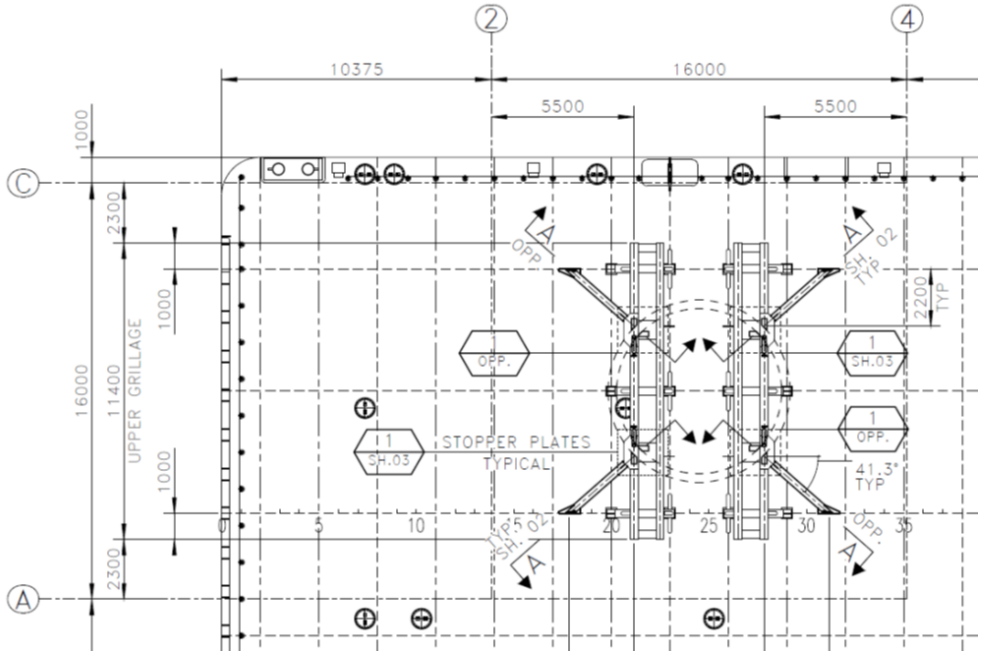


Figure 9.5 – Sea fastening layout

9.4 STRUCTURAL MODEL

The SACS structural model used for TP Transportation analysis (Ref./33/) is used for the Grillage and Sea Fastening checks. The same analysis and the same results are used for the checks. The same analysis procedure is followed.

Complete 3D model and analysis description is reported in TP Transportation Analysis Ref./33/.

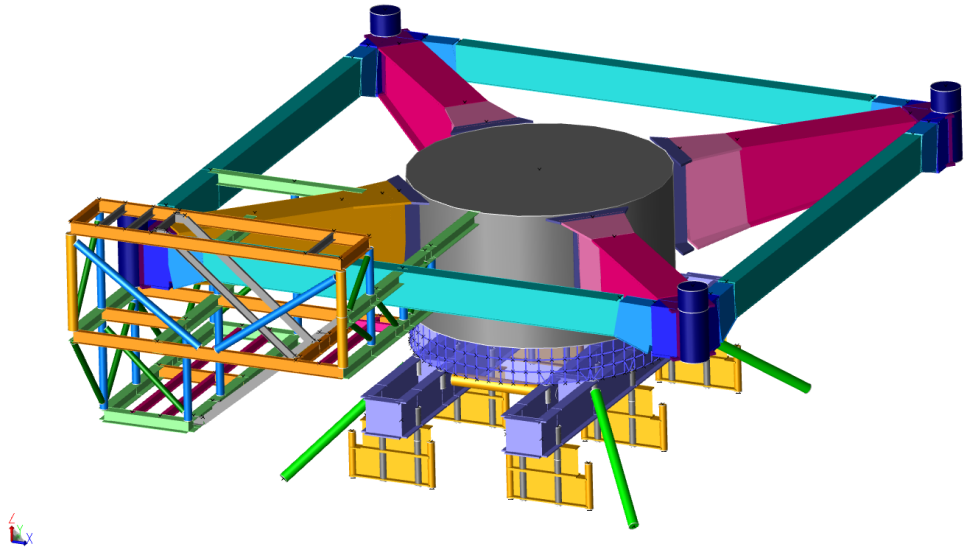


Figure 9.6 - TP structural model in Transportation Conditions

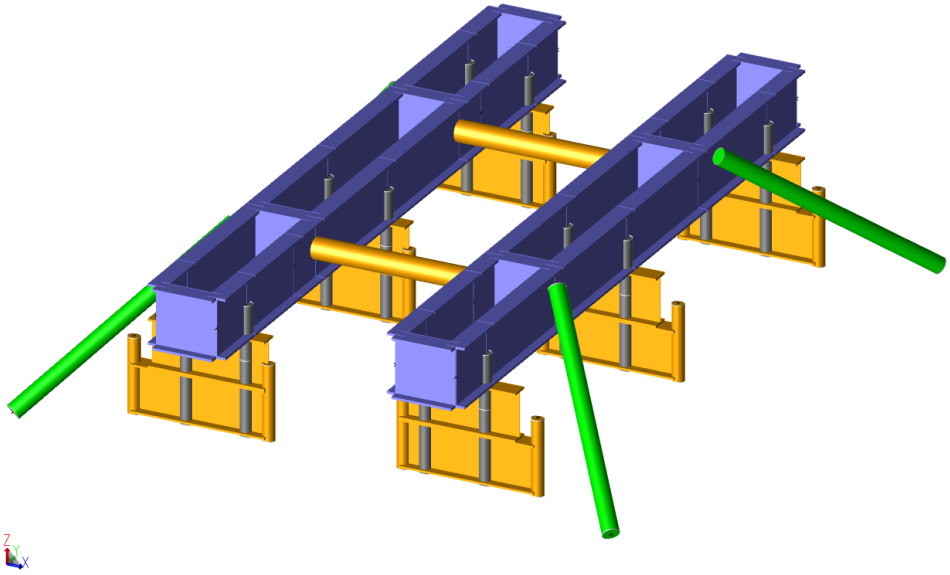


Figure 9.7 – TP structural model in Transportation Conditions – Grillage and Sea Fastening detail view

The connection between TP and Upper Grillage is modelled as per following:

- 4 rigid dummy elements transmitting vertical loads only (Fz) through member release in correspondence of joints connected to shell elements of TP main column (- 011111). Dummy elements are located in correspondence of contact area of TP on upper grillage TOS (BLUE);

- 4 rigid dummy elements transmitting vertical loads and shears (Fz, Fy and Fz) through member release in correspondence of joints connected to shell elements of TP main column (- 000111). Dummy elements are located in correspondence of TP stoppers at upper grillage TOS (RED).

Dummy elements and respective end joints and releases are represented in following figure

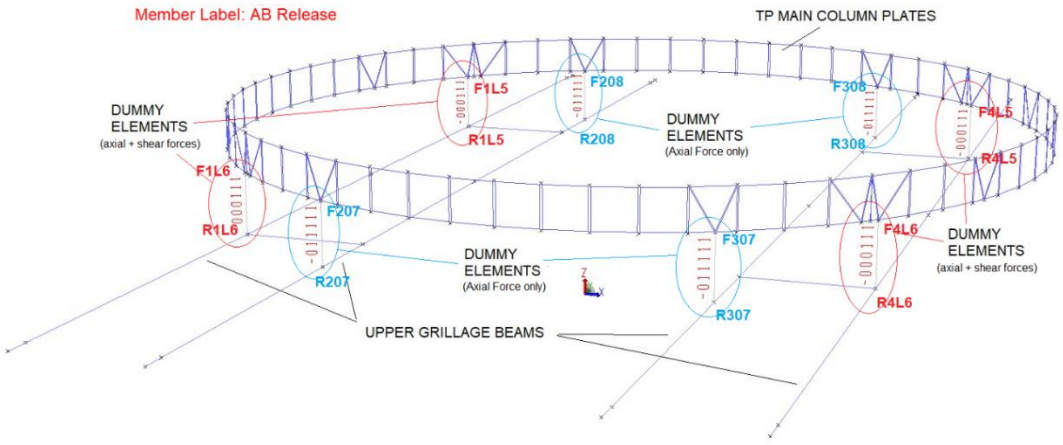


Figure 9.8 - TP-Upper Grillage connection - dummy elements (joint labels and member end release)

The connection between Upper Grillage and Lower Grillage and between Lower Grillage and barge deck is realized through rigid dummy elements to account for proper beam elevations and restraints. Four sea-fastening tubular elements connect the upper grillage to barge deck, according to a symmetric restraint scheme.

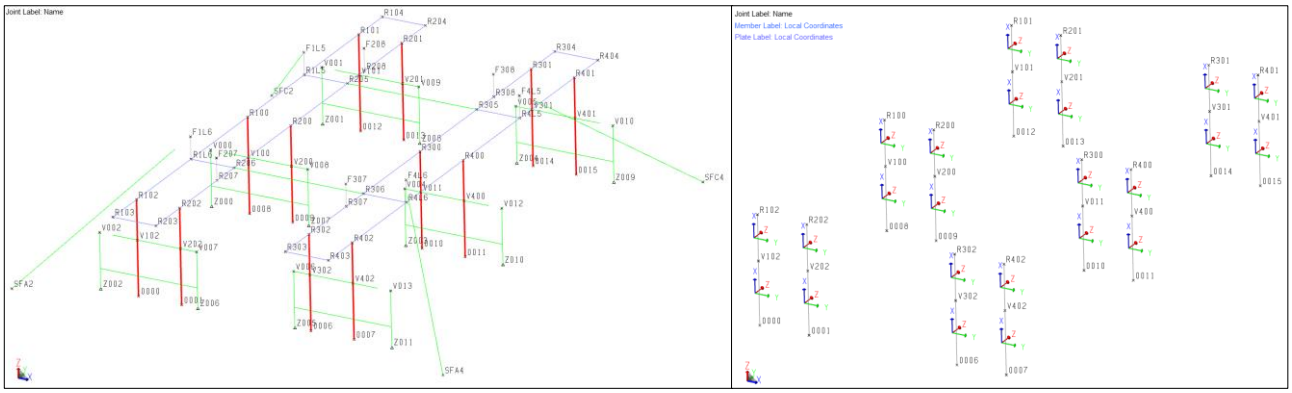


Figure 9.9 - Upper to Lower Grillage connection - dummy elements

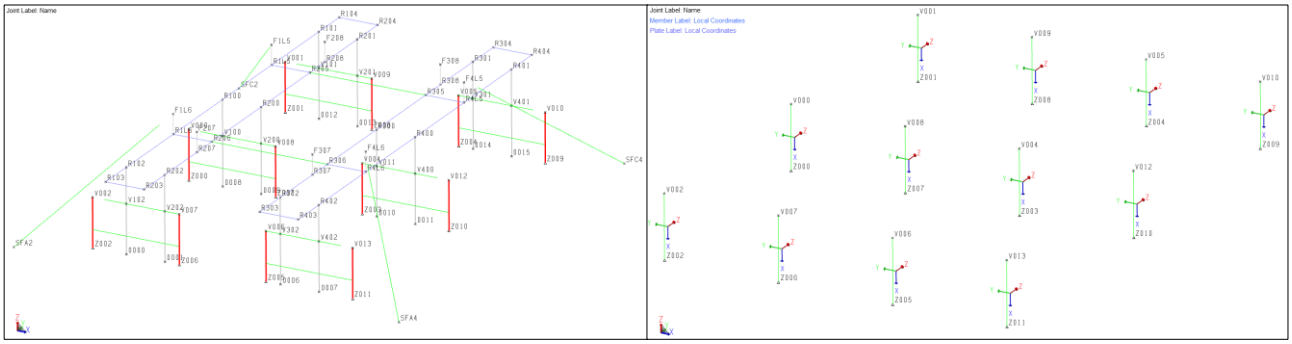


Figure 9.10 - Lower grillage to barge deck connection - dummy elements

10 BASIC LOAD CASES & LOAD COMBINATIONS

All the design loads have defined according to the Weight Control Report and Plot Plans, respectively Ref./20/ and /21/, in terms of weights, CoG position and contingency factors. The datum for weight reporting is different to that for the SACS structural analysis. The origin for the weight reporting is at gridline intersection C1 at LAT.

10.1 BASIC LOAD CASES

Basic load cases include:

- Permanent Actions (structural weight, secondary structures, equipment dry weights, installation aids, rigging)
- Transportation wind loads
- Transportation Inertia forces

All the listed load cases are described in detail in the TP Transportation Analysis Report Ref./33/.

In the following SACS excerpt, basic load cases summary is reported.

********** SEASTATE LOAD CASE CENTER REPORT **********
RELATIVE TO STRUCTURAL ORIGIN

LOAD CASE	LOAD LABEL	********* X - DIRECTION ********* FORCE (KN)	X (M)	Y (M)	Z (M)	********* Y - DIRECTION ********* FORCE (KN)	X (M)	Y (M)	Z (M)	********* Z - DIRECTION ********* FORCE (KN)	X (M)	Y (M)	Z (M)
2	DZTP	0.00				0.00				-1677.60	-0.35	-0.59	5.97
6	LOGR	0.00				0.00				-60.92	0.00	0.00	1.25
9	RIGG	0.00				0.00				-152.00	0.00	0.00	6.43
10	SEAF	0.00				0.00				-13.99	0.00	0.00	1.22
15	UPGR	0.00				0.00				-181.27	0.00	0.00	2.15
16	WFLO	0.00				0.00				-19.06	-5.01	-8.60	4.91
17	WPER	0.00				0.00				-159.54	-1.42	-2.35	4.15
21	MECD	0.00				0.00				-62.80	2.47	0.00	6.05
22	G001	0.00				0.00				-2440.14	-0.39	-0.77	5.84
24	TWTR	0.00				0.00				-3044.19	-0.32	-0.62	5.25
2	+R+H	0.00				-1549.85	-0.31	-0.61	5.48	-205.32	-0.85	-5.73	5.49
3	+R-H	0.00				-1148.53	-0.31	-0.62	5.51	897.25	-0.19	0.58	5.37
4	-R+H	0.00				1549.84	-0.31	-0.61	5.48	-543.45	-0.11	1.34	5.35
5	-R-H	0.00				1148.54	-0.31	-0.62	5.51	559.12	-0.51	-2.48	5.43
6	+P+H	978.07	-0.31	-0.61	5.48	0.00				-1200.50	0.16	-0.54	5.39
7	+P-H	724.12	-0.31	-0.62	5.51	0.00				-54.97	9.98	0.65	5.41
8	-P+H	-978.08	-0.31	-0.61	5.48	0.00				194.04	2.60	-0.24	5.40
9	-P-H	-724.11	-0.31	-0.62	5.51	0.00				1339.56	0.11	-0.55	5.39
20	WTPX	147.54	-1.21	-1.59	5.97	0.00				0.00			
21	WTNX	-147.54	-1.21	-1.59	5.97	0.00				0.00			
22	WTPY	0.00				150.73	-1.10	-2.23	6.24	0.00			
23	WTNY	0.00				-150.73	-1.10	-2.23	6.24	0.00			

10.2 TRANSPORTATION LOAD COMBINATIONS

Basic Load cases and load combinations, detailed in chapter 10, have been combined together to define the design Load Combinations to be used in the transportation analysis, according to Partial Action Factor as per sec. 8.4.1.

10.2.1 Design Load Combinations

A total of 48 load combinations, according to ISO 19902 Transportation Design Situations, have been defined as per following tables.

TRANSPORTATION LOAD COMBINATIONS - DESIGN SITUATION 1													
)	LOAD CASES												
3.	TWTR	+P+H	+P-H	-P+H	-P-H	+R+H	+R-H	-R+H	-R-H	WTPX	WTNX	WTPY	WTNY
C101	1.30	1.00								1.00			
C102	1.30	1.00									1.00		
C103	1.30		1.00							1.00			
C104	1.30		1.00								1.00		
C105	1.30			1.00						1.00			
C106	1.30			1.00							1.00		
C107	1.30				1.00					1.00			
C108	1.30				1.00						1.00		
C109	1.30					1.00						1.00	
C110	1.30					1.00							1.00
C111	1.30						1.00					1.00	
C112	1.30						1.00						1.00
C113	1.30							1.00				1.00	
C114	1.30							1.00					1.00
C115	1.30								1.00			1.00	
C116	1.30								1.00				1.00

Table 10.1- Transportation Load Combinations – Design situation 1

TRANSPORTATION LOAD COMBINATIONS - DESIGN SITUATION 2													
LOAD	LOAD CASES												
COMB.	TWTR	+P+H	+P-H	-P+H	-P-H	+R+H	+R-H	-R+H	-R-H	WTPX	WTNX	WTPY	WTNY
C201	1.10	1.35								1.35			
C202	1.10	1.35									1.35		
C203	1.10		1.35							1.35			
C204	1.10		1.35								1.35		
C205	1.10			1.35						1.35			
C206	1.10			1.35							1.35		
C207	1.10				1.35					1.35			
C208	1.10				1.35						1.35		
C209	1.10					1.35						1.35	
C210	1.10					1.35							1.35
C211	1.10						1.35					1.35	
C212	1.10						1.35						1.35
C213	1.10							1.35				1.35	
C214	1.10							1.35					1.35
C215	1.10								1.35			1.35	
C216	1.10								1.35				1.35

Table 10.2 - Transportation Load Combinations – Design situation 2

TRANSPORTATION LOAD COMBINATIONS - DESIGN SITUATION 3													
LOAD COMB.	LOAD CASES												
	TWTR	+P+H	+P-H	-P+H	-P-H	+R+H	+R-H	-R+H	-R-H	WTPX	WTNX	WTPY	WTNY
C301	0.90	1.35								1.35			
C302	0.90	1.35									1.35		
C303	0.90		1.35							1.35			
C304	0.90		1.35								1.35		
C305	0.90			1.35						1.35			
C306	0.90			1.35							1.35		
C307	0.90				1.35					1.35			
C308	0.90				1.35						1.35		
C309	0.90					1.35						1.35	
C310	0.90					1.35							1.35
C311	0.90						1.35					1.35	
C312	0.90						1.35						1.35
C313	0.90							1.35				1.35	
C314	0.90							1.35					1.35
C315	0.90								1.35			1.35	
C316	0.90								1.35				1.35

Table 10.3 - Transportation Load Combinations – Design situation 3

10.2.2 Unfactored Load Combinations

Following further 16 un-factored Load Combinations have been defined to evaluate actual reaction forces, according to Allowable Working Stress design approach. These combinations were not used for structural checks of Transition Piece in Transportation Conditions and have been computed only as a reference for actions comparison.

TRANSPORTATION LOAD COMBINATIONS - UNFACTORED LOADS													
	LOAD CASES												
	TWTR	+P+H	+P-H	-P+H	-P-H	+R+H	+R-H	-R+H	-R-H	WTPX	WTNX	WTPY	WTNY
UN01	1.00	1.00								1.00			
UN02	1.00	1.00									1.00		
UN03	1.00		1.00							1.00			
UN04	1.00		1.00								1.00		
UN05	1.00			1.00						1.00			
UN06	1.00			1.00							1.00		
UN07	1.00				1.00					1.00			
UN08	1.00				1.00						1.00		
UN09	1.00					1.00						1.00	
UN10	1.00					1.00							1.00
UN11	1.00						1.00					1.00	
UN12	1.00						1.00						1.00
UN13	1.00							1.00				1.00	
UN14	1.00							1.00					1.00
UN15	1.00								1.00			1.00	
UN16	1.00								1.00				1.00

Table 10.4 - Transportation Load Combinations – Unfactored

10.2.3 Load Combinations Summary

Following excerpt from SACS output provide the Load Combinations resultants.

FORCES AND MOMENTS SUMMARY
*** MOMENTS SUMMED ABOUT ORIGIN ***

LOAD CASE	FORCE(X) KN	FORCE(Y) KN	FORCE(Z) KN	MOMENT(X) KN-M	MOMENT(Y) KN-M	MOMENT(Z) KN-M
C101	-1125.611	0.000	5157.958	-3089.832	-5179.500	-832.669
C102	-830.527	0.000	5157.958	-3089.832	-3418.612	-363.229
C103	-871.656	0.000	4012.437	-2404.359	-4165.197	-680.692
C104	-576.571	0.000	4012.437	-2404.359	-2404.308	-211.252
C105	830.530	0.000	3763.427	-2393.150	6235.412	363.228
C106	1125.615	0.000	3763.427	-2393.150	7996.300	832.668
C107	576.569	0.000	2617.908	-1707.586	4511.051	211.251
C108	871.654	0.000	2617.908	-1707.585	6271.939	680.690
C109	0.000	1399.111	4162.781	-11167.589	1426.318	-312.208
C110	0.000	1700.562	4162.781	-13048.867	1426.317	-645.066
C111	0.000	997.807	3060.210	-8343.507	1084.666	-187.847
C112	0.000	1299.257	3060.210	-10224.785	1084.666	-520.705
C113	0.000	-1700.559	4500.916	7719.741	1310.602	645.079
C114	0.000	-1399.108	4500.917	5838.462	1310.602	312.221
C115	0.000	-1299.257	3398.343	6215.656	968.949	520.719
C116	0.000	-997.806	3398.343	4334.377	968.949	187.861
C201	-1519.575	0.000	4969.292	-2941.732	-7623.372	-1124.103
C202	-1121.211	0.000	4969.291	-2941.731	-5246.172	-490.360
C203	-1176.736	0.000	3422.838	-2016.344	-6254.062	-918.933
C204	-778.371	0.000	3422.838	-2016.343	-3876.862	-285.190
C205	1121.216	0.000	3086.675	-2001.212	7786.759	490.356
C206	1519.580	0.000	3086.675	-2001.211	10163.958	1124.100
C207	778.369	0.000	1540.224	-1075.699	5458.871	285.188
C208	1176.733	0.000	1540.224	-1075.699	7836.071	918.931
C209	0.000	1888.800	3625.802	-13846.702	1294.482	-421.481
C210	0.000	2295.759	3625.802	-16386.432	1294.482	-870.839
C211	0.000	1347.039	2137.331	-10034.192	833.252	-253.595
C212	0.000	1753.997	2137.331	-12573.918	833.253	-702.952
C213	0.000	-2295.755	4082.285	11651.190	1138.266	870.855
C214	0.000	-1888.796	4082.284	9111.465	1138.266	421.498
C215	0.000	-1753.996	2593.810	9620.676	677.035	702.970
C216	0.000	-1347.038	2593.810	7080.951	677.035	253.613
C301	-1519.575	0.000	4360.451	-2566.300	-7816.058	-1124.103
C302	-1121.211	0.000	4360.451	-2566.299	-5438.858	-490.360
C303	-1176.736	0.000	2813.998	-1640.911	-6446.749	-918.933
C304	-778.371	0.000	2813.998	-1640.910	-4069.549	-285.190
C305	1121.216	0.000	2477.834	-1625.779	7594.073	490.356
C306	1519.580	0.000	2477.834	-1625.778	9971.272	1124.100
C307	778.369	0.000	931.383	-700.266	5266.184	285.188
C308	1176.733	0.000	931.383	-700.266	7643.385	918.931
C309	0.000	1888.800	3016.962	-13471.270	1101.796	-421.481
C310	0.000	2295.759	3016.962	-16010.998	1101.796	-870.839
C311	0.000	1347.039	1528.491	-9658.760	640.566	-253.595
C312	0.000	1753.997	1528.491	-12198.486	640.566	-702.952
C313	0.000	-2295.755	3473.444	12026.623	945.580	870.855
C314	0.000	-1888.796	3473.443	9486.897	945.580	421.498
C315	0.000	-1753.996	1984.969	9996.109	484.349	702.970
C316	0.000	-1347.038	1984.969	7456.383	484.349	253.613
UN01	-1125.611	0.000	4244.698	-2526.684	-5468.529	-832.670
UN02	-830.527	0.000	4244.698	-2526.683	-3707.640	-363.229
UN03	-871.656	0.000	3099.177	-1841.210	-4454.226	-680.692
UN04	-576.571	0.000	3099.177	-1841.210	-2693.337	-211.252
UN05	830.530	0.000	2850.167	-1830.002	5946.382	363.227
UN06	1125.615	0.000	2850.167	-1830.001	7707.271	832.667
UN07	576.569	0.000	1704.648	-1144.437	4222.021	211.251
UN08	871.654	0.000	1704.648	-1144.436	5982.910	680.690
UN09	0.000	1399.111	3249.521	-10604.439	1137.289	-312.209
UN10	0.000	1700.562	3249.521	-12485.717	1137.289	-645.066
UN11	0.000	997.807	2146.949	-7780.358	795.637	-187.848
UN12	0.000	1299.257	2146.949	-9661.637	795.637	-520.705
UN13	0.000	-1700.559	3587.655	8282.889	1021.573	645.078
UN14	0.000	-1399.108	3587.655	6401.610	1021.573	312.221
UN15	0.000	-1299.257	2485.082	6778.804	679.920	520.719
UN16	0.000	-997.806	2485.082	4897.526	679.920	187.861

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11 ANALYSIS RESULTS

This section presents the results of the Transportation analysis carried out in terms of:

- Reaction forces at barge deck and internal forces of dummy elements at Upper-Lower grillage connections.
- Structural checks of structural members belonging to upper grillage, lower grillage and sea fastening;
- Local checks of upper and lower grillage.
- Barge max. reaction checks.

Results are taken from the Transportation analysis Ref./33/. Checks are performed on TP upper grillage, lower grillage and sea fastening in transportation conditions, while checks of TP structure is reported in Ref./33/.

11.1 REACTION FORCES

11.1.1 Base reaction forces at barge deck

Maximum and minimum base reaction forces for Transition Piece in transportation conditions, are reported in the following tables. Reactions are read in correspondence of sea fastening and lower grillage connections to barge deck in global reference system. An envelope of base reaction forces at barge deck is also provided.

JOINT	Rx [kN]				Ry [kN]				Rz [kN]				MOMENT(X) [kNm]				MOMENT(Y) [kNm]				MOMENT(Z) [kNm]			
	MAX	LCOND	MIN	LCOND	MAX	LCOND	MIN	LCOND	MAX	LCOND	MIN	LCOND	MAX	LCOND	MIN	LCOND	MAX	LCOND	MIN	LCOND	MAX	LCOND	MIN	LCOND
SFA2	498	C210	-476	C213	608	C210	-581	C213	531	C210	-506	C213	0	C101	0	C101	0	C101	0	C101	0	C101	0	C101
SFA4	400	C213	-417	C210	509	C210	-488	C213	444	C210	-425	C213	0	C101	0	C101	0	C101	0	C101	0	C101	0	C101
SFC2	505	C213	-483	C210	590	C210	-617	C213	539	C213	-515	C210	0	C101	0	C101	0	C101	0	C101	0	C101	0	C101
SFC4	409	C210	-427	C213	500	C210	-521	C213	455	C213	-436	C210	0	C101	0	C101	0	C101	0	C101	0	C101	0	C101
Z000	195	C206	-163	C203	52	C210	-58	C213	810	C206	11	C303	0	C101	0	C101	0	C101	0	C101	0	C101	0	C101
Z001	33	C205	-27	C204	13	C213	-13	C210	182	C105	57	C311	0	C101	0	C101	0	C101	0	C101	0	C101	0	C101
Z002	97	C206	-81	C203	47	C206	-48	C201	344	C206	31	C303	0	C101	0	C101	0	C101	0	C101	0	C101	0	C101
Z003	118	C201	-119	C208	42	C201	-42	C206	765	C201	27	C308	0	C101	0	C101	0	C101	0	C101	0	C101	0	C101
Z004	33	C214	-35	C211	9	C209	-9	C214	298	C213	-21	C312	0	C101	0	C101	0	C101	0	C101	0	C101	0	C101
Z005	33	C206	-36	C216	47	C206	-47	C201	459	C110	94	C315	0	C101	0	C101	0	C101	0	C101	0	C101	0	C101
Z006	69	C208	-73	C201	48	C201	-47	C206	602	C110	67	C315	0	C101	0	C101	0	C101	0	C101	0	C101	0	C101
Z007	69	C207	-52	C202	42	C206	-42	C201	850	C102	250	C307	0	C101	0	C101	0	C101	0	C101	0	C101	0	C101
Z008	65	C212	-66	C213	40	C210	-37	C213	445	C213	-43	C312	0	C101	0	C101	0	C101	0	C101	0	C101	0	C101
Z009	55	C212	-56	C213	21	C210	-24	C213	178	C213	-26	C312	0	C101	0	C101	0	C101	0	C101	0	C101	0	C101
Z010	241	C208	-276	C201	42	C206	-42	C201	845	C201	-261	C308	0	C101	0	C101	0	C101	0	C101	0	C101	0	C101
Z011	124	C208	-142	C201	47	C201	-47	C206	381	C201	-82	C308	0	C101	0	C101	0	C101	0	C101	0	C101	0	C101

Table 11.1 – TP base reaction forces in Transportation Conditions – Summary Envelope

Base reaction forces at barge deck for all load combinations are reported in following SACS excerpt with reference to STEP 3 analysis, final transportation configuration.

JOINTS REACTION FORCES AND MOMENTS REPORT

JOINT	LOAD COND	FORCE(X) kN	FORCE(Y) kN	FORCE(Z) kN	MOMENT(X) kN-m	MOMENT(Y) kN-m	MOMENT(Z) kN-m
SFA2	C101	-97.308	-117.700	-102.092	0.000	0.000	0.000
	C102	-74.426	-89.832	-77.718	0.000	0.000	0.000
	C103	-94.571	-114.606	-100.274	0.000	0.000	0.000
	C104	-71.689	-86.738	-75.900	0.000	0.000	0.000
	C105	96.426	116.625	101.932	0.000	0.000	0.000
	C106	119.308	144.493	126.306	0.000	0.000	0.000
	C107	43.610	52.541	44.994	0.000	0.000	0.000
	C108	66.492	80.409	69.368	0.000	0.000	0.000
	C109	294.686	359.954	314.190	0.000	0.000	0.000
	C110	368.719	450.120	393.052	0.000	0.000	0.000
	C111	186.471	227.849	198.064	0.000	0.000	0.000
	C112	260.505	318.014	276.926	0.000	0.000	0.000
	C113	-352.353	-430.187	-375.038	0.000	0.000	0.000
	C114	-278.319	-340.022	-296.176	0.000	0.000	0.000
	C115	-292.339	-356.785	-311.965	0.000	0.000	0.000
	C116	-218.305	-266.619	-233.103	0.000	0.000	0.000
	C201	-131.366	-158.895	-137.824	0.000	0.000	0.000
	C202	-100.476	-121.273	-104.919	0.000	0.000	0.000
	C203	-127.671	-154.719	-135.370	0.000	0.000	0.000
	C204	-96.781	-117.097	-102.465	0.000	0.000	0.000
	C205	130.175	157.444	137.608	0.000	0.000	0.000
	C206	161.065	195.066	170.514	0.000	0.000	0.000
	C207	58.874	70.930	60.742	0.000	0.000	0.000
	C208	89.765	108.552	93.647	0.000	0.000	0.000
	C209	397.826	485.938	424.157	0.000	0.000	0.000
	C210	497.771	607.662	530.621	0.000	0.000	0.000
	C211	251.736	307.596	267.386	0.000	0.000	0.000
	C212	351.682	429.319	373.850	0.000	0.000	0.000
	C213	-475.676	-580.753	-506.302	0.000	0.000	0.000
	C214	-375.731	-459.029	-399.838	0.000	0.000	0.000
	C215	-394.657	-481.659	-421.152	0.000	0.000	0.000
	C216	-294.712	-359.935	-314.689	0.000	0.000	0.000
	C301	-131.366	-158.895	-137.824	0.000	0.000	0.000
	C302	-100.476	-121.273	-104.919	0.000	0.000	0.000
	C303	-127.671	-154.719	-135.370	0.000	0.000	0.000
	C304	-96.781	-117.097	-102.465	0.000	0.000	0.000
	C305	130.175	157.444	137.608	0.000	0.000	0.000
	C306	161.065	195.066	170.514	0.000	0.000	0.000
	C307	58.874	70.930	60.742	0.000	0.000	0.000
	C308	89.765	108.552	93.647	0.000	0.000	0.000
	C309	397.826	485.938	424.157	0.000	0.000	0.000
	C310	497.771	607.662	530.621	0.000	0.000	0.000
	C311	251.736	307.596	267.386	0.000	0.000	0.000
	C312	351.682	429.319	373.850	0.000	0.000	0.000
	C313	-475.676	-580.753	-506.302	0.000	0.000	0.000
	C314	-375.731	-459.029	-399.838	0.000	0.000	0.000
	C315	-394.657	-481.659	-421.152	0.000	0.000	0.000
	C316	-294.712	-359.935	-314.689	0.000	0.000	0.000
	UN01	-97.308	-117.700	-102.092	0.000	0.000	0.000
	UN02	-74.426	-89.832	-77.718	0.000	0.000	0.000
	UN03	-94.571	-114.606	-100.274	0.000	0.000	0.000
	UN04	-71.689	-86.738	-75.900	0.000	0.000	0.000
	UN05	96.426	116.625	101.932	0.000	0.000	0.000
	UN06	119.308	144.493	126.306	0.000	0.000	0.000
	UN07	43.610	52.541	44.994	0.000	0.000	0.000
	UN08	66.492	80.409	69.368	0.000	0.000	0.000
	UN09	294.686	359.954	314.190	0.000	0.000	0.000
	UN10	368.719	450.120	393.052	0.000	0.000	0.000
	UN11	186.471	227.849	198.064	0.000	0.000	0.000
	UN12	260.505	318.014	276.926	0.000	0.000	0.000
	UN13	-352.353	-430.187	-375.038	0.000	0.000	0.000
	UN14	-278.319	-340.022	-296.176	0.000	0.000	0.000
	UN15	-292.339	-356.785	-311.965	0.000	0.000	0.000
	UN16	-218.305	-266.619	-233.103	0.000	0.000	0.000
SFA4	C101	-143.994	174.559	153.696	0.000	0.000	0.000
	C102	-121.112	146.691	129.322	0.000	0.000	0.000
	C103	-96.666	117.157	102.603	0.000	0.000	0.000
	C104	-73.784	89.289	78.228	0.000	0.000	0.000
	C105	103.932	-125.768	-110.241	0.000	0.000	0.000
	C106	126.814	-153.636	-134.616	0.000	0.000	0.000
	C107	95.710	-115.993	-102.581	0.000	0.000	0.000
	C108	118.592	-143.862	-126.955	0.000	0.000	0.000
	C109	-263.202	321.610	280.653	0.000	0.000	0.000
	C110	-308.763	377.099	329.186	0.000	0.000	0.000

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	C111	-171.527	209.647	182.144	0.000	0.000	0.000
	C112	-217.088	265.137	230.677	0.000	0.000	0.000
	C113	295.981	-361.531	-314.989	0.000	0.000	0.000
	C114	250.419	-306.042	-266.456	0.000	0.000	0.000
	C115	241.947	-295.413	-258.287	0.000	0.000	0.000
	C116	196.386	-239.923	-209.754	0.000	0.000	0.000
	C201	-194.392	235.655	207.490	0.000	0.000	0.000
	C202	-163.501	198.033	174.585	0.000	0.000	0.000
	C203	-130.499	158.162	138.514	0.000	0.000	0.000
	C204	-99.608	120.540	105.608	0.000	0.000	0.000
	C205	140.309	-169.786	-148.826	0.000	0.000	0.000
	C206	171.200	-207.408	-181.731	0.000	0.000	0.000
	C207	129.209	-156.591	-138.484	0.000	0.000	0.000
	C208	160.100	-194.213	-171.390	0.000	0.000	0.000
	C209	-355.322	434.173	378.882	0.000	0.000	0.000
	C210	-416.830	509.084	444.401	0.000	0.000	0.000
	C211	-231.561	283.024	245.895	0.000	0.000	0.000
	C212	-293.069	357.934	311.414	0.000	0.000	0.000
	C213	399.574	-488.067	-425.236	0.000	0.000	0.000
	C214	338.066	-413.156	-359.716	0.000	0.000	0.000
	C215	326.629	-398.807	-348.687	0.000	0.000	0.000
	C216	265.121	-323.896	-283.168	0.000	0.000	0.000
	C301	-194.392	235.655	207.490	0.000	0.000	0.000
	C302	-163.501	198.033	174.585	0.000	0.000	0.000
	C303	-130.499	158.162	138.514	0.000	0.000	0.000
	C304	-99.608	120.540	105.608	0.000	0.000	0.000
	C305	140.309	-169.786	-148.826	0.000	0.000	0.000
	C306	171.200	-207.408	-181.731	0.000	0.000	0.000
	C307	129.209	-156.591	-138.484	0.000	0.000	0.000
	C308	160.100	-194.213	-171.390	0.000	0.000	0.000
	C309	-355.322	434.173	378.882	0.000	0.000	0.000
	C310	-416.830	509.084	444.401	0.000	0.000	0.000
	C311	-231.561	283.024	245.895	0.000	0.000	0.000
	C312	-293.069	357.934	311.414	0.000	0.000	0.000
	C313	399.574	-488.067	-425.236	0.000	0.000	0.000
	C314	338.066	-413.156	-359.716	0.000	0.000	0.000
	C315	326.629	-398.807	-348.687	0.000	0.000	0.000
	C316	265.121	-323.896	-283.168	0.000	0.000	0.000
	UN01	-143.994	174.559	153.696	0.000	0.000	0.000
	UN02	-121.112	146.691	129.322	0.000	0.000	0.000
	UN03	-96.666	117.157	102.603	0.000	0.000	0.000
	UN04	-73.784	89.289	78.228	0.000	0.000	0.000
	UN05	103.932	-125.768	-110.241	0.000	0.000	0.000
	UN06	126.814	-153.636	-134.616	0.000	0.000	0.000
	UN07	95.710	-115.993	-102.581	0.000	0.000	0.000
	UN08	118.592	-143.862	-126.955	0.000	0.000	0.000
	UN09	-263.202	321.610	280.653	0.000	0.000	0.000
	UN10	-308.763	377.099	329.186	0.000	0.000	0.000
	UN11	-171.527	209.647	182.144	0.000	0.000	0.000
	UN12	-217.088	265.137	230.677	0.000	0.000	0.000
	UN13	295.981	-361.531	-314.989	0.000	0.000	0.000
	UN14	250.419	-306.042	-266.456	0.000	0.000	0.000
	UN15	241.947	-295.413	-258.287	0.000	0.000	0.000
	UN16	196.386	-239.923	-209.754	0.000	0.000	0.000
SFC2	C101	-171.616	208.199	-181.245	0.000	0.000	0.000
	C102	-108.581	131.429	-114.099	0.000	0.000	0.000
	C103	-154.980	188.178	-164.622	0.000	0.000	0.000
	C104	-91.945	111.408	-97.476	0.000	0.000	0.000
	C105	130.580	-158.221	138.313	0.000	0.000	0.000
	C106	193.615	-234.992	205.459	0.000	0.000	0.000
	C107	63.866	-77.210	66.570	0.000	0.000	0.000
	C108	126.901	-153.981	133.716	0.000	0.000	0.000
	C109	-283.834	346.738	-302.351	0.000	0.000	0.000
	C110	-357.868	436.904	-381.213	0.000	0.000	0.000
	C111	-223.842	273.362	-239.301	0.000	0.000	0.000
	C112	-297.875	363.528	-318.163	0.000	0.000	0.000
	C113	374.234	-456.836	399.227	0.000	0.000	0.000
	C114	300.200	-366.671	320.365	0.000	0.000	0.000
	C115	266.043	-324.759	283.125	0.000	0.000	0.000
	C116	192.009	-234.593	204.263	0.000	0.000	0.000
	C201	-231.681	281.069	-244.681	0.000	0.000	0.000
	C202	-146.584	177.428	-154.034	0.000	0.000	0.000
	C203	-209.223	254.041	-222.240	0.000	0.000	0.000
	C204	-124.125	150.400	-131.593	0.000	0.000	0.000
	C205	176.282	-213.599	186.723	0.000	0.000	0.000
	C206	261.380	-317.239	277.370	0.000	0.000	0.000
	C207	86.219	-104.234	89.870	0.000	0.000	0.000
	C208	171.316	-207.874	180.517	0.000	0.000	0.000
	C209	-383.176	468.097	-408.174	0.000	0.000	0.000

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	C210	-483.122	589.821	-514.638	0.000	0.000	0.000
	C211	-302.186	369.038	-323.056	0.000	0.000	0.000
	C212	-402.131	490.762	-429.519	0.000	0.000	0.000
	C213	505.216	-616.729	538.957	0.000	0.000	0.000
	C214	405.271	-495.005	432.493	0.000	0.000	0.000
	C215	359.158	-438.424	382.219	0.000	0.000	0.000
	C216	259.212	-316.700	275.755	0.000	0.000	0.000
	C301	-231.681	281.069	-244.681	0.000	0.000	0.000
	C302	-146.584	177.428	-154.034	0.000	0.000	0.000
	C303	-209.223	254.041	-222.240	0.000	0.000	0.000
	C304	-124.125	150.400	-131.593	0.000	0.000	0.000
	C305	176.282	-213.599	186.723	0.000	0.000	0.000
	C306	261.380	-317.239	277.370	0.000	0.000	0.000
	C307	86.219	-104.234	89.870	0.000	0.000	0.000
	C308	171.316	-207.874	180.517	0.000	0.000	0.000
	C309	-383.176	468.097	-408.174	0.000	0.000	0.000
	C310	-483.122	589.821	-514.638	0.000	0.000	0.000
	C311	-302.186	369.038	-323.056	0.000	0.000	0.000
	C312	-402.131	490.762	-429.519	0.000	0.000	0.000
	C313	505.216	-616.729	538.957	0.000	0.000	0.000
	C314	405.271	-495.005	432.493	0.000	0.000	0.000
	C315	359.158	-438.424	382.219	0.000	0.000	0.000
	C316	259.212	-316.700	275.755	0.000	0.000	0.000
	UN01	-171.616	208.199	-181.245	0.000	0.000	0.000
	UN02	-108.581	131.429	-114.099	0.000	0.000	0.000
	UN03	-154.980	188.178	-164.622	0.000	0.000	0.000
	UN04	-91.945	111.408	-97.476	0.000	0.000	0.000
	UN05	130.580	-158.221	138.313	0.000	0.000	0.000
	UN06	193.615	-234.992	205.459	0.000	0.000	0.000
	UN07	63.866	-77.210	66.570	0.000	0.000	0.000
	UN08	126.901	-153.981	133.716	0.000	0.000	0.000
	UN09	-283.834	346.738	-302.351	0.000	0.000	0.000
	UN10	-357.868	436.904	-381.213	0.000	0.000	0.000
	UN11	-223.842	273.362	-239.301	0.000	0.000	0.000
	UN12	-297.875	363.528	-318.163	0.000	0.000	0.000
	UN13	374.234	-456.836	399.227	0.000	0.000	0.000
	UN14	300.200	-366.671	320.365	0.000	0.000	0.000
	UN15	266.043	-324.759	283.125	0.000	0.000	0.000
	UN16	192.009	-234.593	204.263	0.000	0.000	0.000
SFC4	C101	-218.301	-265.058	232.850	0.000	0.000	0.000
	C102	-155.266	-188.287	165.704	0.000	0.000	0.000
	C103	-157.074	-190.729	166.951	0.000	0.000	0.000
	C104	-94.039	-113.958	99.805	0.000	0.000	0.000
	C105	138.086	167.364	-146.623	0.000	0.000	0.000
	C106	201.121	244.134	-213.769	0.000	0.000	0.000
	C107	115.966	140.663	-124.157	0.000	0.000	0.000
	C108	179.001	217.434	-191.303	0.000	0.000	0.000
	C109	257.756	314.977	-274.572	0.000	0.000	0.000
	C110	303.317	370.467	-323.105	0.000	0.000	0.000
	C111	203.707	248.840	-217.853	0.000	0.000	0.000
	C112	249.268	304.329	-266.386	0.000	0.000	0.000
	C113	-316.098	-386.032	337.300	0.000	0.000	0.000
	C114	-270.536	-330.543	288.767	0.000	0.000	0.000
	C115	-224.408	-274.051	238.774	0.000	0.000	0.000
	C116	-178.846	-218.561	190.242	0.000	0.000	0.000
	C201	-294.707	-357.828	314.347	0.000	0.000	0.000
	C202	-209.609	-254.188	223.700	0.000	0.000	0.000
	C203	-212.050	-257.484	225.384	0.000	0.000	0.000
	C204	-126.953	-153.843	134.737	0.000	0.000	0.000
	C205	186.416	225.941	-197.941	0.000	0.000	0.000
	C206	271.514	329.581	-288.588	0.000	0.000	0.000
	C207	156.554	189.895	-167.612	0.000	0.000	0.000
	C208	241.651	293.535	-258.260	0.000	0.000	0.000
	C209	347.970	425.219	-370.672	0.000	0.000	0.000
	C210	409.478	500.130	-436.192	0.000	0.000	0.000
	C211	275.004	335.934	-294.102	0.000	0.000	0.000
	C212	336.512	410.845	-359.621	0.000	0.000	0.000
	C213	-426.732	-521.144	455.355	0.000	0.000	0.000
	C214	-365.224	-446.233	389.835	0.000	0.000	0.000
	C215	-302.950	-369.969	322.346	0.000	0.000	0.000
	C216	-241.442	-295.058	256.826	0.000	0.000	0.000
	C301	-294.707	-357.828	314.347	0.000	0.000	0.000
	C302	-209.609	-254.188	223.700	0.000	0.000	0.000
	C303	-212.050	-257.484	225.384	0.000	0.000	0.000
	C304	-126.953	-153.843	134.737	0.000	0.000	0.000
	C305	186.416	225.941	-197.941	0.000	0.000	0.000
	C306	271.514	329.581	-288.588	0.000	0.000	0.000
	C307	156.554	189.895	-167.612	0.000	0.000	0.000
	C308	241.651	293.535	-258.260	0.000	0.000	0.000

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	C309	347.970	425.219	-370.672	0.000	0.000	0.000
	C310	409.478	500.130	-436.192	0.000	0.000	0.000
	C311	275.004	335.934	-294.102	0.000	0.000	0.000
	C312	336.512	410.845	-359.621	0.000	0.000	0.000
	C313	-426.732	-521.144	455.355	0.000	0.000	0.000
	C314	-365.224	-446.233	389.835	0.000	0.000	0.000
	C315	-302.950	-369.969	322.346	0.000	0.000	0.000
	C316	-241.442	-295.058	256.826	0.000	0.000	0.000
	UN01	-218.301	-265.058	232.850	0.000	0.000	0.000
	UN02	-155.266	-188.287	165.704	0.000	0.000	0.000
	UN03	-157.074	-190.729	166.951	0.000	0.000	0.000
	UN04	-94.039	-113.958	99.805	0.000	0.000	0.000
	UN05	138.086	167.364	-146.623	0.000	0.000	0.000
	UN06	201.121	244.134	-213.769	0.000	0.000	0.000
	UN07	115.966	140.663	-124.157	0.000	0.000	0.000
	UN08	179.001	217.434	-191.303	0.000	0.000	0.000
	UN09	257.756	314.977	-274.572	0.000	0.000	0.000
	UN10	303.317	370.467	-323.105	0.000	0.000	0.000
	UN11	203.707	248.840	-217.853	0.000	0.000	0.000
	UN12	249.268	304.329	-266.386	0.000	0.000	0.000
	UN13	-316.098	-386.032	337.300	0.000	0.000	0.000
	UN14	-270.536	-330.543	288.767	0.000	0.000	0.000
	UN15	-224.408	-274.051	238.774	0.000	0.000	0.000
	UN16	-178.846	-218.561	190.242	0.000	0.000	0.000
Z000	C101	-89.572	30.771	322.156	0.000	0.000	0.000
	C102	-50.227	14.126	402.670	0.000	0.000	0.000
	C103	-120.583	25.043	248.579	0.000	0.000	0.000
	C104	-81.238	8.397	329.094	0.000	0.000	0.000
	C105	105.377	-14.155	704.038	0.000	0.000	0.000
	C106	144.722	-30.800	784.553	0.000	0.000	0.000
	C107	10.846	-8.360	505.378	0.000	0.000	0.000
	C108	50.192	-25.006	585.892	0.000	0.000	0.000
	C109	13.800	25.199	524.029	0.000	0.000	0.000
	C110	13.800	38.571	524.029	0.000	0.000	0.000
	C111	-46.622	18.367	393.022	0.000	0.000	0.000
	C112	-46.622	31.738	393.022	0.000	0.000	0.000
	C113	27.229	-43.126	552.059	0.000	0.000	0.000
	C114	27.229	-29.754	552.059	0.000	0.000	0.000
	C115	-33.181	-34.016	421.042	0.000	0.000	0.000
	C116	-33.181	-20.644	421.042	0.000	0.000	0.000
	C201	-120.922	41.541	186.233	0.000	0.000	0.000
	C202	-67.806	19.070	294.927	0.000	0.000	0.000
	C203	-162.788	33.808	86.905	0.000	0.000	0.000
	C204	-109.671	11.337	195.599	0.000	0.000	0.000
	C205	142.258	-19.109	701.774	0.000	0.000	0.000
	C206	195.375	-41.581	810.469	0.000	0.000	0.000
	C207	14.642	-11.286	433.583	0.000	0.000	0.000
	C208	67.759	-33.758	542.277	0.000	0.000	0.000
	C209	18.630	34.019	458.761	0.000	0.000	0.000
	C210	18.630	52.070	458.761	0.000	0.000	0.000
	C211	-62.940	24.795	281.902	0.000	0.000	0.000
	C212	-62.940	42.847	281.902	0.000	0.000	0.000
	C213	36.759	-58.220	496.602	0.000	0.000	0.000
	C214	36.759	-40.168	496.602	0.000	0.000	0.000
	C215	-44.795	-45.921	319.730	0.000	0.000	0.000
	C216	-44.795	-27.870	319.730	0.000	0.000	0.000
	C301	-120.922	41.541	110.301	0.000	0.000	0.000
	C302	-67.806	19.070	218.995	0.000	0.000	0.000
	C303	-162.788	33.808	10.972	0.000	0.000	0.000
	C304	-109.671	11.337	119.667	0.000	0.000	0.000
	C305	142.258	-19.109	625.842	0.000	0.000	0.000
	C306	195.375	-41.581	734.536	0.000	0.000	0.000
	C307	14.642	-11.286	357.651	0.000	0.000	0.000
	C308	67.759	-33.758	466.345	0.000	0.000	0.000
	C309	18.630	34.019	382.829	0.000	0.000	0.000
	C310	18.630	52.070	382.829	0.000	0.000	0.000
	C311	-62.940	24.795	205.970	0.000	0.000	0.000
	C312	-62.940	42.847	205.970	0.000	0.000	0.000
	C313	36.759	-58.220	420.670	0.000	0.000	0.000
	C314	36.759	-40.168	420.670	0.000	0.000	0.000
	C315	-44.795	-45.921	243.798	0.000	0.000	0.000
	C316	-44.795	-27.870	243.798	0.000	0.000	0.000
	UN01	-89.572	30.771	208.258	0.000	0.000	0.000
	UN02	-50.227	14.126	288.772	0.000	0.000	0.000
	UN03	-120.583	25.043	134.681	0.000	0.000	0.000
	UN04	-81.238	8.397	215.196	0.000	0.000	0.000
	UN05	105.377	-14.155	590.140	0.000	0.000	0.000
	UN06	144.722	-30.800	670.655	0.000	0.000	0.000
	UN07	10.846	-8.360	391.480	0.000	0.000	0.000

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	UN08	50.192	-25.006	471.994	0.000	0.000	0.000
	UN09	13.800	25.199	410.131	0.000	0.000	0.000
	UN10	13.800	38.571	410.131	0.000	0.000	0.000
	UN11	-46.622	18.367	279.123	0.000	0.000	0.000
	UN12	-46.622	31.738	279.123	0.000	0.000	0.000
	UN13	27.229	-43.126	438.160	0.000	0.000	0.000
	UN14	27.229	-29.754	438.160	0.000	0.000	0.000
	UN15	-33.181	-34.016	307.144	0.000	0.000	0.000
	UN16	-33.181	-20.644	307.144	0.000	0.000	0.000
Z001	C101	-7.816	0.489	146.279	0.000	0.000	0.000
	C102	-10.145	5.163	142.378	0.000	0.000	0.000
	C103	-17.714	-1.037	122.175	0.000	0.000	0.000
	C104	-20.042	3.637	118.274	0.000	0.000	0.000
	C105	24.135	-4.474	182.275	0.000	0.000	0.000
	C106	21.806	0.201	178.375	0.000	0.000	0.000
	C107	2.185	-4.518	142.081	0.000	0.000	0.000
	C108	-0.144	0.157	138.181	0.000	0.000	0.000
	C109	1.898	-3.701	150.965	0.000	0.000	0.000
	C110	10.047	-9.964	163.288	0.000	0.000	0.000
	C111	-16.737	-1.423	114.536	0.000	0.000	0.000
	C112	-8.588	-7.687	126.859	0.000	0.000	0.000
	C113	0.357	9.964	154.126	0.000	0.000	0.000
	C114	8.507	3.701	166.450	0.000	0.000	0.000
	C115	-11.657	9.964	128.676	0.000	0.000	0.000
	C116	-3.508	3.701	140.999	0.000	0.000	0.000
	C201	-10.552	0.660	122.804	0.000	0.000	0.000
	C202	-13.695	6.971	117.538	0.000	0.000	0.000
	C203	-23.914	-1.400	90.263	0.000	0.000	0.000
	C204	-27.057	4.910	84.998	0.000	0.000	0.000
	C205	32.582	-6.039	171.399	0.000	0.000	0.000
	C206	29.439	0.271	166.134	0.000	0.000	0.000
	C207	2.949	-6.099	117.138	0.000	0.000	0.000
	C208	-0.194	0.211	111.872	0.000	0.000	0.000
	C209	2.562	-4.996	129.130	0.000	0.000	0.000
	C210	13.563	-13.451	145.767	0.000	0.000	0.000
	C211	-22.595	-1.922	79.951	0.000	0.000	0.000
	C212	-11.594	-10.377	96.588	0.000	0.000	0.000
	C213	0.483	13.451	133.399	0.000	0.000	0.000
	C214	11.484	4.996	150.035	0.000	0.000	0.000
	C215	-15.737	13.451	99.040	0.000	0.000	0.000
	C216	-4.736	4.996	115.677	0.000	0.000	0.000
	C301	-10.552	0.660	100.003	0.000	0.000	0.000
	C302	-13.695	6.971	94.738	0.000	0.000	0.000
	C303	-23.914	-1.400	67.463	0.000	0.000	0.000
	C304	-27.057	4.910	62.197	0.000	0.000	0.000
	C305	32.582	-6.039	148.599	0.000	0.000	0.000
	C306	29.439	0.271	143.333	0.000	0.000	0.000
	C307	2.949	-6.099	94.337	0.000	0.000	0.000
	C308	-0.194	0.211	89.071	0.000	0.000	0.000
	C309	2.562	-4.996	106.330	0.000	0.000	0.000
	C310	13.563	-13.451	122.966	0.000	0.000	0.000
	C311	-22.595	-1.922	57.151	0.000	0.000	0.000
	C312	-11.594	-10.377	73.787	0.000	0.000	0.000
	C313	0.483	13.451	110.598	0.000	0.000	0.000
	C314	11.484	4.996	127.234	0.000	0.000	0.000
	C315	-15.737	13.451	76.239	0.000	0.000	0.000
	C316	-4.736	4.996	92.876	0.000	0.000	0.000
	UN01	-7.816	0.489	112.078	0.000	0.000	0.000
	UN02	-10.145	5.163	108.177	0.000	0.000	0.000
	UN03	-17.714	-1.037	87.974	0.000	0.000	0.000
	UN04	-20.042	3.637	84.073	0.000	0.000	0.000
	UN05	24.135	-4.474	148.074	0.000	0.000	0.000
	UN06	21.806	0.201	144.174	0.000	0.000	0.000
	UN07	2.185	-4.518	107.880	0.000	0.000	0.000
	UN08	-0.144	0.157	103.980	0.000	0.000	0.000
	UN09	1.898	-3.701	116.764	0.000	0.000	0.000
	UN10	10.047	-9.964	129.087	0.000	0.000	0.000
	UN11	-16.737	-1.423	80.335	0.000	0.000	0.000
	UN12	-8.588	-7.687	92.658	0.000	0.000	0.000
	UN13	0.357	9.964	119.925	0.000	0.000	0.000
	UN14	8.507	3.701	132.249	0.000	0.000	0.000
	UN15	-11.657	9.964	94.475	0.000	0.000	0.000
	UN16	-3.508	3.701	106.798	0.000	0.000	0.000
Z002	C101	-48.122	-35.584	163.413	0.000	0.000	0.000
	C102	-20.694	-21.310	206.237	0.000	0.000	0.000
	C103	-60.325	-27.519	134.046	0.000	0.000	0.000
	C104	-32.896	-13.246	176.870	0.000	0.000	0.000
	C105	44.744	20.655	296.944	0.000	0.000	0.000

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	C106	72.173	34.929	339.768	0.000	0.000	0.000
	C107	2.199	14.081	221.587	0.000	0.000	0.000
	C108	29.628	28.355	264.411	0.000	0.000	0.000
	C109	6.457	-12.946	243.180	0.000	0.000	0.000
	C110	-1.692	-19.209	230.856	0.000	0.000	0.000
	C111	-16.432	-8.112	198.331	0.000	0.000	0.000
	C112	-24.581	-14.375	186.008	0.000	0.000	0.000
	C113	19.589	18.722	260.552	0.000	0.000	0.000
	C114	11.440	12.459	248.228	0.000	0.000	0.000
	C115	-10.219	15.323	204.599	0.000	0.000	0.000
	C116	-18.368	9.060	192.275	0.000	0.000	0.000
	C201	-64.965	-48.038	105.434	0.000	0.000	0.000
	C202	-27.936	-28.769	163.247	0.000	0.000	0.000
	C203	-81.438	-37.151	65.790	0.000	0.000	0.000
	C204	-44.409	-17.881	123.602	0.000	0.000	0.000
	C205	60.405	27.885	285.702	0.000	0.000	0.000
	C206	97.434	47.154	343.514	0.000	0.000	0.000
	C207	2.969	19.010	183.969	0.000	0.000	0.000
	C208	39.998	38.279	241.781	0.000	0.000	0.000
	C209	8.717	-17.477	213.120	0.000	0.000	0.000
	C210	-2.285	-25.932	196.483	0.000	0.000	0.000
	C211	-22.184	-10.952	152.574	0.000	0.000	0.000
	C212	-33.185	-19.407	135.938	0.000	0.000	0.000
	C213	26.445	25.275	236.572	0.000	0.000	0.000
	C214	15.444	16.820	219.935	0.000	0.000	0.000
	C215	-13.796	20.686	161.035	0.000	0.000	0.000
	C216	-24.797	12.231	144.399	0.000	0.000	0.000
	C301	-64.965	-48.038	70.267	0.000	0.000	0.000
	C302	-27.936	-28.769	128.079	0.000	0.000	0.000
	C303	-81.438	-37.151	30.622	0.000	0.000	0.000
	C304	-44.409	-17.881	88.435	0.000	0.000	0.000
	C305	60.405	27.885	250.534	0.000	0.000	0.000
	C306	97.434	47.154	308.346	0.000	0.000	0.000
	C307	2.969	19.010	148.802	0.000	0.000	0.000
	C308	39.998	38.279	206.614	0.000	0.000	0.000
	C309	8.717	-17.477	177.952	0.000	0.000	0.000
	C310	-2.285	-25.932	161.316	0.000	0.000	0.000
	C311	-22.184	-10.952	117.407	0.000	0.000	0.000
	C312	-33.185	-19.407	100.770	0.000	0.000	0.000
	C313	26.445	25.275	201.404	0.000	0.000	0.000
	C314	15.444	16.820	184.768	0.000	0.000	0.000
	C315	-13.796	20.686	125.868	0.000	0.000	0.000
	C316	-24.797	12.231	109.231	0.000	0.000	0.000
	UN01	-48.122	-35.584	110.662	0.000	0.000	0.000
	UN02	-20.694	-21.310	153.486	0.000	0.000	0.000
	UN03	-60.325	-27.519	81.295	0.000	0.000	0.000
	UN04	-32.896	-13.246	124.119	0.000	0.000	0.000
	UN05	44.744	20.655	244.193	0.000	0.000	0.000
	UN06	72.173	34.929	287.017	0.000	0.000	0.000
	UN07	2.199	14.081	168.836	0.000	0.000	0.000
	UN08	29.628	28.355	211.660	0.000	0.000	0.000
	UN09	6.457	-12.946	190.429	0.000	0.000	0.000
	UN10	-1.692	-19.209	178.105	0.000	0.000	0.000
	UN11	-16.432	-8.112	145.580	0.000	0.000	0.000
	UN12	-24.581	-14.375	133.257	0.000	0.000	0.000
	UN13	19.589	18.722	207.801	0.000	0.000	0.000
	UN14	11.440	12.459	195.477	0.000	0.000	0.000
	UN15	-10.219	15.323	151.848	0.000	0.000	0.000
	UN16	-18.368	9.060	139.524	0.000	0.000	0.000
Z003	C101	87.346	30.819	762.175	0.000	0.000	0.000
	C102	77.727	14.173	743.320	0.000	0.000	0.000
	C103	38.239	25.031	609.028	0.000	0.000	0.000
	C104	28.621	8.385	590.174	0.000	0.000	0.000
	C105	-38.543	-14.146	431.305	0.000	0.000	0.000
	C106	-48.161	-30.792	412.451	0.000	0.000	0.000
	C107	-78.630	-8.420	293.473	0.000	0.000	0.000
	C108	-88.248	-25.066	274.618	0.000	0.000	0.000
	C109	4.864	10.826	541.286	0.000	0.000	0.000
	C110	4.864	21.059	541.286	0.000	0.000	0.000
	C111	-38.068	7.409	401.234	0.000	0.000	0.000
	C112	-38.068	17.643	401.234	0.000	0.000	0.000
	C113	24.288	-23.337	600.611	0.000	0.000	0.000
	C114	24.288	-13.103	600.611	0.000	0.000	0.000
	C115	-18.632	-16.504	460.586	0.000	0.000	0.000
	C116	-18.632	-6.271	460.586	0.000	0.000	0.000
	C201	117.917	41.606	765.225	0.000	0.000	0.000
	C202	104.932	19.134	739.771	0.000	0.000	0.000
	C203	51.623	33.791	558.477	0.000	0.000	0.000
	C204	38.638	11.319	533.023	0.000	0.000	0.000

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	C205	-52.033	-19.097	318.550	0.000	0.000	0.000
	C206	-65.018	-41.569	293.097	0.000	0.000	0.000
	C207	-106.150	-11.367	132.477	0.000	0.000	0.000
	C208	-119.135	-33.839	107.023	0.000	0.000	0.000
	C209	6.566	14.614	467.025	0.000	0.000	0.000
	C210	6.566	28.430	467.025	0.000	0.000	0.000
	C211	-51.391	10.003	277.955	0.000	0.000	0.000
	C212	-51.391	23.818	277.955	0.000	0.000	0.000
	C213	32.789	-31.505	547.114	0.000	0.000	0.000
	C214	32.789	-17.689	547.114	0.000	0.000	0.000
	C215	-25.154	-22.281	358.080	0.000	0.000	0.000
	C216	-25.154	-8.465	358.080	0.000	0.000	0.000
	C301	117.917	41.606	684.702	0.000	0.000	0.000
	C302	104.932	19.134	659.248	0.000	0.000	0.000
	C303	51.623	33.791	477.954	0.000	0.000	0.000
	C304	38.638	11.319	452.501	0.000	0.000	0.000
	C305	-52.033	-19.097	238.028	0.000	0.000	0.000
	C306	-65.018	-41.569	212.574	0.000	0.000	0.000
	C307	-106.150	-11.367	51.954	0.000	0.000	0.000
	C308	-119.135	-33.839	26.501	0.000	0.000	0.000
	C309	6.566	14.614	386.502	0.000	0.000	0.000
	C310	6.566	28.430	386.502	0.000	0.000	0.000
	C311	-51.391	10.003	197.432	0.000	0.000	0.000
	C312	-51.391	23.818	197.432	0.000	0.000	0.000
	C313	32.789	-31.505	466.591	0.000	0.000	0.000
	C314	32.789	-17.689	466.591	0.000	0.000	0.000
	C315	-25.154	-22.281	277.557	0.000	0.000	0.000
	C316	-25.154	-8.465	277.557	0.000	0.000	0.000
	UN01	87.346	30.819	641.391	0.000	0.000	0.000
	UN02	77.727	14.173	622.537	0.000	0.000	0.000
	UN03	38.239	25.031	488.245	0.000	0.000	0.000
	UN04	28.621	8.385	469.390	0.000	0.000	0.000
	UN05	-38.543	-14.146	310.521	0.000	0.000	0.000
	UN06	-48.161	-30.792	291.667	0.000	0.000	0.000
	UN07	-78.630	-8.420	172.689	0.000	0.000	0.000
	UN08	-88.248	-25.066	153.835	0.000	0.000	0.000
	UN09	4.864	10.826	420.502	0.000	0.000	0.000
	UN10	4.864	21.059	420.502	0.000	0.000	0.000
	UN11	-38.068	7.409	280.450	0.000	0.000	0.000
	UN12	-38.068	17.643	280.450	0.000	0.000	0.000
	UN13	24.288	-23.337	479.827	0.000	0.000	0.000
	UN14	24.288	-13.103	479.827	0.000	0.000	0.000
	UN15	-18.632	-16.504	339.802	0.000	0.000	0.000
	UN16	-18.632	-6.271	339.802	0.000	0.000	0.000
Z004	C101	14.028	-0.082	267.870	0.000	0.000	0.000
	C102	9.303	4.592	248.705	0.000	0.000	0.000
	C103	5.262	-1.057	224.231	0.000	0.000	0.000
	C104	0.537	3.618	205.065	0.000	0.000	0.000
	C105	-0.100	-4.388	153.878	0.000	0.000	0.000
	C106	-4.825	0.286	134.712	0.000	0.000	0.000
	C107	-12.283	-3.878	114.833	0.000	0.000	0.000
	C108	-17.008	0.796	95.667	0.000	0.000	0.000
	C109	-17.765	6.548	110.796	0.000	0.000	0.000
	C110	-17.699	2.562	104.235	0.000	0.000	0.000
	C111	-25.815	4.270	80.578	0.000	0.000	0.000
	C112	-25.749	0.285	74.018	0.000	0.000	0.000
	C113	24.542	-2.562	289.034	0.000	0.000	0.000
	C114	24.609	-6.548	282.473	0.000	0.000	0.000
	C115	12.430	-0.285	239.677	0.000	0.000	0.000
	C116	12.497	-4.270	233.116	0.000	0.000	0.000
	C201	18.938	-0.111	269.355	0.000	0.000	0.000
	C202	12.559	6.199	243.482	0.000	0.000	0.000
	C203	7.103	-1.426	210.443	0.000	0.000	0.000
	C204	0.724	4.884	184.569	0.000	0.000	0.000
	C205	-0.134	-5.924	115.466	0.000	0.000	0.000
	C206	-6.513	0.386	89.592	0.000	0.000	0.000
	C207	-16.582	-5.236	62.755	0.000	0.000	0.000
	C208	-22.961	1.075	36.881	0.000	0.000	0.000
	C209	-23.983	8.840	57.305	0.000	0.000	0.000
	C210	-23.893	3.459	48.449	0.000	0.000	0.000
	C211	-34.850	5.765	16.512	0.000	0.000	0.000
	C212	-34.761	0.384	7.655	0.000	0.000	0.000
	C213	33.132	-3.459	297.926	0.000	0.000	0.000
	C214	33.222	-8.840	289.070	0.000	0.000	0.000
	C215	16.781	-0.384	231.294	0.000	0.000	0.000
	C216	16.870	-5.765	222.438	0.000	0.000	0.000
	C301	18.938	-0.111	241.182	0.000	0.000	0.000
	C302	12.559	6.199	215.308	0.000	0.000	0.000
	C303	7.103	-1.426	182.269	0.000	0.000	0.000

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	C304	0.724	4.884	156.395	0.000	0.000	0.000
	C305	-0.134	-5.924	87.292	0.000	0.000	0.000
	C306	-6.513	0.386	61.418	0.000	0.000	0.000
	C307	-16.582	-5.236	34.581	0.000	0.000	0.000
	C308	-22.961	1.075	8.708	0.000	0.000	0.000
	C309	-23.983	8.840	29.131	0.000	0.000	0.000
	C310	-23.893	3.459	20.275	0.000	0.000	0.000
	C311	-34.850	5.765	-11.662	0.000	0.000	0.000
	C312	-34.761	0.384	-20.519	0.000	0.000	0.000
	C313	33.132	-3.459	269.753	0.000	0.000	0.000
	C314	33.222	-8.840	260.896	0.000	0.000	0.000
	C315	16.781	-0.384	203.120	0.000	0.000	0.000
	C316	16.870	-5.765	194.264	0.000	0.000	0.000
	UN01	14.028	-0.082	225.609	0.000	0.000	0.000
	UN02	9.303	4.592	206.444	0.000	0.000	0.000
	UN03	5.262	-1.057	181.970	0.000	0.000	0.000
	UN04	0.537	3.618	162.805	0.000	0.000	0.000
	UN05	-0.100	-4.388	111.617	0.000	0.000	0.000
	UN06	-4.825	0.286	92.451	0.000	0.000	0.000
	UN07	-12.283	-3.878	72.572	0.000	0.000	0.000
	UN08	-17.008	0.796	53.406	0.000	0.000	0.000
	UN09	-17.765	6.548	68.535	0.000	0.000	0.000
	UN10	-17.699	2.562	61.975	0.000	0.000	0.000
	UN11	-25.815	4.270	38.318	0.000	0.000	0.000
	UN12	-25.749	0.285	31.757	0.000	0.000	0.000
	UN13	24.542	-2.562	246.773	0.000	0.000	0.000
	UN14	24.609	-6.548	240.213	0.000	0.000	0.000
	UN15	12.430	-0.285	197.416	0.000	0.000	0.000
	UN16	12.497	-4.270	190.855	0.000	0.000	0.000
Z005	C101	-3.554	-35.006	424.516	0.000	0.000	0.000
	C102	7.969	-20.732	444.988	0.000	0.000	0.000
	C103	-19.811	-27.436	341.251	0.000	0.000	0.000
	C104	-8.288	-13.162	361.722	0.000	0.000	0.000
	C105	12.755	20.491	362.912	0.000	0.000	0.000
	C106	24.278	34.765	383.384	0.000	0.000	0.000
	C107	-18.161	13.470	256.813	0.000	0.000	0.000
	C108	-6.638	27.744	277.285	0.000	0.000	0.000
	C109	21.709	4.270	452.196	0.000	0.000	0.000
	C110	21.643	0.285	458.756	0.000	0.000	0.000
	C111	-3.032	6.548	351.470	0.000	0.000	0.000
	C112	-3.098	2.562	358.031	0.000	0.000	0.000
	C113	-6.221	-2.562	327.858	0.000	0.000	0.000
	C114	-6.287	-6.548	334.419	0.000	0.000	0.000
	C115	-26.889	-0.285	246.303	0.000	0.000	0.000
	C116	-26.955	-4.270	252.863	0.000	0.000	0.000
	C201	-4.797	-47.258	390.526	0.000	0.000	0.000
	C202	10.759	-27.988	418.163	0.000	0.000	0.000
	C203	-26.745	-37.038	278.118	0.000	0.000	0.000
	C204	-11.189	-17.769	305.754	0.000	0.000	0.000
	C205	17.219	27.663	307.361	0.000	0.000	0.000
	C206	32.775	46.933	334.998	0.000	0.000	0.000
	C207	-24.517	18.184	164.127	0.000	0.000	0.000
	C208	-8.961	37.454	191.764	0.000	0.000	0.000
	C209	29.307	5.765	427.893	0.000	0.000	0.000
	C210	29.218	0.384	436.750	0.000	0.000	0.000
	C211	-4.093	8.840	291.914	0.000	0.000	0.000
	C212	-4.183	3.459	300.771	0.000	0.000	0.000
	C213	-8.398	-3.459	260.038	0.000	0.000	0.000
	C214	-8.488	-8.840	268.895	0.000	0.000	0.000
	C215	-36.300	-0.384	149.938	0.000	0.000	0.000
	C216	-36.389	-5.765	158.794	0.000	0.000	0.000
	C301	-4.797	-47.258	334.780	0.000	0.000	0.000
	C302	10.759	-27.988	362.416	0.000	0.000	0.000
	C303	-26.745	-37.038	222.371	0.000	0.000	0.000
	C304	-11.189	-17.769	250.008	0.000	0.000	0.000
	C305	17.219	27.663	251.614	0.000	0.000	0.000
	C306	32.775	46.933	279.251	0.000	0.000	0.000
	C307	-24.517	18.184	108.381	0.000	0.000	0.000
	C308	-8.961	37.454	136.017	0.000	0.000	0.000
	C309	29.307	5.765	372.147	0.000	0.000	0.000
	C310	29.218	0.384	381.003	0.000	0.000	0.000
	C311	-4.093	8.840	236.168	0.000	0.000	0.000
	C312	-4.183	3.459	245.024	0.000	0.000	0.000
	C313	-8.398	-3.459	204.291	0.000	0.000	0.000
	C314	-8.488	-8.840	213.148	0.000	0.000	0.000
	C315	-36.300	-0.384	94.191	0.000	0.000	0.000
	C316	-36.389	-5.765	103.048	0.000	0.000	0.000
	UN01	-3.554	-35.006	340.896	0.000	0.000	0.000
	UN02	7.969	-20.732	361.368	0.000	0.000	0.000

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	UN03	-19.811	-27.436	257.630	0.000	0.000	0.000
	UN04	-8.288	-13.162	278.102	0.000	0.000	0.000
	UN05	12.755	20.491	279.292	0.000	0.000	0.000
	UN06	24.278	34.765	299.764	0.000	0.000	0.000
	UN07	-18.161	13.470	173.193	0.000	0.000	0.000
	UN08	-6.638	27.744	193.665	0.000	0.000	0.000
	UN09	21.709	4.270	368.576	0.000	0.000	0.000
	UN10	21.643	0.285	375.136	0.000	0.000	0.000
	UN11	-3.032	6.548	267.850	0.000	0.000	0.000
	UN12	-3.098	2.562	274.411	0.000	0.000	0.000
	UN13	-6.221	-2.562	244.238	0.000	0.000	0.000
	UN14	-6.287	-6.548	250.798	0.000	0.000	0.000
	UN15	-26.889	-0.285	162.682	0.000	0.000	0.000
	UN16	-26.955	-4.270	169.243	0.000	0.000	0.000
Z006	C101	-53.927	35.584	585.812	0.000	0.000	0.000
	C102	-42.404	21.310	565.341	0.000	0.000	0.000
	C103	-18.590	27.519	463.129	0.000	0.000	0.000
	C104	-7.067	13.246	442.657	0.000	0.000	0.000
	C105	16.871	-20.655	413.481	0.000	0.000	0.000
	C106	28.394	-34.929	393.009	0.000	0.000	0.000
	C107	39.655	-14.081	311.217	0.000	0.000	0.000
	C108	51.178	-28.355	290.745	0.000	0.000	0.000
	C109	-35.843	11.238	567.558	0.000	0.000	0.000
	C110	-47.297	20.917	602.223	0.000	0.000	0.000
	C111	-1.406	6.404	438.645	0.000	0.000	0.000
	C112	-12.860	16.083	473.310	0.000	0.000	0.000
	C113	28.299	-20.430	351.309	0.000	0.000	0.000
	C114	16.844	-10.751	385.974	0.000	0.000	0.000
	C115	49.806	-17.031	263.699	0.000	0.000	0.000
	C116	38.352	-7.352	298.364	0.000	0.000	0.000
	C201	-72.801	48.038	569.154	0.000	0.000	0.000
	C202	-57.245	28.769	541.517	0.000	0.000	0.000
	C203	-25.096	37.151	403.532	0.000	0.000	0.000
	C204	-9.540	17.881	375.895	0.000	0.000	0.000
	C205	22.776	-27.885	336.506	0.000	0.000	0.000
	C206	38.332	-47.154	308.869	0.000	0.000	0.000
	C207	53.534	-19.010	198.451	0.000	0.000	0.000
	C208	69.090	-38.279	170.814	0.000	0.000	0.000
	C209	-48.388	15.171	544.511	0.000	0.000	0.000
	C210	-63.851	28.238	591.309	0.000	0.000	0.000
	C211	-1.898	8.646	370.478	0.000	0.000	0.000
	C212	-17.362	21.713	417.276	0.000	0.000	0.000
	C213	38.203	-27.581	252.574	0.000	0.000	0.000
	C214	22.740	-14.514	299.372	0.000	0.000	0.000
	C215	67.239	-22.992	134.301	0.000	0.000	0.000
	C216	51.775	-9.925	181.099	0.000	0.000	0.000
	C301	-72.801	48.038	501.462	0.000	0.000	0.000
	C302	-57.245	28.769	473.825	0.000	0.000	0.000
	C303	-25.096	37.151	335.839	0.000	0.000	0.000
	C304	-9.540	17.881	308.203	0.000	0.000	0.000
	C305	22.776	-27.885	268.814	0.000	0.000	0.000
	C306	38.332	-47.154	241.177	0.000	0.000	0.000
	C307	53.534	-19.010	130.758	0.000	0.000	0.000
	C308	69.090	-38.279	103.121	0.000	0.000	0.000
	C309	-48.388	15.171	476.818	0.000	0.000	0.000
	C310	-63.851	28.238	523.616	0.000	0.000	0.000
	C311	-1.898	8.646	302.786	0.000	0.000	0.000
	C312	-17.362	21.713	349.583	0.000	0.000	0.000
	C313	38.203	-27.581	184.882	0.000	0.000	0.000
	C314	22.740	-14.514	231.680	0.000	0.000	0.000
	C315	67.239	-22.992	66.609	0.000	0.000	0.000
	C316	51.775	-9.925	113.407	0.000	0.000	0.000
	UN01	-53.927	35.584	484.274	0.000	0.000	0.000
	UN02	-42.404	21.310	463.802	0.000	0.000	0.000
	UN03	-18.590	27.519	361.591	0.000	0.000	0.000
	UN04	-7.067	13.246	341.119	0.000	0.000	0.000
	UN05	16.871	-20.655	311.942	0.000	0.000	0.000
	UN06	28.394	-34.929	291.470	0.000	0.000	0.000
	UN07	39.655	-14.081	209.679	0.000	0.000	0.000
	UN08	51.178	-28.355	189.207	0.000	0.000	0.000
	UN09	-35.843	11.238	466.019	0.000	0.000	0.000
	UN10	-47.297	20.917	500.684	0.000	0.000	0.000
	UN11	-1.406	6.404	337.106	0.000	0.000	0.000
	UN12	-12.860	16.083	371.771	0.000	0.000	0.000
	UN13	28.299	-20.430	249.770	0.000	0.000	0.000
	UN14	16.844	-10.751	284.435	0.000	0.000	0.000
	UN15	49.806	-17.031	162.161	0.000	0.000	0.000
	UN16	38.352	-7.352	196.826	0.000	0.000	0.000

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Z007	C101	-28.752	-30.771	831.240	0.000	0.000	0.000
	C102	-38.370	-14.126	850.095	0.000	0.000	0.000
	C103	32.978	-25.043	636.573	0.000	0.000	0.000
	C104	23.359	-8.397	655.428	0.000	0.000	0.000
	C105	-19.824	14.155	739.020	0.000	0.000	0.000
	C106	-29.442	30.800	757.875	0.000	0.000	0.000
	C107	50.919	8.360	529.057	0.000	0.000	0.000
	C108	41.300	25.006	547.912	0.000	0.000	0.000
	C109	-15.254	-11.534	750.801	0.000	0.000	0.000
	C110	-15.254	-24.906	750.801	0.000	0.000	0.000
	C111	48.499	-6.979	556.086	0.000	0.000	0.000
	C112	48.499	-20.351	556.086	0.000	0.000	0.000
	C113	-28.040	27.183	792.802	0.000	0.000	0.000
	C114	-28.040	13.812	792.802	0.000	0.000	0.000
	C115	35.709	20.351	598.065	0.000	0.000	0.000
	C116	35.709	6.979	598.065	0.000	0.000	0.000
	C201	-38.815	-41.541	766.619	0.000	0.000	0.000
	C202	-51.800	-19.070	792.073	0.000	0.000	0.000
	C203	44.520	-33.808	503.818	0.000	0.000	0.000
	C204	31.535	-11.337	529.272	0.000	0.000	0.000
	C205	-26.762	19.109	642.123	0.000	0.000	0.000
	C206	-39.747	41.581	667.577	0.000	0.000	0.000
	C207	68.740	11.286	358.672	0.000	0.000	0.000
	C208	55.756	33.758	384.126	0.000	0.000	0.000
	C209	-20.592	-15.571	658.026	0.000	0.000	0.000
	C210	-20.592	-33.623	658.026	0.000	0.000	0.000
	C211	65.474	-9.422	395.161	0.000	0.000	0.000
	C212	65.474	-27.473	395.161	0.000	0.000	0.000
	C213	-37.854	36.697	714.728	0.000	0.000	0.000
	C214	-37.854	18.646	714.728	0.000	0.000	0.000
	C215	48.207	27.473	451.833	0.000	0.000	0.000
	C216	48.207	9.422	451.833	0.000	0.000	0.000
	C301	-38.815	-41.541	658.053	0.000	0.000	0.000
	C302	-51.800	-19.070	683.507	0.000	0.000	0.000
	C303	44.520	-33.808	395.252	0.000	0.000	0.000
	C304	31.535	-11.337	420.706	0.000	0.000	0.000
	C305	-26.762	19.109	533.556	0.000	0.000	0.000
	C306	-39.747	41.581	559.010	0.000	0.000	0.000
	C307	68.740	11.286	250.105	0.000	0.000	0.000
	C308	55.756	33.758	275.559	0.000	0.000	0.000
	C309	-20.592	-15.571	549.460	0.000	0.000	0.000
	C310	-20.592	-33.623	549.460	0.000	0.000	0.000
	C311	65.474	-9.422	286.594	0.000	0.000	0.000
	C312	65.474	-27.473	286.594	0.000	0.000	0.000
	C313	-37.854	36.697	606.161	0.000	0.000	0.000
	C314	-37.854	18.646	606.161	0.000	0.000	0.000
	C315	48.207	27.473	343.267	0.000	0.000	0.000
	C316	48.207	9.422	343.267	0.000	0.000	0.000
	UN01	-28.752	-30.771	668.390	0.000	0.000	0.000
	UN02	-38.370	-14.126	687.245	0.000	0.000	0.000
	UN03	32.978	-25.043	473.723	0.000	0.000	0.000
	UN04	23.359	-8.397	492.578	0.000	0.000	0.000
	UN05	-19.824	14.155	576.171	0.000	0.000	0.000
	UN06	-29.442	30.800	595.026	0.000	0.000	0.000
	UN07	50.919	8.360	366.207	0.000	0.000	0.000
	UN08	41.300	25.006	385.062	0.000	0.000	0.000
	UN09	-15.254	-11.534	587.951	0.000	0.000	0.000
	UN10	-15.254	-24.906	587.951	0.000	0.000	0.000
	UN11	48.499	-6.979	393.236	0.000	0.000	0.000
	UN12	48.499	-20.351	393.236	0.000	0.000	0.000
	UN13	-28.040	27.183	629.953	0.000	0.000	0.000
	UN14	-28.040	13.812	629.953	0.000	0.000	0.000
	UN15	35.709	20.351	435.216	0.000	0.000	0.000
	UN16	35.709	6.979	435.216	0.000	0.000	0.000
Z008	C101	-16.787	-0.489	292.271	0.000	0.000	0.000
	C102	-21.512	-5.163	311.436	0.000	0.000	0.000
	C103	2.632	1.037	229.910	0.000	0.000	0.000
	C104	-2.094	-3.637	249.076	0.000	0.000	0.000
	C105	5.957	4.474	266.908	0.000	0.000	0.000
	C106	1.232	-0.201	286.074	0.000	0.000	0.000
	C107	21.950	4.518	199.977	0.000	0.000	0.000
	C108	17.225	-0.157	219.142	0.000	0.000	0.000
	C109	25.847	20.213	171.451	0.000	0.000	0.000
	C110	37.302	29.892	136.786	0.000	0.000	0.000
	C111	36.332	11.103	129.842	0.000	0.000	0.000
	C112	47.787	20.782	95.177	0.000	0.000	0.000
	C113	-48.871	-27.615	427.004	0.000	0.000	0.000
	C114	-37.417	-17.935	392.339	0.000	0.000	0.000
	C115	-25.276	-20.782	344.185	0.000	0.000	0.000

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	C116	-13.822	-11.103	309.520	0.000	0.000	0.000
	C201	-22.663	-0.660	263.175	0.000	0.000	0.000
	C202	-29.042	-6.971	289.049	0.000	0.000	0.000
	C203	3.553	1.400	178.989	0.000	0.000	0.000
	C204	-2.827	-4.910	204.862	0.000	0.000	0.000
	C205	8.042	6.039	228.935	0.000	0.000	0.000
	C206	1.663	-0.271	254.809	0.000	0.000	0.000
	C207	29.632	6.099	138.578	0.000	0.000	0.000
	C208	23.253	-0.211	164.452	0.000	0.000	0.000
	C209	34.894	27.287	100.069	0.000	0.000	0.000
	C210	50.357	40.354	53.271	0.000	0.000	0.000
	C211	49.048	14.989	43.896	0.000	0.000	0.000
	C212	64.512	28.056	-2.902	0.000	0.000	0.000
	C213	-65.976	-37.280	445.065	0.000	0.000	0.000
	C214	-50.513	-24.213	398.267	0.000	0.000	0.000
	C215	-34.123	-28.056	333.259	0.000	0.000	0.000
	C216	-18.660	-14.989	286.461	0.000	0.000	0.000
	C301	-22.663	-0.660	223.056	0.000	0.000	0.000
	C302	-29.042	-6.971	248.929	0.000	0.000	0.000
	C303	3.553	1.400	138.869	0.000	0.000	0.000
	C304	-2.827	-4.910	164.743	0.000	0.000	0.000
	C305	8.042	6.039	188.816	0.000	0.000	0.000
	C306	1.663	-0.271	214.690	0.000	0.000	0.000
	C307	29.632	6.099	98.459	0.000	0.000	0.000
	C308	23.253	-0.211	124.332	0.000	0.000	0.000
	C309	34.894	27.287	59.949	0.000	0.000	0.000
	C310	50.357	40.354	13.151	0.000	0.000	0.000
	C311	49.048	14.989	3.777	0.000	0.000	0.000
	C312	64.512	28.056	-43.021	0.000	0.000	0.000
	C313	-65.976	-37.280	404.946	0.000	0.000	0.000
	C314	-50.513	-24.213	358.148	0.000	0.000	0.000
	C315	-34.123	-28.056	293.140	0.000	0.000	0.000
	C316	-18.660	-14.989	246.342	0.000	0.000	0.000
	UN01	-16.787	-0.489	232.092	0.000	0.000	0.000
	UN02	-21.512	-5.163	251.258	0.000	0.000	0.000
	UN03	2.632	1.037	169.732	0.000	0.000	0.000
	UN04	-2.094	-3.637	188.897	0.000	0.000	0.000
	UN05	5.957	4.474	206.729	0.000	0.000	0.000
	UN06	1.232	-0.201	225.895	0.000	0.000	0.000
	UN07	21.950	4.518	139.798	0.000	0.000	0.000
	UN08	17.225	-0.157	158.963	0.000	0.000	0.000
	UN09	25.847	20.213	111.272	0.000	0.000	0.000
	UN10	37.302	29.892	76.607	0.000	0.000	0.000
	UN11	36.332	11.103	69.663	0.000	0.000	0.000
	UN12	47.787	20.782	34.998	0.000	0.000	0.000
	UN13	-48.871	-27.615	366.825	0.000	0.000	0.000
	UN14	-37.417	-17.935	332.160	0.000	0.000	0.000
	UN15	-25.276	-20.782	284.006	0.000	0.000	0.000
	UN16	-13.822	-11.103	249.341	0.000	0.000	0.000
Z009	C101	-37.699	0.082	159.153	0.000	0.000	0.000
	C102	-40.027	-4.592	163.054	0.000	0.000	0.000
	C103	-20.294	1.057	129.280	0.000	0.000	0.000
	C104	-22.622	-3.618	133.181	0.000	0.000	0.000
	C105	30.027	4.388	52.699	0.000	0.000	0.000
	C106	27.699	-0.286	56.600	0.000	0.000	0.000
	C107	35.387	3.878	38.906	0.000	0.000	0.000
	C108	33.058	-0.796	42.806	0.000	0.000	0.000
	C109	21.456	7.402	62.845	0.000	0.000	0.000
	C110	34.406	15.373	42.039	0.000	0.000	0.000
	C111	27.436	5.124	49.351	0.000	0.000	0.000
	C112	40.386	13.096	28.544	0.000	0.000	0.000
	C113	-41.843	-17.651	168.798	0.000	0.000	0.000
	C114	-28.893	-9.679	147.992	0.000	0.000	0.000
	C115	-25.915	-10.818	140.267	0.000	0.000	0.000
	C116	-12.965	-2.847	119.461	0.000	0.000	0.000
	C201	-50.894	0.111	165.336	0.000	0.000	0.000
	C202	-54.037	-6.199	170.602	0.000	0.000	0.000
	C203	-27.397	1.426	125.007	0.000	0.000	0.000
	C204	-30.540	-4.884	130.273	0.000	0.000	0.000
	C205	40.537	5.924	21.624	0.000	0.000	0.000
	C206	37.393	-0.386	26.889	0.000	0.000	0.000
	C207	47.772	5.236	3.002	0.000	0.000	0.000
	C208	44.629	-1.075	8.268	0.000	0.000	0.000
	C209	28.965	9.992	35.320	0.000	0.000	0.000
	C210	46.448	20.754	7.231	0.000	0.000	0.000
	C211	37.039	6.918	17.103	0.000	0.000	0.000
	C212	54.521	17.679	-10.986	0.000	0.000	0.000
	C213	-56.488	-23.828	178.357	0.000	0.000	0.000
	C214	-39.006	-13.067	150.268	0.000	0.000	0.000

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	C215	-34.985	-14.604	139.840	0.000	0.000	0.000
	C216	-17.502	-3.843	111.751	0.000	0.000	0.000
	C301	-50.894	0.111	150.215	0.000	0.000	0.000
	C302	-54.037	-6.199	155.481	0.000	0.000	0.000
	C303	-27.397	1.426	109.887	0.000	0.000	0.000
	C304	-30.540	-4.884	115.152	0.000	0.000	0.000
	C305	40.537	5.924	6.503	0.000	0.000	0.000
	C306	37.393	-0.386	11.768	0.000	0.000	0.000
	C307	47.772	5.236	-12.119	0.000	0.000	0.000
	C308	44.629	-1.075	-6.853	0.000	0.000	0.000
	C309	28.965	9.992	20.199	0.000	0.000	0.000
	C310	46.448	20.754	-7.889	0.000	0.000	0.000
	C311	37.039	6.918	1.982	0.000	0.000	0.000
	C312	54.521	17.679	-26.107	0.000	0.000	0.000
	C313	-56.488	-23.828	163.236	0.000	0.000	0.000
	C314	-39.006	-13.067	135.148	0.000	0.000	0.000
	C315	-34.985	-14.604	124.719	0.000	0.000	0.000
	C316	-17.502	-3.843	96.630	0.000	0.000	0.000
	UN01	-37.699	0.082	136.472	0.000	0.000	0.000
	UN02	-40.027	-4.592	140.372	0.000	0.000	0.000
	UN03	-20.294	1.057	106.599	0.000	0.000	0.000
	UN04	-22.622	-3.618	110.499	0.000	0.000	0.000
	UN05	30.027	4.388	30.018	0.000	0.000	0.000
	UN06	27.699	-0.286	33.919	0.000	0.000	0.000
	UN07	35.387	3.878	16.225	0.000	0.000	0.000
	UN08	33.058	-0.796	20.125	0.000	0.000	0.000
	UN09	21.456	7.402	40.164	0.000	0.000	0.000
	UN10	34.406	15.373	19.357	0.000	0.000	0.000
	UN11	27.436	5.124	26.669	0.000	0.000	0.000
	UN12	40.386	13.096	5.863	0.000	0.000	0.000
	UN13	-41.843	-17.651	146.117	0.000	0.000	0.000
	UN14	-28.893	-9.679	125.311	0.000	0.000	0.000
	UN15	-25.915	-10.818	117.586	0.000	0.000	0.000
	UN16	-12.965	-2.847	96.779	0.000	0.000	0.000
Z010	C101	-204.232	-30.819	750.622	0.000	0.000	0.000
	C102	-164.886	-14.173	670.108	0.000	0.000	0.000
	C103	-125.759	-25.031	590.842	0.000	0.000	0.000
	C104	-86.413	-8.385	510.328	0.000	0.000	0.000
	C105	123.837	14.146	84.981	0.000	0.000	0.000
	C106	163.183	30.792	4.466	0.000	0.000	0.000
	C107	138.804	8.420	50.265	0.000	0.000	0.000
	C108	178.149	25.066	-30.250	0.000	0.000	0.000
	C109	-6.055	0.562	346.615	0.000	0.000	0.000
	C110	-6.055	-9.672	346.615	0.000	0.000	0.000
	C111	38.911	2.839	253.013	0.000	0.000	0.000
	C112	38.911	-7.394	253.013	0.000	0.000	0.000
	C113	-24.485	9.672	386.599	0.000	0.000	0.000
	C114	-24.485	-0.562	386.599	0.000	0.000	0.000
	C115	20.488	8.533	292.990	0.000	0.000	0.000
	C116	20.488	-1.701	292.990	0.000	0.000	0.000
	C201	-275.713	-41.606	844.641	0.000	0.000	0.000
	C202	-222.597	-19.134	735.947	0.000	0.000	0.000
	C203	-169.775	-33.791	628.938	0.000	0.000	0.000
	C204	-116.658	-11.319	520.244	0.000	0.000	0.000
	C205	167.180	19.097	-53.975	0.000	0.000	0.000
	C206	220.297	41.569	-162.669	0.000	0.000	0.000
	C207	187.385	11.367	-100.841	0.000	0.000	0.000
	C208	240.501	33.839	-209.536	0.000	0.000	0.000
	C209	-8.174	0.759	299.231	0.000	0.000	0.000
	C210	-8.174	-13.057	299.231	0.000	0.000	0.000
	C211	52.530	3.833	172.869	0.000	0.000	0.000
	C212	52.530	-9.982	172.869	0.000	0.000	0.000
	C213	-33.055	13.057	353.209	0.000	0.000	0.000
	C214	-33.055	-0.759	353.209	0.000	0.000	0.000
	C215	27.658	11.520	226.837	0.000	0.000	0.000
	C216	27.658	-2.296	226.837	0.000	0.000	0.000
	C301	-275.713	-41.606	793.130	0.000	0.000	0.000
	C302	-222.597	-19.134	684.436	0.000	0.000	0.000
	C303	-169.775	-33.791	577.427	0.000	0.000	0.000
	C304	-116.658	-11.319	468.733	0.000	0.000	0.000
	C305	167.180	19.097	-105.486	0.000	0.000	0.000
	C306	220.297	41.569	-214.180	0.000	0.000	0.000
	C307	187.385	11.367	-152.352	0.000	0.000	0.000
	C308	240.501	33.839	-261.047	0.000	0.000	0.000
	C309	-8.174	0.759	247.720	0.000	0.000	0.000
	C310	-8.174	-13.057	247.720	0.000	0.000	0.000
	C311	52.530	3.833	121.358	0.000	0.000	0.000
	C312	52.530	-9.982	121.358	0.000	0.000	0.000
	C313	-33.055	13.057	301.698	0.000	0.000	0.000

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	C314	-33.055	-0.759	301.698	0.000	0.000	0.000
	C315	27.658	11.520	175.326	0.000	0.000	0.000
	C316	27.658	-2.296	175.326	0.000	0.000	0.000
	UN01	-204.232	-30.819	673.356	0.000	0.000	0.000
	UN02	-164.886	-14.173	592.841	0.000	0.000	0.000
	UN03	-125.759	-25.031	513.576	0.000	0.000	0.000
	UN04	-86.413	-8.385	433.061	0.000	0.000	0.000
	UN05	123.837	14.146	7.714	0.000	0.000	0.000
	UN06	163.183	30.792	-72.800	0.000	0.000	0.000
	UN07	138.804	8.420	-27.002	0.000	0.000	0.000
	UN08	178.149	25.066	-107.516	0.000	0.000	0.000
	UN09	-6.055	0.562	269.348	0.000	0.000	0.000
	UN10	-6.055	-9.672	269.348	0.000	0.000	0.000
	UN11	38.911	2.839	175.746	0.000	0.000	0.000
	UN12	38.911	-7.394	175.746	0.000	0.000	0.000
	UN13	-24.485	9.672	309.332	0.000	0.000	0.000
	UN14	-24.485	-0.562	309.332	0.000	0.000	0.000
	UN15	20.488	8.533	215.723	0.000	0.000	0.000
	UN16	20.488	-1.701	215.723	0.000	0.000	0.000
Z011	C101	-105.305	35.006	349.244	0.000	0.000	0.000
	C102	-77.876	20.732	306.420	0.000	0.000	0.000
	C103	-64.400	27.436	278.737	0.000	0.000	0.000
	C104	-36.971	13.162	235.913	0.000	0.000	0.000
	C105	56.269	-20.491	91.606	0.000	0.000	0.000
	C106	83.698	-34.765	48.782	0.000	0.000	0.000
	C107	64.547	-13.470	69.496	0.000	0.000	0.000
	C108	91.975	-27.744	26.673	0.000	0.000	0.000
	C109	-26.520	9.679	223.141	0.000	0.000	0.000
	C110	-39.470	17.651	243.947	0.000	0.000	0.000
	C111	2.123	2.847	171.048	0.000	0.000	0.000
	C112	-10.827	10.818	191.855	0.000	0.000	0.000
	C113	23.392	-15.373	143.666	0.000	0.000	0.000
	C114	10.442	-7.402	164.473	0.000	0.000	0.000
	C115	42.092	-13.096	106.607	0.000	0.000	0.000
	C116	29.142	-5.124	127.413	0.000	0.000	0.000
	C201	-142.162	47.258	381.458	0.000	0.000	0.000
	C202	-105.133	27.988	323.645	0.000	0.000	0.000
	C203	-86.940	37.038	286.273	0.000	0.000	0.000
	C204	-49.911	17.769	228.461	0.000	0.000	0.000
	C205	75.964	-27.663	33.646	0.000	0.000	0.000
	C206	112.993	-46.933	-24.166	0.000	0.000	0.000
	C207	87.138	-18.184	3.799	0.000	0.000	0.000
	C208	124.167	-37.454	-54.014	0.000	0.000	0.000
	C209	-35.802	13.067	211.219	0.000	0.000	0.000
	C210	-53.284	23.828	239.307	0.000	0.000	0.000
	C211	2.866	3.843	140.894	0.000	0.000	0.000
	C212	-14.617	14.604	168.982	0.000	0.000	0.000
	C213	31.579	-20.754	103.928	0.000	0.000	0.000
	C214	14.097	-9.992	132.017	0.000	0.000	0.000
	C215	56.824	-17.679	53.898	0.000	0.000	0.000
	C216	39.342	-6.918	81.986	0.000	0.000	0.000
	C301	-142.162	47.258	353.970	0.000	0.000	0.000
	C302	-105.133	27.988	296.158	0.000	0.000	0.000
	C303	-86.940	37.038	258.785	0.000	0.000	0.000
	C304	-49.911	17.769	200.973	0.000	0.000	0.000
	C305	75.964	-27.663	6.159	0.000	0.000	0.000
	C306	112.993	-46.933	-51.654	0.000	0.000	0.000
	C307	87.138	-18.184	-23.689	0.000	0.000	0.000
	C308	124.167	-37.454	-81.501	0.000	0.000	0.000
	C309	-35.802	13.067	183.731	0.000	0.000	0.000
	C310	-53.284	23.828	211.820	0.000	0.000	0.000
	C311	2.866	3.843	113.406	0.000	0.000	0.000
	C312	-14.617	14.604	141.495	0.000	0.000	0.000
	C313	31.579	-20.754	76.440	0.000	0.000	0.000
	C314	14.097	-9.992	104.529	0.000	0.000	0.000
	C315	56.824	-17.679	26.410	0.000	0.000	0.000
	C316	39.342	-6.918	54.499	0.000	0.000	0.000
	UN01	-105.305	35.006	308.013	0.000	0.000	0.000
	UN02	-77.876	20.732	265.189	0.000	0.000	0.000
	UN03	-64.400	27.436	237.505	0.000	0.000	0.000
	UN04	-36.971	13.162	194.682	0.000	0.000	0.000
	UN05	56.269	-20.491	50.374	0.000	0.000	0.000
	UN06	83.698	-34.765	7.551	0.000	0.000	0.000
	UN07	64.547	-13.470	28.265	0.000	0.000	0.000
	UN08	91.975	-27.744	-14.559	0.000	0.000	0.000
	UN09	-26.520	9.679	181.910	0.000	0.000	0.000
	UN10	-39.470	17.651	202.716	0.000	0.000	0.000
	UN11	2.123	2.847	129.817	0.000	0.000	0.000
	UN12	-10.827	10.818	150.624	0.000	0.000	0.000

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UN13	23.392	-15.373	102.435	0.000	0.000	0.000
UN14	10.442	-7.402	123.241	0.000	0.000	0.000
UN15	42.092	-13.096	65.376	0.000	0.000	0.000
UN16	29.142	-5.124	86.182	0.000	0.000	0.000

Table 11.2 - Reaction Forces in Transportation Conditions

11.1.2 TP – Upper to Lower Grillage connection forces

The connection between Upper Grillage and Lower Grillage is made effective through dummy elements. Dummy elements and respective end joints are showed in Figure 9.9. Dummy elements' internal forces for gravity loads, transient loads and their combinations in transportation conditions are fully detailed for all load combinations in the following. An envelope of maximum and minimum internal forces of these dummy elements in transportation conditions is reported in the following. Internal forces are reported according to member local reference system.

	MEMBER	MEMBER END	GROUP	LOAD CASE	Fx [kN]	Fy [kN]	Fz [kN]	Mx [kNm]	My [kNm]	Mz [kNm]	REMARK
ALL LC	V400-R400	V400	UD1	C308	**255**	61	1	-42	0	-55	MAX Fx
	V400-R400	V400	UD1	C201	**-933**	**-79**	1	52	0	**71**	min Fx - MAX Myz - MAX Mxz - MAX Mz - MAX Fyz - MAX Fxz - MAX Fxy - min Fy
	V400-R400	V400	UD1	C206	113	**77**	1	-51	0	**-69**	MAX Fy - min Mz
	V302-R302	V302	UD1	C101	-481	-52	**6**	-38	0	46	MAX Fz
	V402-R402	V402	UD1	C101	-232	-50	**-6**	-47	0	45	min Fz
	V401-R401	V401	UD1	C311	0	-2	1	-1	0	1	min Fxy - min Fxz
	V011-R300	V011	UD1	C311	-154	0	-1	5	0	0	min Fyz
	V102-R102	V102	UD1	C206	-212	66	-4	**61**	0	-59	MAX Mx
	V402-R402	V402	UD1	C201	-228	-67	-5	**-62**	0	60	min Mx - MAX Mxy
	V011-R300	V011	UD1	C101	-612	-51	-1	31	**0**	46	MAX My - min My
	V201-R201	V201	UD1	C106	-261	8	0	0	0	-8	min Mxy
	V402-R402	V402	UD1	C316	-55	-1	-4	0	0	1	min Mxz
	V100-R100	V100	UD1	C113	-707	0	1	-43	0	0	min Myz

Table 11.3 – TP – Upper Grillage connection – dummy element internal forces - STEP 3 – Transportation Conditions

Dummy elements' internal forces for all load combinations are reported in the following SACS excerpt with reference to STEP 3 analysis.

MEMBER FORCES AND MOMENTS REPORT

MEMBER NUMBER	MEMBER END	GROUP ID	LOAD COND	FORCE(X) kN	FORCE(Y) kN	FORCE(Z) kN	MOMENT(X) kN-m	MOMENT(Y) kN-m	MOMENT(Z) kN-m
V011-R300	V011	UD1	C101	-611.9329	-50.8282	-0.8262	31.4795	0.0000	45.8777
			C102	-592.4666	-37.5396	-0.8262	14.6895	0.0000	33.8843
			C103	-484.0699	-38.3794	-0.8262	25.6512	0.0000	34.6703
			C104	-464.6035	-25.0908	-0.8262	8.8612	0.0000	22.6769
			C105	-323.3000	37.1124	-0.8262	-13.8638	0.0000	-33.4830
			C106	-303.8337	50.4010	-0.8262	-30.6538	0.0000	-45.4764
			C107	-220.2737	25.7184	-0.8262	-8.0779	0.0000	-23.1896
			C108	-200.8074	39.0070	-0.8262	-24.8679	0.0000	-35.1831
			C109	-423.3504	-0.5085	-0.8262	7.0752	0.0000	0.4643
			C110	-423.3504	-0.5085	-0.8262	17.3159	0.0000	0.4643
			C111	-312.2282	-0.0052	-0.8262	3.8984	0.0000	0.0283
			C112	-312.2282	-0.0052	-0.8262	14.1391	0.0000	0.0283
			C113	-466.4469	0.1999	-0.8262	-16.5197	0.0000	-0.1657
			C114	-466.4469	0.1999	-0.8262	-6.2790	0.0000	-0.1657
			C115	-355.3314	0.7116	-0.8262	-13.3562	0.0000	-0.6093
			C116	-355.3314	0.7116	-0.8262	-3.1155	0.0000	-0.6093
			C201	-620.9600	-68.6271	-0.6991	42.2940	0.0000	61.9350
			C202	-594.6804	-50.6875	-0.6991	19.6276	0.0000	45.7438
			C203	-448.3448	-51.8213	-0.6991	34.4258	0.0000	46.8049
			C204	-422.0653	-33.8817	-0.6991	11.7593	0.0000	30.6138
			C205	-231.3056	50.0927	-0.6991	-18.9194	0.0000	-45.2020
			C206	-205.0260	68.0323	-0.6991	-41.5859	0.0000	-61.3931
			C207	-92.2200	34.7108	-0.6991	-11.1085	0.0000	-31.3060
			C208	-65.9404	52.6503	-0.6991	-33.7749	0.0000	-47.4971
			C209	-366.3735	-0.6956	-0.6991	9.3482	0.0000	0.6268
			C210	-366.3735	-0.6956	-0.6991	23.1731	0.0000	0.6268

			C211	-216.3586	-0.0161	-0.6991	5.0595	0.0000	0.0382
			C212	-216.3586	-0.0161	-0.6991	18.8844	0.0000	0.0382
			C213	-424.5538	0.2608	-0.6991	-22.5049	0.0000	-0.2237
			C214	-424.5538	0.2608	-0.6991	-8.6800	0.0000	-0.2237
			C215	-274.5479	0.9516	-0.6991	-18.2341	0.0000	-0.8226
			C216	-274.5479	0.9516	-0.6991	-4.4092	0.0000	-0.8226
			C301	-558.3188	-68.6299	-0.5720	42.2319	0.0000	61.9350
			C302	-532.0393	-50.6903	-0.5720	19.5655	0.0000	45.7438
			C303	-385.7037	-51.8240	-0.5720	34.3637	0.0000	46.8049
			C304	-359.4242	-33.8845	-0.5720	11.6972	0.0000	30.6138
			C305	-168.6644	50.0900	-0.5720	-18.9815	0.0000	-45.2020
			C306	-142.3849	68.0295	-0.5720	-41.6480	0.0000	-61.3931
			C307	-29.5789	34.7080	-0.5720	-11.1706	0.0000	-31.3060
			C308	-3.2993	52.6476	-0.5720	-33.8370	0.0000	-47.4971
			C309	-303.7324	-0.6983	-0.5720	9.2861	0.0000	0.6268
			C310	-303.7324	-0.6983	-0.5720	23.1111	0.0000	0.6268
			C311	-153.7175	-0.0189	-0.5720	4.9975	0.0000	0.0382
			C312	-153.7175	-0.0189	-0.5720	18.8224	0.0000	0.0382
			C313	-361.9127	0.2580	-0.5720	-22.5670	0.0000	-0.2237
			C314	-361.9127	0.2580	-0.5720	-8.7421	0.0000	-0.2237
			C315	-211.9067	0.9488	-0.5720	-18.2962	0.0000	-0.8226
			C316	-211.9067	0.9488	-0.5720	-4.4713	0.0000	-0.8226
	R300		C101	-611.9329	-50.8282	-0.8262	31.4795	-0.7436	0.1325
			C102	-592.4666	-37.5396	-0.8262	14.6895	-0.7436	0.0987
			C103	-484.0699	-38.3794	-0.8262	25.6512	-0.7436	0.1289
			C104	-464.6035	-25.0908	-0.8262	8.8612	-0.7436	0.0952
			C105	-323.3000	37.1124	-0.8262	-13.8638	-0.7436	-0.0818
			C106	-303.8337	50.4010	-0.8262	-30.6538	-0.7436	-0.1156
			C107	-220.2737	25.7184	-0.8262	-8.0779	-0.7436	-0.0431
			C108	-200.8074	39.0070	-0.8262	-24.8679	-0.7436	-0.0769
			C109	-423.3504	-0.5085	-0.8262	7.0752	-0.7436	0.0067
			C110	-423.3504	-0.5085	-0.8262	17.3159	-0.7436	0.0067
			C111	-312.2282	-0.0052	-0.8262	3.8984	-0.7436	0.0236
			C112	-312.2282	-0.0052	-0.8262	14.1391	-0.7436	0.0236
			C113	-466.4469	0.1999	-0.8262	-16.5197	-0.7436	0.0142
			C114	-466.4469	0.1999	-0.8262	-6.2790	-0.7436	0.0142
			C115	-355.3314	0.7116	-0.8262	-13.3562	-0.7436	0.0311
			C116	-355.3314	0.7116	-0.8262	-3.1155	-0.7436	0.0311
			C201	-620.9600	-68.6271	-0.6991	42.2940	-0.6292	0.1707
			C202	-594.6804	-50.6875	-0.6991	19.6276	-0.6292	0.1252
			C203	-448.3448	-51.8213	-0.6991	34.4258	-0.6292	0.1659
			C204	-422.0653	-33.8817	-0.6991	11.7593	-0.6292	0.1204
			C205	-231.3056	50.0927	-0.6991	-18.9194	-0.6292	-0.1186
			C206	-205.0260	68.0323	-0.6991	-41.5859	-0.6292	-0.1642
			C207	-92.2200	34.7108	-0.6991	-11.1085	-0.6292	-0.0664
			C208	-65.9404	52.6503	-0.6991	-33.7749	-0.6292	-0.1119
			C209	-366.3735	-0.6956	-0.6991	9.3482	-0.6292	0.0009
			C210	-366.3735	-0.6956	-0.6991	23.1731	-0.6292	0.0009
			C211	-216.3586	-0.0161	-0.6991	5.0595	-0.6292	0.0237
			C212	-216.3586	-0.0161	-0.6991	18.8844	-0.6292	0.0237
			C213	-424.5538	0.2608	-0.6991	-22.5049	-0.6292	0.0110
			C214	-424.5538	0.2608	-0.6991	-8.6800	-0.6292	0.0110
			C215	-274.5479	0.9516	-0.6991	-18.2341	-0.6292	0.0339
			C216	-274.5479	0.9516	-0.6991	-4.4092	-0.6292	0.0339
			C301	-558.3188	-68.6299	-0.5720	42.2319	-0.5148	0.1682
			C302	-532.0393	-50.6903	-0.5720	19.5655	-0.5148	0.1227
			C303	-385.7037	-51.8240	-0.5720	34.3637	-0.5148	0.1634
			C304	-359.4242	-33.8845	-0.5720	11.6972	-0.5148	0.1179
			C305	-168.6644	50.0900	-0.5720	-18.9815	-0.5148	-0.1211
			C306	-142.3849	68.0295	-0.5720	-41.6480	-0.5148	-0.1667
			C307	-29.5789	34.7080	-0.5720	-11.1706	-0.5148	-0.0689
			C308	-3.2993	52.6476	-0.5720	-33.8370	-0.5148	-0.1144
			C309	-303.7324	-0.6983	-0.5720	9.2861	-0.5148	-0.0016
			C310	-303.7324	-0.6983	-0.5720	23.1111	-0.5148	-0.0016
			C311	-153.7175	-0.0189	-0.5720	4.9975	-0.5148	0.0212
			C312	-153.7175	-0.0189	-0.5720	18.8224	-0.5148	0.0212
			C313	-361.9127	0.2580	-0.5720	-22.5670	-0.5148	0.0085
			C314	-361.9127	0.2580	-0.5720	-8.7421	-0.5148	0.0085
			C315	-211.9067	0.9488	-0.5720	-18.2962	-0.5148	0.0314
			C316	-211.9067	0.9488	-0.5720	-4.4713	-0.5148	0.0314
V100-R100	V100	UD1	C101	-504.6985	-57.7271	0.8262	37.7658	0.0000	52.1178
			C102	-584.6012	-41.2886	0.8262	17.1027	0.0000	37.2787
			C103	-381.7965	-43.6267	0.8262	30.6649	0.0000	39.4323
			C104	-461.6991	-27.1882	0.8262	10.0017	0.0000	24.5932
			C105	-837.1135	40.4475	0.8262	-17.9925	0.0000	-36.5053
			C106	-917.0162	56.8860	0.8262	-38.6557	0.0000	-51.3444
			C107	-598.6685	28.3807	0.8262	-10.7902	0.0000	-25.5807
			C108	-678.5712	44.8192	0.8262	-31.4534	0.0000	-40.4198
			C109	-673.8447	-0.6082	0.8262	25.2488	0.0000	0.5578

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	C110	-673.8447	-0.6082	0.8262	41.7657	0.0000	0.5578
	C111	-499.9639	0.3870	0.8262	16.3847	0.0000	-0.3045
	C112	-499.9639	0.3870	0.8262	32.9016	0.0000	-0.3045
	C113	-707.2260	-0.0042	0.8262	-42.6408	0.0000	0.0176
	C114	-707.2260	-0.0042	0.8262	-26.1239	0.0000	0.0176
	C115	-533.3174	0.9578	0.8262	-33.6637	0.0000	-0.8148
	C116	-533.3174	0.9578	0.8262	-17.1468	0.0000	-0.8148
	C201	-363.1697	-77.9447	0.6991	51.1969	0.0000	70.3590
	C202	-471.0383	-55.7527	0.6991	23.3016	0.0000	50.3262
	C203	-197.2519	-58.9092	0.6991	41.6106	0.0000	53.2336
	C204	-305.1205	-36.7172	0.6991	13.7153	0.0000	33.2008
	C205	-811.9299	54.5911	0.6991	-24.0769	0.0000	-49.2822
	C206	-919.7985	76.7830	0.6991	-51.9722	0.0000	-69.3149
	C207	-490.0292	38.3008	0.6991	-14.3538	0.0000	-34.5339
	C208	-597.8978	60.4928	0.6991	-42.2491	0.0000	-54.5667
	C209	-591.5170	-0.8342	0.6991	34.2989	0.0000	0.7530
	C210	-591.5170	-0.8342	0.6991	56.5967	0.0000	0.7530
	C211	-356.7778	0.5093	0.6991	22.3323	0.0000	-0.4111
	C212	-356.7778	0.5093	0.6991	44.6301	0.0000	-0.4111
	C213	-636.5818	-0.0188	0.6991	-57.3521	0.0000	0.0238
	C214	-636.5818	-0.0188	0.6991	-35.0543	0.0000	0.0238
	C215	-401.8053	1.2799	0.6991	-45.2330	0.0000	-1.1000
	C216	-401.8053	1.2799	0.6991	-22.9352	0.0000	-1.1000
	C301	-266.0175	-77.9487	0.5720	51.2619	0.0000	70.3590
	C302	-373.8862	-55.7567	0.5720	23.3666	0.0000	50.3262
	C303	-100.0997	-58.9132	0.5720	41.6757	0.0000	53.2336
	C304	-207.9684	-36.7212	0.5720	13.7804	0.0000	33.2008
	C305	-714.7777	54.5871	0.5720	-24.0119	0.0000	-49.2822
	C306	-822.6462	76.7790	0.5720	-51.9072	0.0000	-69.3149
	C307	-392.8770	38.2968	0.5720	-14.2888	0.0000	-34.5339
	C308	-500.7456	60.4888	0.5720	-42.1841	0.0000	-54.5667
	C309	-494.3648	-0.8382	0.5720	34.3639	0.0000	0.7530
	C310	-494.3648	-0.8382	0.5720	56.6617	0.0000	0.7530
	C311	-259.6257	0.5053	0.5720	22.3974	0.0000	-0.4111
	C312	-259.6257	0.5053	0.5720	44.6952	0.0000	-0.4111
	C313	-539.4296	-0.0228	0.5720	-57.2871	0.0000	0.0238
	C314	-539.4296	-0.0228	0.5720	-34.9893	0.0000	0.0238
	C315	-304.6531	1.2759	0.5720	-45.1679	0.0000	-1.1000
	C316	-304.6531	1.2759	0.5720	-22.8701	0.0000	-1.1000
R100	C101	-504.6985	-57.7271	0.8262	37.7658	0.7436	0.1635
	C102	-584.6012	-41.2886	0.8262	17.1027	0.7436	0.1190
	C103	-381.7965	-43.6267	0.8262	30.6649	0.7436	0.1683
	C104	-461.6991	-27.1882	0.8262	10.0017	0.7436	0.1239
	C105	-837.1135	40.4475	0.8262	-17.9925	0.7436	-0.1026
	C106	-917.0162	56.8860	0.8262	-38.6557	0.7436	-0.1471
	C107	-598.6685	28.3807	0.8262	-10.7902	0.7436	-0.0381
	C108	-678.5712	44.8192	0.8262	-31.4534	0.7436	-0.0826
	C109	-673.8447	-0.6082	0.8262	25.2488	0.7436	0.0104
	C110	-673.8447	-0.6082	0.8262	41.7657	0.7436	0.0104
	C111	-499.9639	0.3870	0.8262	16.3847	0.7436	0.0437
	C112	-499.9639	0.3870	0.8262	32.9016	0.7436	0.0437
	C113	-707.2260	-0.0042	0.8262	-42.6408	0.7436	0.0138
	C114	-707.2260	-0.0042	0.8262	-26.1239	0.7436	0.0138
	C115	-533.3174	0.9578	0.8262	-33.6637	0.7436	0.0472
	C116	-533.3174	0.9578	0.8262	-17.1468	0.7436	0.0472
	C201	-363.1697	-77.9447	0.6991	51.1969	0.6292	0.2089
	C202	-471.0383	-55.7527	0.6991	23.3016	0.6292	0.1489
	C203	-197.2519	-58.9092	0.6991	41.6106	0.6292	0.2154
	C204	-305.1205	-36.7172	0.6991	13.7153	0.6292	0.1554
	C205	-811.9299	54.5911	0.6991	-24.0769	0.6292	-0.1503
	C206	-919.7985	76.7830	0.6991	-51.9722	0.6292	-0.2103
	C207	-490.0292	38.3008	0.6991	-14.3538	0.6292	-0.0632
	C208	-597.8978	60.4928	0.6991	-42.2491	0.6292	-0.1233
	C209	-591.5170	-0.8342	0.6991	34.2989	0.6292	0.0022
	C210	-591.5170	-0.8342	0.6991	56.5967	0.6292	0.0022
	C211	-356.7778	0.5093	0.6991	22.3323	0.6292	0.0472
	C212	-356.7778	0.5093	0.6991	44.6301	0.6292	0.0472
	C213	-636.5818	-0.0188	0.6991	-57.3521	0.6292	0.0069
	C214	-636.5818	-0.0188	0.6991	-35.0543	0.6292	0.0069
	C215	-401.8053	1.2799	0.6991	-45.2330	0.6292	0.0519
	C216	-401.8053	1.2799	0.6991	-22.9352	0.6292	0.0519
	C301	-266.0175	-77.9487	0.5720	51.2619	0.5148	0.2053
	C302	-373.8862	-55.7567	0.5720	23.3666	0.5148	0.1453
	C303	-100.0997	-58.9132	0.5720	41.6757	0.5148	0.2118
	C304	-207.9684	-36.7212	0.5720	13.7804	0.5148	0.1518
	C305	-714.7777	54.5871	0.5720	-24.0119	0.5148	-0.1539
	C306	-822.6462	76.7790	0.5720	-51.9072	0.5148	-0.2139
	C307	-392.8770	38.2968	0.5720	-14.2888	0.5148	-0.0668
	C308	-500.7456	60.4888	0.5720	-42.1841	0.5148	-0.1269
	C309	-494.3648	-0.8382	0.5720	34.3639	0.5148	-0.0014

			C310	-494.3648	-0.8382	0.5720	56.6617	0.5148	-0.0014
			C311	-259.6257	0.5053	0.5720	22.3974	0.5148	0.0436
			C312	-259.6257	0.5053	0.5720	44.6952	0.5148	0.0436
			C313	-539.4296	-0.0228	0.5720	-57.2871	0.5148	0.0033
			C314	-539.4296	-0.0228	0.5720	-34.9893	0.5148	0.0033
			C315	-304.6531	1.2759	0.5720	-45.1679	0.5148	0.0483
			C316	-304.6531	1.2759	0.5720	-22.8701	0.5148	0.0483
V101-R101	V101	UD1	C101	-175.2508	-7.4089	-0.4500	0.5934	0.0000	6.6622
			C102	-175.8987	-10.4761	-0.4500	6.6057	0.0000	9.4154
			C103	-141.1151	-4.4233	-0.4500	-1.3872	0.0000	4.0040
			C104	-141.7630	-7.4905	-0.4500	4.6251	0.0000	6.7571
			C105	-155.3313	10.0744	-0.4500	-5.0821	0.0000	-9.0490
			C106	-155.9792	7.0071	-0.4500	0.9301	0.0000	-6.2958
			C107	-121.9714	8.0760	-0.4500	-5.3728	0.0000	-7.2250
			C108	-122.6193	5.0088	-0.4500	0.6395	0.0000	-4.4719
			C109	-129.7397	16.8130	-0.4500	-13.4390	0.0000	-15.2106
			C110	-123.6850	27.1327	-0.4500	-23.1045	0.0000	-24.5116
			C111	-100.4954	11.4497	-0.4500	-9.7049	0.0000	-10.3288
			C112	-94.4407	21.7694	-0.4500	-19.3704	0.0000	-19.6299
			C113	-199.9471	-27.4239	-0.4500	24.3888	0.0000	24.7846
			C114	-193.8925	-17.1041	-0.4500	14.7232	0.0000	15.4835
			C115	-164.2349	-21.1103	-0.4500	18.4521	0.0000	19.0998
			C116	-158.1802	-10.7906	-0.4500	8.7866	0.0000	9.7988
			C201	-160.6134	-10.0100	-0.3807	0.6686	0.0000	8.9940
			C202	-161.4881	-14.1508	-0.3807	8.7851	0.0000	12.7107
			C203	-114.5301	-5.9794	-0.3807	-2.0052	0.0000	5.4054
			C204	-115.4048	-10.1202	-0.3807	6.1114	0.0000	9.1221
			C205	-133.7220	13.5924	-0.3807	-6.9934	0.0000	-12.2161
			C206	-134.5966	9.4516	-0.3807	1.1232	0.0000	-8.4994
			C207	-88.6861	10.8946	-0.3807	-7.3858	0.0000	-9.7537
			C208	-89.5608	6.7538	-0.3807	0.7308	0.0000	-6.0370
			C209	-99.1733	22.6895	-0.3807	-18.2751	0.0000	-20.5342
			C210	-90.9995	36.6211	-0.3807	-31.3236	0.0000	-33.0907
			C211	-59.6935	15.4491	-0.3807	-13.2341	0.0000	-13.9439
			C212	-51.5197	29.3807	-0.3807	-26.2826	0.0000	-26.5004
			C213	-193.9534	-37.0302	-0.3807	32.7924	0.0000	33.4592
			C214	-185.7796	-23.0986	-0.3807	19.7439	0.0000	20.9028
			C215	-145.7419	-28.5070	-0.3807	24.7779	0.0000	25.7848
			C216	-137.5681	-14.5754	-0.3807	11.7294	0.0000	13.2284
			C301	-137.4148	-10.0125	-0.3115	0.6281	0.0000	8.9940
			C302	-138.2895	-14.1532	-0.3115	8.7447	0.0000	12.7107
			C303	-91.3315	-5.9819	-0.3115	-2.0456	0.0000	5.4054
			C304	-92.2062	-10.1226	-0.3115	6.0709	0.0000	9.1221
			C305	-110.5234	13.5899	-0.3115	-7.0338	0.0000	-12.2161
			C306	-111.3981	9.4492	-0.3115	1.0827	0.0000	-8.4994
			C307	-65.4876	10.8921	-0.3115	-7.4262	0.0000	-9.7537
			C308	-66.3623	6.7514	-0.3115	0.6903	0.0000	-6.0370
			C309	-75.9748	22.6871	-0.3115	-18.3156	0.0000	-20.5342
			C310	-67.8010	36.6187	-0.3115	-31.3640	0.0000	-33.0907
			C311	-36.4950	15.4466	-0.3115	-13.2745	0.0000	-13.9439
			C312	-28.3212	29.3783	-0.3115	-26.3230	0.0000	-26.5004
			C313	-170.7548	-37.0327	-0.3115	32.7519	0.0000	33.4592
			C314	-162.5810	-23.1011	-0.3115	19.7034	0.0000	20.9028
			C315	-122.5434	-28.5094	-0.3115	24.7374	0.0000	25.7848
			C316	-114.3695	-14.5778	-0.3115	11.6889	0.0000	13.2284
	R101		C101	-175.2508	-7.4089	-0.4500	0.5934	-0.4050	-0.0057
			C102	-175.8987	-10.4761	-0.4500	6.6057	-0.4050	-0.0131
			C103	-141.1151	-4.4233	-0.4500	-1.3872	-0.4050	0.0230
			C104	-141.7630	-7.4905	-0.4500	4.6251	-0.4050	0.0157
			C105	-155.3313	10.0744	-0.4500	-5.0821	-0.4050	0.0180
			C106	-155.9792	7.0071	-0.4500	0.9301	-0.4050	0.0106
			C107	-121.9714	8.0760	-0.4500	-5.3728	-0.4050	0.0434
			C108	-122.6193	5.0088	-0.4500	0.6395	-0.4050	0.0360
			C109	-129.7397	16.8130	-0.4500	-13.4390	-0.4050	-0.0789
			C110	-123.6850	27.1327	-0.4500	-23.1045	-0.4050	-0.0922
			C111	-100.4954	11.4497	-0.4500	-9.7049	-0.4050	-0.0241
			C112	-94.4407	21.7694	-0.4500	-19.3704	-0.4050	-0.0374
			C113	-199.9471	-27.4239	-0.4500	24.3888	-0.4050	0.1032
			C114	-193.8925	-17.1041	-0.4500	14.7232	-0.4050	0.0898
			C115	-164.2349	-21.1103	-0.4500	18.4521	-0.4050	0.1006
			C116	-158.1802	-10.7906	-0.4500	8.7866	-0.4050	0.0872
			C201	-160.6134	-10.0100	-0.3807	0.6686	-0.3427	-0.0150
			C202	-161.4881	-14.1508	-0.3807	8.7851	-0.3427	-0.0249
			C203	-114.5301	-5.9794	-0.3807	-2.0052	-0.3427	0.0239
			C204	-115.4048	-10.1202	-0.3807	6.1114	-0.3427	0.0139
			C205	-133.7220	13.5924	-0.3807	-6.9934	-0.3427	0.0170
			C206	-134.5966	9.4516	-0.3807	1.1232	-0.3427	0.0071
			C207	-88.6861	10.8946	-0.3807	-7.3858	-0.3427	0.0514
			C208	-89.5608	6.7538	-0.3807	0.7308	-0.3427	0.0414

			C209	-99.1733	22.6895	-0.3807	-18.2751	-0.3427	-0.1137
			C210	-90.9995	36.6211	-0.3807	-31.3236	-0.3427	-0.1317
			C211	-59.6935	15.4491	-0.3807	-13.2341	-0.3427	-0.0398
			C212	-51.5197	29.3807	-0.3807	-26.2826	-0.3427	-0.0578
			C213	-193.9534	-37.0302	-0.3807	32.7924	-0.3427	0.1321
			C214	-185.7796	-23.0986	-0.3807	19.7439	-0.3427	0.1141
			C215	-145.7419	-28.5070	-0.3807	24.7779	-0.3427	0.1286
			C216	-137.5681	-14.5754	-0.3807	11.7294	-0.3427	0.1106
			C301	-137.4148	-10.0125	-0.3115	0.6281	-0.2804	-0.0172
			C302	-138.2895	-14.1532	-0.3115	8.7447	-0.2804	-0.0271
			C303	-91.3315	-5.9819	-0.3115	-2.0456	-0.2804	0.0217
			C304	-92.2062	-10.1226	-0.3115	6.0709	-0.2804	0.0117
			C305	-110.5234	13.5899	-0.3115	-7.0338	-0.2804	0.0148
			C306	-111.3981	9.4492	-0.3115	1.0827	-0.2804	0.0049
			C307	-65.4876	10.8921	-0.3115	-7.4262	-0.2804	0.0492
			C308	-66.3623	6.7514	-0.3115	0.6903	-0.2804	0.0392
			C309	-75.9748	22.6871	-0.3115	-18.3156	-0.2804	-0.1159
			C310	-67.8010	36.6187	-0.3115	-31.3640	-0.2804	-0.1339
			C311	-36.4950	15.4466	-0.3115	-13.2745	-0.2804	-0.0420
			C312	-28.3212	29.3783	-0.3115	-26.3230	-0.2804	-0.0600
			C313	-170.7548	-37.0327	-0.3115	32.7519	-0.2804	0.1299
			C314	-162.5810	-23.1011	-0.3115	19.7034	-0.2804	0.1119
			C315	-122.5434	-28.5094	-0.3115	24.7374	-0.2804	0.1264
			C316	-114.3695	-14.5778	-0.3115	11.6889	-0.2804	0.1084
V102-R102	V102	UD1	C101	-276.6488	-48.6439	-4.2169	-42.9392	0.0000	43.7276
			C102	-280.9122	-29.2412	-4.2169	-24.8586	0.0000	26.2778
			C103	-217.9656	-38.2554	-4.2169	-32.5773	0.0000	34.4354
			C104	-222.2289	-18.8528	-4.2169	-14.4967	0.0000	16.9856
			C105	-239.9967	29.1923	-4.2169	28.0104	0.0000	-26.2328
			C106	-244.2601	48.5949	-4.2169	46.0910	0.0000	-43.6826
			C107	-179.6060	19.0292	-4.2169	19.9511	0.0000	-17.0432
			C108	-183.8694	38.4318	-4.2169	38.0317	0.0000	-34.4930
			C109	-277.1141	-16.3188	-4.2169	-14.6619	0.0000	14.7852
			C110	-283.1688	-26.6386	-4.2169	-24.3304	0.0000	24.0863
			C111	-216.5827	-10.6380	-4.2169	-8.0531	0.0000	9.6919
			C112	-222.6374	-20.9577	-4.2169	-17.7216	0.0000	18.9929
			C113	-224.3530	26.6153	-4.2169	27.7423	0.0000	-24.0531
			C114	-230.4077	16.2956	-4.2169	18.0739	0.0000	-14.7520
			C115	-170.2709	21.1513	-4.2169	23.3497	0.0000	-19.0585
			C116	-176.3256	10.8316	-4.2169	13.6813	0.0000	-9.7574
			C201	-255.4249	-65.6818	-3.5682	-59.0167	0.0000	59.0323
			C202	-261.1804	-39.4882	-3.5682	-34.6079	0.0000	35.4751
			C203	-176.2025	-51.6574	-3.5682	-45.0282	0.0000	46.4878
			C204	-181.9580	-25.4639	-3.5682	-20.6194	0.0000	22.9306
			C205	-205.9446	39.3970	-3.5682	36.7652	0.0000	-35.4143
			C206	-211.7001	65.5906	-3.5682	61.1740	0.0000	-58.9715
			C207	-124.4171	25.6768	-3.5682	25.8852	0.0000	-23.0083
			C208	-130.1727	51.8703	-3.5682	50.2940	0.0000	-46.5655
			C209	-256.0530	-22.0430	-3.5682	-20.8424	0.0000	19.9600
			C210	-264.2268	-35.9747	-3.5682	-33.8949	0.0000	32.5164
			C211	-174.3356	-14.3739	-3.5682	-11.9205	0.0000	13.0840
			C212	-182.5095	-28.3055	-3.5682	-24.9729	0.0000	25.6405
			C213	-184.8256	35.9181	-3.5682	36.4033	0.0000	-32.4717
			C214	-192.9994	21.9865	-3.5682	23.3509	0.0000	-19.9152
			C215	-111.8148	28.5416	-3.5682	30.4733	0.0000	-25.7290
			C216	-119.9886	14.6100	-3.5682	17.4209	0.0000	-13.1725
			C301	-219.3788	-65.6856	-2.9194	-59.3370	0.0000	59.0323
			C302	-225.1343	-39.4921	-2.9194	-34.9282	0.0000	35.4751
			C303	-140.1564	-51.6613	-2.9194	-45.3484	0.0000	46.4878
			C304	-145.9119	-25.4677	-2.9194	-20.9396	0.0000	22.9306
			C305	-169.8984	39.3932	-2.9194	36.4450	0.0000	-35.4143
			C306	-175.6539	65.5867	-2.9194	60.8537	0.0000	-58.9715
			C307	-88.3710	25.6729	-2.9194	25.5650	0.0000	-23.0083
			C308	-94.1265	51.8665	-2.9194	49.9738	0.0000	-46.5655
			C309	-220.0069	-22.0469	-2.9194	-21.1627	0.0000	19.9600
			C310	-228.1807	-35.9785	-2.9194	-34.2151	0.0000	32.5164
			C311	-138.2895	-14.3778	-2.9194	-12.2407	0.0000	13.0840
			C312	-146.4634	-28.3094	-2.9194	-25.2932	0.0000	25.6405
			C313	-148.7795	35.9143	-2.9194	36.0831	0.0000	-32.4717
			C314	-156.9533	21.9827	-2.9194	23.0306	0.0000	-19.9152
			C315	-75.7686	28.5378	-2.9194	30.1531	0.0000	-25.7290
			C316	-83.9425	14.6062	-2.9194	17.1006	0.0000	-13.1725
	R102		C101	-276.6488	-48.6439	-4.2169	-42.9392	-3.7952	-0.0518
			C102	-280.9122	-29.2412	-4.2169	-24.8586	-3.7952	-0.0392
			C103	-217.9656	-38.2554	-4.2169	-32.5773	-3.7952	0.0056
			C104	-222.2289	-18.8528	-4.2169	-14.4967	-3.7952	0.0181
			C105	-239.9967	29.1923	-4.2169	28.0104	-3.7952	0.0402
			C106	-244.2601	48.5949	-4.2169	46.0910	-3.7952	0.0528
			C107	-179.6060	19.0292	-4.2169	19.9511	-3.7952	0.0830

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			C108	-183.8694	38.4318	-4.2169	38.0317	-3.7952	0.0956
			C109	-277.1141	-16.3188	-4.2169	-14.6619	-3.7952	0.0983
			C110	-283.1688	-26.6386	-4.2169	-24.3304	-3.7952	0.1116
			C111	-216.5827	-10.6380	-4.2169	-8.0531	-3.7952	0.1177
			C112	-222.6374	-20.9577	-4.2169	-17.7216	-3.7952	0.1310
			C113	-224.3530	26.6153	-4.2169	27.7423	-3.7952	-0.0993
			C114	-230.4077	16.2956	-4.2169	18.0739	-3.7952	-0.0860
			C115	-170.2709	21.1513	-4.2169	23.3497	-3.7952	-0.0224
			C116	-176.3256	10.8316	-4.2169	13.6813	-3.7952	-0.0090
			C201	-255.4249	-65.6818	-3.5682	-59.0167	-3.2113	-0.0812
			C202	-261.1804	-39.4882	-3.5682	-34.6079	-3.2113	-0.0643
			C203	-176.2025	-51.6574	-3.5682	-45.0282	-3.2113	-0.0038
			C204	-181.9580	-25.4639	-3.5682	-20.6194	-3.2113	0.0131
			C205	-205.9446	39.3970	-3.5682	36.7652	-3.2113	0.0430
			C206	-211.7001	65.5906	-3.5682	61.1740	-3.2113	0.0599
			C207	-124.4171	25.6768	-3.5682	25.8852	-3.2113	0.1007
			C208	-130.1727	51.8703	-3.5682	50.2940	-3.2113	0.1177
			C209	-256.0530	-22.0430	-3.5682	-20.8424	-3.2113	0.1213
			C210	-264.2268	-35.9747	-3.5682	-33.8949	-3.2113	0.1393
			C211	-174.3356	-14.3739	-3.5682	-11.9205	-3.2113	0.1475
			C212	-182.5095	-28.3055	-3.5682	-24.9729	-3.2113	0.1655
			C213	-184.8256	35.9181	-3.5682	36.4033	-3.2113	-0.1454
			C214	-192.9994	21.9865	-3.5682	23.3509	-3.2113	-0.1274
			C215	-111.8148	28.5416	-3.5682	30.4733	-3.2113	-0.0415
			C216	-119.9886	14.6100	-3.5682	17.4209	-3.2113	-0.0235
			C301	-219.3788	-65.6856	-2.9194	-59.3370	-2.6275	-0.0847
			C302	-225.1343	-39.4921	-2.9194	-34.9282	-2.6275	-0.0677
			C303	-140.1564	-51.6613	-2.9194	-45.3484	-2.6275	-0.0073
			C304	-145.9119	-25.4677	-2.9194	-20.9396	-2.6275	0.0097
			C305	-169.8984	39.3932	-2.9194	36.4450	-2.6275	0.0395
			C306	-175.6539	65.5867	-2.9194	60.8537	-2.6275	0.0565
			C307	-88.3710	25.6729	-2.9194	25.5650	-2.6275	0.0973
			C308	-94.1265	51.8665	-2.9194	49.9738	-2.6275	0.1142
			C309	-220.0069	-22.0469	-2.9194	-21.1627	-2.6275	0.1179
			C310	-228.1807	-35.9785	-2.9194	-34.2151	-2.6275	0.1359
			C311	-138.2895	-14.3778	-2.9194	-12.2407	-2.6275	0.1441
			C312	-146.4634	-28.3094	-2.9194	-25.2932	-2.6275	0.1621
			C313	-148.7795	35.9143	-2.9194	36.0831	-2.6275	-0.1489
			C314	-156.9533	21.9827	-2.9194	23.0306	-2.6275	-0.1309
			C315	-75.7686	28.5378	-2.9194	30.1531	-2.6275	-0.0450
			C316	-83.9425	14.6062	-2.9194	17.1006	-2.6275	-0.0270
V200-R200	V200	UD1	C101	-589.6649	-52.9010	-0.8262	30.6435	0.0000	47.6958
			C102	-609.1315	-39.6125	-0.8262	13.8536	0.0000	35.7024
			C103	-454.4408	-38.5261	-0.8262	24.8562	0.0000	34.7624
			C104	-473.9073	-25.2376	-0.8262	8.0663	0.0000	22.7690
			C105	-558.4150	37.4094	-0.8262	-14.6815	0.0000	-33.7886
			C106	-577.8815	50.6979	-0.8262	-31.4715	0.0000	-45.7820
			C107	-398.3535	27.9313	-0.8262	-8.8465	0.0000	-25.2121
			C108	-417.8200	41.2199	-0.8262	-25.6364	0.0000	-37.2055
			C109	-550.5530	-0.8450	-0.8262	18.2870	0.0000	0.7262
			C110	-550.5530	-0.8450	-0.8262	31.8560	0.0000	0.7262
			C111	-408.4493	1.4905	-0.8262	11.7041	0.0000	-1.3516
			C112	-408.4493	1.4905	-0.8262	25.2731	0.0000	-1.3516
			C113	-583.7803	-0.8073	-0.8262	-32.6791	0.0000	0.6976
			C114	-583.7803	-0.8073	-0.8262	-19.1101	0.0000	0.6976
			C115	-441.6742	1.5702	-0.8262	-26.0502	0.0000	-1.4180
			C116	-441.6742	1.5702	-0.8262	-12.4813	0.0000	-1.4180
			C201	-534.5947	-71.4032	-0.6991	41.5721	0.0000	64.3894
			C202	-560.8745	-53.4637	-0.6991	18.9057	0.0000	48.1983
			C203	-352.0421	-51.9971	-0.6991	33.7592	0.0000	46.9292
			C204	-378.3219	-34.0576	-0.6991	11.0928	0.0000	30.7382
			C205	-492.4072	50.5158	-0.6991	-19.6168	0.0000	-45.6147
			C206	-518.6871	68.4554	-0.6991	-42.2832	0.0000	-61.8057
			C207	-276.3242	37.7204	-0.6991	-11.7394	0.0000	-34.0364
			C208	-302.6040	55.6599	-0.6991	-34.4058	0.0000	-50.2275
			C209	-481.7935	-1.1277	-0.6991	24.8908	0.0000	0.9804
			C210	-481.7935	-1.1277	-0.6991	43.2089	0.0000	0.9804
			C211	-289.9535	2.0252	-0.6991	16.0039	0.0000	-1.8247
			C212	-289.9535	2.0253	-0.6991	34.3219	0.0000	-1.8247
			C213	-526.6505	-1.0768	-0.6991	-43.9134	0.0000	0.9418
			C214	-526.6505	-1.0768	-0.6991	-25.5953	0.0000	0.9418
			C215	-334.8071	2.1329	-0.6991	-34.9645	0.0000	-1.9143
			C216	-334.8071	2.1329	-0.6991	-16.6464	0.0000	-1.9143
			C301	-454.7617	-71.3992	-0.5720	41.6341	0.0000	64.3894
			C302	-481.0415	-53.4597	-0.5720	18.9677	0.0000	48.1983
			C303	-272.2091	-51.9931	-0.5720	33.8213	0.0000	46.9292
			C304	-298.4889	-34.0536	-0.5720	11.1549	0.0000	30.7382
			C305	-412.5742	50.5198	-0.5720	-19.5547	0.0000	-45.6147
			C306	-438.8540	68.4594	-0.5720	-42.2211	0.0000	-61.8057

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			C307	-196.4911	37.7244	-0.5720	-11.6773	0.0000	-34.0364
			C308	-222.7710	55.6640	-0.5720	-34.3437	0.0000	-50.2275
			C309	-401.9605	-1.1237	-0.5720	24.9529	0.0000	0.9804
			C310	-401.9605	-1.1237	-0.5720	43.2710	0.0000	0.9804
			C311	-210.1205	2.0293	-0.5720	16.0659	0.0000	-1.8247
			C312	-210.1205	2.0293	-0.5720	34.3840	0.0000	-1.8247
			C313	-446.8175	-1.0728	-0.5720	-43.8513	0.0000	0.9418
			C314	-446.8175	-1.0727	-0.5720	-25.5333	0.0000	0.9418
			C315	-254.9741	2.1369	-0.5720	-34.9024	0.0000	-1.9143
			C316	-254.9741	2.1369	-0.5720	-16.5843	0.0000	-1.9143
	R200		C101	-589.6649	-52.9010	-0.8262	30.6435	-0.7436	0.0850
			C102	-609.1315	-39.6125	-0.8262	13.8536	-0.7436	0.0513
			C103	-454.4408	-38.5261	-0.8262	24.8562	-0.7436	0.0890
			C104	-473.9073	-25.2376	-0.8262	8.0663	-0.7436	0.0553
			C105	-558.4150	37.4094	-0.8262	-14.6815	-0.7436	-0.1202
			C106	-577.8815	50.6979	-0.8262	-31.4715	-0.7436	-0.1540
			C107	-398.3535	27.9313	-0.8262	-8.8465	-0.7436	-0.0740
			C108	-417.8200	41.2199	-0.8262	-25.6364	-0.7436	-0.1077
			C109	-550.5530	-0.8450	-0.8262	18.2870	-0.7436	-0.0343
			C110	-550.5530	-0.8450	-0.8262	31.8560	-0.7436	-0.0343
			C111	-408.4493	1.4905	-0.8262	11.7041	-0.7436	-0.0102
			C112	-408.4493	1.4905	-0.8262	25.2731	-0.7436	-0.0102
			C113	-583.7803	-0.8073	-0.8262	-32.6791	-0.7436	-0.0290
			C114	-583.7803	-0.8073	-0.8262	-19.1101	-0.7436	-0.0290
			C115	-441.6742	1.5702	-0.8262	-26.0502	-0.7436	-0.0048
			C116	-441.6742	1.5702	-0.8262	-12.4813	-0.7436	-0.0048
			C201	-534.5947	-71.4032	-0.6991	41.5721	-0.6292	0.1266
			C202	-560.8745	-53.4637	-0.6991	18.9057	-0.6292	0.0811
			C203	-352.0421	-51.9971	-0.6991	33.7592	-0.6292	0.1319
			C204	-378.3219	-34.0576	-0.6991	11.0928	-0.6292	0.0864
			C205	-492.4072	50.5158	-0.6991	-19.6168	-0.6292	-0.1505
			C206	-518.6871	68.4554	-0.6991	-42.2832	-0.6292	-0.1960
			C207	-276.3242	37.7204	-0.6991	-11.7394	-0.6292	-0.0881
			C208	-302.6040	55.6599	-0.6991	-34.4058	-0.6292	-0.1336
			C209	-481.7935	-1.1277	-0.6991	24.8908	-0.6292	-0.0345
			C210	-481.7935	-1.1277	-0.6991	43.2089	-0.6292	-0.0345
			C211	-289.9535	2.0252	-0.6991	16.0039	-0.6292	-0.0020
			C212	-289.9535	2.0253	-0.6991	34.3219	-0.6292	-0.0020
			C213	-526.6505	-1.0768	-0.6991	-43.9134	-0.6292	-0.0273
			C214	-526.6505	-1.0768	-0.6991	-25.5953	-0.6292	-0.0273
			C215	-334.8071	2.1329	-0.6991	-34.9645	-0.6292	0.0054
			C216	-334.8071	2.1329	-0.6991	-16.6464	-0.6292	0.0054
			C301	-454.7617	-71.3992	-0.5720	41.6341	-0.5148	0.1302
			C302	-481.0415	-53.4597	-0.5720	18.9677	-0.5148	0.0847
			C303	-272.2091	-51.9931	-0.5720	33.8213	-0.5148	0.1356
			C304	-298.4889	-34.0536	-0.5720	11.1549	-0.5148	0.0900
			C305	-412.5742	50.5198	-0.5720	-19.5547	-0.5148	-0.1469
			C306	-438.8540	68.4594	-0.5720	-42.2211	-0.5148	-0.1924
			C307	-196.4911	37.7244	-0.5720	-11.6773	-0.5148	-0.0845
			C308	-222.7710	55.6640	-0.5720	-34.3437	-0.5148	-0.1300
			C309	-401.9605	-1.1237	-0.5720	24.9529	-0.5148	-0.0309
			C310	-401.9605	-1.1237	-0.5720	43.2710	-0.5148	-0.0309
			C311	-210.1205	2.0293	-0.5720	16.0659	-0.5148	0.0016
			C312	-210.1205	2.0293	-0.5720	34.3840	-0.5148	0.0016
			C313	-446.8175	-1.0728	-0.5720	-43.8513	-0.5148	-0.0237
			C314	-446.8175	-1.0727	-0.5720	-25.5333	-0.5148	-0.0237
			C315	-254.9741	2.1369	-0.5720	-34.9024	-0.5148	0.0090
			C316	-254.9741	2.1369	-0.5720	-16.5843	-0.5148	0.0090
V201-R201	V201	UD1	C101	-204.2664	-9.4988	0.4500	0.9567	0.0000	8.5104
			C102	-218.8835	-13.4851	0.4500	5.4619	0.0000	12.0887
			C103	-162.0550	-5.2061	0.4500	-0.4969	0.0000	4.6740
			C104	-176.6721	-9.1924	0.4500	4.0083	0.0000	8.2523
			C105	-246.3218	12.3213	0.4500	-4.5334	0.0000	-11.0904
			C106	-260.9389	8.3350	0.4500	-0.0282	0.0000	-7.5121
			C107	-182.6739	10.6057	0.4500	-4.3423	0.0000	-9.5269
			C108	-197.2910	6.6194	0.4500	0.1629	0.0000	-5.9485
			C109	-143.9552	10.9318	0.4500	-11.6559	0.0000	-9.9011
			C110	-127.6682	20.2157	0.4500	-19.4215	0.0000	-18.2559
			C111	-104.8996	8.1453	0.4500	-8.0279	0.0000	-7.3565
			C112	-88.6126	17.4292	0.4500	-15.7935	0.0000	-15.7113
			C113	-325.6179	-21.0899	0.4500	20.2083	0.0000	18.9989
			C114	-309.3309	-11.8060	0.4500	12.4427	0.0000	10.6440
			C115	-262.7984	-15.8232	0.4500	15.3652	0.0000	14.2668
			C116	-246.5114	-6.5393	0.4500	7.5996	0.0000	5.9119
			C201	-170.2785	-12.8153	0.3807	1.1974	0.0000	11.4890
			C202	-190.0115	-18.1968	0.3807	7.2794	0.0000	16.3198
			C203	-113.2931	-7.0202	0.3807	-0.7650	0.0000	6.3099
			C204	-133.0261	-12.4017	0.3807	5.3170	0.0000	11.1406
			C205	-227.0532	16.6418	0.3807	-6.2143	0.0000	-14.9720

			C206	-246.7863	11.2603	0.3807	-0.1323	0.0000	-10.1413
			C207	-141.1286	14.3257	0.3807	-5.9564	0.0000	-12.8613
			C208	-160.8616	8.9441	0.3807	0.1256	0.0000	-8.0305
			C209	-88.8583	14.7660	0.3807	-15.8296	0.0000	-13.3665
			C210	-66.8708	27.2992	0.3807	-26.3132	0.0000	-24.6455
			C211	-36.1332	11.0041	0.3807	-10.9319	0.0000	-9.9312
			C212	-14.1457	23.5374	0.3807	-21.4155	0.0000	-21.2103
			C213	-334.1029	-28.4634	0.3807	27.1870	0.0000	25.6485
			C214	-312.1155	-15.9301	0.3807	16.7035	0.0000	14.3695
			C215	-249.2966	-21.3533	0.3807	20.6489	0.0000	19.2601
			C216	-227.3092	-8.8200	0.3807	10.1653	0.0000	7.9811
			C301	-138.0704	-12.8129	0.3115	1.1686	0.0000	11.4890
			C302	-157.8035	-18.1944	0.3115	7.2506	0.0000	16.3198
			C303	-81.0850	-7.0178	0.3115	-0.7938	0.0000	6.3099
			C304	-100.8181	-12.3993	0.3115	5.2882	0.0000	11.1406
			C305	-194.8452	16.6443	0.3115	-6.2431	0.0000	-14.9720
			C306	-214.5782	11.2628	0.3115	-0.1611	0.0000	-10.1413
			C307	-108.9205	14.3281	0.3115	-5.9851	0.0000	-12.8613
			C308	-128.6536	8.9466	0.3115	0.0969	0.0000	-8.0305
			C309	-56.6503	14.7684	0.3115	-15.8584	0.0000	-13.3665
			C310	-34.6628	27.3017	0.3115	-26.3420	0.0000	-24.6455
			C311	-3.9252	11.0066	0.3115	-10.9607	0.0000	-9.9312
			C312	18.0623	23.5398	0.3115	-21.4442	0.0000	-21.2103
			C313	-301.8949	-28.4609	0.3115	27.1583	0.0000	25.6485
			C314	-279.9074	-15.9277	0.3115	16.6747	0.0000	14.3695
			C315	-217.0886	-21.3508	0.3115	20.6201	0.0000	19.2601
			C316	-195.1012	-8.8176	0.3115	10.1365	0.0000	7.9811
	R201		C101	-204.2664	-9.4988	0.4500	0.9567	0.4050	-0.0385
			C102	-218.8835	-13.4851	0.4500	5.4619	0.4050	-0.0478
			C103	-162.0550	-5.2061	0.4500	-0.4969	0.4050	-0.0115
			C104	-176.6721	-9.1924	0.4500	4.0083	0.4050	-0.0208
			C105	-246.3218	12.3213	0.4500	-4.5334	0.4050	-0.0012
			C106	-260.9389	8.3350	0.4500	-0.0282	0.4050	-0.0106
			C107	-182.6739	10.6057	0.4500	-4.3423	0.4050	0.0182
			C108	-197.2910	6.6194	0.4500	0.1629	0.4050	0.0089
			C109	-143.9552	10.9318	0.4500	-11.6559	0.4050	-0.0625
			C110	-127.6682	20.2157	0.4500	-19.4215	0.4050	-0.0618
			C111	-104.8996	8.1453	0.4500	-8.0279	0.4050	-0.0257
			C112	-88.6126	17.4292	0.4500	-15.7935	0.4050	-0.0251
			C113	-325.6179	-21.0899	0.4500	20.2083	0.4050	0.0180
			C114	-309.3309	-11.8060	0.4500	12.4427	0.4050	0.0187
			C115	-262.7984	-15.8232	0.4500	15.3652	0.4050	0.0259
			C116	-246.5114	-6.5393	0.4500	7.5996	0.4050	0.0266
			C201	-170.2785	-12.8153	0.3807	1.1974	0.3427	-0.0447
			C202	-190.0115	-18.1968	0.3807	7.2794	0.3427	-0.0573
			C203	-113.2931	-7.0202	0.3807	-0.7650	0.3427	-0.0083
			C204	-133.0261	-12.4017	0.3807	5.3170	0.3427	-0.0209
			C205	-227.0532	16.6418	0.3807	-6.2143	0.3427	0.0056
			C206	-246.7863	11.2603	0.3807	-0.1323	0.3427	-0.0070
			C207	-141.1286	14.3257	0.3807	-5.9564	0.3427	0.0318
			C208	-160.8616	8.9441	0.3807	0.1256	0.3427	0.0192
			C209	-88.8583	14.7660	0.3807	-15.8296	0.3427	-0.0771
			C210	-66.8708	27.2992	0.3807	-26.3132	0.3427	-0.0762
			C211	-36.1332	11.0041	0.3807	-10.9319	0.3427	-0.0275
			C212	-14.1457	23.5374	0.3807	-21.4155	0.3427	-0.0266
			C213	-334.1029	-28.4634	0.3807	27.1870	0.3427	0.0315
			C214	-312.1155	-15.9301	0.3807	16.7035	0.3427	0.0324
			C215	-249.2966	-21.3533	0.3807	20.6489	0.3427	0.0422
			C216	-227.3092	-8.8200	0.3807	10.1653	0.3427	0.0431
			C301	-138.0704	-12.8129	0.3115	1.1686	0.2804	-0.0425
			C302	-157.8035	-18.1944	0.3115	7.2506	0.2804	-0.0551
			C303	-81.0850	-7.0178	0.3115	-0.7938	0.2804	-0.0061
			C304	-100.8181	-12.3993	0.3115	5.2882	0.2804	-0.0187
			C305	-194.8452	16.6443	0.3115	-6.2431	0.2804	0.0078
			C306	-214.5782	11.2628	0.3115	-0.1611	0.2804	-0.0048
			C307	-108.9205	14.3281	0.3115	-5.9851	0.2804	0.0340
			C308	-128.6536	8.9466	0.3115	0.0969	0.2804	0.0214
			C309	-56.6503	14.7684	0.3115	-15.8584	0.2804	-0.0749
			C310	-34.6628	27.3017	0.3115	-26.3420	0.2804	-0.0740
			C311	-3.9252	11.0066	0.3115	-10.9607	0.2804	-0.0253
			C312	18.0623	23.5398	0.3115	-21.4442	0.2804	-0.0244
			C313	-301.8949	-28.4609	0.3115	27.1583	0.2804	0.0337
			C314	-279.9074	-15.9277	0.3115	16.6747	0.2804	0.0346
			C315	-217.0886	-21.3508	0.3115	20.6201	0.2804	0.0444
			C316	-195.1012	-8.8176	0.3115	10.1365	0.2804	0.0453
V202-R202	V202	UD1	C101	-423.7398	-53.4052	4.2169	-32.9076	0.0000	47.9420
			C102	-441.8286	-33.8562	4.2169	-18.8723	0.0000	30.3731
			C103	-330.3734	-40.6587	4.2169	-25.1240	0.0000	36.5256
			C104	-348.4622	-21.1097	4.2169	-11.0887	0.0000	18.9566

	C105	-421.5914	32.4230	4.2169	22.6811	0.0000	-29.1643
	C106	-439.6803	51.9720	4.2169	36.7164	0.0000	-46.7333
	C107	-304.3614	22.8253	4.2169	15.9488	0.0000	-20.4995
	C108	-322.4502	42.3743	4.2169	29.9841	0.0000	-38.0685
	C109	-484.7870	-13.0671	4.2169	-8.5776	0.0000	11.7703
	C110	-501.0741	-22.3510	4.2169	-16.3432	0.0000	20.1251
	C111	-371.5568	-7.2002	4.2169	-4.3110	0.0000	6.5155
	C112	-387.8438	-16.4841	4.2169	-12.0766	0.0000	14.8703
	C113	-338.6707	21.2722	4.2169	20.2705	0.0000	-19.2261
	C114	-354.9577	11.9883	4.2169	12.5049	0.0000	-10.8712
	C115	-249.1904	18.4361	4.2169	17.0157	0.0000	-16.6198
	C116	-265.4774	9.1522	4.2169	9.2501	0.0000	-8.2649
	C201	-377.8404	-72.0845	3.5682	-45.5012	0.0000	64.7218
	C202	-402.2603	-45.6933	3.5682	-26.5535	0.0000	41.0036
	C203	-251.7957	-54.8766	3.5682	-34.9933	0.0000	49.3096
	C204	-276.2156	-28.4855	3.5682	-16.0456	0.0000	25.5914
	C205	-374.9401	43.7836	3.5682	29.5437	0.0000	-39.3718
	C206	-399.3600	70.1748	3.5682	48.4913	0.0000	-63.0900
	C207	-216.6795	30.8267	3.5682	20.4550	0.0000	-27.6743
	C208	-241.0994	57.2179	3.5682	39.4026	0.0000	-51.3925
	C209	-460.2542	-17.6280	3.5682	-12.6556	0.0000	15.8899
	C210	-482.2416	-30.1613	3.5682	-23.1391	0.0000	27.1689
	C211	-307.3933	-9.7077	3.5682	-6.8957	0.0000	8.7959
	C212	-329.3808	-22.2410	3.5682	-17.3793	0.0000	20.0749
	C213	-262.9971	28.7300	3.5682	26.2893	0.0000	-25.9552
	C214	-284.9846	16.1967	3.5682	15.8057	0.0000	-14.6761
	C215	-142.1987	24.9014	3.5682	21.8953	0.0000	-22.4367
	C216	-164.1862	12.3681	3.5682	11.4118	0.0000	-11.1576
	C301	-318.5401	-72.0806	2.9194	-45.8297	0.0000	64.7218
	C302	-342.9600	-45.6894	2.9194	-26.8820	0.0000	41.0036
	C303	-192.4955	-54.8728	2.9194	-35.3218	0.0000	49.3096
	C304	-216.9154	-28.4816	2.9194	-16.3741	0.0000	25.5914
	C305	-315.6398	43.7875	2.9194	29.2151	0.0000	-39.3718
	C306	-340.0597	70.1787	2.9194	48.1628	0.0000	-63.0900
	C307	-157.3792	30.8306	2.9194	20.1265	0.0000	-27.6743
	C308	-181.7991	57.2217	2.9194	39.0741	0.0000	-51.3925
	C309	-400.9539	-17.6242	2.9194	-12.9841	0.0000	15.8899
	C310	-422.9414	-30.1575	2.9194	-23.4676	0.0000	27.1689
	C311	-248.0930	-9.7039	2.9194	-7.2242	0.0000	8.7959
	C312	-270.0805	-22.2372	2.9194	-17.7078	0.0000	20.0749
	C313	-203.6968	28.7339	2.9194	25.9608	0.0000	-25.9552
	C314	-225.6843	16.2006	2.9194	15.4772	0.0000	-14.6761
	C315	-82.8984	24.9052	2.9194	21.5668	0.0000	-22.4367
	C316	-104.8859	12.3719	2.9194	11.0833	0.0000	-11.1576
R202	C101	-423.7398	-53.4052	4.2169	-32.9076	3.7952	-0.1226
	C102	-441.8286	-33.8562	4.2169	-18.8723	3.7952	-0.0975
	C103	-330.3734	-40.6587	4.2169	-25.1240	3.7952	-0.0671
	C104	-348.4622	-21.1097	4.2169	-11.0887	3.7952	-0.0420
	C105	-421.5914	32.4230	4.2169	22.6811	3.7952	0.0163
	C106	-439.6803	51.9720	4.2169	36.7164	3.7952	0.0414
	C107	-304.3614	22.8253	4.2169	15.9488	3.7952	0.0432
	C108	-322.4502	42.3743	4.2169	29.9841	3.7952	0.0683
	C109	-484.7870	-13.0671	4.2169	-8.5776	3.7952	0.0099
	C110	-501.0741	-22.3510	4.2169	-16.3432	3.7952	0.0092
	C111	-371.5568	-7.2002	4.2169	-4.3110	3.7952	0.0353
	C112	-387.8438	-16.4841	4.2169	-12.0766	3.7952	0.0346
	C113	-338.6707	21.2722	4.2169	20.2705	3.7952	-0.0811
	C114	-354.9577	11.9883	4.2169	12.5049	3.7952	-0.0818
	C115	-249.1904	18.4361	4.2169	17.0157	3.7952	-0.0273
	C116	-265.4774	9.1522	4.2169	9.2501	3.7952	-0.0279
	C201	-377.8404	-72.0845	3.5682	-45.5012	3.2113	-0.1541
	C202	-402.2603	-45.6933	3.5682	-26.5535	3.2113	-0.1203
	C203	-251.7957	-54.8766	3.5682	-34.9933	3.2113	-0.0793
	C204	-276.2156	-28.4855	3.5682	-16.0456	3.2113	-0.0454
	C205	-374.9401	43.7836	3.5682	29.5437	3.2113	0.0334
	C206	-399.3600	70.1748	3.5682	48.4913	3.2113	0.0673
	C207	-216.6795	30.8267	3.5682	20.4550	3.2113	0.0696
	C208	-241.0994	57.2179	3.5682	39.4026	3.2113	0.1035
	C209	-460.2542	-17.6280	3.5682	-12.6556	3.2113	0.0247
	C210	-482.2416	-30.1613	3.5682	-23.1391	3.2113	0.0238
	C211	-307.3933	-9.7077	3.5682	-6.8957	3.2113	0.0589
	C212	-329.3808	-22.2410	3.5682	-17.3793	3.2113	0.0581
	C213	-262.9971	28.7300	3.5682	26.2893	3.2113	-0.0982
	C214	-284.9846	16.1967	3.5682	15.8057	3.2113	-0.0991
	C215	-142.1987	24.9014	3.5682	21.8953	3.2113	-0.0255
	C216	-164.1862	12.3681	3.5682	11.4118	3.2113	-0.0264
	C301	-318.5401	-72.0806	2.9194	-45.8297	2.6275	-0.1507
	C302	-342.9600	-45.6894	2.9194	-26.8820	2.6275	-0.1168
	C303	-192.4955	-54.8728	2.9194	-35.3218	2.6275	-0.0758
	C304	-216.9154	-28.4816	2.9194	-16.3741	2.6275	-0.0420

			C305	-315.6398	43.7875	2.9194	29.2151	2.6275	0.0368
			C306	-340.0597	70.1787	2.9194	48.1628	2.6275	0.0707
			C307	-157.3792	30.8306	2.9194	20.1265	2.6275	0.0731
			C308	-181.7991	57.2217	2.9194	39.0741	2.6275	0.1070
			C309	-400.9539	-17.6242	2.9194	-12.9841	2.6275	0.0281
			C310	-422.9414	-30.1575	2.9194	-23.4676	2.6275	0.0273
			C311	-248.0930	-9.7039	2.9194	-7.2242	2.6275	0.0624
			C312	-270.0805	-22.2372	2.9194	-17.7078	2.6275	0.0615
			C313	-203.6968	28.7339	2.9194	25.9608	2.6275	-0.0947
			C314	-225.6843	16.2006	2.9194	15.4772	2.6275	-0.0956
			C315	-82.8984	24.9052	2.9194	21.5668	2.6275	-0.0221
			C316	-104.8859	12.3719	2.9194	11.0833	2.6275	-0.0229
V301-R301	V301	UD1	C101	-249.1446	-8.3604	-1.6236	1.3206	0.0000	7.5482
			C102	-234.5274	-12.3467	-1.6236	5.8258	0.0000	11.1265
			C103	-202.7523	-5.0892	-1.6236	0.1657	0.0000	4.5964
			C104	-188.1351	-9.0754	-1.6236	4.6709	0.0000	8.1747
			C105	-89.3499	12.1306	-1.6236	-3.8357	0.0000	-10.9023
			C106	-74.7327	8.1443	-1.6236	0.6695	0.0000	-7.3239
			C107	-64.4007	9.4013	-1.6236	-3.3440	0.0000	-8.4612
			C108	-49.7835	5.4151	-1.6236	1.1612	0.0000	-4.8829
			C109	-70.0990	5.0553	-1.6236	0.0622	0.0000	-4.4731
			C110	-51.3505	12.4590	-1.6236	-5.3183	0.0000	-11.1127
			C111	-48.6194	2.7909	-1.6236	0.6411	0.0000	-2.4702
			C112	-29.8709	10.1947	-1.6236	-4.7393	0.0000	-9.1097
			C113	-264.4906	-12.6146	-1.6236	7.2340	0.0000	11.2799
			C114	-245.7420	-5.2109	-1.6236	1.8536	0.0000	4.6403
			C115	-217.3134	-9.8286	-1.6236	6.0170	0.0000	8.7854
			C116	-198.5649	-2.4249	-1.6236	0.6366	0.0000	2.1458
			C201	-262.6483	-11.2920	-1.3738	1.3548	0.0000	10.1900
			C202	-242.9150	-16.6735	-1.3738	7.4368	0.0000	15.0207
			C203	-200.0186	-6.8759	-1.3738	-0.2042	0.0000	6.2051
			C204	-180.2854	-12.2574	-1.3738	5.8778	0.0000	11.0358
			C205	-46.9253	16.3708	-1.3738	-5.6062	0.0000	-14.7180
			C206	-27.1921	10.9893	-1.3738	0.4758	0.0000	-9.8873
			C207	-13.2440	12.6863	-1.3738	-4.9423	0.0000	-11.4226
			C208	6.4892	7.3048	-1.3738	1.1397	0.0000	-6.5919
			C209	-20.9367	6.8192	-1.3738	-0.3440	0.0000	-6.0387
			C210	4.3739	16.8142	-1.3738	-7.6076	0.0000	-15.0021
			C211	8.0607	3.7622	-1.3738	0.4375	0.0000	-3.3347
			C212	33.3713	13.7573	-1.3738	-6.8261	0.0000	-12.2982
			C213	-283.3653	-17.0353	-1.3738	9.3379	0.0000	15.2279
			C214	-258.0547	-7.0402	-1.3738	2.0744	0.0000	6.2644
			C215	-219.6761	-13.2742	-1.3738	7.6950	0.0000	11.8603
			C216	-194.3656	-3.2791	-1.3738	0.4314	0.0000	2.8968
			C301	-240.1453	-11.2937	-1.1241	1.2241	0.0000	10.1900
			C302	-220.4121	-16.6752	-1.1241	7.3061	0.0000	15.0207
			C303	-177.5157	-6.8775	-1.1241	-0.3349	0.0000	6.2051
			C304	-157.7825	-12.2590	-1.1241	5.7471	0.0000	11.0358
			C305	-24.4224	16.3691	-1.1241	-5.7369	0.0000	-14.7180
			C306	-4.6892	10.9876	-1.1241	0.3451	0.0000	-9.8873
			C307	9.2589	12.6846	-1.1241	-5.0730	0.0000	-11.4226
			C308	28.9921	7.3031	-1.1241	1.0090	0.0000	-6.5919
			C309	1.5662	6.8175	-1.1241	-0.4747	0.0000	-6.0387
			C310	26.8768	16.8125	-1.1241	-7.7383	0.0000	-15.0021
			C311	30.5636	3.7605	-1.1241	0.3068	0.0000	-3.3347
			C312	55.8742	13.7556	-1.1241	-6.9568	0.0000	-12.2982
			C313	-260.8624	-17.0370	-1.1241	9.2073	0.0000	15.2279
			C314	-235.5518	-7.0419	-1.1241	1.9437	0.0000	6.2644
			C315	-197.1732	-13.2758	-1.1241	7.5643	0.0000	11.8603
			C316	-171.8627	-3.2808	-1.1241	0.3007	0.0000	2.8968
	R301		C101	-249.1446	-8.3604	-1.6236	1.3206	-1.4613	0.0238
			C102	-234.5274	-12.3467	-1.6236	5.8258	-1.4613	0.0145
			C103	-202.7523	-5.0892	-1.6236	0.1657	-1.4613	0.0161
			C104	-188.1351	-9.0754	-1.6236	4.6709	-1.4613	0.0068
			C105	-89.3499	12.1306	-1.6236	-3.8357	-1.4613	0.0153
			C106	-74.7327	8.1443	-1.6236	0.6695	-1.4613	0.0059
			C107	-64.4007	9.4013	-1.6236	-3.3440	-1.4613	0.0000
			C108	-49.7835	5.4151	-1.6236	1.1612	-1.4613	-0.0093
			C109	-70.0990	5.0553	-1.6236	0.0622	-1.4613	0.0767
			C110	-51.3505	12.4590	-1.6236	-5.3183	-1.4613	0.1005
			C111	-48.6194	2.7909	-1.6236	0.6411	-1.4613	0.0417
			C112	-29.8709	10.1947	-1.6236	-4.7393	-1.4613	0.0654
			C113	-264.4906	-12.6146	-1.6236	7.2340	-1.4613	-0.0733
			C114	-245.7420	-5.2109	-1.6236	1.8536	-1.4613	-0.0495
			C115	-217.3134	-9.8286	-1.6236	6.0170	-1.4613	-0.0604
			C116	-198.5649	-2.4249	-1.6236	0.6366	-1.4613	-0.0366
			C201	-262.6483	-11.2920	-1.3738	1.3548	-1.2365	0.0272
			C202	-242.9150	-16.6735	-1.3738	7.4368	-1.2365	0.0146
			C203	-200.0186	-6.8759	-1.3738	-0.2042	-1.2365	0.0168

			C204	-180.2854	-12.2574	-1.3738	5.8778	-1.2365	0.0042
			C205	-46.9253	16.3708	-1.3738	-5.6062	-1.2365	0.0157
			C206	-27.1921	10.9893	-1.3738	0.4758	-1.2365	0.0031
			C207	-13.2440	12.6863	-1.3738	-4.9423	-1.2365	-0.0049
			C208	6.4892	7.3048	-1.3738	1.1397	-1.2365	-0.0175
			C209	-20.9367	6.8192	-1.3738	-0.3440	-1.2365	0.0986
			C210	4.3739	16.8142	-1.3738	-7.6076	-1.2365	0.1307
			C211	8.0607	3.7622	-1.3738	0.4375	-1.2365	0.0513
			C212	33.3713	13.7573	-1.3738	-6.8261	-1.2365	0.0834
			C213	-283.3653	-17.0353	-1.3738	9.3379	-1.2365	-0.1039
			C214	-258.0547	-7.0402	-1.3738	2.0744	-1.2365	-0.0718
			C215	-219.6761	-13.2742	-1.3738	7.6950	-1.2365	-0.0864
			C216	-194.3656	-3.2791	-1.3738	0.4314	-1.2365	-0.0543
			C301	-240.1453	-11.2937	-1.1241	1.2241	-1.0116	0.0257
			C302	-220.4121	-16.6752	-1.1241	7.3061	-1.0116	0.0131
			C303	-177.5157	-6.8775	-1.1241	-0.3349	-1.0116	0.0153
			C304	-157.7825	-12.2590	-1.1241	5.7471	-1.0116	0.0027
			C305	-24.4224	16.3691	-1.1241	-5.7369	-1.0116	0.0142
			C306	-4.6892	10.9876	-1.1241	0.3451	-1.0116	0.0015
			C307	9.2589	12.6846	-1.1241	-5.0730	-1.0116	-0.0065
			C308	28.9921	7.3031	-1.1241	1.0090	-1.0116	-0.0191
			C309	1.5662	6.8175	-1.1241	-0.4747	-1.0116	0.0970
			C310	26.8768	16.8125	-1.1241	-7.7383	-1.0116	0.1291
			C311	30.5636	3.7605	-1.1241	0.3068	-1.0116	0.0498
			C312	55.8742	13.7556	-1.1241	-6.9568	-1.0116	0.0819
			C313	-260.8624	-17.0370	-1.1241	9.2073	-1.0116	-0.1054
			C314	-235.5518	-7.0419	-1.1241	1.9437	-1.0116	-0.0733
			C315	-197.1732	-13.2758	-1.1241	7.5643	-1.0116	-0.0879
			C316	-171.8627	-3.2808	-1.1241	0.3007	-1.0116	-0.0559
V302-R302	V302	UD1	C101	-481.2980	-51.5647	6.2904	-38.0495	0.0000	46.3943
			C102	-463.2087	-32.0156	6.2904	-24.0141	0.0000	28.8253
			C103	-381.5302	-40.4889	6.2904	-30.3635	0.0000	36.4116
			C104	-363.4410	-20.9398	6.2904	-16.3281	0.0000	18.8425
			C105	-258.7140	32.1125	6.2904	17.2754	0.0000	-28.8499
			C106	-240.6247	51.6616	6.2904	31.3107	0.0000	-46.4189
			C107	-182.7828	20.9075	6.2904	10.4895	0.0000	-18.8113
			C108	-164.6935	40.4565	6.2904	24.5248	0.0000	-36.3804
			C109	-415.8482	-5.5143	6.2904	-4.3775	0.0000	4.9182
			C110	-434.5967	-12.9181	6.2904	-9.7579	0.0000	11.5578
			C111	-318.4317	-3.0559	6.2904	-3.0493	0.0000	2.7004
			C112	-337.1802	-10.4597	6.2904	-8.4297	0.0000	9.3400
			C113	-267.5762	13.0008	6.2904	3.1207	0.0000	-11.5764
			C114	-286.3247	5.5971	6.2904	-2.2598	0.0000	-4.9368
			C115	-195.8660	10.4179	6.2904	2.6588	0.0000	-9.3049
			C116	-214.6145	3.0141	6.2904	-2.7217	0.0000	-2.6653
			C201	-487.3288	-69.6224	5.3227	-49.7687	0.0000	62.6324
			C202	-462.9083	-43.2312	5.3227	-30.8210	0.0000	38.9142
			C203	-352.6424	-54.6701	5.3227	-39.3927	0.0000	49.1556
			C204	-328.2219	-28.2788	5.3227	-20.4450	0.0000	25.4374
			C205	-186.8404	43.3418	5.3227	24.9198	0.0000	-38.9473
			C206	-162.4199	69.7331	5.3227	43.8675	0.0000	-62.6656
			C207	-84.3333	28.2150	5.3227	15.7589	0.0000	-25.3953
			C208	-59.9128	54.6062	5.3227	34.7066	0.0000	-49.1135
			C209	-398.9716	-7.4544	5.3227	-4.3116	0.0000	6.6396
			C210	-424.2821	-17.4495	5.3227	-11.5752	0.0000	15.6030
			C211	-267.4594	-4.1356	5.3227	-2.5185	0.0000	3.6456
			C212	-292.7699	-14.1306	5.3227	-9.7821	0.0000	12.6090
			C213	-198.8044	17.5410	5.3227	5.8109	0.0000	-15.6282
			C214	-224.1150	7.5460	5.3227	-1.4526	0.0000	-6.6647
			C215	-101.9956	14.0541	5.3227	5.1874	0.0000	-12.5616
			C216	-127.3062	4.0590	5.3227	-2.0762	0.0000	-3.5982
			C301	-437.7339	-69.6255	4.3549	-49.2808	0.0000	62.6324
			C302	-413.3133	-43.2342	4.3549	-30.3330	0.0000	38.9142
			C303	-303.0475	-54.6732	4.3549	-38.9047	0.0000	49.1556
			C304	-278.6269	-28.2819	4.3549	-19.9570	0.0000	25.4374
			C305	-137.2455	43.3387	4.3549	25.4077	0.0000	-38.9473
			C306	-112.8249	69.7300	4.3549	44.3555	0.0000	-62.6656
			C307	-34.7384	28.2119	4.3549	16.2468	0.0000	-25.3953
			C308	-10.3178	54.6032	4.3549	35.1945	0.0000	-49.1135
			C309	-349.3766	-7.4575	4.3549	-3.8236	0.0000	6.6396
			C310	-374.6872	-17.4525	4.3549	-11.0872	0.0000	15.6030
			C311	-217.8644	-4.1386	4.3549	-2.0306	0.0000	3.6456
			C312	-243.1749	-14.1337	4.3549	-9.2942	0.0000	12.6090
			C313	-149.2095	17.5379	4.3549	6.2989	0.0000	-15.6282
			C314	-174.5200	7.5429	4.3549	-0.9647	0.0000	-6.6647
			C315	-52.4007	14.0510	4.3549	5.6753	0.0000	-12.5616
			C316	-77.7112	4.0559	4.3549	-1.5883	0.0000	-3.5982
	R302		C101	-481.2980	-51.5647	6.2904	-38.0495	5.6614	-0.0138
			C102	-463.2087	-32.0156	6.2904	-24.0141	5.6614	0.0113

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			C103	-381.5302	-40.4889	6.2904	-30.3635	5.6614	-0.0284
			C104	-363.4410	-20.9398	6.2904	-16.3281	5.6614	-0.0033
			C105	-258.7140	32.1125	6.2904	17.2754	5.6614	0.0513
			C106	-240.6247	51.6616	6.2904	31.3107	5.6614	0.0764
			C107	-182.7828	20.9075	6.2904	10.4895	5.6614	0.0054
			C108	-164.6935	40.4565	6.2904	24.5248	5.6614	0.0305
			C109	-415.8482	-5.5143	6.2904	-4.3775	5.6614	-0.0447
			C110	-434.5967	-12.9181	6.2904	-9.7579	5.6614	-0.0685
			C111	-318.4317	-3.0559	6.2904	-3.0493	5.6614	-0.0499
			C112	-337.1802	-10.4597	6.2904	-8.4297	5.6614	-0.0736
			C113	-267.5762	13.0008	6.2904	3.1207	5.6614	0.1243
			C114	-286.3247	5.5971	6.2904	-2.2598	5.6614	0.1005
			C115	-195.8660	10.4179	6.2904	2.6588	5.6614	0.0712
			C116	-214.6145	3.0141	6.2904	-2.7217	5.6614	0.0474
			C201	-487.3288	-69.6224	5.3227	-49.7687	4.7904	-0.0277
			C202	-462.9083	-43.2312	5.3227	-30.8210	4.7904	0.0062
			C203	-352.6424	-54.6701	5.3227	-39.3927	4.7904	-0.0474
			C204	-328.2219	-28.2788	5.3227	-20.4450	4.7904	-0.0135
			C205	-186.8404	43.3418	5.3227	24.9198	4.7904	0.0602
			C206	-162.4199	69.7331	5.3227	43.8675	4.7904	0.0941
			C207	-84.3333	28.2150	5.3227	15.7589	4.7904	-0.0018
			C208	-59.9128	54.6062	5.3227	34.7066	4.7904	0.0320
			C209	-398.9716	-7.4544	5.3227	-4.3116	4.7904	-0.0694
			C210	-424.2821	-17.4495	5.3227	-11.5752	4.7904	-0.1015
			C211	-267.4594	-4.1356	5.3227	-2.5185	4.7904	-0.0764
			C212	-292.7699	-14.1306	5.3227	-9.7821	4.7904	-0.1085
			C213	-198.8044	17.5410	5.3227	5.8109	4.7904	0.1587
			C214	-224.1150	7.5460	5.3227	-1.4526	4.7904	0.1266
			C215	-101.9956	14.0541	5.3227	5.1874	4.7904	0.0870
			C216	-127.3062	4.0590	5.3227	-2.0762	4.7904	0.0549
			C301	-437.7339	-69.6255	4.3549	-49.2808	3.9194	-0.0305
			C302	-413.3133	-43.2342	4.3549	-30.3330	3.9194	0.0034
			C303	-303.0475	-54.6732	4.3549	-38.9047	3.9194	-0.0502
			C304	-278.6269	-28.2819	4.3549	-19.9570	3.9194	-0.0163
			C305	-137.2455	43.3387	4.3549	25.4077	3.9194	0.0574
			C306	-112.8249	69.7300	4.3549	44.3555	3.9194	0.0913
			C307	-34.7384	28.2119	4.3549	16.2468	3.9194	-0.0046
			C308	-10.3178	54.6032	4.3549	35.1945	3.9194	0.0293
			C309	-349.3766	-7.4575	4.3549	-3.8236	3.9194	-0.0722
			C310	-374.6872	-17.4525	4.3549	-11.0872	3.9194	-0.1043
			C311	-217.8644	-4.1386	4.3549	-2.0306	3.9194	-0.0792
			C312	-243.1749	-14.1337	4.3549	-9.2942	3.9194	-0.1113
			C313	-149.2095	17.5379	4.3549	6.2989	3.9194	0.1559
			C314	-174.5200	7.5429	4.3549	-0.9647	3.9194	0.1238
			C315	-52.4007	14.0510	4.3549	5.6753	3.9194	0.0843
			C316	-77.7112	4.0559	4.3549	-1.5883	3.9194	0.0522
V400-R400	V400	UD1	C101	-840.8764	-58.3620	0.8262	38.6901	0.0000	52.6744
			C102	-760.9737	-41.9234	0.8262	18.0269	0.0000	37.8353
			C103	-665.9302	-43.6875	0.8262	31.4937	0.0000	39.4485
			C104	-586.0275	-27.2490	0.8262	10.8304	0.0000	24.6094
			C105	-146.4112	40.4858	0.8262	-17.1378	0.0000	-36.5833
			C106	-66.5085	56.9244	0.8262	-37.8010	0.0000	-51.4225
			C107	-87.0071	29.0026	0.8262	-10.0407	0.0000	-26.2077
			C108	-7.1044	45.4411	0.8262	-30.7039	0.0000	-41.0469
			C109	-414.1184	-0.6825	0.8262	5.5007	0.0000	0.5893
			C110	-414.1184	-0.6825	0.8262	18.2862	0.0000	0.5893
			C111	-301.3247	0.8489	0.8262	2.4722	0.0000	-0.7785
			C112	-301.3247	0.8489	0.8262	15.2577	0.0000	-0.7785
			C113	-466.9085	-0.3963	0.8262	-17.4089	0.0000	0.3421
			C114	-466.9085	-0.3963	0.8262	-4.6234	0.0000	0.3421
			C115	-354.1279	1.1437	0.8262	-14.4761	0.0000	-1.0335
			C116	-354.1279	1.1438	0.8262	-1.6906	0.0000	-1.0335
			C201	-932.5287	-78.7796	0.6991	52.0187	0.0000	71.1105
			C202	-824.6600	-56.5876	0.6991	24.1233	0.0000	51.0777
			C203	-696.3513	-58.9691	0.6991	42.3035	0.0000	53.2555
			C204	-588.4826	-36.7771	0.6991	14.4081	0.0000	33.2227
			C205	4.9994	54.6649	0.6991	-23.3490	0.0000	-49.3875
			C206	112.8680	76.8569	0.6991	-51.2444	0.0000	-69.4203
			C207	85.1949	39.1625	0.6991	-13.7679	0.0000	-35.3804
			C208	193.0635	61.3545	0.6991	-41.6632	0.0000	-55.4133
			C209	-356.4055	-0.9123	0.6991	7.2130	0.0000	0.7956
			C210	-356.4055	-0.9123	0.6991	24.4734	0.0000	0.7956
			C211	-204.1339	1.1551	0.6991	3.1246	0.0000	-1.0509
			C212	-204.1340	1.1551	0.6991	20.3849	0.0000	-1.0509
			C213	-427.6720	-0.5260	0.6991	-23.7150	0.0000	0.4619
			C214	-427.6720	-0.5260	0.6991	-6.4546	0.0000	0.4619
			C215	-275.4182	1.5531	0.6991	-19.7557	0.0000	-1.3952
			C216	-275.4182	1.5531	0.6991	-2.4953	0.0000	-1.3952
			C301	-870.6495	-78.7769	0.5720	51.9537	0.0000	71.1105

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			C302	-762.7808	-56.5848	0.5720	24.0583	0.0000	51.0777
			C303	-634.4720	-58.9664	0.5720	42.2385	0.0000	53.2555
			C304	-526.6034	-36.7743	0.5720	14.3431	0.0000	33.2227
			C305	66.8786	54.6677	0.5720	-23.4140	0.0000	-49.3875
			C306	174.7473	76.8597	0.5720	-51.3094	0.0000	-69.4203
			C307	147.0741	39.1653	0.5720	-13.8329	0.0000	-35.3804
			C308	254.9428	61.3573	0.5720	-41.7283	0.0000	-55.4133
			C309	-294.5262	-0.9095	0.5720	7.1480	0.0000	0.7956
			C310	-294.5262	-0.9095	0.5720	24.4084	0.0000	0.7956
			C311	-142.2547	1.1578	0.5720	3.0595	0.0000	-1.0509
			C312	-142.2547	1.1578	0.5720	20.3199	0.0000	-1.0509
			C313	-365.7928	-0.5232	0.5720	-23.7800	0.0000	0.4619
			C314	-365.7928	-0.5232	0.5720	-6.5196	0.0000	0.4619
			C315	-213.5390	1.5559	0.5720	-19.8207	0.0000	-1.3952
			C316	-213.5390	1.5559	0.5720	-2.5603	0.0000	-1.3952
	R400		C101	-840.8764	-58.3620	0.8262	38.6901	0.7436	0.1488
			C102	-760.9737	-41.9234	0.8262	18.0269	0.7436	0.1043
			C103	-665.9302	-43.6875	0.8262	31.4937	0.7436	0.1298
			C104	-586.0275	-27.2490	0.8262	10.8304	0.7436	0.0853
			C105	-146.4112	40.4858	0.8262	-17.1378	0.7436	-0.1462
			C106	-66.5085	56.9244	0.8262	-37.8010	0.7436	-0.1906
			C107	-87.0071	29.0026	0.8262	-10.0407	0.7436	-0.1055
			C108	-7.1044	45.4411	0.8262	-30.7039	0.7436	-0.1499
			C109	-414.1184	-0.6825	0.8262	5.5007	0.7436	-0.0249
			C110	-414.1184	-0.6825	0.8262	18.2862	0.7436	-0.0249
			C111	-301.3247	0.8489	0.8262	2.4722	0.7436	-0.0144
			C112	-301.3247	0.8489	0.8262	15.2577	0.7436	-0.0144
			C113	-466.9085	-0.3963	0.8262	-17.4089	0.7436	-0.0145
			C114	-466.9085	-0.3963	0.8262	-4.6234	0.7436	-0.0145
			C115	-354.1279	1.1437	0.8262	-14.4761	0.7436	-0.0041
			C116	-354.1279	1.1438	0.8262	-1.6906	0.7436	-0.0041
			C201	-932.5287	-78.7796	0.6991	52.0187	0.6292	0.2090
			C202	-824.6600	-56.5876	0.6991	24.1233	0.6292	0.1489
			C203	-696.3513	-58.9691	0.6991	42.3035	0.6292	0.1834
			C204	-588.4826	-36.7771	0.6991	14.4081	0.6292	0.1233
			C205	4.9994	54.6649	0.6991	-23.3490	0.6292	-0.1892
			C206	112.8680	76.8569	0.6991	-51.2444	0.6292	-0.2492
			C207	85.1949	39.1625	0.6991	-13.7679	0.6292	-0.1343
			C208	193.0635	61.3545	0.6991	-41.6632	0.6292	-0.1943
			C209	-356.4055	-0.9123	0.6991	7.2130	0.6292	-0.0254
			C210	-356.4055	-0.9123	0.6991	24.4734	0.6292	-0.0254
			C211	-204.1339	1.1551	0.6991	3.1246	0.6292	-0.0114
			C212	-204.1340	1.1551	0.6991	20.3849	0.6292	-0.0114
			C213	-427.6720	-0.5260	0.6991	-23.7150	0.6292	-0.0115
			C214	-427.6720	-0.5260	0.6991	-6.4546	0.6292	-0.0115
			C215	-275.4182	1.5531	0.6991	-19.7557	0.6292	0.0026
			C216	-275.4182	1.5531	0.6991	-2.4953	0.6292	0.0026
			C301	-870.6495	-78.7769	0.5720	51.9537	0.5148	0.2115
			C302	-762.7808	-56.5848	0.5720	24.0583	0.5148	0.1514
			C303	-634.4720	-58.9664	0.5720	42.2385	0.5148	0.1859
			C304	-526.6034	-36.7743	0.5720	14.3431	0.5148	0.1258
			C305	66.8786	54.6677	0.5720	-23.4140	0.5148	-0.1867
			C306	174.7473	76.8597	0.5720	-51.3094	0.5148	-0.2467
			C307	147.0741	39.1653	0.5720	-13.8329	0.5148	-0.1318
			C308	254.9428	61.3573	0.5720	-41.7283	0.5148	-0.1918
			C309	-294.5262	-0.9095	0.5720	7.1480	0.5148	-0.0230
			C310	-294.5262	-0.9095	0.5720	24.4084	0.5148	-0.0230
			C311	-142.2547	1.1578	0.5720	3.0595	0.5148	-0.0089
			C312	-142.2547	1.1578	0.5720	20.3199	0.5148	-0.0089
			C313	-365.7928	-0.5232	0.5720	-23.7800	0.5148	-0.0090
			C314	-365.7928	-0.5232	0.5720	-6.5196	0.5148	-0.0090
			C315	-213.5390	1.5559	0.5720	-19.8207	0.5148	0.0051
			C316	-213.5390	1.5559	0.5720	-2.5603	0.5148	0.0051
V401-R401	V401	UD1	C101	-117.8907	-7.6146	1.6236	0.1176	0.0000	6.8685
			C102	-117.2429	-10.6818	1.6236	6.1299	0.0000	9.6217
			C103	-100.8880	-4.4902	1.6236	-0.9193	0.0000	4.0443
			C104	-100.2402	-7.5574	1.6236	5.0929	0.0000	6.7974
			C105	-70.6526	10.1008	1.6236	-4.4141	0.0000	-9.1063
			C106	-70.0048	7.0336	1.6236	1.5982	0.0000	-6.3531
			C107	-52.8805	8.2495	1.6236	-3.7586	0.0000	-7.4556
			C108	-52.2327	5.1822	1.6236	2.2537	0.0000	-4.7025
			C109	-54.8206	-1.3646	1.6236	-1.9064	0.0000	1.3191
			C110	-46.2023	4.2478	1.6236	-9.3209	0.0000	-3.7046
			C111	-42.3265	-1.1696	1.6236	-0.2556	0.0000	1.0961
			C112	-33.7083	4.4428	1.6236	-7.6700	0.0000	-3.9276
			C113	-137.7760	-4.6859	1.6236	10.9641	0.0000	4.0883
			C114	-129.1577	0.9265	1.6236	3.5496	0.0000	-0.9354
			C115	-116.8028	-3.6557	1.6236	8.9629	0.0000	3.1819
			C116	-108.1846	1.9567	1.6236	1.5485	0.0000	-1.8418

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	C201	-115.6657	-10.2742	1.3738	-0.2313	0.0000	9.2725
	C202	-114.7913	-14.4150	1.3738	7.8853	0.0000	12.9892
	C203	-92.7121	-6.0562	1.3738	-1.6312	0.0000	5.4598
	C204	-91.8376	-10.1969	1.3738	6.4854	0.0000	9.1765
	C205	-51.8943	13.6416	1.3738	-6.3491	0.0000	-12.2934
	C206	-51.0198	9.5009	1.3738	1.7675	0.0000	-8.5767
	C207	-27.9021	11.1423	1.3738	-5.4642	0.0000	-10.0650
	C208	-27.0276	7.0015	1.3738	2.6524	0.0000	-6.3483
	C209	-30.5211	-1.8368	1.3738	-2.9637	0.0000	1.7808
	C210	-18.8865	5.7400	1.3738	-12.9732	0.0000	-5.0012
	C211	-13.6542	-1.5735	1.3738	-0.7351	0.0000	1.4797
	C212	-2.0196	6.0033	1.3738	-10.7446	0.0000	-5.3023
	C213	-142.5109	-6.3205	1.3738	14.4114	0.0000	5.5191
	C214	-130.8763	1.2563	1.3738	4.4019	0.0000	-1.2628
	C215	-114.1971	-4.9297	1.3738	11.7099	0.0000	4.2955
	C216	-102.5625	2.6471	1.3738	1.7004	0.0000	-2.4865
	C301	-102.3874	-10.2725	1.1241	-0.3504	0.0000	9.2725
	C302	-101.5129	-14.4133	1.1241	7.7661	0.0000	12.9892
	C303	-79.4338	-6.0545	1.1241	-1.7503	0.0000	5.4598
	C304	-78.5593	-10.1953	1.1241	6.3663	0.0000	9.1765
	C305	-38.6160	13.6433	1.1241	-6.4682	0.0000	-12.2934
	C306	-37.7415	9.5026	1.1241	1.6484	0.0000	-8.5767
	C307	-14.6237	11.1440	1.1241	-5.5833	0.0000	-10.0650
	C308	-13.7492	7.0032	1.1241	2.5333	0.0000	-6.3483
	C309	-17.2428	-1.8351	1.1241	-3.0828	0.0000	1.7808
	C310	-5.6081	5.7417	1.1241	-13.0923	0.0000	-5.0012
	C311	-0.3758	-1.5718	1.1241	-0.8542	0.0000	1.4797
	C312	11.2588	6.0050	1.1241	-10.8637	0.0000	-5.3023
	C313	-129.2326	-6.3188	1.1241	14.2923	0.0000	5.5191
	C314	-117.5979	1.2580	1.1241	4.2828	0.0000	-1.2628
	C315	-100.9188	-4.9280	1.1241	11.5908	0.0000	4.2955
	C316	-89.2842	2.6488	1.1241	1.5813	0.0000	-2.4865
R401	C101	-117.8907	-7.6146	1.6236	0.1176	1.4613	0.0154
	C102	-117.2429	-10.6818	1.6236	6.1299	1.4613	0.0080
	C103	-100.8880	-4.4902	1.6236	-0.9193	1.4613	0.0032
	C104	-100.2402	-7.5574	1.6236	5.0929	1.4613	-0.0042
	C105	-70.6526	10.1008	1.6236	-4.4141	1.4613	-0.0155
	C106	-70.0048	7.0336	1.6236	1.5982	1.4613	-0.0229
	C107	-52.8805	8.2495	1.6236	-3.7586	1.4613	-0.0311
	C108	-52.2327	5.1822	1.6236	2.2537	1.4613	-0.0384
	C109	-54.8206	-1.3646	1.6236	-1.9064	1.4613	0.0910
	C110	-46.2023	4.2478	1.6236	-9.3209	1.4613	0.1184
	C111	-42.3265	-1.1696	1.6236	-0.2556	1.4613	0.0434
	C112	-33.7083	4.4428	1.6236	-7.6700	1.4613	0.0709
	C113	-137.7760	-4.6859	1.6236	10.9641	1.4613	-0.1291
	C114	-129.1577	0.9265	1.6236	3.5496	1.4613	-0.1016
	C115	-116.8028	-3.6557	1.6236	8.9629	1.4613	-0.1082
	C116	-108.1846	1.9567	1.6236	1.5485	1.4613	-0.0808
	C201	-115.6657	-10.2742	1.3738	-0.2313	1.2365	0.0258
	C202	-114.7913	-14.4150	1.3738	7.8853	1.2365	0.0158
	C203	-92.7121	-6.0562	1.3738	-1.6312	1.2365	0.0093
	C204	-91.8376	-10.1969	1.3738	6.4854	1.2365	-0.0007
	C205	-51.8943	13.6416	1.3738	-6.3491	1.2365	-0.0160
	C206	-51.0198	9.5009	1.3738	1.7675	1.2365	-0.0259
	C207	-27.9021	11.1423	1.3738	-5.4642	1.2365	-0.0370
	C208	-27.0276	7.0015	1.3738	2.6524	1.2365	-0.0469
	C209	-30.5211	-1.8368	1.3738	-2.9637	1.2365	0.1278
	C210	-18.8865	5.7400	1.3738	-12.9732	1.2365	0.1648
	C211	-13.6542	-1.5735	1.3738	-0.7351	1.2365	0.0636
	C212	-2.0196	6.0033	1.3738	-10.7446	1.2365	0.1007
	C213	-142.5109	-6.3205	1.3738	14.4114	1.2365	-0.1693
	C214	-130.8763	1.2563	1.3738	4.4019	1.2365	-0.1322
	C215	-114.1971	-4.9297	1.3738	11.7099	1.2365	-0.1412
	C216	-102.5625	2.6471	1.3738	1.7004	1.2365	-0.1041
	C301	-102.3874	-10.2725	1.1241	-0.3504	1.0116	0.0273
	C302	-101.5129	-14.4133	1.1241	7.7661	1.0116	0.0173
	C303	-79.4338	-6.0545	1.1241	-1.7503	1.0116	0.0108
	C304	-78.5593	-10.1953	1.1241	6.3663	1.0116	0.0008
	C305	-38.6160	13.6433	1.1241	-6.4682	1.0116	-0.0145
	C306	-37.7415	9.5026	1.1241	1.6484	1.0116	-0.0244
	C307	-14.6237	11.1440	1.1241	-5.5833	1.0116	-0.0355
	C308	-13.7492	7.0032	1.1241	2.5333	1.0116	-0.0454
	C309	-17.2428	-1.8351	1.1241	-3.0828	1.0116	0.1293
	C310	-5.6081	5.7417	1.1241	-13.0923	1.0116	0.1664
	C311	-0.3758	-1.5718	1.1241	-0.8542	1.0116	0.0651
	C312	11.2588	6.0050	1.1241	-10.8637	1.0116	0.1022
	C313	-129.2326	-6.3188	1.1241	14.2923	1.0116	-0.1677
	C314	-117.5979	1.2580	1.1241	4.2828	1.0116	-0.1307
	C315	-100.9188	-4.9280	1.1241	11.5908	1.0116	-0.1396
	C316	-89.2842	2.6488	1.1241	1.5813	1.0116	-0.1026

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V402-R402	V402	UD1	C101	-232.4741	-49.5979	-6.2904	-47.0041	0.0000	44.6317
			C102	-228.2112	-30.1952	-6.2904	-28.9235	0.0000	27.1819
			C103	-188.5863	-38.2691	-6.2904	-37.6575	0.0000	34.4060
			C104	-184.3234	-18.8664	-6.2904	-19.5769	0.0000	16.9562
			C105	-149.2294	29.2160	-6.2904	22.5391	0.0000	-26.3029
			C106	-144.9665	48.6187	-6.2904	40.6198	0.0000	-43.7527
			C107	-107.0699	20.0251	-6.2904	13.5270	0.0000	-18.0781
			C108	-102.8070	39.4278	-6.2904	31.6077	0.0000	-35.5279
			C109	-207.3452	0.7037	-6.2904	-6.2220	0.0000	-0.7466
			C110	-215.9634	-4.9087	-6.2904	-13.6364	0.0000	4.2771
			C111	-161.6819	2.1465	-6.2904	-4.2454	0.0000	-2.0479
			C112	-170.3001	-3.4660	-6.2904	-11.6597	0.0000	2.9758
			C113	-151.8050	4.1702	-6.2904	7.2756	0.0000	-3.6233
			C114	-160.4232	-1.4422	-6.2904	-0.1388	0.0000	1.4003
			C115	-114.6384	4.7853	-6.2904	5.6317	0.0000	-4.2480
			C116	-123.2566	-0.8271	-6.2904	-1.7827	0.0000	0.7757
			C201	-228.2775	-66.9471	-5.3227	-61.8842	0.0000	60.2528
			C202	-222.5225	-40.7534	-5.3227	-37.4753	0.0000	36.6955
			C203	-169.0290	-51.6532	-5.3227	-49.2663	0.0000	46.4481
			C204	-163.2740	-25.4596	-5.3227	-24.8575	0.0000	22.8908
			C205	-115.8972	39.4517	-5.3227	31.9992	0.0000	-35.5089
			C206	-110.1422	65.6453	-5.3227	56.4080	0.0000	-59.0662
			C207	-58.9818	27.0440	-5.3227	19.8328	0.0000	-24.4054
			C208	-53.2268	53.2376	-5.3227	44.2417	0.0000	-47.9627
			C209	-194.3534	0.9601	-5.3227	-6.8284	0.0000	-1.0079
			C210	-205.9881	-6.6167	-5.3227	-16.8378	0.0000	5.7741
			C211	-132.7080	2.9078	-5.3227	-4.1599	0.0000	-2.7646
			C212	-144.3426	-4.6690	-5.3227	-14.1693	0.0000	4.0174
			C213	-119.3742	5.6398	-5.3227	11.3934	0.0000	-4.8915
			C214	-131.0088	-1.9369	-5.3227	1.3840	0.0000	1.8905
			C215	-69.1993	6.4702	-5.3227	9.1742	0.0000	-5.7349
			C216	-80.8339	-1.1065	-5.3227	-0.8353	0.0000	1.0471
			C301	-202.1515	-66.9440	-4.3549	-61.4044	0.0000	60.2528
			C302	-196.3965	-40.7503	-4.3549	-36.9955	0.0000	36.6955
			C303	-142.9030	-51.6501	-4.3549	-48.7865	0.0000	46.4481
			C304	-137.1481	-25.4565	-4.3549	-24.3776	0.0000	22.8908
			C305	-89.7712	39.4547	-4.3549	32.4790	0.0000	-35.5089
			C306	-84.0162	65.6484	-4.3549	56.8878	0.0000	-59.0662
			C307	-32.8559	27.0471	-4.3549	20.3126	0.0000	-24.4054
			C308	-27.1009	53.2407	-4.3549	44.7215	0.0000	-47.9627
			C309	-168.2275	0.9632	-4.3549	-6.3486	0.0000	-1.0079
			C310	-179.8621	-6.6136	-4.3549	-16.3580	0.0000	5.7741
			C311	-106.5820	2.9109	-4.3549	-3.6801	0.0000	-2.7646
			C312	-118.2166	-4.6659	-4.3549	-13.6895	0.0000	4.0174
			C313	-93.2482	5.6429	-4.3549	11.8732	0.0000	-4.8915
			C314	-104.8828	-1.9339	-4.3549	1.8638	0.0000	1.8905
			C315	-43.0733	6.4733	-4.3549	9.6540	0.0000	-5.7349
			C316	-54.7079	-1.1035	-4.3549	-0.3555	0.0000	1.0471
	R402		C101	-232.4741	-49.5979	-6.2904	-47.0041	-5.6614	-0.0063
			C102	-228.2112	-30.1952	-6.2904	-28.9235	-5.6614	0.0062
			C103	-188.5863	-38.2691	-6.2904	-37.6575	-5.6614	-0.0361
			C104	-184.3234	-18.8664	-6.2904	-19.5769	-5.6614	-0.0236
			C105	-149.2294	29.2160	-6.2904	22.5391	-5.6614	-0.0086
			C106	-144.9665	48.6187	-6.2904	40.6198	-5.6614	0.0040
			C107	-107.0699	20.0251	-6.2904	13.5270	-5.6614	-0.0555
			C108	-102.8070	39.4278	-6.2904	31.6077	-5.6614	-0.0429
			C109	-207.3452	0.7037	-6.2904	-6.2220	-5.6614	-0.1133
			C110	-215.9634	-4.9087	-6.2904	-13.6364	-5.6614	-0.1407
			C111	-161.6819	2.1465	-6.2904	-4.2454	-5.6614	-0.1161
			C112	-170.3001	-3.4660	-6.2904	-11.6597	-5.6614	-0.1435
			C113	-151.8050	4.1702	-6.2904	7.2756	-5.6614	0.1298
			C114	-160.4232	-1.4422	-6.2904	-0.1388	-5.6614	0.1023
			C115	-114.6384	4.7853	-6.2904	5.6317	-5.6614	0.0587
			C116	-123.2566	-0.8271	-6.2904	-1.7827	-5.6614	0.0312
			C201	-228.2775	-66.9471	-5.3227	-61.8842	-4.7904	0.0006
			C202	-222.5225	-40.7534	-5.3227	-37.4753	-4.7904	0.0175
			C203	-169.0290	-51.6532	-5.3227	-49.2663	-4.7904	-0.0397
			C204	-163.2740	-25.4596	-5.3227	-24.8575	-4.7904	-0.0228
			C205	-115.8972	39.4517	-5.3227	31.9992	-4.7904	-0.0025
			C206	-110.1422	65.6453	-5.3227	56.4080	-4.7904	0.0145
			C207	-58.9818	27.0440	-5.3227	19.8328	-4.7904	-0.0658
			C208	-53.2268	53.2376	-5.3227	44.2417	-4.7904	-0.0489
			C209	-194.3534	0.9601	-5.3227	-6.8284	-4.7904	-0.1438
			C210	-205.9881	-6.6167	-5.3227	-16.8378	-4.7904	-0.1809
			C211	-132.7080	2.9078	-5.3227	-4.1599	-4.7904	-0.1476
			C212	-144.3426	-4.6690	-5.3227	-14.1693	-4.7904	-0.1847
			C213	-119.3742	5.6398	-5.3227	11.3934	-4.7904	0.1843
			C214	-131.0088	-1.9369	-5.3227	1.3840	-4.7904	0.1472
			C215	-69.1993	6.4702	-5.3227	9.1742	-4.7904	0.0883

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C216	-80.8339	-1.1065	-5.3227	-0.8353	-4.7904	0.0512
C301	-202.1515	-66.9440	-4.3549	-61.4044	-3.9194	0.0033
C302	-196.3965	-40.7503	-4.3549	-36.9955	-3.9194	0.0203
C303	-142.9030	-51.6501	-4.3549	-48.7865	-3.9194	-0.0369
C304	-137.1481	-25.4565	-4.3549	-24.3776	-3.9194	-0.0200
C305	-89.7712	39.4547	-4.3549	32.4790	-3.9194	0.0003
C306	-84.0162	65.6484	-4.3549	56.8878	-3.9194	0.0172
C307	-32.8559	27.0471	-4.3549	20.3126	-3.9194	-0.0631
C308	-27.1009	53.2407	-4.3549	44.7215	-3.9194	-0.0461
C309	-168.2275	0.9632	-4.3549	-6.3486	-3.9194	-0.1411
C310	-179.8621	-6.6136	-4.3549	-16.3580	-3.9194	-0.1782
C311	-106.5820	2.9109	-4.3549	-3.6801	-3.9194	-0.1448
C312	-118.2166	-4.6659	-4.3549	-13.6895	-3.9194	-0.1819
C313	-93.2482	5.6429	-4.3549	11.8732	-3.9194	0.1871
C314	-104.8828	-1.9339	-4.3549	1.8638	-3.9194	0.1500
C315	-43.0733	6.4733	-4.3549	9.6540	-3.9194	0.0911
C316	-54.7079	-1.1035	-4.3549	-0.3555	-3.9194	0.0540

11.2 GLOBAL STRUCTURAL CHECKS

The results of the performed analysis in terms of structural elements' Unity Check (UC) are detailed in the following. Structural checks of TP structural elements are not covered by present document and detailed in a separate dedicated report, ref./33/.

All members were checked according to ISO 19902 and Eurocode 3, Ref./6/and /8/, respectively for tubular and non-tubular elements. Members' code checks are reported in the following and show that the structure can withstand Transportation load combinations, with utilization factors below 1.0.

The maximum UC value is equal to 0.37 on member SFC2-R1L5 for load combination C213. Maximum member UC are reported in following SACS excerpt and figures.

Maximum UCs per member's group are reported in following SACS excerpt.

* * * M E M B E R G R O U P S U M M A R Y * * *
ISO 19902:2020 / EC3:2005
(EN 1993-1-1:2005/NA NONE)

GRUP ID	CRITICAL MEMBER	LOAD COND	MAX. UNITY CHECK	DIST FROM END M	* APPLIED STRESSES * AXIAL N/MM2	BEND-Y N/MM2	BEND-Z N/MM2	*** ALLOWABLE STRESSES *** AXIAL N/MM2	EULER N/MM2	BEND-Y N/MM2	BEND-Z N/MM2	CRIT COND	EFFECTIVE LENGTHS KLY M	KLZ M	CM * VALUES * Y	Z
HE8	V400-V012	C201	0.17	0.6	-9.0	-10.1	-15.8	322.7	2255.4	357.7	500.7	SHEAR	2.00	2.00	0.42	0.66
SF1	SFC2-R1L5	C213	0.37	4.4	-92.1	-14.0	0.0	267.8	898.2	450.8	450.8	ACBI	4.37	4.37	0.85	0.85
UG1	R4L6-R400	C201	0.31	0.0	-10.6	53.5	67.8	313.6	312.0	368.4	504.7	BN+AX	4.70	5.00	0.40	0.40
UG3	R205-R305	C213	0.19	1.5	-53.4	1.7	-0.8	291.9	3308.7	446.0	446.0	ACBI	3.00	3.00	0.85	0.85

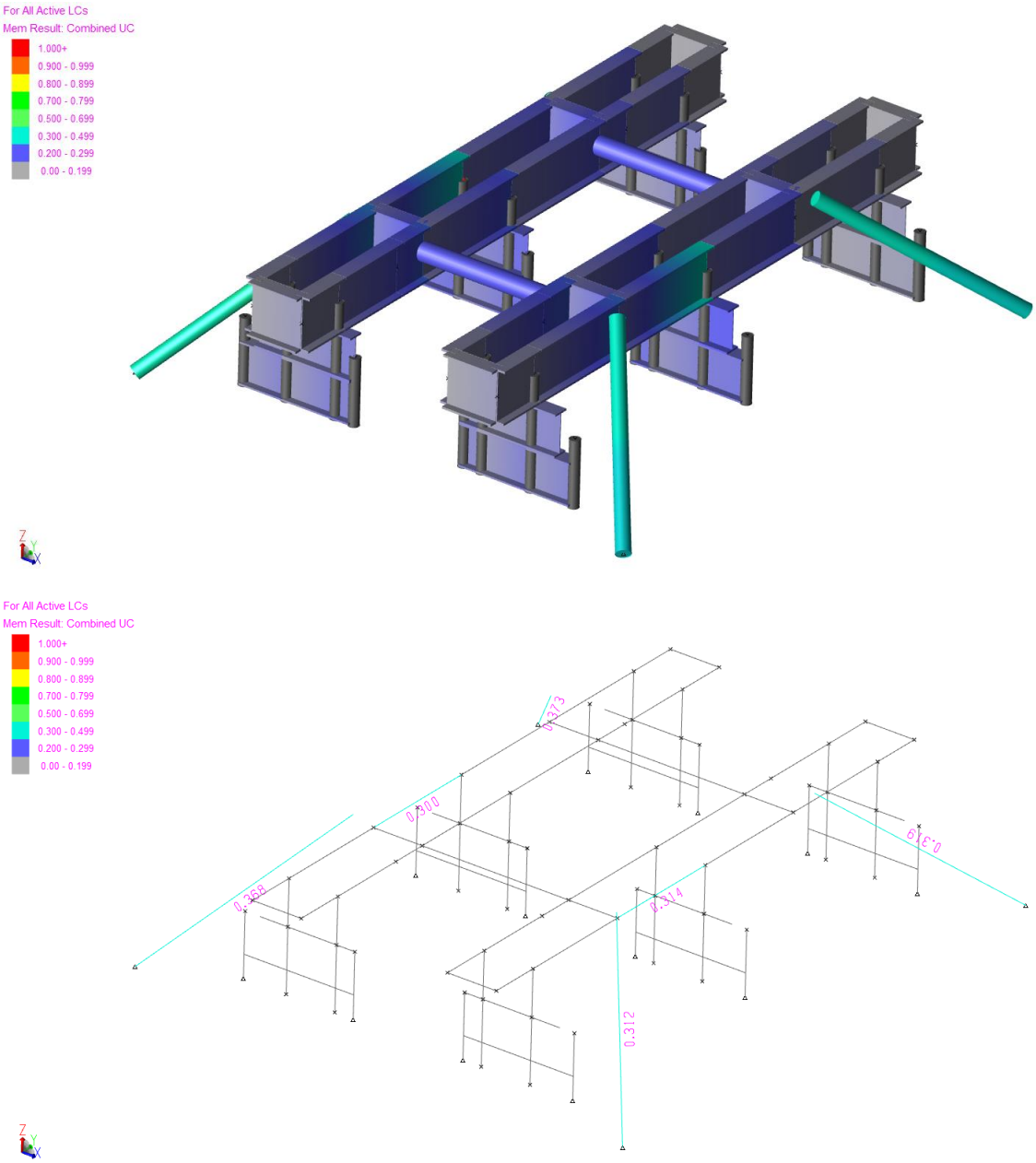


Figure 11.1 -TP Grillage & SF – Member UC

11.3 LOCAL CHECKS

Starting from the maximum loads resulting from the transportation analysis, ref./33/, and summarized in the previous section, the local checks of Grillage and Sea Fastenings are performed in the following sections, according to ISO 19902 and Eurocode 3, Ref./6/and /8/.

11.3.1 Upper Grillage

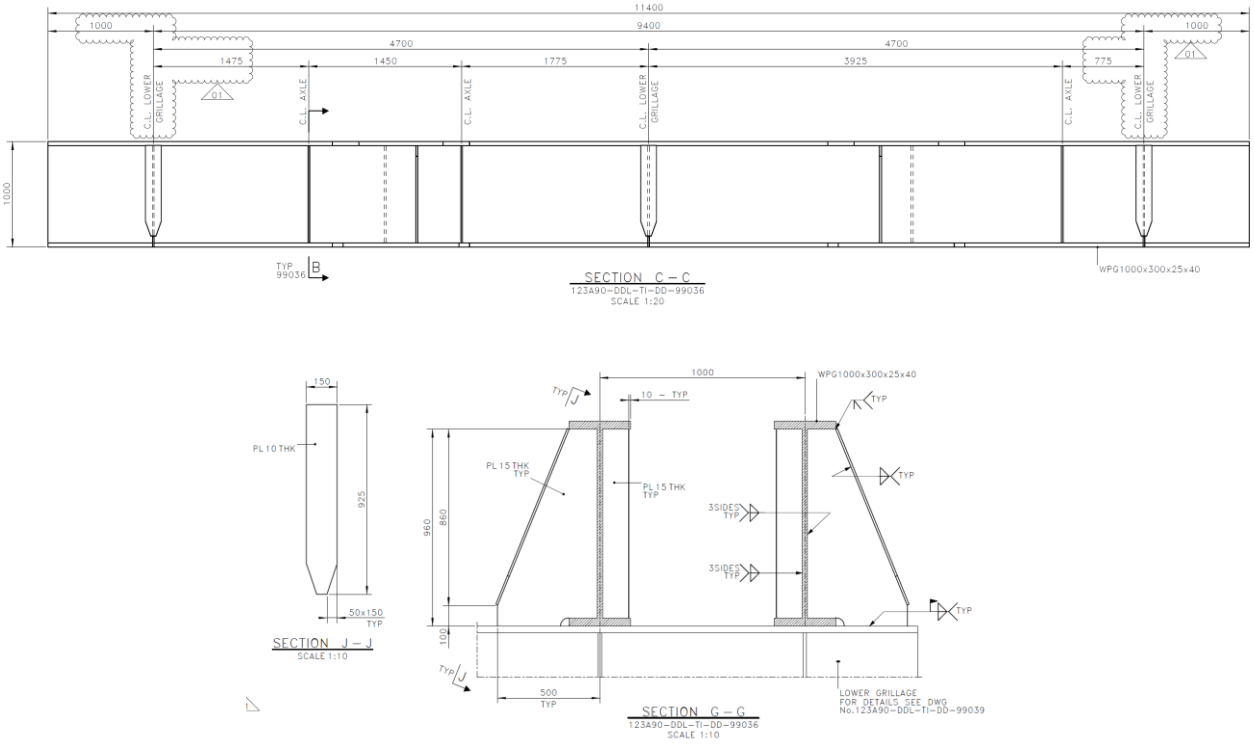
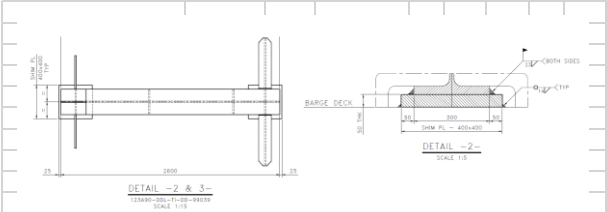


Figure 11.2 -TP – Upper grillage interface with lower grillage

UPPER GRILLAGE								
Fz	933	kN						
WING PLATE								
Rz	933	kN						
1.1 - UPPER GRILLAGE SUPPORT BEARING CHECK								
Fy	345	MPa	Yield strength					
L	300	mm	Bearing plate lenght (web direction)					
tw	25	mm	Web thickness					
B	300	mm	Bearing plate width					
ts	15	mm	Support beam web thickness					
Ap = L x tw + B x ts =	12000	mm^2	Bearing area					
F = Fz =	933	kN	Vertical force					
fp = F / Ap =	78	MPa	< 1.35 x Fy =	466	MPa	(UC =	0.17	)
1.2 - UPPER GRILLAGE SUPPORT BUCKLING CHECK								
Fy	345	MPa	Yield strength					
tw	25	mm	Web thickness					
L	400	mm	Web effective lenght					
ts	15	mm	Support beam web thickness					
B = 25 x ts =	375	mm	Bearing plate width					
A = L x tw + B x ts =	15625	mm^2	Bearing area					
N = Fz =	933	kN	Compressive force					
λl =	77		Proportionality slenderness					
k	0.75		Effective length factor					
l	1000	mm	Member length					
r	65.2	mm	Minimum section radius					
k x l / r =	12		Slenderness ratio					
λ =	0.15		Relative slenderness					
α =	0.49		Stability curve					
Φ =	0.50							
χ =	1.00							
γm1 =	1.10							
Fa = χ*fy/γm1 =	314	MPa	Allowable compressive strength					
fa = N / A =	60	MPa	< Fa =	314	MPa	(UC =	0.19	)
Cc	110							
Fa =	201	MPa	Allowable compressive strength					
fa = N / A =	60	MPa	< Fa =	201	MPa	(UC =	0.30	)

3.1 - WING PLATE CHECK UPPER GRILLAGE								
Fy	345	MPa	Plate yield strength					
H	960	mm	Section depth					
tf	10	mm	Flange thickness					
B	150	mm	Flange width					
tw	15	mm	Web thickness					
W	2.660E+06	mm^3	Section modulus					
Av	14400	mm^2	Shear area					
F = Rz =	933	kN	Vertical force					
L	307	mm	Wing plates total width					
p = R / L =	3039	kN/m	Distributed load acting on wing plate					
Lw	346	mm	Critical section coordinate					
M = p x L x Lw =	323	kNm	Bending moment					
V = Rz =	933	kN	Shear force					
γm0 =	1.10							
fb = M / W =	121	MPa	< Fy/γm0 =	314	MPa	(UC =	0.39	)
fv = V / Av =	65	MPa	< Fy/√3 γm0=	181	MPa	(UC =	0.36	)
Weld								
A = 2x0.7x10xL =	6447	mm^2	Weld area					
V =	80	kN						
γm2 =	1.25							
σ = N/A =	145	MPa	< Fy/γm2 =	276	MPa	(UC =	0.52	)
τ = V/A =	12.4	MPa	< Fy/√3 γm2=	159	MPa	(UC =	0.08	)
Fa = Fy/ γm2 =	276	MPa	Allowable stress					
$\sigma_{VM} = (\sigma^2 + 3\tau^2)^{0.5}$ =	146	MPa	< Fa =	276	MPa	(UC =	0.53	)



GRILLAGE BASE WELD			
Fy	235	MPa	Plate yield strength
A = 2x0.7x14x400 =	7840	mm^2	Weld area
V =	275	kN	
γm2 =	1.25		
τ = V/A =	35.1	MPa	< Fy/√3 γm2= 109 MPa (UC = 0.32)

11.3.2 Lower Grillage

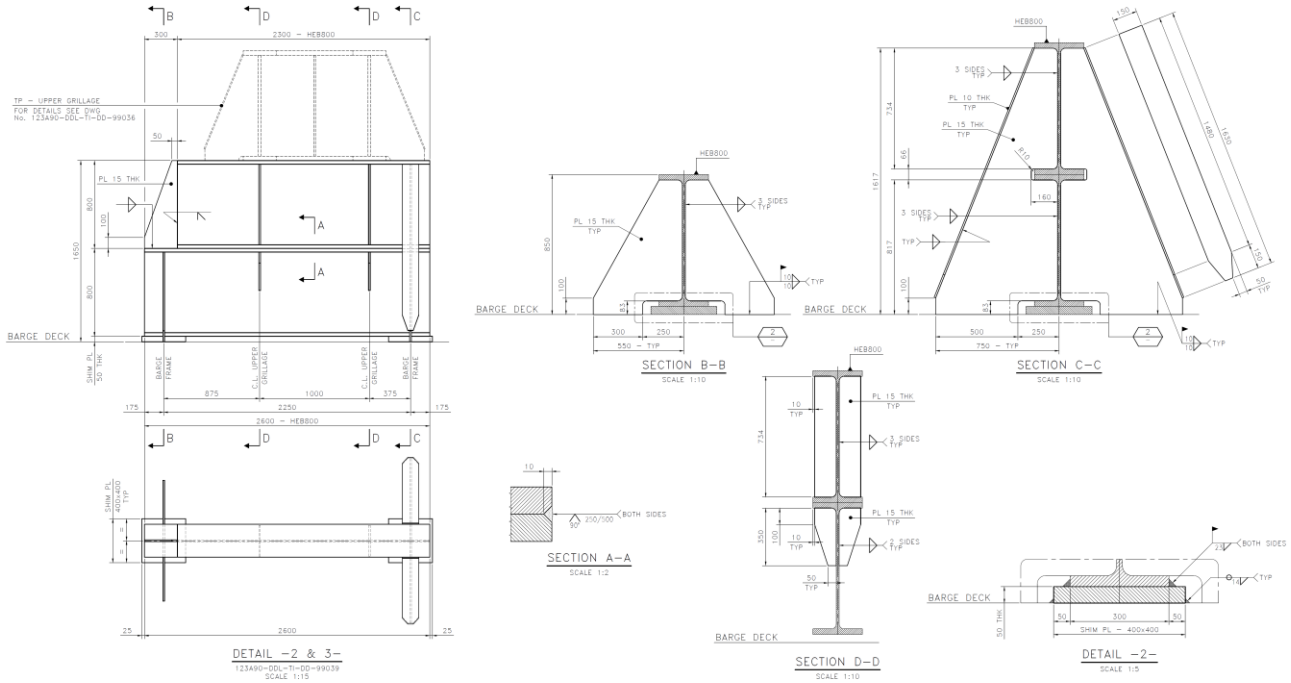
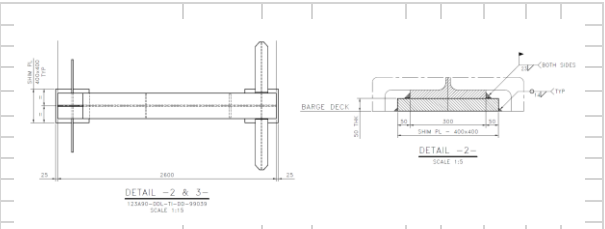


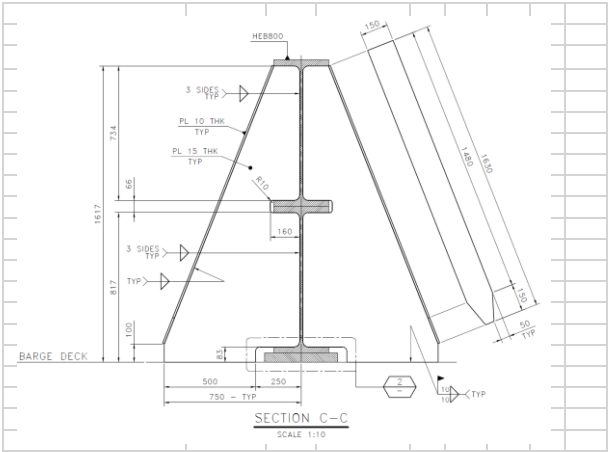
Figure 11.3 -TP – Lower grillage and interface with barge deck

2.1 - LOWER GRILLAGE SUPPORT BEARING CHECK							
Fy	345	MPa	Yield strength				
L	300	mm	Bearing plate lenght (web direction)				
tw	18	mm	Web thickness				
B	300	mm	Bearing plate width				
ts	15	mm	Stiffeners thickness				
Ap = L x tw + B x ts =	9750	mm^2	Bearing area				
F = Fz =	933	kN	Vertical force				
fp = F / Ap =	96	MPa	< 1.35 x Fy =	466	MPa	(UC =	0.21)

2.2 - LOWER GRILLAGE SUPPORT BUCKLING CHECK							
Fy	345	MPa	Yield strength				
tw	18	mm	Web thickness				
L = 25 x tw =	438	mm	Web effective lenght				
B	300	mm	Stiffeners width				
ts	15	mm	Stiffeners thickness				
A = L x tw + B x ts =	12156	mm^2	Bearing area				
N = Fz =	933	kN	Compressive force				
λl =	77		Proportionality slenderness				
k	0.75		Effective length factor				
l	1650	mm	Member length				
r	52.8	mm	Minimum section radius				
k x l / r =	23		Slenderness ratio				
λ =	0.30		Relative slenderness				
α =	0.49		Stability curve				
Φ =	0.57						
χ =	0.95						
γm1 =	1.10						
Fa = χ*fy/γm1 =	297	MPa	Allowable compressive strength				
fa = N / A =	77	MPa	< Fa =	297	MPa	(UC =	0.26)



GRILLAGE BASE WELD							
Fy	235	MPa	Plate yield strength				
A = 2x0.7x14x400 =	7840	mm^2	Weld area				
V =	120	kN					
γm2 =	1.25						
τ = V/A =	15.3	MPa	< Fy/√3 γm2=	109	MPa	(UC =	0.14)



3.1 - WING PLATE CHECK LOWER GRILLAGE							
Fy	345	MPa	Plate yield strength				
H	1600	mm	Section depth				
tf	10	mm	Flange thickness				
B	150	mm	Flange width				
tw	15	mm	Web thickness				
W	7.040E+06	mm^3	Section modulus				
Av	24000	mm^2	Shear area				
F = Rz =	850	kN	Vertical force				
L	750	mm	Wing plates total width				
p = R / L =	1133	kN/m	Distributed load acting on wing plate				
Lw	750	mm	Critical section coordinate				
M = p x Lw^2 / 2 =	319	kNm	Bending moment				
V = Rz / 2 =	425	kN	Shear force				
γm0 =	1.10						
fb = M / W =	45	MPa	< Fy/γm0 =	314	MPa	(UC =	0.14)
fv = V / Av =	18	MPa	< Fy/√3 γm0=	181	MPa	(UC =	0.10)
Weld							
Fy	235	MPa	Plate yield strength				
A = 4x0.7x10x500 =	14000	mm^2	Weld area				
V =	50	kN					
γm2 =	1.25						
σ = N/A =	61	MPa	< Fy/γm2 =	188	MPa	(UC =	0.32)
τ = V/A =	3.6	MPa	< Fy/√3 γm2=	109	MPa	(UC =	0.03)
Fa = Fy/ γm2 =	188	MPa	Allowable stress				
σVM = ($σ^2$ + $3τ^2$)^0.5 =	61	MPa	< Fa =	188	MPa	(UC =	0.32)

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11.3.3 Sea Fastening

Sea Fastening is composed by n.4 pipes Φ273x12.7mm connected to the barge deck and to the upper grillage through 15mm gusset plates.

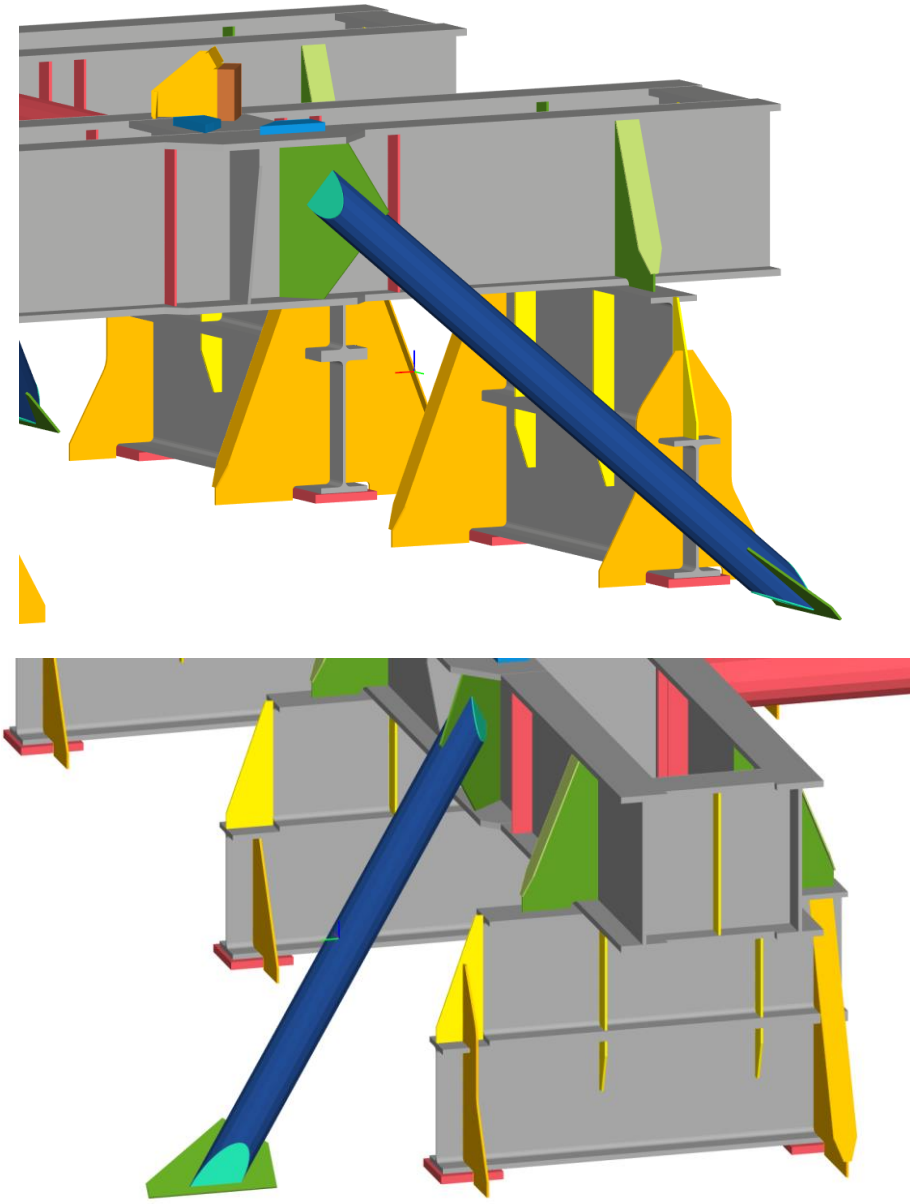


Figure 11.4 -TP – Sea Fastening

Checks are performed for max. reactions at the Sea Fastening points reported in sec. 11.1.1. Max axial force at ULS is 965 kN. Max. reactions are reported in the following:

Rx = 505 kN

Ry = 618 kN

Rz = 539 kN

<u>Check of Bottom weld:</u>

A_V = 2*15*0.7*820 = 17220 mm^2

F_y = 235 MPa

σ = Rz/A = 31.4 MPa < Fy/γ_{m2} = 235/1.25 = 188 MPa OK

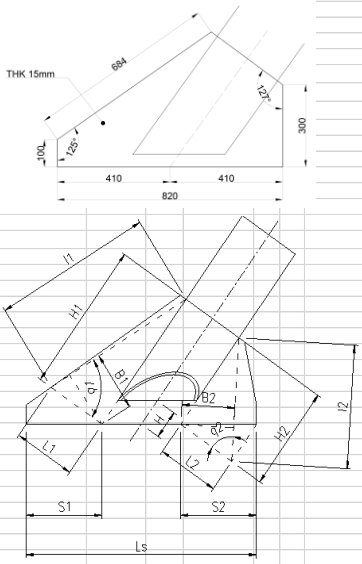
τ_x = Rx/A = 29.3 MPa < Fy/$\sqrt{3}$/γ_{m2} = 109 MPa OK

τ_y = Ry/A = 35.9 MPa< Fy/$\sqrt{3}$/γ_{m2} = 109 MPa OK

$\sigma_{VM} = \sqrt{(\sigma^2 + 3*(\tau_x^2 + \tau_y^2))}$ = 86.2 MPa < fa = Fy/γ_{m2} = 235/1.25 = 188 MPa OK

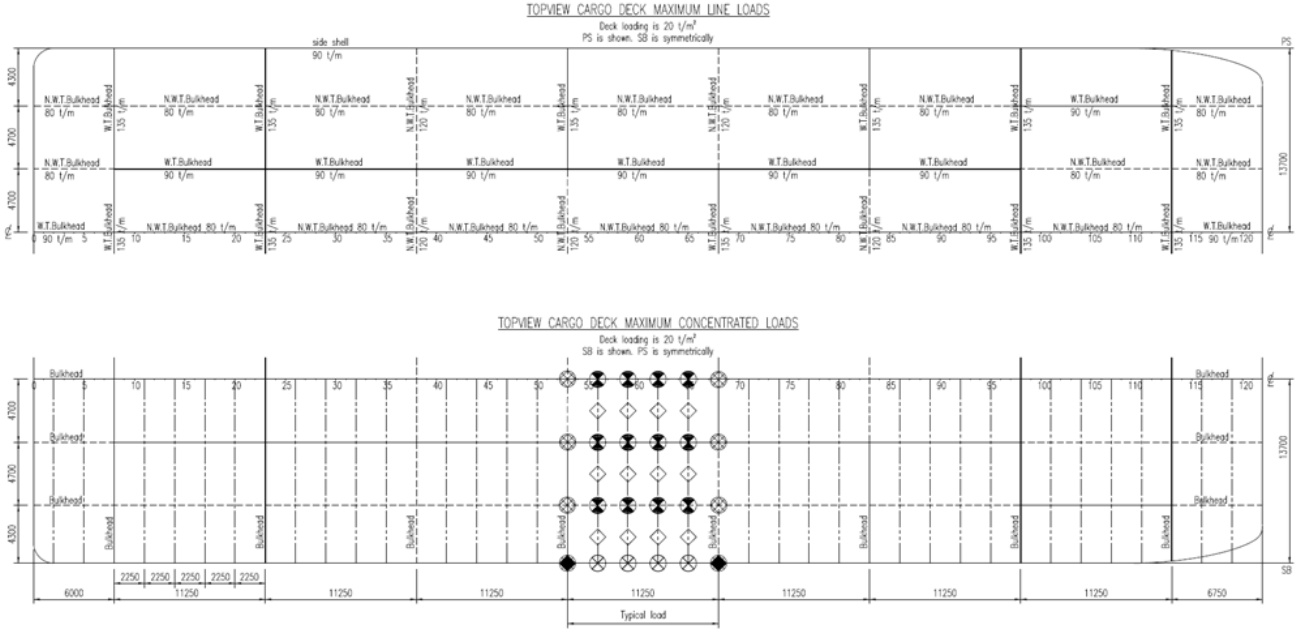
Gusset plate checks are performed in the following.

Fs	965	kN	Fastening axial load					Side 1	Side 2										
				UC =				0.64	0.71	Unstiffened									
1 - SIDE 1 - STRENGTH CHECK															**4 - SIDE 2 - STRENGTH CHECK**				
Fy	345	MPa	Plate yield strength												Fy	345	MPa	Plate yield strength	
H1	530	mm	Plate height												H2	380	mm	Plate height	
t	15	mm	Plate thickness												t	15	mm	Plate thickness	
L1	232	mm	Plate base												L2	270	mm	Plate base	
A1 = L1 x t =	3480	mm^2	Horizontal section - Section area												A2 = L2 x t =	4050	mm^2	Horizontal section - Section area	
W1 = t x H1^2 /6 =	7.023E+05	mm^3	Vertical section - Section modulus												W2 = t x H2^2 /6 =	3.610E+05	mm^3	Vertical section - Section modulus	
Av1 = H1 x t =	7950	mm^2	Vertical section - Shear area												Av2 = H2 x t =	5700	mm^2	Vertical section - Shear area	
F = Fs =	965	kN	Plate force												F = Fs =	965	kN	Plate force	
Ls	820	mm	Support width												Ls	820	mm	Support width	
S1	242	mm	Side 1 lenght												S2	240	mm	Side 2 lenght	
P1 = F x S1 / Ls =	285	kN	Plate 1 load												P2 = F x S2 / Ls =	282	kN	Plate 2 load	
p1 = P1 / L1 =	1228	kN/m	Distributed load acting on wing plate												p2 = P2 / L2 =	1046	kN/m	Distributed load acting on wing plate	
N = P1 =	285	kN	Axial load												N = P2 =	282	kN	Axial load	
M = p1 x L1^2 / 2 =	33	kNm	Bending moment												M = p2 x L2^2 / 2 =	38	kNm	Bending moment	
V = p1 x L1 =	285	kN	Shear force												V = p2 x L2 =	282	kN	Shear force	
λl =	50		Proportionality slenderness												λl =	50		Proportionality slenderness	
k	2.00		Effective length factor												k	2.00		Effective length factor	
l = H =	55	mm	Member length												l = H =	55	mm	Member length	
r	4.3	mm	Minimum section radius												r	4.3	mm	Minimum section radius	
k x l / r =	25		Slenderness ratio												k x l / r =	25		Slenderness ratio	
λ =	0.51		Relative slenderness												λ =	0.51		Relative slenderness	
α =	0.49		Stability curve												α =	0.49		Stability curve	
Φ =	0.70														Φ =	0.70			
χ =	0.84														χ =	0.84			
γm0 = γm1 =	1.10														γm0 = γm1 =	1.10			
Fa = χ*fy/γm1 =	263	MPa	Allowable compressive strength												Fa = χ*fy/γm1 =	263	MPa	Allowable compressive strength	
fa = N / A =	82	MPa	< Fa =	263	MPa	(UC =	0.31)								fa = N / A =	70	MPa	< Fa =	263 MPa (UC = 0.26)
fb = M / W =	47	MPa	< Fy/γm0 =	314	MPa	(UC =	0.15)								fb = M / W =	106	MPa	< Fy/γm0 =	314 MPa (UC = 0.34)
fv = V / Av =	36	MPa	< Fy/√3 γm0=	181	MPa	(UC =	0.20)								fv = V / Av =	50	MPa	< Fy/√3 γm0=	181 MPa (UC = 0.27)
2 - SIDE 1 - BUCKLING CHECK - UNSTIFFENED PLATE								**WELD CHECK**							**5 - SIDE 2 - BUCKLING CHECK - UNSTIFFENED PLATE**				
Fy	345	MPa	Plate yield strength					Fy	345	MPa	Plate yield strength				Fy	345	MPa	Plate yield strength	
L1	232	mm	Plate base					L	325	mm	Pipe-plate weld length				L2	270	mm	Plate base	
B1	215	mm	Plate width					t	12.7	mm	weld leg				B2	220	mm	Plate width	
t	15	mm	Plate thickness					Av = 0.7xLxtx4 =	11557	mm^2	Weld shear area				t	15	mm	Plate thickness	
r	4.3	mm	Plate radius												r	4.3	mm	Plate radius	
B1 / r	50	mm	Plate slenderness					V = Fs =	965	kN	Shear force				B2 / r	51	mm	Plate slenderness	
								γm2 =	1.25										
Pa1	442	kN	Allowable load												Pa2	395	kN	Allowable load	
								fv = V / Av =	83	MPa	< Fy/√3 γm2=	159	MPa						
P1	285	kN	Plate 1 load									(UC =	0.52)		P2	282	kN	Plate 2 load	
UC = P1 / Pa1 =	0.64		< 1.00												UC = P2 / Pa2 =	0.71		< 1.00	



11.4 BARGE DECK CHECK

Grillage position and strongpoints map of the barge deck are reported in Fig. 11.5..



strongpoint crossing of 2 bulkheads:
- max of yield 310 t,
- max with margin 230t;

Load to be distributed over a 600 mm 1 bulkheads and 600 mm along the other bulkhead

strongpoint web frame between bulkheads:
- max of yield 105 t,
- max with margin 80t;

Load to be evenly distributed over at least 300 mm length along the webframe, (only one webframe strongpoint between bulkheads)

strongpoint crossing of shell and bulkhead:
- max of yield 240 t,
- max with margin 180t;

Load to be distributed 600 mm along the bulkhead and 600mm along the shell.

strongpoint crossing of web frames and bulkheads:
- max of yield 385 t,
- max with margin 285t;

Load to be distributed over at least 300 mm length along the webframe and 600mm along the bulkhead.

strongpoint crossing of web frames and shell:
- max of yield 340 t,
- max with margin 255t;

Load to be distributed over at least 300 mm length along the webframe and 600mm along the shell.

Figure 11.5 -TP – Deck Load Plan

From the above:

- Resistance at yield (ULS) of barge deck is 310t at strongpoint crossing two BHDs
- At strongpoint crossing web frame and BHD is 385 t (ULS).
- Along BHD the min. resistance is 80 t/m from deck plan view.

The max. reaction at lower grillage, as per sec.11.1.1, is 85t at ULS.

F_{max} = 85t (ULS) < 310t.

From fig. 11.5 load is distributed at least 1m in frame direction (> 600 mm required) and 400mm in BHD direction, < 600 mm required by Fig. 11.4; but considering the magnitude of the applied load (UC = 85t/310t = 0.27) it seems appropriate the use of 400mm instead of 600mm (ratio = 0.67) required by deck plan.

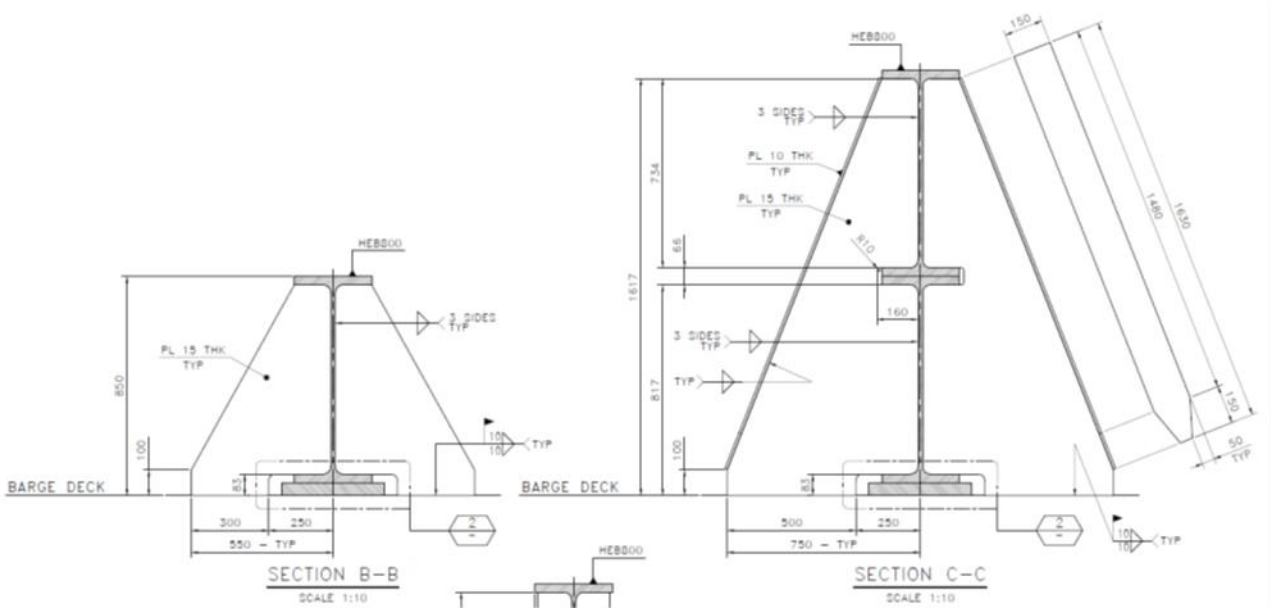


Figure 11.6 -TP – Lower grillage to barge intersection

The max. vertical reaction to barge deck transferred by SF pipe, as per sec.11.1.1, is 54t at ULS.

Sea fastening gusset plates are welded to longitudinal BHDs. The min resistance per linear meter of BHD = 80 t/m. The equivalent distribute d load is = 54 / 0.82 = 65.8 t/m (ULS) < 80t/m.

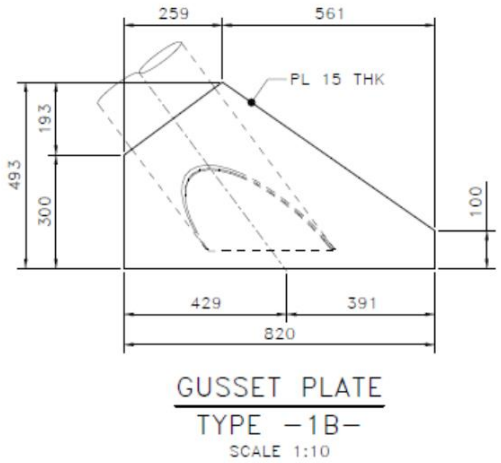


Figure 11.7 -TP – Sea Fastening gusset plate

APPENDIX A – MEMBER GROUPS AND SECTION PROPERTIES

Member Group Report

Name	Section	OD (cm)	WT (cm)	E (kN/cm2)	G (kN/cm2)	Fy (kN/cm2)	Ky	Kz	SPC	SAM	F	Density (tonne/m3)	Length (m)	Section
HA3	HEA340			20500.000	7722.000	35.500	1.00	1.00				7.849		
HE8	HE800B			20500.000	7722.000	35.500	1.00	1.00				7.849		
IP2	IPE240			20500.000	7722.000	35.500	1.00	1.00				7.849		
IP3	IPE330			20500.000	7722.000	35.500	1.00	1.00				7.849		
L15	L15			20500.000	7722.000	27.500	1.00	1.00				7.849		
LD1		20.000	1.500	21000000.0	7900000.00	33.500	1.00	1.00		0.50		10.0000029-5		
M01		700.000	6.500	20500.000	7885.000	38.000	1.00	1.00		0.50		7.850		
SD1		20.000	1.500	21000000.0	7900000.00	33.500	1.00	1.00		0.50		10.0000029-5		
SF1		27.310	1.270	20500.000	7885.000	35.500	1.00	1.00		0.50		7.849		
ST3		16.830	0.711	20500.000	7722.000	35.500	1.00	1.00		0.50		7.849		
ST4		27.310	1.270	20500.000	7722.000	35.500	1.00	1.00		0.50		7.849		
ST5		21.910	1.031	20500.000	7722.000	35.500	1.00	1.00		0.50		7.849		
T00	TPBG02A			20500.000	7885.000	38.000	1.00	1.00				7.850		TPBG02B
T01	TPBG01			20500.000	7885.000	40.000	1.00	1.00				7.850		
T02	TPBG02B			20500.000	7885.000	38.000	1.00	1.00				7.850		TPBG03A
T03	TPBG03A			20500.000	7885.000	38.000	1.00	1.00				7.850		TPBG03B
T04	TPBG03B			20500.000	7885.000	38.000	1.00	1.00				7.850		
T05	TPBG01A			20500.000	7885.000	40.000	1.00	1.00				7.850		TPBG01B
T06	TPBG01C			20500.000	7885.000	38.000	1.00	1.00				7.850		
T07	TPBG01B			20500.000	7885.000	40.000	1.00	1.00				7.850		TPBG01A
T2A	TPBG02B			20500.000	7885.000	38.000	1.00	1.00				7.850		TPBG02C
T2B	TPBG02C			20500.000	7885.000	38.000	1.00	1.00				7.850		TPBG03A
T3A	TPBG03A			20500.000	7885.000	38.000	1.00	1.00				7.850		TPBG03C
T3B	TPBG03C			20500.000	7885.000	38.000	1.00	1.00				7.850		TPBG03B
TPS		80.000	4.000	20500.000	7885.000	40.000	1.00	1.00		0.50		7.850		
UD1		20.000	1.500	21000000.0	7900000.00	33.500	1.00	1.00		0.50		10.0000029-5		
UG1	UG1000			20500.000	7885.000	34.500	1.00	1.00				7.850		
UG2	HE500A			20500.000	7885.000	34.500	1.00	1.00				7.850		
UG3		35.560	1.270	20500.000	7885.000	35.500	1.00	1.00		0.50		7.849		
UN2	UPN220			20500.000	7722.000	27.500	1.00	1.00				7.849		

Member Section Report

Section	Type	AX(cm2)	J(cm4)	IY(cm4)	IZ(cm4)	A(cm)	B(cm)	C(cm)	D(cm)	E(cm)	F(cm)
HE500A	WF	197.500	309.300	86970.000	10370.000	30.000	2.300	49.000	1.200	2.700	
L15	ANG *	24.000	8.453	645.202	115.048	15.000	10.000	1.000			
TPBG01	PGD *	630.000	512780.25	880062.50	236129.95	50.000	2.500	100.000	2.000		44.000
TPBG01A	PGD *	630.000	512780.25	880062.50	236129.95	50.000	2.500	100.000	2.000		44.000
TPBG01B	PGD *	770.000	747123.18	1829729.0	303936.62	50.000	2.500	135.000	2.000		44.000
TPBG01C	PGD *	1158.000	868535.00	3581198.2	381457.96	50.000	6.500	140.000	2.000		44.000
TPBG02A	PGD *	4427.000	7325551.0	52115124.	15367670.	230.000	6.500	252.500	3.000		78.000
TPBG02B	PGD *	3769.200	7316286.5	42160956.	8441785.0	179.400	6.500	252.500	3.000		78.000
TPBG02C	PGD *	3495.750	7044875.5	36027176.	6726574.5	162.090	6.500	244.430	3.000		78.000
TPBG03A	PGD *	2830.800	6385822.0	23341494.	3805840.0	120.000	6.500	224.800	3.000		78.000
TPBG03B	PGD *	2322.000	3602949.0	7980361.0	3031573.5	120.000	6.500	140.000	3.000		78.000
TPBG03C	PGD *	2575.080	4979034.5	14463364.	3416698.0	120.000	6.500	182.180	3.000		78.000
UG1000	PLG *	470.000	1878.214	715506.68	18119.792	30.000	4.000	100.000	2.500		

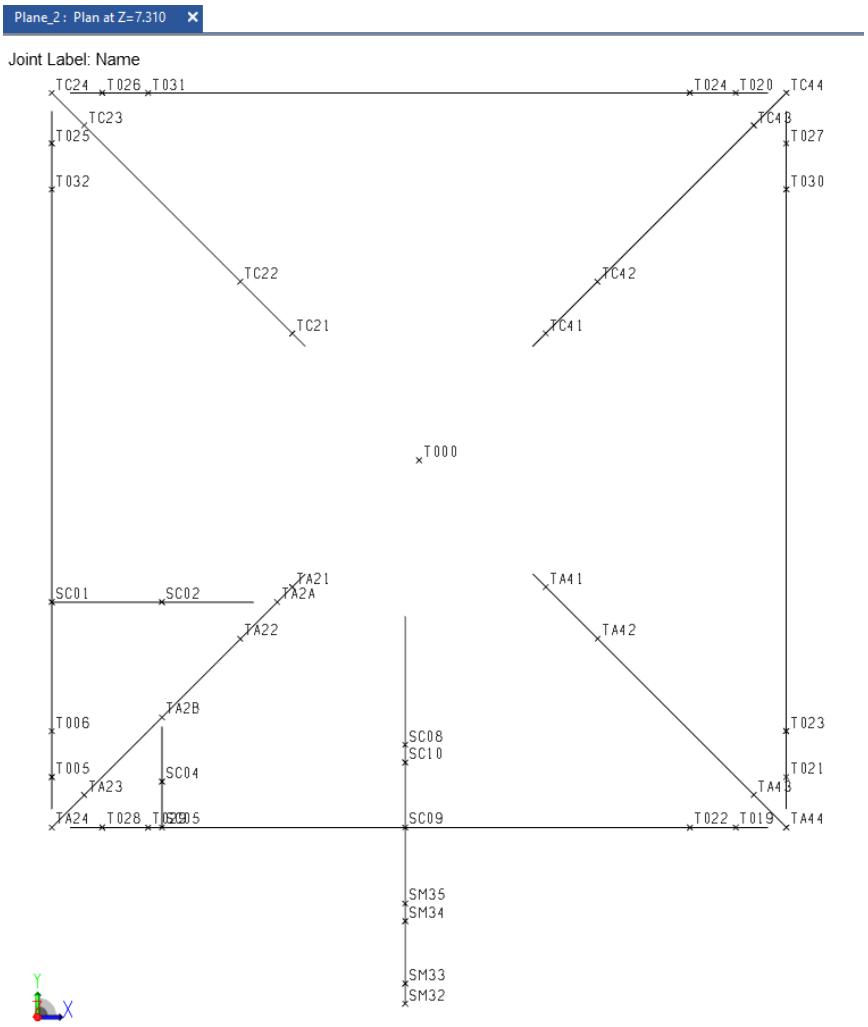
An * indicates that AX, J, IY and IZ are computed values, not user defined.

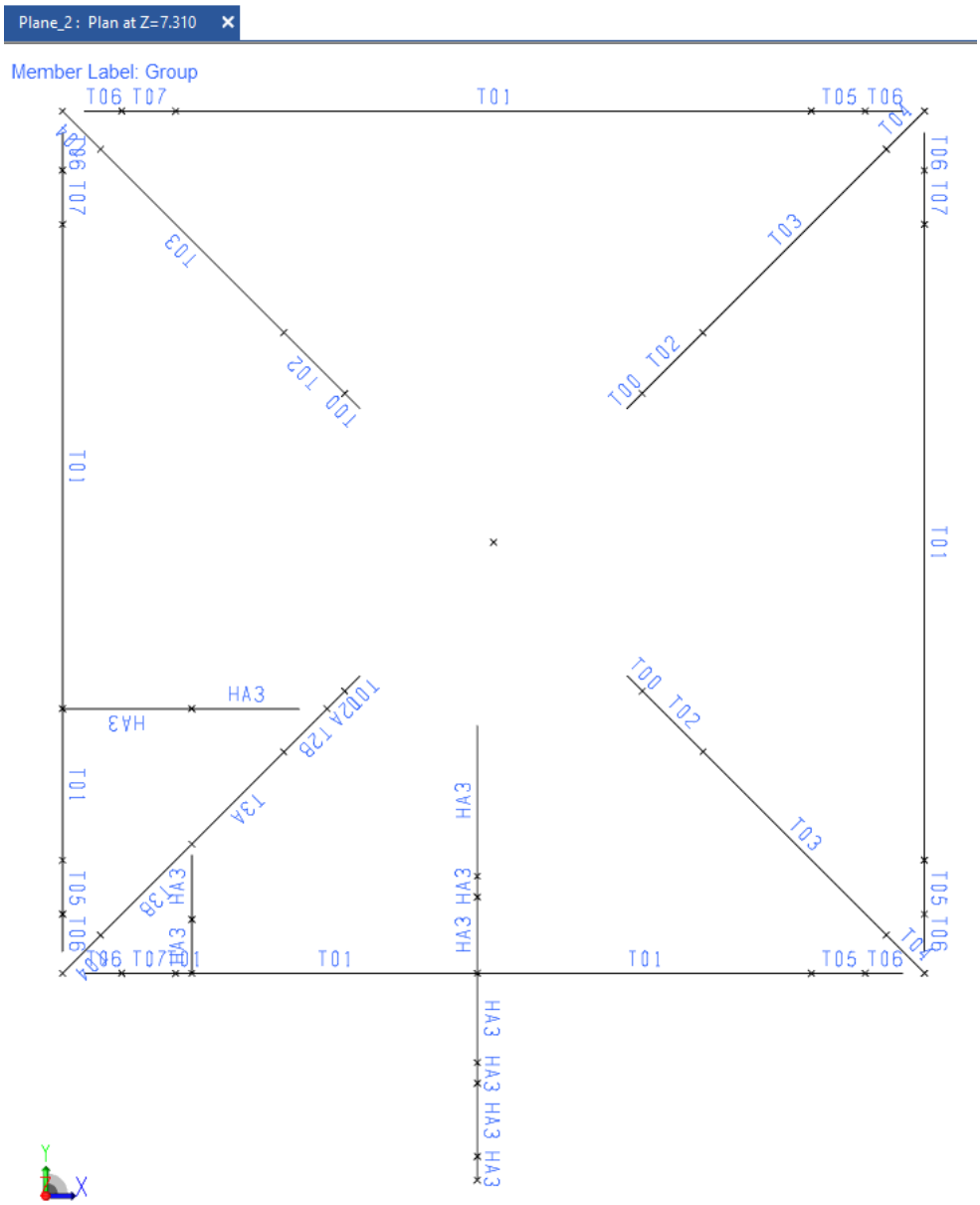
Plate Group Report

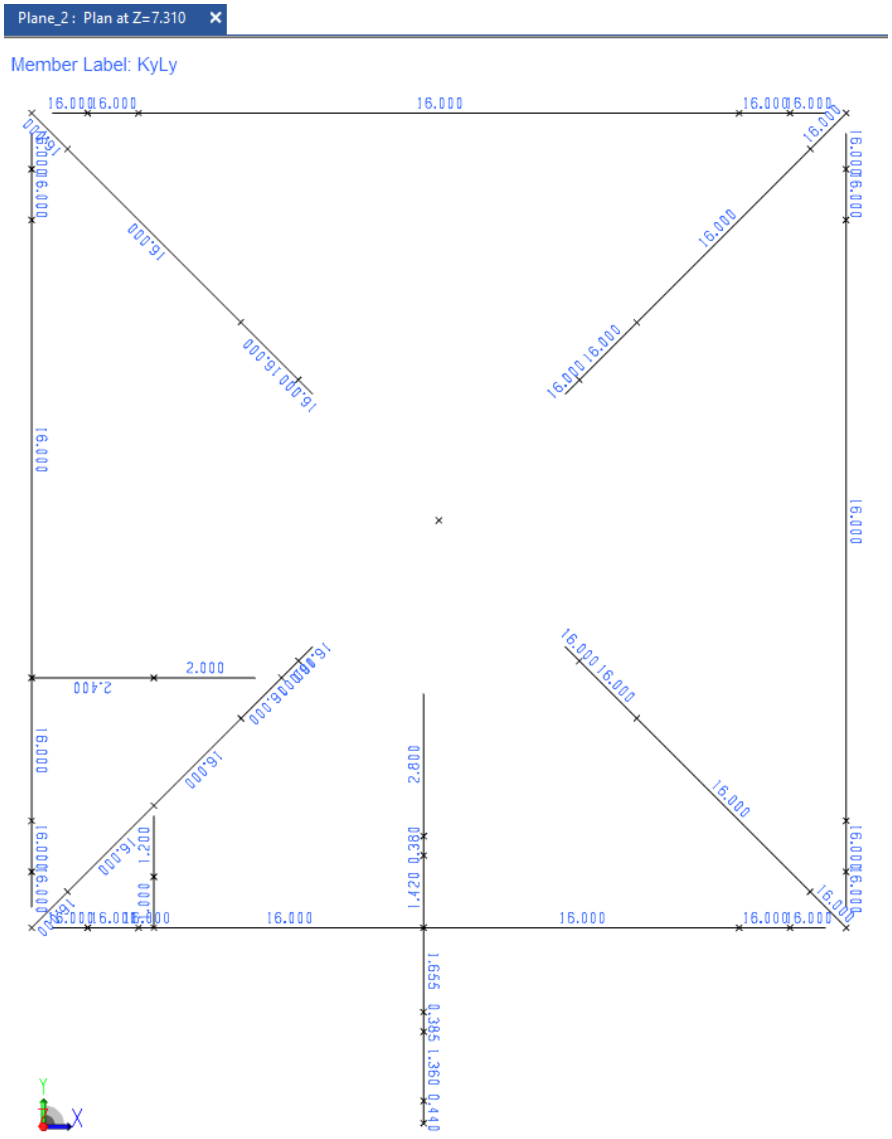
Name	Z Thickness (cm)	M	E (kN/cm2)	U	Fy (kN/cm2)	Z Offset (cm)	Section	Spacing (cm)	L	T	Density (tonne/m3)
M65	6.500	I	20500.000	0.300	38.000						7.850

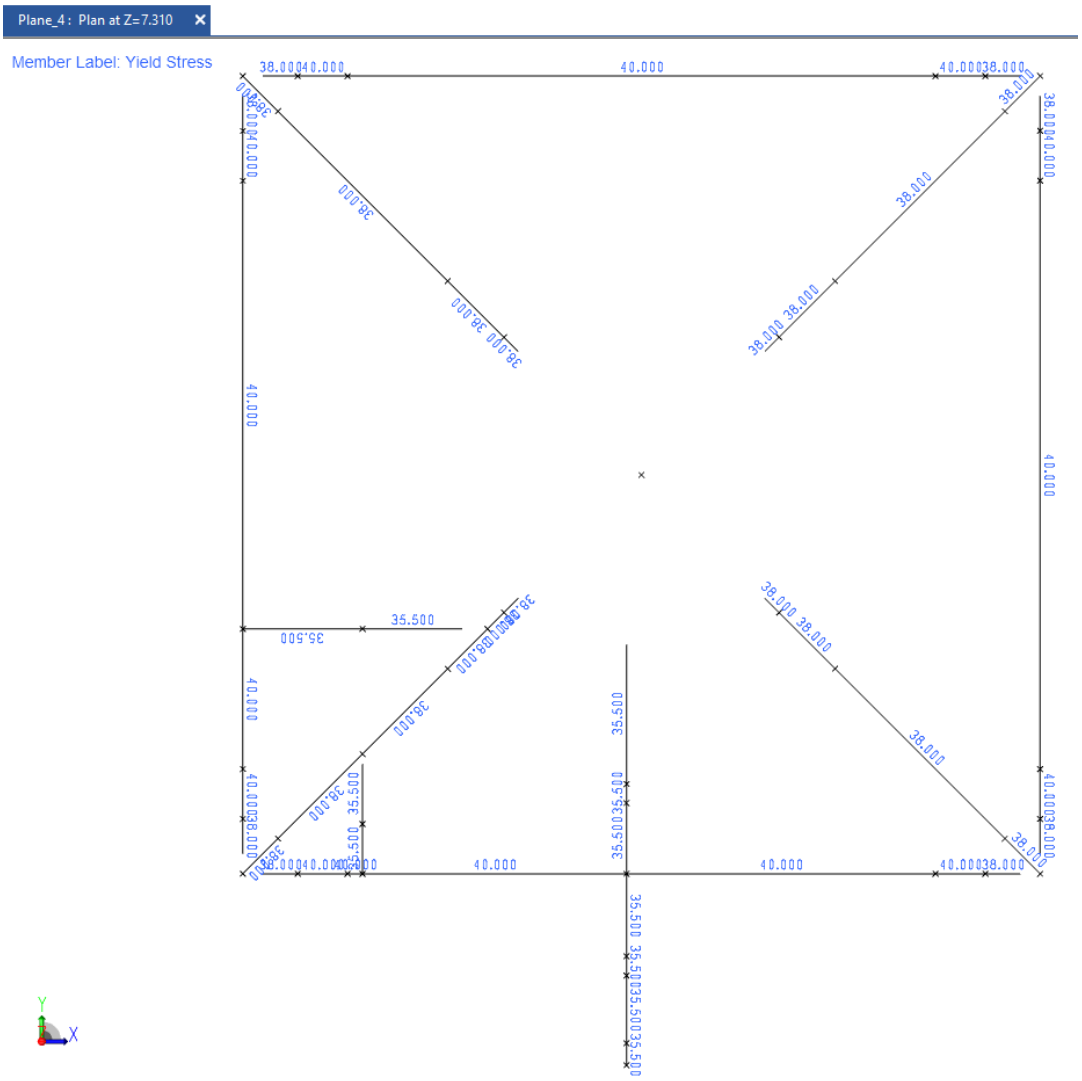
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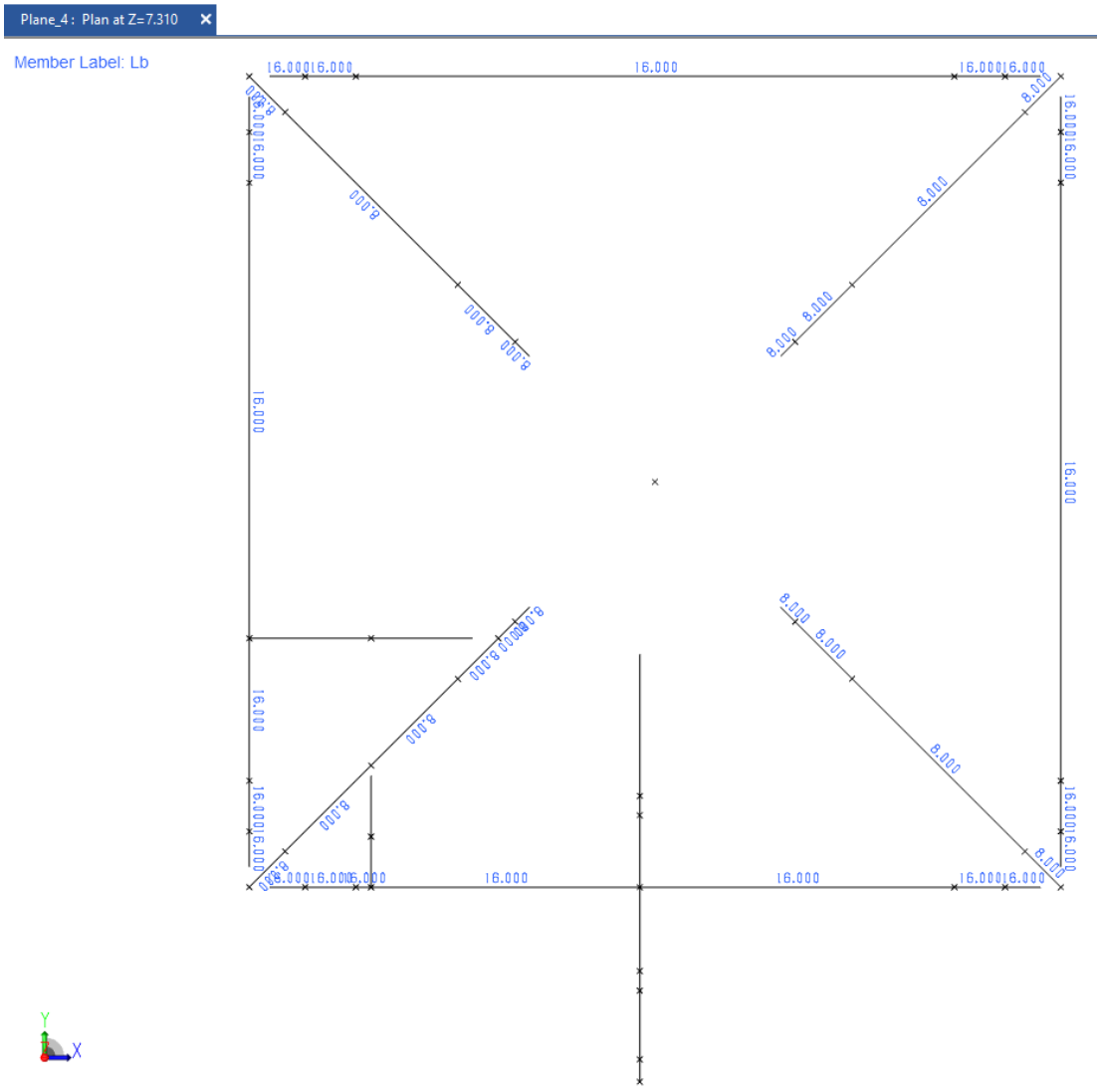
APPENDIX B - WIREFRAME SCHEMES

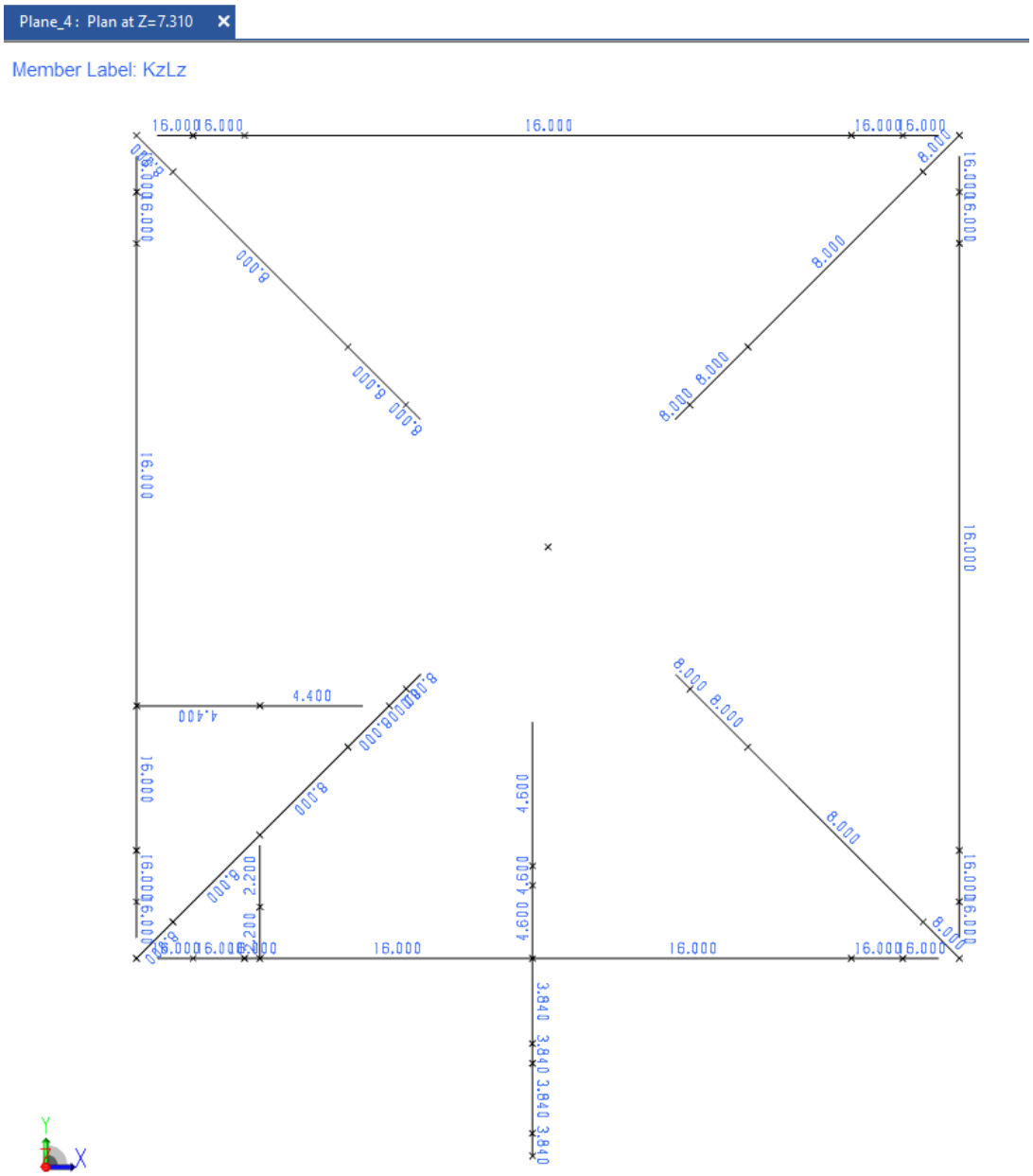


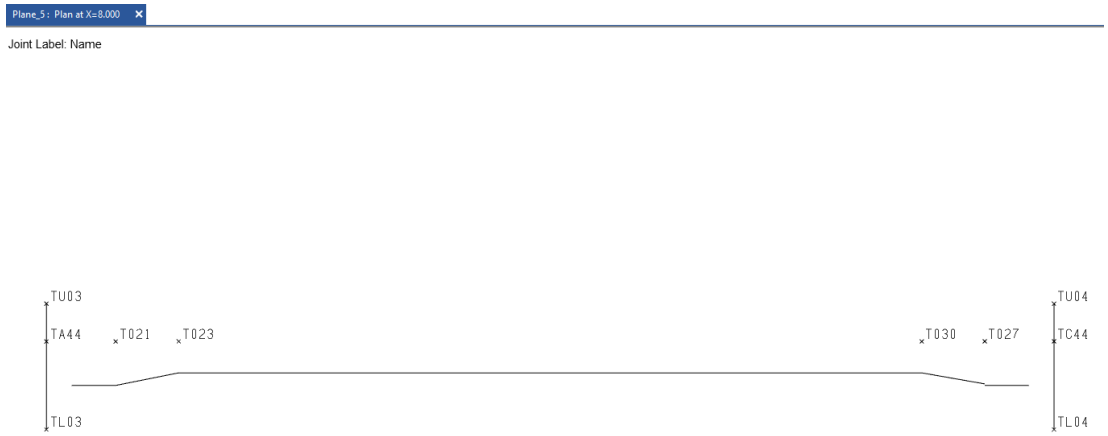

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T05 T06
T03
T00 T02
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T01
T01
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HA3
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HA3 HA3 HA3 HA3
Y
X

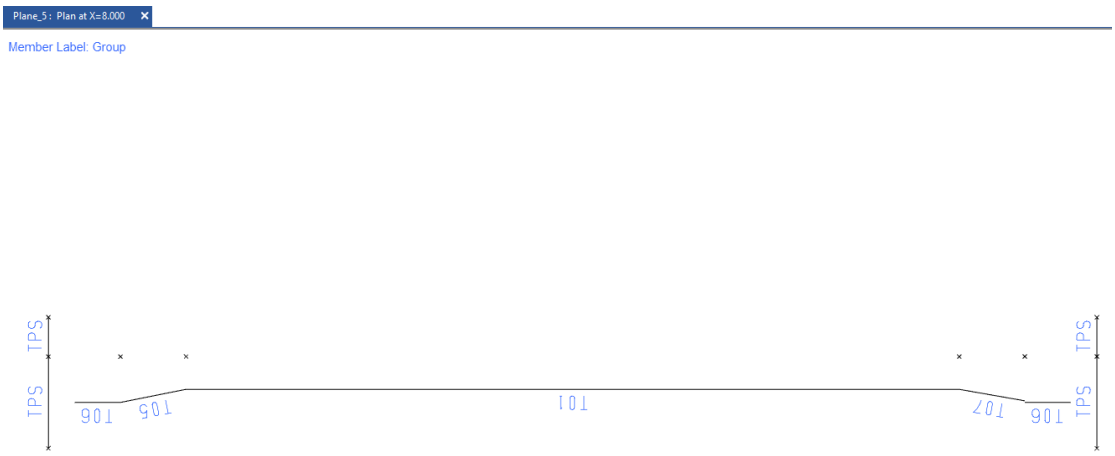

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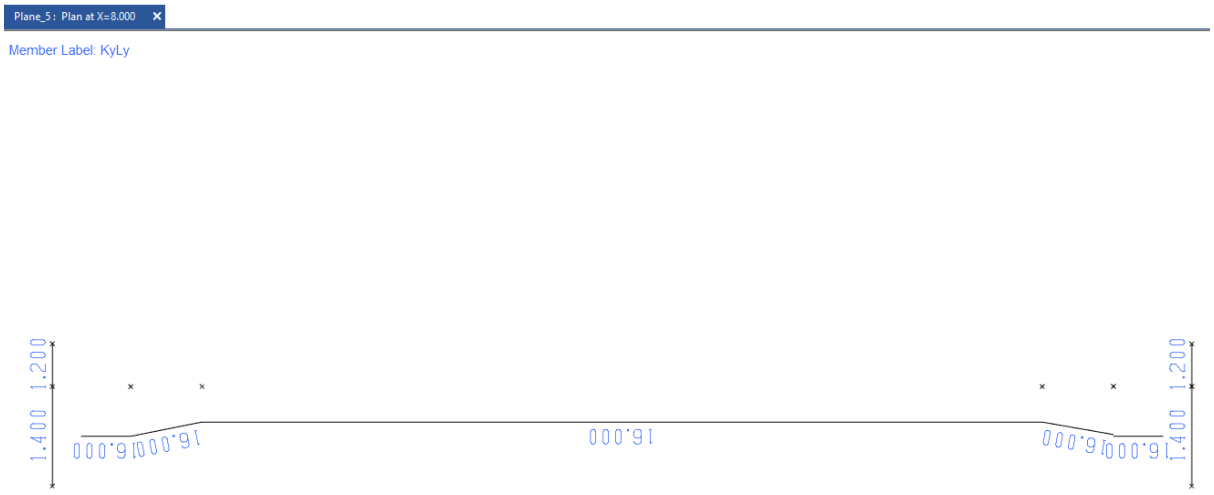

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35.500

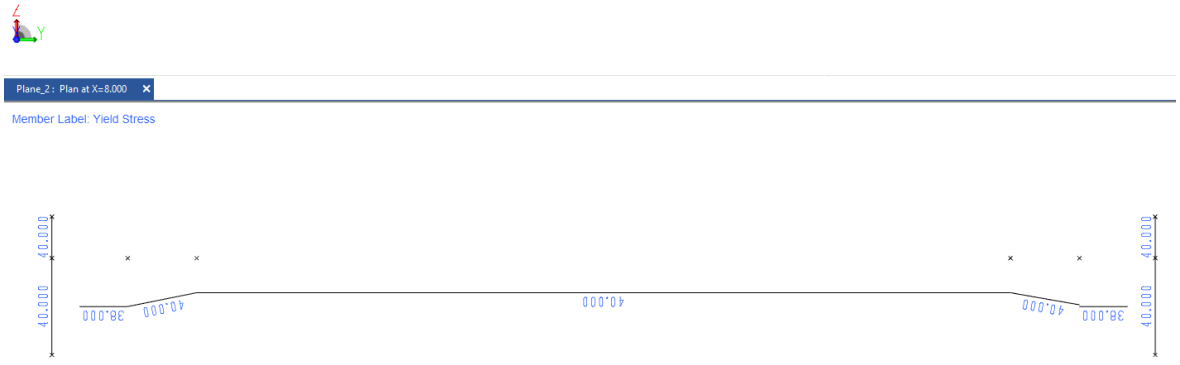

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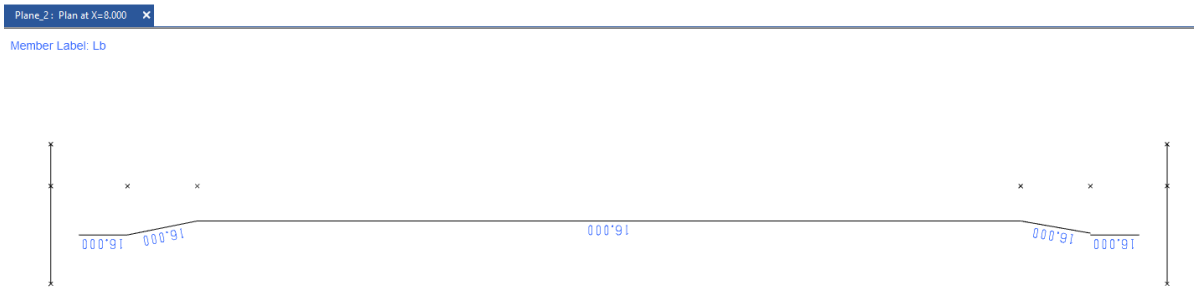

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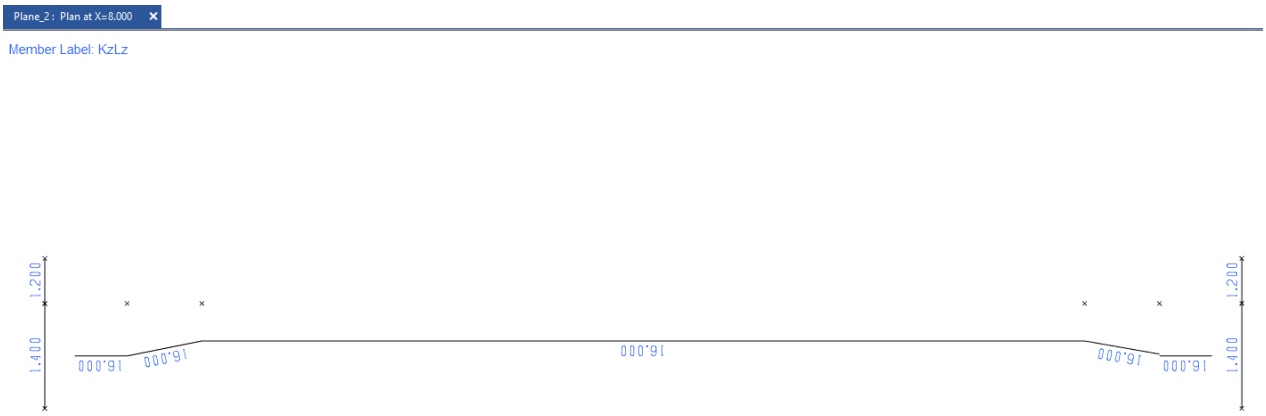

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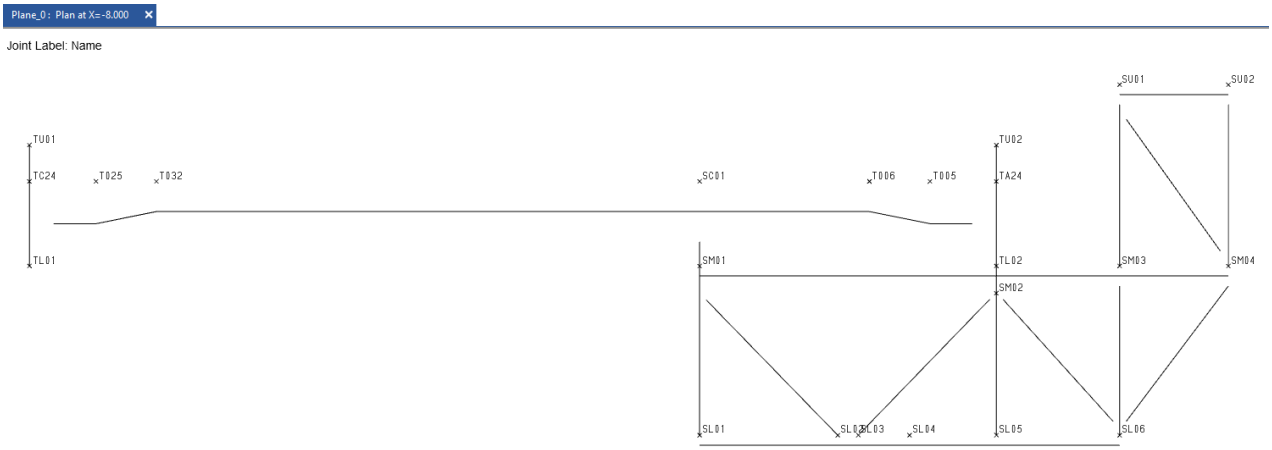

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T06
TPS
TPS

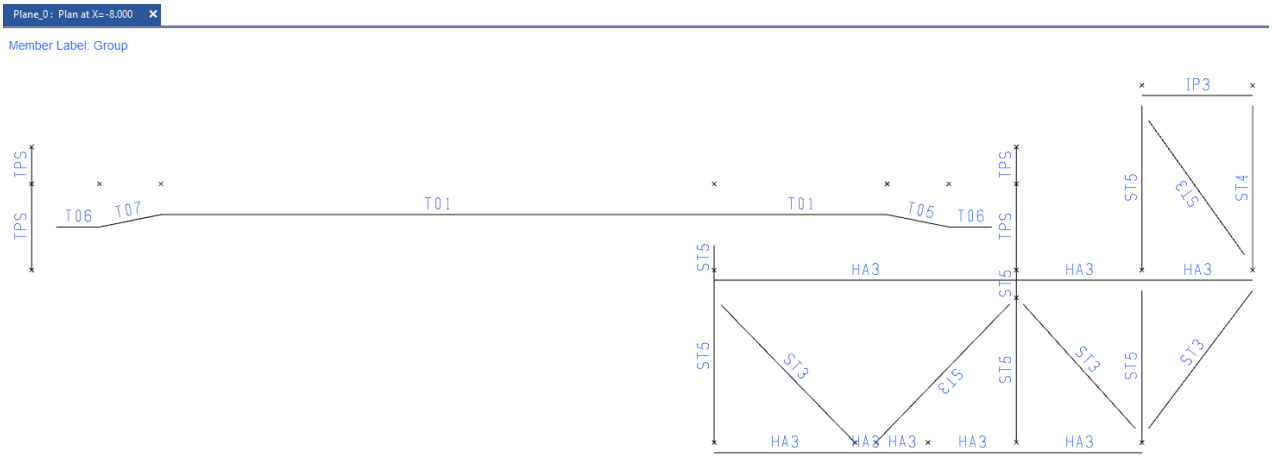

Plane_5 : Plan at X=8.000
Member Label: KyLy
1.400
1.200
16.000
16.000
16.000
16.000
1.400
1.200

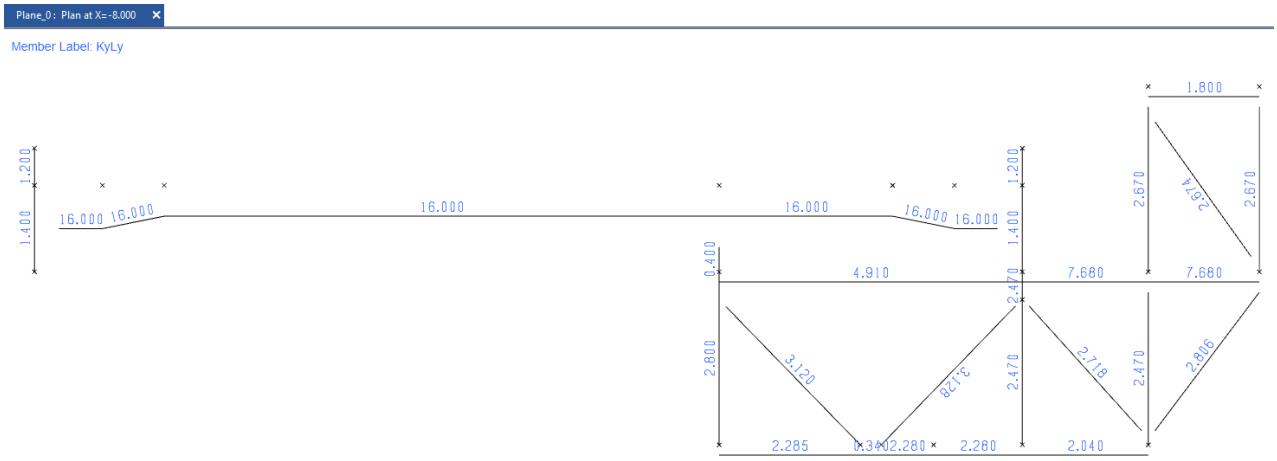

Plane_2 : Plan at X=8.000
Member Label: Yield Stress
40.000
40.000
38.000
40.000
40.000
40.000
38.000
40.000
40.000

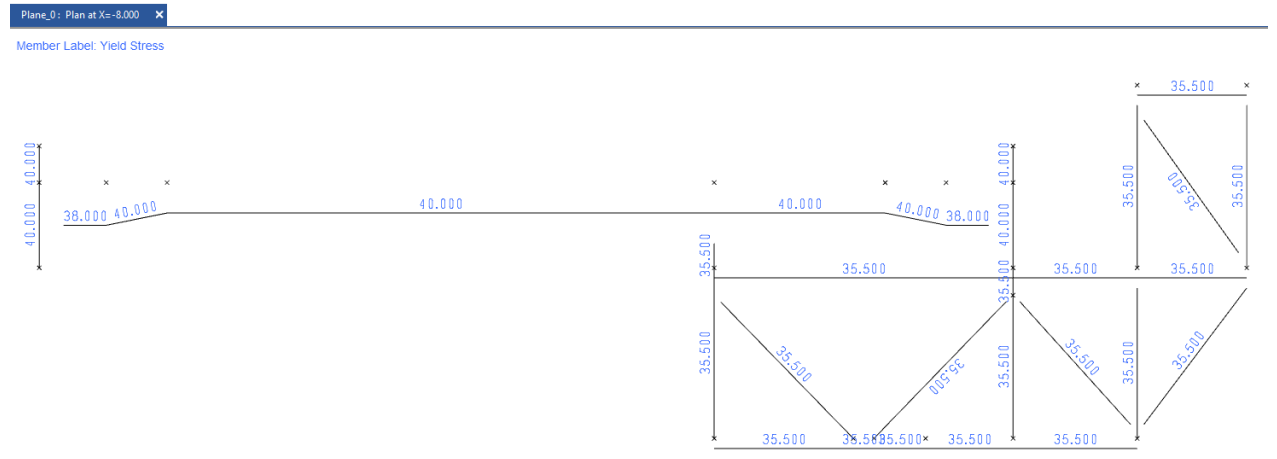

Plane_2 : Plan at X=8.000
Member Label: Lb
16.000
16.000
16.000
16.000
16.000

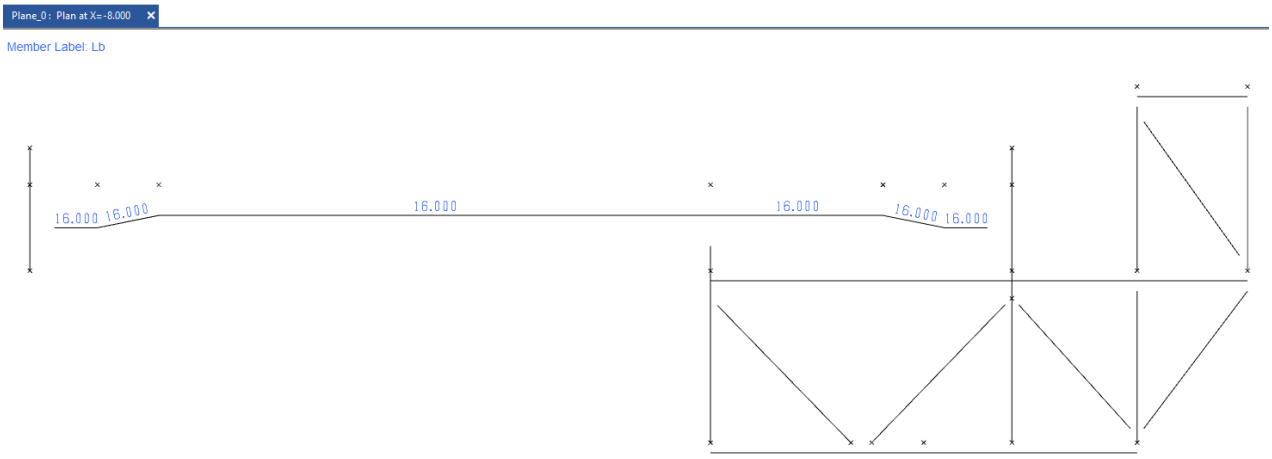

Plane_2 : Plan at X=8.000
Member Label: KzLz
1.200
1.400
16.000
16.000
16.000
16.000
16.000
1.200
1.400

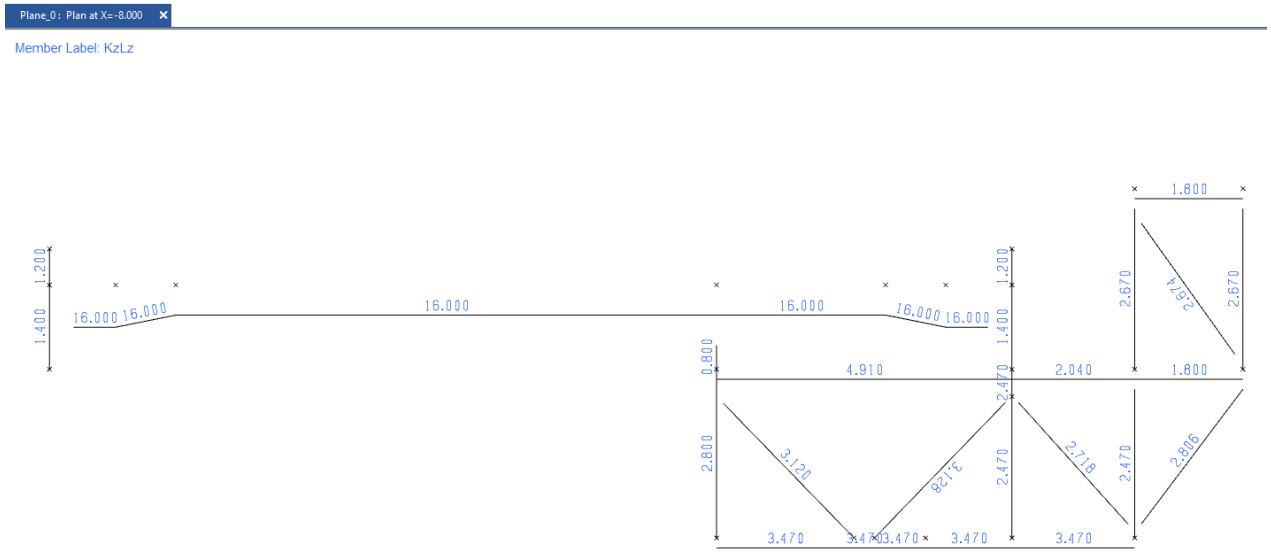

Plane_0 : Plan at X=-8.000
Joint Label: Name
TU01
TC24
T025
T032
SC01
T006
T005
TU02
TA24
SU01
SU02
TL01
SM01
TL02
SM03
SM04
SM02
SL01
SL02
SL03
SL04
SL05
SL06

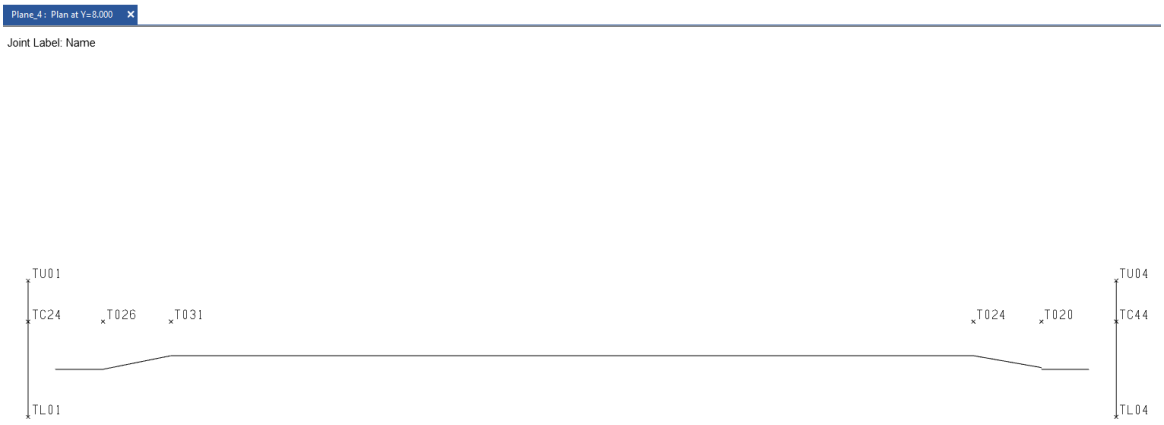

Plane_0 : Plan at X=-8.000
Member Label: Group
IP3
TPS
T06
T07
T01
T01
T05
T06
ST5
ST3
ST4
HA3

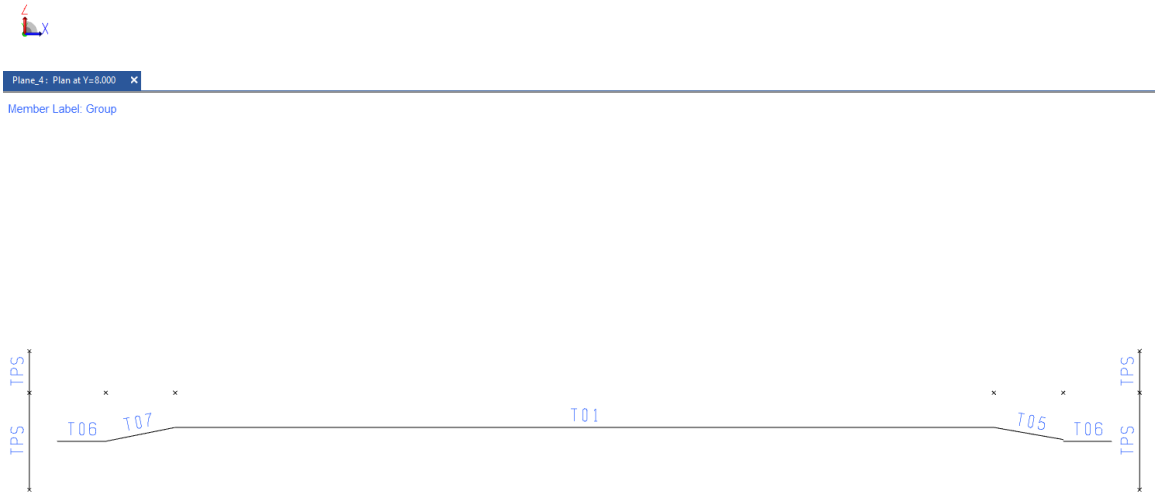

Plane_0 : Plan at X=-8.000
Member Label: KyLy
1.200
1.400
16.000
16.000
16.000
16.000
16.000
16.000
1.800
2.670
2.670
2.670
0.400
4.910
7.680
7.680
2.800
3.120
3.128
2.470
2.718
2.470
2.806
2.285
2.280
2.280
2.040

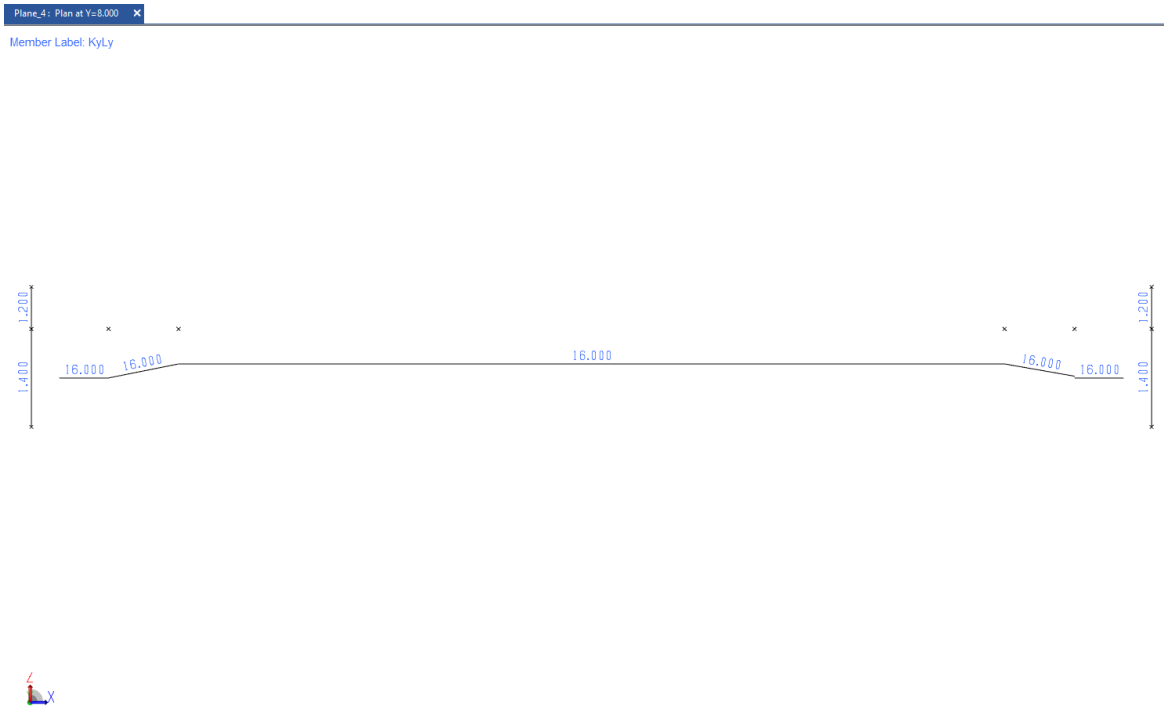

Plane_0 : Plan at X=-8.000
Member Label: Yield Stress
40.000
40.000
38.000
40.000
40.000
40.000
40.000
38.000
35.500
35.500
35.500
35.500
35.500
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35.500
35.500
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35.500
35.500
35.500
35.500
35.500

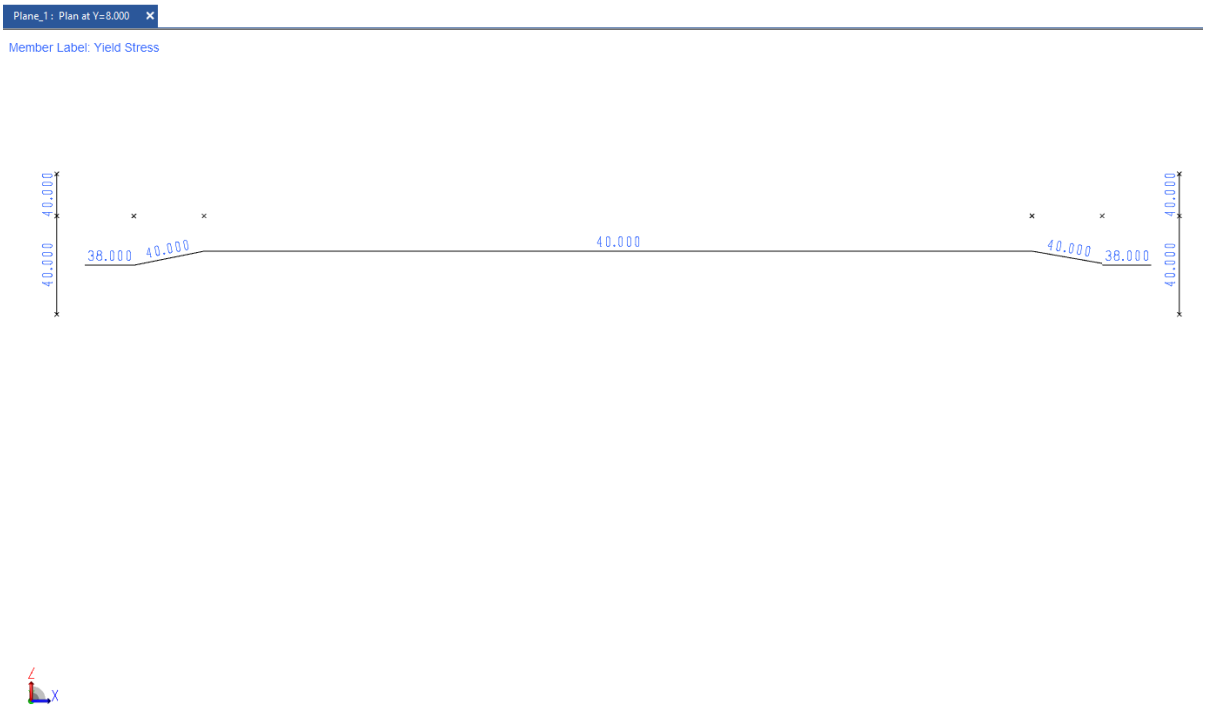

Plane_0 : Plan at X=-8.000
Member Label: Lb
16.000
16.000
16.000
16.000
16.000
16.000

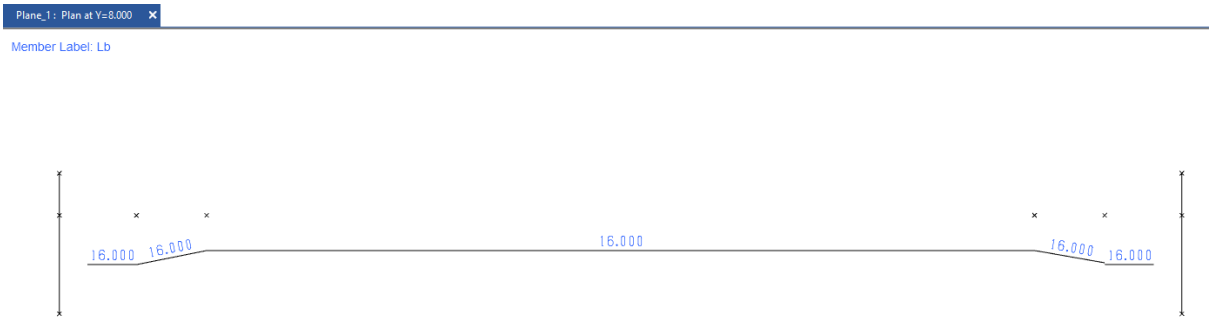

Plane_0 : Plan at X=-8.000
Member Label: KzLz
1.200
1.400
16.000
16.000
16.000
16.000
16.000
16.000
1.800
2.670
3.128
2.670
0.800
4.910
2.040
1.800
2.800
3.120
3.128
2.718
2.806
3.470
3.470
3.470
3.470

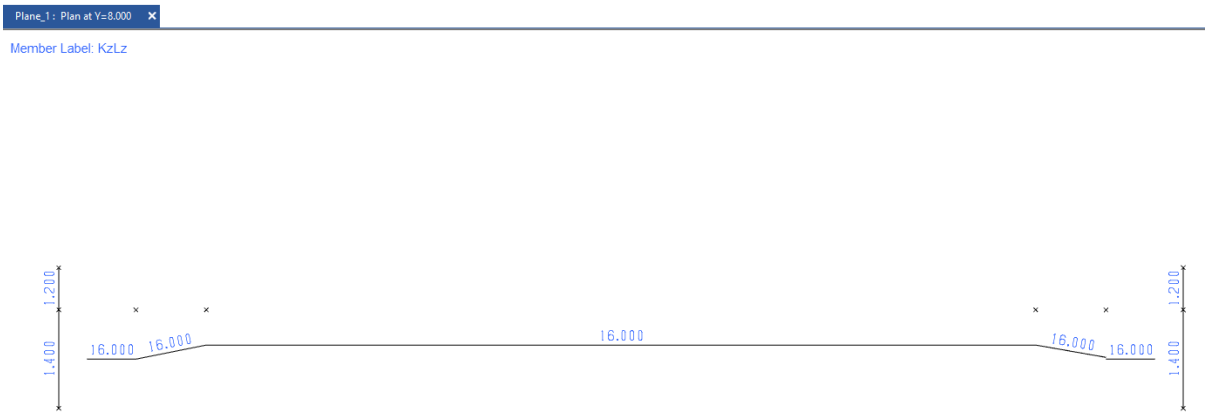

Plane_4 : Plan at Y=8.000
Joint Label: Name
TU01
TC24
T026
T031
T024
T020
TU04
TC44
TL01
TL04

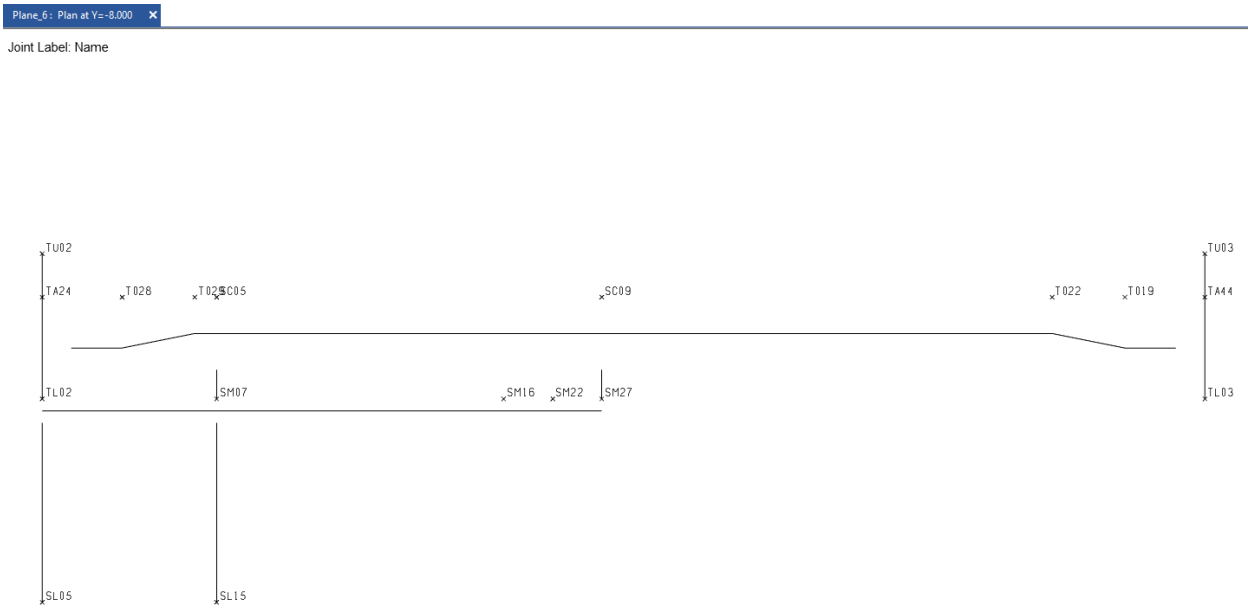

Plane_4 : Plan at Y=8.000
Member Label: Group
TPS
TPS
T06
T07
T01
T05
T06
TPS
TPS

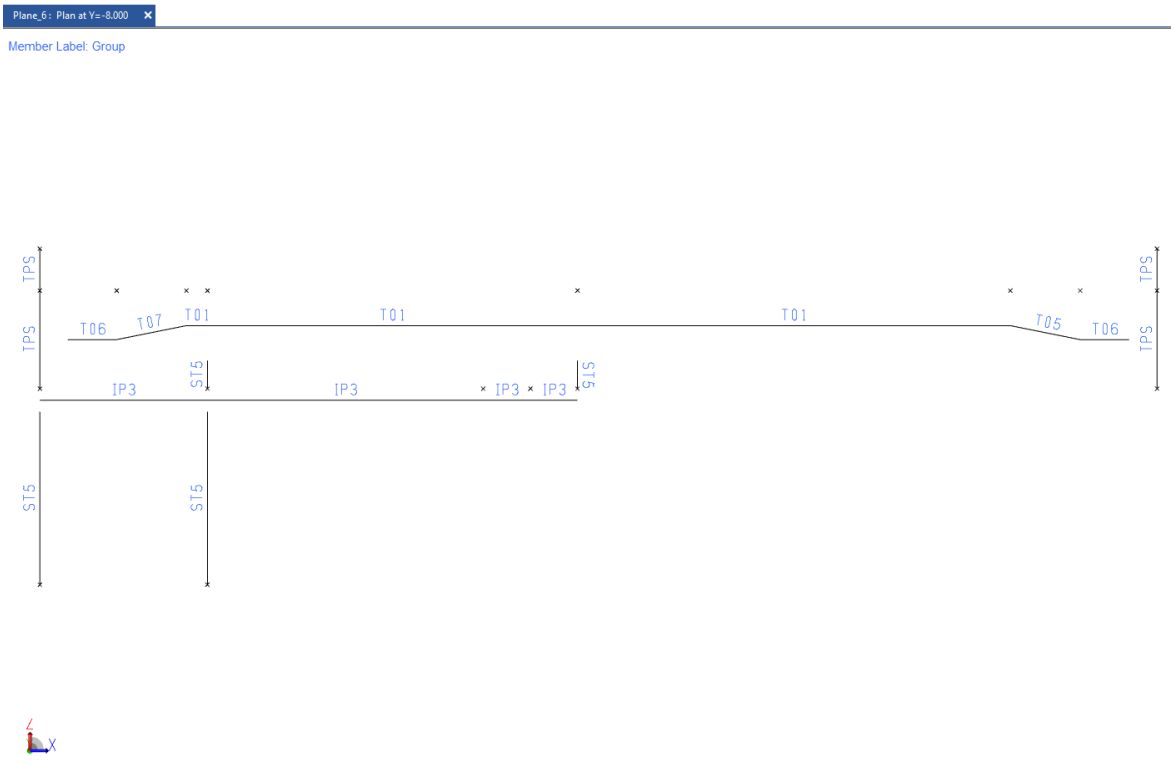

Plane_4 : Plan at Y=8.000
Member Label: KyLy
1.200
1.400
16.000
16.000
16.000
16.000
16.000
1.200
1.400
Z
X

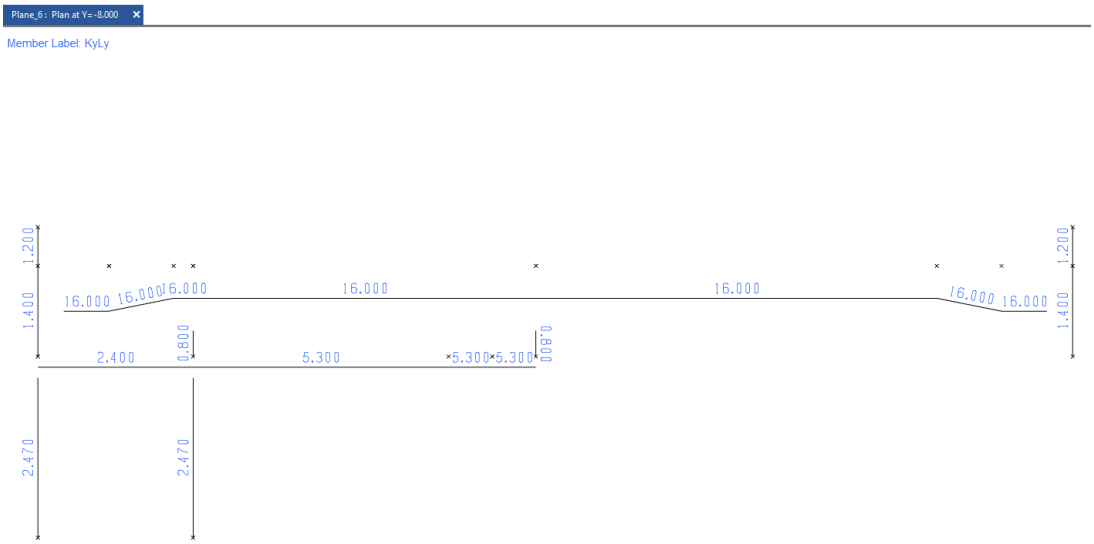

Plane_1 : Plan at Y=8.000
Member Label: Yield Stress
40.000
40.000
38.000
40.000
40.000
40.000
40.000
38.000
40.000
40.000
Z
X

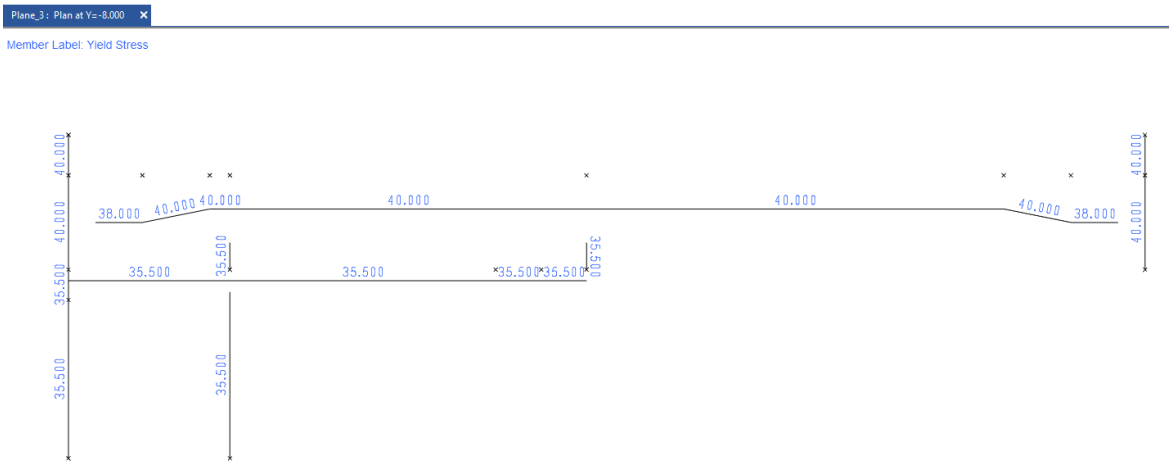

Plane_1 : Plan at Y=8.000
Member Label: Lb
16.000
16.000
16.000
16.000
16.000
Z
X

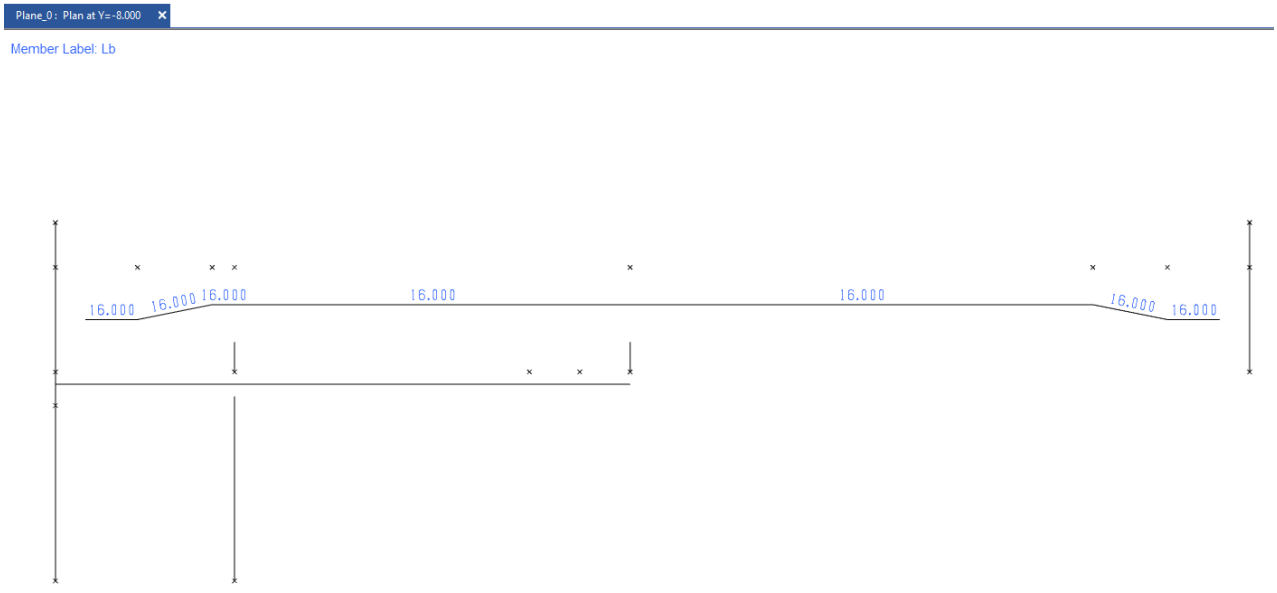

Plane_1 : Plan at Y=8.000
Member Label: KzLz
1.200
1.400
16.000
16.000
16.000
16.000
16.000
1.200
1.400
Z
X

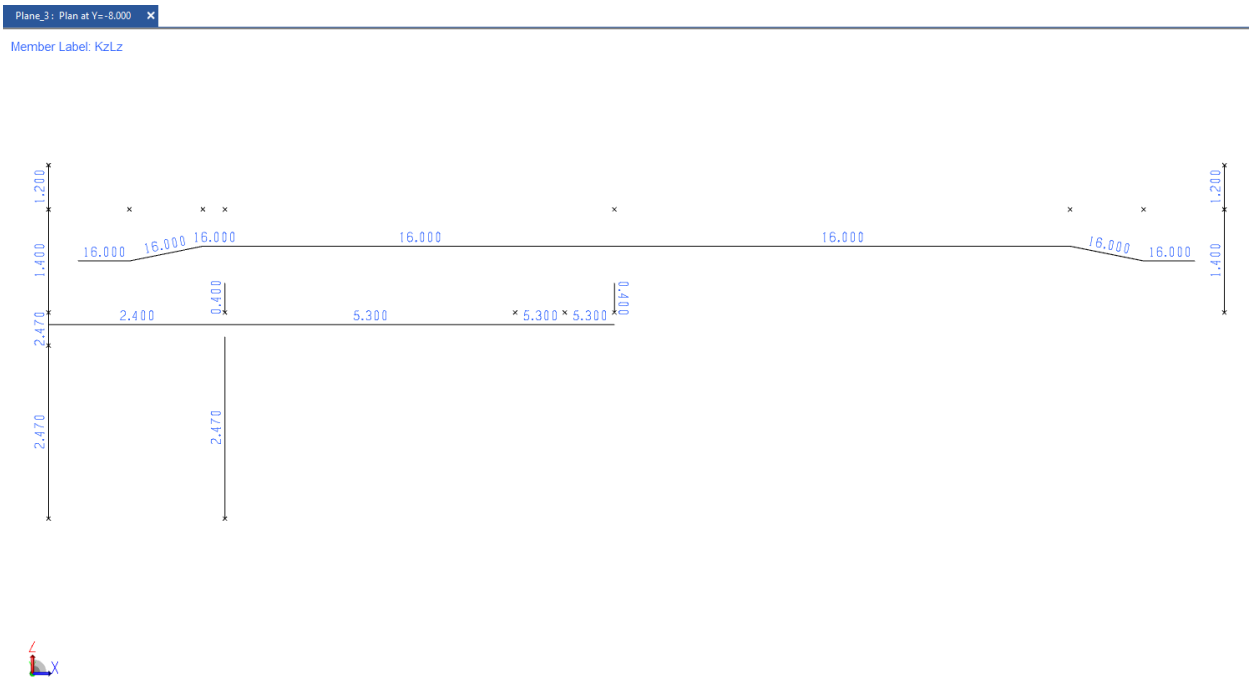

Plane_6 : Plan at Y=-8.000
Joint Label: Name
TU02
TA24
T028
T025
SC05
SC09
T022
T019
TU03
TA44
TL02
SM07
SM16
SM22
SM27
TL03
SL05
SL15
X

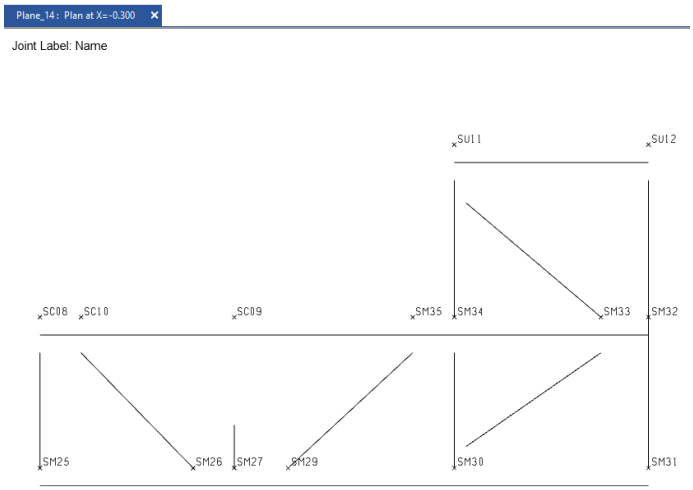

Plane_6 : Plan at Y=-8.000
Member Label: Group
TPS
TPS
T06
T07
T01
T01
T01
T05
T06
TPS
TPS
ST5
IP3
IP3
IP3
IP3
ST5
ST5
ST5
X

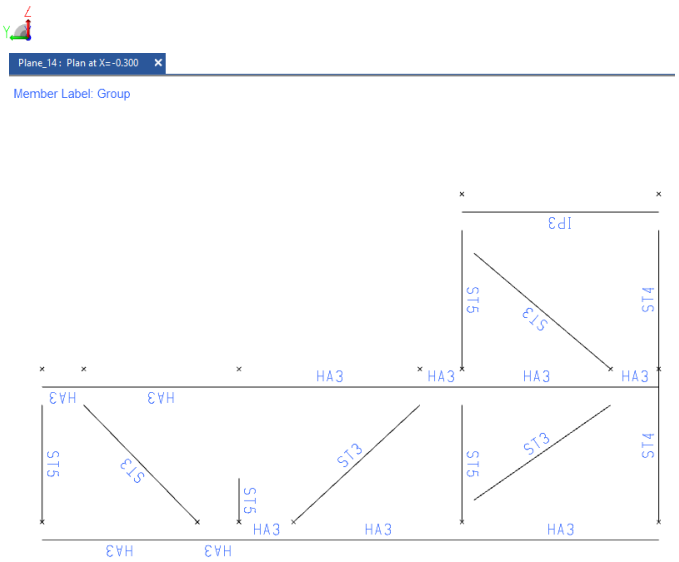

Plane_6 : Plan at Y=-8.000
Member Label: KyLy
1.200
1.400
16.000
16.000
16.000
16.000
16.000
16.000
16.000
1.200
1.400
2.400
0.800
5.300
5.300
5.300
0.800
2.470
2.470

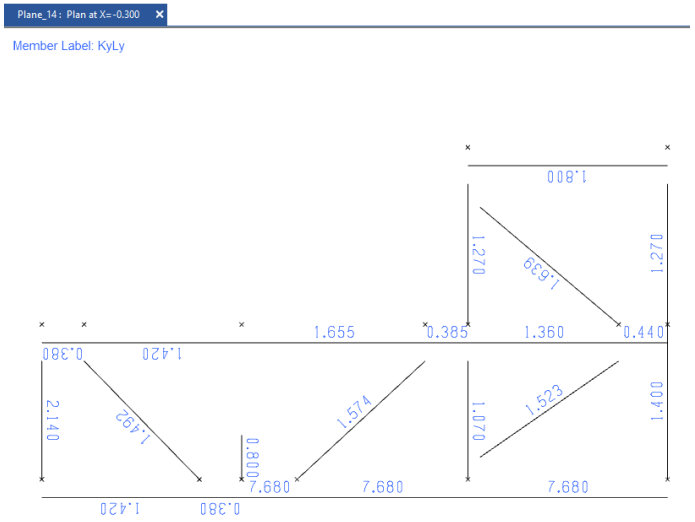

Plane_3 : Plan at Y=-8.000
Member Label: Yield Stress
40.000
40.000
38.000
40.000
40.000
40.000
40.000
40.000
38.000
40.000
40.000
35.500
35.500
35.500
35.500
35.500
35.500
35.500
35.500
35.500

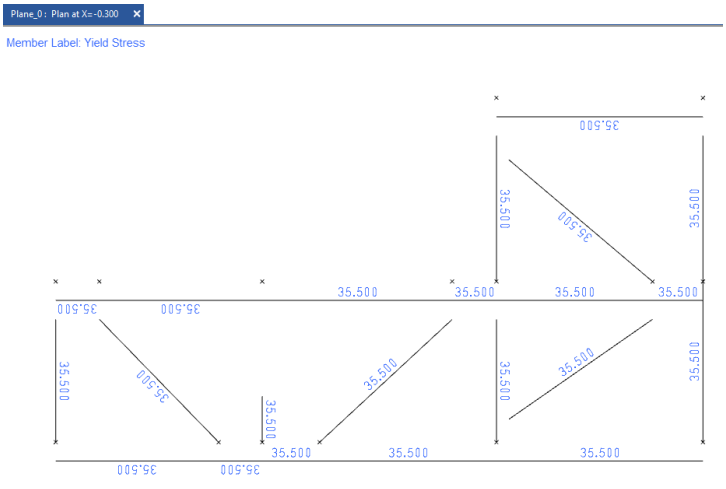

Plane_0 : Plan at Y=-8.000
Member Label: Lb
16.000
16.000
16.000
16.000
16.000
16.000
16.000
X

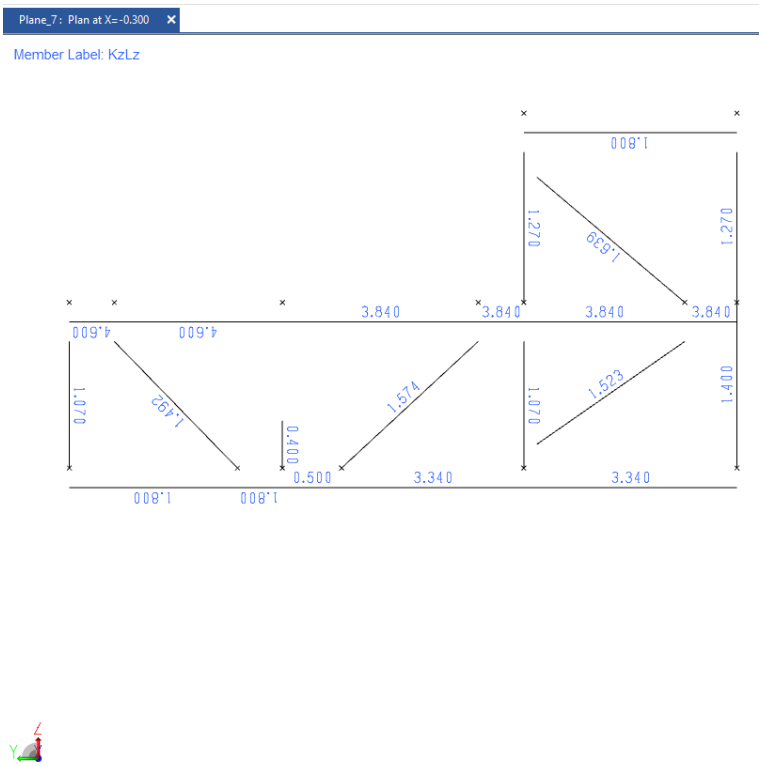

Plane_3 : Plan at Y=-8.000
Member Label: KzLz
1.200
1.400
2.470
2.470
16.000
16.000
16.000
16.000
16.000
16.000
16.000
1.200
1.400
2.400
0.400
5.300
5.300
5.300
0.400
2.470
X

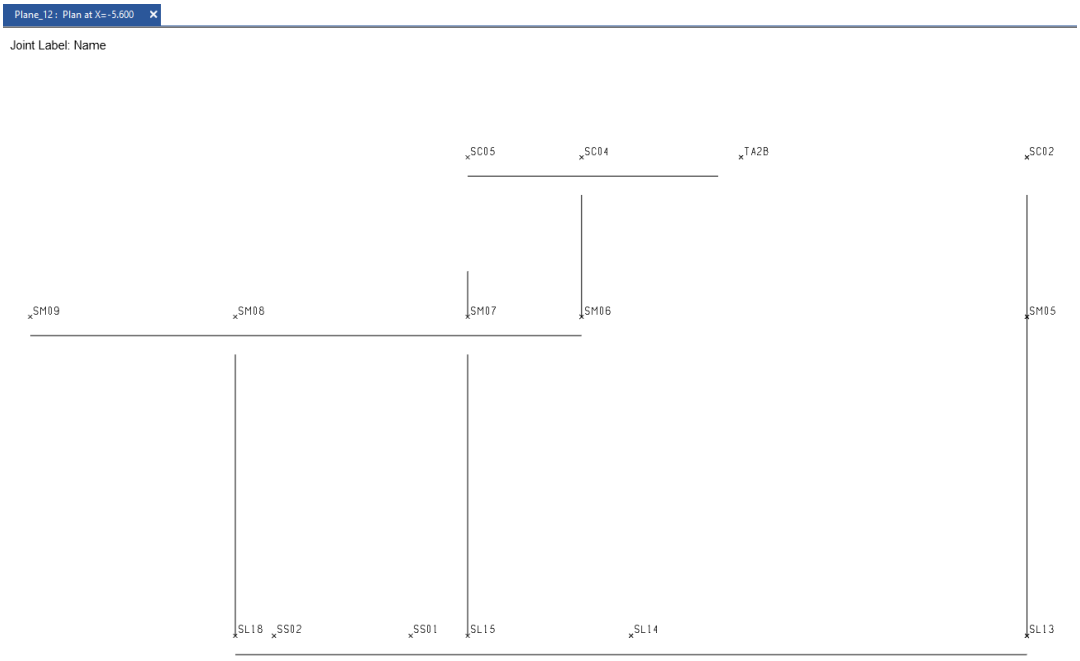

Plane_14 : Plan at X=-0.300
Joint Label: Name
SU11
SU12
SC08
SC10
SC09
SM35
SM34
SM33
SM32
SM25
SM26
SM27
SM29
SM30
SM31

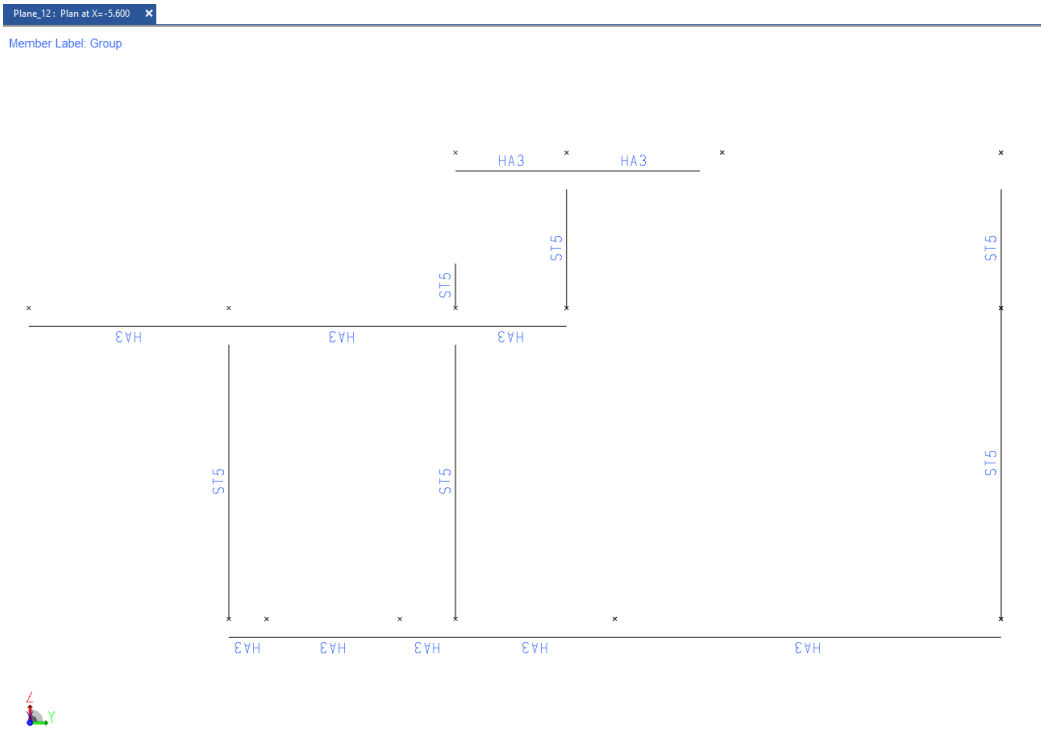

Plane_14 : Plan at X=-0.300
Member Label: Group
IP3
ST5
ST2
ST4
HA3
ST3

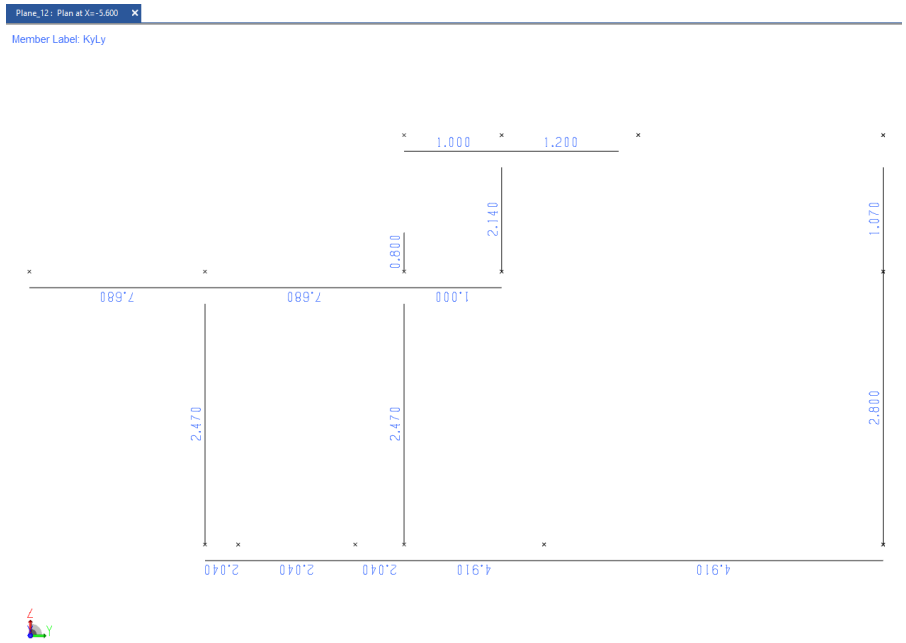

Plane_14 : Plan at X=-0.300
Member Label: KyLy
1.800
1.270
1.639
1.270
1.655
0.385
1.360
0.440
0.380
1.420
2.140
1.492
1.574
0.800
1.070
1.523
1.400
7.680
7.680
7.680
1.420
0.380

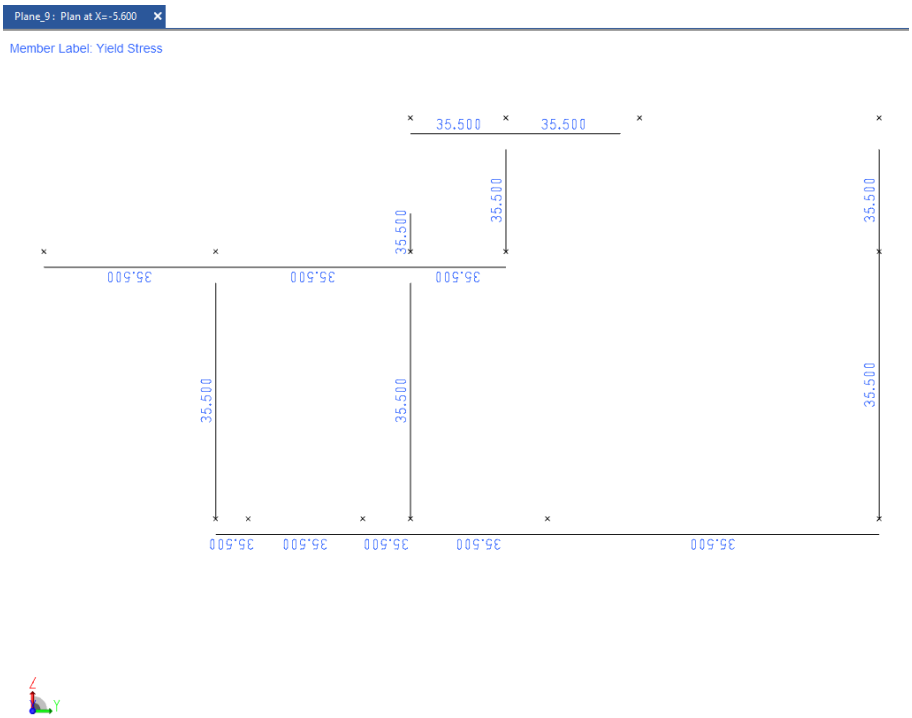

Plane_0 : Plan at X=-0.300
Member Label: Yield Stress
35.500
35.500
35.500
35.500
35.500
35.500
35.500
35.500
35.500
35.500
35.500
35.500
35.500
35.500
35.500
35.500
35.500
35.500
35.500
35.500
35.500
35.500
35.500

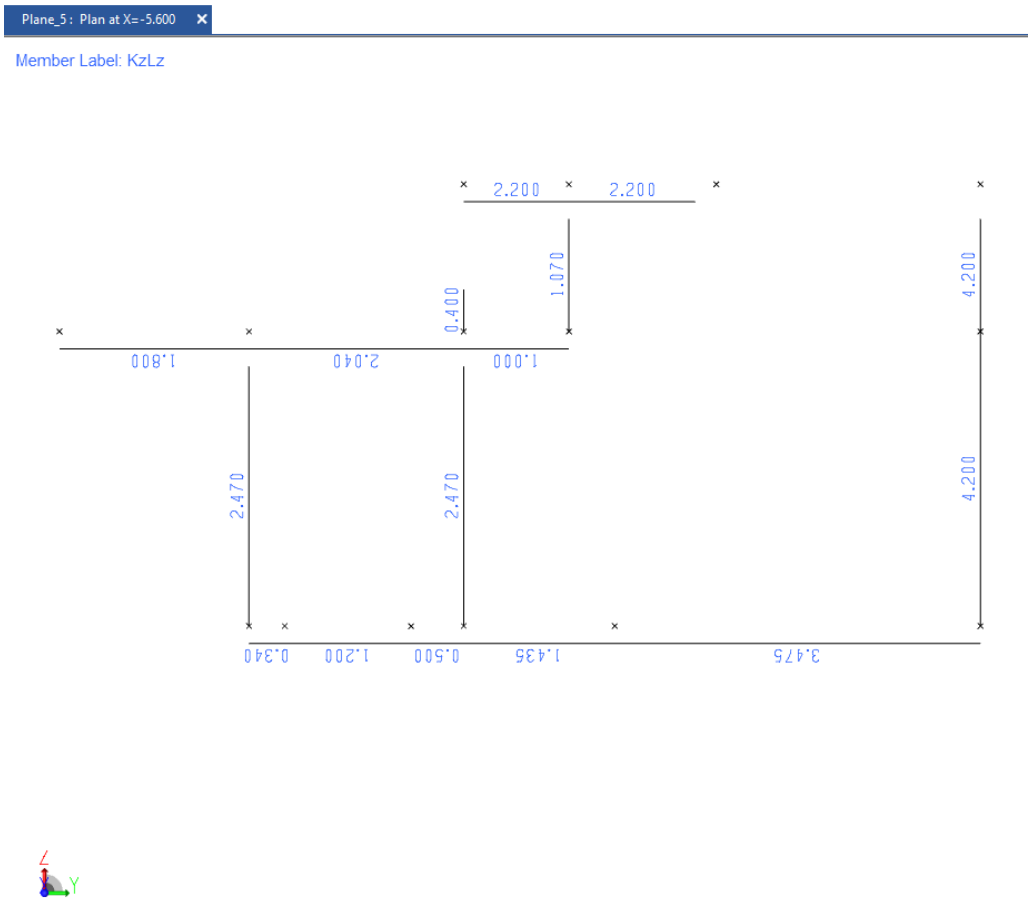

Plane_7 : Plan at X=-0.300
Member Label: KzLz
1.800
1.270
1.639
1.270
3.840
3.840
3.840
3.840
4.600
4.600
1.070
1.492
0.400
1.574
1.070
1.523
1.400
0.500
3.340
3.340
1.800
1.800

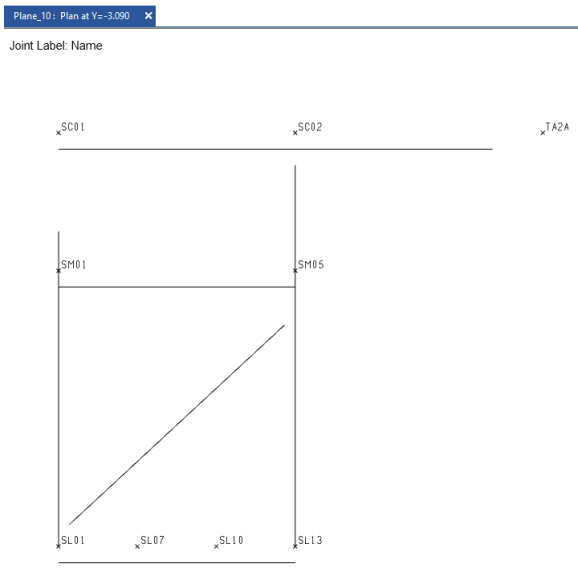

Plane_12 : Plan at X=-5.600
Joint Label: Name
SC05
SC04
TA2B
SC02
SM09
SM08
SM07
SM06
SM05
SL18
SS02
SS01
SL15
SL14
SL13

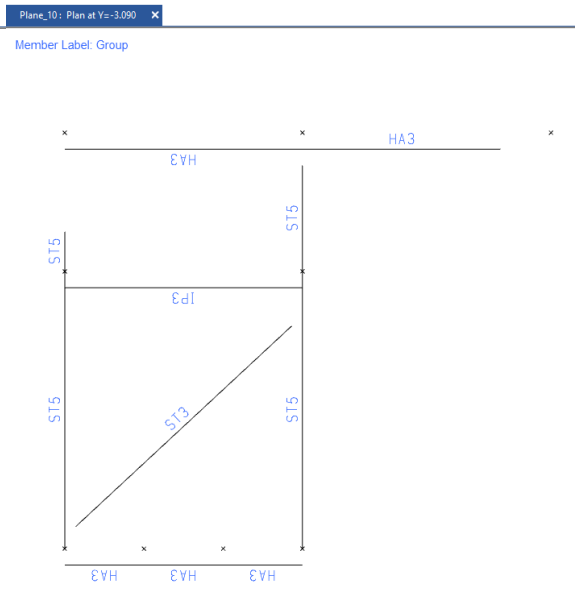

Plane_12 : Plan at X=-5.600
Member Label: Group
HA3
HA3
ST5
ST5
ST5
ST5
ST5
HA3
HA3
HA3
HA3
HA3
HA3
HA3

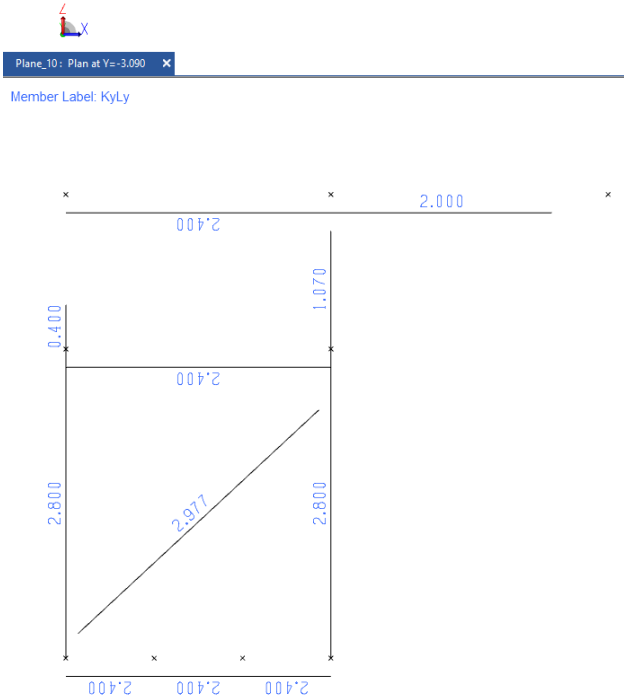

Plane_12 : Plan at X=-5.600
Member Label: KyLy
1.000
1.200
2.140
0.800
1.070
7.680
7.680
1.000
2.470
2.470
2.800
2.040
2.040
2.040
4.910
4.910

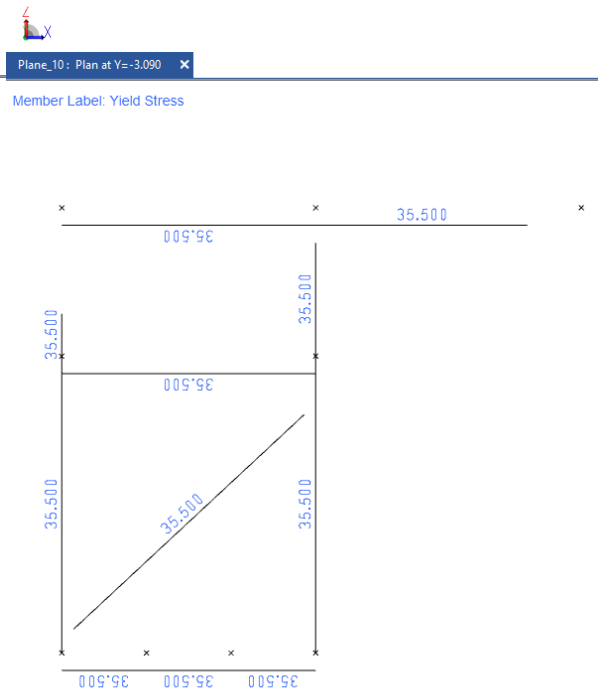

Plane_9 : Plan at X=-5.600
Member Label: Yield Stress
35.500
35.500
35.500
35.500
35.500
35.500
35.500
35.500
35.500
35.500
35.500
35.500
35.500
35.500
35.500

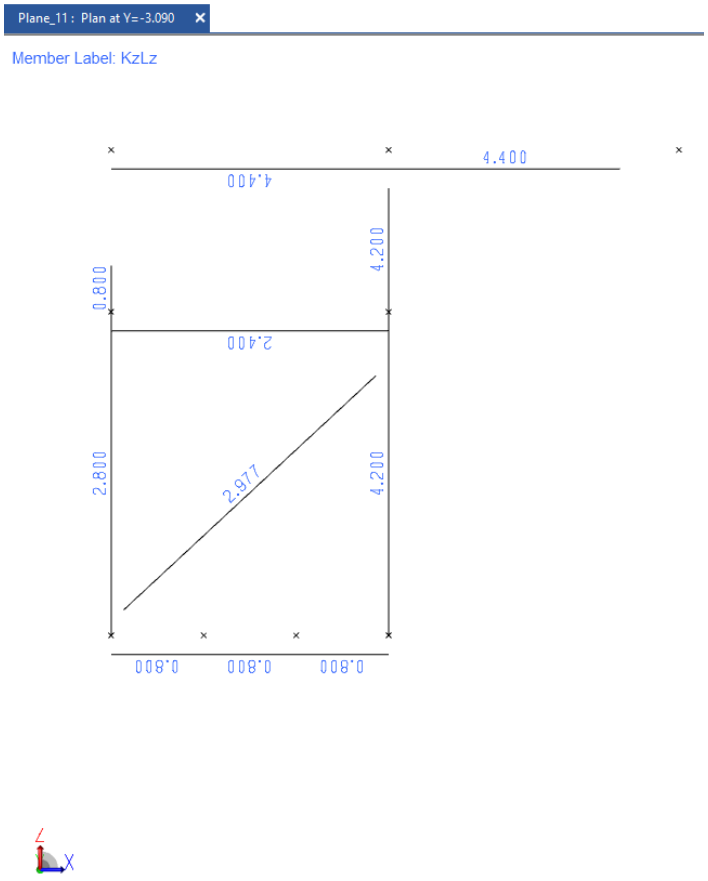

Plane_5 : Plan at X=-5.600
Member Label: KzLz
2.200
2.200
1.070
0.400
4.200
1.800
2.040
1.000
2.470
2.470
4.200
0.340
1.200
0.500
1.435
3.475
Z
Y

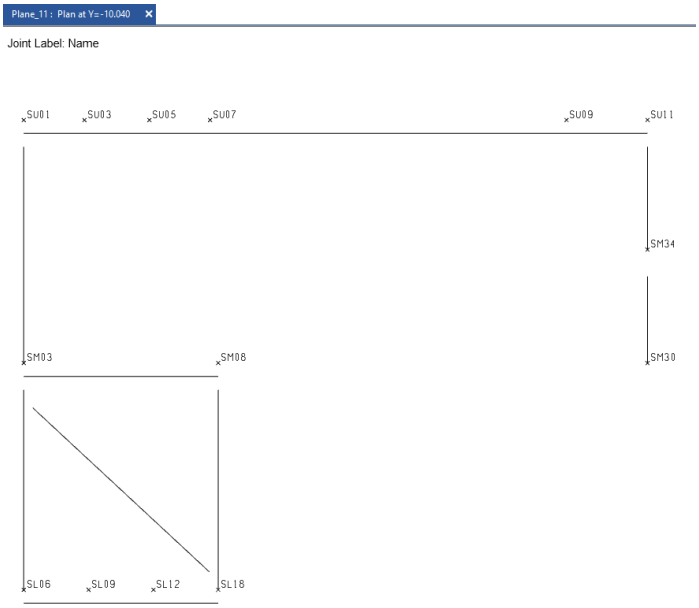

Plane_10 : Plan at Y=-3.090
Joint Label: Name
SC01
SC02
TA2A
SM01
SM05
SL01
SL07
SL10
SL13

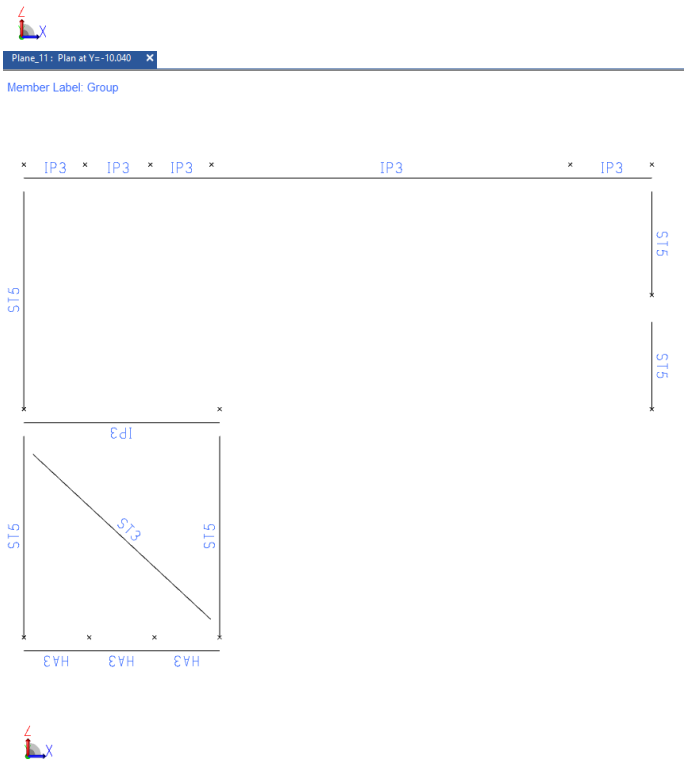

Plane_10 : Plan at Y=-3.090
Member Label: Group
HA3
ST5
IP3
ST3

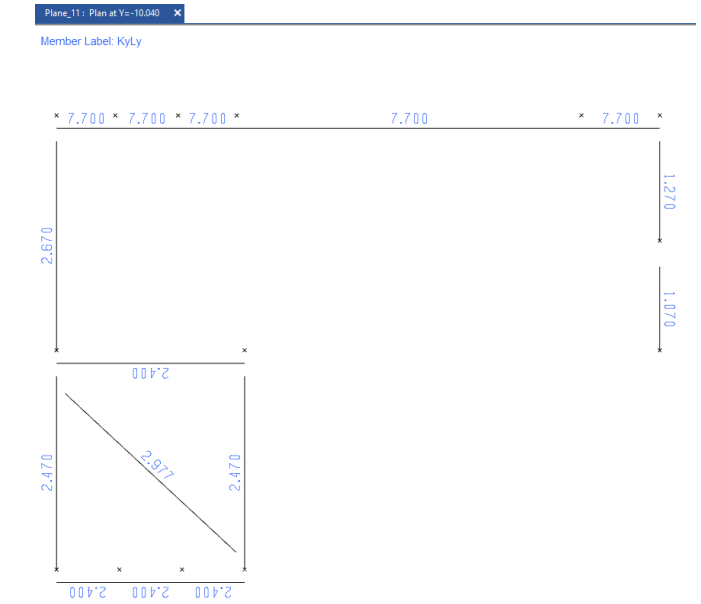

Plane_10 : Plan at Y=-3.090
Member Label: KyLy
2.000
2.400
1.070
0.400
2.800
2.977

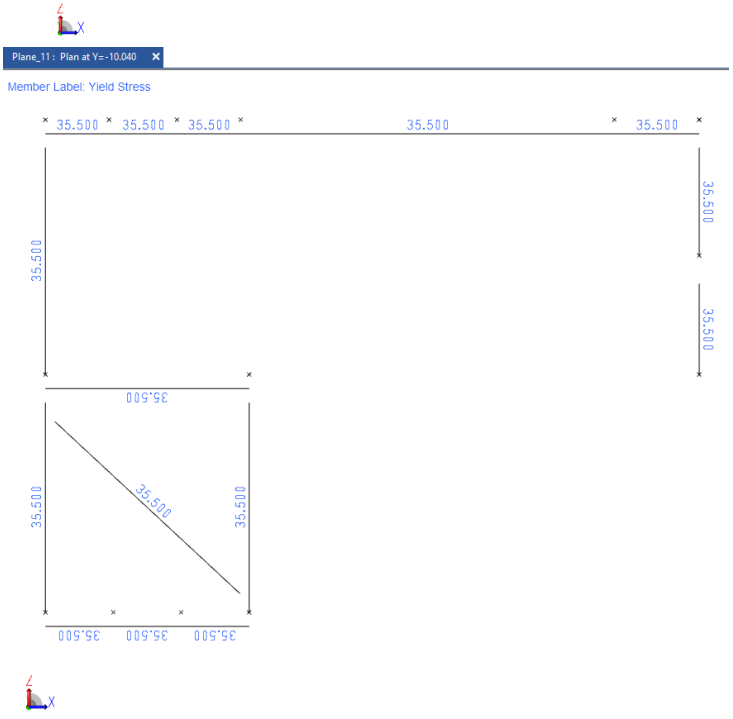

Plane_10 : Plan at Y=-3.090
Member Label: Yield Stress
35.500

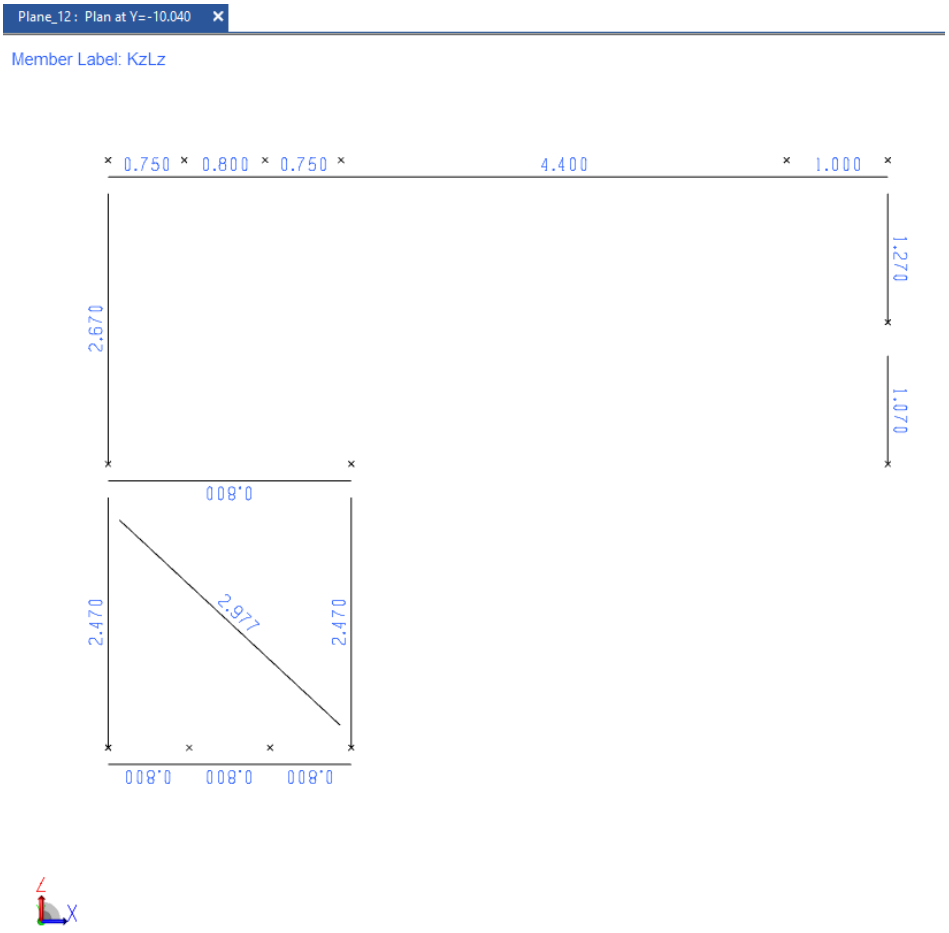

Plane_11 : Plan at Y=-3.090
Member Label: KzLz
4.400
4.400
4.200
0.800
2.400
2.977
2.800
4.200
0.800
0.800
0.800
Z
X

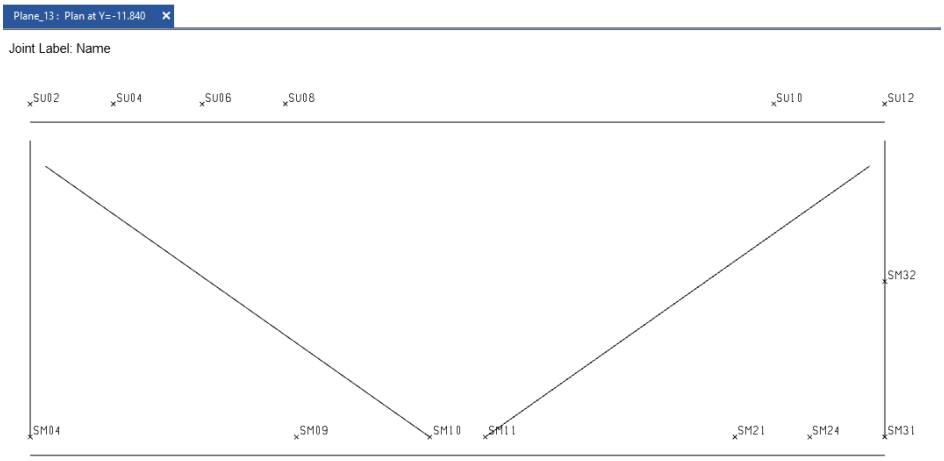

Plane_11 : Plan at Y=-10.040
Joint Label: Name
SU01
SU03
SU05
SU07
SU09
SU11
SM34
SM03
SM08
SM30
SL06
SL09
SL12
SL18

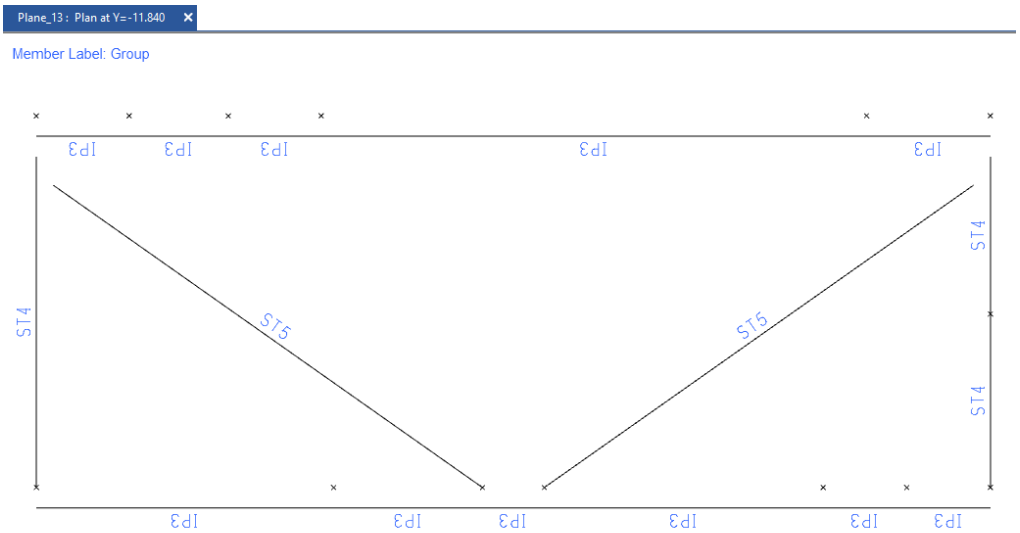

Plane_11 : Plan at Y=-10.040
Member Label: Group
IP3
IP3
IP3
IP3
IP3
ST5
ST5
ST5
ST5
IP3
ST3
HA3
HA3
HA3

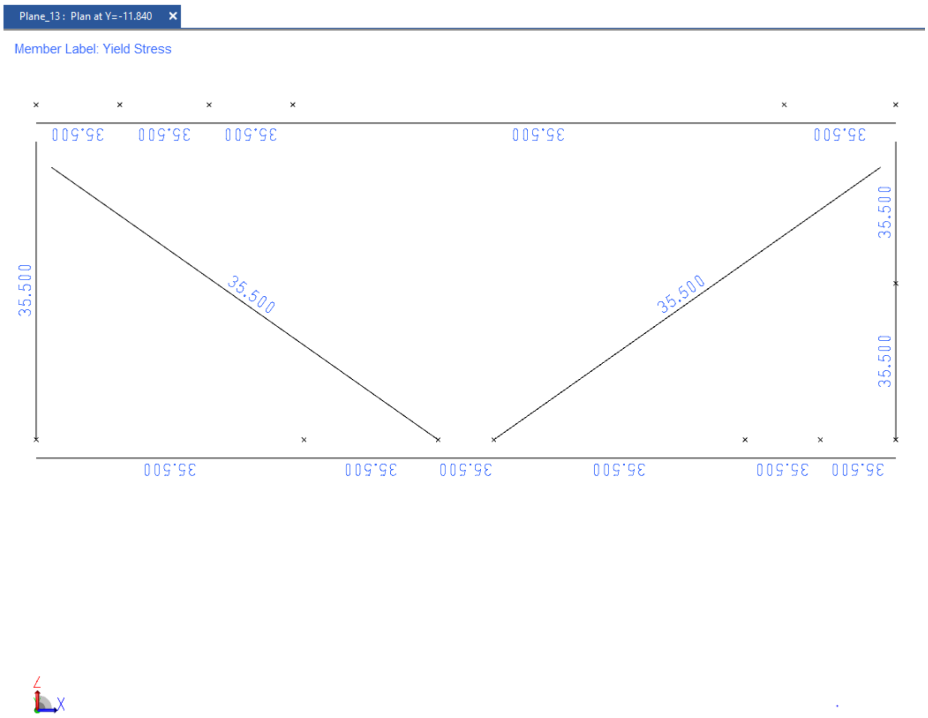

Plane_11 : Plan at Y=-10.040
Member Label: KyLy
7.700
1.270
1.070
2.670
2.400
2.470
2.977

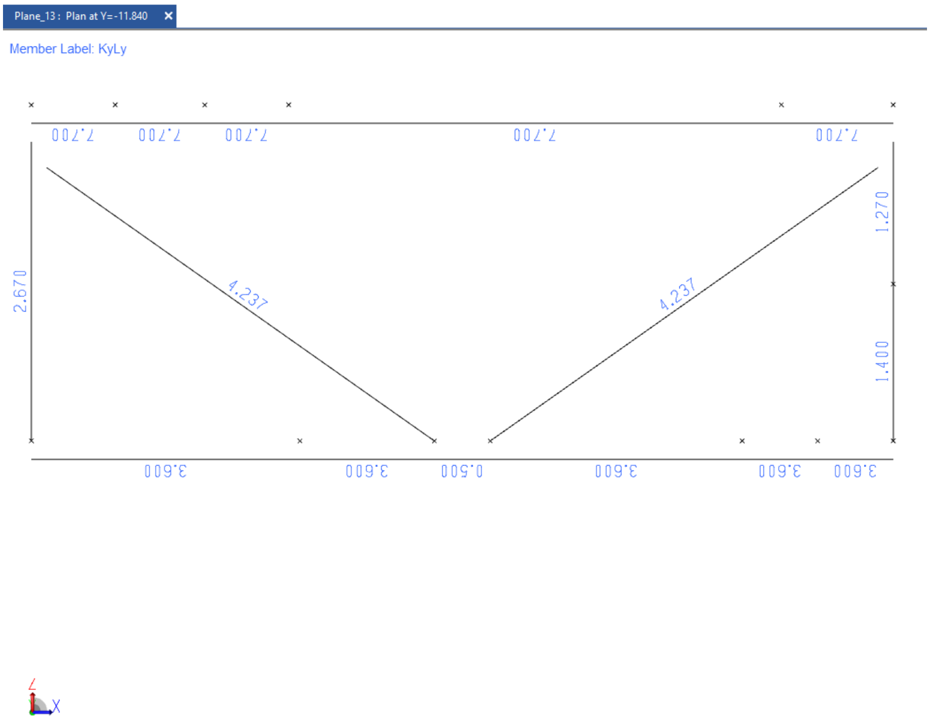

Plane_11 : Plan at Y=-10.040
Member Label: Yield Stress
35.500


Plane_12 : Plan at Y=-10.040
Member Label: KzLz
0.750
0.800
0.750
4.400
1.000
2.670
1.270
1.070
0.800
2.470
2.977
2.470
0.800
0.800
0.800
Z
X

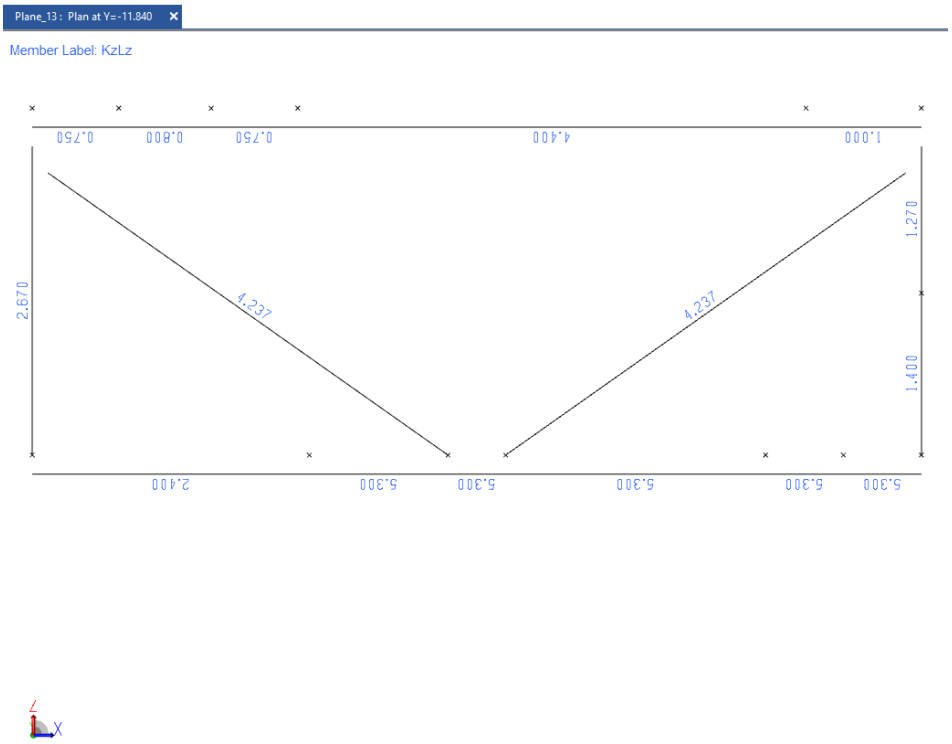

Plane_13 : Plan at Y=-11.840
Joint Label: Name
SU02
SU04
SU06
SU08
SU10
SU12
SM32
SM04
SM09
SM10
SM11
SM21
SM24
SM31

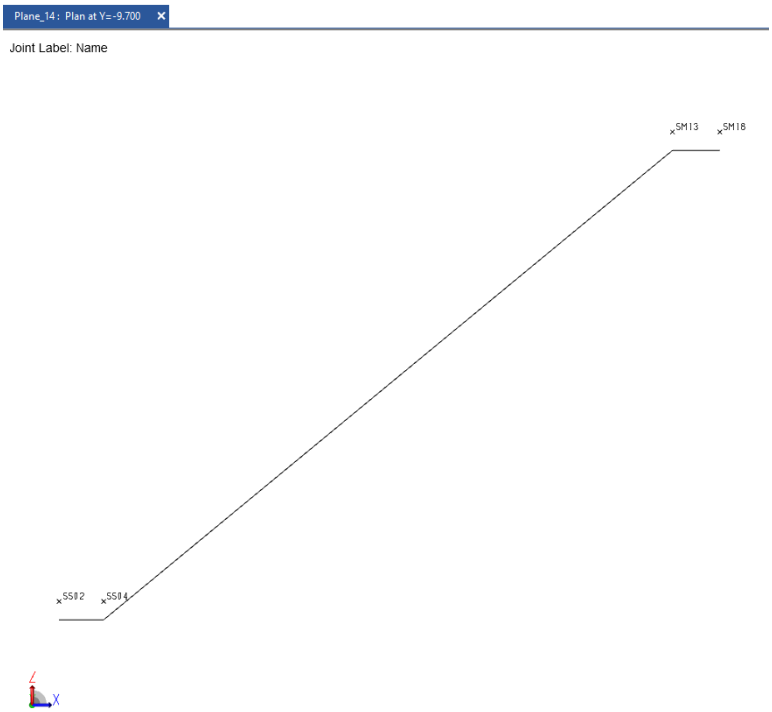

Plane_13 : Plan at Y=-11.840
Member Label: Group
IP3
ST4
ST5

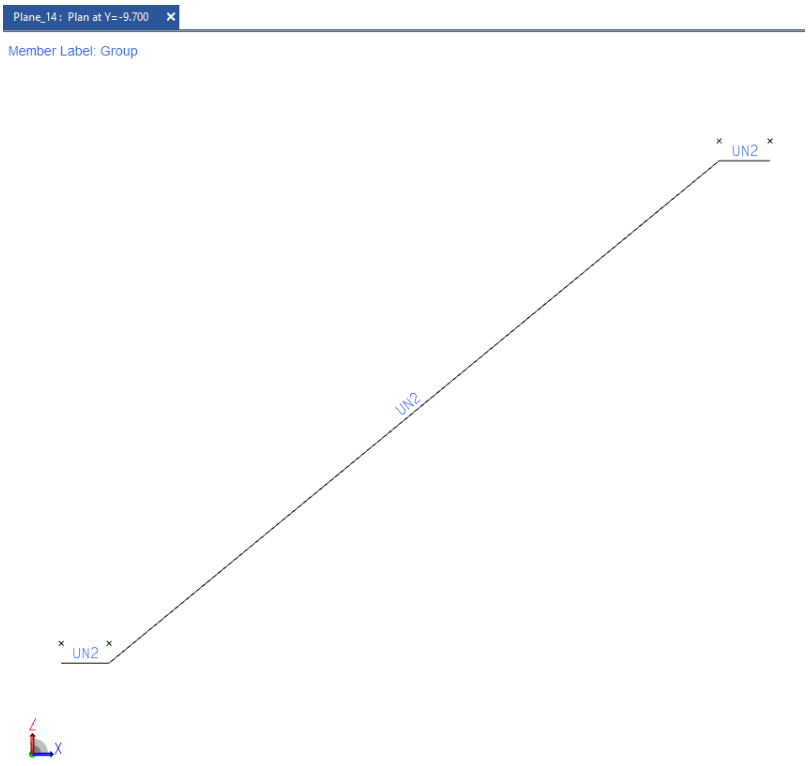


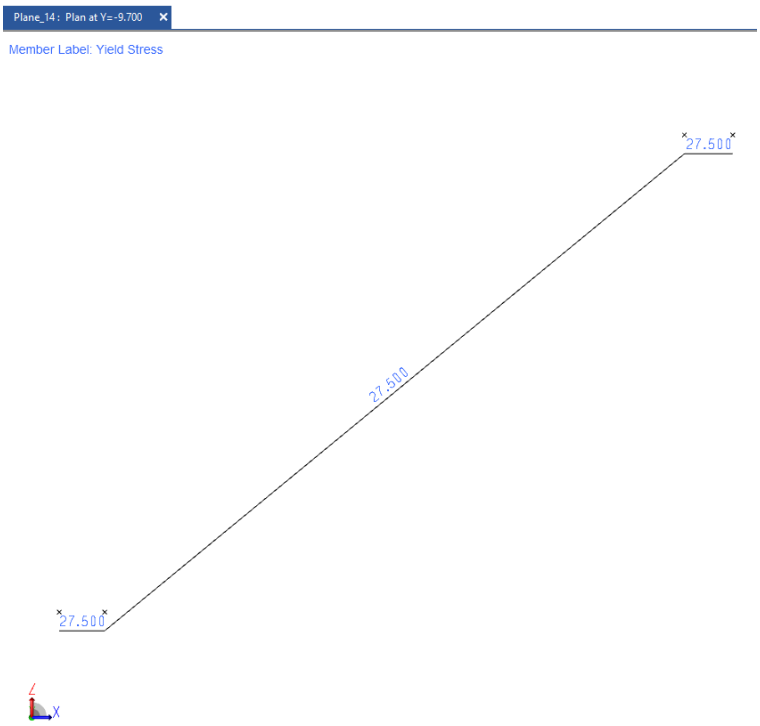


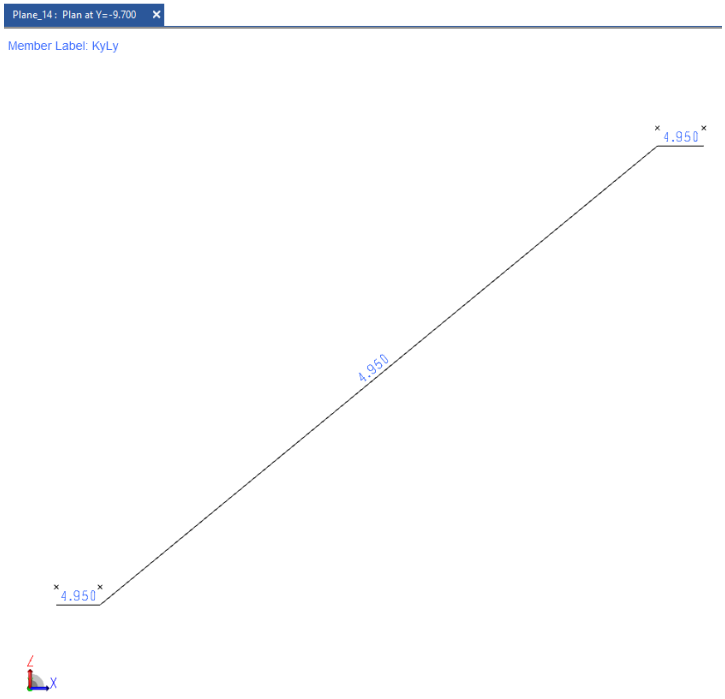
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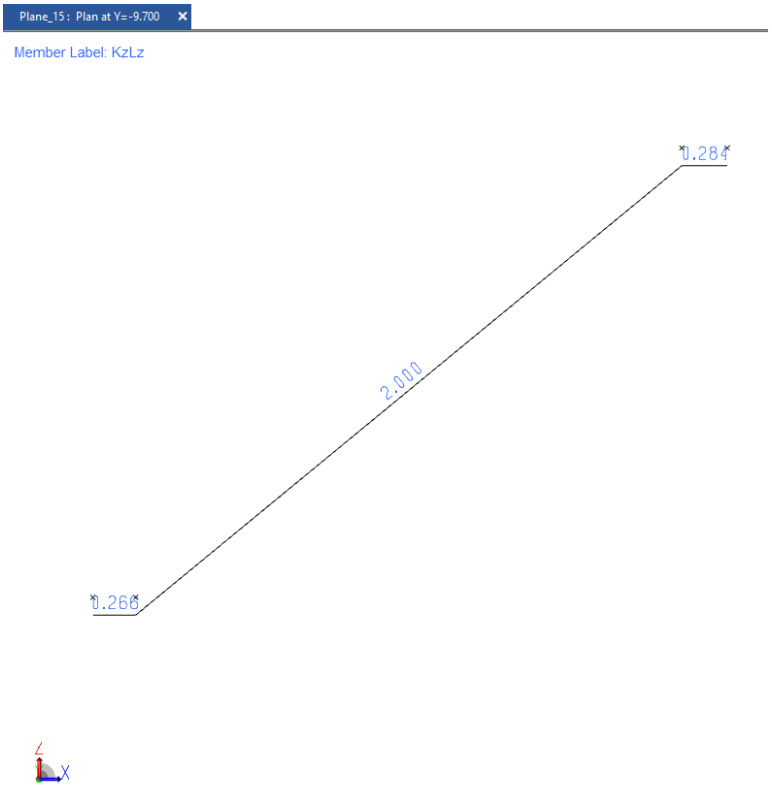

Plane_13 : Plan at Y=-11.840
Member Label: KzLz
0.750
0.800
0.750
4.400
1.000
2.670
4.237
4.237
1.270
1.400
2.400
5.300
5.300
5.300
5.300
5.300
Z
X

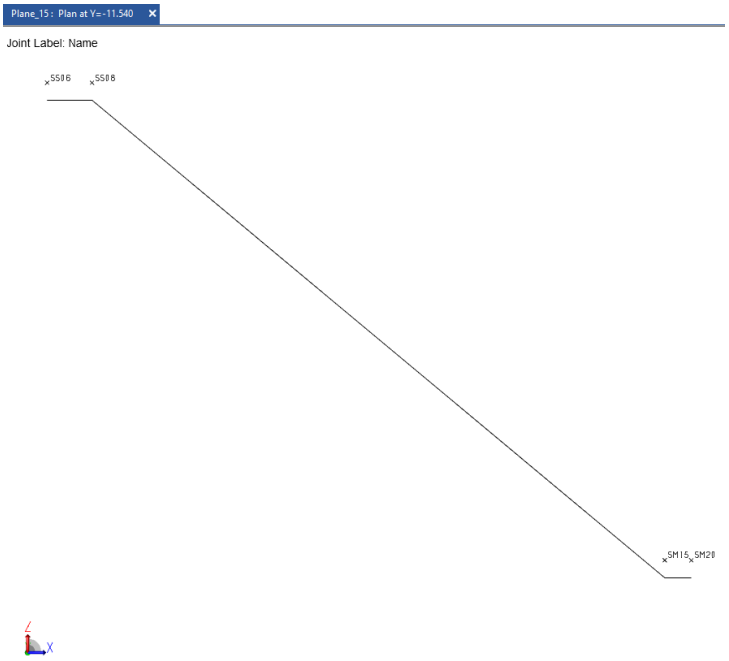

Plane_14 : Plan at Y=-9.700
Joint Label: Name
SM13
SM18
SS02
SS04
Z
X

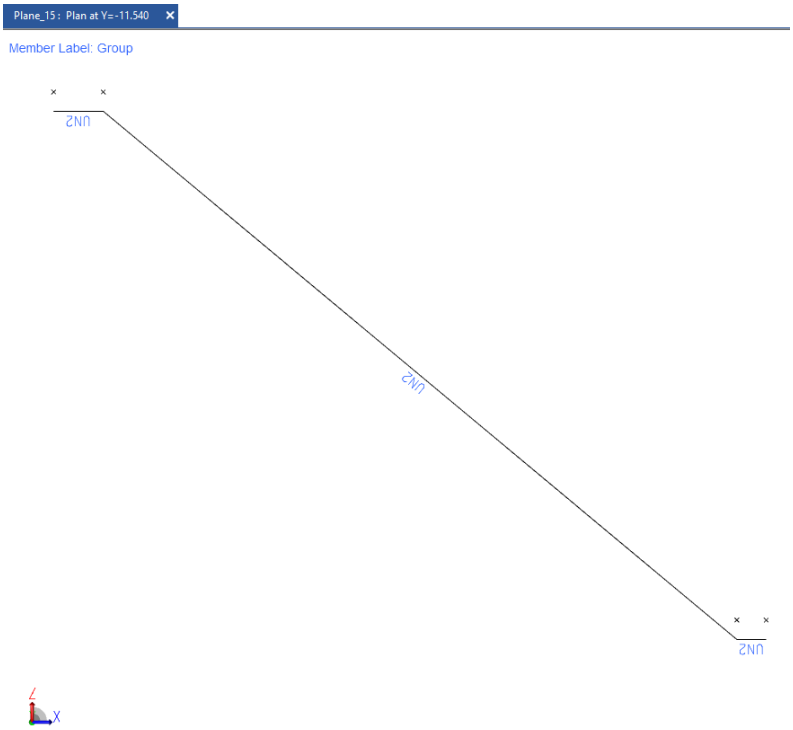

Plane_14 : Plan at Y=-9.700
Member Label: Group
UN2
UN2
UN2
Z
X

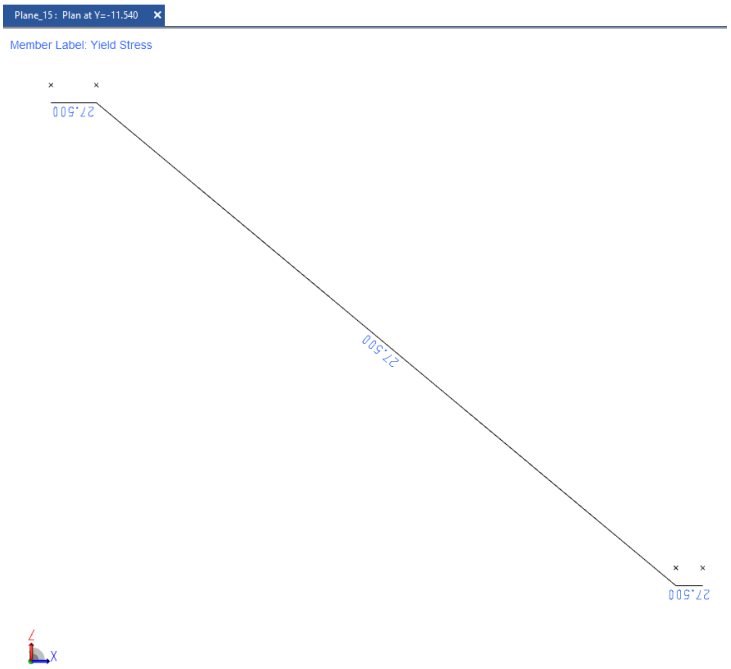

Plane_14 : Plan at Y=-9.700
Member Label: Yield Stress
27.500
27.500
27.500
Z
X

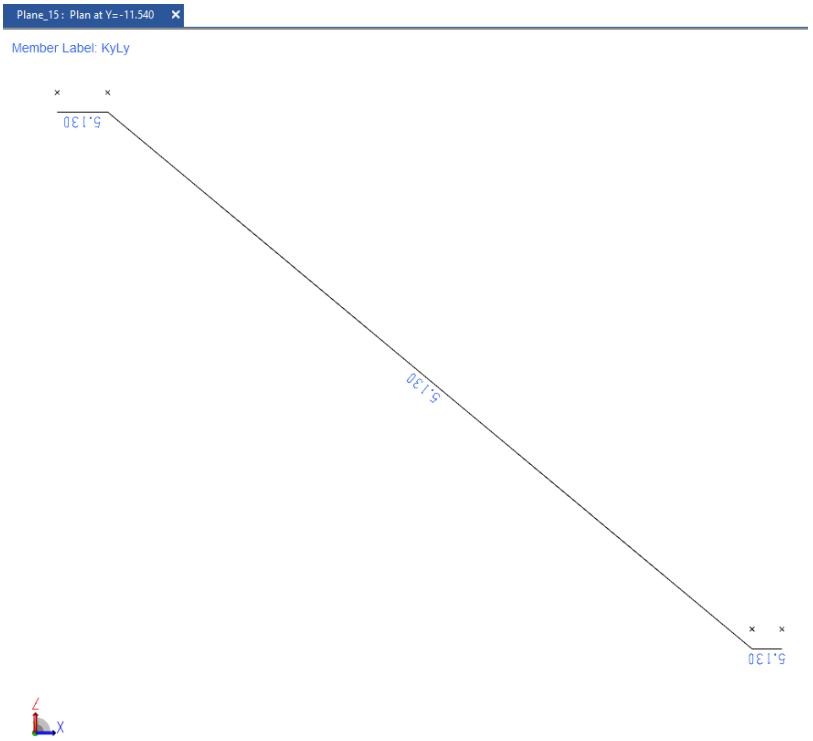

Plane_14 : Plan at Y=-9.700
Member Label: KyLy
4.950
4.950
4.950
Z
X

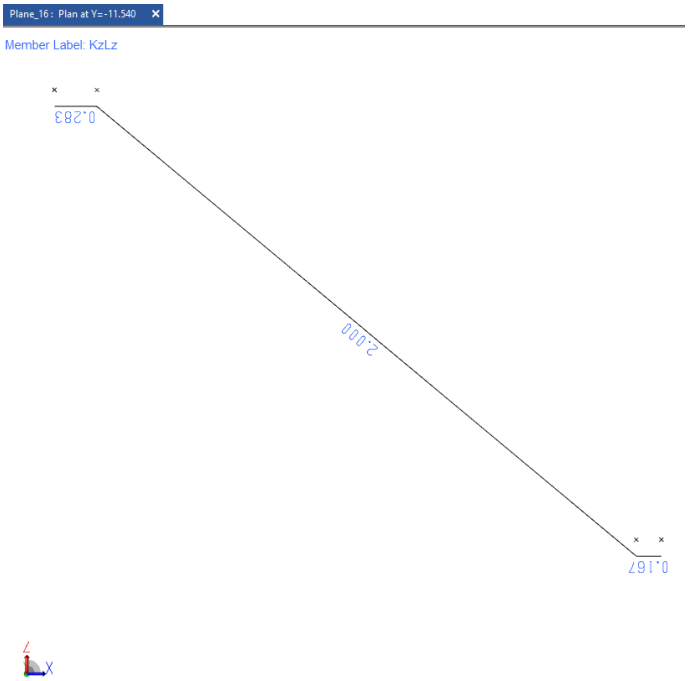

Plane_15 : Plan at Y=-9.700
Member Label: KzLz
0.284
2.000
0.268
Z
X

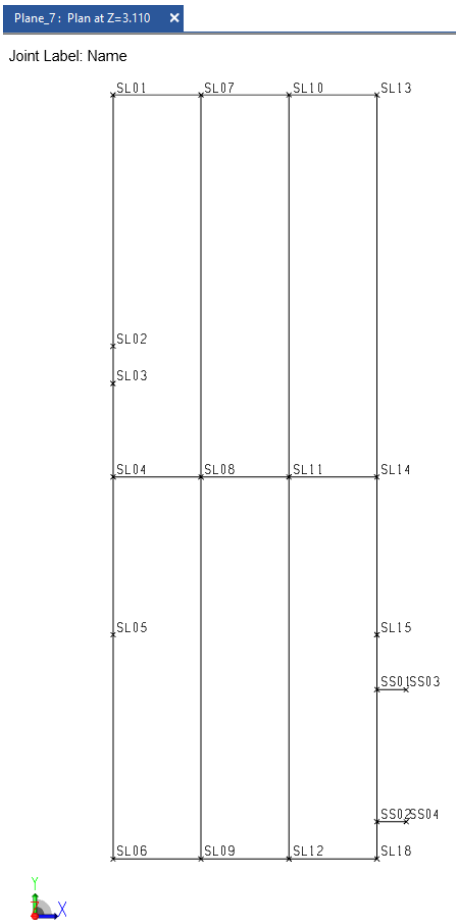

Plane_15 : Plan at Y=-11.540
Joint Label: Name
SS06
SS08
SM15
SM28
Z
X

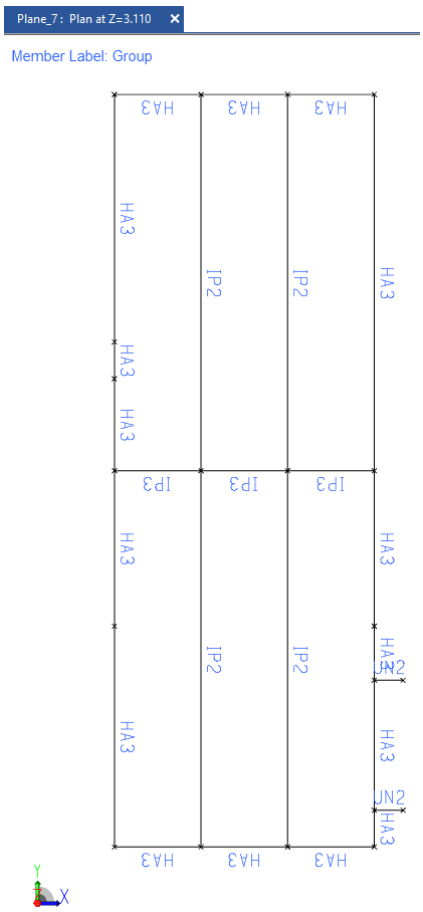

Plane_15 : Plan at Y=-11.540
Member Label: Group
UN2
UN2
UN2
Z
X

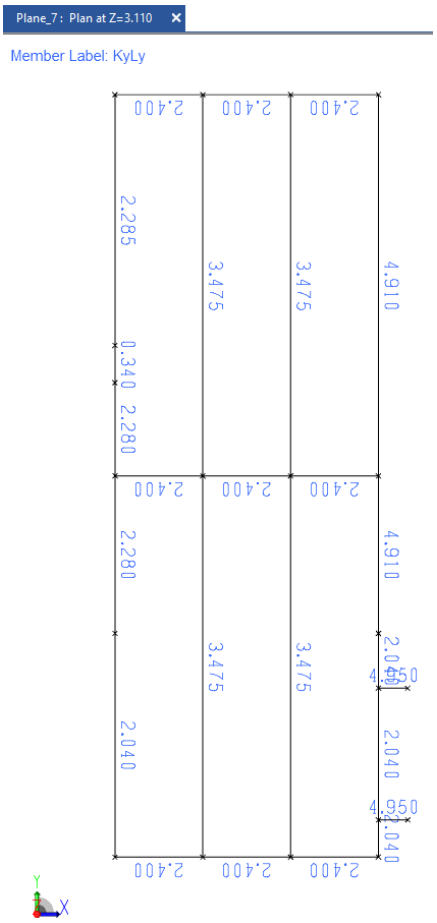

Plane_15 : Plan at Y=-11.540
Member Label: Yield Stress
27.500
27.500
27.500
Z
X

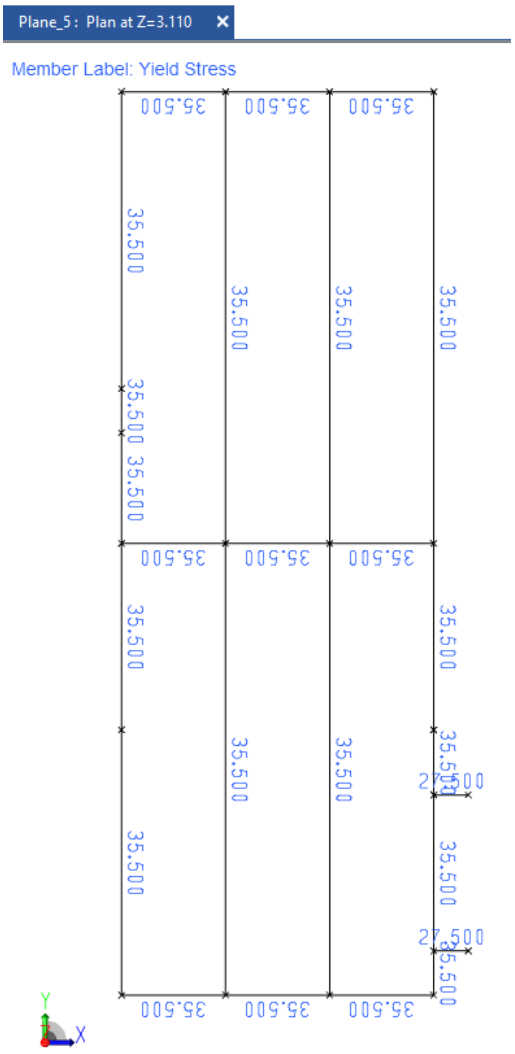

Plane_15 : Plan at Y=-11.540
Member Label: KyLy
5.130
5.130
5.130
Z
X

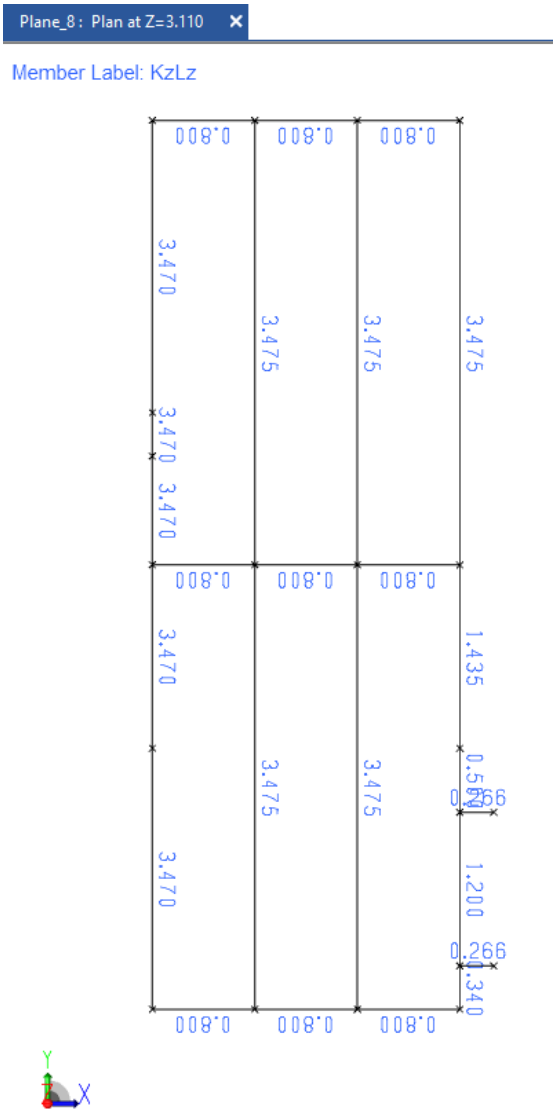

Plane_16 : Plan at Y=-11.540
Member Label: KzLz
0.283
2.000
0.167
Z
X

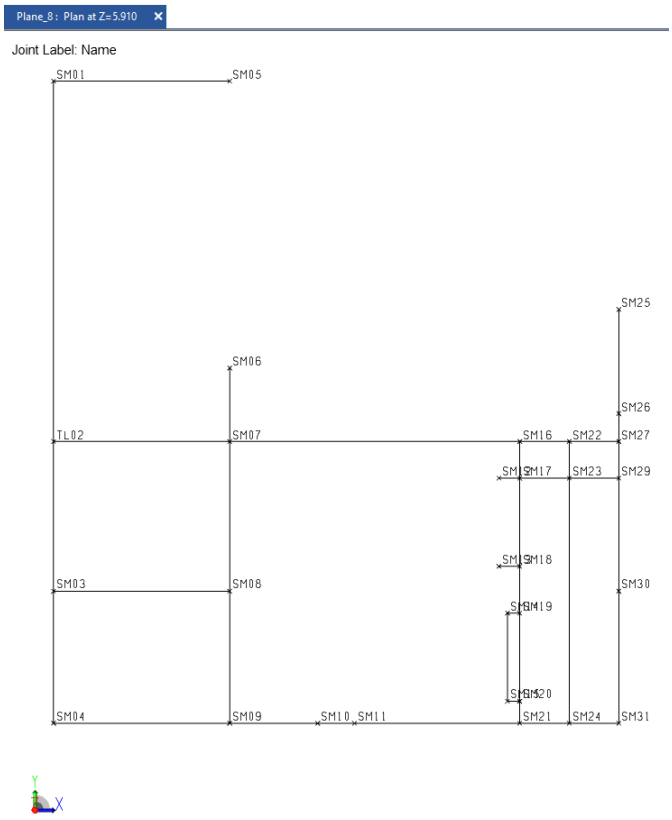

Plane_7 : Plan at Z=3.110
Joint Label: Name
SL01
SL07
SL10
SL13
SL02
SL03
SL04
SL08
SL11
SL14
SL05
SL15
SS01
SS03
SS02
SS04
SL06
SL09
SL12
SL18
Y
X

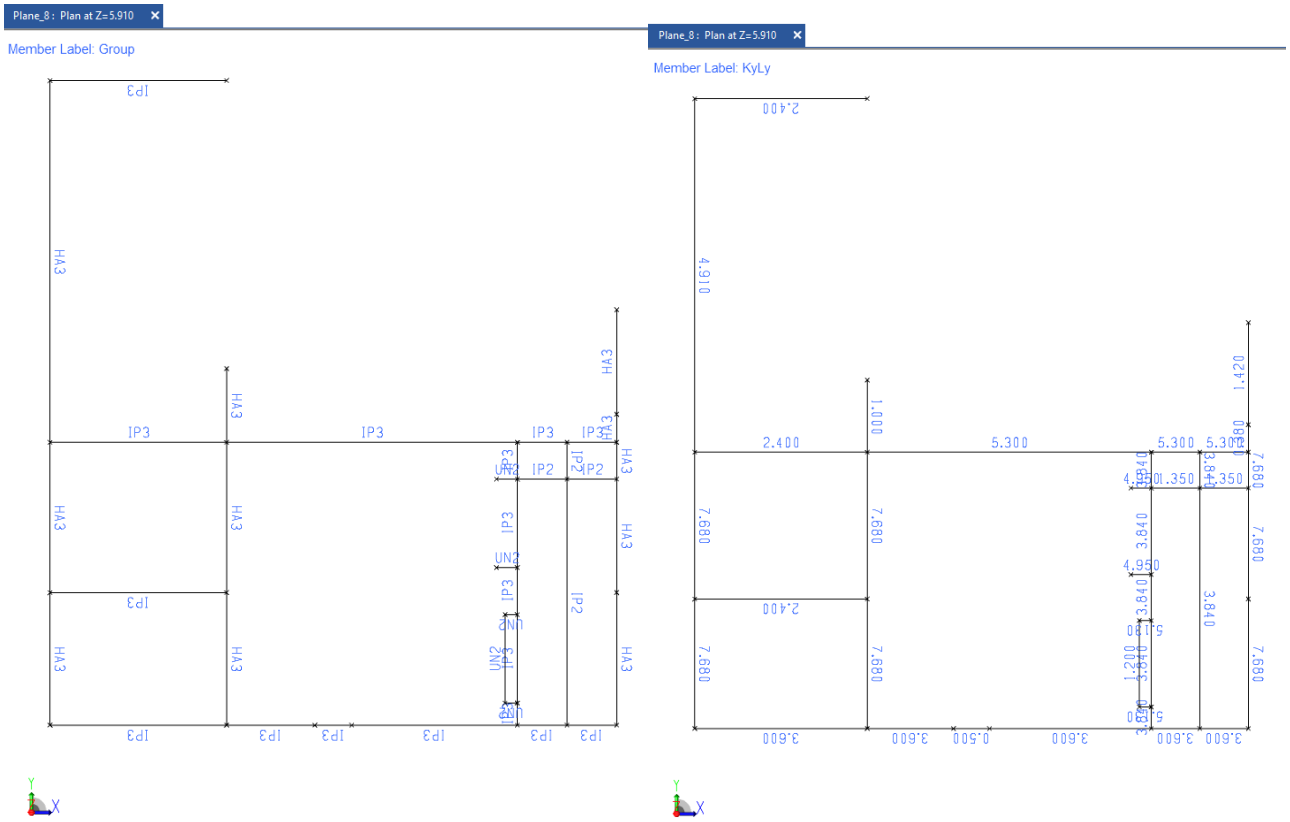

Plane_7 : Plan at Z=3.110
Member Label: Group
HA3
IP2
IP3
UN2
Y
X

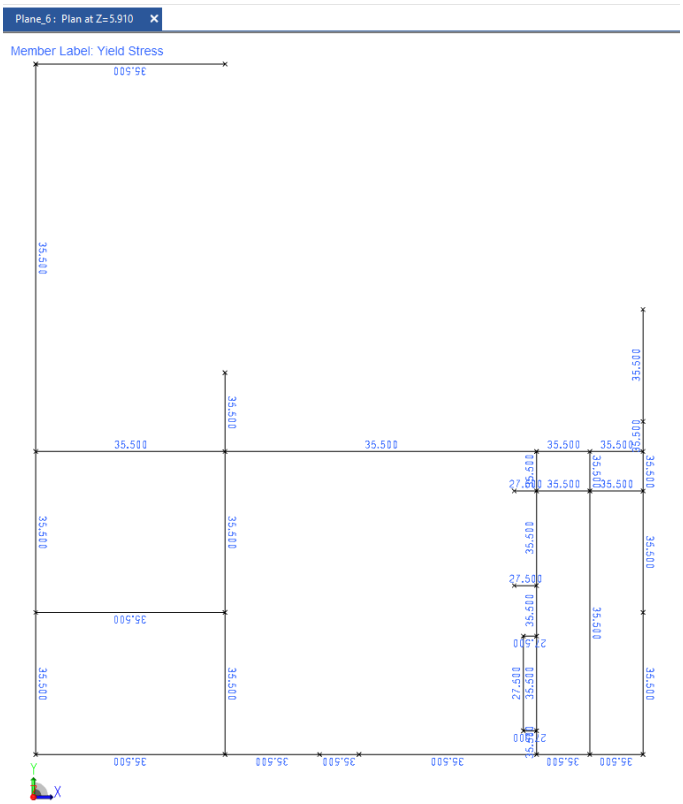

Plane_7 : Plan at Z=3.110
Member Label: KyLy
2.400
2.400
2.400
2.285
3.475
3.475
4.910
0.340
2.280
2.400
2.400
2.400
2.280
4.910
3.475
3.475
2.040
2.040
4.950
2.040
Y
X

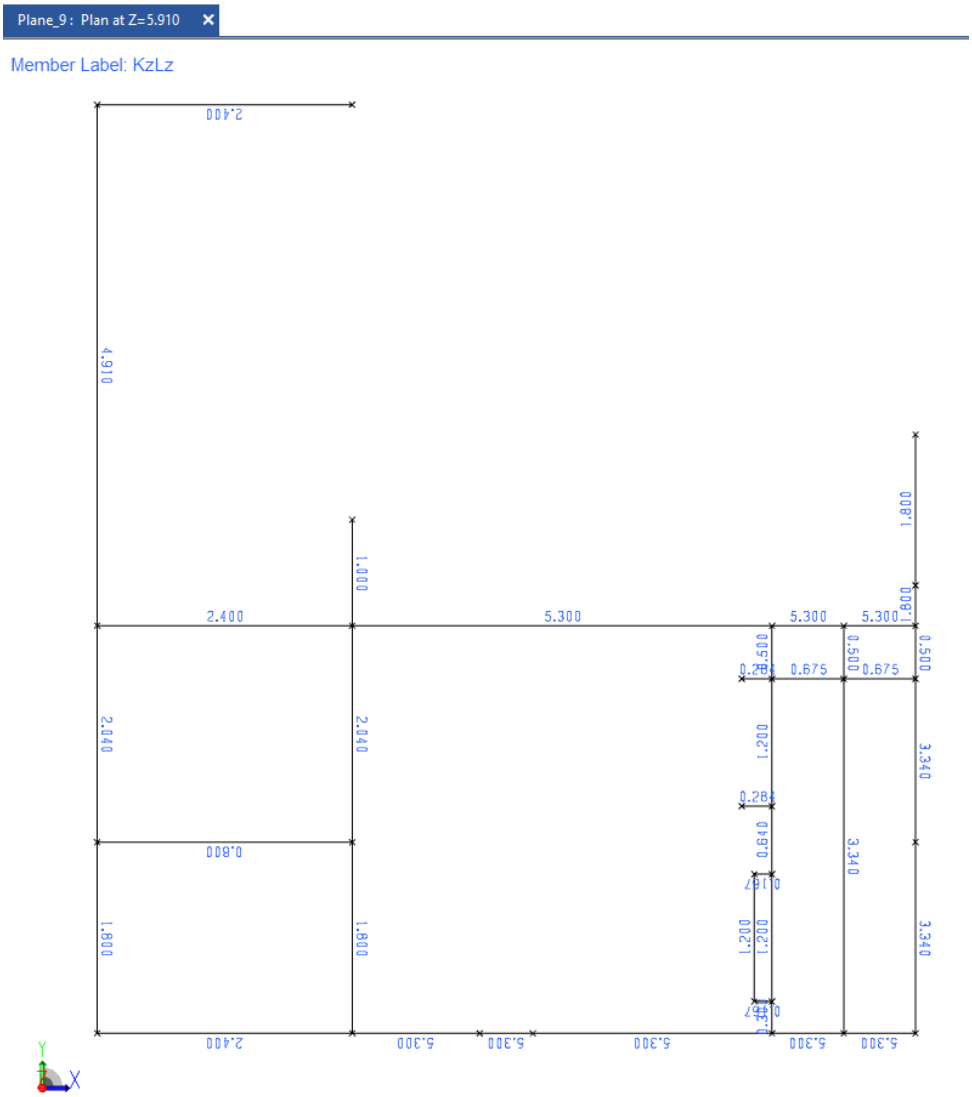

Plane_5 : Plan at Z=3.110
Member Label: Yield Stress
35.500
27.500

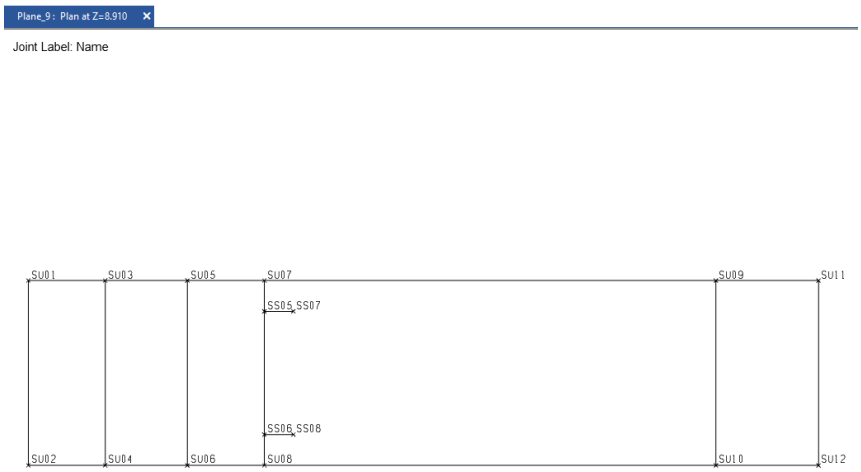

Plane_8 : Plan at Z=3.110
Member Label: KzLz
0.800
3.470
3.475
1.435
1.200
0.266
0.340

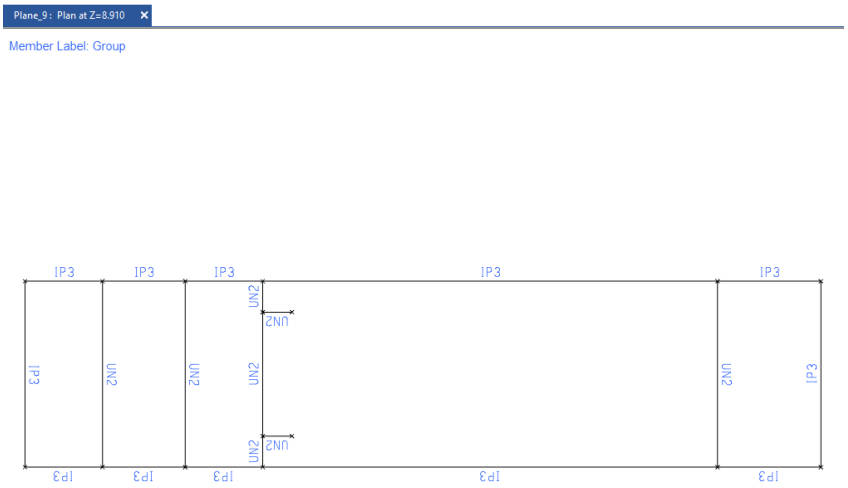

Plane_8 : Plan at Z=5.910
Joint Label: Name
SM01
SM05
SM25
SM06
SM26
TL02
SM07
SM16
SM22
SM27
SM17
SM23
SM29
SM18
SM03
SM08
SM30
SM19
SM20
SM04
SM09
SM10
SM11
SM21
SM24
SM31
Y
X

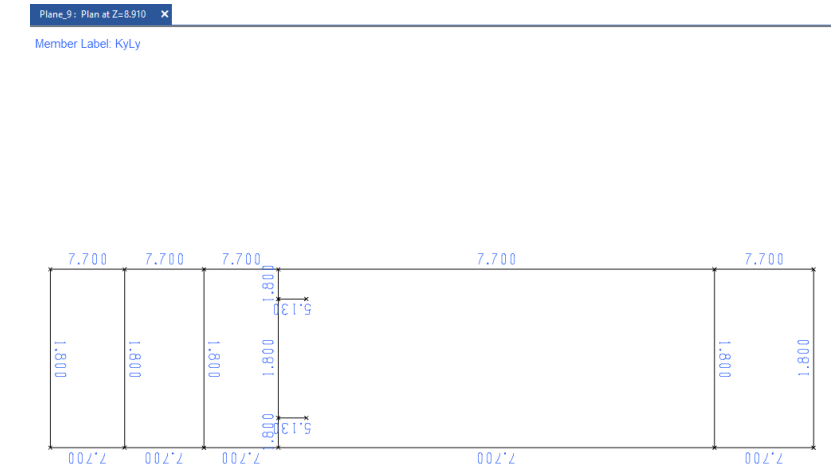

Plane_8 : Plan at Z=5.910
Member Label: Group
Plane_8 : Plan at Z=5.910
Member Label: KyLy

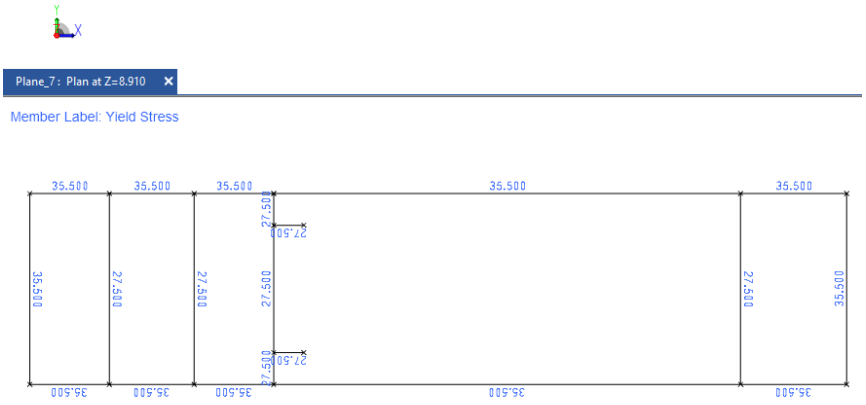

Plane_6 : Plan at Z=5.910
Member Label: Yield Stress
35.500
27.500
Y
X

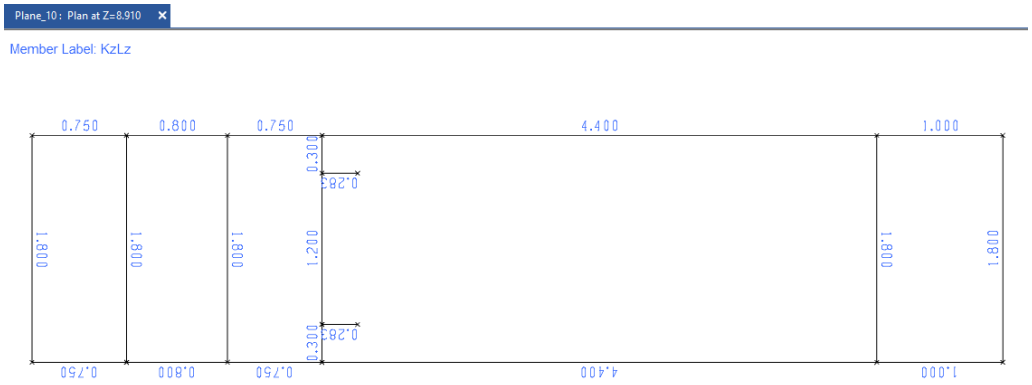

Plane_9 : Plan at Z=5.910
Member Label: KzLz
2.400
4.910
1.000
1.800
2.400
5.300
5.300
5.300
0.500
0.675
0.675
2.040
1.200
3.340
0.284
0.640
0.600
1.800
1.200
1.200
3.340
2.400
5.300
5.300
5.300
5.300
5.300
Y
X

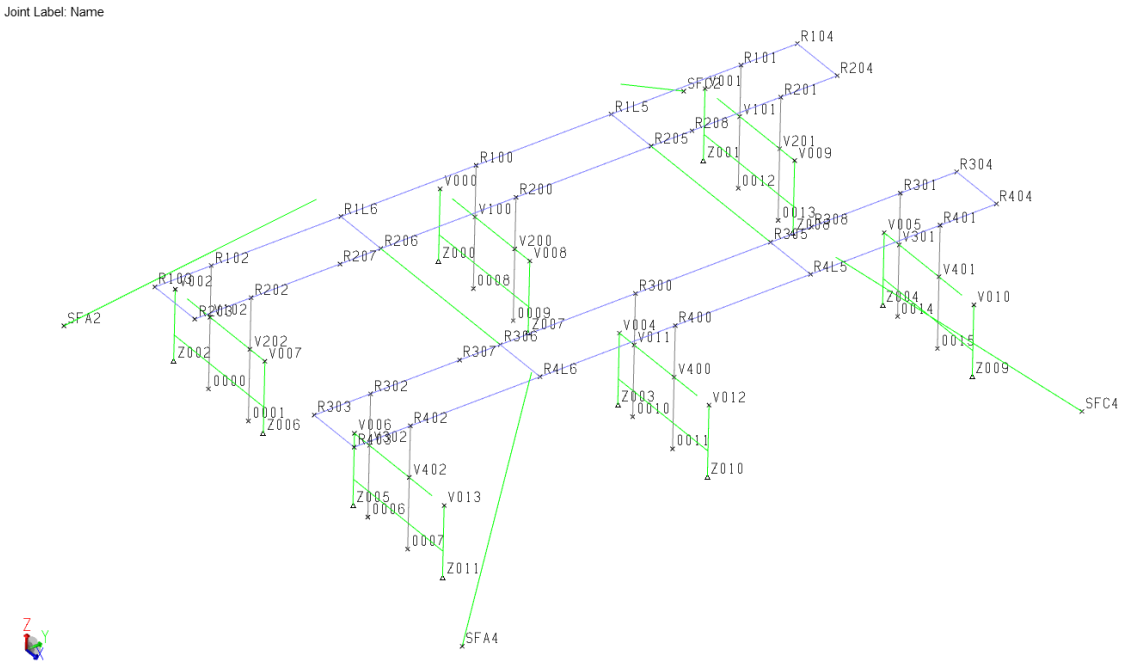

Plane_9 : Plan at Z=8.910
Joint Label: Name
SU01
SU03
SU05
SU07
SU09
SU11
SS05 SS07
SS06 SS08
SU02
SU04
SU06
SU08
SU10
SU12

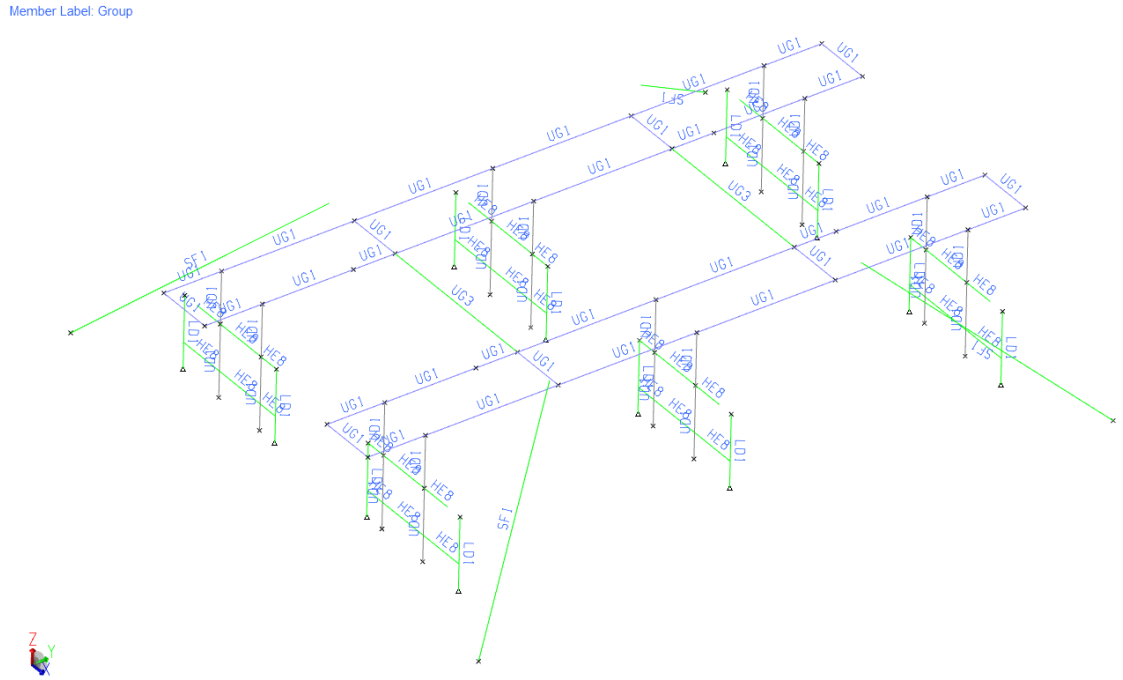

Plane_9 : Plan at Z=8.910
Member Label: Group
IP3
UN2

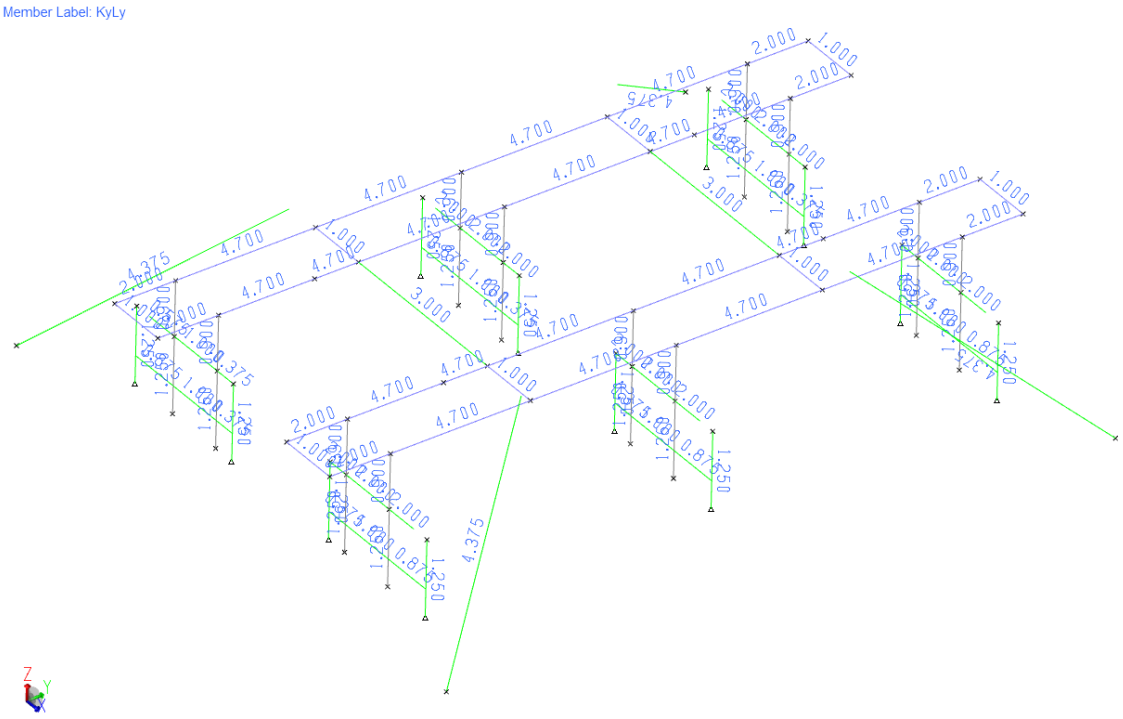

Plane_9 : Plan at Z=8.910
Member Label: KyLy
7.700
1.800
5.133

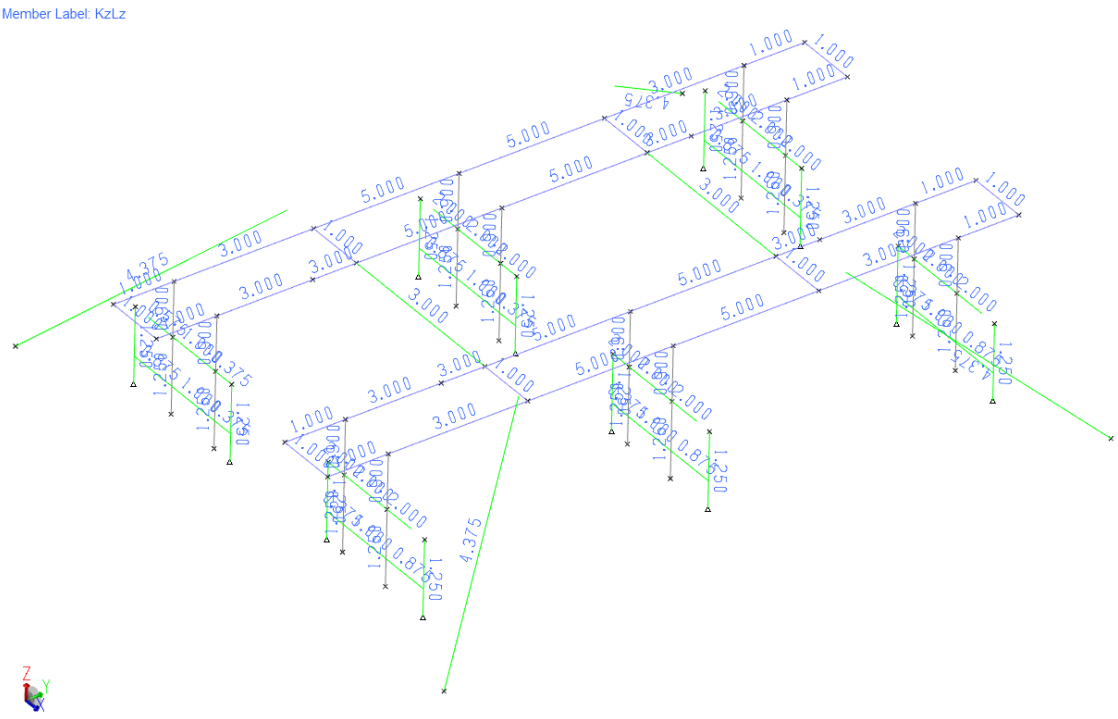

Plane_7 : Plan at Z=8.910
Member Label: Yield Stress
35.500
27.500

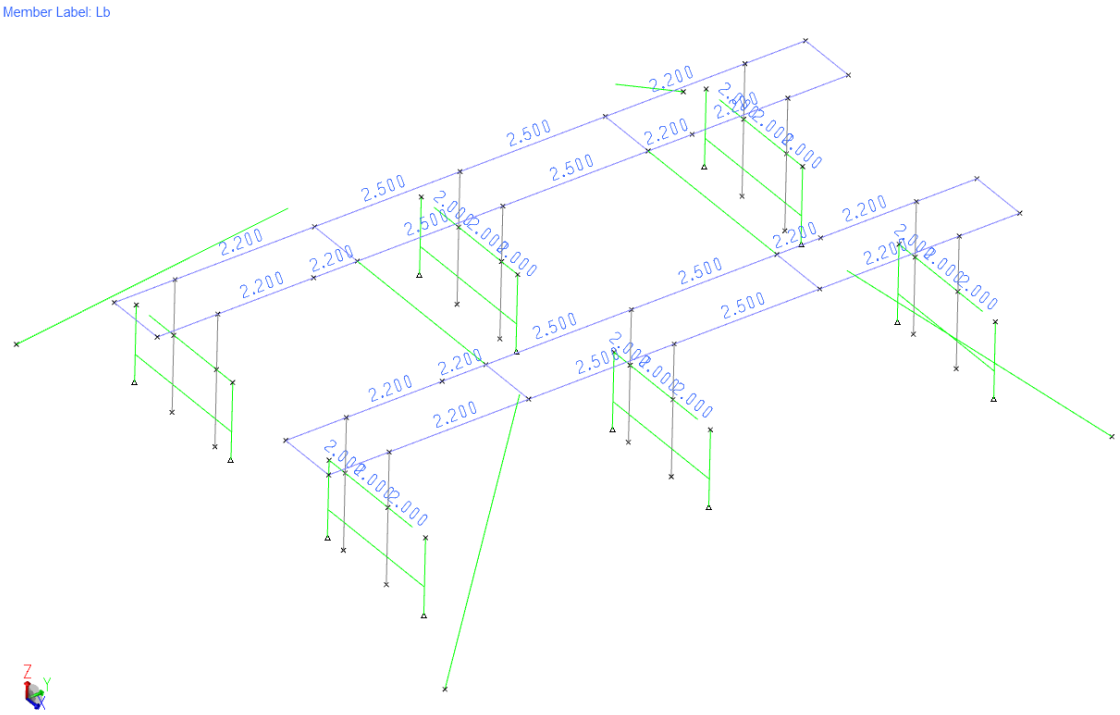

Plane_10 : Plan at Z=8.910
Member Label: KzLz
0.750
0.800
0.750
4.400
1.000
0.300
0.283
1.800
1.800
1.800
1.200
1.800
1.800
0.283
0.300

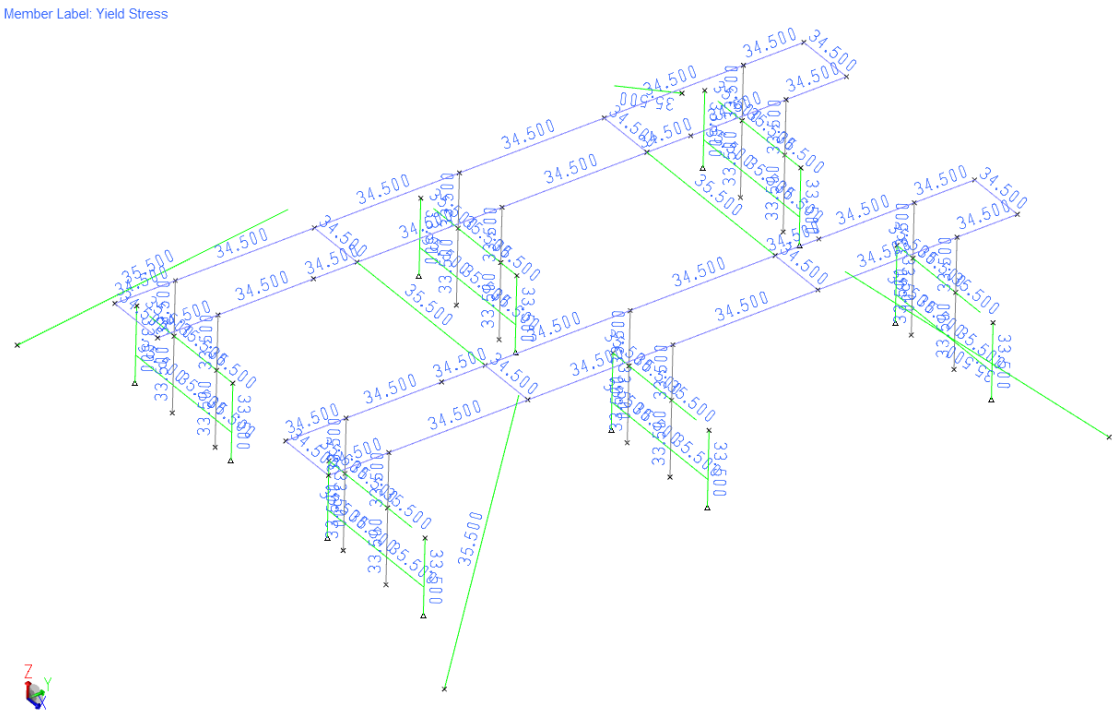

Joint Label: Name
R104
R101
R204
SFC1
R201
R1L5
R208
V101
R205
V201
V009
Z001
R100
V000
R200
0012
R304
R301
R404
R1L6
R206
V100
V200
R207
Z000
V008
R305
R308
V005
R401
R102
0008
R4L5
V301
R100
0002
R202
R203
0009
Z007
V401
SFA2
0002
V202
V007
R300
R400
V004
V011
V010
Z002
R307
R306
R4L6
V400
0014
0000
R302
R303
V006
R402
V012
0015
Z003
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0011
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SFC4
V402
Z010
Z005
V013
0006
0007
Z011
SFA4

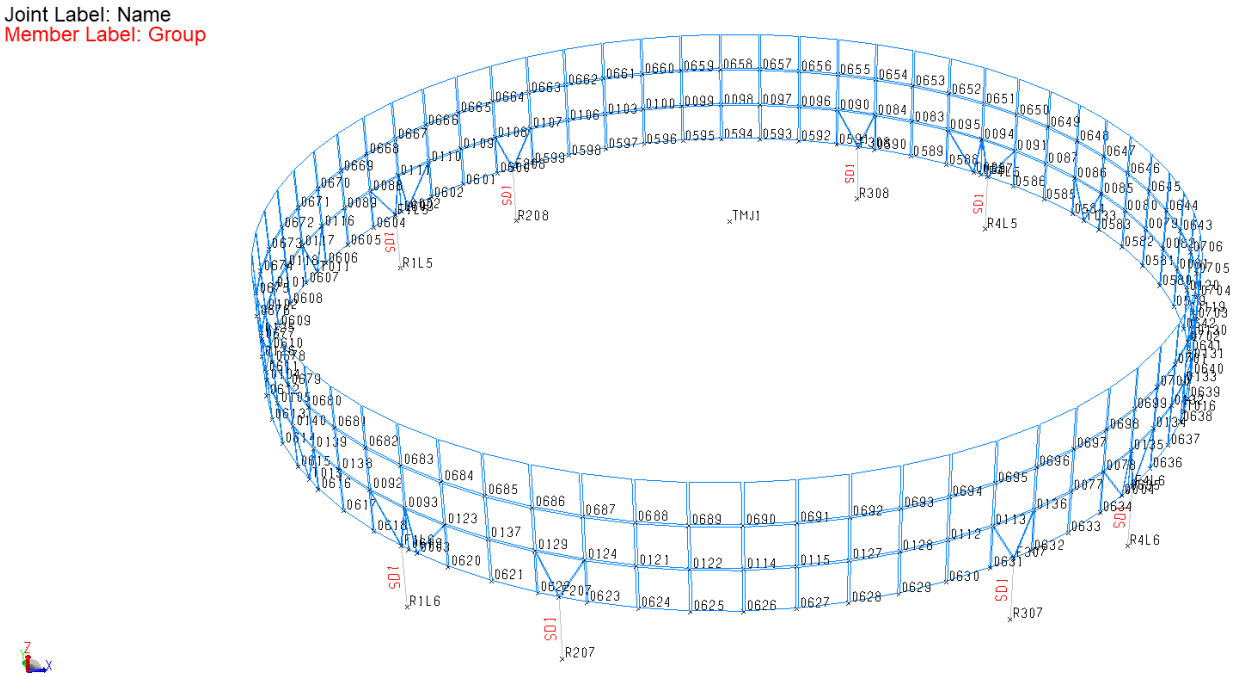

Member Label: Group
UG1
LJS
SF1
HE8
LD1
UG3

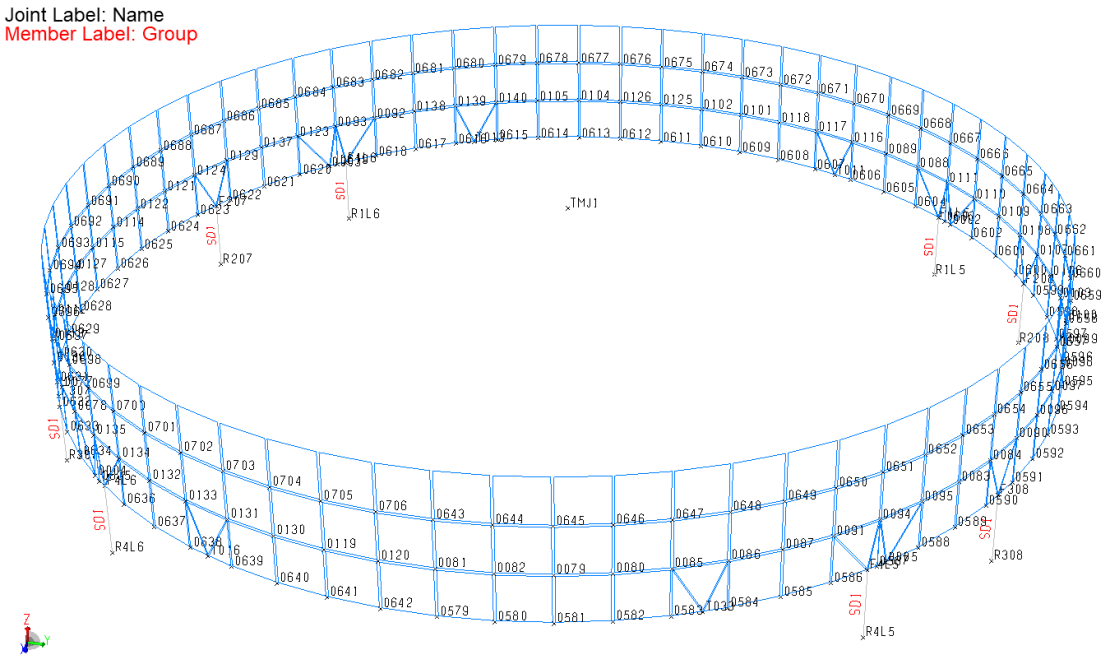

Member Label: KyLy


Member Label: KzLz


Member Label: Lb


Member Label: Yield Stress





All Plates / shells are Group M65