

DRAWING INFORMATION			REVISION INFORMATION		
DRAWING TITLE	DRAWING DESCRIPTION	DISCIPLINE	REV MARK	REV DESCRIPTION	REV DATE
END1	Engineering		0	Issued For Construction	24/06/2024

GENERAL NOTES

G1. THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH ALL ARCHITECTURAL AND OTHER CONSULTANTS' DRAWINGS & SPECIFICATIONS AND WITH SUCH OTHER WRITTEN INSTRUCTIONS AS MAY BE ISSUED DURING THE CONTRACT. ANY DISCREPANCY SHALL BE REFERRED TO TECHSPAN BUILDING SYSTEMS BEFORE PROCEEDING TO THE WORK.

G2. DO NOT COMMENCE CONSTRUCTION USING THESE DRAWINGS UNLESS THEY ARE 'ISSUED FOR CONSTRUCTION'.

G3. ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE RELEVANT CURRENT STANDARDS AUSTRALIA CODES AND WITH THE NATIONAL CONSTRUCTION CODE.

G4. UNLESS NOTED OTHERWISE ALL LEVELS ARE IN METRES AND ALL DIMENSIONS ARE IN MILLIMETRES.

G5. THE METHOD OF CONSTRUCTION AND THE MAINTENANCE OF SAFETY DURING CONSTRUCTION ARE THE RESPONSIBILITY OF THE ERECTOR. IF ANY STRUCTURAL ELEMENT PRESENTS DIFFICULTY IN RESPECT OF CONSTRUCTABILITY OR SAFETY, THE MATTER SHALL BE REFERRED TO THE STRUCTURAL ENGINEER FOR RESOLUTION BEFORE PROCEEDING WITH THE WORK.

G6. DURING CONSTRUCTION, THE STRUCTURE SHALL BE MAINTAINED IN A STABLE CONDITION AND NO PART SHALL BE OVERLOADED. PERMANENT BRACING TO BE INSTALLED AS ERECTION PROGRESSES. THE ERECTOR SHALL PROVIDE TEMPORARY BRACING AND PROPPING WHEN REQUIRED IN ORDER TO KEEP THE BUILDING WORKS STABLE AT ALL TIMES. THE ERECTOR IS RESPONSIBLE TO ENGAGE A CERTIFIED ENGINEER TO APPROVE ANY TEMPORARY BRACING WORKS IF REQUIRED.

G7. ALL WIRE ROPE BRACING WITH SUPPLIED TURNBUCKLES TO HAVE AT LEAST 100MM ADJUSTMENT AFTER INITIAL INSTALLATION TO ALLOW FOR FUTURE ADJUSTMENTS.

SITE PREPARATION NOTES

E1. THE FOUNDATION MATERIAL MUST HAVE A SAFE BEARING PRESSURE OF NOT LESS THAN 150 KPA, FOUNDED ON NATURAL GROUND (UNO) FOR BORED PIERS.

E2. TOP SOIL CONTAINING VEGETATION AND ROOTS MUST BE STRIPPED FROM THE SITE BEFORE EXCAVATION OF FOOTINGS OR FILL REPLACEMENT.

E3. SITE IS TO BE PROOF ROLLED PRIOR TO PLACEMENT TO FILL.

E4. FILL ON SITE MUST BE CLEAN AND COMPACTED TO NOT LESS THAN 98% MIN. DRY DENSITY AS DETERMINED BY AS1298.0-2000.

E5. ALL FILL TO BE COMPACTED DOWN IN MAXIMUM 150mm LAYERS.

E6. INSITU DENSITY TESTING IN ACCORDANCE WITH AS1298.0-2000 TO BE CARRIED OUT AT A FREQUENCY OF 1 TEST PER 400sqm, ON EVERY SECOND LAYER.

CONCRETE

C1. ALL WORKMANSHIP AND MATERIALS SHALL COMPLY WITH AS3600-2018 EXCEPT WHERE VARIED BY THE DOCUMENTS.

C2. CONCRETE QUALITY
 *C2.1 ALL CONCRETE SHALL COMPLY WITH AS1379
 *C2.2 NO BRECCIA TYPE AGGREGATE IS TO BE USED
 *C2.3 COMPRESSIVE STRENGTH GRADES

ELEMENT	STRENGTH GRADE (N)	CEMENT TYPE TO AS3972	SLUMP (mm)	MAXIMUM AGGREGATE SIZE (mm)
FOOTING & PIERS	25	A	80	20
SLABS ON GROUND	32	SL	80	20

CONCRETE (CONT'D)

C3. CONCRETE PROFILES
 *C3.1 SIZES OF CONCRETE ELEMENTS DO NOT INCLUDE THICKNESS OF APPLIED FINISHES
 *C3.2 NO HOLES, CHASES OR EMBEDMENT OF PIPES OTHER THAN SHOWN ON THE STRUCTURAL DRAWINGS SHALL BE MADE IN CONCRETE MEMBERS WITHOUT THE PRIOR WRITTEN APPROVAL OF THE ENGINEER.
 *C3.3 CANTILEVERS - PROVIDE UPWARD CAMBER IN FRAMEWORK FOR REINFORCED CONCRETE CANTILEVERS OF L/120, WHERE L IS THE SLAB AND EDGE BEAM DEPTHS SHOWN.
 *C3.4 PROVIDE DRIP GROOVES AT ALL EXPOSED EDGES. CHAMFERS, DRIP GROOVES, REGLETS, ETC TO BE ARCHITECT'S DETAILS. MAINTAIN COVER TO REINFORCEMENT AT THESE DETAILS.
 *C3.5 CONSTRUCTION JOINTS NOT SHOWN ON THE STRUCTURAL DRAWINGS SHALL BE TO THE WRITTEN APPROVAL OF THE STRUCTURAL ENGINEER.
 *C3.6 CONDUITS, PIPES, ETC SHALL ONLY BE LOCATED IN THE MIDDLE ONE THIRD OF SLAB DEPTH AND SPACED AT NOT LESS THAN 3 DIAMETERS. DO NOT PLACE PIPES OR CONDUITS WITHIN THE COVER TO THE REINFORCEMENT.

C4. COVER TO REINFORCEMENT

CONDITION	MINIMUM COVER (UNO)
SURFACES IN CONTACT WITH GROUND WITHOUT MEMBRANE:	40 mm
WITH MEMBRANE:	30 mm
- FOOTINGS	50 mm
SURFACES ABOVE GROUND - EXPOSED	40 mm

C5. THE FINISHED CONCRETE SHALL BE A DENSE HOMOGENEOUS MASS, COMPLETELY FILLING THE FRAMEWORK, THOROUGHLY EMBEDDING THE REINFORCEMENT AND FREE OF STONE POCKETS. COMPACT ALL CONCRETE WITH MECHANICAL VIBRATORS, INCLUDING FOOTINGS AND SLABS ON GROUND.

C6. CURING OF CONCRETE
 - ALL CONCRETE IS TO BE CURED BY AN APPROVED METHOD FOR A MINIMUM OF 7 DAYS
 - ALLOW 14 DAYS CURING BEFORE ERECTION OF THE STEELWORK
 CURING COMPOUNDS MAY BE USED, PROVIDED THAT THEY COMPLY WITH AS3799, AND DO NOT AFFECT FLOOR FINISHES. PVA BASED CURING COMPOUNDS ARE NOT ACCEPTABLE.

C7. SLIP JOINTS TO BE USED ON ALL LOAD-BEARING MASONRY WALLS. USE 2 LAYERS OF GALVANISED FLAT STEEL WITH GRAPHITE GREASE BETWEEN.

C8. SLAB REINFORCEMENT AT SUPPORTING WALLS. SLAB BARS SHALL EXTEND 70mm ONTO SUPPORTING WALLS, WITH 50% OF BOTTOM BARS COUED TO ACHIEVE ANCHORAGE AT SIMPLY SUPPORTED ENDS. MESH IN SLABS SHALL EXTEND 70mm ONTO SUPPORTING WALLS WITH A CROSS WIRE.

C9. MESH LAPPED SPLICES LAPS IN MESH (FABRIC) SHALL COMPLY WITH AS3600-2018. THE TWO OUTERMOST TRANSVERSE WIRES OF ONE SHEET SHALL OVERLAP THE TWO OUTERMOST TRANSVERSE WIRES OF THE SHEET BEING LAPPED.

STEEL WORK

S1. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS4100 EXCEPT WHEN VARIED BY THE CONTRACT DOCUMENTS.
 - FABRICATION SHALL BE CARRIED OUT IN ACCORDANCE WITH SECTION 14 OF AS4100
 - ERECTION SHALL BE CARRIED OUT IN ACCORDANCE WITH SECTION 15 OF AS4100.

S2. UNLESS NOTED OTHERWISE ALL STEEL SHALL BE OF THE FOLLOWING GRADE IN ACCORDANCE WITH THE FOLLOWING AUSTRALIAN STANDARDS.

TYPE OF STEEL	AUSTRALIA STANDARD	GRADE
UNIVERSAL BEAMS & COLUMNS, PARRALLEL FLANGE CHANNELS, LARGE ANGLES	AS/NZS 3679.1	300
WELDED SECTIONS	AS/NZS 3679.2	300
HOT MILLED PLATES, FLATS, FLOOR PLATES, SMALL ANGLES AND SLABS	AS/NZS 3678	250
HOLLOW SECTIONS - SQUARE & RECTANGULAR	AS 1163	C350 OR C450 ACCORDING TO SECTION DESIGNATION
CIRCULAR HOLLOW SECTIONS	AS 1163	C350 OR C450 ACCORDING TO SECTION DESIGNATION
COLD FORMED PURLIN AND GIRTS	AS 1397	G450 Z350

S3. WELDING
 ALL WELDING SHALL COMPLY WITH AS1554.1
 FILLET WELDS SHALL BE 6/8mm CFW, UNO
 BUTT WELDS SHALL BE COMPLETE PENETRATION BUTT WELDS WHERE WELDS ARE NOT OTHERWISE SPECIFIED THEY ARE TO ACHIEVE THE FULL STRENGTH OF THE MEMBERS JOINED
 WEB STIFFENERS TO BE FULLY WELDED ON FLANGES AND WELDED HALF-WAY ON EITHER AND OPPOSITE SIDE OF WEBS UNO

S4. BOLTS SHALL BE M20 UNLESS NOTED OTHERWISE.
 BOLTS SHALL BE 8.8/S UNLESS NOTED OTHERWISE
 ALL BOLTS, NUTS AND WASHERS SHALL BE GALVANISED TO AS1214. COLUMN HOLDING DOWN BOLTS, CAST IN PLACE, SHALL BE 4.6/S UNLESS NOTED OTHERWISE.

COLUMN HD BOLT	EMBEDDED IN CONCRETE	COG	CONCRETE EDGE DISTANCE MINIMUM
M16 4.6/S	250	50	160
M20 4.6/S	300	75	200
M24 4.6/S	400	100	260

S5. BOLTS DENOTED 4.6/S ARE COMMERCIAL BOLTS OF STRENGTH GRADE 4.6 TO AS1111, SNUG-TIGHT.

S6. BOLTS DENOTED 8.8/S, 8.8/TF AND 8.8/TF ARE HIGH STRENGTH STRUCTURAL BOLTS OF STRENGTH GRADE 8.8 TO AS 1252.
 * 8.8/S DENOTES SNUG-TIGHT
 * 8.8/TF AND 8.8/TF DENOTES BOLTS FULLY TENSIONED TO AS 4100
 * 8.8/TF DENOTES TENSION JOINT
 * 8.8/TF DENOTES BEARING JOINT

STEEL WORK (CONT'D)

S7. LOAD INDICATOR WASHERS SHALL BE USED ON THE BOLT HEAD FOR ALL 8.8/TF AND 8.8/TF BOLTS. PROVIDE A 75mm COLOUR FLASH AT THESE CONNECTIONS.

S8. BOLT HOLES AND WASHERS - TYPICAL FOR UP TO M24 (UNO ON DRAWINGS)

S8.1 TYPICAL CONNECTIONS

CONNECTION TYPE	BOLT HOLES SHALL BE: SIZE = BOLT DIAMETER +	BOLT TYPE	WASHERS
STEEL TO STEEL	2 mm	4.6/S	WASHERS - HD GALVANISED TO AS1214 THICK FOR M20)
		8.8/S	TO AS1252 (38 OD X 4mm NOMINAL THICK FOR M20)
		8.8/TF	TO AS1252 (38 OD X 4mm NOMINAL THICK FOR M20) PLUS LOAD INDICATOR WASHERS UNDER BOLT HEAD
STEEL TO CONCRETE	4 mm		MINIMUM 4mm THICK PLATE WASHER
COLUMN BASEPLATES	6 mm	M20 4.6/S	TO AS1111 (37 OD X 3mm THICK FOR M20)
		M24 4.6/S	TO AS1111 (43 OD X 4mm THICK FOR M24)

S8.2 CONNECTIONS TO TILT UP CONCRETE WALL PANELS FOR CONNECTIONS TO CAST IN FERRULES IN TILT UP WALL PANELS. BOLTS HOLES SHALL BE 6MM OVERSIZE WIDE X LONG SLOTTED HOLES UNO. WASHER TO COMPLETELY COVER SLOTTED HOLE AND BE MIN 8MM PLATE.

BOLT	HOLE SIZE	WASHER - TO COMPLETELY COVER SLOTTED HOLE
M20 8.8/S	26 WIDE x 50 mm	75 x 75 x 8mm PLATE WASHER

S8.3 ALL CONNECTIONS WHERE A SLOTTED HOLE IS USED IN STEEL-TO-STEEL CONNECTIONS SHALL HAVE A WASHER ON THE SLOTTED HOLE SIDE.

S9. ALL PLATES AND STIFFENERS SHALL BE 8MM THICK UNO. CAP AND SEALING PLATES SHALL BE 5MM UNO.

S10. DRILLED-IN ANCHORS - TO BE FITTED AS PER MANUFACTURERS RECOMMENDATIONS AND ENGINEER'S REQUIREMENTS WHERE NOTED.

S11. PROVIDE ALL NECESSARY PURLIN, GIRT AND TRIMMING ELEMENTS AS REQUIRED TO SUPPORT ALL ROOF AND WALL SHEETING/CLADDING EDGES, VALLEYS, HIPPS AND PENETRATIONS.

S12. PURLINS AND GIRTS USE FLANGED BOLTS OR WASHERS. PURLIN BOLTS SHALL BE:
 * M12 4.6/S FOR SECTIONS UP TO AND INCLUDING 250 DEEP UNO
 * M16 4.6/S FOR SECTIONS OVER 250 DEEP UNO

S13. MIN STANDARDS FOR SURFACE TREATMENT ON BLACK STEEL SHALL BE CLASS 2 & BLAST WITH 75UM ZINC PHOSPHATE PRIMER. REFER TO ARCHITECTURAL SPECIFICATIONS FOR EXTRA FINISH COATS AND COLOURS. ALL COATINGS TO BE COMPATIBLE WITH APPLIED FINISHES INCLUDING TOPCOAT AND ANY FIRE PROTECTION COATING. PAINT REPAIR SHALL BE CONDUCTED TO GIVE SAME LEVEL OF PROTECTION AS THE ORIGINAL TREATMENT. ALL PAINT AND REPAIRS SHALL COMPLY WITH ANY SPECIFIED WARRANTY.

S14. BASE PLATES SHALL BE GROUTED. GROUT SHALL HAVE MINIMUM STRENGTH OF 20 MPa USING AN APPROVED NON-SHRINK GROUT.

STRUCTURAL DESIGN DATA

L1. THE STRUCTURAL COMPONENTS DETAILED ON THESE STRUCTURAL DRAWINGS HAVE BEEN DESIGNED IN ACCORDANCE WITH THE RELEVANT STANDARDS AUSTRALIA CODES AND THE BUILDING CODE OF AUSTRALIA FOR THE FOLLOWING LOADINGS.

L2. SUPERIMPOSED LOADS

FLOOR USAGE	LIVE LOAD (kPa)	SUPERIMPOSED DEAD LOAD (kPa)
ROOF	0.25	0.2
MEZ FLOOR	-	-
SLAB	-	-

L3. WIND LOADS IN ACCORDANCE WITH AS1170.2

BASIC WIND SPEED	V = 41 m/s
DESIGN WIND SPEED	N = 37 m/s
	S = 37 m/s
	W = 37 m/s

REGION A
 TERRAIN CATEGORY 2.5
 STRUCTURAL IMPORTANCE LEVEL 1

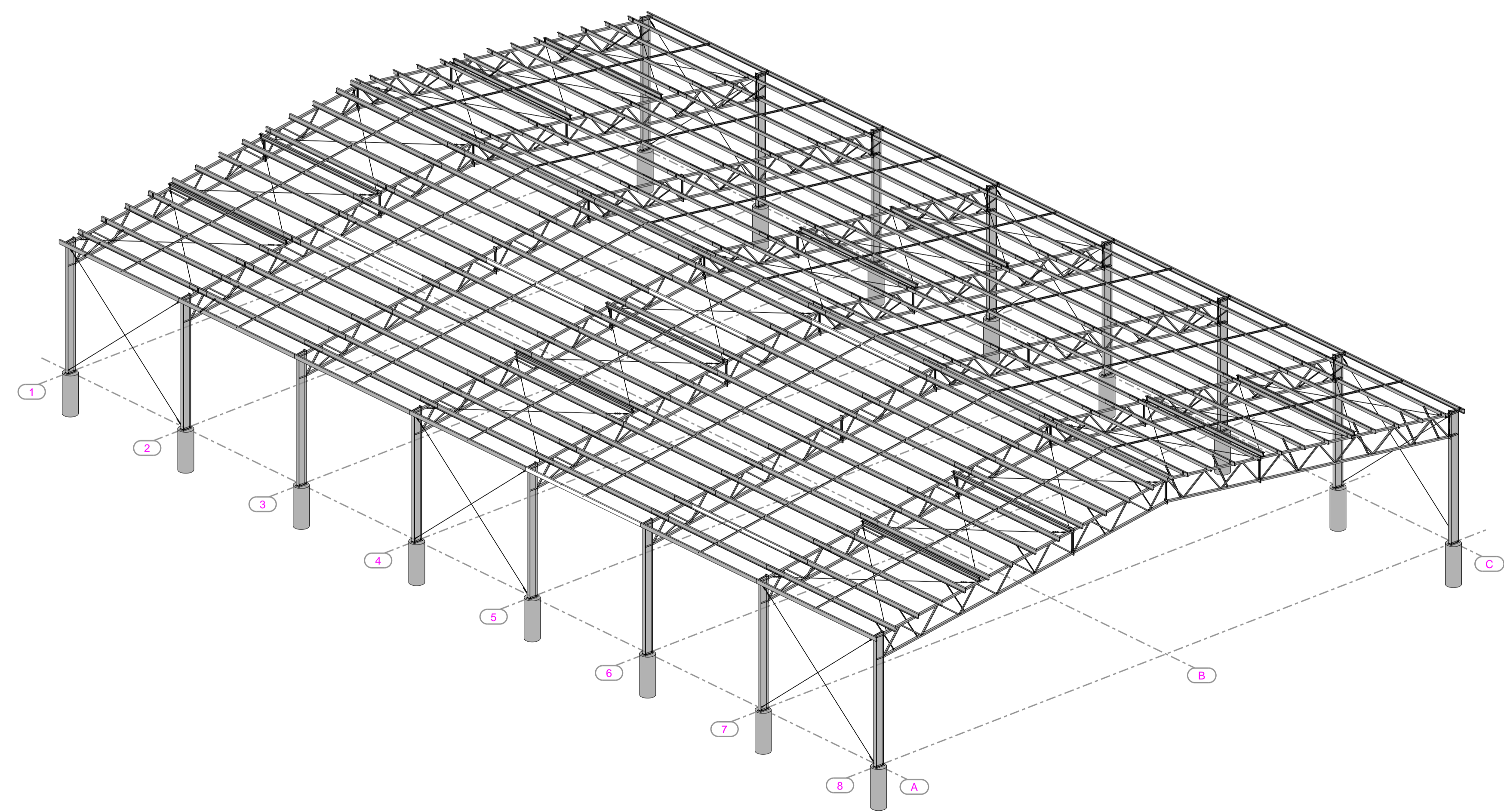
L4. EARTHQUAKE DESIGN PARAMETERS TO AS1170.4

STRUCTURAL IMPORTANCE LEVEL AS DEFINED IN BCA PART 81	1
PROBABILITY FACTOR kp	
HAZARD FACTOR Z	
SITE SUB-SOIL CLASS	
EARTHQUAKE DESIGN CATEGORY	

L5. DESIGN AND ENGINEERING SCOPE

TECHSPAN DESIGN SCOPE	
STRUCTURAL STEEL	BY TECHSPAN
SLAB	NA
FOOTINGS	BY TECHSPAN
PANELS	NA

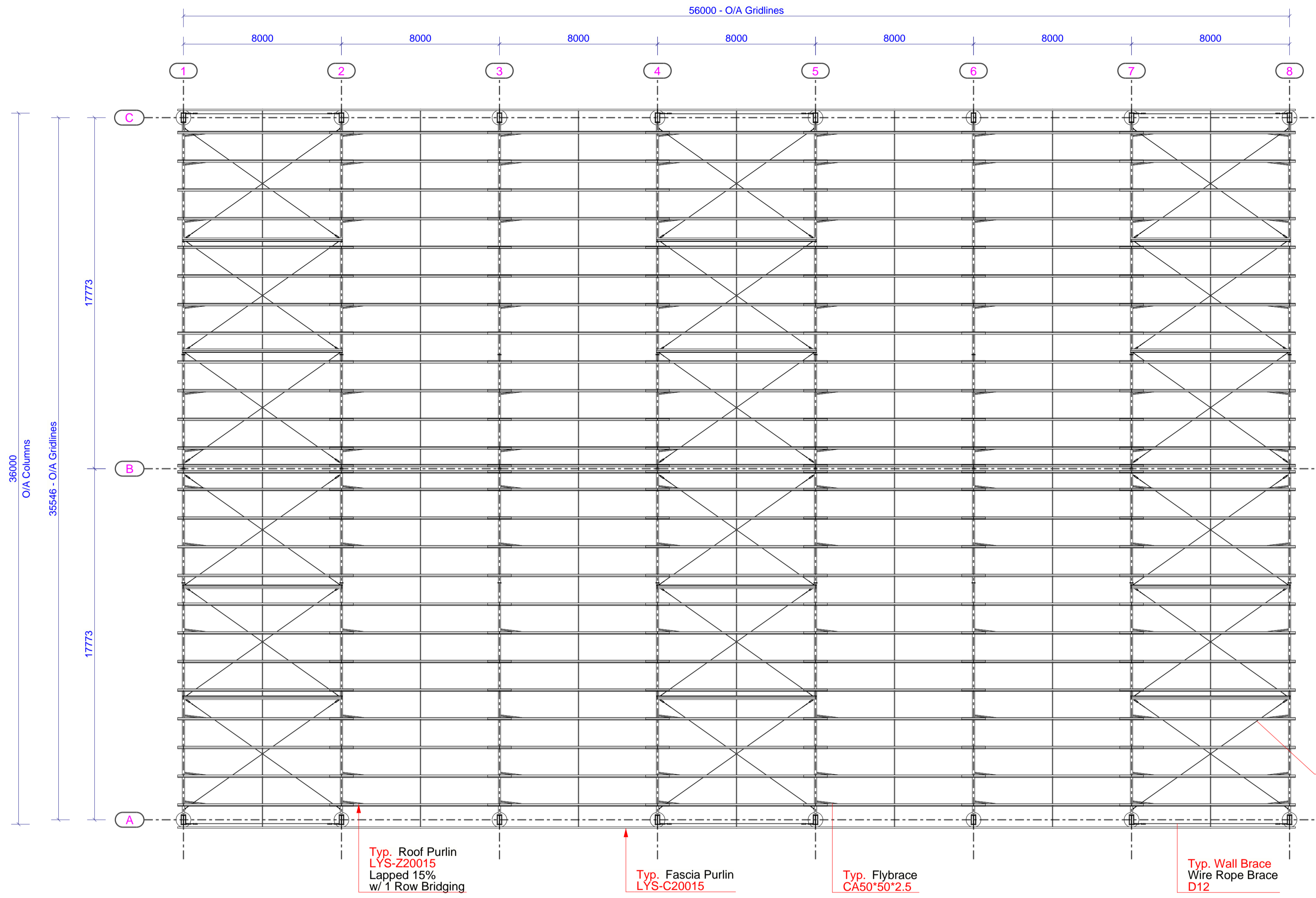
THESE NOTES AND SPECIFICATIONS DO NOT APPLY WHEN THE DESIGN IS 'BY OTHERS' EVEN WHEN REPRESENTATIONS MAY BE MADE IN THESE DRAWINGS.



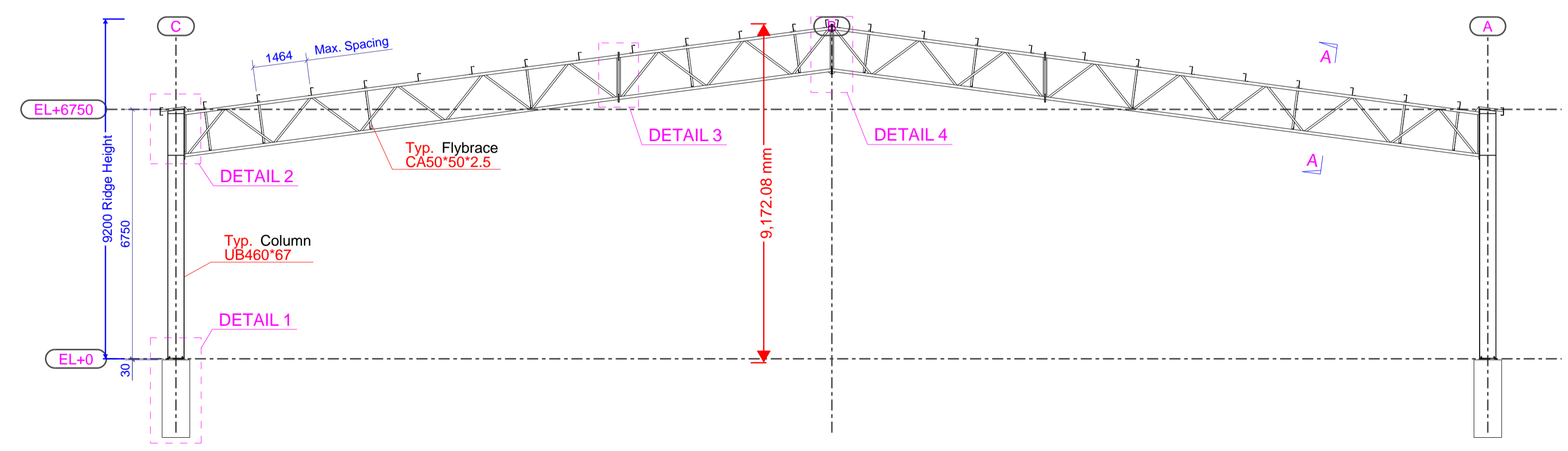
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Registered Professional Engineer
Graeme C Moulston
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 25 JUN 2024
 Signed: [Signature]
 RPEQ4431 (OLD), PRE0002133 (NSW, WA, SA),
 24748ES (NT), PE0001476 (VIC).
 STRUCTURAL DETAILS CONCURRED

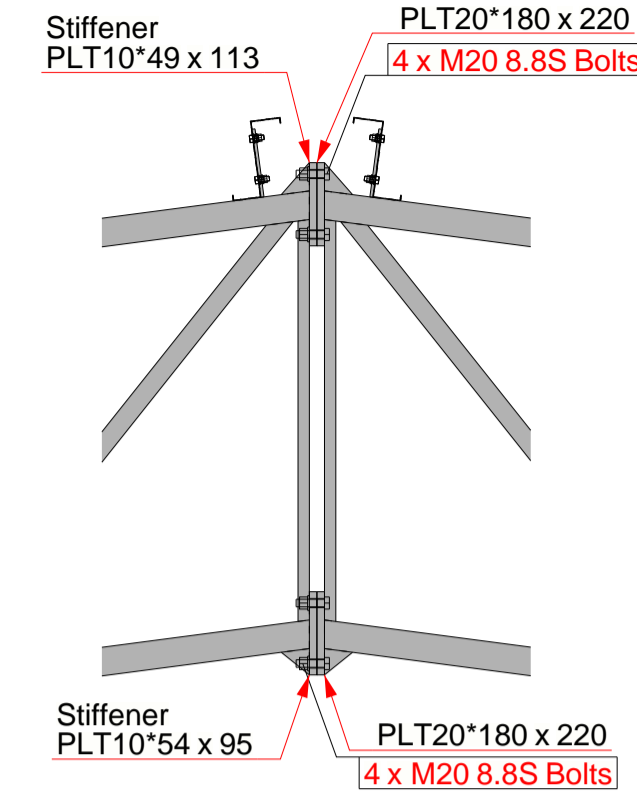
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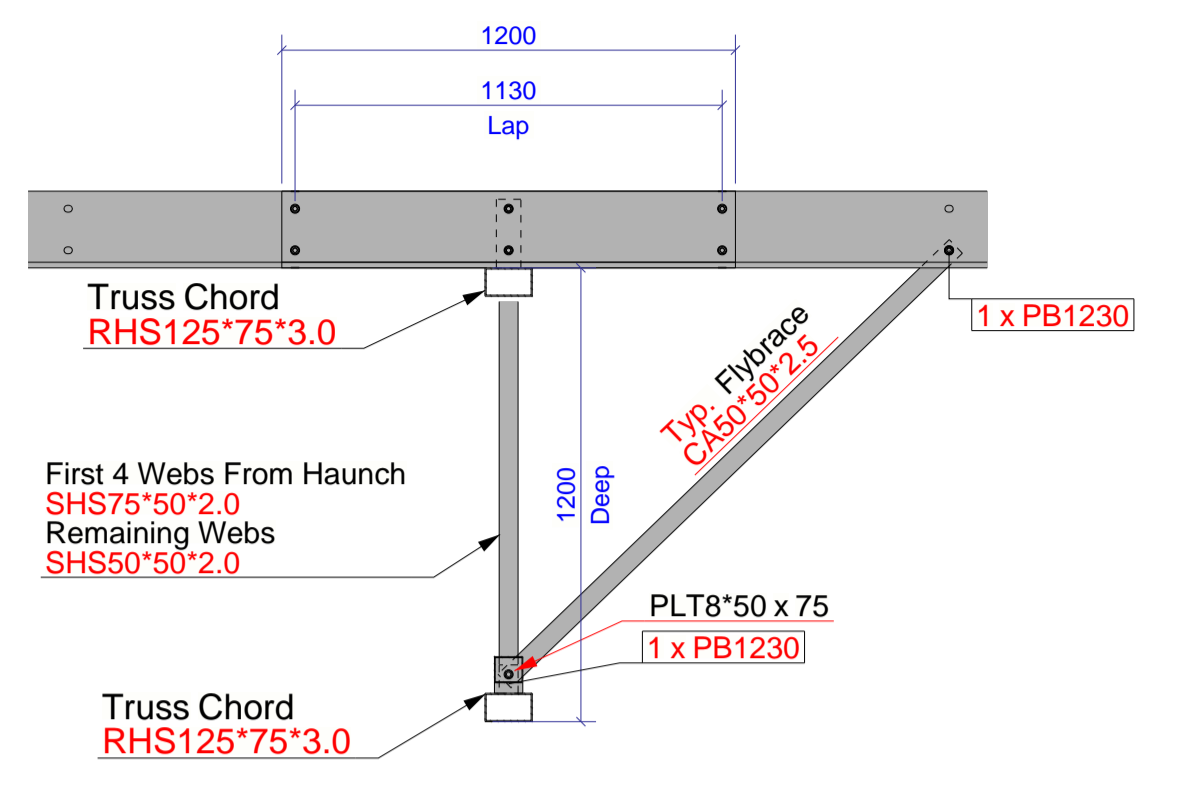
PLAN VIEW



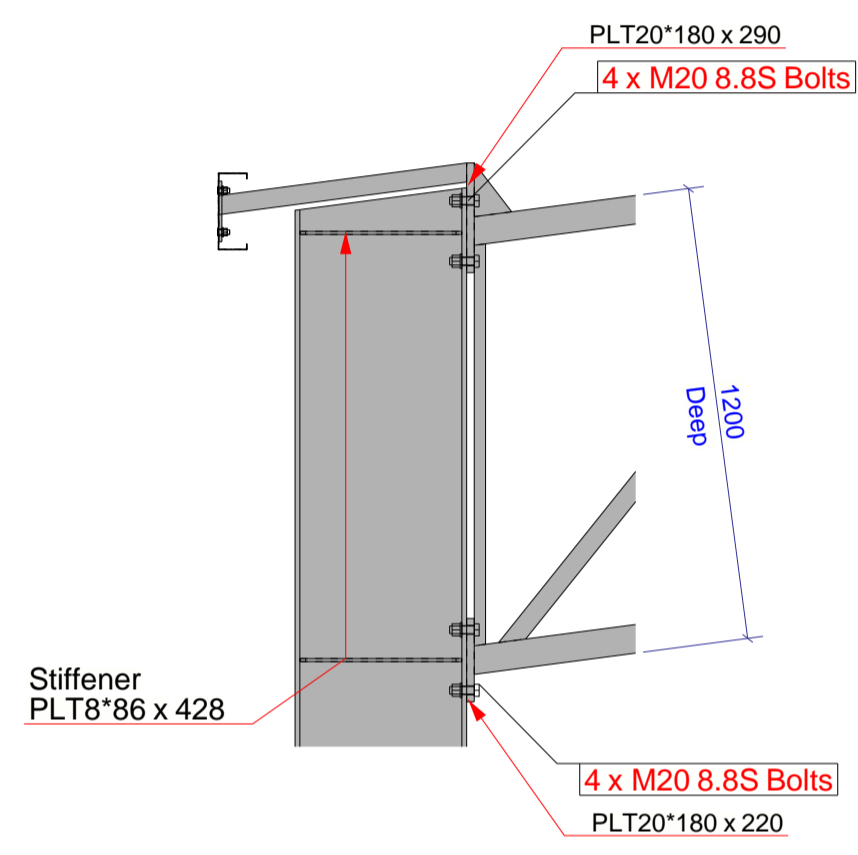
SECTION VIEW



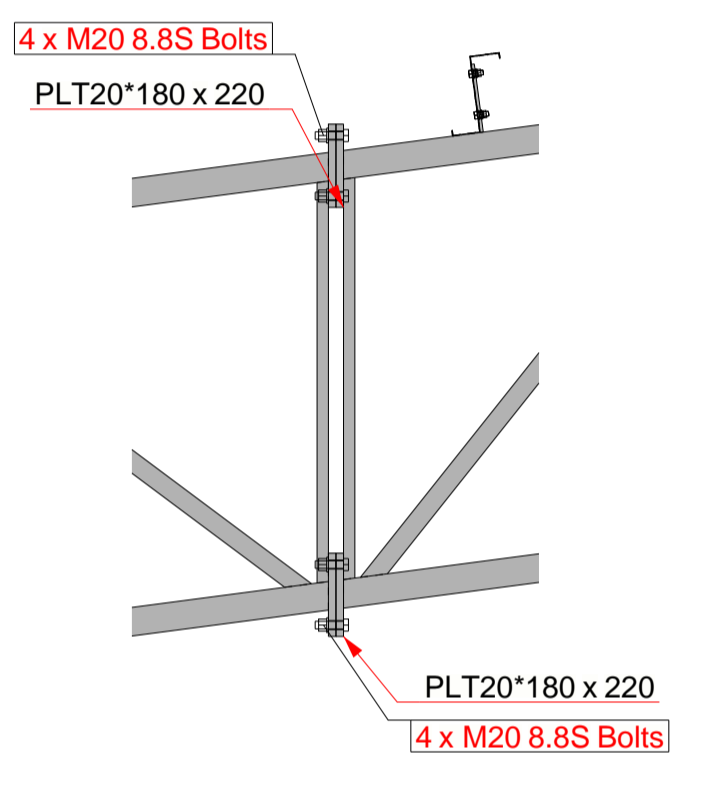
DETAIL-4
TYP. TRUSS APEX DETAIL



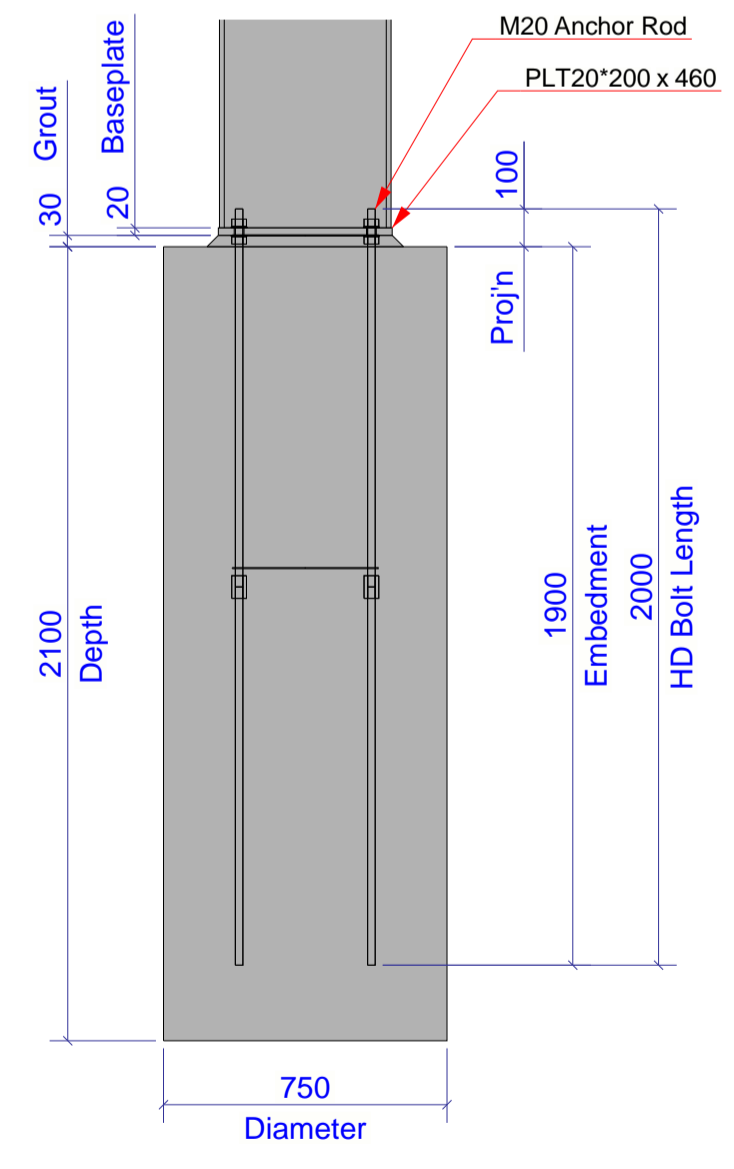
A - A
TYP. TRUSS DETAIL



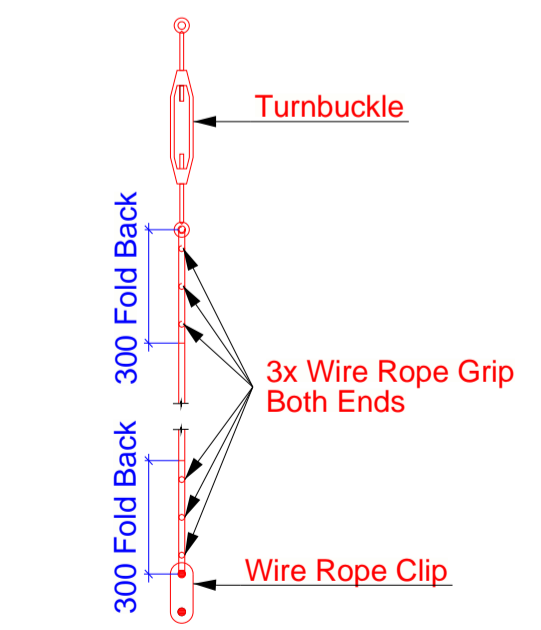
DETAIL-2
TYP. HAUNCH DETAIL



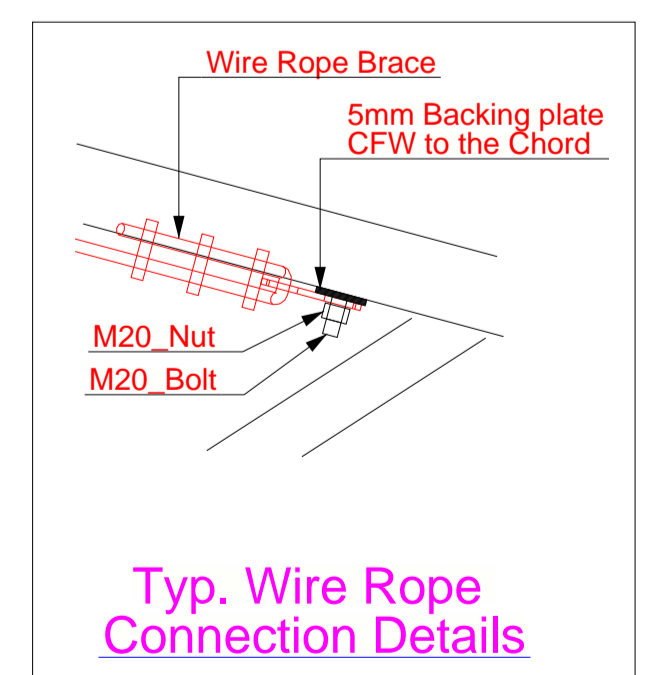
DETAIL-3
TYP. TRUSS SPICE DETAIL



DETAIL-1
TYP. FOOTING DETAIL



Typ. Wire Rope Details



Typ. Wire Rope
Connection Details

Registered Professional Engineer
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