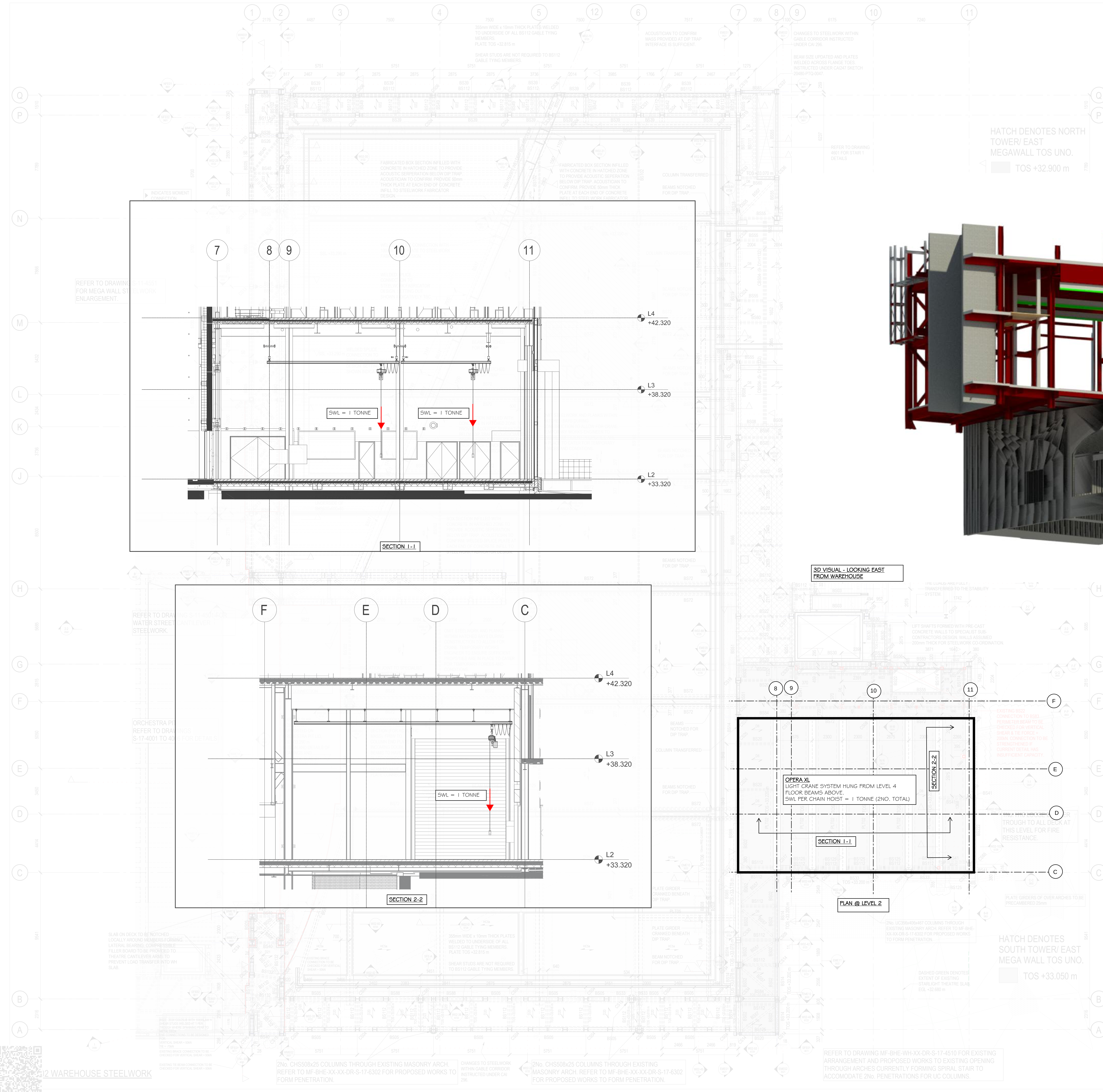




HEALTH AND SAFETY INFORMATION

IN ADDITION TO THE HAZARDOUS RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING:

CONSTRUCTION:

Construction workers shall wear safety harness and use appropriate safety equipment. The structural design is provided for the erection and installation of the structure and does not take into account the effects of construction loads. Temporary works designed to support the structure during construction.

MAINTENANCE/CLEANING/OPERATION:

The steelwork shall be maintained in accordance with the relevant standards. Access to the steelwork shall be provided at all times. The structure shall be kept clear of debris and other materials. The structure shall be kept clear of debris and other materials. The structure shall be kept clear of debris and other materials.

DECOMMISSIONING/DEMOLITION:

The steelwork shall be demolished in accordance with the relevant standards. The structure shall be kept clear of debris and other materials. The structure shall be kept clear of debris and other materials. The structure shall be kept clear of debris and other materials.

Notes:

- REFER TO DRAWING S-00-0000 FOR GENERAL NOTES.
- REFER TO DRAWING S-00-0010 FOR AREA SPECIFIC GENERAL NOTES.

NO.	REVISION	DESCRIPTION	DATE	BY
C22	S4	NORTH TOWER ACOUSTIC DOOR STEELWORK ADDED. REVISED AS CLOUSED. AREA OF FLOOR AND STEEL ADDED TO OPERA XL ACCESS MEZZANINE IN LINE WITH ICAR 305. WINDPROOF ADDED.	14.04.21	BL
C21	S4	CLOUSED DOOR POSTS AND SLAB W/LL DETAIL INCLUDED IN LINE WITH ARCHITECTS COMMENTS.	01.12.20	BL
C20	S4	OPERA XL ACCESS MEZZANINE STEELWORK ADDED IN LINE WITH ICAR 305.	20.11.20	BL
C19	S4	SETTING OUT TO RISER TRIMMING STEELWORK REVISED AS CLOUSED.	14.10.20	BL
C18	S4	RISERS AND TRIMMING STEELWORK ADDED TO SOUTH WEST MEGAWALL IN ACCORDANCE WITH ICAR 123.	18.09.20	BL
C17	S4	STEELWORK ADDED TO SOUTH TOWER. ON GRIDLINE 11 BETWEEN GRIDS 4 AND 5.	21.02.20	BL
C16	S4	PRECAST CONCRETE SLAB NOTES REVISED AS CLOUSED.	17.01.20	BL
C15	S4	KEY UPDATED.	16.12.19	BL
C14	S4	CRANKED MEMBER ADDED TO SUPPORT STAIR PARTITION IN RESPONSE TO ICAR 1511 CAI 286.	09.08.19	BL
C13	S4	DOOR FRAMING POST SETTING OUT REVISED LINE WITH CA519.	10.07.19	BL
C12	S4	DOOR FRAMING POST SETTING OUT REVISED LINE WITH CA519.	10.07.19	BL
C11	S4	BS1112 THE MEMBER BASED APPROX 10mm TO COLUMN. REVISIONS: PLATE ADDED TO SUPPORT TO SUPPORT DECK EDGE. AREAS OF REDBOX (B) ADDED TO NORTH AND SOUTH GABLE.	23.05.19	BL
C10	S4	MEMBER SIZE REVISED TO NORTH EAST MEGA WALL AT LEVEL 02 INCREASE WITH NORTH GABLE. SOUTH EAST DOOR THRESHOLD STEELWORK INCLUDED TO SOUTH TOWER.	30.04.19	JE
C09	S4	NORTH GABLE AND NORTH WEST MEGA WALL CHANGED TO DECK IN LINE WITH MICROB. RC SCREED REMOVED. SSL GIVEN TO TOP OF SLAB ON DECK. SCREEDS TO ARCHITECTS DETAILS.	15.03.19	JE
C08	S4	SOUTH GABLE FLOOR CHANGED TO METAL DECK IN LINE WITH MICROB.	15.02.19	JE
C07	S4	ISSUED FOR STAGE 4. REVISED AS CLOUSED.	04.02.19	BL
C06	S4	ISSUED FOR STAGE 4. REVISED AS CLOUSED.	21.01.19	BL
C05	S4	STAGE 4 ADDENDUM. RSA CUT BACK TO WATER STREET. CANTILEVER TO SUIT SUIT ARCHITECTURAL DRAWINGS. INDICATIVE LIFT SHAFTS REVISED IN LINE WITH LATEST ARCHITECTURE. REVISED AS CLOUSED.	17.12.18	BL
C04	S4	STAGE 4 ADDENDUM. WEST MEGA WALL PROSCENIUM ACOUSTIC DOOR MECHANISM. ACCESS AND GENTRY SUPPORT REQUIREMENTS INCLUDED TO SUIT SPECIALIST SUB CONTRACTOR INPUT.	30.10.18	BL
C03	S4	STAGE 4 ADDENDUM INCORPORATING MEYER DEVELOPMENT. STAIR CO-ORDINATION AND FACADE FININGS REVISED AS CLOUSED.	22.10.18	BL
C02	S4	STAGE 4 ADDENDUM INCORPORATING MEYER DEVELOPMENT. STAIR CO-ORDINATION AND FACADE FININGS REVISED AS CLOUSED.	15.10.18	BL
C01	S4	ISSUED FOR STAGE 4	04.08.18	BL/HR

Stage of Drawing

STAGE 4

BURO HAPPOLD ENGINEERING

WH HOIST SYSTEMS - LOAD REPRESENTATION

SHEET 1 OF 6

MF-BHE-WH-XX-SK-S-00-0533

FOR INFORMATION

STATUS S2

REV P01

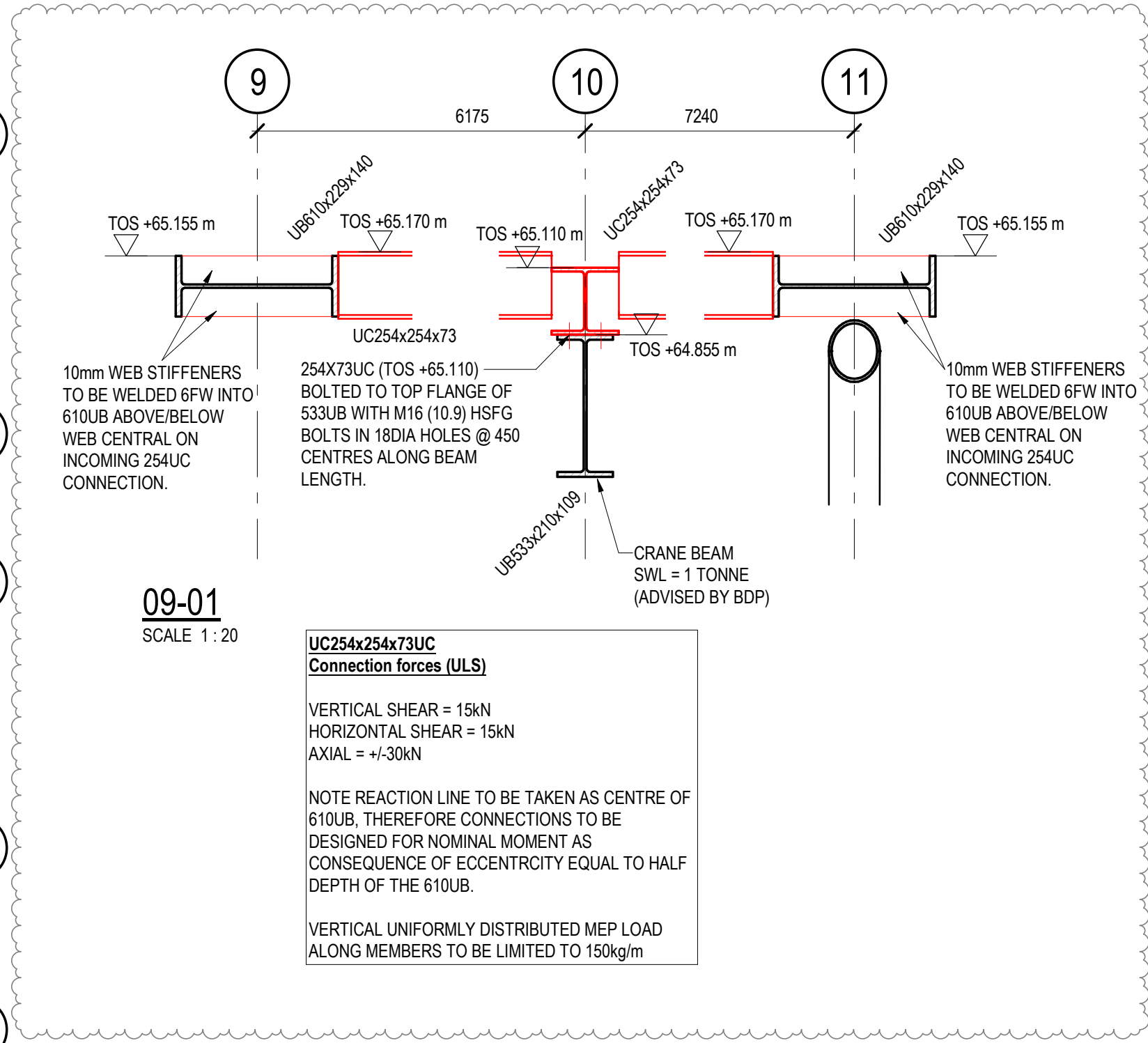
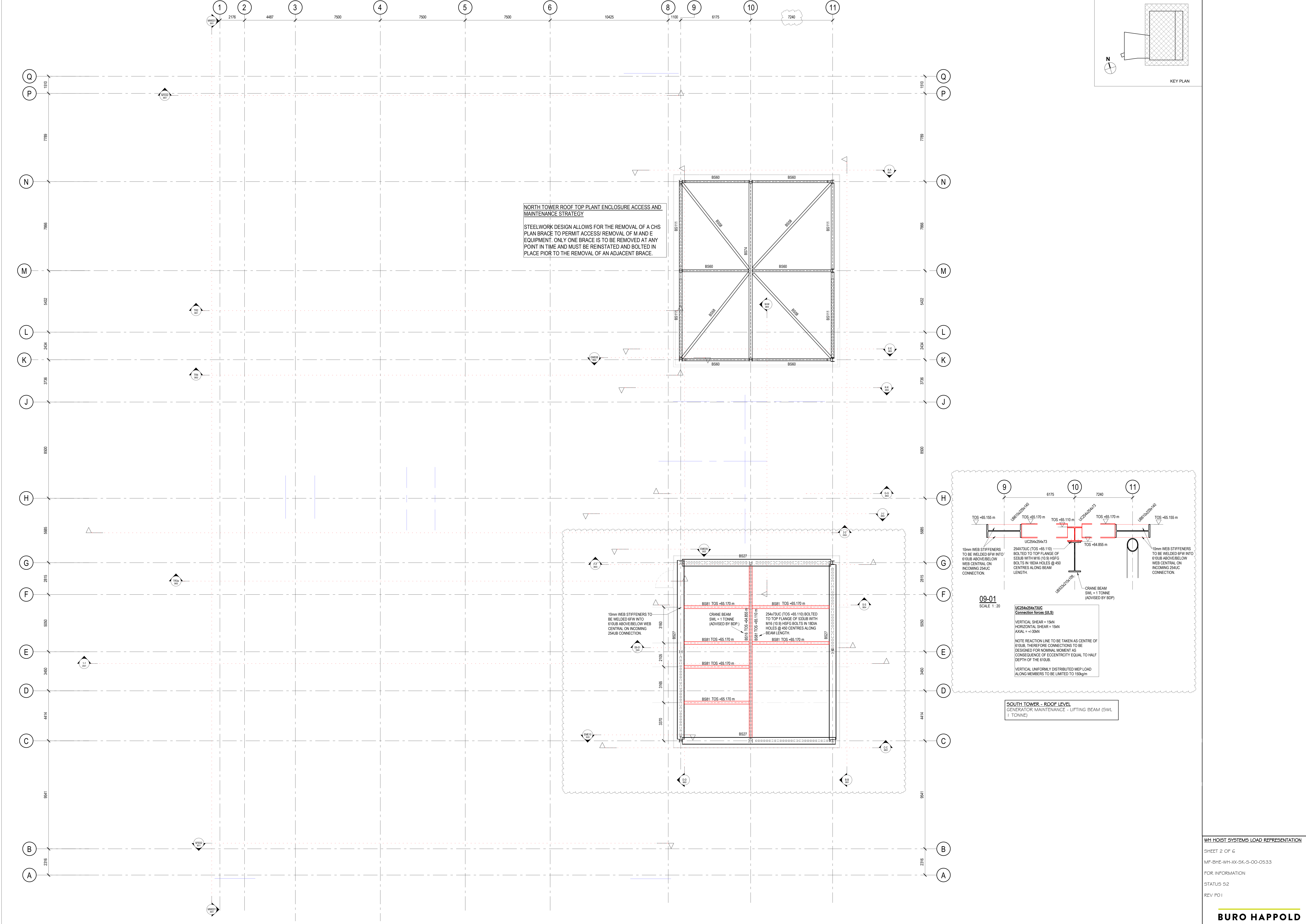
BURO HAPPOLD

LEVEL 02 WAREHOUSE SLAB INFILL

SCALE: 1:20

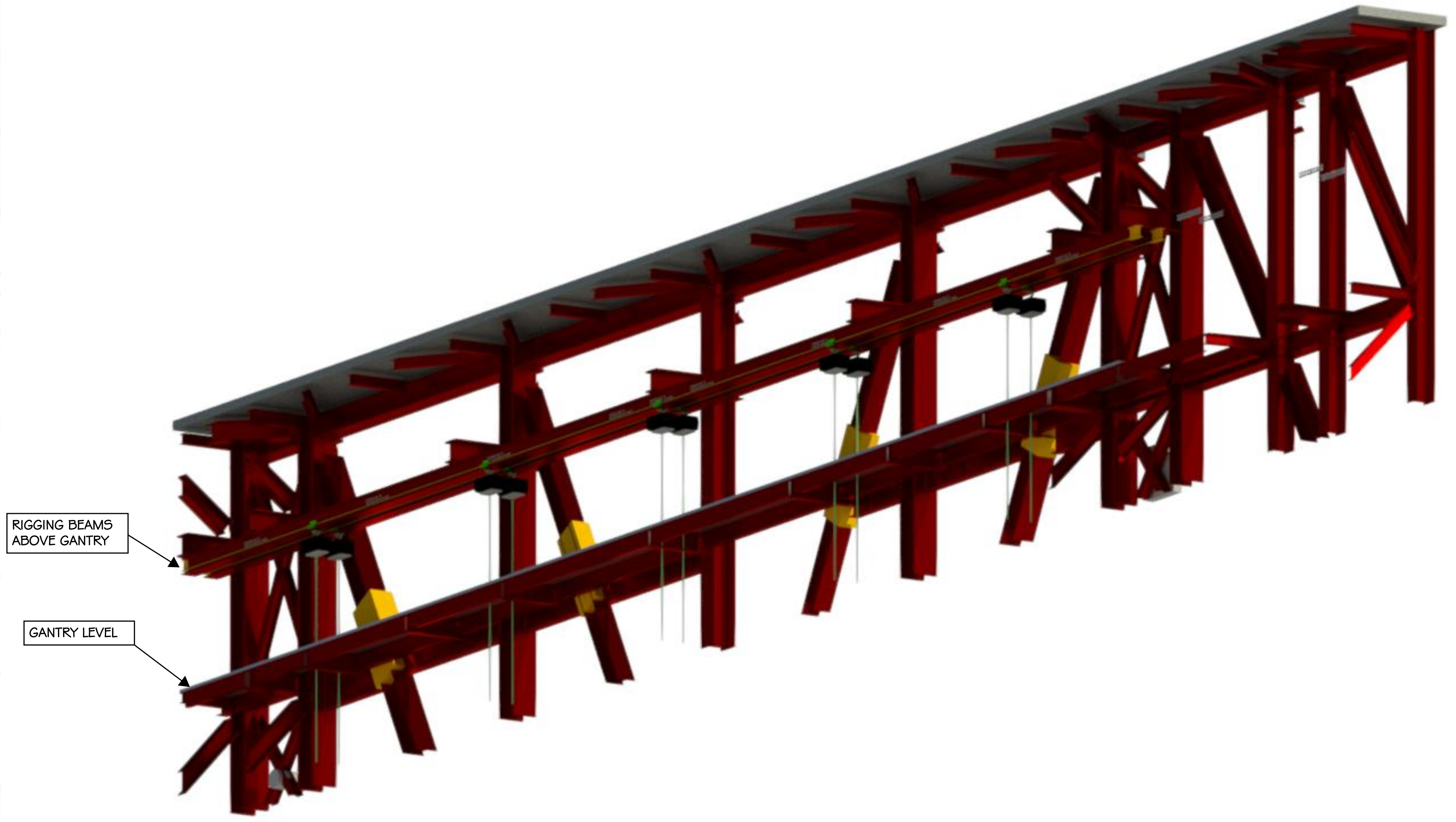
SECTION 1

SCALE: 1:20



WH HOIST SYSTEMS LOAD REPRESENTATION

SHEET 2 OF 6
MF-BHE-WH-XX-SK-5-00-0533
FOR INFORMATION
STATUS S2
REV PO1



WH HOIST SYSTEMS LOAD REPRESENTATION

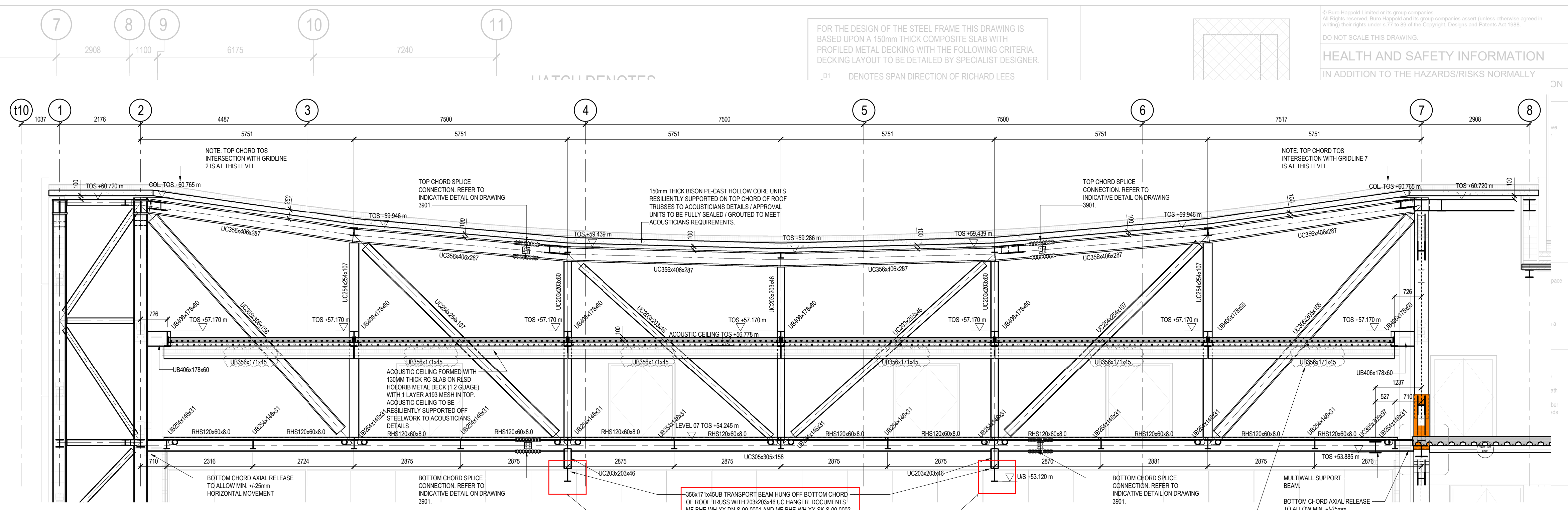
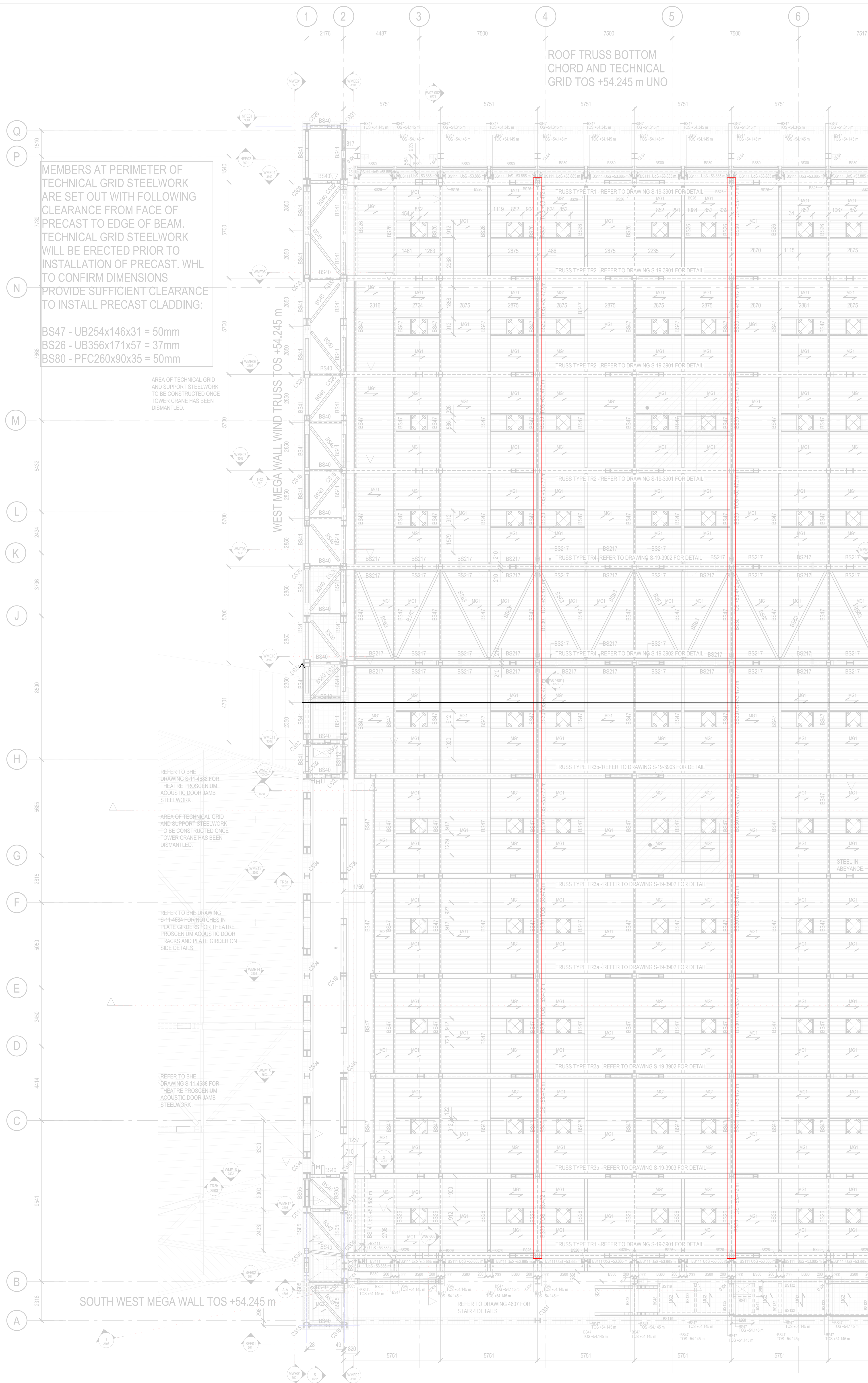
SHEET 3 OF 6

MF-BHE-WH-XX-SK-5

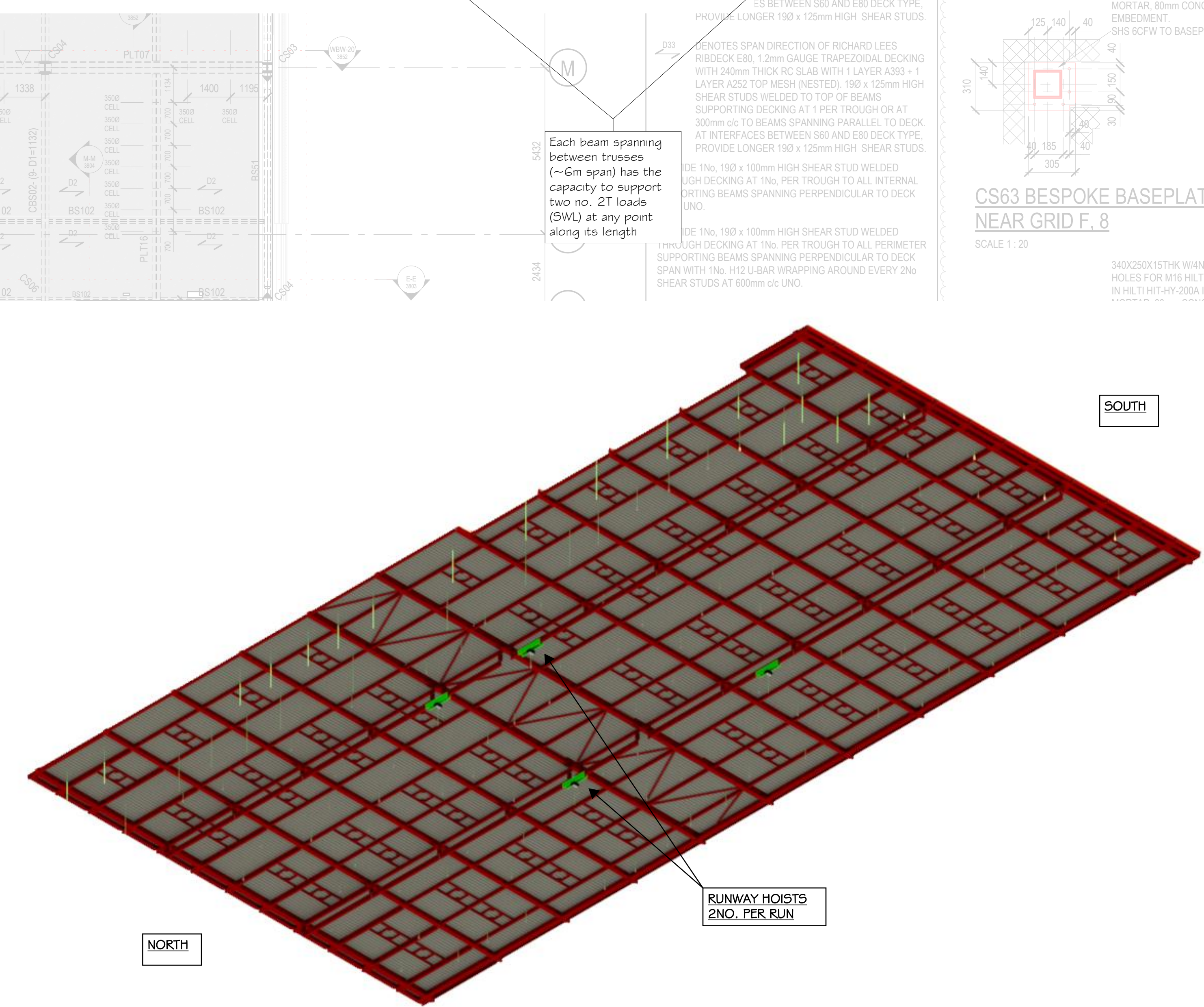
FOR INFORMATION

DE (100)

BURO HAPPOLD



ELEVATION TR4
TR4-MODERNFOLD PARTITION TRUSS
1: 50



3D VISUAL LOOKING UP AT THE UNDERSIDE OF TECHNICAL GRID LEVEL
SCALE 1: 25

TOWER FACADE IS TO BE ACOUSTICALLY ISOLATED FROM STEEL FRAME. ALLOWANCE IS TO BE MADE FOR WEB STIFFENERS EACH SIDE OF WEB TO ONE SIDE OF BEARING CONNECTION. STIFFENER CENTRES TO BE CO-ORDINATED WITH FACADE MULLINS. CENTRES TO BE CONFIRMED BY FACADE DESIGNER AND CO-ORDINATED WITH STEELWORK FABRICATOR..

BWIC OPENINGS THROUGH FLOOR SLAB AND TRIMMING BEAMS BASED ON SKETCHES APPENDED TO ICAR 81. IN THE ABSENCE OF OFFICIAL DRAWING INFORMATION, A CONFIRMATION EMAIL WAS RECEIVED FROM BDP DATED 11.01.19, CONFIRMING THAT THE SIZE AND SETTING OUT OF THE MEP OPENINGS THROUGH THE STRUCTURAL DECK TRIMMED WITH HOT ROLLED STEELWORK MEETS THEIR BWIC REQUIREMENTS AS SHOWN ON THE DRAWINGS AND IN THE STRUCTURAL REVIT MODEL. SMOKE EXTRACT RISER SETTING OUT HAS BEEN UPDATED 15.03.19 TO ALIGN WITH BDP REQUIREMENTS.

PLATES/STUBS/ANGLES FORMING PART OF BRACKETRY REQUIRED TO MOUNT BEARINGS OFF THE STEELWORK IS TO BE COORDINATED WITH OMA/AAM AND SPECIALIST BEARING MANUFACTURER/ DESIGNER.

FOR THE DESIGN OF THE STEEL FRAME THIS DRAWING IS BASED UPON A 150mm THICK COMPOSITE SLAB WITH PROFILED METAL DECKING WITH THE FOLLOWING CRITERIA. DECKING LAYOUT TO BE DETAILED BY SPECIALIST DESIGNER.

391 DENOTES SPAN DIRECTION OF RICHARD LEES

HEALTH AND SAFETY INFORMATION
IN ADDITION TO THE HAZARDS/RISKS NORMALLY

2. REFER TO DRAWING S-00-0010 FOR AREA SPECIFIC GENERAL NOTES.

CS63 BESPOKE BASEPLATE
NEAR GRID F. 8
SCALE 1: 20

340x250x15TH W/AND 18 DIA HOLES FOR M16 HLT-HIT-V (B.8) IN HLT-HIT-HY-200A INJECTION MORTAR, 80mm CONCRETE OVERLAPMENT. SHS ECFV TO BASEPLATE.

3D VISUAL LOOKING UP AT THE UNDERSIDE OF TECHNICAL GRID LEVEL
SCALE 1: 25

TOWER FACADE IS TO BE ACOUSTICALLY ISOLATED FROM STEEL FRAME. ALLOWANCE IS TO BE MADE FOR WEB STIFFENERS EACH SIDE OF WEB TO ONE SIDE OF BEARING CONNECTION. STIFFENER CENTRES TO BE CO-ORDINATED WITH FACADE MULLINS. CENTRES TO BE CONFIRMED BY FACADE DESIGNER AND CO-ORDINATED WITH STEELWORK FABRICATOR..

BWIC OPENINGS THROUGH FLOOR SLAB AND TRIMMING BEAMS BASED ON SKETCHES APPENDED TO ICAR 81. IN THE ABSENCE OF OFFICIAL DRAWING INFORMATION, A CONFIRMATION EMAIL WAS RECEIVED FROM BDP DATED 11.01.19, CONFIRMING THAT THE SIZE AND SETTING OUT OF THE MEP OPENINGS THROUGH THE STRUCTURAL DECK TRIMMED WITH HOT ROLLED STEELWORK MEETS THEIR BWIC REQUIREMENTS AS SHOWN ON THE DRAWINGS AND IN THE STRUCTURAL REVIT MODEL. SMOKE EXTRACT RISER SETTING OUT HAS BEEN UPDATED 15.03.19 TO ALIGN WITH BDP REQUIREMENTS.

PLATES/STUBS/ANGLES FORMING PART OF BRACKETRY REQUIRED TO MOUNT BEARINGS OFF THE STEELWORK IS TO BE COORDINATED WITH OMA/AAM AND SPECIALIST BEARING MANUFACTURER/ DESIGNER.

C18	S4	MASONRY RESTRAINT STEELWORK REVISED IN LINE WITH ARCHITECTS COMMENTS	10.05.21	BL
C17	S4	MASONRY RESTRAINT STEELWORK REVISED IN LINE WITH CAD185.	26.04.21	BL
		STEEL WORK ADDED TO SUIT CAD 090.	20.03.20	BL
		BWIC HOLE AND TRIMMING STEELWORK ADDED IN LINE WITH ICAR 185.	18.11.19	BL
		SLAB EDGE REVISED ALONG GRIDLINE 7 TO ENSURE 25mm TO FACE OF PRECAST IN RESPONSE TO CAI 416. TOWER SLAB THICKNESS REVISED IN LINE WITH CAH30.	09.09.19	TC
		MULTIWALL SUPPORT STEELWORK ADDED TO SOUTH WEST CORNER.	01.07.19	BL
		PROSCENIUM ACOUSTIC DOOR STEELWORK UPDATED TO SUIT SPECIALIST DOOR MANUFACTURER DETAILS.	21.06.19	BL
		EDGE BEAM NOTE REVISED AS CLOUDED.	23.05.19	BL
		SHEAR STUDS LENGTHENED TO E80 DECK TYPE. BUILDERS WORKS HOLES REVISED THROUGH BEAMS REFER TO BUILDERS WORKS ELEVATIONS.	30.04.19	JE
		RC SLAB AND DECK REVISED TO CLOUDED AREAS. RC SKEED REMOVED. SCREED TO BE TO ARCHITECTS DETAIL. SSL LEVELS PROVIDED ARE TO TOP OF RC SLAB POURED OVER METAL DECKING. MEMBER SIZES REVISED AS CLOUDED TO SUIT FACADE REQUIREMENTS.	15.03.19	JE
		BS47 CHANGED TO BS26 TO NORTH OF STRUCTURE ADJACENT TO GRIDLINE 4. REVISED AS CLOUDED.	22.01.19	BL
		ISSUED FOR STAGE 4. REVISED AS CLOUDED.	21.01.19	BL
		DOOR POST SETTING OUT AND SUPPORTING STEELWORK REVISED IN LINE WITH LATEST CO-ORDINATION WITH ARCHITECTURE. RISER TRIMMING STEELWORK REMOVED ADJACENT TO 10.6 IN LINE WITH ARCHITECTS COMMENTS. INDICATIVE LIFT SHAFT WALLS REVISED IN LINE WITH LATEST ARCHITECTURE. REVISED AS CLOUDED.	17.12.18	BL
		SOUTH CABLE STAIR RISER MOVED DOWN BELOW STAIR TREADS TO ACHIEVE STAIR WIDTH. STOODING PROVIDED TO SUPPORT STAIR TREADS IN LINE WITH ARCHITECTURAL REQUIREMENTS.	23.11.18	TC
		STAGE 4 ADDENDUM. WEST MEGA WALL PROSCENIUM ACOUSTIC DOOR MECHANISM ACCESS AND GANTRY SUPPORT REQUIREMENTS INCLUDED TO SUIT SPECIALIST SUB CONTRACTOR INPUT.	30.10.18	BL
C03	S4	STAGE 4 ADDENDUM INCORPORATING MEP DEVELOPMENT. STAIR CO-ORDINATION AND FACADE FIXINGS. REVISED AS CLOUDED.	22.10.18	BL
C02	S4	STAGE 4 ADDENDUM INCORPORATING MEP DEVELOPMENT. STAIR CO-ORDINATION AND FACADE FIXINGS.	15.10.18	BL
C01	S4	ISSUED FOR STAGE 4	04.09.18	BL/FR

Rev: Status Description Date CDR

STAGE 4

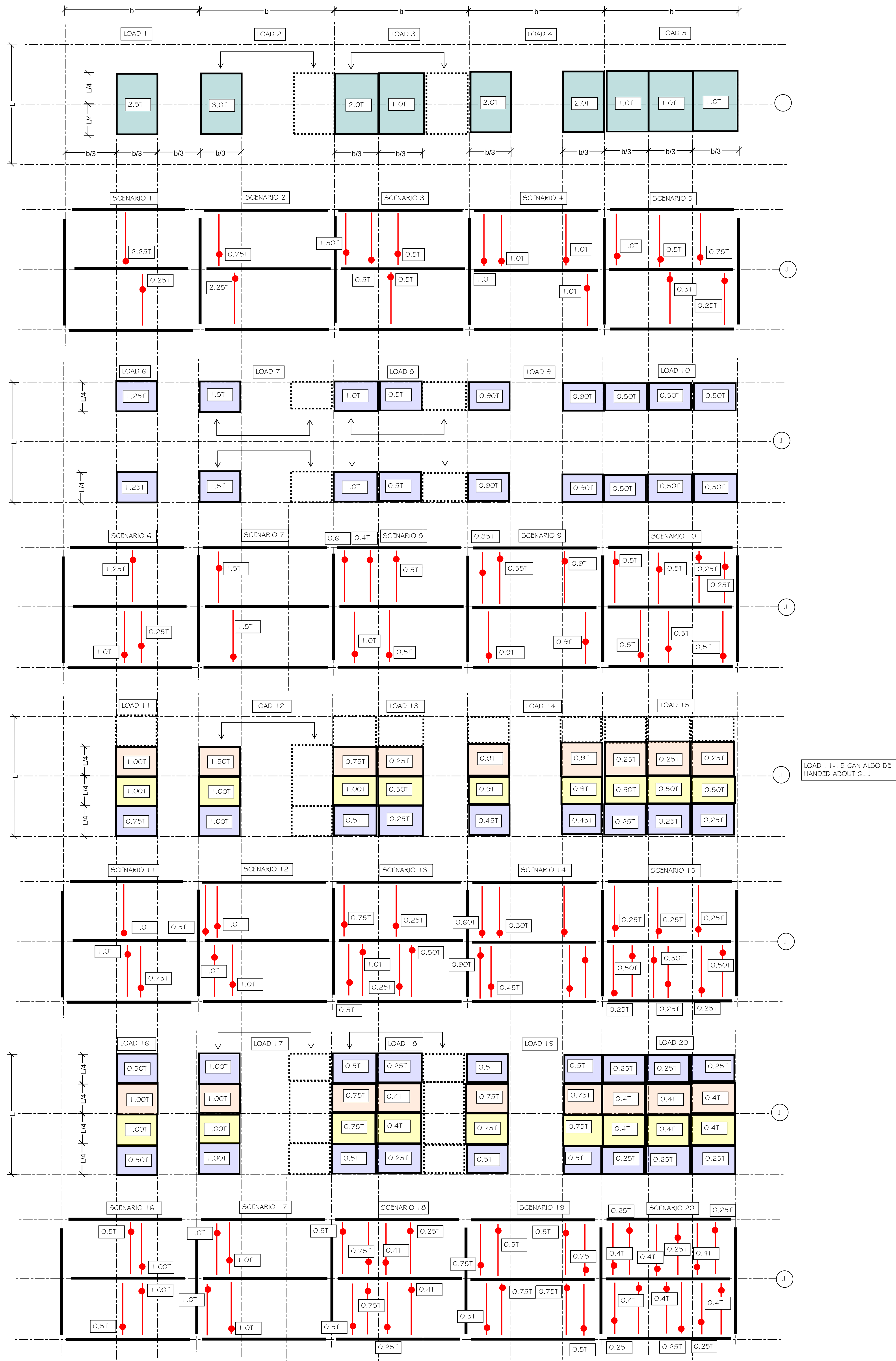
BURO HAPPOLD
WAREHOUSE - RUNWAY BEAMS

WH MOIST SYSTEMS LOAD REPRESENTATION
SHEET 4 OF 6
MF-BHE-WH-XX-SK-S-00-0533
FOR INFORMATION
STATUS 52
REV P01

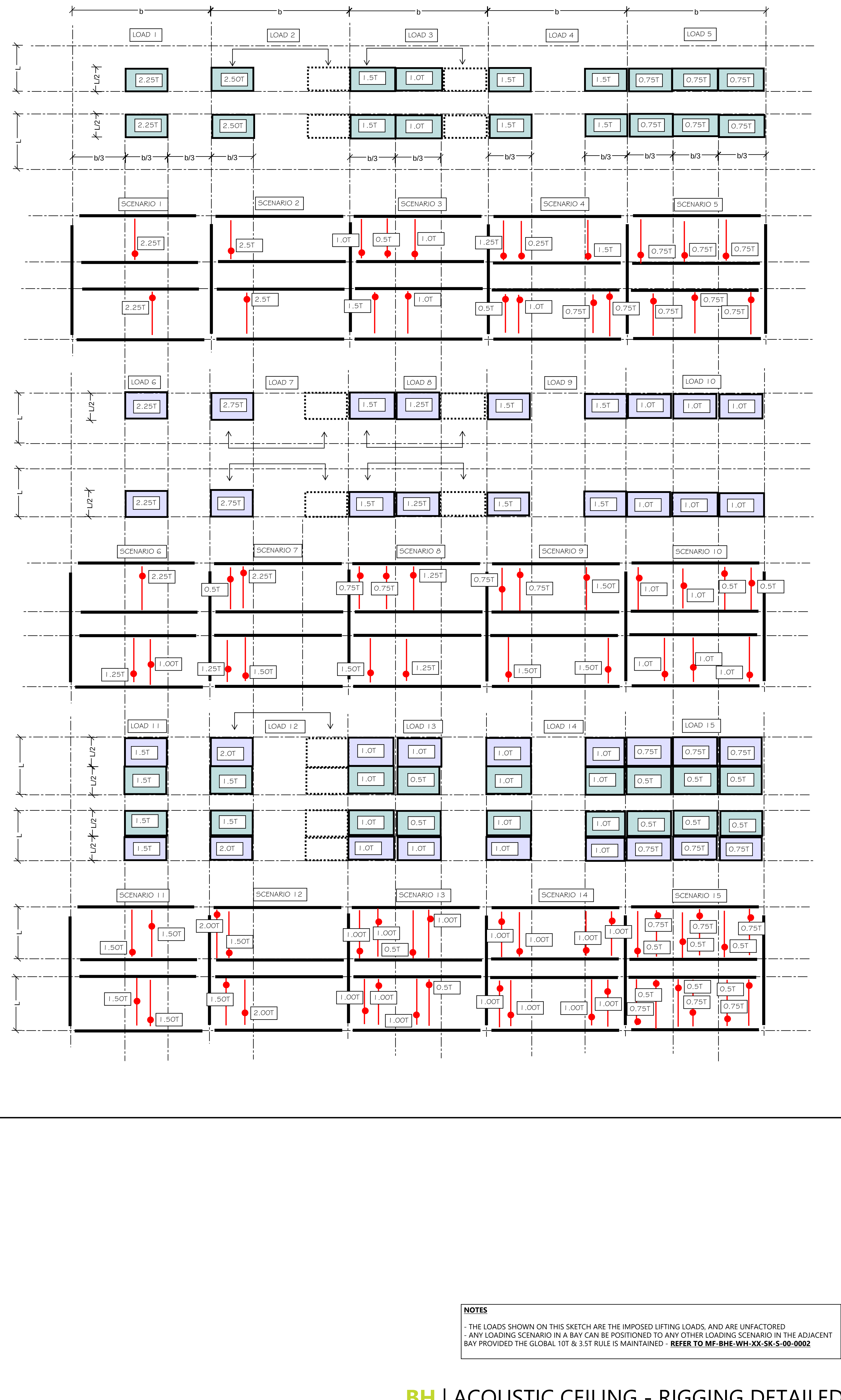
BURO HAPPOLD



Gridline J Loading Arrangement + Example Scenarios



Typical Bay Loading Arrangement + Example Scenarios

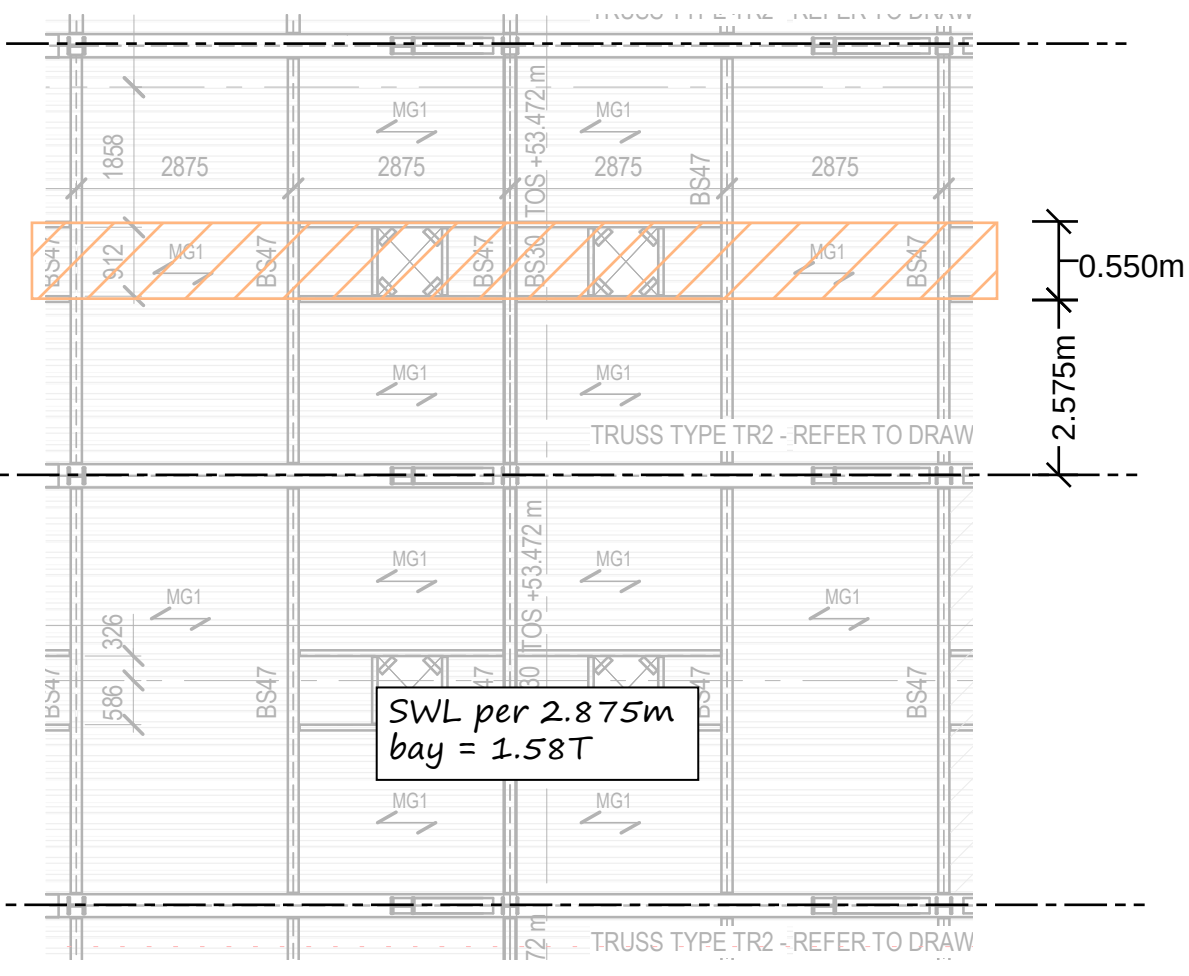


NOTES

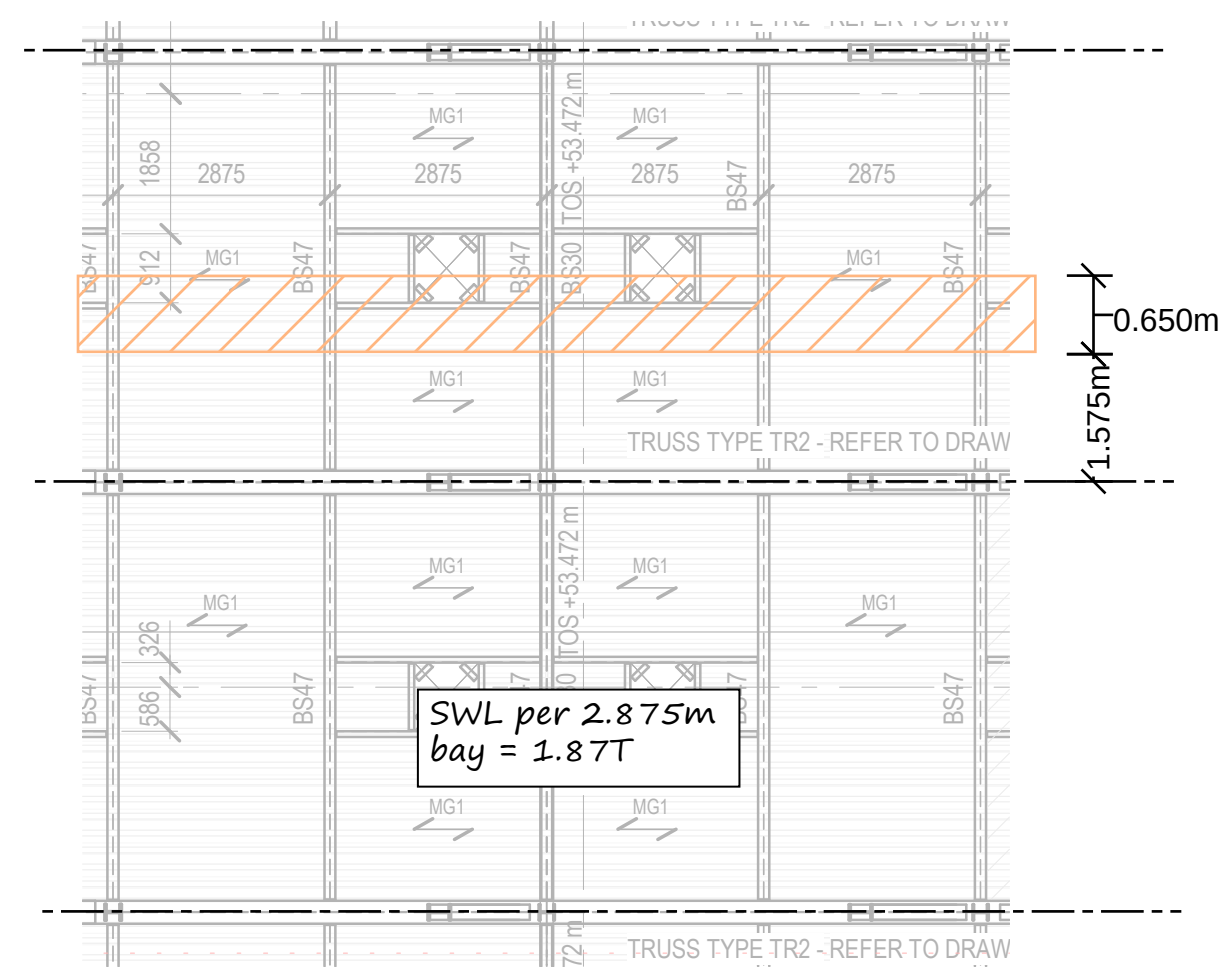
- THE LOADS SHOWN ON THIS SKETCH ARE THE IMPOSED LIFTING LOADS, AND ARE UNFACTORED.
- ANY LOADING SCENARIO IN A BAY CAN BE POSITIONED TO ANY OTHER LOADING SCENARIO IN THE ADJACENT BAY PROVIDED THE GLOBAL 10T & 3.5T RULE IS MAINTAINED - REFER TO MF-BHE-WH-XX-SK-5-00-0002

10kPa Equipment Load – Possible Scenarios

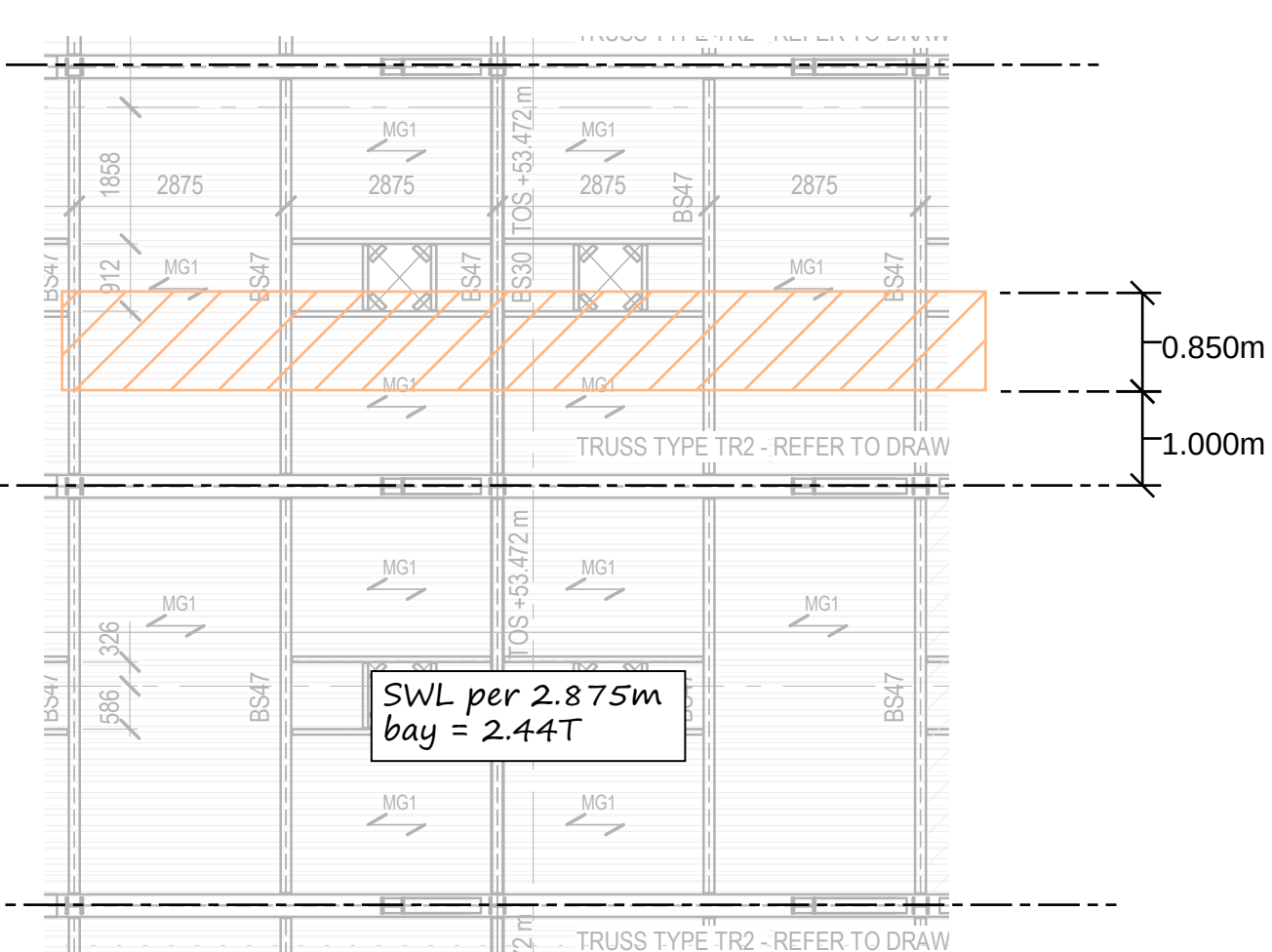
SCENARIO 1 – 10kPa Equipment Load centred on beam mid span



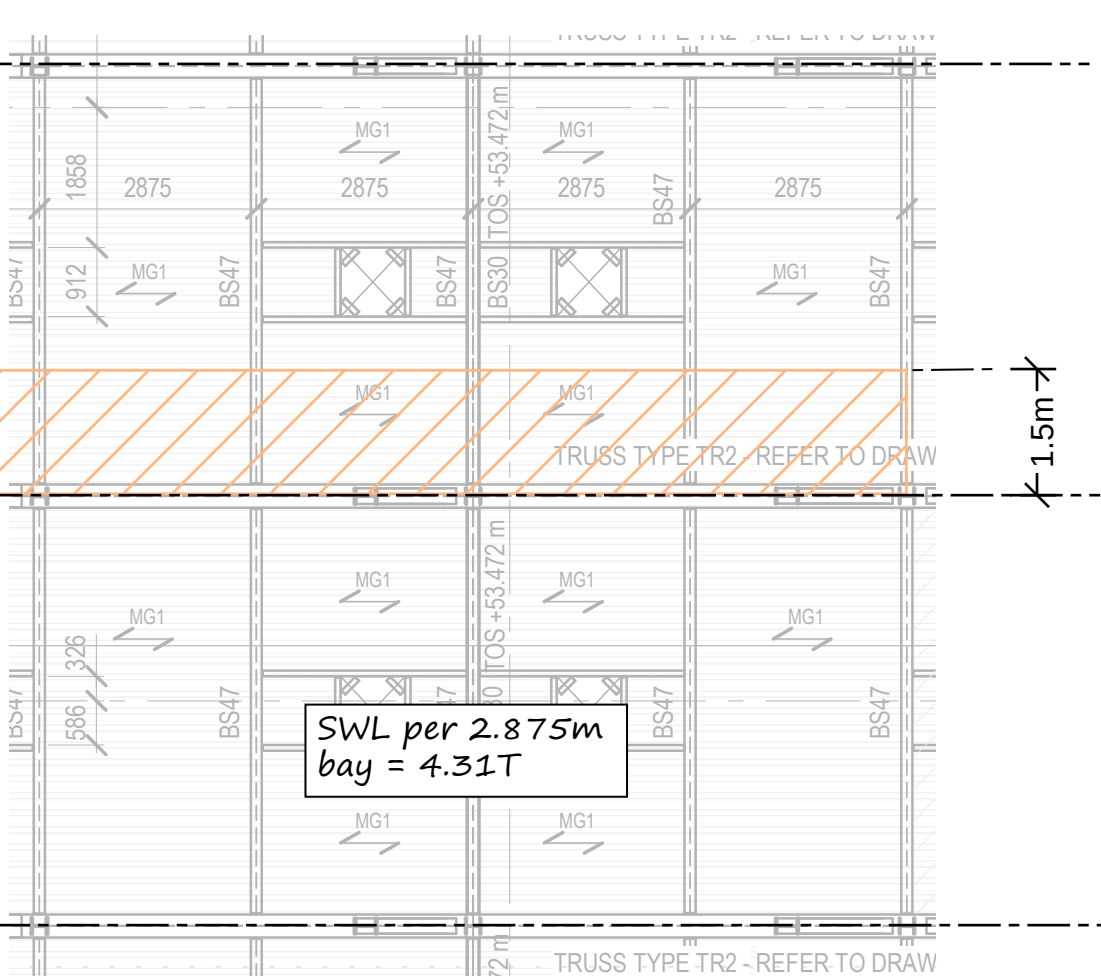
SCENARIO 2 – 10kPa Equipment Load centred on beam 1/3 PT



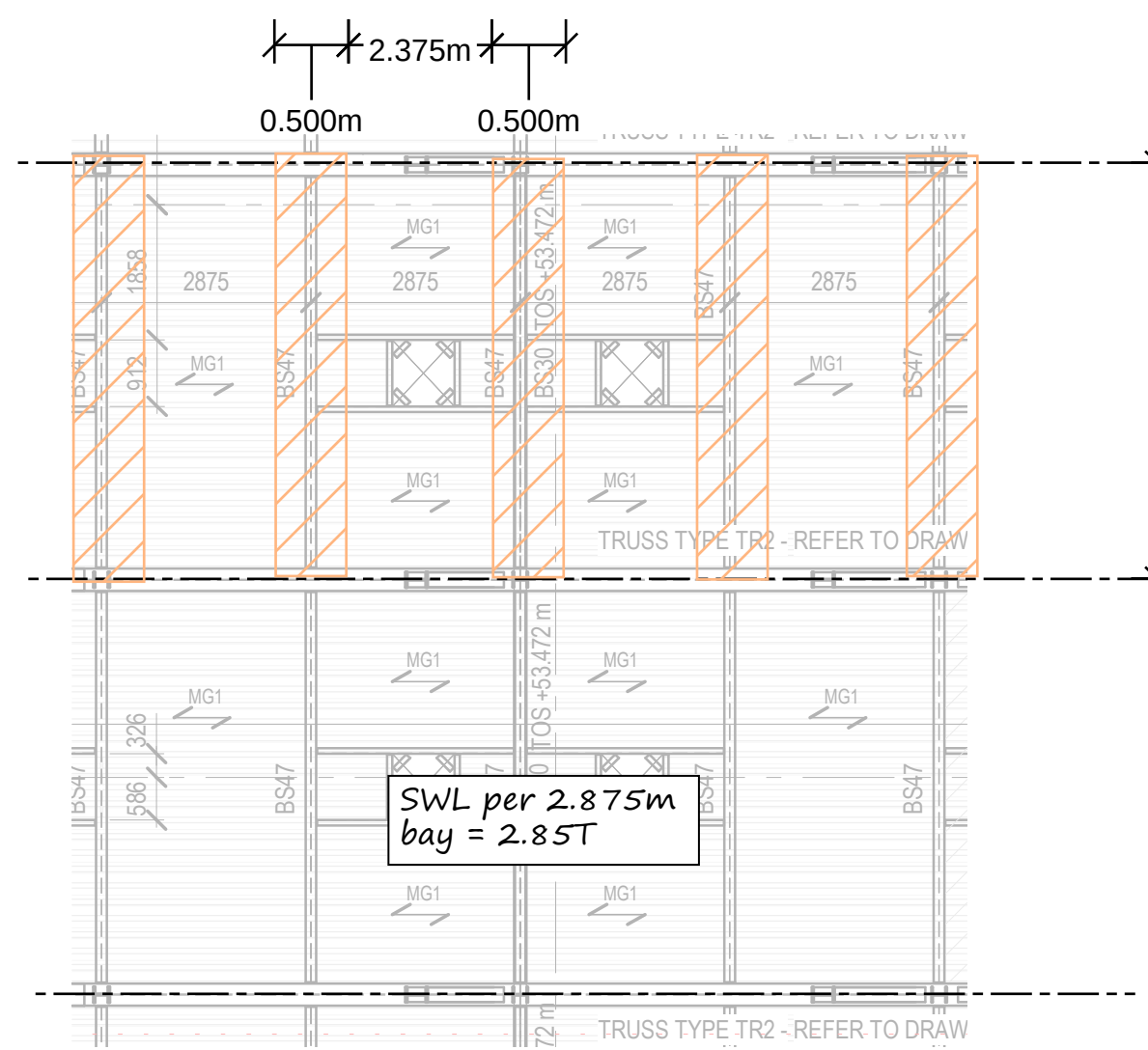
SCENARIO 3 – 10kPa Equipment Load centred on beam 1/4 PT



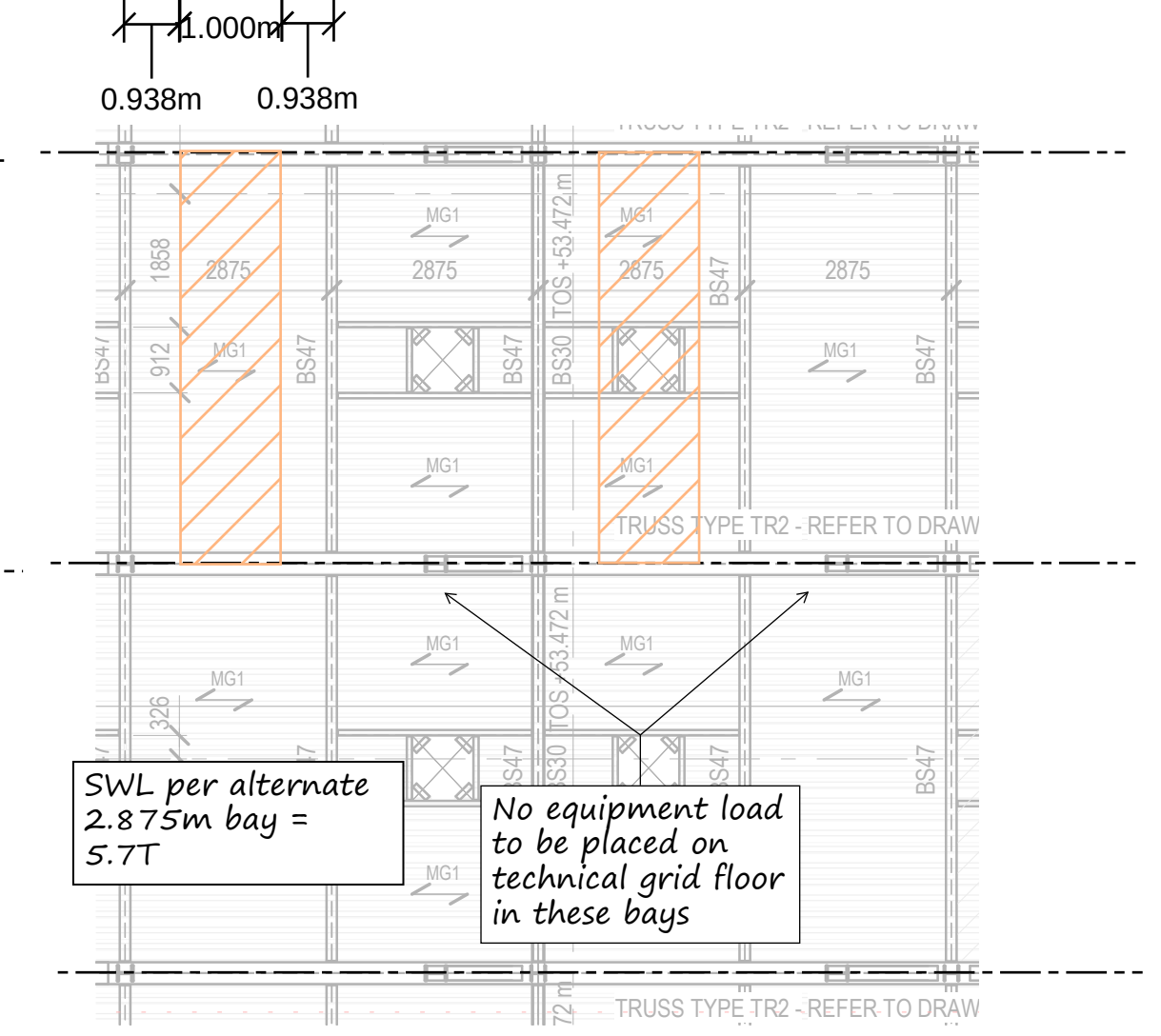
SCENARIO 4 – 10kPa Equipment Load at beam end (adjacent truss)



SCENARIO 5 – 10kPa Equipment Load centred over beam span



SCENARIO 6 – 10kPa Equipment Load centred on bay mid span, alternate bays

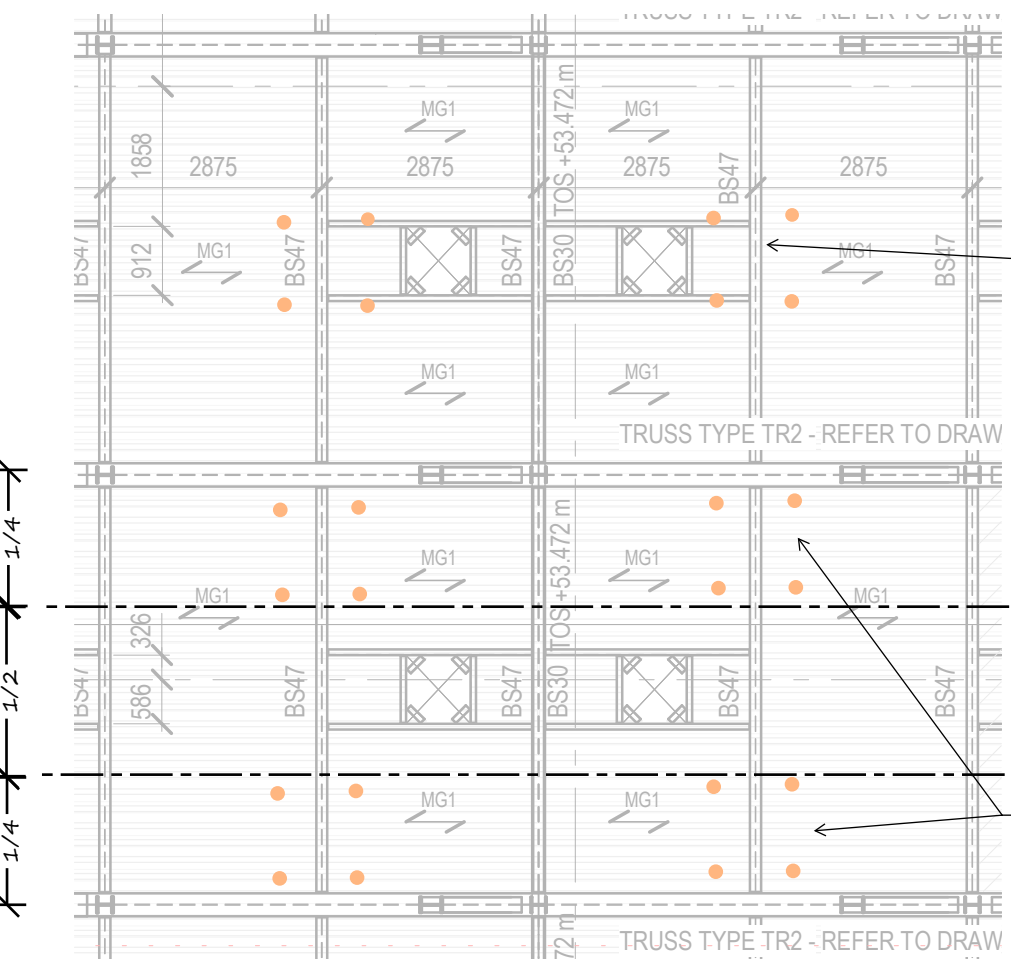


Notes

- SWL's noted on this drawing are based on a typical 5.7m bay length.
- SWL per bay are based on a 10kPa uniformly distributed load.
- Maximum imposed floor load for areas not subject to an equipment load to be limited to 2.5kPa.

A-Frame Loading (ekN per foot) – Possible Scenarios

SCENARIO 1 – A frames over beam lines

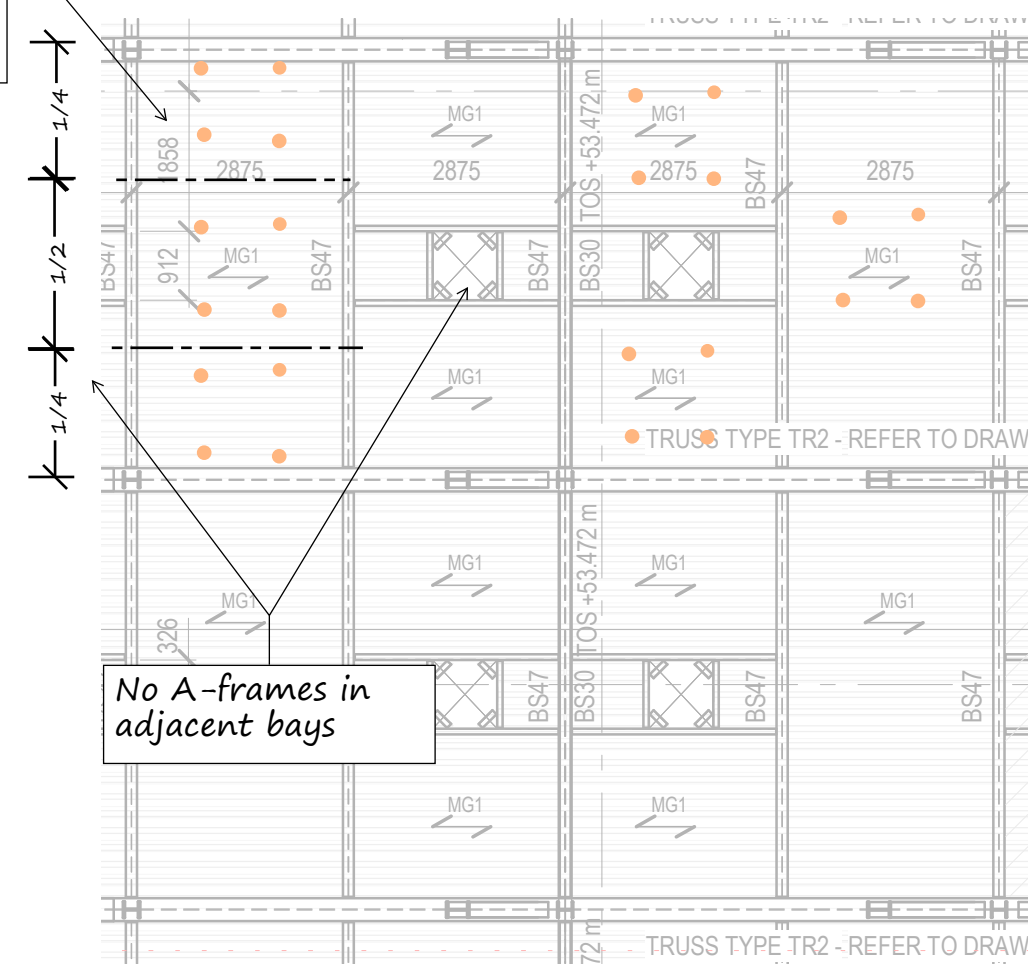


If 3 A frames are to be used in a single bay they are to be spaced such that the end frames are limited to the end quarters of the beam span

A-Frame centred on beam at mid span in alternate bays

A-Frame at each end of bay centred on beam line. If two A-frames are used along the same beam line these are not to be used together within central section

SCENARIO 2 – A frames centred on grid planks



Notes

- Foot arrangements noted on this drawing are based on a typical 5.7m bay length.
- Maximum imposed floor load for areas not subject to an equipment load to be limited to 2.5kPa.
- Only one A-frame assembly is permitted on each plank

TECHNICAL GRID - STAGE ENGINEERING
LOADING SCENARIOS

WH HOIST SYSTEMS LOAD REPRESENTATION

SHEET 6 OF 6

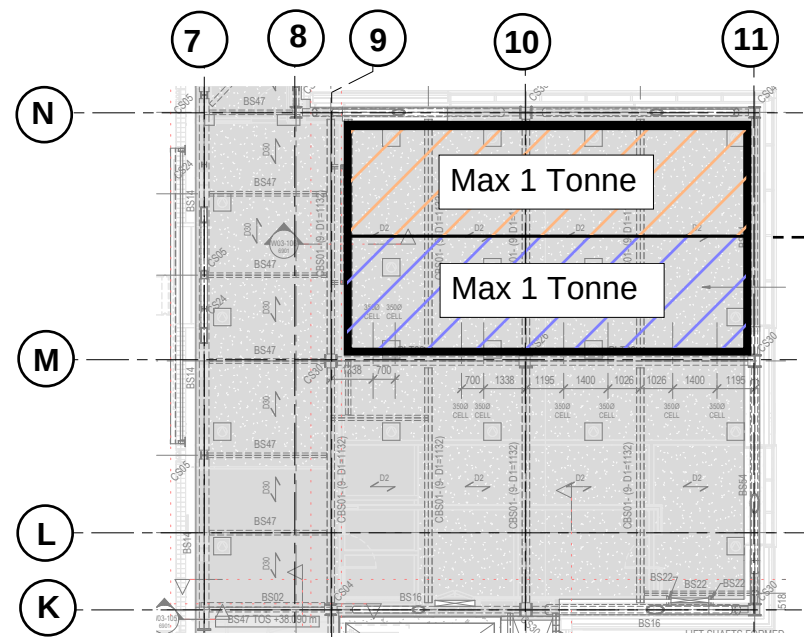
MF-BHE-WH-XX-SK-S-00-0533

FOR INFORMATION

STATUS S2

REV P01

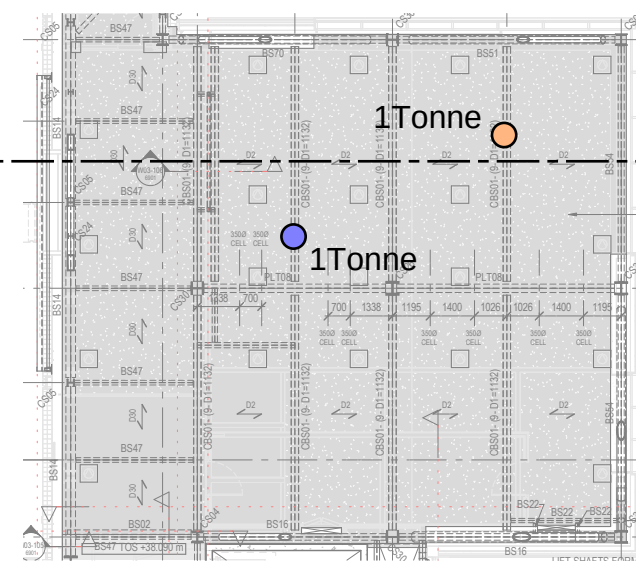
BURO HAPPOLD



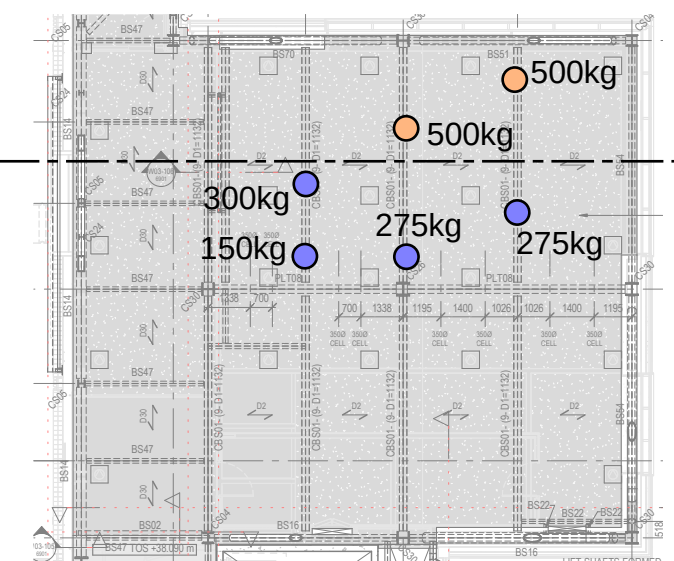
Lifting Restrictions
 1 Tonne lifting capacity
 in each bay half, either spread over
 multiple beams or applied to a single
 beam



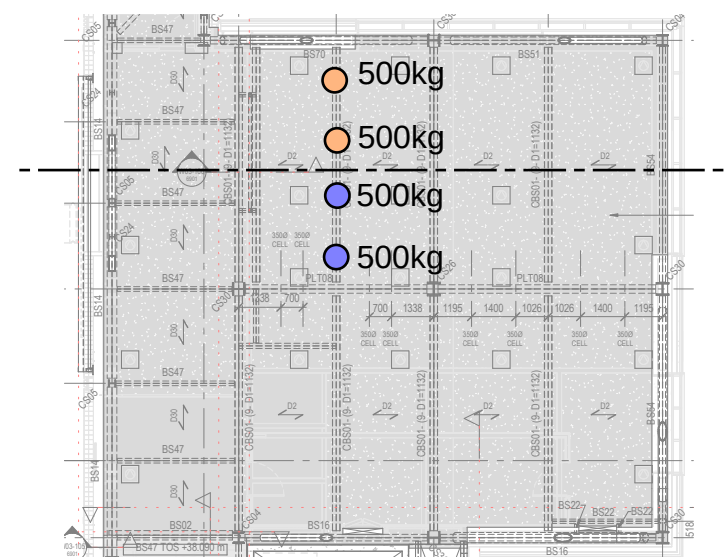
Scenario 1 - 2 x 1 Tonne applied to the
 same beam



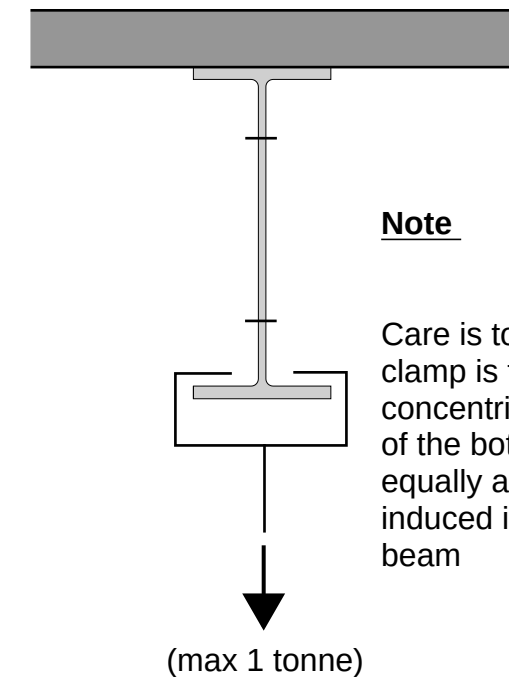
Scenario 2 - 2 x 1 Tonne applied to
 different beams



Scenario 3 - Multiple loads < 1 tonne



Scenario 4 - 4 x 500kg Tonne applied to
 same beam (max 1 tonne over half beam
 length)



Note

Care is to be taken to ensure
 clamp is fixed to beam
 concentrically, so that each side
 of the bottom flange is loaded
 equally and no torsion is
 induced into the level 3 floor
 beam

FOR INFORMATION

B.LEWIS
 19.07.21
 S-SKS493 N TOWER HOIST SYSTEM

BURO HAPPOLD