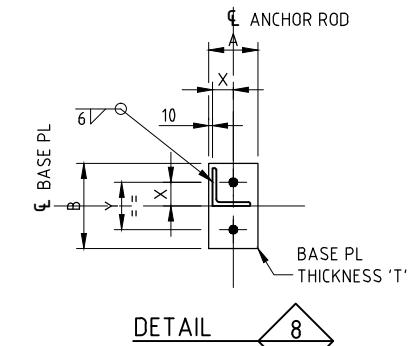
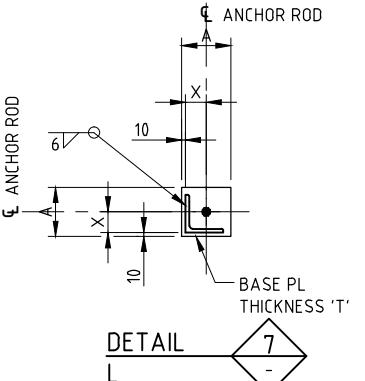
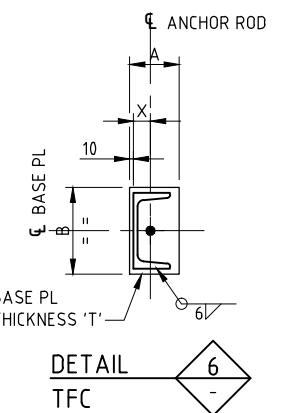
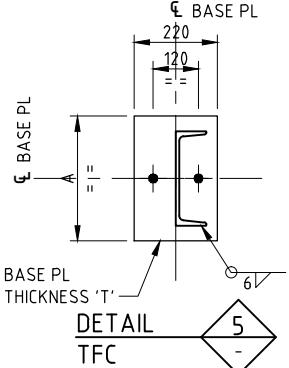


CONNECTION DETAILS					
NOMINAL MEMBER SIZE	A	B	X	T	ANCHOR ROD
HN 175x90	170	200	90	16	M20
HN 198x99	200	230	110	20	M20
HN 200x100	200	230	110	20	M20
HN 248x124	220	280	140	20	M20
HN 250x125	220	280	140	20	M20
HN 300x150	220	340	140	20	M20
HN 350x175	290	390	200	25	M24
HN 400x200	290	440	200	25	M24
HN 446x199	290	490	200	25	M24
HN 450x200	290	490	200	25	M24
HN 500x200	290	540	200	25	M24
HN 600x200	310	640	200	32	M30
HN 700x300	360	770	250	32	M30
HN 800x300	360	840	250	32	M30
HN 900x300	430	950	300	40	M36
700 FWB	360	770	250	32	M30
800 FWB	360	840	250	32	M30
900 FWB	430	950	300	40	M36
1000 FWB	430	1050	300	40	M36

CONNECTION DETAILS					
NOMINAL MEMBER SIZE	A	X	T	ANCHOR ROD	
HW 100x100	220	150	16	M20	
HW 125x125	260	190	16	M20	
HW 150x150	300	220	20	M20	
HW 175x175	330	250	20	M20	
HW 200x200	360	280	20	M20	
HW 250x250	410	320	25	M24	
HW 300x300	510	410	32	M30	
HW 300x305	510	410	32	M30	

CONNECTION DETAILS					
NOMINAL MEMBER SIZE	A	X	T	ANCHOR ROD	
HW 150x150	180	70	16	M20	
HW 175x175	210	90	20	M20	
HW 200x200	230	110	20	M20	
HW 250x250	280	140	25	M24	
HW 300x300	350	180	32	M24	
HW 300x305	350	180	32	M24	
HW 350x350	400	180	32	M30	
HW 400x400	480	200	40	M36	
HW 400x408	480	200	40	M36	
HW 414x405	500	200	40	M36	
HW 428x407	500	200	40	M36	
HW 502x470	550	250	50	M36	

CONNECTION DETAILS						
NOMINAL MEMBER SIZE	A	B	X	Y	T	ANCHOR ROD
TFC 160 x 65	100	180	45	60	16	M20
TFC 180 x 70	100	210	45	70	16	M20
TFC 200 x 75	100	230	45	100	20	M20
TFC 250 x 80	110	280	55	100	20	M24
TFC 280 x 82	110	310	55	150	25	M24



CONNECTION DETAILS					
NOMINAL MEMBER SIZE	A	B	X	ANCHOR ROD	
TFC 100 x 48	130	16	M16		
TFC 126 x 53	155	16	M16		
TFC 140 x 58	170	16	M16		
TFC 160 x 65	190	16	M20		
TFC 180 x 70	210	16	M20		
TFC 200 x 75	230	20	M20		
TFC 250 x 80	280	20	M24		
TFC 280 x 82	310	25	M24		

CONNECTION DETAILS					
NOMINAL MEMBER SIZE	A	B	X	T	ANCHOR ROD
TFC 100 x 48	75	130	35	16	M16
TFC 126 x 53	90	155	35	16	M16
TFC 140 x 58	90	170	35	16	M16
TFC 160 x 65	100	190	45	16	M20
TFC 180 x 70	100	210	45	16	M20
TFC 200 x 75	100	230	45	16	M20

NOTES
 1. FOR STEELWORK GENERAL NOTES REFER TO DRG 0000-15-S1-1100.
 2. FOR SHEAR KEY DETAILS ON BASE PL REFER TO DRG 0000-15-S1-1105.
 3. FOR ANCHOR ROD HOLE SIZES REFER NOTE 19 ON DRG 0000-15-S1-1100.

SCALE 1:10 0 200 400 600 800 1000mm

CAUTION - PROJECT DRAWING - NOT AS BUILT

CONSTRUCTION ISSUE

REV.	DATE	REVISION DESCRIPTION		DES. CHK	APPROVED	REV.	DATE	REVISION DESCRIPTION		DES. CHK	APPROVED	REFERENCE DRAWING No.	REFERENCE DRAWINGS	PRODUCED BY	DESIGNED BY	DRAWN BY
0	15/03/17	ISSUED FOR CONSTRUCTION		WS DR		JDL BP		STRUCTURAL STANDARDS GENERAL STEELWORK NOTES				0000-15-S1-1100	STRUCTURAL STANDARDS GENERAL STEELWORK NOTES	Oyu Tolgoi LLC	L. BEST	K. WHITE
								BRACING CONNECTION DETAILS SHEET 1 OF 3				0000-15-S1-1105	BRACING CONNECTION DETAILS SHEET 1 OF 3	Oyu Tolgoi LLC	CHECK DESIGN J.D. LAMAGNERE	CHECK DRAWING W. SCORER
								STRUCTURAL STANDARDS ANCHOR ROD DETAILS				1000-15-Z1-5006	STRUCTURAL STANDARDS ANCHOR ROD DETAILS	Oyu Tolgoi LLC	LEAD ENGINEER D. RANKIN	APPROVAL DATE 15/03/17
														DRAWING SIZE A1	AREA PROJECT ENGINEER B. POPOLIZIO	
														PLOT SCALE	PROJECT MANAGER	APPROVAL DATE 15/03/17
														CAD FILE NAME 0000-15-S1-1101.DWG	CLIENT D. ARNOLD	APPROVAL DATE 16/03/17
														SCALE AS SHOWN	DRAWING NUMBER 0000-15-S1-1101	ORL

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STAMPING PAGE - REDLINES & BLUELINES

(1) CONTRACTOR STAMPS	<div style="border: 1px solid red; padding: 5px; margin-bottom: 5px;"> NBIK LLC RED-LINE Print Name: Gantsetseg.P Signature:  Rev: ORL Date: 2020.08.02 CHANGE <input type="checkbox"/> NO CHANGE <input checked="" type="checkbox"/> </div>							
(2) EMPC STAMPS - (FE/CONST.)	REV. ORL	REV.						
	<div style="border: 1px solid red; padding: 5px; margin-bottom: 5px;"> JACOBS RED-LINE CONSTRUCTION Date: Signature:  Name: FIELD ENGINEER Date: 2020/08/04 Signature: Name:  PACKAGE: C-107 CONTRACTOR: NBIK CHANGE <input type="checkbox"/> NO CHANGE <input checked="" type="checkbox"/> </div>							
(3) COMMISSIONING (STAMPS)	REV.	REV.	REV.	REV.	REV.	REV.	REV.	REV.

NOTE 1: START ADDING STAMPS - FROM LEFT TO RIGTH

NOTE 2: IN THE CASE THAT MORE SPACES FOR STAMPS ARE NEEDED, ADD AN ADDITIONAL STAMPING PAGE TO THE PDF

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NOTE 5: FIELD ENGINEERING TEAM TO DEFINE REVISIONS ON EACH ON EACH BLOCK - SECTION (2)

OT DOC. NUMBER 0000-15-S1-1101_0RL

FORM: 0000-01-FRM-1112_0

STAMPING PAGE - REDLINES & BLUELINES

(1) CONTRACTOR STAMPS	<div style="border: 1px solid black; padding: 5px; background-color: #f0f0f0;"> <p>MCS property</p> <p>REDLINE / "AS-CONSTRUCTED"</p> <p>Print name: ODONCHIMEG BUKHBAATAR</p> <p>Signature:</p> <p>Rev. ORL Date: 2020.09.25</p> <p>Package No: C003B /CW2107475/</p> <p>Site instruction No: N/A</p> <p>Change <input type="checkbox"/> No Change <input checked="" type="checkbox"/></p> </div>							
(2) EMPC STAMPS - (FE/CONST.)	REV. ORL	REV.						
	<div style="border: 1px solid black; padding: 5px; background-color: #f0f0f0;"> <p>JACOBS®</p> <p>RED-LINE</p> <p>CONSTRUCTION Date: 1</p> <p>Signature:</p> <p>Name:</p> <p>FIELD ENGINEER Date: 2</p> <p>Signature:</p> <p>Name:</p> <p>PACKAGE: C- 003B</p> <p>CONTRACTOR: MCSP</p> <p>CHANGE <input type="checkbox"/> NO CHANGE <input checked="" type="checkbox"/></p> </div>							
(3) COMMISSIONING (STAMPS)	REV.	REV.	REV.	REV.	REV.	REV.	REV.	REV.

NOTE 1: START ADDING STAMPS - FROM LEFT TO RIGTH

NOTE 2: IN THE CASE THAT MORE SPACES FOR STAMPS ARE NEEDED, ADD AN ADDITIONAL STAMPING PAGE TO THE PDF

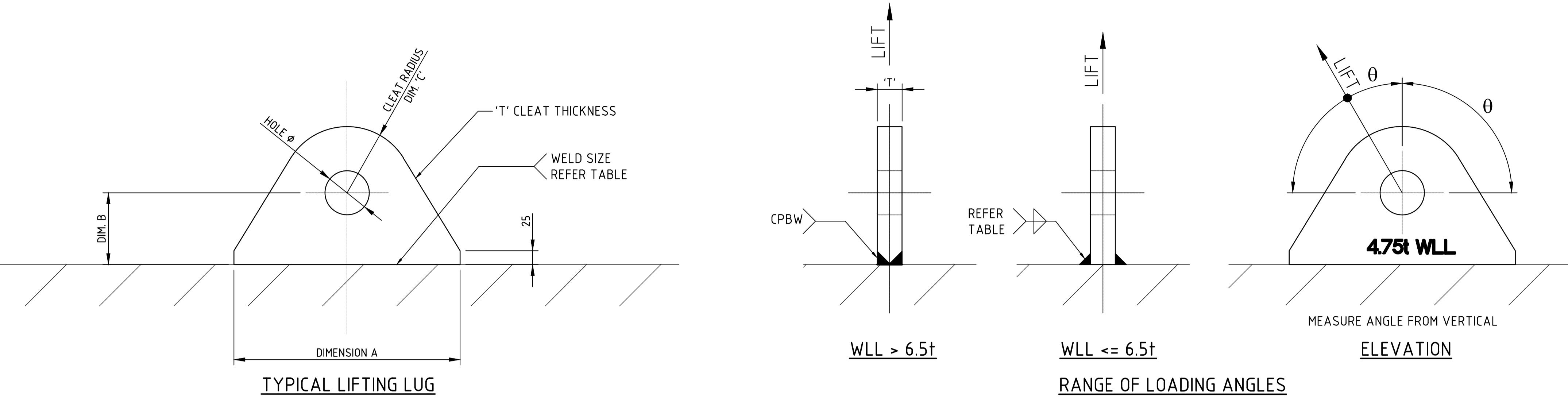
NOTE 3: STAMPING PAGE MUST BE FIRST PAGE OF THE DOCUMENT

NOTE 4: OT. DOC NUMBER MUST BE THE SAME NUMBER THAN THE DOCUMENT TO BE REDLINED (MANDATORY)

NOTE 5: FIELD ENGINEERING TEAM TO DEFINE REVISIONS ON EACH ON EACH BLOCK - SECTION (2)

OT DOC. NUMBER 0000-15-S1-1115

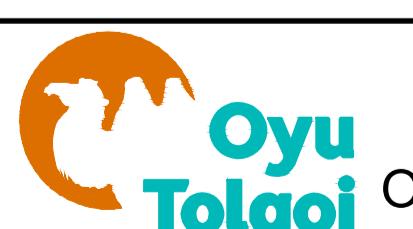
FORM: 0000-01-FRM-1112_0



STANDARD LUGS UNLESS SHOWN OTHERWISE ON THE DESIGN DRAWINGS											
WORKING LOAD LIMIT (WLL)	1.0†	1.5†	2.0†	3.25†	4.75†	6.5†	8.5†	9.5†	12.0†	13.5†	17.0†
DIMENSION A	80	90	110	130	150	180	190	200	210	220	260
DIMENSION B	40	50	50	55	55	60	60	60	60	70	80
DIMENSION C	30	35	40	45	50	55	65	70	75	90	95
CLEAT THICKNESS 'T'	10	10	10	12	16	20	25	25	30	35	35
HOLE Ø	20	25	25	30	30	35	40	45	45	55	65
WELD SIZE	6 CFW	8 CFW	8 CFW	10 CFW	10 CFW	10 CFW	CPBW	CPBW	CPBW	CPBW	CPBW
LIFTING ANGLE θ	± 90	± 90	± 90	± 90	± 90	± 90	± 90	± 90	± 90	± 90	± 90
HARD STAMP LUG WITH	1 † WLL	1.5 † WLL	2 † WLL	3.25 † WLL	4.75 † WLL	6.5 † WLL	8.5 † WLL	9.5 † WLL	12 † WLL	13.5 † WLL	17 † WLL

NOTES

1. REFER DRG 0000-15-S1-1100 FOR STANDARD STRUCTURAL NOTES.
 2. CPBW INDICATES COMPLETE PENETRATION FULL STRENGTH BUTT WELD.
 3. CFW INDICATES CONTINUOUS FILLET WELD.
 4. ALL LUGS TO BE ASTM A992 GRADE 50 OR GB/T 1591 Q345.
 5. ALL LUG HOLES TO BE DRILLED. DO NOT FLAME CUT.
 6. ALL LIFTING LUGS TO BE HARD STAMPED AS INDICATED IN THE TABLE, BOTH SIDES OF LUG IN 12mm MINIMUM HIGH LETTERS. IN ADDITION A PLAQUE IN 50mm HIGH LETTERS INDICATING THE PURPOSE OF THE LUG (EG. TOWING OR LIFTING) IN ENGLISH AND MONGOLIAN SHALL BE MOUNTED ON THE STRUCTURE.
 7. THE BASE MATERIAL WHERE THE LUG IS TO BE WELDED ONTO SHALL BE DETERMINED AS BEING SUITABLE FOR WELDING, AND HAVE A MINIMUM THICKNESS OF AT LEAST EQUAL TO THE LUG THICKNESS.
 8. THE LIFTING LUG RATED CAPACITIES HAVE BEEN MATCHED WITH THE RATED CAPACITIES OF CROSBY G209 OR G2130 SHACKLES. HOLE SIZES DETAILED ARE SUITABLE FOR SHACKLES UP TO TWO SIZES LARGER.
 9. LUG DESIGN IS BASED ON SLING AND SHACKLE ORIENTATION THAT WILL PRODUCE IN PLANE TENSION AND SHEAR FORCES ONLY. LUGS SHALL NOT BE SUBJECT TO ANY OUT OF PLANE (SIDeways) LOAD UNLESS OTHERWISE NOTED ON THE DRAWINGS.
 10. LIFTING OPERATIONS SHALL BE PREPARED ONLY BY A SUITABLY QUALIFIED RIGGING SPECIALIST. WHERE THESE LUGS ARE ADOPTED, A LIFTING PLAN SHALL BE PREPARED AND SUBMITTED TO CLIENT'S REPRESENTATIVE FOR REVIEW PRIOR TO THE LIFT.
 11. ALL ADDITIONAL LUGS NOT SHOWN ON THE DESIGN DRAWINGS REQUIRED FOR LIFTING OR TOWING SHALL BE APPROVED BY CLIENT'S REPRESENTATIVE.
 12. ALL CONTINUOUS FILLET WELDS SHALL BE SP STRUCTURAL PURPOSE GRADE WELDS
 13. ALL LIFTING LUGS SHALL BE PAINTED SAFETY YELLOW SYSTEM 2 IN ACCORDANCE WITH 0000-00-SPE-0002.



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Мэдэгдэл: Энэхүү баримт бичиг эсхүүл түүний хэсэг, хавсралт-т үзүүлсэн, хуаралсан, агуулагдсан, мөн энэхүү баримт бичгээр ил тавсан зураг, төлөвлөгөө, загвар, дизайн болон бусад аливаа мэдээллийг Оюу Толгой ХХК өмчилж бөгөөд Оюу Толгой ХХК-ийн өмч мөн. Иймээс эдгээр мэдээлэл нь ювхэн Оюу Толгой ХХК-ийн дотоод хэрэгжэлдэд зориулагдан бөгөөд Оюу Толгой ХХК-ийн бичигч энэхүү орлогийг эдгээр мэдээллийг аливаа хайлбарын хувьнуудын эсхүүл эдгээр мэдээлэлд, нэвтрэх эрхийг аливаа бусад этгээдэд өгөхийг хатуу хирогилоно. Эдгээр нөхцлийн (бодитоор зөрчсөн эсхүүл зөрчихийг оролдсон) аливаа зөрчилд хууийн хариуцлага хүлээлгэх бөгөөд боломжит бүх хууль эрх зүйн арга хэмжээ авах эрхээ Оюу Толгой ХХК хадгална.

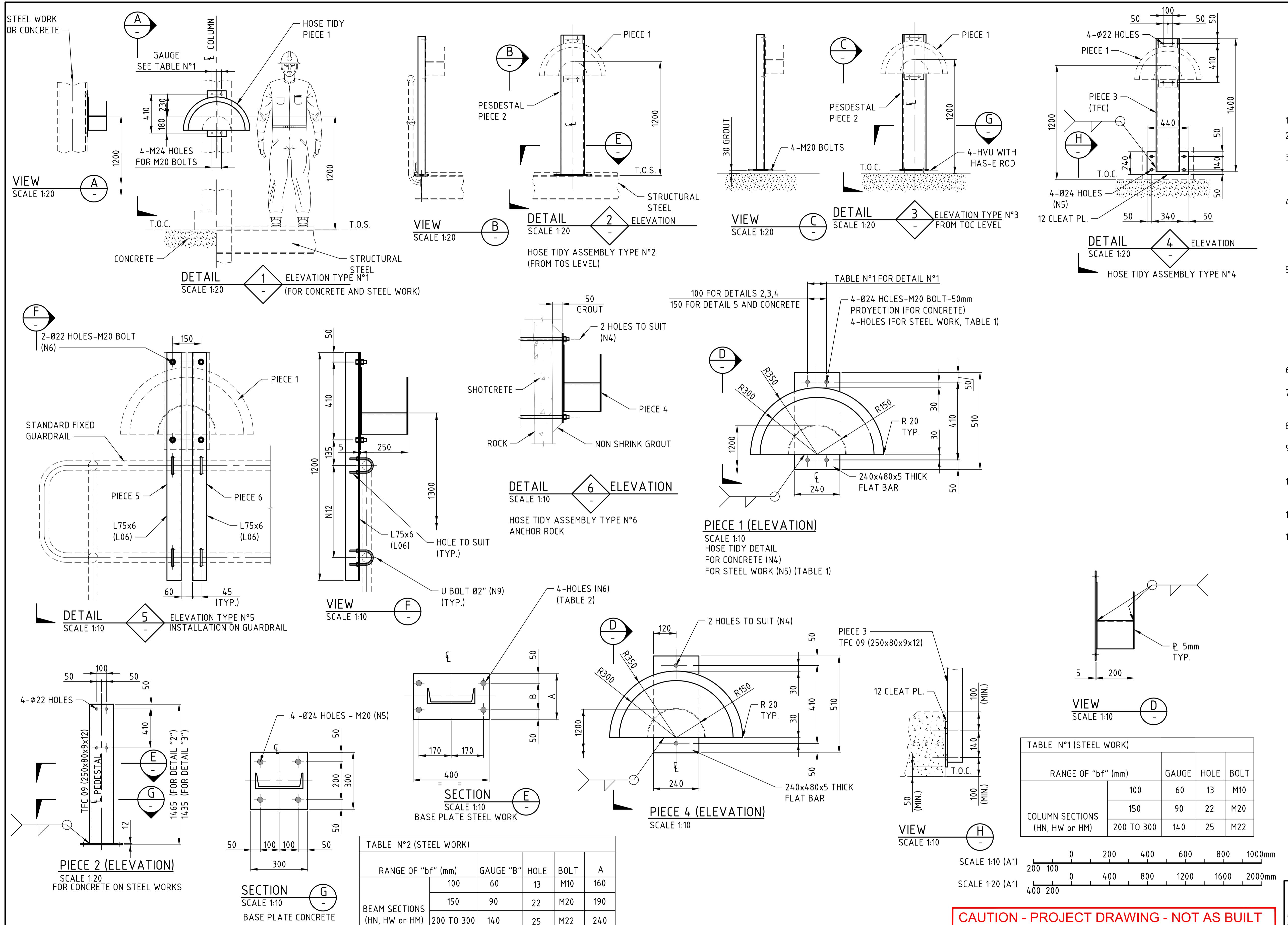
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Web: www.jacobs.com

**0YU TOLGOI UNDERGROUND PROJECT
SITE WIDE
STRUCTURAL STANDARDS
LIFTING LUG DETAILS**



LEGEND:
NX : DENOTES NOTE NUMBER X

CONSTRUCTION ISSUE

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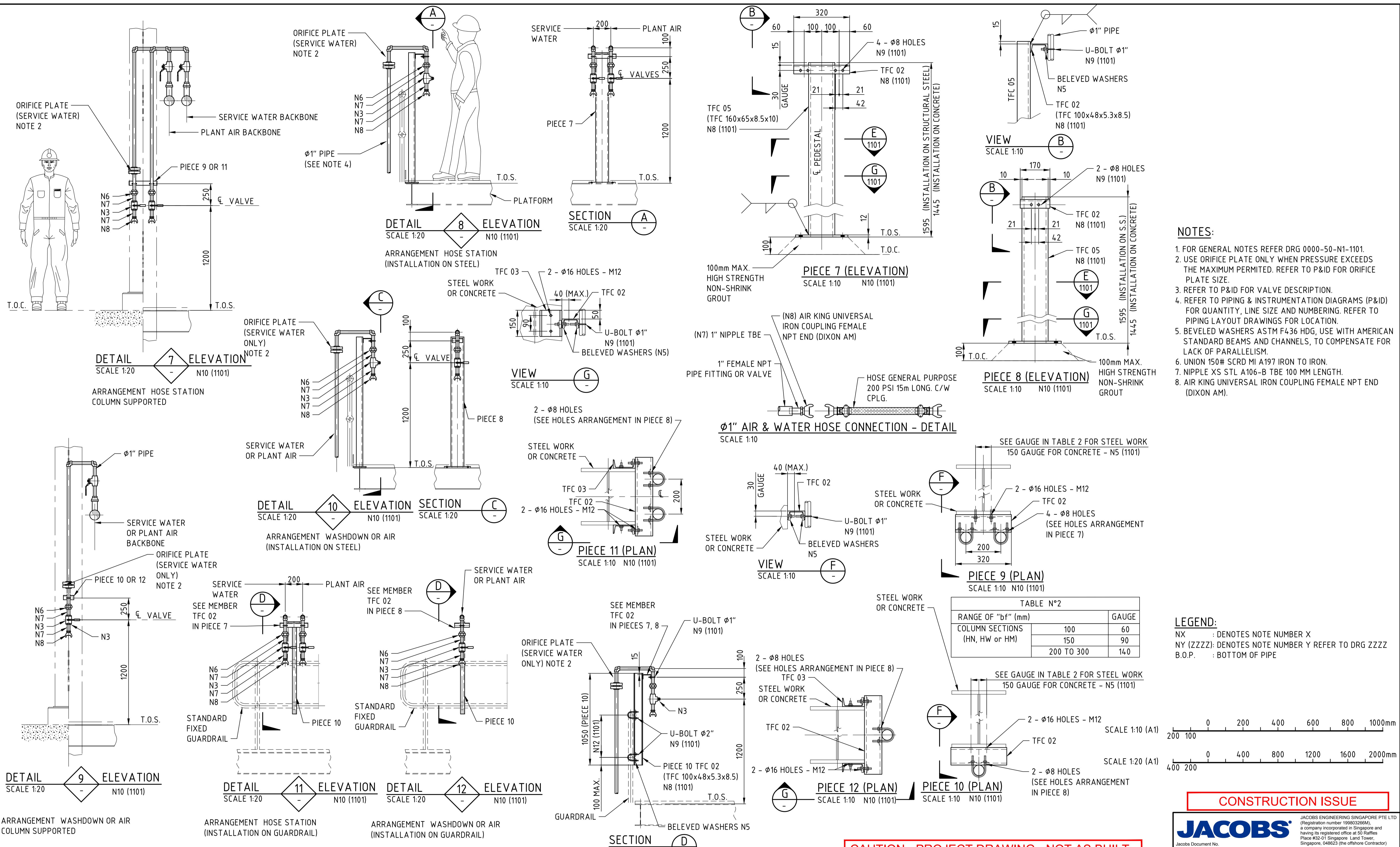
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0	20.03.18	ISSUED FOR CONSTRUCTION	JR BM	CC EM						0000-15-S1-1100	STRUCTURAL STANDARDS - GENERAL STEELWORK NOTES
										1000-15-Z1-5003	STRUCTURAL STANDARDS - GUARDRAIL DETAILS

PRODUCED BY	DESIGNED BY	DRAWN BY
PROJECT NO SN1809	C. LOPEZ	C. LOPEZ
CONTRACT NO	B. MAUREIRA	B. MAUREIRA
DRAWING SIZE A1	AREA PROJECT ENGINEER	ENGINEERING MANAGER
PLOT SCALE AS SHOWN	PROJECT MANAGER	APPROVAL DATE
CAD FILE NAME 0000-50-N1-1101.DWG	CLIENT	APPROVAL DATE
SCALE AS SHOWN	DRAWING NUMBER 0000-50-N1-1101	REV. 0



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PROJECT NO SN1809
CHECK DESIGN B. MAUREIRA
CONTRACT NO C. CID
DRAWING SIZE A1
PLOT SCALE AS SHOWN
CAD FILE NAME 0000-50-N1-1101.DWG
SCALE AS SHOWN
DRAWING NUMBER 0000-50-N1-1101
REV. 0



NOTES:

- FOR GENERAL NOTES REFER DRG 0000-50-N1-1101.
USE ORIFICE PLATE ONLY WHEN PRESSURE EXCEEDS
THE MAXIMUM PERMITTED. REFER TO P&ID FOR ORIFICE
PLATE SIZE.

REFER TO P&ID FOR VALVE DESCRIPTION.

REFER TO PIPING & INSTRUMENTATION DIAGRAMS (P&ID)
FOR QUANTITY, LINE SIZE AND NUMBERING. REFER TO
PIPING LAYOUT DRAWINGS FOR LOCATION.

BEVELED WASHERS ASTM F436 HDG, USE WITH AMERICAN
STANDARD BEAMS AND CHANNELS, TO COMPENSATE FOR
LACK OF PARALLELISM.

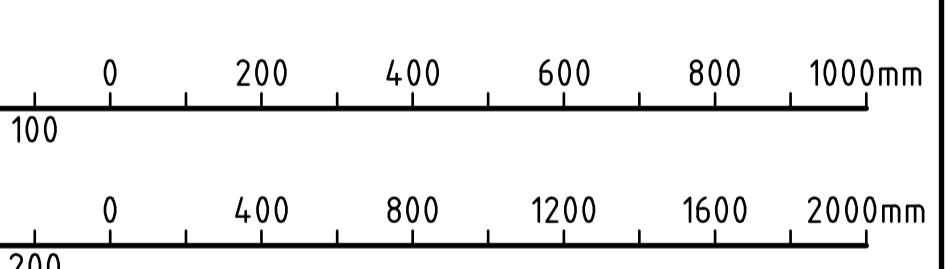
UNION 150# SCRD MI A197 IRON TO IRON.

NIPPLE XS STL A106-B TBE 100 MM LENGTH.

AIR KING UNIVERSAL IRON COUPLING FEMALE NPT END
(DIXON AM).

LEGEND:

K : DENOTES NOTE NUMBER X
Y (ZZZZ): DENOTES NOTE NUMBER Y REFER TO DRG ZZZZ
O.P. BOTTOM OF PIPE



CONSTRUCTION ISSUE

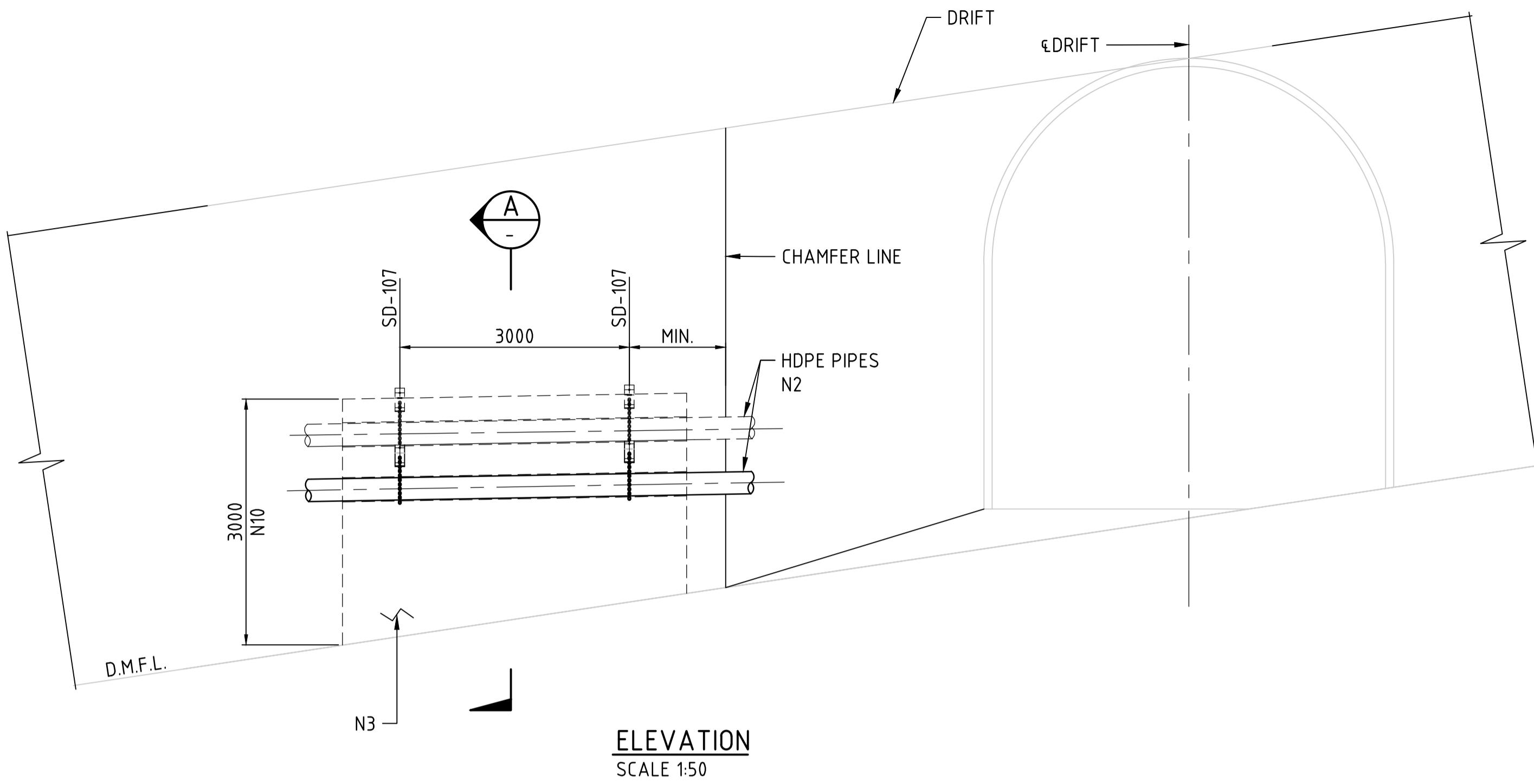


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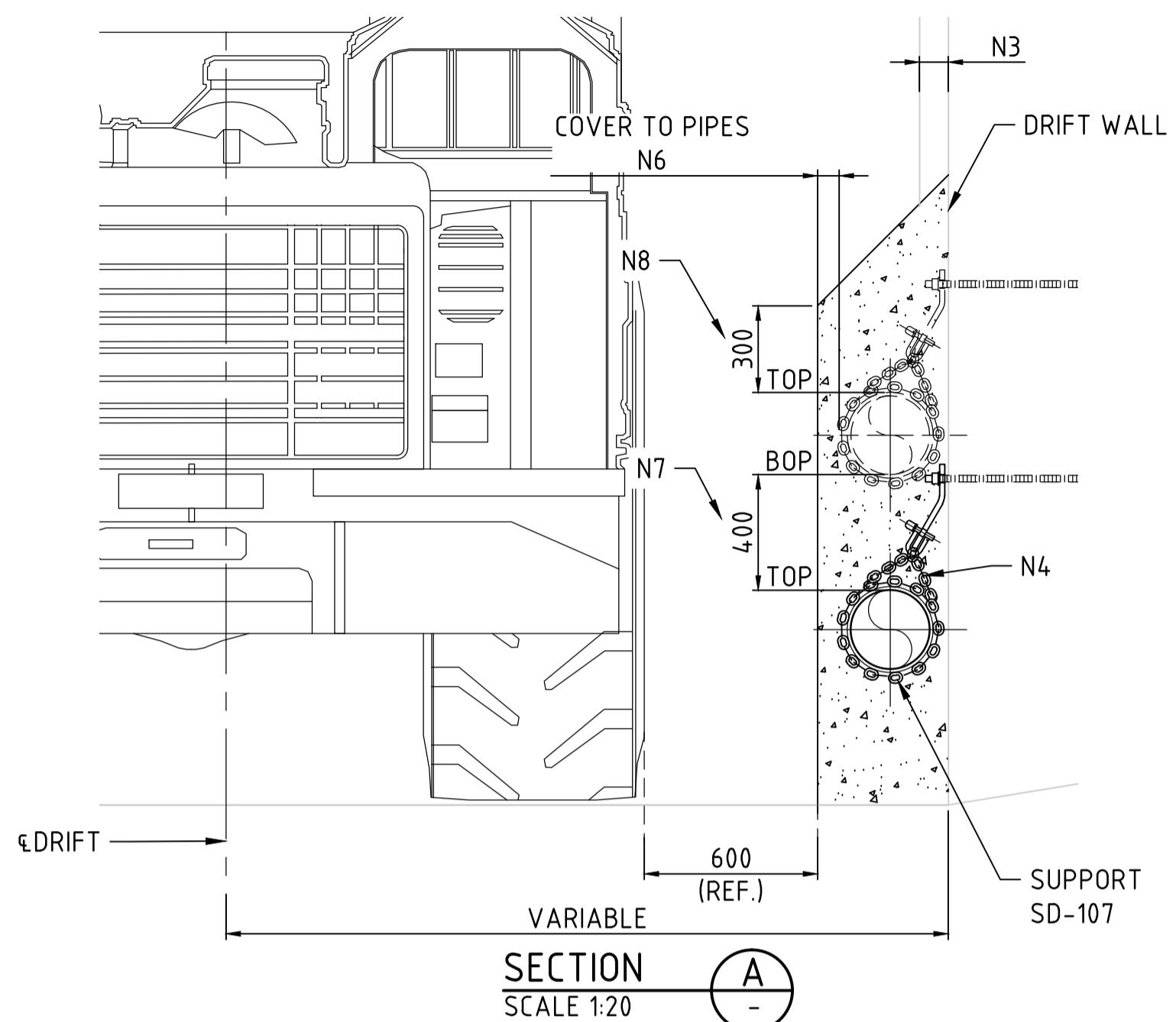
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Мэдээллийн Энэхүү баримтын бичиг (эскул түүхийн хэсэг, хадаралт, огуулсан, мөн энэхүү баримтын бичигийн төлбөрсэн зураг, төлөвлөгөө, заасбар, дизайн болон бусад аливаа мэдээллийг Оюу Толгой ХХК өмчлөх бөгөөд Оюу Толгой ХХК-ийн өмч мөн. Иймээс эдээсэр мэдээлэл нь зөвхөн Оюу Толгой ХХК-ийн дотоод хөгжлийн зорилтуулсан бөгөөд Оюу Толгой ХХК-ийн бичигийн зөвхөн мэдээллийн эдээсэр мэдээллийн аливаа хэлбэрээр хуулиарахаар худалдаан олруулжасан эскул эдээсэр мэдээлэл нь нэхтэрхэд эрхийн аливаа бусад эмгээдэг өвөхийн хатуу хориглоно. Эдээсэр нөхцлийн (бодитоор зөрийн эскул зөрчихийн оролцсон) аливаа зөрийн хуулиан хариуцлага хүзүүлжээс бөгөөд боломжит буххуул эрхийн агаар хэмжээ авах эрхээ Оюу Толгой ХХК хадавдана.

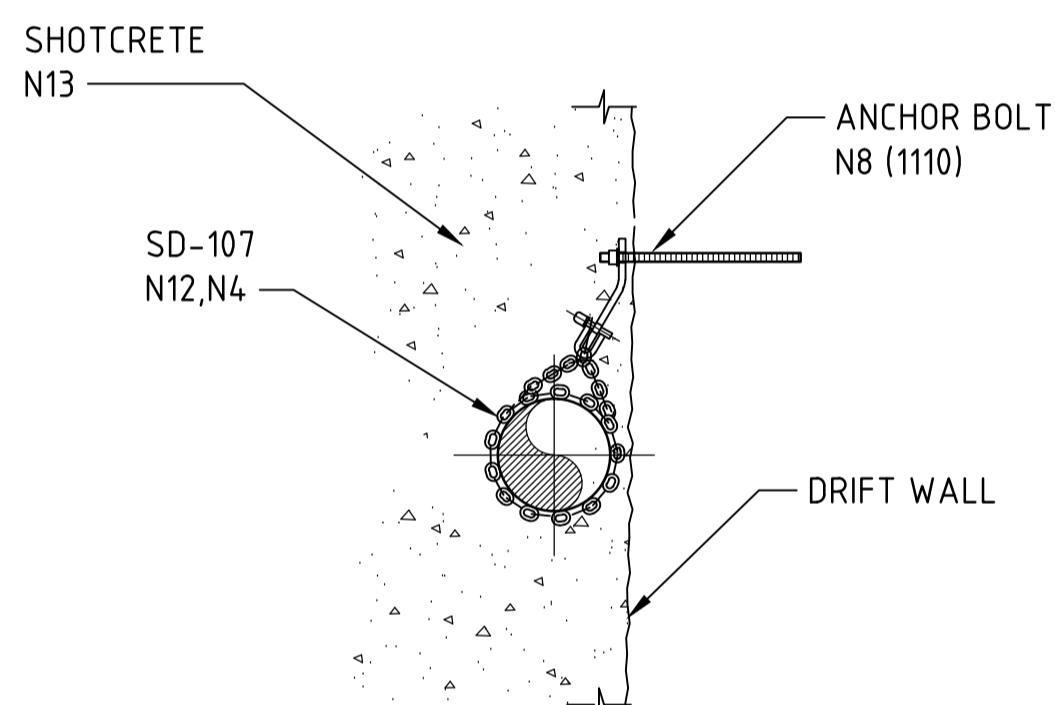


ELEVATION
SCALE 1:50



NOTES:

1. DIMENSIONS ARE IN MILLIMETERS, U.N.O.
 2. TO BE USED ONLY IN HDPE PIPE.
 3. PIPES TO BE INSTALLED SNUG AGAINST EXISTING SURFACE. LOCALLY CHIP AWAY ANY EXISTING SHOTCRETE TO FACILITATE THIS.
 4. LOOSELY FIT PIPE TO WALL. RUN PIPE HORIZONTALLY TO GET TO SAFE HEIGHT AS QUICKLY AS POSSIBLE. SUPPORT ON 20 MM BOOKER ROD DRILLED INTO THE WALL AND CHAIN AS REQUIRED.
 5. WRAP THE PIPE WITH TWO LAYERS OF 6 mm THICK INSERTION RUBBER FOR PROTECTION PRIOR TO APPLY SHOTCRETE.
 6. SHOTCRETE OVER PIPES. ALLOW 75 mm SHOTCRETE COVER OF PIPE TO PROVIDE PROTECTION TO THE PIPE AND LESSEN IMPACT ON THE DRIVE WIDTH.
 7. THE SHOTCRETE BETWEEN THE PIPE IS WHAT PROVIDES THE PROTECTION.
 8. EXTEND SHOTCRETE 300 mm. ABOVE PIPE THEN FEATHER BACK TO EXISTING SURFACE ON 45 DEG ANGLE (APPROX.)
 9. MAKE SURE THE PIPING IS COVERED UP WITH PLASTIC SHEETING IN THE AREA TO PREVENT IMPACT OF REBOUND/COVER SPRAY.
 10. SHOTCRETE PROTECTION TO EXTEND UP TO HEIGHT OF 3m ONLY FROM EXISTING GROUND LEVEL ALONG THE HORIZONTAL PROFILE OF THE PIPES.
 11. CONSTRUCTION SUPERVISION REQUIRED DURING APPLICATION OF ALL SHOTCRETING.
 12. FOR PIPE SUPPORT REFER DRG. SPECIAL 0000-50-N1-1110
 13. FOR SHOTCRETE REFER TO 0000-15-SPE-0004



TYPICAL SUPPORT INSTALLATION

LEGEND:

LEGEND

NX : DENOTES NOTE NUMBER X.
BOP : BOTTOM OF PIPE
NX (ZZZZ) : DENOTES NOTE NUMBER Y REFER TO DRG. ZZZZ
ELEM : ELEMENT NUMBER, E.G. A1, B1

SCALE 1:50 (A1) 0 1000 2000 3000 4000 5000mm

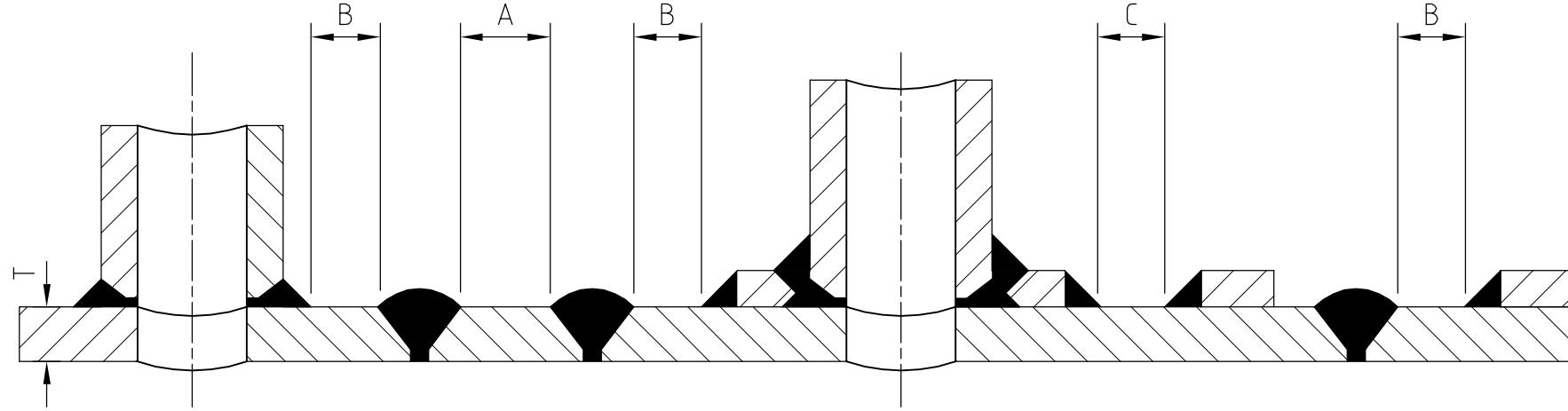
SCALE 1:20 (A1) 0 400 800 1200 1600 2000mm

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	PROJECT NO SN1809	CHECK DESIGN B. MAUREIRA	CHECK DRAWING B. MAUREIRA			
	CONTRACT NO	LEAD ENGINEER A. ERIZ	APPROVAL DATE 02.02.18			
	DRAWING SIZE A1	AREA PROJECT ENGINEER	ENGINEERING MANAGER E. MARIN			
	PLOT SCALE AS SHOWN	PROJECT MANAGER	APPROVAL DATE 02.02.18			
	CAD FILE NAME 0000-50-N1-1103.DWG	CLIENT	APPROVAL DATE	SCALE AS SHOWN	DRAWING NUMBER 0000-50-N1-1103	REV. 0



TYPE OF WELDS		MINIMUM DISTANCE (THE LARGER OF)
A	TWO CIRCUMFERENTIAL WELDS ON PIPING.	50 OR 4T
B	1) BRANCH CONNECTION WELDS (WITH OR WITHOUT PADS OR OLETS) AND CIRCUMFERENTIAL WELDS. 2) SOCKET FILLET WELDS AND CIRCUMFERENTIAL WELDS.	50 OR 4T
C	TWO ADJACENT FILLET WELDS.	50 OR 4T

T: NOMINAL THICKNESS OF RUN PIPING.

CONSTRUCTION ISSUE

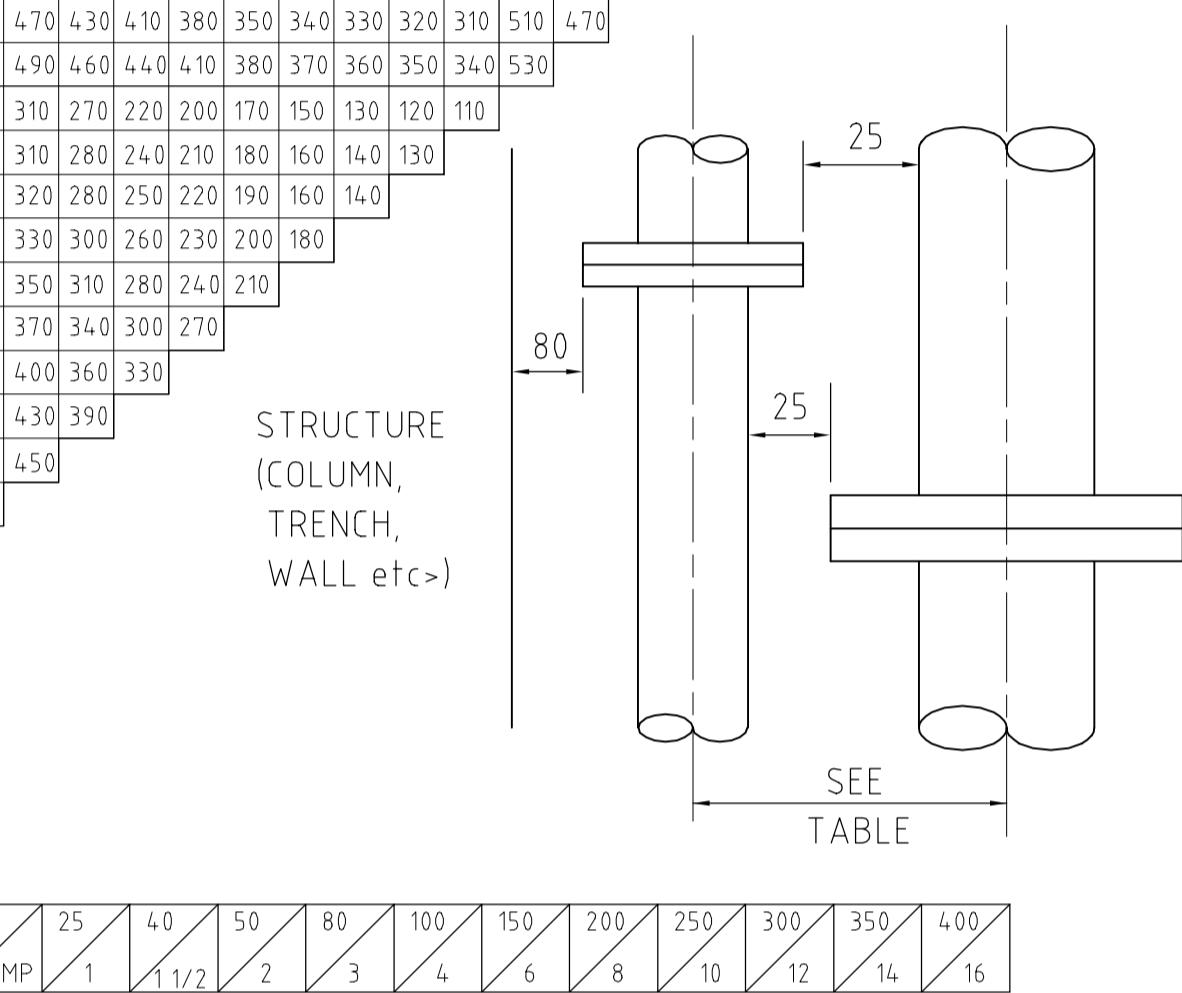
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DESIGNED BY S. BARCLAY	DRAWN BY S. VIAL		DUY TOLGOI UNDERGROUND PROJECT SITE WIDE PIPING STANDARD - MINIMUM DISTANCE BETWEEN WELDS DETAILS & GENERAL NOTES				
DESIGNED BY S. BARCLAY	DRAWN BY S. VIAL						
CHECK DESIGN G.deRUIJTERdeWILDT	CHECK DRAWING W. GLACKEN						
LEAD ENGINEER T. WRONSKI	APPROVAL DATE 11/07/2017						
AREA PROJECT ENGINEER -	ENGINEERING MANAGER B. POPOLIZIO						
PROJECT MANAGER -	APPROVAL DATE -						
FILE NAME -50-N1-1105.DWG	CLIENT -	APPROVAL DATE -	SCALE N.T.S.	DRAWING NUMBER 0000-50-N1-1105	REV. D		



NOTES:

1. LINE SPACING DIMENSIONS ARE BASED ON A CLEARANCE OF 25mm BETWEEN THE OUTSIDE DIAMETER OF FLANGE AND THE OUTSIDE DIAMETER OF PIPE WITH A MINIMUM SPACING BETWEEN ANY TWO LINES OF 100mm.
 2. SIDE MOVEMENT DUE TO EXPANSION OF HOT LINES MUST BE ALLOWED FOR AND SPACING INCREASED ACCORDINGLY.
 3. WHEN THE PIPE AND/OR FLANGES ARE INSULATED, THE INSULATION THICKNESS IS ADDED TO THE SPACING DIMENSION.
 4. INCREASED SPACING MAY BE REQUIRED WHERE ORIFICE FLANGES (CL300 MINIMUM) ARE INSTALLED.
 5. BASED ON JACOBS STD. PIPE SPACING CHART ANZ-DR-P-5090-01.

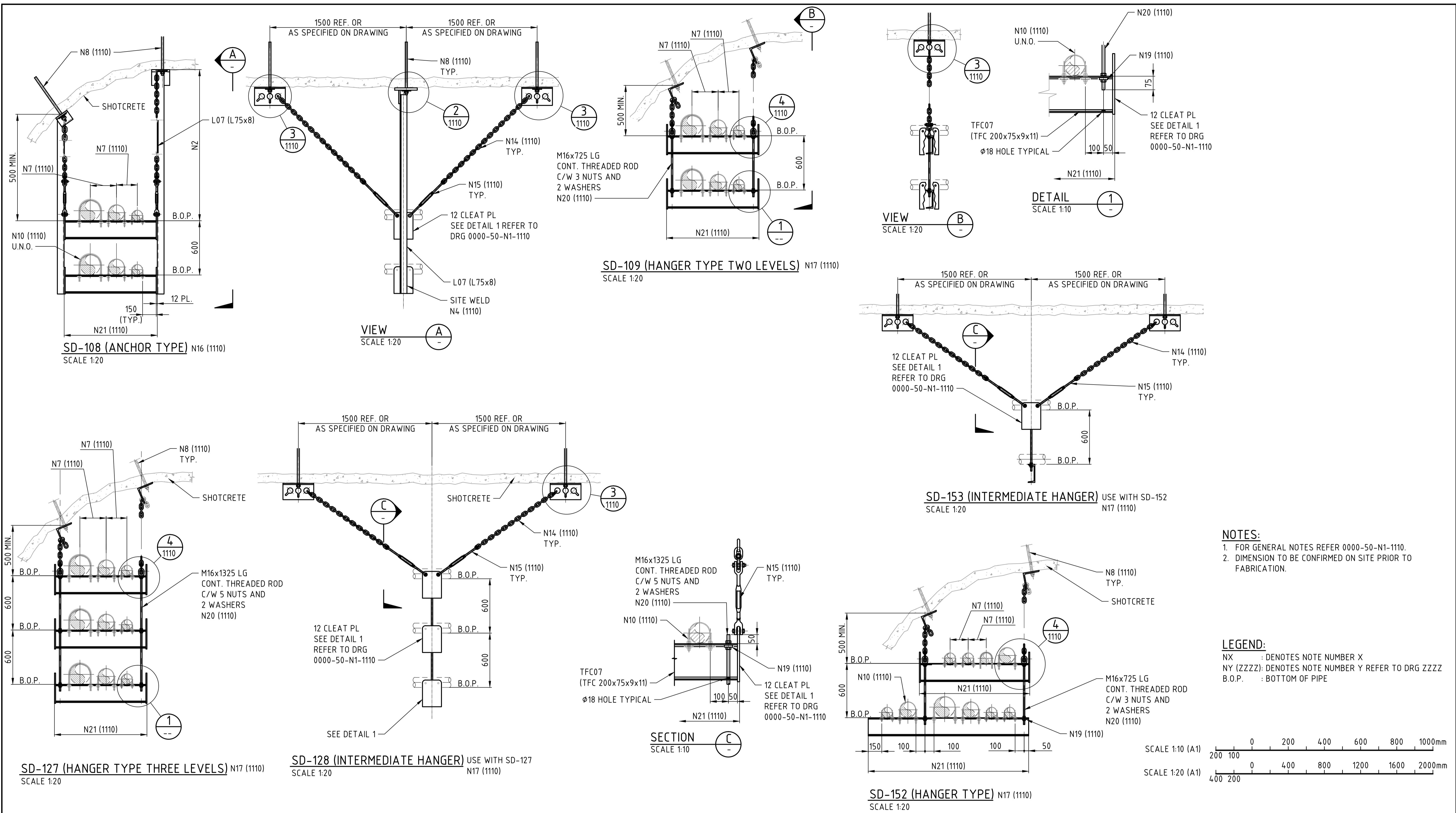
NON-BURIED LINES ONLY

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Мэдэгдэл: Энэхүү баримт бичиг (эскул түүхий хасж, хавсралт)-т үзүүлэн, харуулсан, агуулгандсан, мөн энэхүү баримт бичигрүү тавьсан зэрэг, төвлөгөөгээ, загвар, дизайн болон бусад, албанаа мэдээллийг Оюу Толгой ХХК өмчлөх бөгөөд Оюу Толгой ХХК-ийн эмч мөн. Иймээс эдгэрээ мэдээлэл нь зөвхөн Оюу Толгой ХХК-ийн доотод хэрэгжигж, зорилтуулж бөгөөд Оюу Толгой ХХК-ийн бичиг зөвхөн эрөлжилгүйгээр эдгэрээ мэдээллийг албанаа хэлбэрээр хуулиан оруулжасан эскул эдгэрээ мэдээлэлд нэвтрэх эхийн албанаа бусад, этгээд яхийг хуудасын хоригийн болдитор зөрчсөн эскул зөрчийнгийг орцодсон.



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REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED	REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED	REFERENCE DRAWING No.	REFERENCE DRAWINGS
0	31.01.18	ISSUED FOR CONSTRUCTION	JR BM	AE EM						0000-50-N1-1110	SPECIAL PIPE SUPPORTS



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PRODUCED BY	DESIGNED BY	DRAWN BY
PROJECT NO SN1609	CHECK DESIGN B. MAUREIRA	CHECK DRAWING B. MAUREIRA
CONTRACT NO	LEAD ENGINEER A. ERIZ	APPROVAL DATE 31.01.18
DRAWING SIZE A1	AREA PROJECT ENGINEER E. MARIN	
PLOT SCALE AS SHOWN	PROJECT MANAGER	APPROVAL DATE 31.01.18
CAD FILE NAME 0000-50-N1-1111.DWG	CLIENT	APPROVAL DATE
SCALE AS SHOWN	DRAWING NUMBER 0000-50-N1-1111	REV. 0

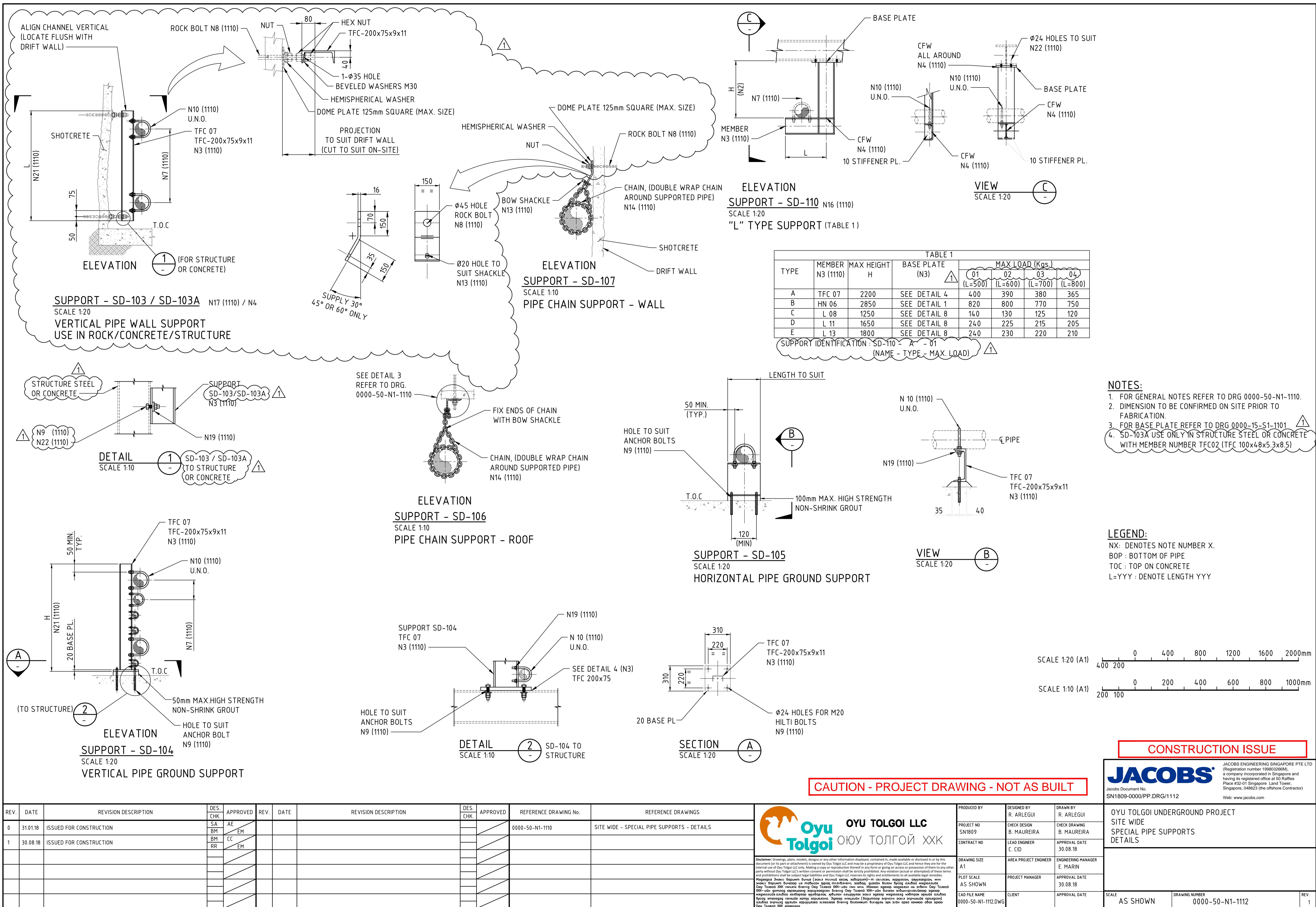
JACOBS

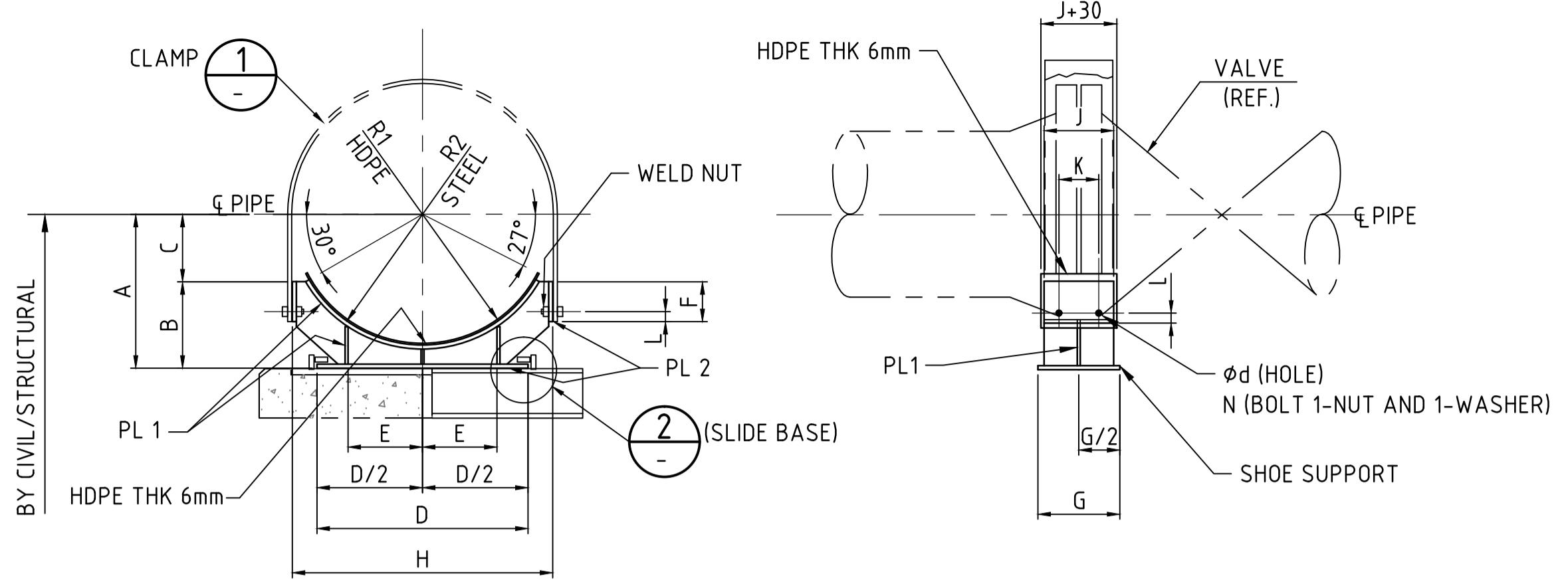
Jacobs Document No.
SN1609-0000/PP.DRG/1111

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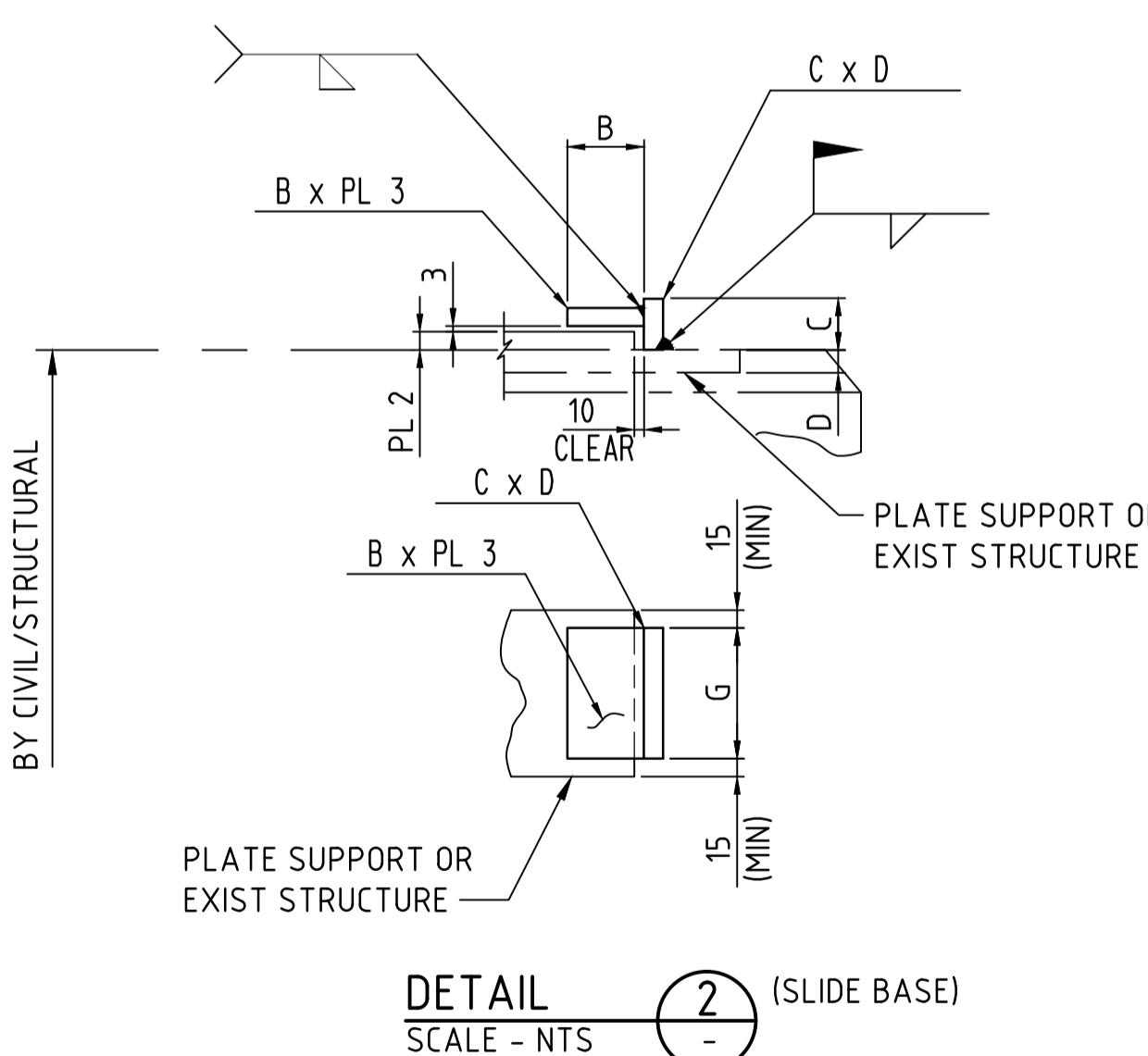
SUPPORT SD-113 / SD-114 / SD-115

SCALE - NTS
(SHOE SUPPORT FOR FLANGE WITH CLAMP TOP AND WITH SLIDE BASE)

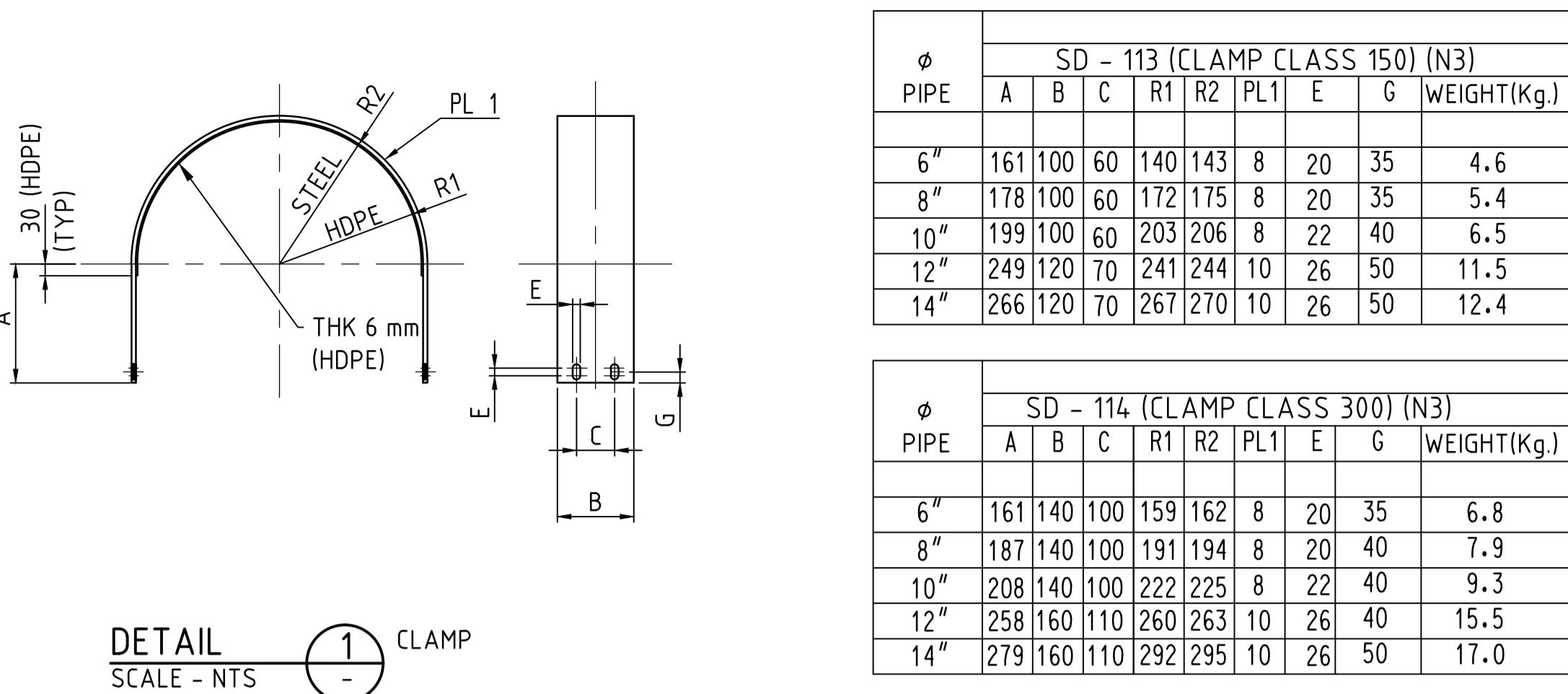
ϕ PIPE	SD - 113 (SHOE CLASS 150) (N3)																	
	A	B	C	D	E	F	G	H	J	K	L	R1	R2	PL1	PL2	ϕd	WEIGHT (Kg.)	N
6"	240	154	86	308	69	75	110	286	100	60	35	140	146	8	10	20	12.6	4-M16x50
8"	271	179	92	330	80	85	110	350	100	60	35	171	177	8	10	20	16.0	4-M16x50
10"	303	195	108	418	106	90	110	412	100	60	40	203	209	8	10	22	19.7	4-M20x50
12"	341	213	128	495	126	120	130	488	120	70	50	241	247	10	12	26	32.3	4-M22x60
14"	367	225	142	444	137	125	130	540	120	70	50	267	273	10	12	26	39.7	4-M22x60

ϕ PIPE	SD - 114 (SHOE CLASS 300) (N3)																	
	A	B	C	D	E	F	G	H	J	K	L	R1	R2	PL1	PL2	ϕd	WEIGHT (Kg.)	N
6"	259	173	86	308	69	75	150	324	140	100	35	159	165	8	10	20	16.3	4-M16x50
8"	291	189	102	330	80	85	150	388	140	100	40	191	197	8	10	20	20.3	4-M16x50
10"	322	204	118	382	106	90	150	450	140	100	40	222	228	8	10	22	25.1	4-M20x50
12"	360	222	138	422	126	120	170	526	160	110	40	260	266	10	12	26	41	4-M22x60
14"	392	238	154	444	137	125	170	590	160	110	50	292	298	10	12	26	48	4-M22x60

ϕ PIPE	SD - 115 (SHOE CLASS 1500) (N3)																	
	A	B	C	D	E	F	G	H	J	K	L	R1	R2	PL1	PL2	ϕd	WEIGHT (Kg.)	N
6"	340	235	105	340	100	110	270	406	250	180	45	197	203	8	10	20	18.5	4-M16x50
8"	370	242	128	440	120	110	270	495	250	180	40	242	248	8	10	20	24.6	4-M16x50



ϕ PIPE	SLIDE BASE				
	PL3	B	C	D	WEIGHT (Kg.)
6"	10	30	35	16	0.9
8"	10	30	35	16	0.9
10"	10	30	35	16	0.9
12"	12	30	35	16	1.2
14"	12	30	35	16	1.2
16"	12	30	35	16	1.2



DETAIL
SCALE - NTS

CLAMP

1

BY CIVIL/STRUCTURAL

PL1

PL2

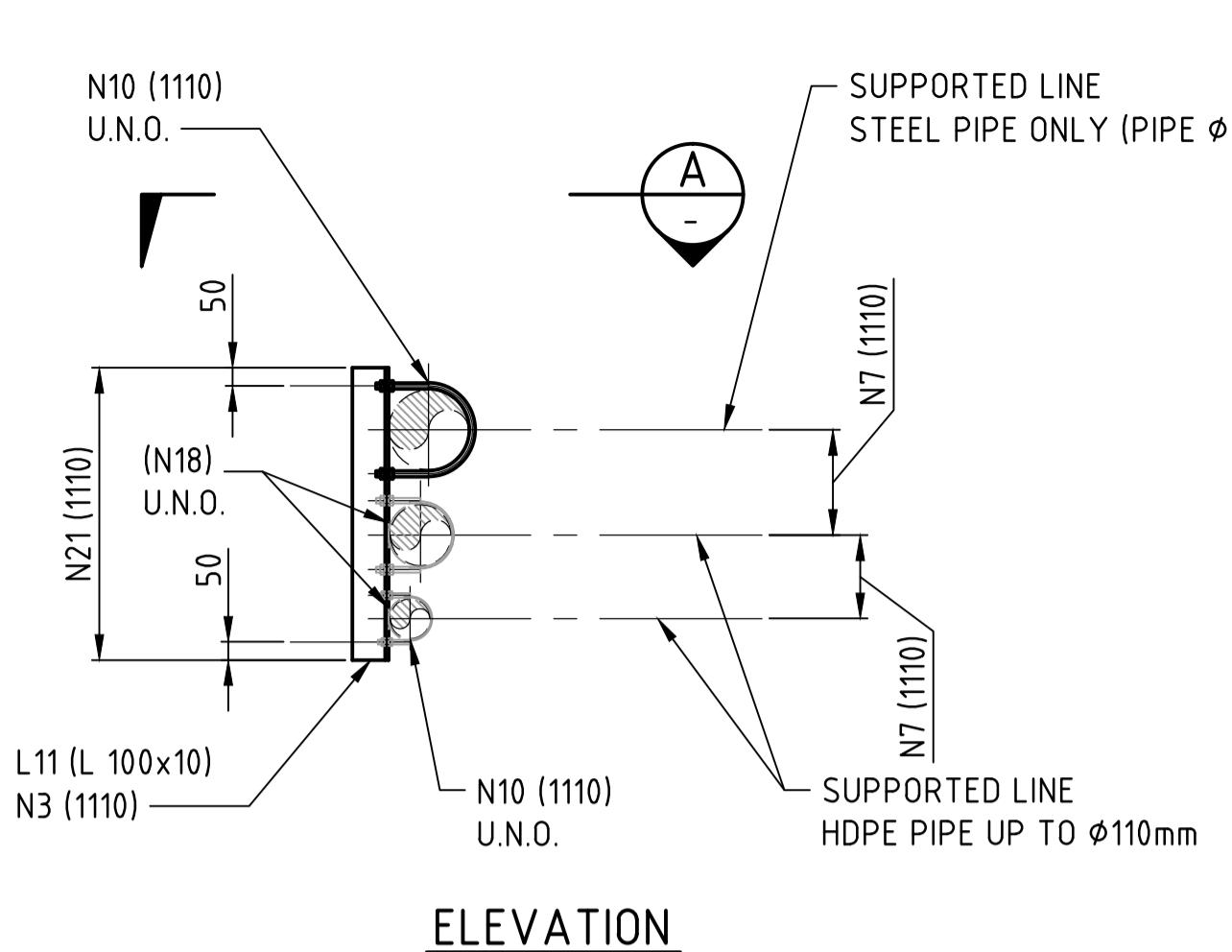
G/2

G

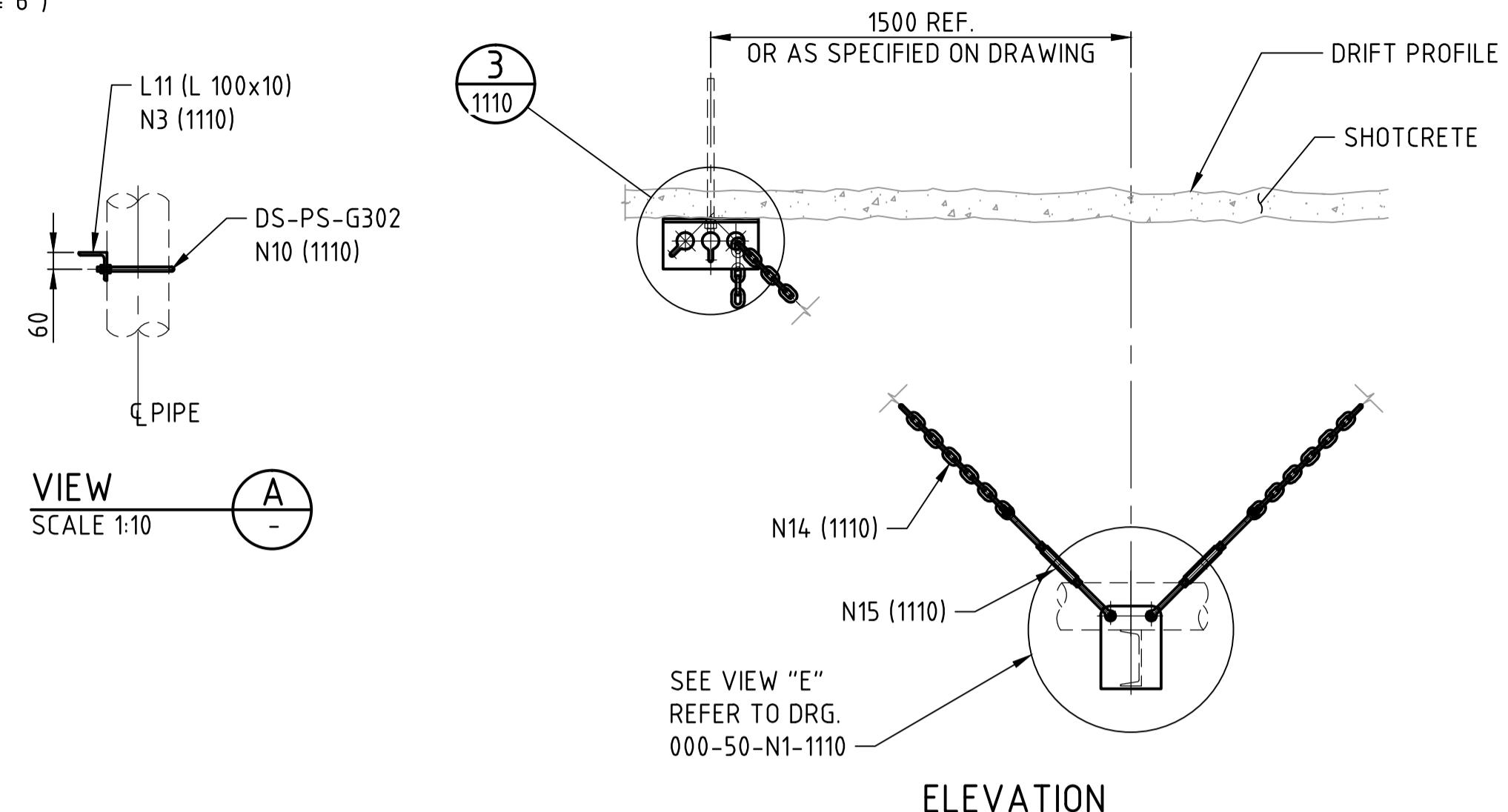
PL1

PL2

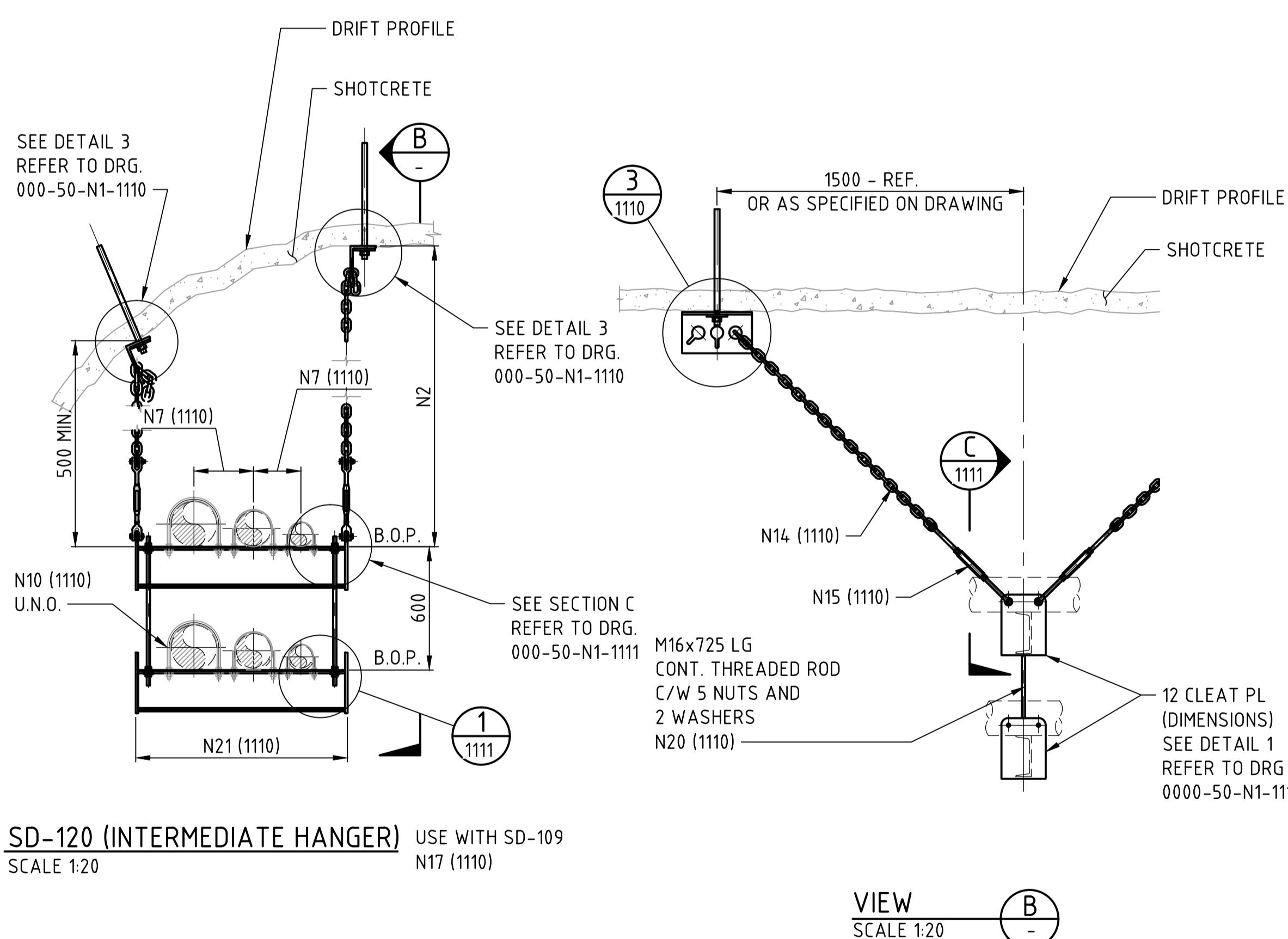
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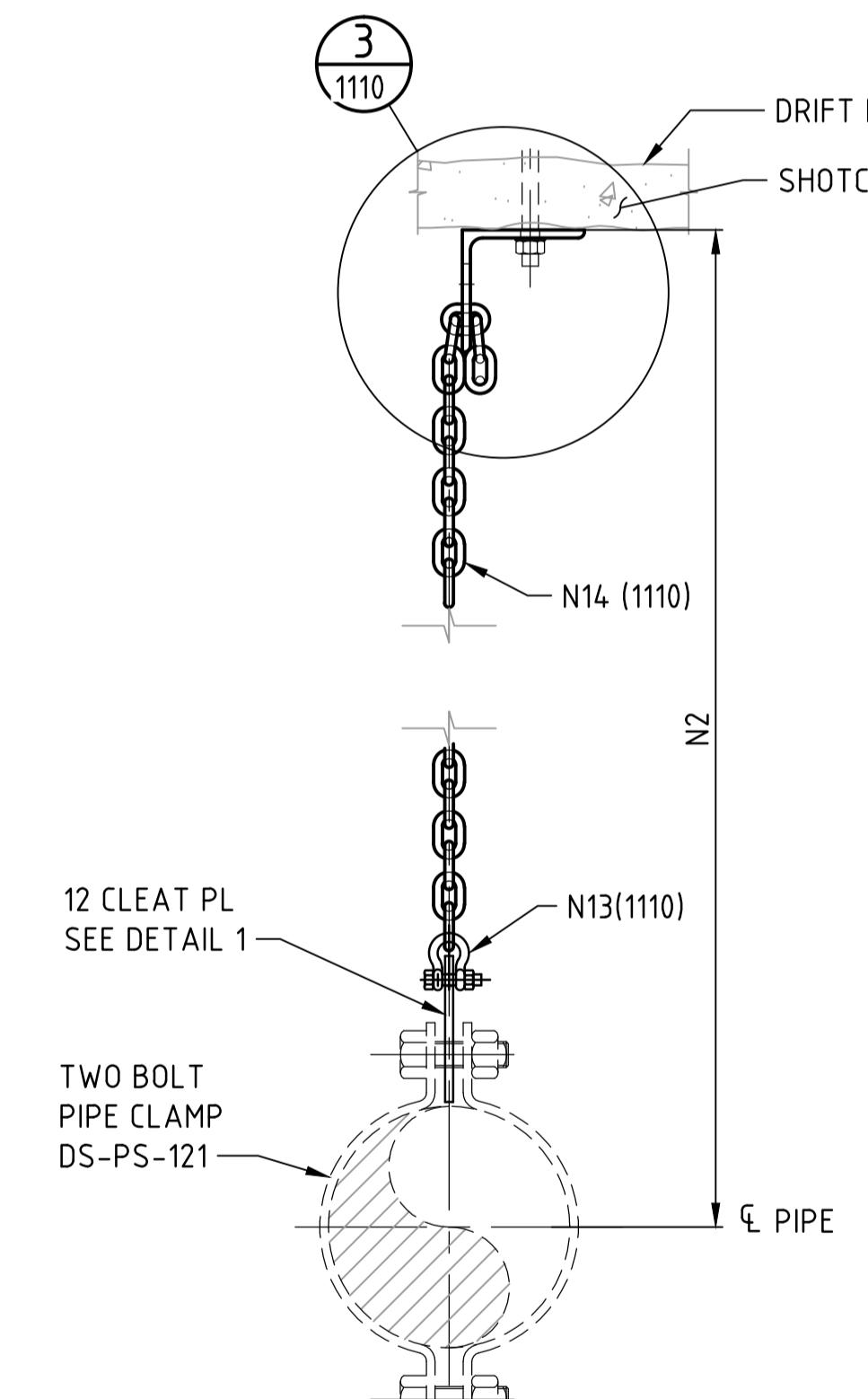
SD-117 (SUPPORTING LINE) N17 (1110)
SCALE 1:20



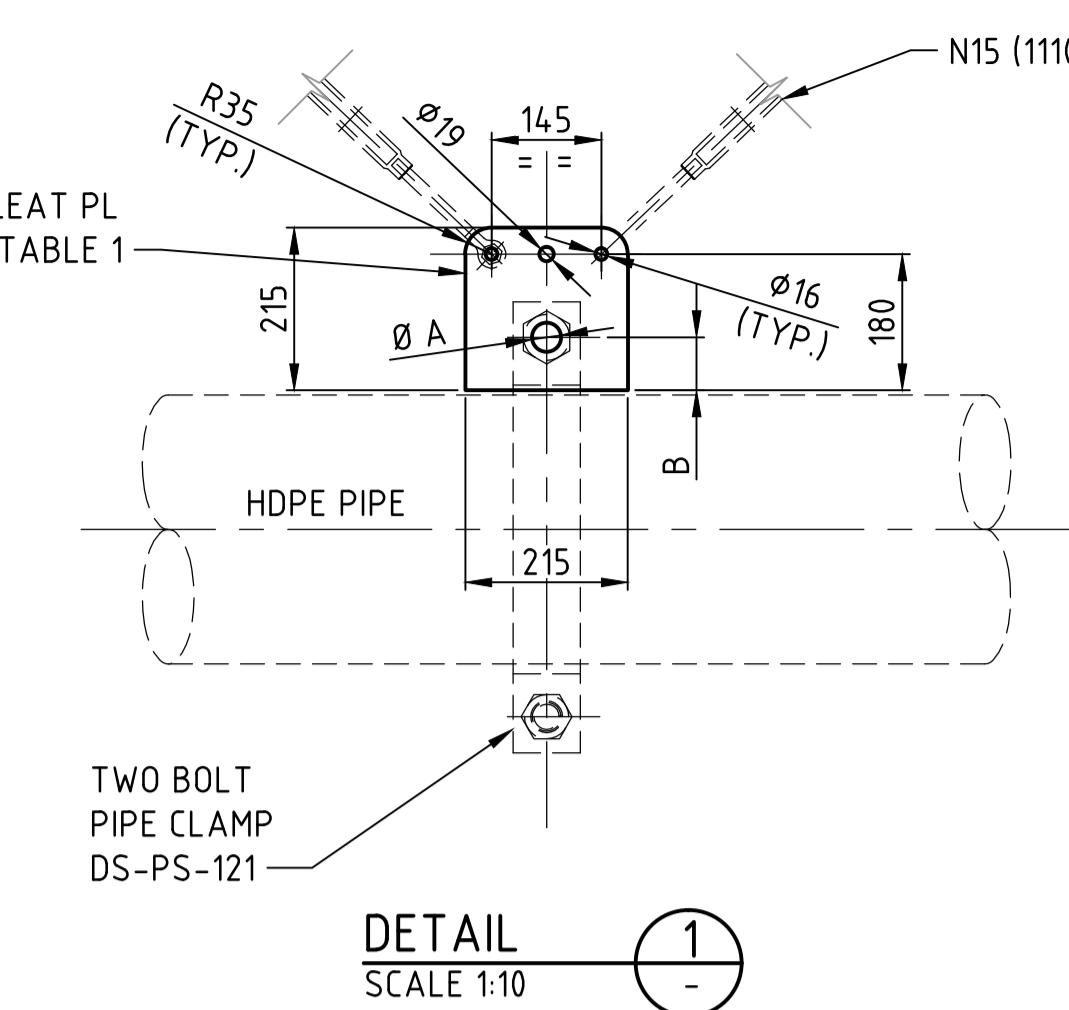
SD-119 (INTERMEDIATE HANGER) USE WITH SD-101
SCALE 1:20 N17 (1110)



SD-120 (INTERMEDIATE HANGER) USE WITH SD-109
SCALE 1:20 N17 (1110)



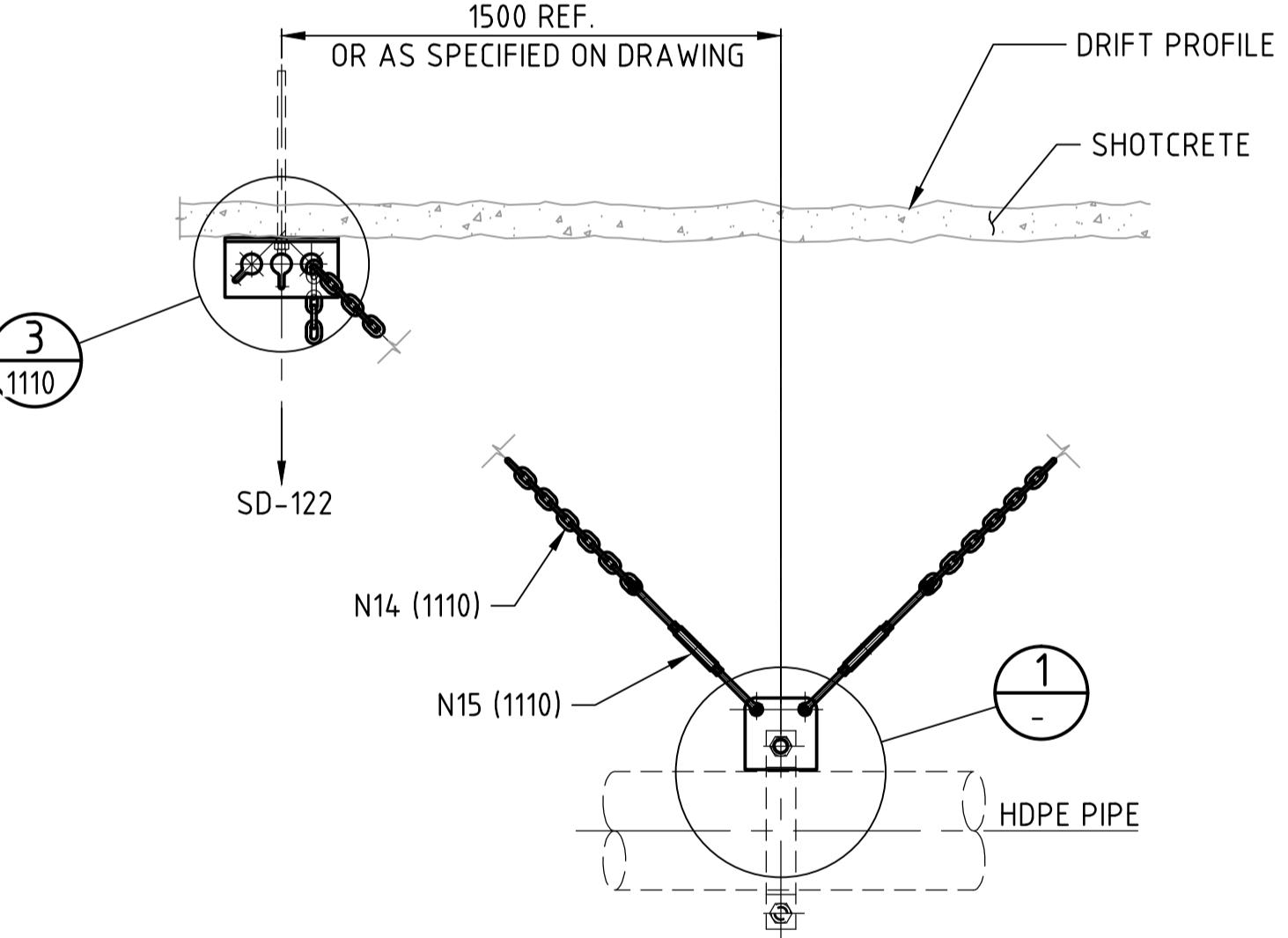
SD-122 (FOR HDPE PIPE) N17 (1110)
SCALE 1:10



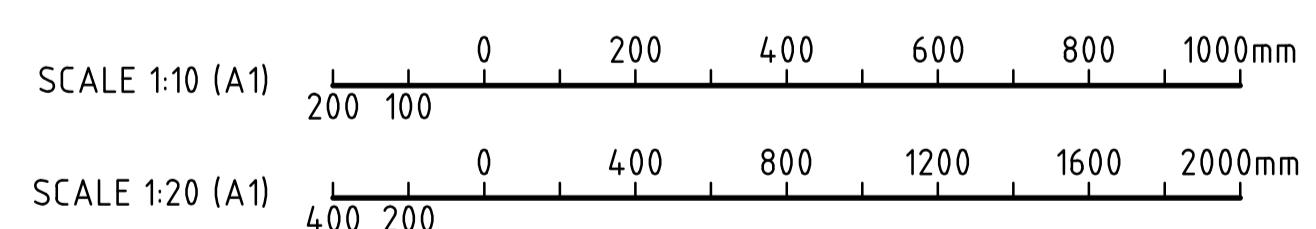
DETAIL
SCALE 1:10

TABLE 1		
NOMINAL PIPE SIZE	\varnothing A	B
90	22	30
110	25	35
160	28	45
225	28	40
280	35	50
315	41	70

NOTES:



SD-123 (INTERMEDIATE) USE WITH SD-122
SCALE 1:20 N17 (1110)



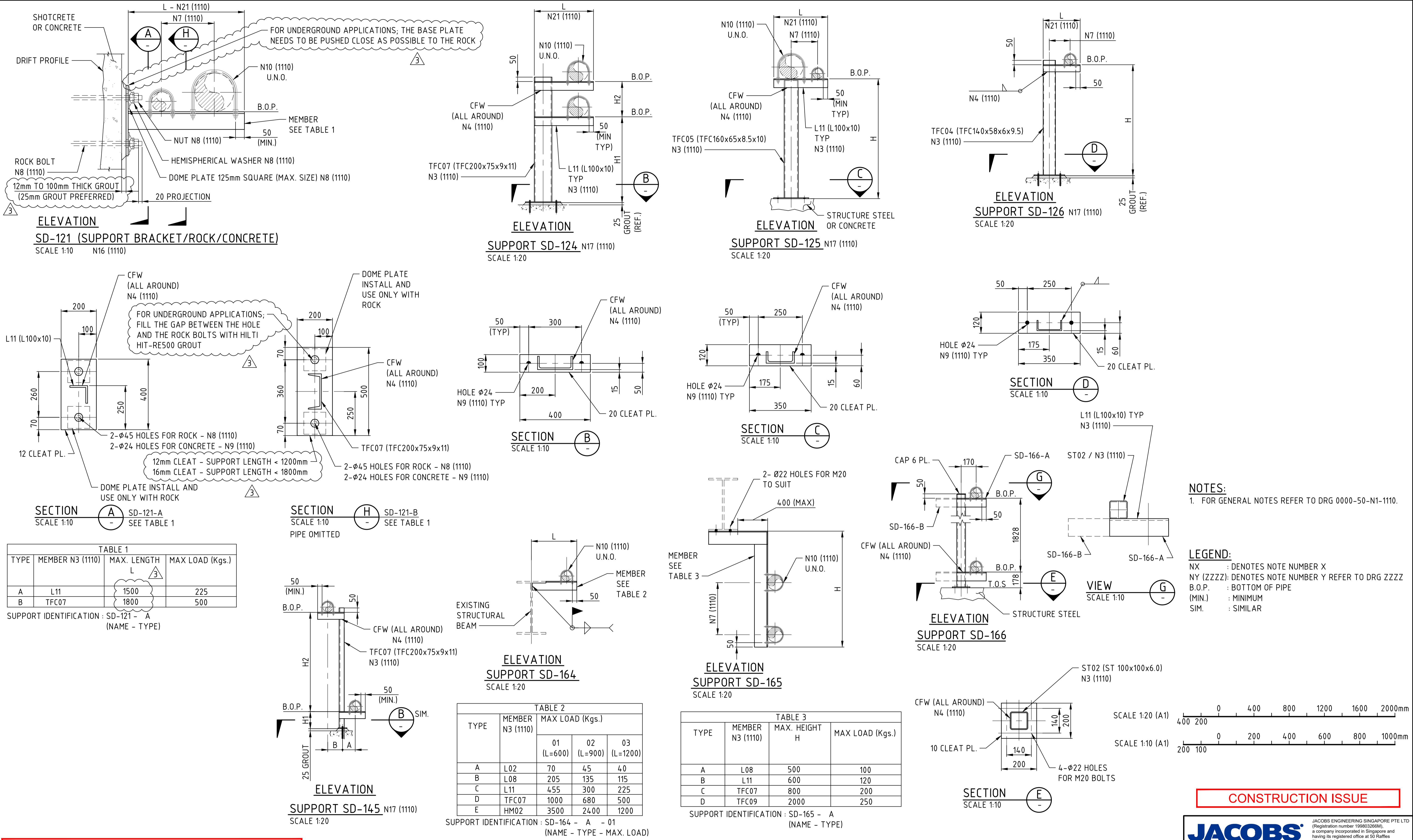
CONSTRUCTION ISSUE





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	PROJECT NO SN1809	CHECK DESIGN B. MAUREIRA	CHECK DRAWING B. MAUREIRA			
	CONTRACT NO	LEAD ENGINEER A. ERIZ	APPROVAL DATE 31.01.18			
	DRAWING SIZE A1	AREA PROJECT ENGINEER	ENGINEERING MANAGER E. MARIN			
	PLOT SCALE AS SHOWN	PROJECT MANAGER	APPROVAL DATE 31.01.18			
	CAD FILE NAME 0000-50-N1-1114.DWG	CLIENT	APPROVAL DATE	SCALE AS SHOWN	DRAWING NUMBER 0000-50-N1-1114	REV. 0



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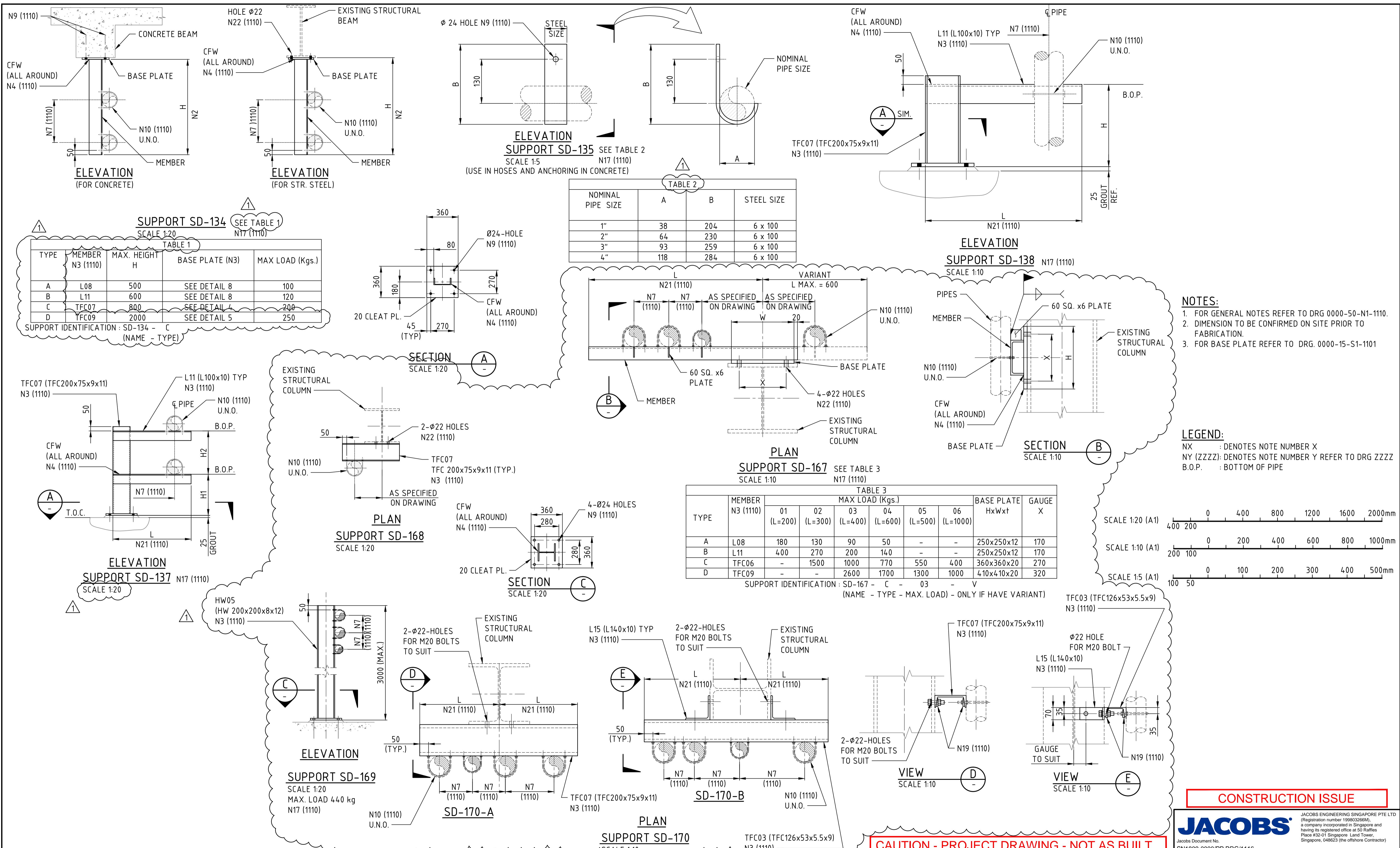


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PRODUCED BY	DESIGNED BY J. RODRIGUEZ	DRAWN BY M. LOPEZ	OYU TOLGOI UNDERGROUND PROJECT SITE WIDE SPECIAL PIPE SUPPORTS DETAILS
PROJECT NO SN1809	CHECK DESIGN B. MAUREIRA	CHECK DRAWING B. MAUREIRA	
CONTRACT NO	LEAD ENGINEER C. CID	APPROVAL DATE 30.08.18	
DRAWING SIZE A1	AREA PROJECT ENGINEER	ENGINEERING MANAGER E. MARIN	
LOT SCALE :10	PROJECT MANAGER	APPROVAL DATE 30.08.18	
DAD FILE NAME 000-50-N1-1115.DWG	CLIENT	APPROVAL DATE	SCALE 1:10
			DRAWING NUMBER 0000-50-N1-1115
			REV. 3



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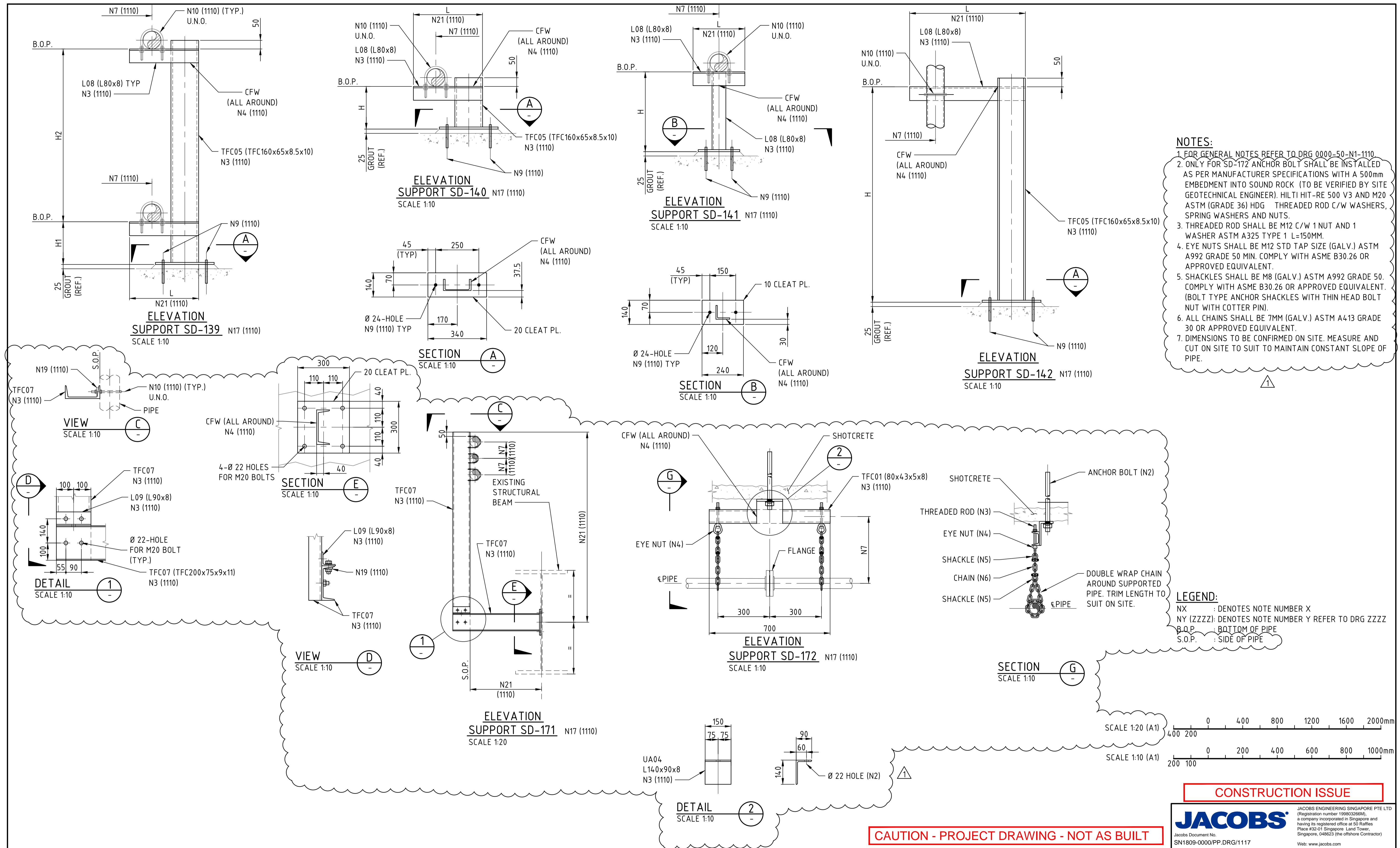
REVISION DESCRIPTION		DES. CHK	APPROVED	REV.	DATE	REVISION DESCRIPTION	DES. CHK	APPROVED	REFERENCE DRAWING No.	REFERENCE DRAWINGS	PRODUCED BY	DESIGNED BY	DRAWN BY
0 31.01.18 ISSUED FOR CONSTRUCTION		LS BM	AE EM						0000-50-N1-1110	SPECIAL PIPE SUPPORTS - DETAILS	PROJECT NO	L. SORIANO	B. MAUREIRA
1 31.08.18 ISSUED FOR CONSTRUCTION		BM RR	CC EM							CHECK DESIGN	CHECK DRAWING	CHECK DRAWING	

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OUYU TOLGOI UNDERGROUND PROJECT
SITE WIDE
SPECIAL PIPE SUPPORTS
DETAILS

DRAWING NUMBER	0000-50-N1-1116.DWG	CLIENT	APPROVAL DATE	SCALE
AS SHOWN	0000-50-N1-1116	REV. 1		



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REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED	REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED	REFERENCE DRAWING No.	REFERENCE DRAWINGS	PRODUCED BY	DESIGNED BY	DRAWN BY
0	31.01.18	ISSUED FOR CONSTRUCTION	ML BM	AE EM						0000-50-N1-1110	SPECIAL PIPE SUPPORTS - DETAILS	PROJECT NO	CHECK DESIGN	CHECK DRAWING
1	03.09.18	ISSUED FOR CONSTRUCTION	BM RR	CC EM								SN1809	B. MAUREIRA	B. MAUREIRA

Oyu Tolgoi LLC ОЮУ ТОЛГОЙ ХХК

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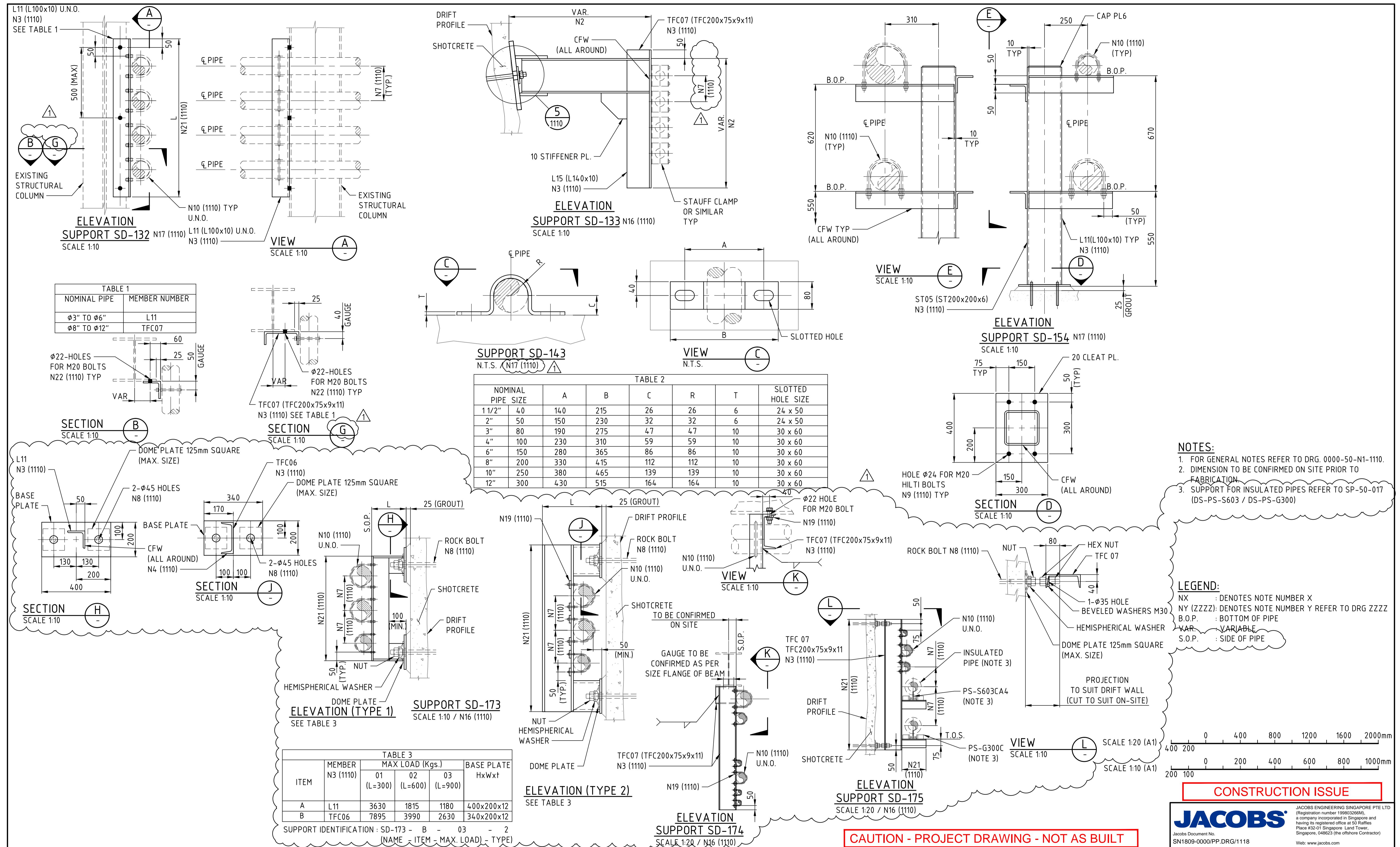
Приложение: Документ содержит: планы, схемы, модели, дизайн и иные информационные материалы, содержащие в себе, подготовленные, отпечатанные, моделированные, спроектированные или иная информация, содержащаяся в этом документе (или его частях, приложениях и/или чертежах), являются собственностью Ою Толгой ХХК и являются его приватной собственностью. Копирование или воспроизведение в любой форме, а также предоставление доступа к ним любому лицу без письменного разрешения или согласия Ою Толгой ХХК является строго запрещено. Нарушение (актуальное или потенциальное) этих условий и положений будет подлежать максимальной юридической ответственности.

JACOBS ENGINEERING SINGAPORE PTE LTD
(Registration No. 19980266M)
a company incorporated in Singapore and having its registered office at 50 Raffles Place #32-01 Singapore Land Tower, Singapore, 048623 (the offshore Contractor)
Web: www.jacobs.com

JACOBS
Jacobs Document No.
SN1809-0000/PP.DRG/1117

OUY TOLGOI UNDERGROUND PROJECT
SITE WIDE
SPECIAL PIPE SUPPORTS
DETAILS

CONSTRUCTION ISSUE



REV.	DATE	REVISION DESCRIPTION		DES. CHK.	APPROVED	REV.	DATE	REVISION DESCRIPTION		DES. CHK.	APPROVED	REFERENCE DRAWING No.	REFERENCE DRAWINGS		
		ITEM	MEMBER N3 (1110)					ITEM	MEMBER N3 (1110)						
0	31.01.18	ISSUED FOR CONSTRUCTION		ML	AE			01	02	03	(L=300)	(L=600)	(L=900)	BASE PLATE HxWxT	
1	06.09.18	ISSUED FOR CONSTRUCTION		BM	EM			3630	1815	1180	400x200x12	7895	3990	2630	340x200x12

SUPPORT IDENTIFICATION : SD-173 - B - 03 - 2
(NAME ITEM MAX. LOAD) - TYPE)



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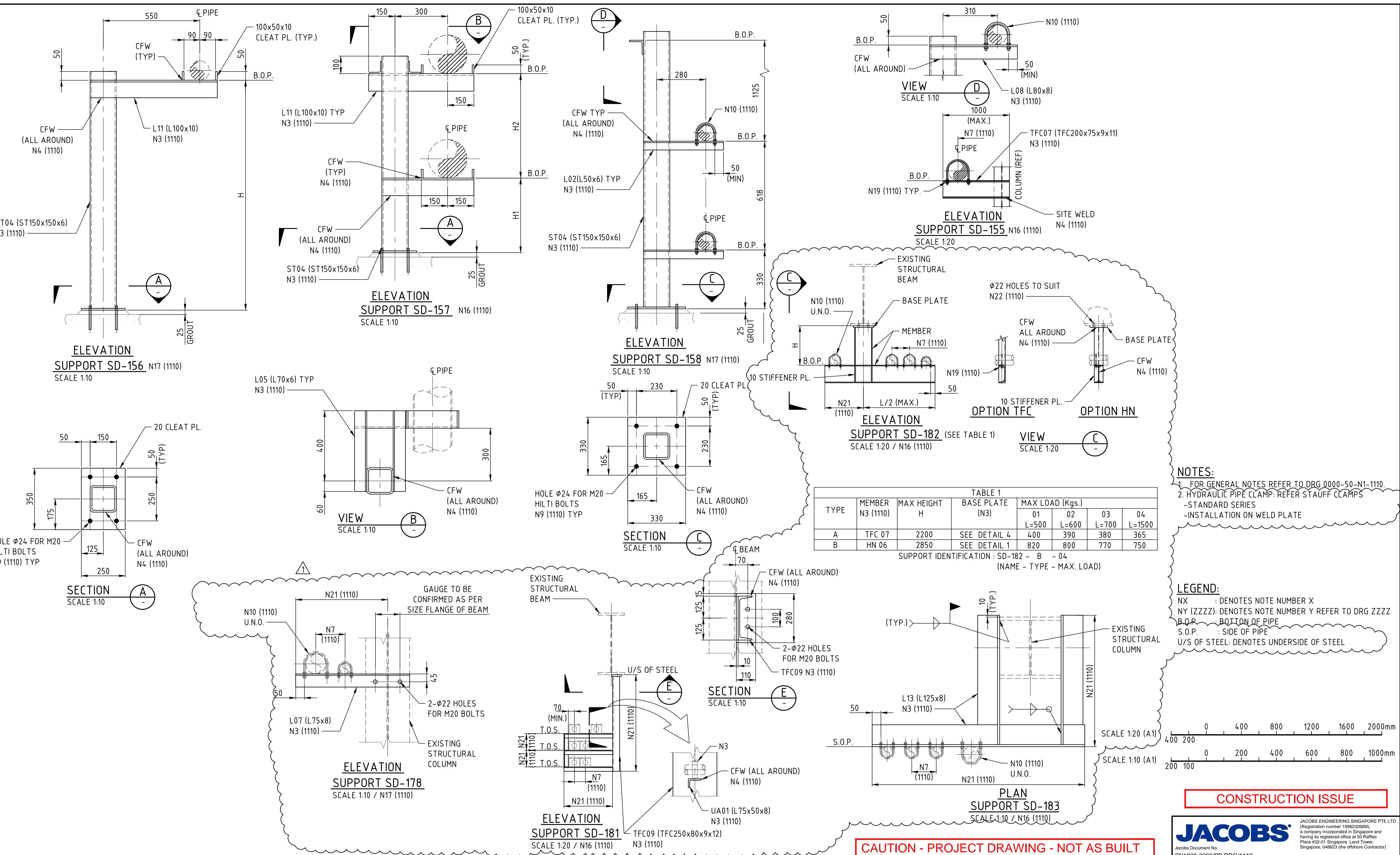
PRODUCED BY	DESIGNED BY	DRAWN BY
PROJECT NO SN1609	L. SORIANO	M. LOPEZ
CHECK DESIGN B. MAUREIRA	CHECK DRAWING B. MAUREIRA	
CONTRACT NO	LEAD ENGINEER C. CID	APPROVAL DATE 06.09.18
DRAWING SIZE A1	AREA PROJECT ENGINEER E. MARIN	
PLOT SCALE AS SHOWN	PROJECT MANAGER	APPROVAL DATE 06.09.18
CAD FILE NAME 0000-50-N1-1118.DWG	CLIENT	APPROVAL DATE
REV. 1	AS SHOWN	DRAWING NUMBER 0000-50-N1-1118

CONSTRUCTION ISSUE

JACOBS
Jacobs Document No. SN1609-0000/PP.DRG/1118
Web: www.jacobs.com

Oyu Tolgoi Underground Project
Site Wide
Special Pipe Supports Details

CAUTION - PROJECT DRAWING - NOT AS BUILT

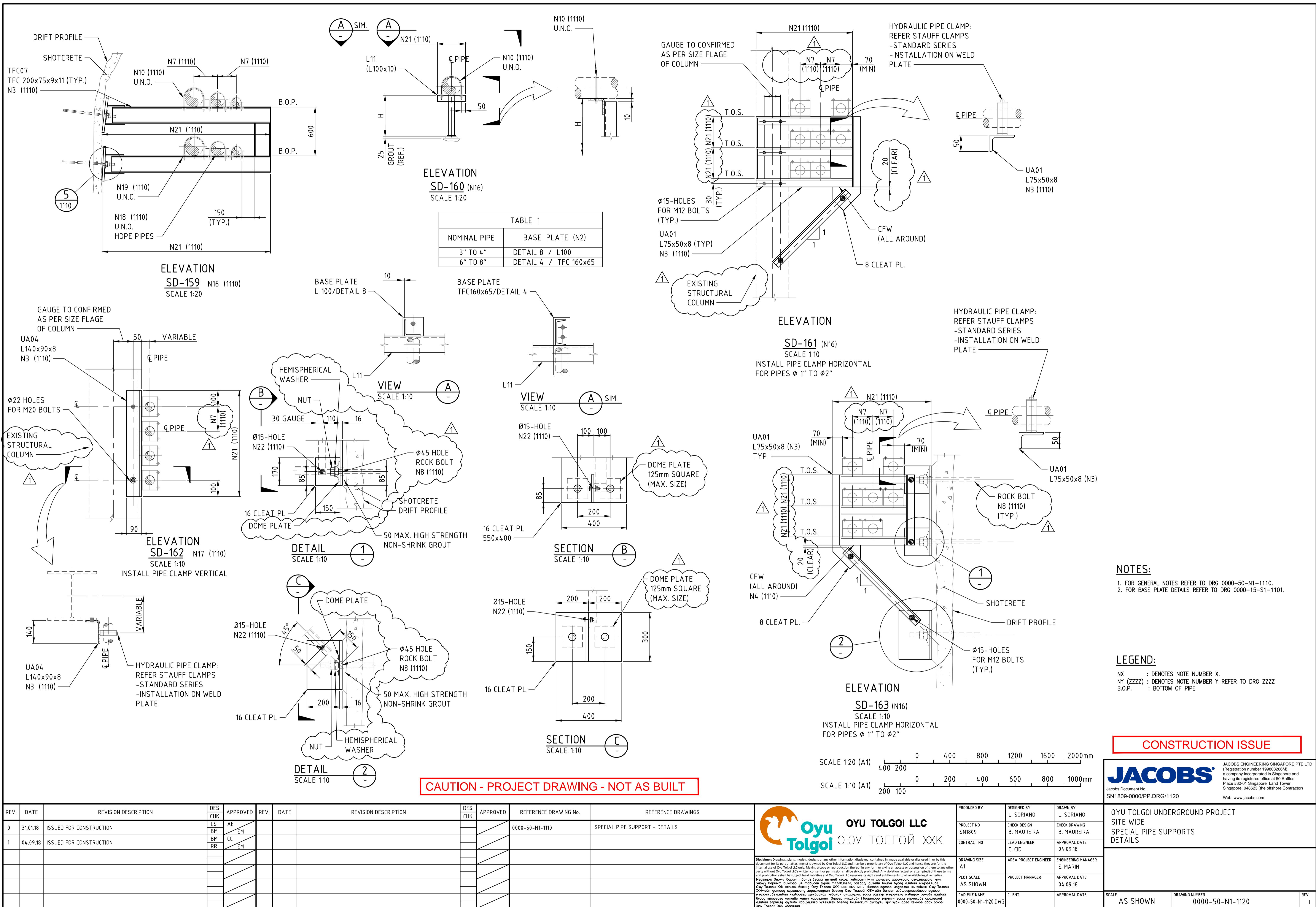


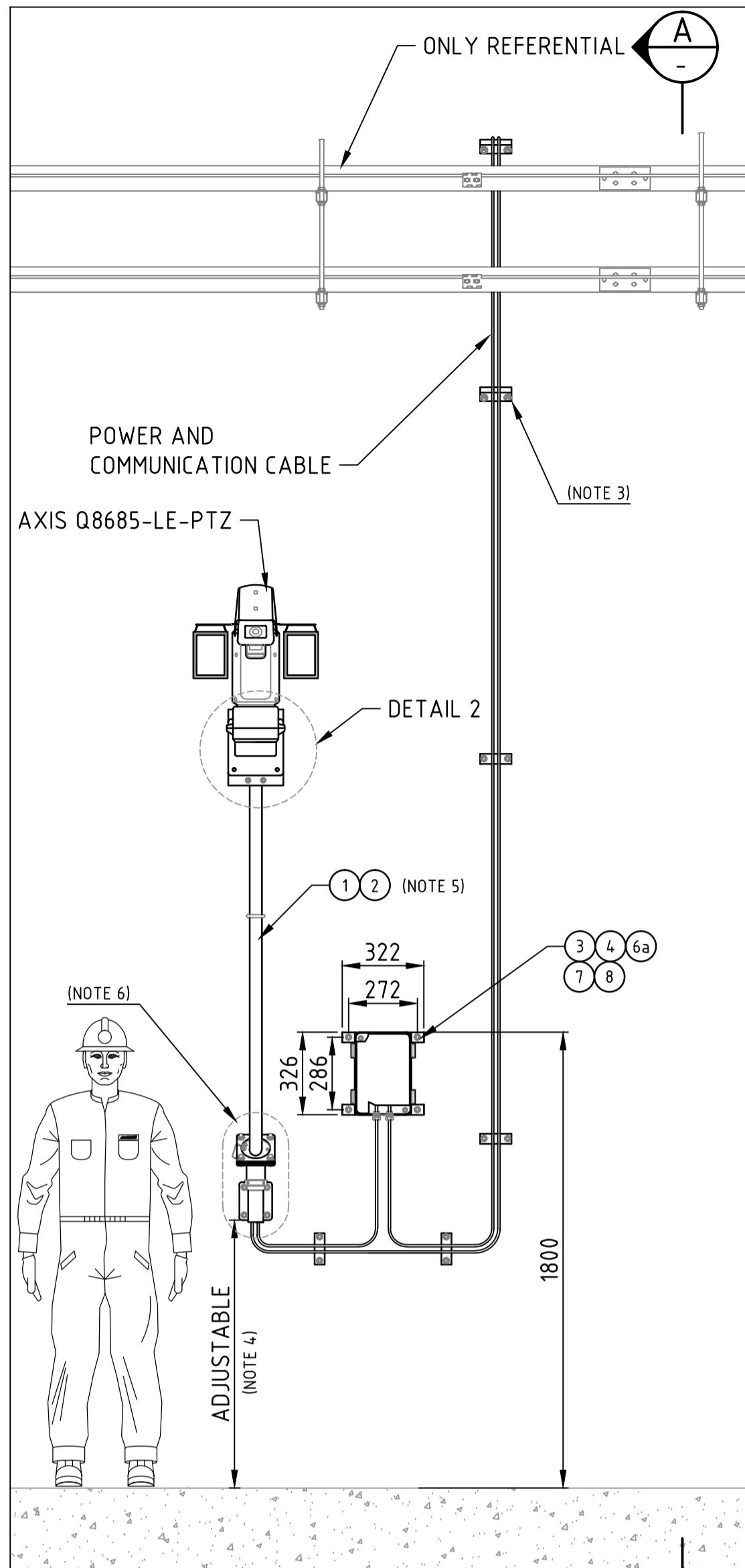
ОҮУ ТОЛГОЙ LLC

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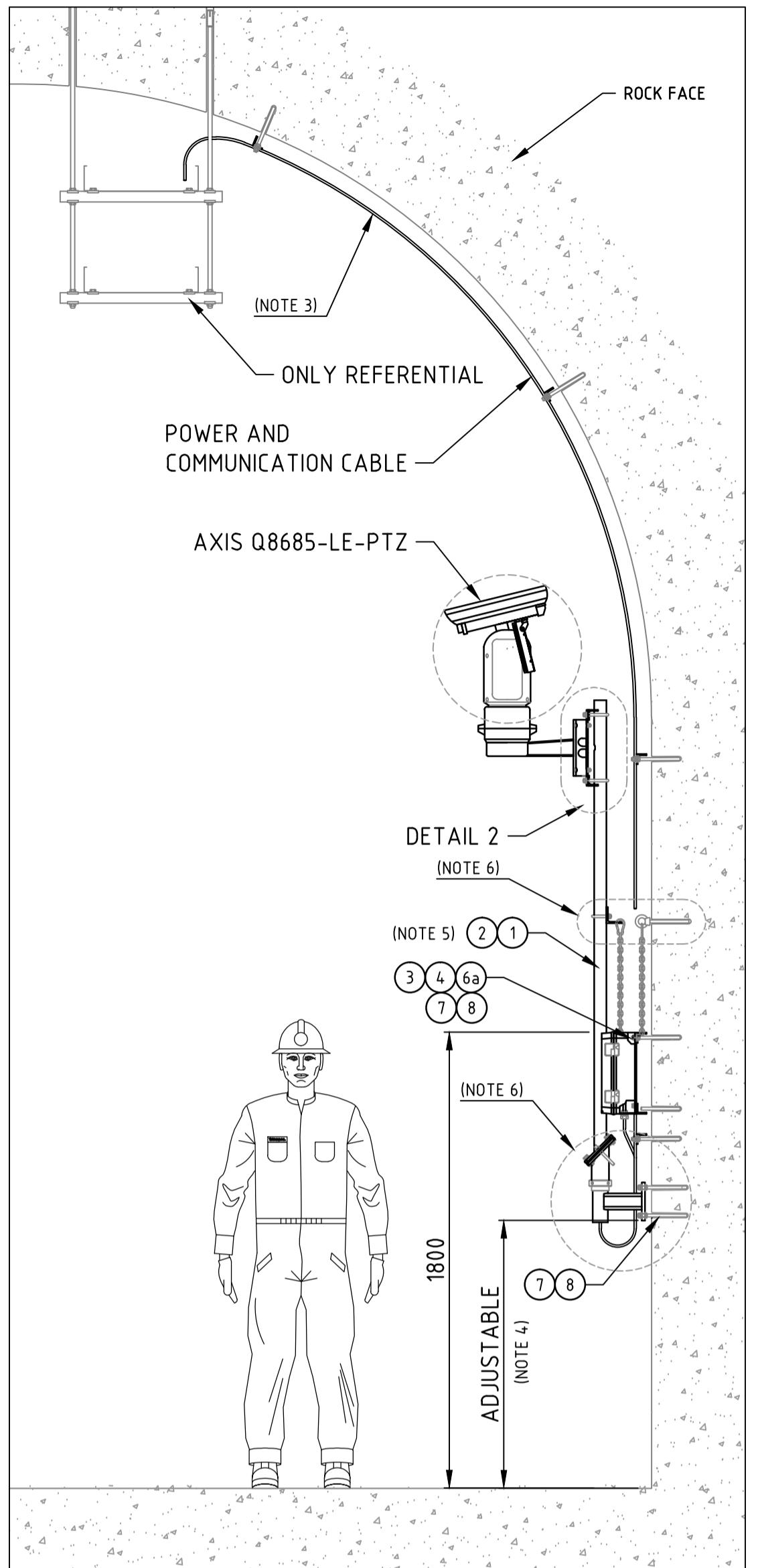
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PRODUCED BY	DESIGNED BY J. RODRIGUEZ	DRAWN BY M. LOPEZ	OYU TOLGOI UNDERGROUND PROJECT SITE WIDE SPECIAL PIPE SUPPORT DETAILS
PROJECT NO SN1809	CHECK DESIGN B. MAUREIRA	CHECK DRAWING B. MAUREIRA	
CONTRACT NO	LEAD ENGINEER C. CID	APPROVAL DATE 07.09.18	
DRAWING SIZE A1	AREA PROJECT ENGINEER	ENGINEERING MANAGER E. MARIN	
LOT SCALE AS SHOWN	PROJECT MANAGER	APPROVAL DATE 07.09.18	
DAD FILE NAME 000-50-N1-1119.DWG	CLIENT	APPROVAL DATE	SCALE AS SHOWN
			DRAWING NUMBER 0000-50-N1-1119
			REV. 1

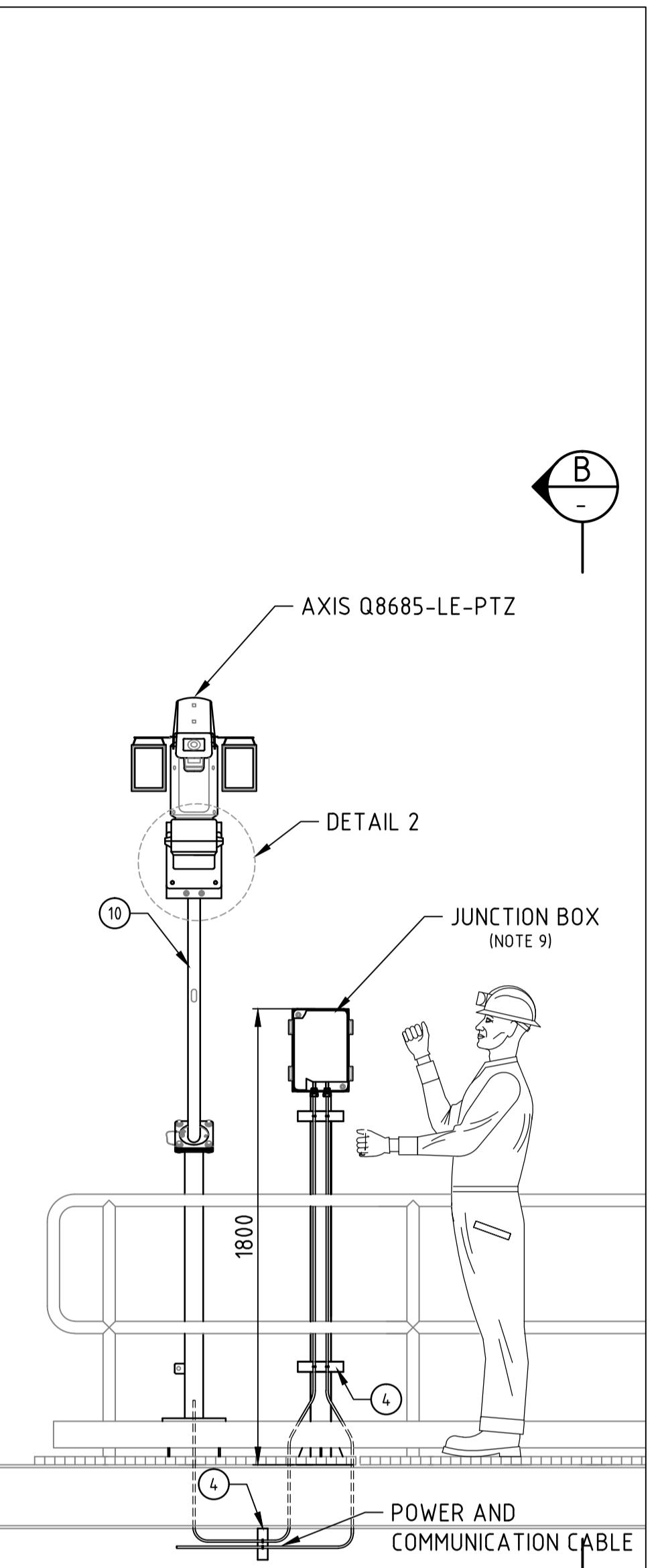




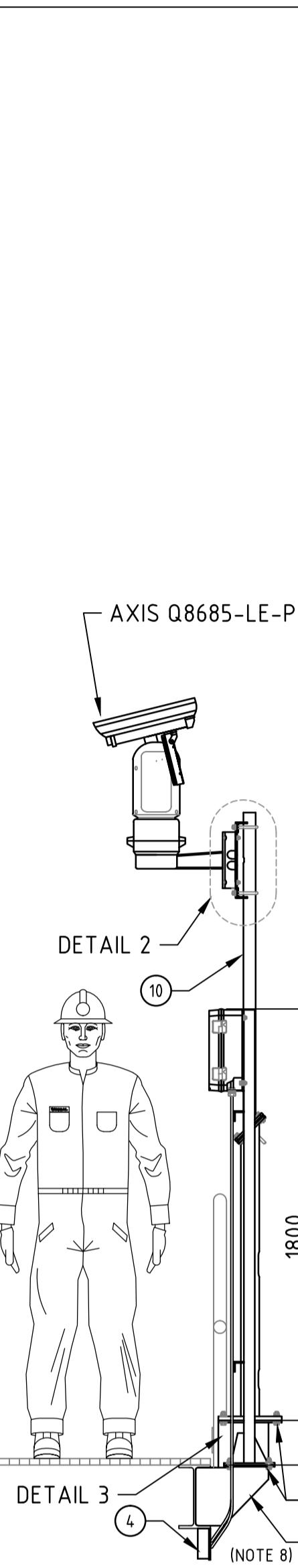
CAMERA OUTDOOR PTZ - MOUNTING TYPE 1
SCALE 1:20



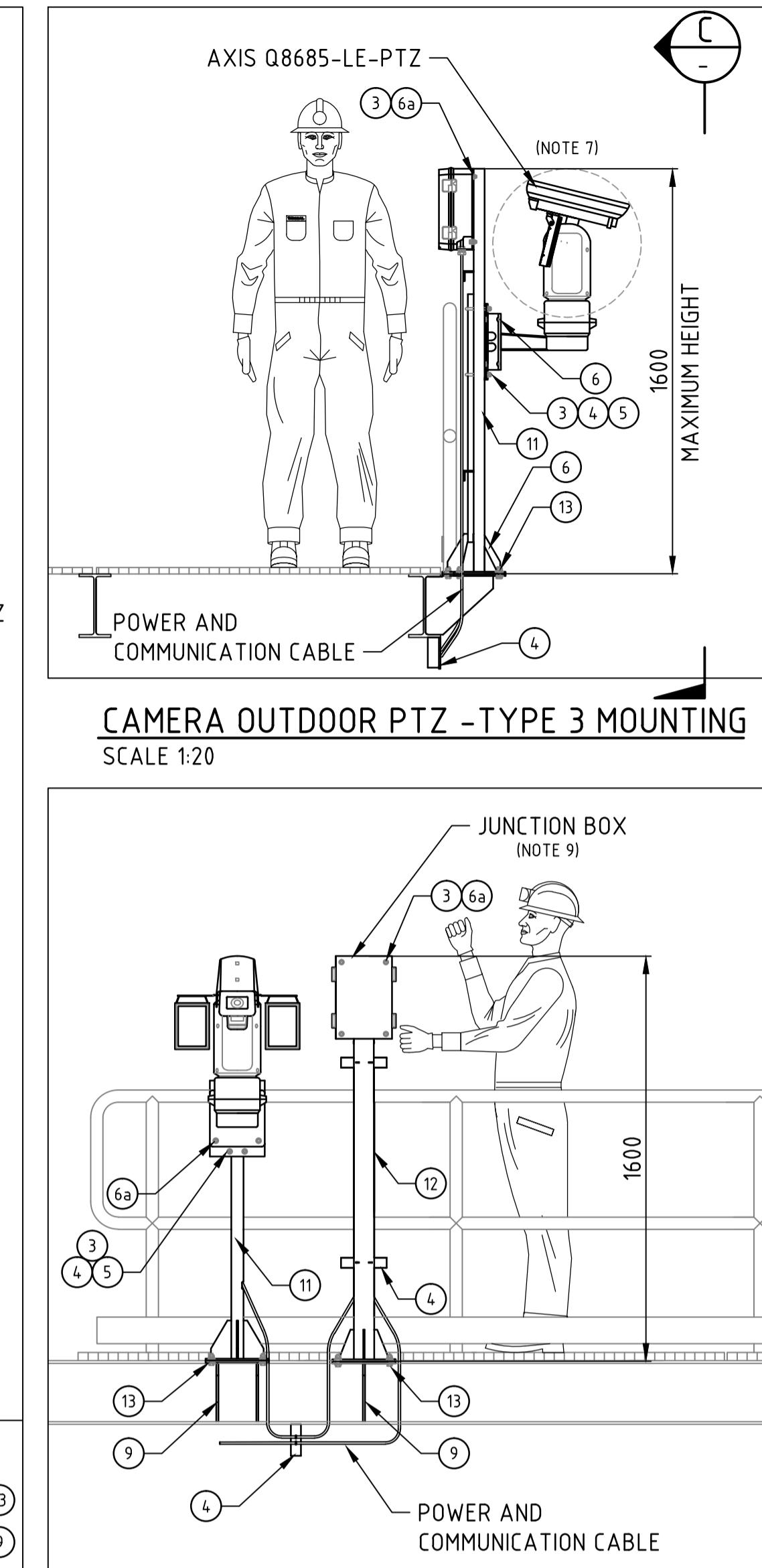
VIEW A
SCALE 1:20



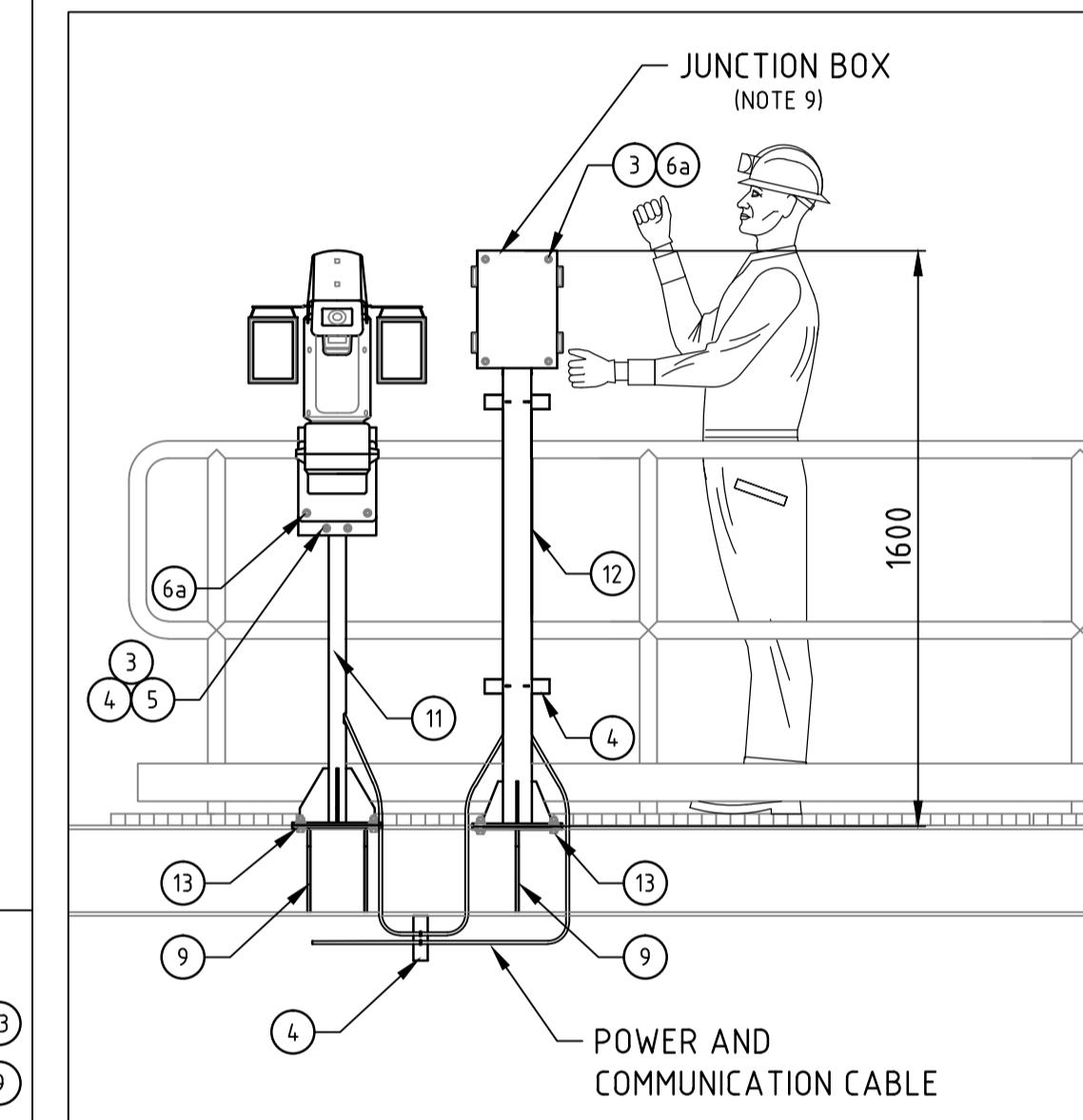
CAMERA OUTDOOR PTZ - MOUNTING TYPE 2
SCALE 1:20



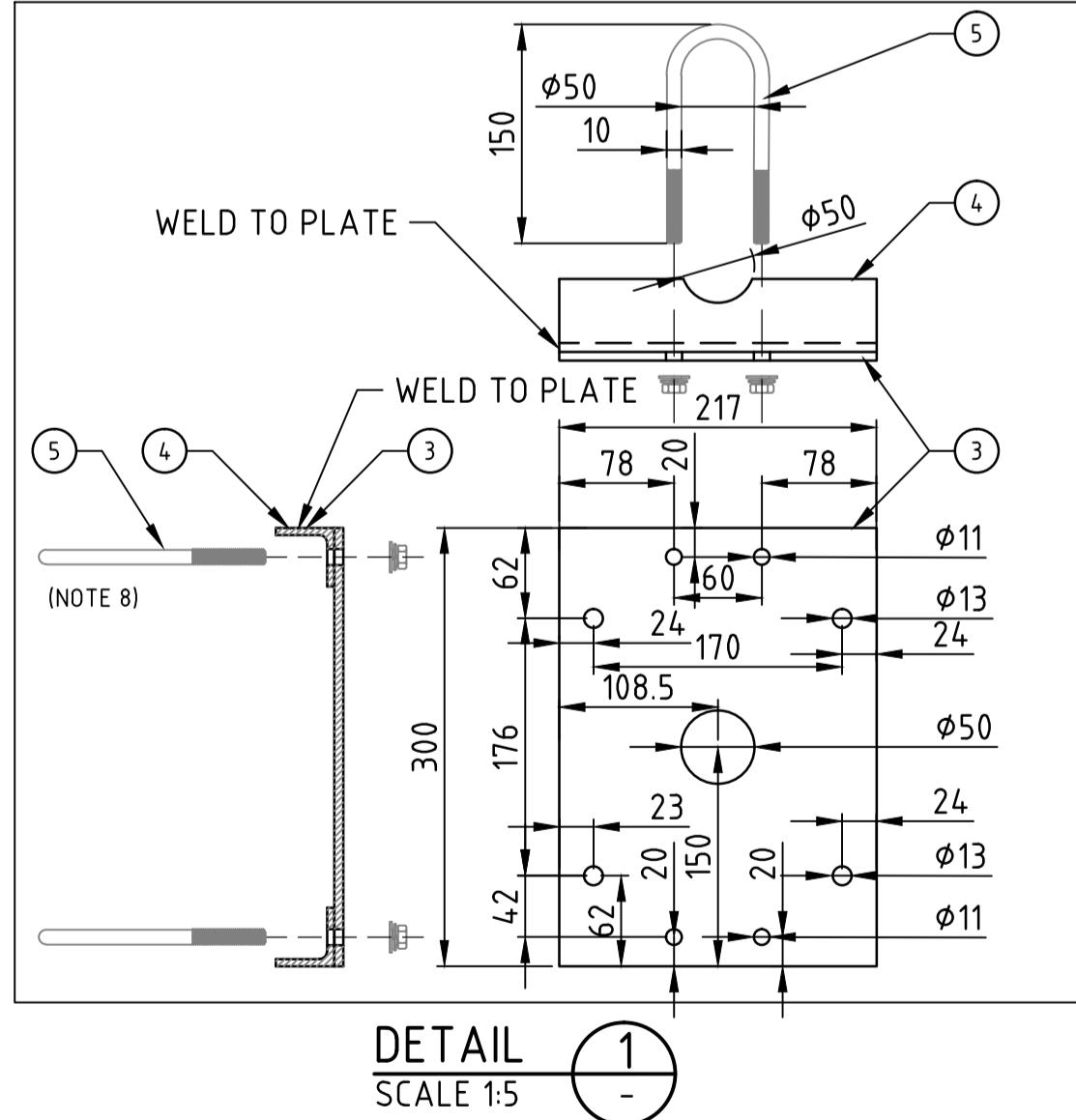
VIEW B
SCALE 1:20



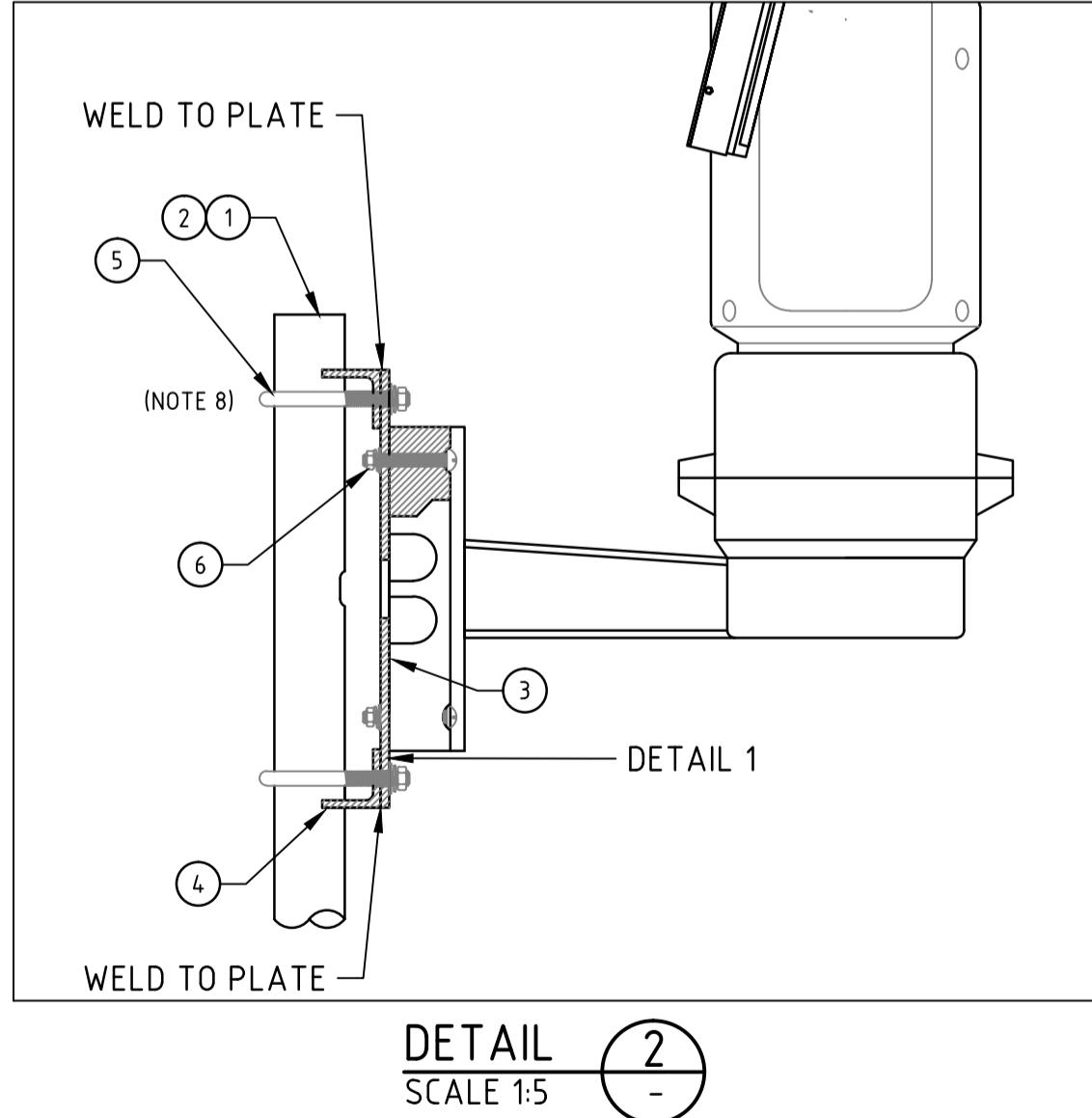
CAMERA OUTDOOR PTZ - TYPE 3 MOUNTING
SCALE 1:20



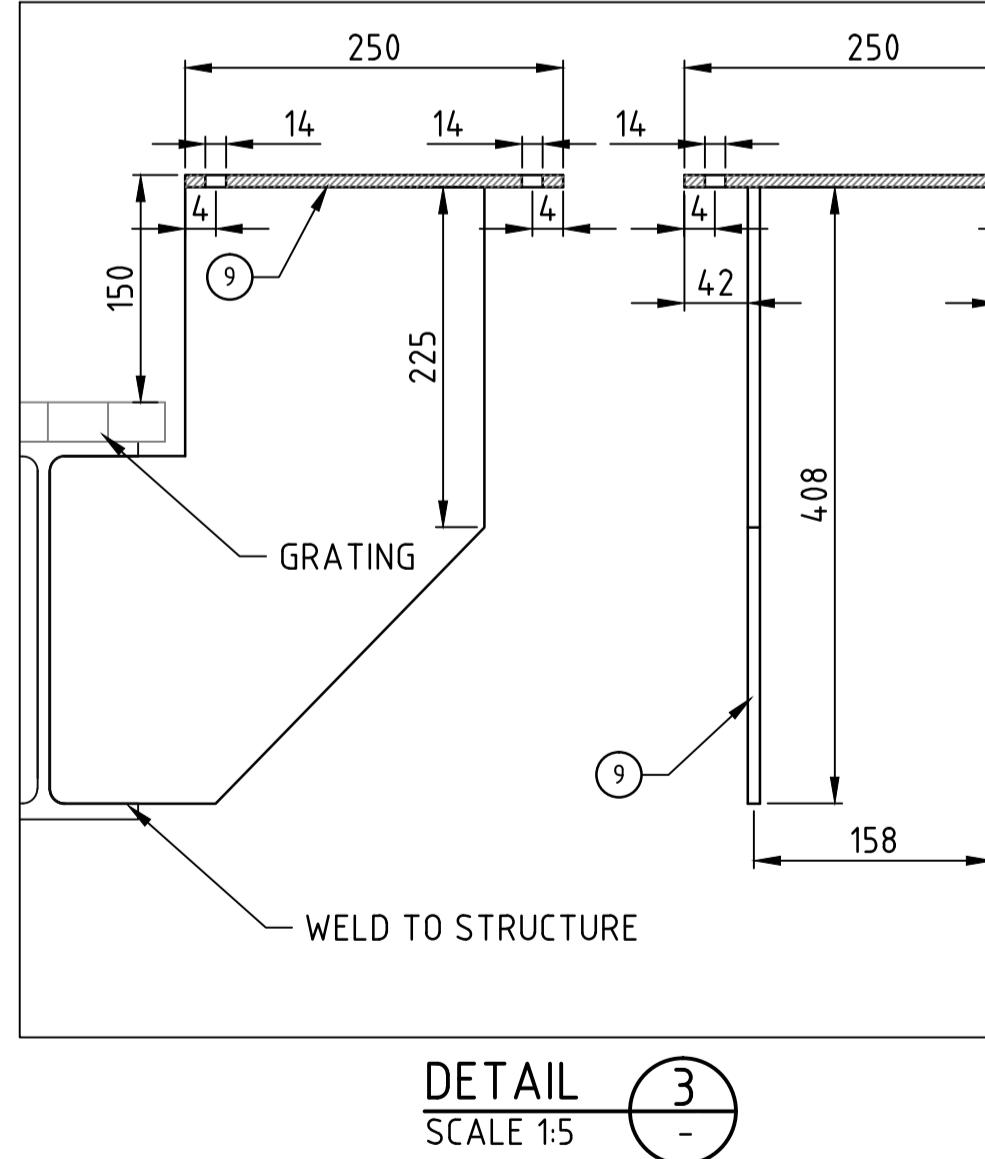
VIEW C
SCALE 1:20



DETAIL 1
SCALE 1:5



DETAIL 2
SCALE 1:5



DETAIL 3
SCALE 1:5

LIST OF MATERIALS (NOTE 2)		
ITEM	QTY	DESCRIPTION
(1)	AS REQUIRED	CAMERA POLE, FOR COLUMN OR WALL MOUNTING, CODE: C11-3000-PF / SWIVELPOLE
(2)	AS REQUIRED	CAMERA POLE, FOR COLUMN OR WALL MOUNTING, CODE: C12-4000-PSF / SWIVELPOLE
(3)	AS REQUIRED	6 mm, GALVANISED PLATE
(4)	AS REQUIRED	50 x 6 mm, GALVANISED EQUAL ANGLE (L02)
(5)	AS REQUIRED	U-BOLT FOR USE WITH PIPE 48.3 mm., THREAD SIZE M10, THREAD LENGTH 50 mm., TOTAL LENGTH 150 mm. (NOTE 8)
(6)	AS REQUIRED	8 x 60 mm., BOLT, NUT, FLAT AND SPRING WASHER GALVANISED STEEL
(6a)	AS REQUIRED	8 x 30 mm., BOLT, NUT, FLAT AND SPRING WASHER GALVANISED STEEL
(7)	AS REQUIRED	M12 ASTM F1554 (GRADE 36) HDG THREADED ROD C/W WASHER, SPRING WASHER AND NUT
(8)	AS REQUIRED	HILTI HIT x HY200-INJECTABLE ADHESIVE ANCHORS
(9)	AS REQUIRED	8 mm, GALVANISED PLATE
(10)	AS REQUIRED	48.3 mm., GALVANISED STEEL PIPE
(11)	AS REQUIRED	80 x 43 x 5 x 8 mm., GALVANISED TAPERED CHANNEL (TFC01)
(12)	AS REQUIRED	12 x 50 mm., BOLT, NUT, FLAT AND SPRING WASHER GALVANISED STEEL
(13)	AS REQUIRED	12 x 50 mm., BOLT, NUT, FLAT AND SPRING WASHER GALVANISED STEEL

NOTES

- ALL DIMENSIONS IN MILLIMETRES.
- ALL SUPPORTS AND MOUNTING PLATES MUST BE PAINTED, ACCORDING TO STANDARD SPECIFICATION "PROTECTIVE COATING" No 0000-00-SPE-0002.
- FOR CABLE SUPPORTS DETAILS, SEE DRAWING No 0000-70-02-1143.
- ADJUSTABLE DISTANCE, ACCORDING TO AVAILABLE PLACE IN THE RESPECTIVE AREA (WBS). (1200 TO 1500 mm.)
- FOR SPECIFIC MODEL, SEE "MATERIAL TAKE OFF "COMMUNICATIONS" OF THE RESPECTIVE AREA (WBS).
- FOR FURTHER DETAILS SEE DRAWING No 0000-75-A4-1104, (DETAILS 2 & 3).
- MAXIMUM HEIGHT, FOR CRANE OPERATION.
- FOR CAMERA POLE C12-4000-PSF, CONSIDER U-BOLT FOR USE WITH PIPE 60.3 mm.
- SUPPLIED WITH CAMERA.

CONSTRUCTION ISSUE

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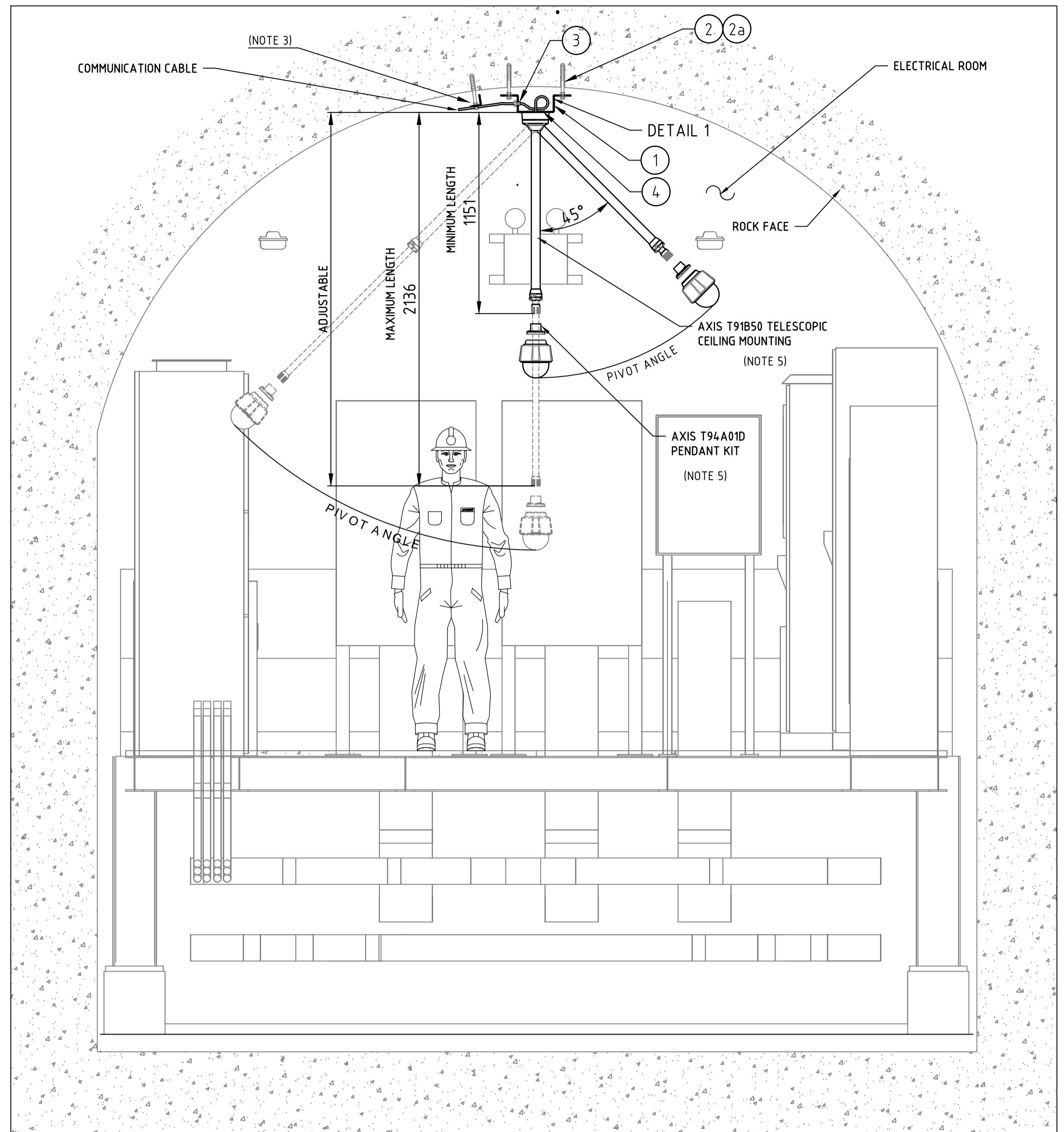
JACOBS ENGINEERING SINGAPORE PTE LTD
(Registration No: 198900266M),
a company incorporated in Singapore and
having its registered office at 50 Raffles
Place #32-01 Singapore Land Tower,
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REV.	DATE	REVISION DESCRIPTION	DES. CHK	APPROVED	REV.	DATE	REVISION DESCRIPTION	DES. CHK	APPROVED	REFERENCE DRAWING No.	REFERENCE DRAWINGS
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										CW2100375-B008/0014/0018	NETWORK CAMERA AXIS Q 8685 LE
										0000-75-A4-1104	PROCESS CAMERA OUTDOOR FIXED



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PRODUCED BY	DESIGNED BY	DRAWN BY
PROJECT NO	CHECK DESIGN	CHECK DRAWING
SN1809	I. MONTANARES	I. MONTANARES
CONTRACT NO	LEAD ENGINEER	APPROVAL DATE
	P. CABEZAS	24.11.2017
DRAWING SIZE	AREA PROJECT ENGINEER	ENGINEERING MANAGER
A1		E. MARIN
PLOT SCALE	PROJECT MANAGER	APPROVAL DATE
		24.11.2017
CAD FILE NAME	CLIENT	APPROVAL DATE
0000-75-A4-1102.DWG		
SCALE	AS SHOWN	DRAWING NUMBER
	0000-75-A4-1102	REV. 0



SECURITY CAMERA - AXIS P5624-E-MK

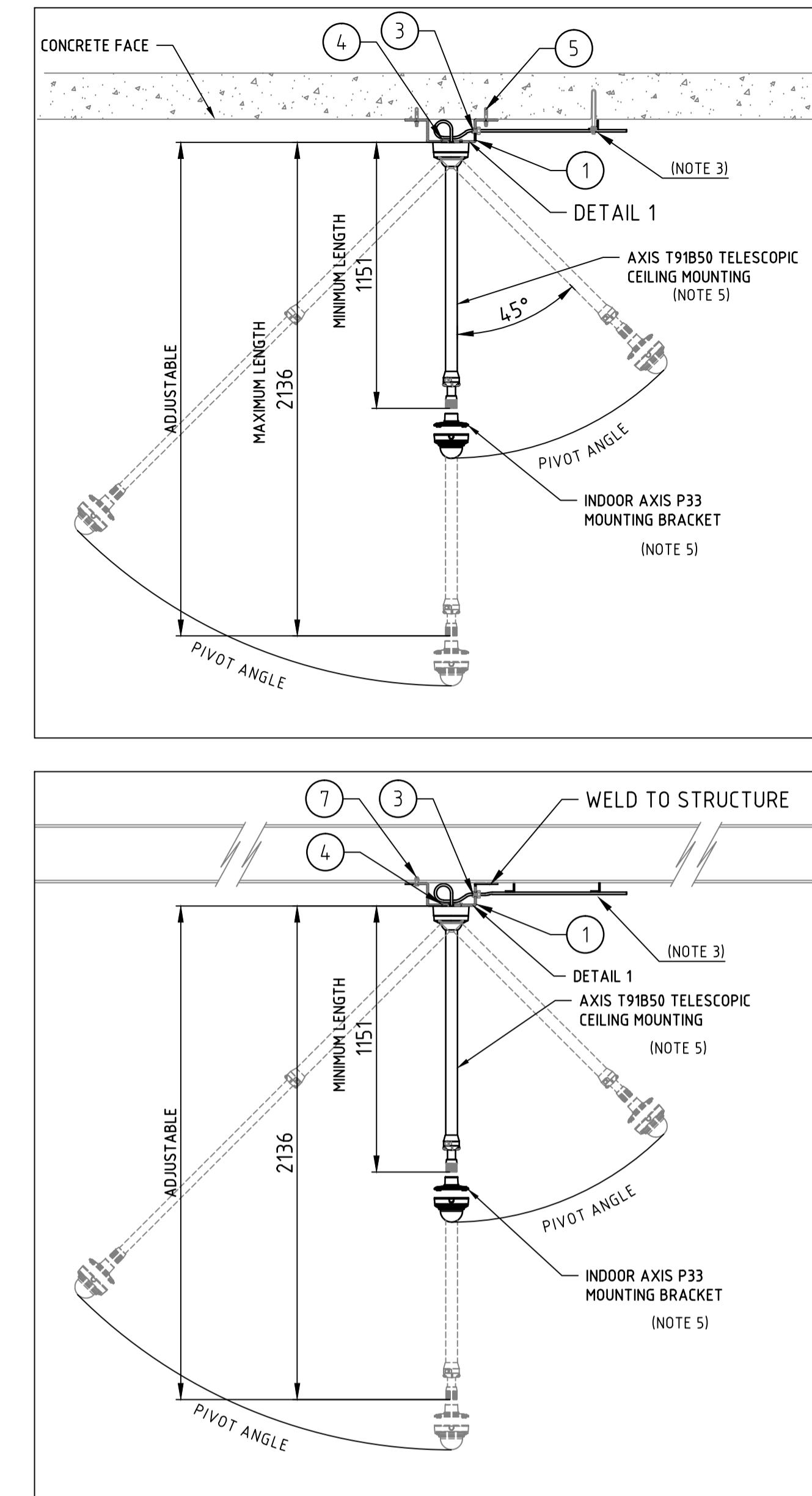
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LIST OF MATERIALS

(NOTE 2)

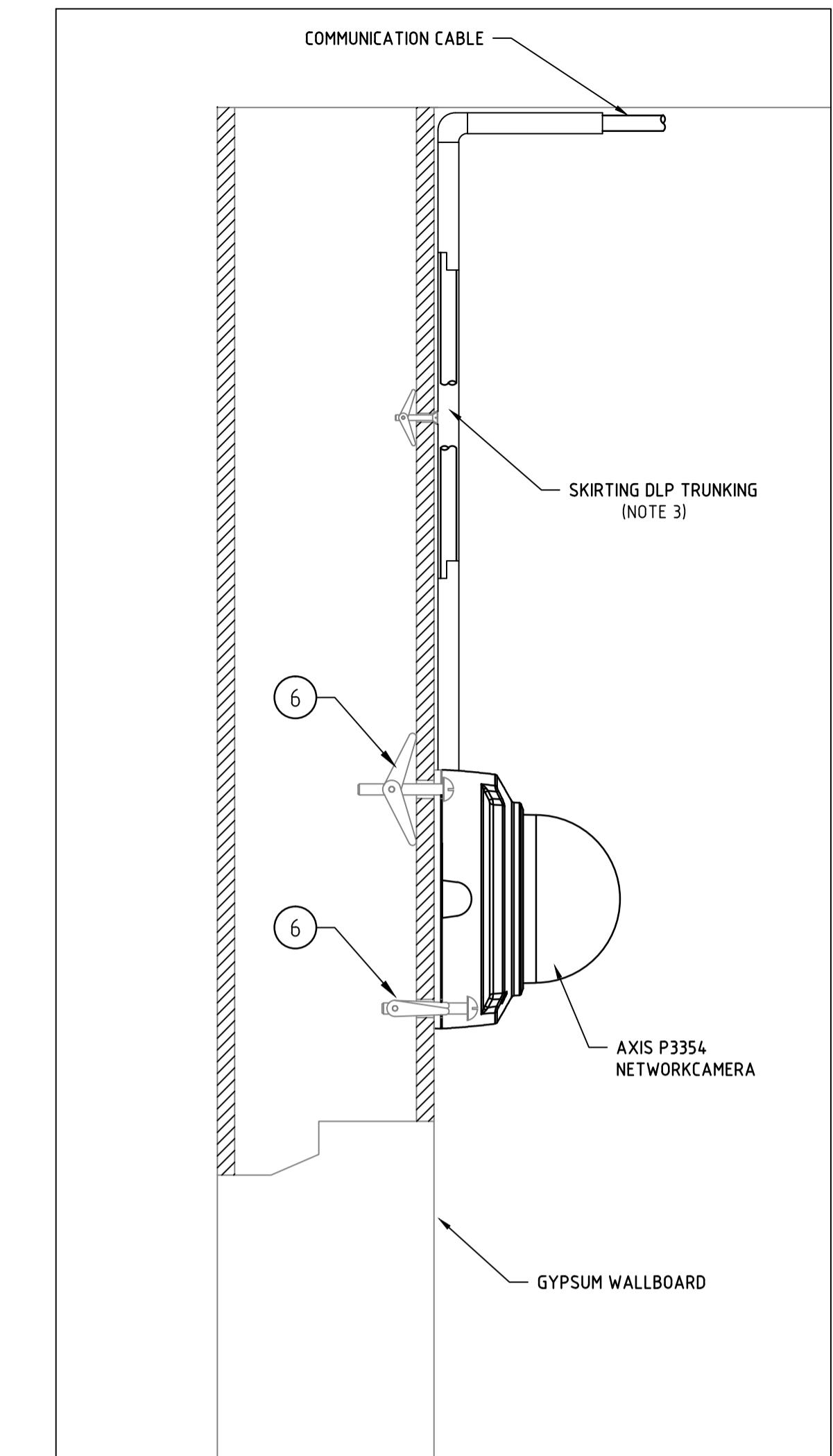
ITEM	QTY	DESCRIPTION
(1)	AS REQUIRED	6 mm, GALVANISED PLATE
(2)	AS REQUIRED	1/2" x 7-3/4", ROCK ANCHOR BOLT, HIT-Z, HILTI
(2a)	AS REQUIRED	HILTI HIT HY-200-INJECTABLE ADHESIVE ANCHORS
(3)	AS REQUIRED	M20, METALLIC CABLE GLAND FOR ARMOURED CABLE, CROUSE-HINDS ADE6CM201NPSCN
(4)	AS REQUIRED	7 x 20 mm., BOLT, NUT, FLAT AND SPRING WASHER GALVANISED STEEL
(5)	AS REQUIRED	SIMPSON STRONG, TIE STRONG BOLT 3/8" x 3" MODEL No STB2-373006SS
(6)	AS REQUIRED	1/4-20 x 4" TOGGLE BOLTS AND WINGS, MUSHROOM HEAD, PHILLIPS/SLOTTED, ZINC
(7)	AS REQUIRED	10 x 30 mm., BOLT, NUT, FLAT AND SPRING WASHER GALVANISED STEEL

CAUTION - PROJECT DRAWING - NOT AS BUILT



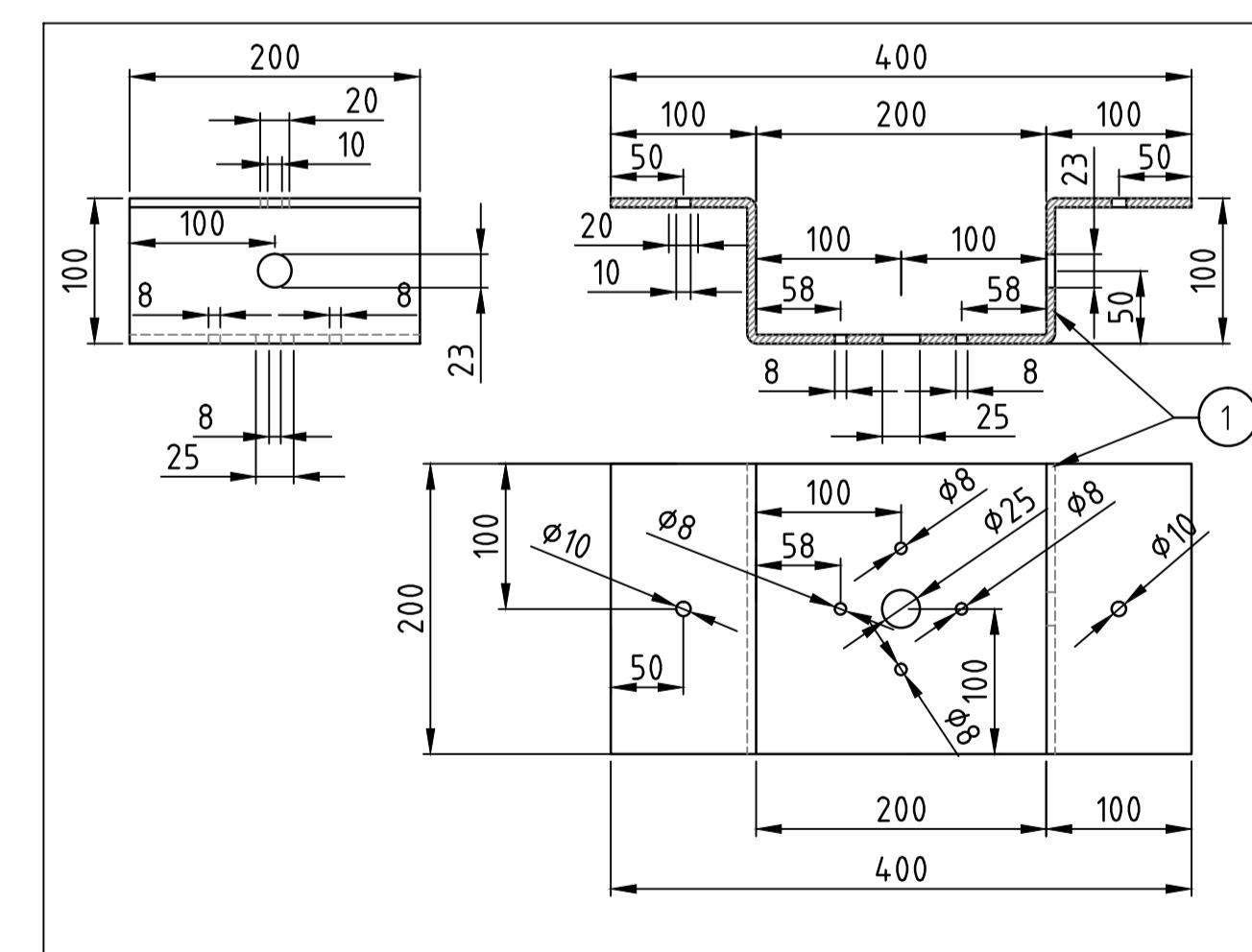
SECURITY CAMERA AXIS-P3354 (MOUNTING TYPE 1)

SCALE 1:20



SECURITY CAMERA AXIS-P3354 (MOUNTING TYPE 2)

SCALE 1:1



DETAIL
SCALE 1:5



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- NOTES**

 - 1.- ALL DIMENSIONS IN MILLIMETRES.
 - 2.- ALL SUPPORTS AND MOUNTING PLATES MUST BE PAINTED, ACCORDING TO STANDARD SPECIFICATION "PROTECTIVE COATING" No 0000-00-SPE-0002.
 - 3.- FOR CABLE SUPPORTS DETAILS, SEE DRAWING No 0000-70-02-1143.
 - 4.- ADJUSTABLE DISTANCE, ACCORDING TO AVAILABLE PLACE IN THE RESPECTIVE AREA (WBS).
 - 5.- SUPPLIED WITH CAMERA.

CONSTRUCTION ISSUE

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Jacobs Document No. SN1809-0000/IS.DDE/1103
JACOBS ENGINEERING SINGAPORE PTE LTD
(Registration number 199803266M),
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having its registered office at 50 Raffles
Place #32-01 Singapore Land Tower,
Singapore, 048623 (the offshore Contractor)
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OYU TOLGOI UNDERGROUND PROJECT
SITE WIDE
SECURITY CCTV CAMERAS
INSTALLATION DETAIL

SCALE AS SHOWN	DRAWING NUMBER 0000-75-A4-1103	REV. 0
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STAMPING PAGE - REDLINES & BLUELINES

(1) CONTRACTOR STAMPS	<div style="background-color: #f2f2f2; padding: 5px;"> MCS property REDLINE / "AS-CONSTRUCTED" Print name: ODONCHIMEG BUKHBAATAR Signature: Rev. 2RL Date: 2020.09.25 Package No: C003B /CW2107475/ Site instruction No: N/A Change <input type="checkbox"/> No Change <input checked="" type="checkbox"/> </div>							
(2) EMPC STAMPS - (FE/CONST.)	REV. 2RL	REV.						
	<div style="background-color: #f2f2f2; padding: 5px;"> JACOBS® RED-LINE CONSTRUCTION Date: Signature: 1 Name: FIELD ENGINEER Date: Signature: Name: 2 PACKAGE: C- 003B CONTRACTOR: MCSP CHANGE <input type="checkbox"/> NO CHANGE <input checked="" type="checkbox"/> </div>							
(3) COMMISSIONING (STAMPS)	REV.	REV.	REV.	REV.	REV.	REV.	REV.	REV.

NOTE 1: START ADDING STAMPS - FROM LEFT TO RIGTH

NOTE 2: IN THE CASE THAT MORE SPACES FOR STAMPS ARE NEEDED, ADD AN ADDITIONAL STAMPING PAGE TO THE PDF

NOTE 3: STAMPING PAGE MUST BE FIRST PAGE OF THE DOCUMENT

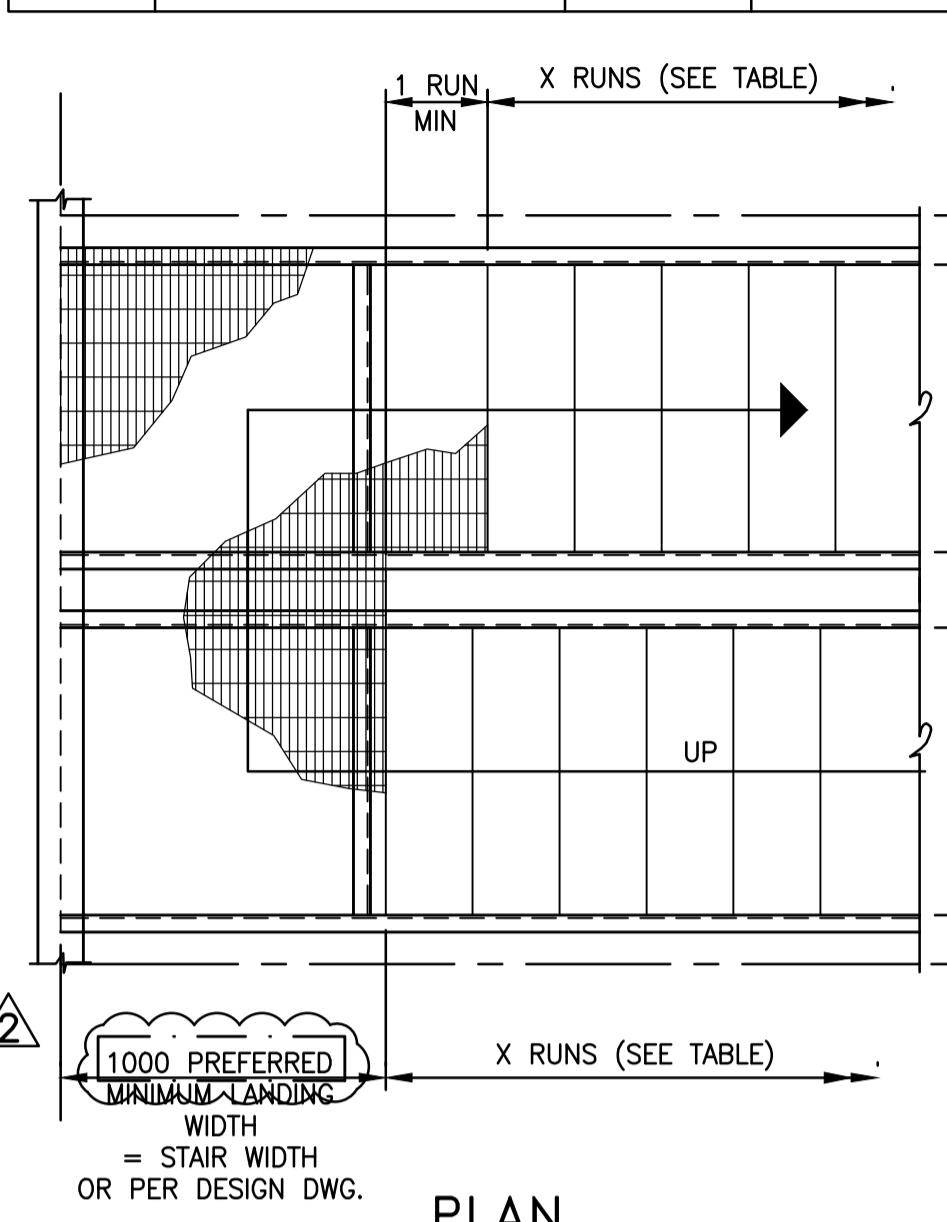
NOTE 4: OT. DOC NUMBER MUST BE THE SAME NUMBER THAN THE DOCUMENT TO BE REDLINED (MANDATORY)

NOTE 5: FIELD ENGINEERING TEAM TO DEFINE REVISIONS ON EACH ON EACH BLOCK - SECTION (2)

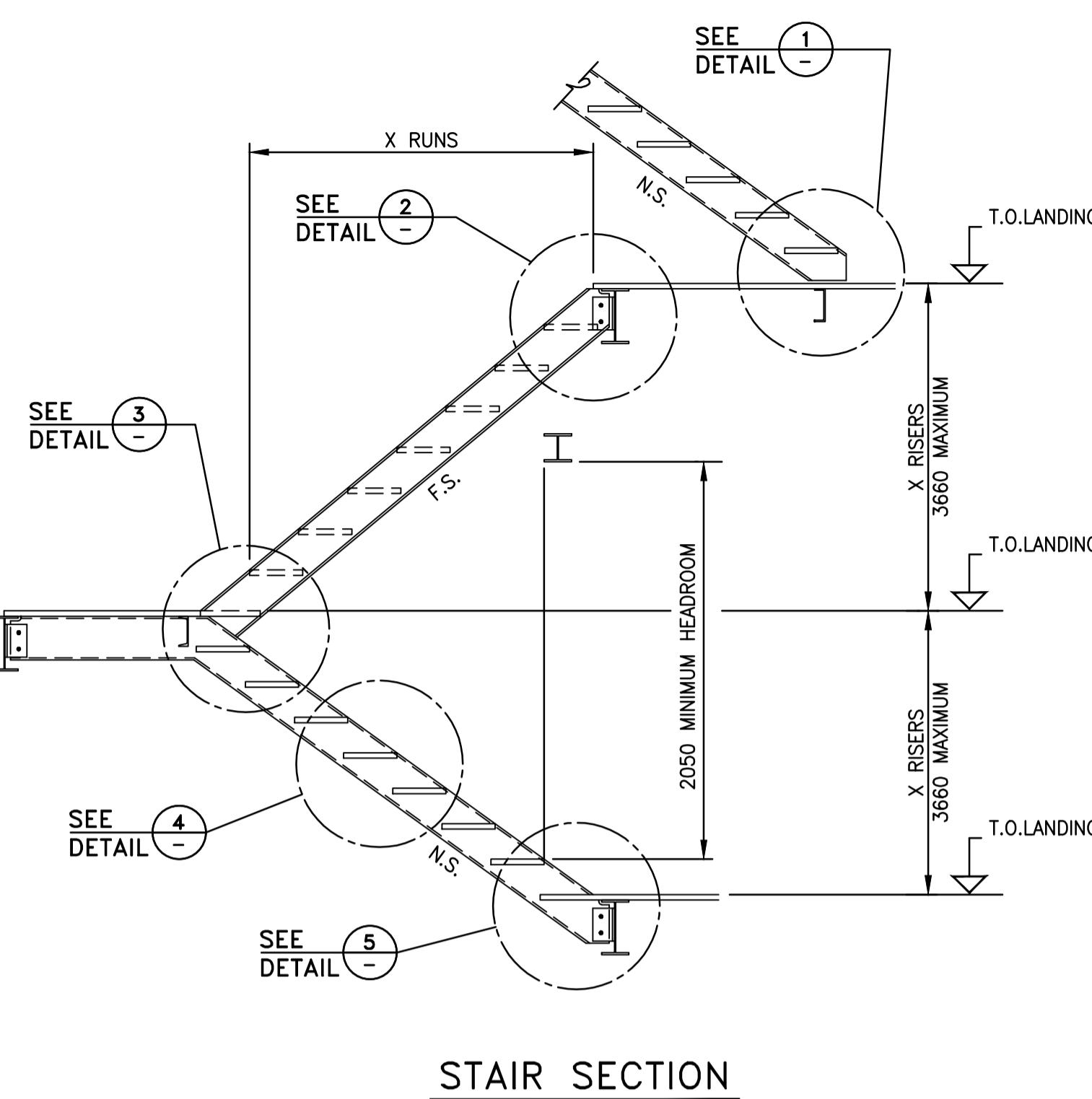
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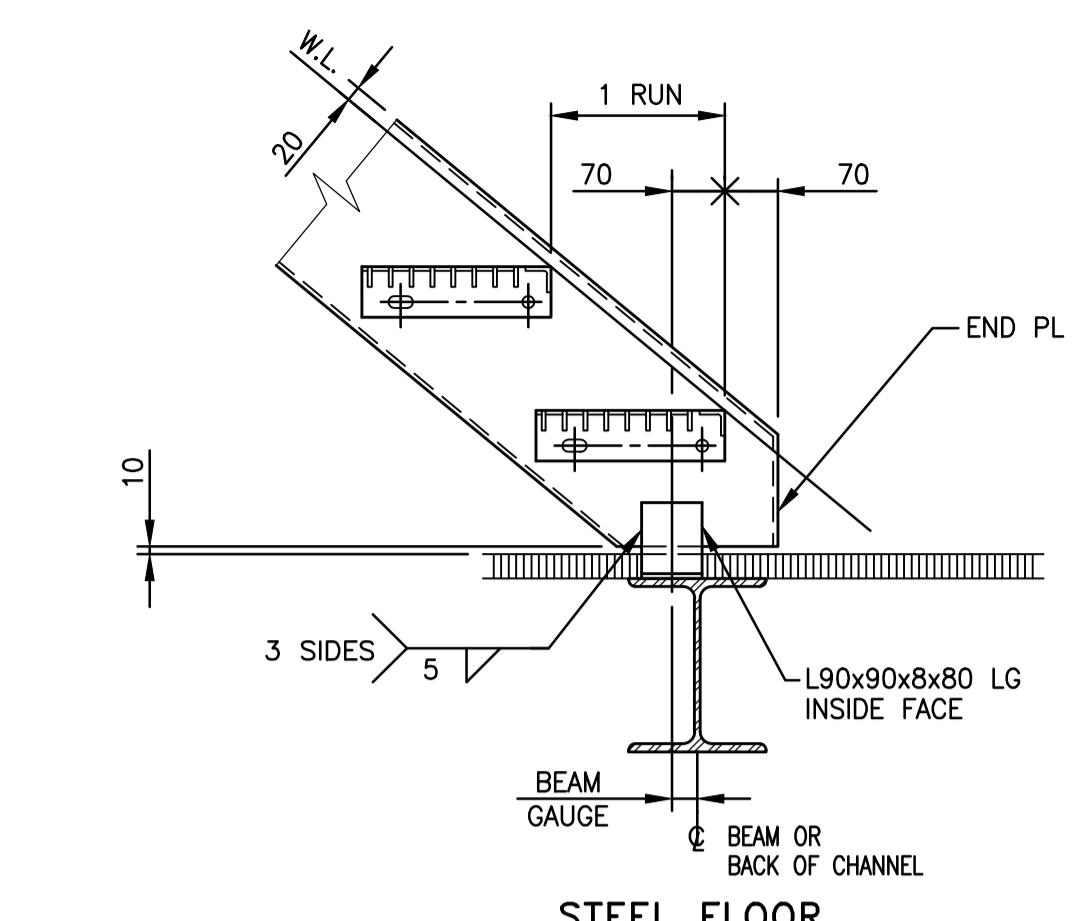
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2	EXIT STAIRS	280 MIN	125 MIN 180 MAX



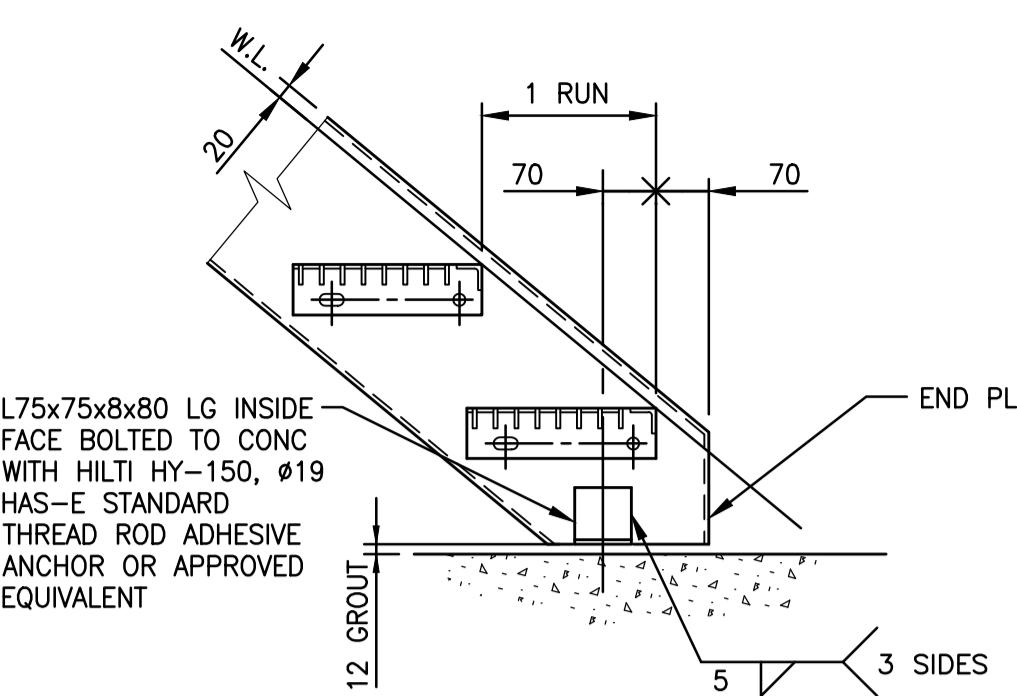
PLAN



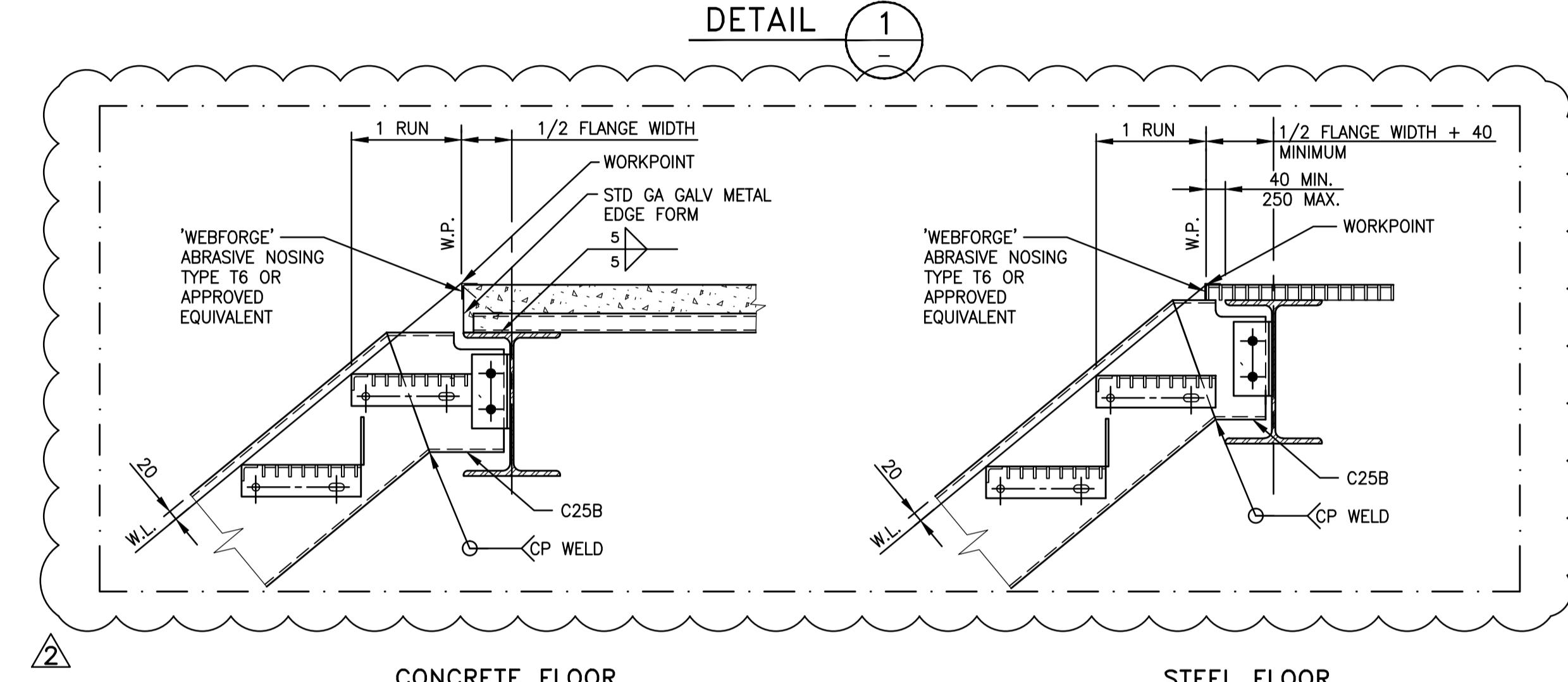
STAIR SECTION



STEEL FLOOR



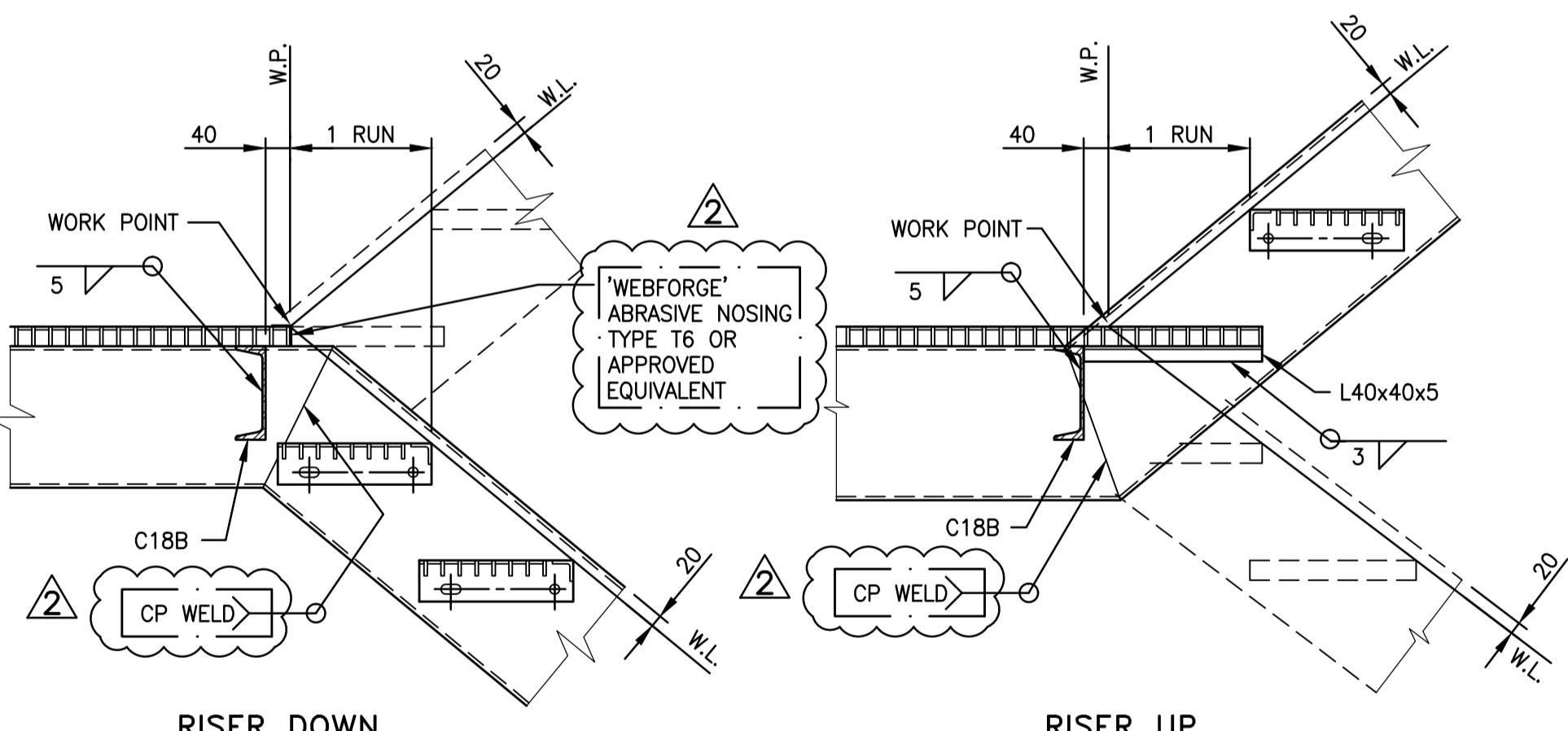
CONCRETE FLOOR



CONCRETE FLOOR



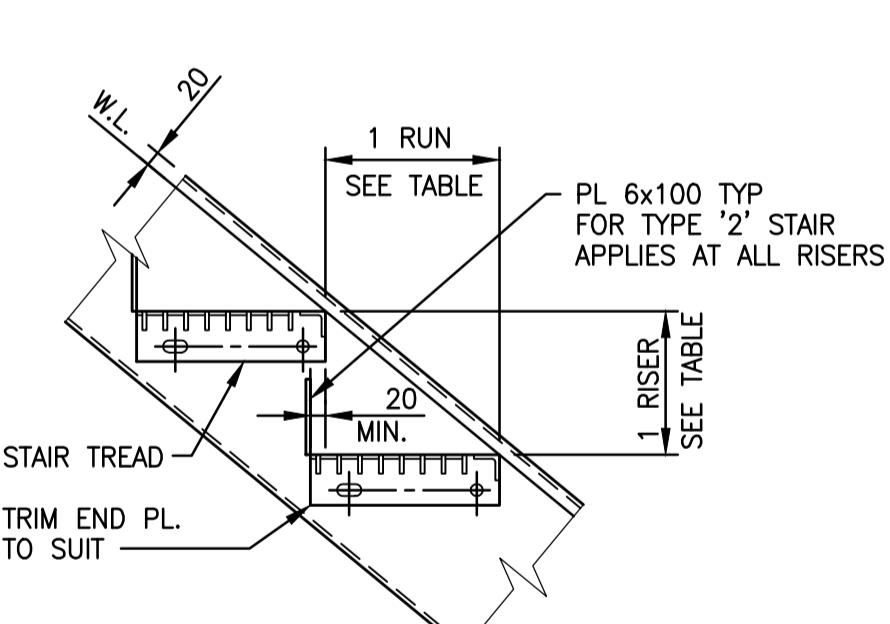
STEEL FLOOR



RISER DOWN

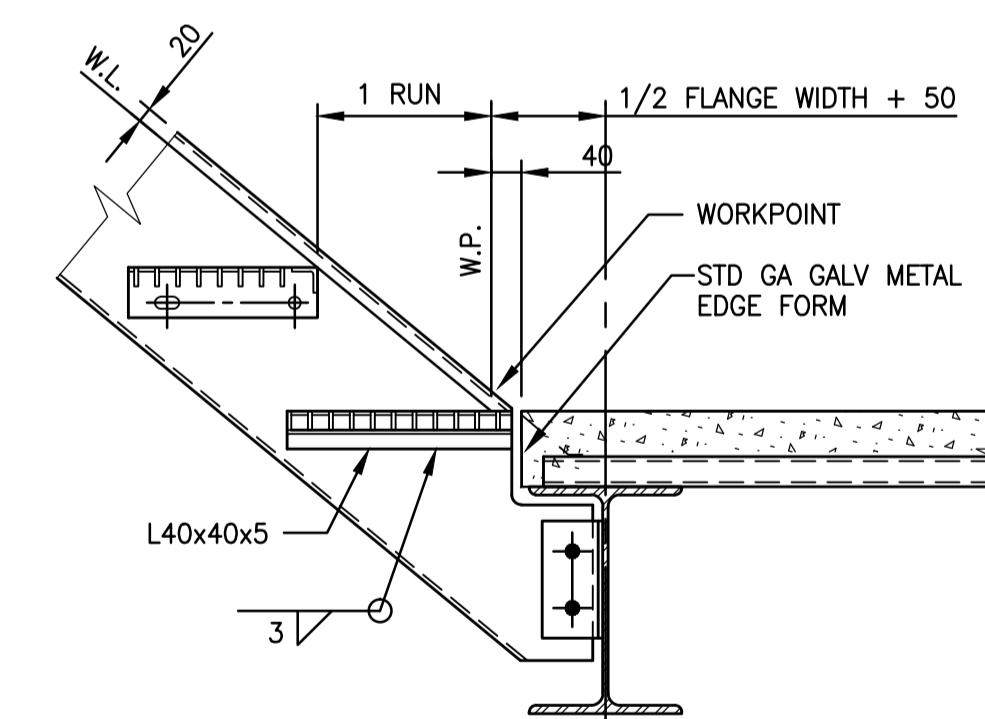
RISER UP

DETAIL 3

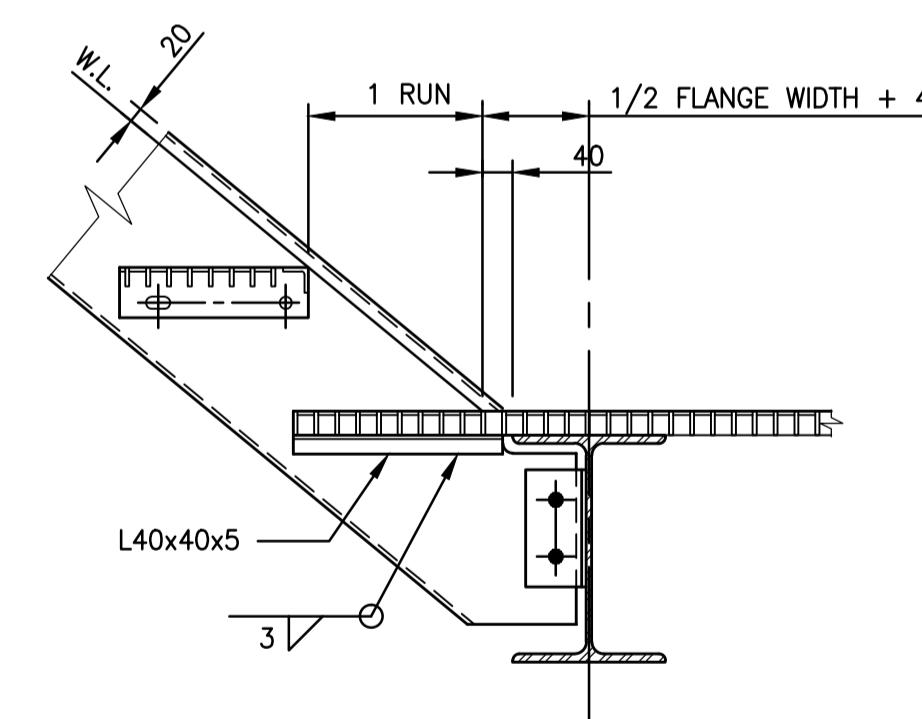


PL 6x100 TYP FOR TYPE '2' STAIR APPLIES AT ALL RISERS
SEE TABLE

DETAIL 4



CONCRETE FLOOR



STEEL FLOOR

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STAMP/SEAL

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APPROVED FOR CONSTRUCTION

RLppGL

CLIENT PROJECT MGR. DEPARTMENT MGR. PROJECT MGR.

PROJECT TITLE

OYU TOLGOI EXPANSION PROJECT

PROJECT NO.

171288

ACTIVITY NO.

DSN R.KHAN 160CT12

DRN S.LEUNG 160CT12

SCALE

CHK D.POSTOLICO 160CT12

NTS APP R.LO 160CT12

SUBJECT

STRUCTURAL
STRUCTURAL STANDARDS
STEEL STAIRS

AREA 1000

MINING

DRAWING NO.

171288-1000-DD20-SDD-5002

CLIENT DWG. NO.

1000-15-Z1-5002



NOTES:

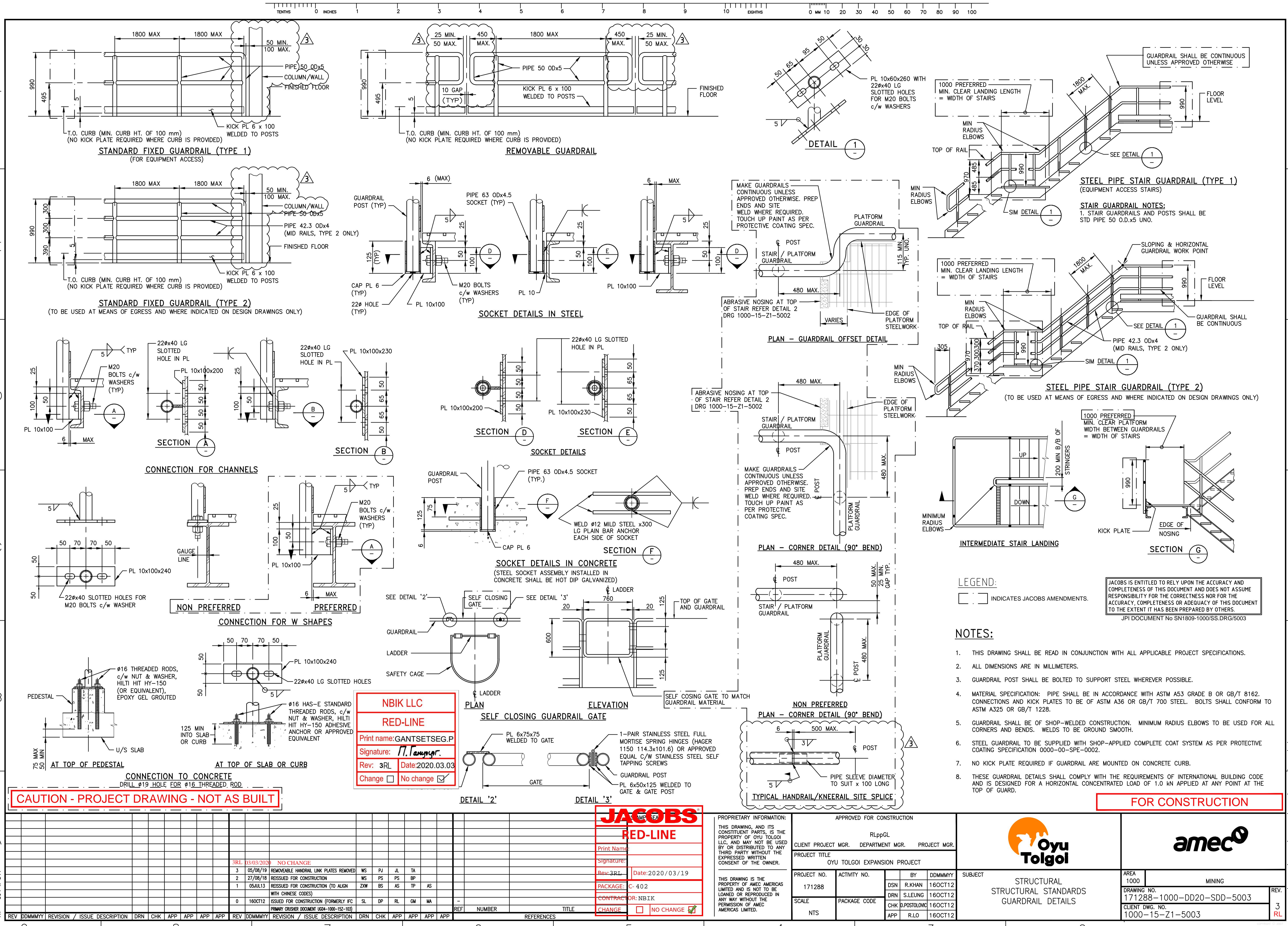
1. THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL APPLICABLE PROJECT SPECIFICATIONS.

2. ALL DIMENSIONS ARE IN MILLIMETERS.

FOR CONSTRUCTION

REVISION / ISSUE DESCRIPTION DRN CHK APP APP APP REV DDMMMYY												REVISION / ISSUE DESCRIPTION DRN CHK APP APP APP REV DDMMMYY											
2 29.08.18 REISSUED FOR CONSTRUCTION WS PS PS BP				1 05/Jul/13 ISSUED FOR CONSTRUCTION (TO ALIGN ZXW BS AS TP AS)				0 16/Oct/12 ISSUED FOR CONSTRUCTION (FORMERLY IFC SL DP RL GL MA)				REF NUMBER				TITLE				REFERENCES			
A1 - 594 x 841	9	8	7	6	5	4	3	2	1	0													

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STAMPING PAGE - REDLINES & BLUELINES

(1) CONTRACTOR STAMPS	<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> MCS property REDLINE / "AS-CONSTRUCTED" Print name: ODONCHIMEG BUKHBAATAR Signature: Rev. 2RL Date: 2020.09.25 Package No: C003B /CW2107475/ Site instruction No: N/A Change <input type="checkbox"/> No Change <input checked="" type="checkbox"/> </div>							
(2) EMPC STAMPS - (FE/CONST.)	REV. 2RL	REV.						
	<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> JACOBS® RED-LINE CONSTRUCTION Date: Signature: 1 Name: FIELD ENGINEER Date: Signature: Name: 2 PACKAGE: C- 003B CONTRACTOR: MCSP CHANGE <input type="checkbox"/> NO CHANGE <input checked="" type="checkbox"/> </div>							
(3) COMMISSIONING (STAMPS)	REV.	REV.	REV.	REV.	REV.	REV.	REV.	REV.

NOTE 1: START ADDING STAMPS - FROM LEFT TO RIGTH

NOTE 2: IN THE CASE THAT MORE SPACES FOR STAMPS ARE NEEDED, ADD AN ADDITIONAL STAMPING PAGE TO THE PDF

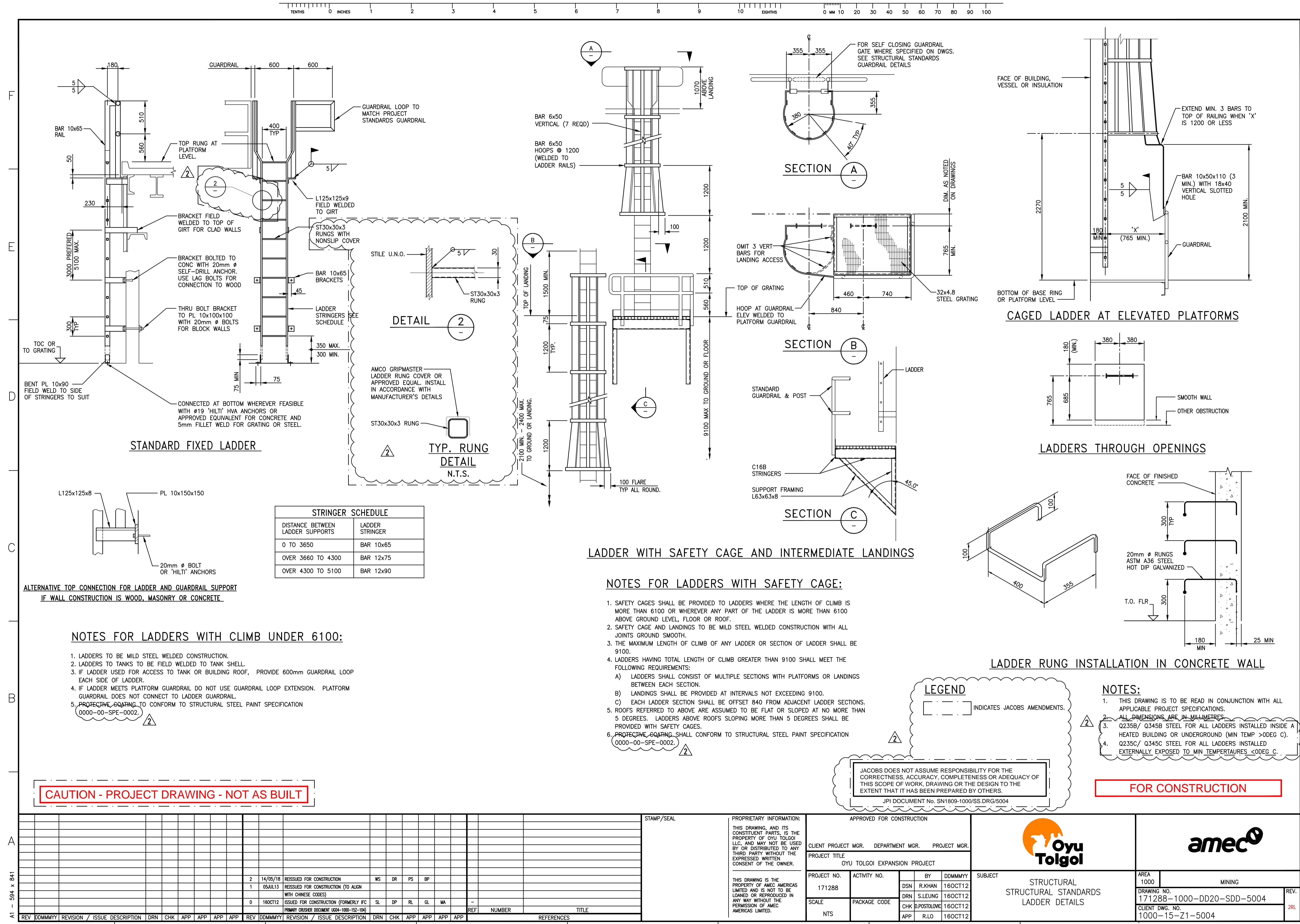
NOTE 3: STAMPING PAGE MUST BE FIRST PAGE OF THE DOCUMENT

NOTE 4: OT. DOC NUMBER MUST BE THE SAME NUMBER THAN THE DOCUMENT TO BE REDLINED (MANDATORY)

NOTE 5: FIELD ENGINEERING TEAM TO DEFINE REVISIONS ON EACH ON EACH BLOCK - SECTION (2)

OT DOC. NUMBER 1000-15-Z1-5004

FORM: 0000-01-FRM-1112_0



CAUTION - PROJECT DRAWING - NOT AS BUILT

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PROPRIETARY INFORMATION:
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EXPRESSED WRITTEN
CONSENT OF THE OWNER.

APPROVED FOR CONSTRUCTION

The logo for Oya Tolaa features a large, solid orange circle representing the sun. Inside the circle, there is a white silhouette of two figures: a smaller figure on the left and a larger figure on the right, possibly representing a child and an adult. To the right of the sun, the word "Oya" is written in a bold, black, sans-serif font, and below it, the word "Tolaa" is written in a larger, bold, black, sans-serif font.

amec 

ACCURACY, COMPLETENESS OR ADEQUACY OF
WORK, DRAWING OR THE DESIGN TO THE
AS BEEN PREPARED BY OTHERS.

NOTES:

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL APPLICABLE PROJECT SPECIFICATIONS.
2. ALL DIMENSIONS ARE IN MILLIMETRES.
3. Q235B/ Q345B STEEL FOR ALL LADDERS INSTALLED INSIDE HEATED BUILDING OR UNDERGROUND (MIN TEMP >0DEG C)
4. Q235C/ Q345C STEEL FOR ALL LADDERS INSTALLED

FOR CONSTRUCTION

1.0 GENERAL CONCRETE NOTES

- 1.1 DRAWINGS NOT TO BE SCALED. ONLY FIGURED DIMENSIONS TO BE FOLLOWED.
- 1.2 LINEAR DIMENSIONS SHOWN ON DRAWINGS ARE IN MILLIMETRES, ELEVATIONS IN METRES.
- 1.3 PRIOR TO PROCEEDING WITH WORK, CONTRACTOR TO VERIFY ALL DIMENSIONS, ELEVATIONS AND SUBMIT TO ENGINEER FOR REVIEW ANY INCONSISTENCIES AND ALTERATIONS TO THE WORK PRIOR TO COMMENCING CONSTRUCTION.
- 1.4 PRIOR TO PROCEEDING, COORDINATE WORK ON THESE DRAWINGS WITH CONSTRUCTION MANAGER, ARCHITECTURAL, CIVIL, PROCESS, MECHANICAL AND ELECTRICAL WORK TO BE PERFORMED BY OTHERS.
- 1.5 LOCATION OF SERVICES WHERE INDICATED ARE FOR GUIDANCE ONLY. COMPLETENESS AND ACCURACY ARE NOT GUARANTEED.
- 1.6 THE CARRYING OUT OF ANY WORK PRIOR TO THE REVIEW AND ACCEPTANCE OF DETAILED SHOP DRAWINGS BY THE ENGINEER IS AT THE CONTRACTOR'S OWN RISK.
- 1.7 ALL WORK AND MATERIALS TO CONFORM TO THE REQUIREMENTS OF THE INTERNATIONAL BUILDING CODE, IBC. ALL WORK AND MATERIAL ACCORDING TO CHINESE REQUIREMENTS SHALL CONFORM TO ▲ CHINESE CODES.
- 1.8 CONTRACTOR IS TO ASSUME FULL RESPONSIBILITY FOR THE STABILITY OF EMBANKMENT & INTEGRITY OF THE STRUCTURES DURING ERECTION. CONTRACTOR IS TO PROVIDE ADEQUATE TEMPORARY BRACING SYSTEM TO MAINTAIN STRUCTURAL SAFETY, PLUMB & IN TRUE ALIGNMENT UNTIL COMPLETION OF WORK.
- 1.9 CONTRACTOR IS TO ENSURE STRUCTURAL INTEGRITY OF EXISTING STRUCTURES AND ITS COMPONENTS. SAFEGUARD AGAINST MOVEMENTS, SETTLEMENT, UNDERMINING AND DAMAGES TO FOUNDATIONS, SLABS, STRUCTURAL FRAMING, BUILDING ENVELOPE, WALLS, MACHINERY, BUILDING CONTENTS AND SERVICES, ETC. DURING CONSTRUCTION AND BE RESPONSIBLE FOR ALL DAMAGES. CONTRACTOR IS TO REINSTATE OR REPLACE ANY OR ALL ITEMS AFFECTION TO THEIR ORIGINAL CONDITION AT NO ADDITIONAL COST TO THE OWNER.
- 1.10 PRIOR TO PROCEEDING WITH THE WORK, CONTRACTOR IS TO SUBMIT TO THE ENGINEER FOR APPROVAL THE DETAILS OF SHORING, BRACING, UNDERPINNING, STRENGTHENING OF EXISTING EMBANKMENTS, STRUCTURE, WALL, SLAB, ROOF ETC. THAT MAY BE REQUIRED TO PERFORM NEW WORK.
- 1.11 THESE NOTES SHALL BE READ IN CONJUNCTION WITH ALL APPLICABLE PROJECT SPECIFICATIONS.
- 1.12 THESE NOTES SHALL BE APPLIED TO THE WORK SHOWN ON ALL DESIGN DRAWINGS. IN ALL CASES, THE DESIGN DRAWINGS SHALL GOVERN OVER THESE STANDARD CONCRETE NOTES.

2.0 FOUNDATIONS, EXCAVATION & BACKFILL

- 2.1 ALL EXCAVATION SHALL BE DONE IN SUCH A MANNER AS TO PRESERVE THE UNDISTURBED SOIL CONDITIONS AT THE UNDERSIDE OF THE FOUNDATIONS.
- 2.2 ALL STRUCTURES AND TANKS ARE DESIGNED TO BE FOUNDED AT THE ELEVATIONS AND LOCATIONS SHOWN ON THE DRAWINGS AND MUST BE SUPPORTED ON SOLID UNDISTURBED NATIVE GROUND, COMPACTED STRUCTURAL FILL, ROCK OR LEAN CONCRETE HAVING AN ALLOWABLE BEARING CAPACITY OF (TO CEME) kPa OR AS NOTED OTHERWISE ON THE DRAWINGS BASED ON THE GEOTECHNICAL REPORT.
- 2.3 ON COMPLETION OF THE EXCAVATION, THE GEOTECHNICAL CONSULTANT MUST CONFIRM IN THE FIELD THE DESIGN BEARING PRESSURE AT THE FOUNDATION ELEVATION BEFORE PLACING FORMS, REINFORCEMENT OR CONCRETE. THIS CONFIRMATION MUST BE IN WRITING. ANY NECESSARY REMEDIAL WORK TO ACHIEVE THE DESIGN BEARING PRESSURE QUOTED MUST BE COMPLETED AS DIRECTED BY THE ENGINEER BEFORE PROCEEDING WITH FURTHER WORKS.
- 2.4 REMOVE UNSUITABLE MATERIAL AND REPLACE WITH COMPACTED STRUCTURAL FILL OR LEAN CONCRETE AS DIRECTED BY THE GEOTECHNICAL CONSULTANT.
- 2.5 PROTECT FOUNDATION SOIL FROM DETERIORATION DUE TO WATER OR FREEZING CONDITIONS.
- 2.6 CONCRETE MUST NOT BE PLACED AGAINST FROZEN SOIL.
- 2.7 ANY OVER EXCAVATION OF FOUNDATION GRADES MUST BE MADE GOOD WITH LEAN MIX CONCRETE OR WITH COMPACTED STRUCTURAL FILL TO ACHIEVE THE DESIGN BEARING PRESSURES.
- 2.8 PLACE BACKFILL SIMULTANEOUSLY ON BOTH SIDES OF WALLS, GRADE BEAMS AND BURIED STRUCTURES TO AVOID UNBALANCED LOADING.
- 2.9 BLINDING CONCRETE UNDER FLOOR SLAB:
-MINIMUM OF 100mm THICK LAYER OF BLINDING CONCRETE SHALL BE PLACED BELOW FLOOR SLAB.
- 2.10 DO NOT INCREASE THE HEIGHT OF COLUMNS, PIERS OR WALLS WITHOUT WRITTEN APPROVAL FROM THE ENGINEER.
- 2.11 BASE PREPARATION:
-THE BASE OF EXCAVATIONS SHALL BE RECOMPACTED AND CLEARED OF LOOSE MATERIAL BEFORE PLACING CONCRETE. A LOOSE MAT OF LEAN CONCRETE SHOULD BE USED IF THE EXCAVATIONS ARE LEFT OPEN FOR ANY CONSIDERABLE LENGTH OF TIME.
-COMPACT THE BASE OF THE EXCAVATION TO 95% OF MODIFIED PROCTOR MAXIMUM DRY DENSITY AT OPTIMUM MOISTURE CONTENT OR AS PER GEOTECHNICAL ENGINEER'S RECOMMENDATION WHICHEVER IS PREVALENT.
-SOFTENED OR DETERIORATED SUBSOIL SHALL BE REMOVED AND REPLACED BY LEAN CONCRETE MIX OR COMPACTED STRUCTURAL FILL, AS DIRECTED BY THE ENGINEER.
- 2.12 STRUCTURAL BACKFILL & BACKFILL UNDER GRADE SLAB:
-BACKFILL SHALL BE DONE AS PER GEOTECHNICAL ENGINEER'S RECOMMENDATION

3.0 CONCRETE MATERIALS

- 3.1 CEMENT SHALL BE TYPE I OR TYPE II CONFORMING TO ASTM C150 OR GB 175.
- 3.2 MAXIMUM AGGREGATE SIZE TO BE 25mm.
- 3.3 AIR ENTRAINMENT:
- | | |
|------------------------|--------------|
| SURFACE STRUCTURES | 5 1/2% ±1% |
| UNDERGROUND STRUCTURES | NOT REQUIRED |
- 3.4 MAXIMUM WATER TO CEMENTING MATERIALS RATIO BY MASS: 0.45
- 3.5 SLUMP AT POINT OF DISCHARGE:
- | | |
|----------|--|
| 50-100mm | PRIOR TO THE ADDITION OF ADMIXTURE |
| 200mm | MATRIX AFTER THE ADDITION OF ADMIXTURE |
- 3.6 UNLESS NOTED OTHERWISE ON THE DRAWINGS, CONCRETE SHALL HAVE A MINIMUM 28 DAYS STRENGTH AS FOLLOWS:
- | | |
|----------------------|--------------|
| LEAN MIX: | 10 MPa (C15) |
| STRUCTURAL CONCRETE: | 35 MPa (C40) |
- 3.7 NO CONCRETE ADDITIVES OF ANY DESCRIPTION SHALL BE USED WITHOUT THE PRIOR APPROVAL OF THE ENGINEER.
- 3.8 ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE FOLLOWING AMERICAN CONCRETE INSTITUTE (ACI) STANDARDS OR CHINESE NATIONAL STANDARDS (GB):
- ACI 301-SPECIFICATIONS FOR STRUCTURAL CONCRETE
 - ACI 315-DETAILS AND DETAILING OF CONCRETE REINFORCEMENT
 - ACI 318-BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE
 - GB 50204-CODE FOR ACCEPTANCE OF CONSTRUCTIONAL QUALITY OF CONCRETE STRUCTURES
- 3.9 INSTALLATION OF CONCRETE ACCESSORIES SHALL STRICTLY ADHERE TO MANUFACTURER'S RECOMMENDATIONS AND PROCEDURES.

4.0 CONCRETE ACCESSORIES

- 4.1 ANCHOR RODS: SEE REFERENCE DRAWING 1.
- 4.2 ADHESIVE ANCHORS SHALL BE 'HILTI HIT HY-150' SYSTEM WITH HAS-E STANDARD THREAD RODS OR APPROVED EQUIVALENT.
- 4.3 EMBEDDED WIDE FLANGE SHAPES SHALL CONFORM TO ASTM A992 (345 MPa) OR GB/T 1591 Q345. HOLLOW STRUCTURAL STEEL SHALL CONFORM TO ASTM A500, GRADE B OR APPROVED EQUIVALENT
- STRUCTURAL PIPING SHALL CONFORM TO ASTM A53, GRADE B OR APPROVED EQUIVALENT
- ALL OTHER EMBEDDED STRUCTURAL STEEL SHALL CONFORM TO ASTM A36 (250 MPa) OR GB/T 700 Q235.
- 4.4 END-WELDED STUD ANCHORS SHALL CONFORM TO ASTM A108 (NELSON STUD OR APPROVED EQUAL).
- 4.5 WHERE SPECIFIED ON THE DRAWINGS:
-STAINLESS STEEL PLATE SHALL COMPLY WITH ASTM A240, TYPE 316L OR APPROVED EQUAL.
-STAINLESS STEEL RODS FOR ANCHOR RODS SHALL COMPLY WITH ASTM A276, TYPE 316 OR APPROVED EQUAL.
- 4.6 PRE-FORMED JOINT FILLER SHALL BE BITUMINOUS IMPREGNATED FIBERBOARD, CONFORMING TO ASTM D984, OR ASPHALT IMPREGNATED CORK WITH ASPHALT SATURATED GLASS-FIBRE FELT LINERS CONFORMING TO ASTM D1751 OR APPROVED EQUAL.
- 4.7 JOINT SEALANT FOR CONCRETE WORK SHALL CONFORM TO ACI 504R OR APPROVED EQUAL.
- 4.8 WATERSTOP SHALL BE VOLCLAY WATERSTOP-RX OR APPROVED EQUAL, UNLESS NOTED OTHERWISE ON DRAWINGS.
- 4.9 INSTALLATION OF CONCRETE ACCESSORIES SHALL STRICTLY ADHERE TO MANUFACTURER'S RECOMMENDATIONS AND PROCEDURES.

5.0 CONCRETE CONSTRUCTION

- 5.1 PRIOR TO PLACING CONCRETE CONTRACTOR IS TO CONFIRM LOCATION & SIZES OF OPENINGS, ANCHOR BOLTS, ANCHOR RODS, ELECTRICAL GROUNDING, INSERTS, UNDERGROUND PIPING ETC.
- 5.2 ANCHOR RODS AND INSERTS SHALL BE LOCATED IN PLAN AND ELEVATION AS SPECIFIED IN NOTE '3.3' OF INSTALLATION OF ANCHOR ROD ASSEMBLIES NOTES, REFERENCE DRAWING 1.
- 5.3 WHERE CONCRETE IS TO BOND TO PREVIOUSLY HARDENED CONCRETE OR ROCK SURFACE, THOROUGHLY CLEAN AND ROUGHEN ALL SURFACES AND APPLY A CONCRETE BONDING AGENT.
- 5.4 PROVIDE STEEL TROWEL FINISH TO FLOOR IN CONTROL ROOMS, ELECTRICAL ROOMS, DRY PROCESS AREAS, WAREHOUSES AND UNDER FRP TANKS. PROVIDE NON-SLIP SWIRL FINISH TO PROCESS FLOORS THAT ARE FREQUENTLY WETTED WITH WATER UNLESS NOTED OTHERWISE ON DRAWINGS. PROVIDE BROOM FINISH TO EXTERIOR CONCRETE SLABS WITH SIGNIFICANT VEHICULAR OR PERSONNEL TRAFFIC. SLAB IN PROCESS AREAS THAT ARE FREQUENTLY WETTED OR FLOATED OR ARE SUBJECT TO SPILLAGE OF PROCESS MATERIALS, SURFACES TO RECEIVE CHEMICAL PROTECTION, ALL EQUIPMENT BASES, AND UNDER STEEL TANKS UNLESS NOTED OTHERWISE ON DRAWINGS.
- 5.5 PROVIDE A 20mm BY 20mm CHAMFER ON ALL EXPOSED CONCRETE EDGES.
- 5.6 POURING CONCRETE BELOW 5 DEGREES CENTIGRADE (COLD WEATHER CONCRETING) AND ABOVE 25 DEGREES CENTIGRADE (HOT WEATHER CONCRETING) SHALL CONFORM TO THE REQUIREMENTS OF ACI 301 OR GB/T 50204.
- 5.7 ALL GRADE SLABS SHALL HAVE CONTROL JOINTS LOCATED AT A MAXIMUM OF 6 METERS IN EACH DIRECTION UNLESS NOTED OTHERWISE ON THE DRAWINGS. SAW CUT THE JOINTS WITHIN 8 TO 24 HOURS AFTER CONCRETE PLACEMENT.
- 5.8 CONSTRUCTION JOINTS:
a) LOCATION OF CONSTRUCTION JOINTS, OTHER THAN INDICATED ON DRAWINGS, SHALL BE SUBMITTED TO ENGINEER FOR REVIEW AND ACCEPTANCE.
b) UNLESS NOTED OTHERWISE CONSTRUCTION JOINTS DETAILED WITHOUT A KEY TO HAVE A ROUGHENED SURFACE.
c) THE SPACING BETWEEN THE CONSTRUCTION JOINTS IN WALLS AND FOOTINGS SHALL NOT EXCEED 18m.
- 5.9 WHERE NOTED ON DRAWINGS, GRADE SLABS AND ELEVATED SLABS TO RECEIVE SIKA DURAG, NON-METALLIC SURFACE HARDENER TREATMENT (5kg/m² APPLICATION RATE) OR APPROVED EQUAL, TROWEL TO A COARSE, NON-SLIP SURFACE AS PER MANUFACTURER'S INSTRUCTIONS.

6.0 GROUTING

- 6.1 GROUTING BELOW STRUCTURAL COLUMNS AND BASE PLATES SHALL COMPLY WITH PROJECT NON-SHRINK GROUT SPECIFICATION 1000-15-CS-5006.

7.0 CONCRETE REINFORCEMENT

- 7.1 REINFORCEMENT SHALL BE DEFORMED BARS COMPLYING WITH ASTM A615 OR GB 1499.2, (400 MPa YIELD STRESS).
- 7.2 MINIMUM CONCRETE PROTECTION FOR REINFORCEMENT - CLEAR COVER:
a) FOR CONCRETE CAST AGAINST GROUND: 75mm
b) FOR FORMED CONCRETE SURFACES EXPOSED TO WEATHER OR IN CONTACT WITH BACKFILL MATERIAL:
#16 BARS OR SMALLER 40mm
#20 BARS OR LARGER 50mm
c) FOR FORMED CONCRETE SURFACES NOT EXPOSED TO BACKFILL:
SLABS AND WALLS (UNO ON DWGS) 40mm
BEAMS 40mm
d) FOR COLUMN TIES EVERYWHERE 40mm
e) FOR FORMED CONCRETE SURFACES IN CONTACT WITH WATER 75mm
- 7.3 MINIMUM LENGTH OF CLASS B LAP SPLICE FOR GRADE 400 REINFORCEMENT IN 35 MPa CONCRETE SHALL BE AS FOLLOWS:

SIZE	BOTTOM BARS (mm)	TOP BARS (mm)	THIS TABLE FOR:
#12	450	550	1. COLUMN OR BEAM MEMBERS WITH CONFINEMENT
#16	600	760	2. SLABS AND WALLS WITH REBAR SPACING NOT LESS THAN 3 TIMES REBAR DIAMETER.
#20	850	1110	3. UNCOATED REINFORCEMENT
#25	1120	1450	
#32	1470	1910	
#36	1910	2485	

TOP BARS ARE HORIZONTAL BARS SO PLACED THAT MORE THAN 300mm OF CONCRETE IS CAST IN THE MEMBER BELOW THE REINFORCING.

MINIMUM LENGTH OF SPLICE FOR REINFORCEMENT ACCORDING TO CHINESE REQUIREMENTS SHALL CONFORM TO GB 50010.

8.0 METAL DECK

- 8.1 METAL SHALL BE BHP 3W 1.2mm THICK STEEL DECK (3 SPAN MIN) UNLESS NOTED OTHERWISE ON DESIGN DRAWINGS OR APPROVED EQUIVALENT. UNDERSIDE (EXPOSED SIDE) OF STEEL DECK SHALL BE PAINTED AS PER STRUCTURAL STEEL PAINT SPECIFICATION 1000-15-CS-5003.
- 8.2 FASTEN THE DECK THROUGH LOW RIB TO ALL SUPPORTING STEEL WITH #19 PUDDLE WELDS. PROVIDE 4 TRANSVERSE WELDS PER DECK UNIT, PER SUPPORT, AND LONGITUDINAL WELDS AT 450mm CENTERS TO INTERMEDIATE AND PERIMETER SUPPORT MEMBERS PARALLEL TO DECK FLUTE. FASTEN METAL DECK UNITS TOGETHER WITH SIDE SPLS, BUTTON PUNCHED AT 500mm CENTERS.

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RED-LINE	
Print Name:	
Signature:	
Rev: 2R1	Date: 2020.01.02
PACKAGE: C-005A	
CONTRACTOR: Monadelphous	
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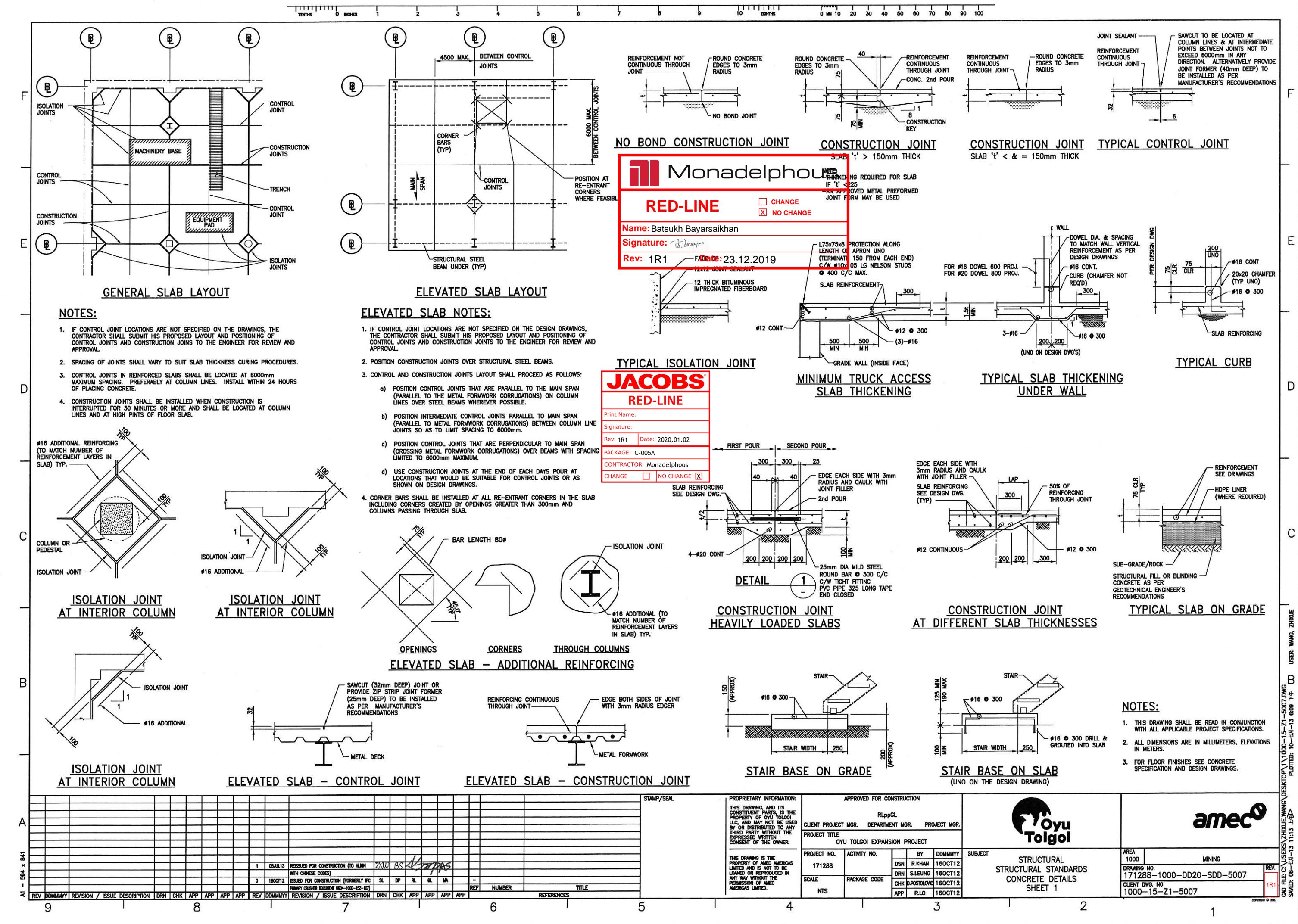
Monadelphous
RED-LINE
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Name: Batsukh Bayarsaikhan
Signature: 
Rev: 2R1 Date: 23.12.2019

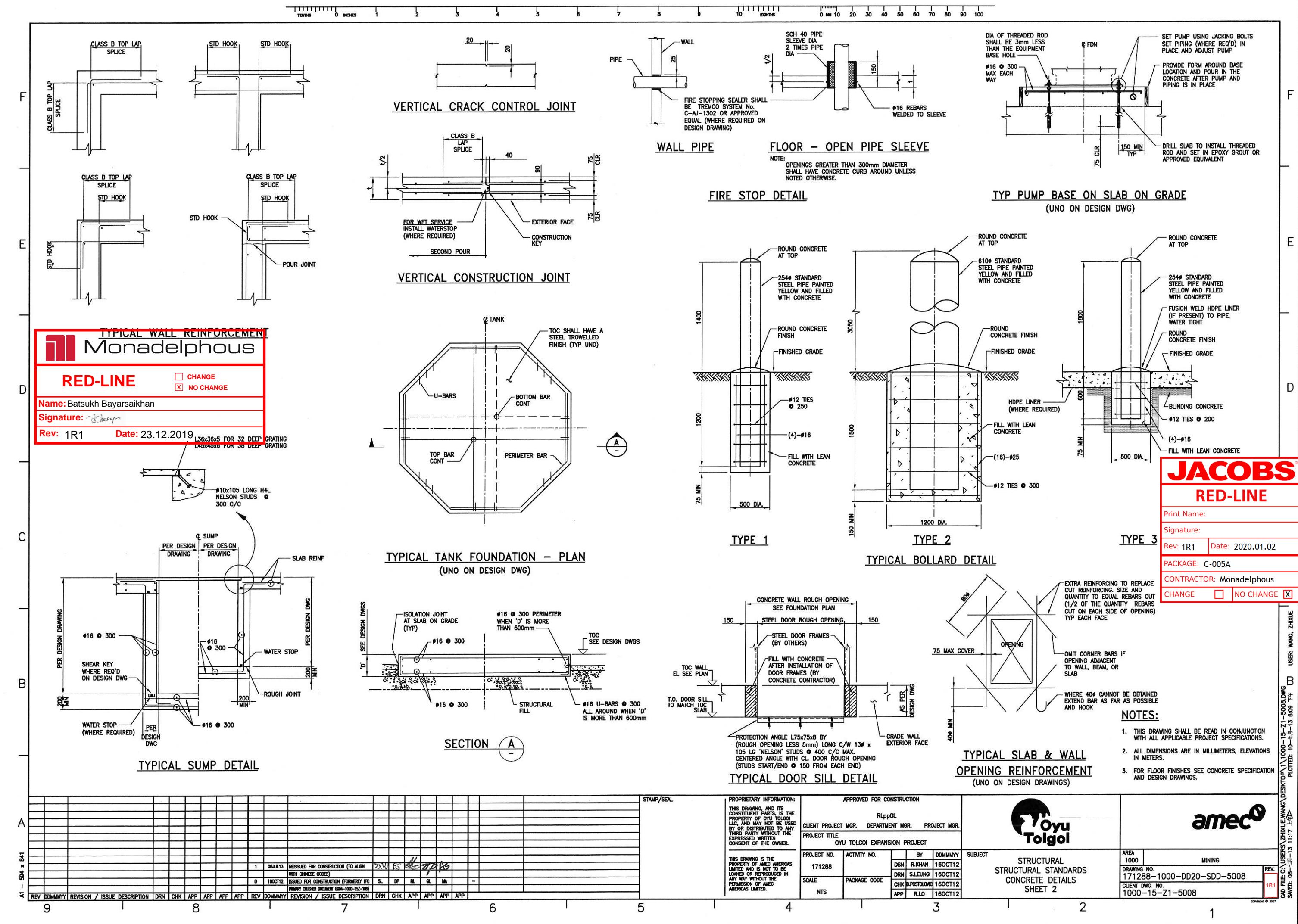
A1 - 564 x 841	2 05/11/13 ISSUED FOR CONSTRUCTION (TO ALIGN WITH CHINESE CODES)	ZKWL GS 
	1 28/11/13 REINFORCEMENT LAP LENGTHS REVISED	SL DP RL GL
	0 10/07/12 ISSUED FOR CONSTRUCTION (FORMERLY IFC)	SL DP RL GL MA
	REF NUMBER	TITLE
	REFERENCES	
REV DOMINANT	ISSUE DESCRIPTION	DRN CHK APP APP APP APP REV DOMINANT

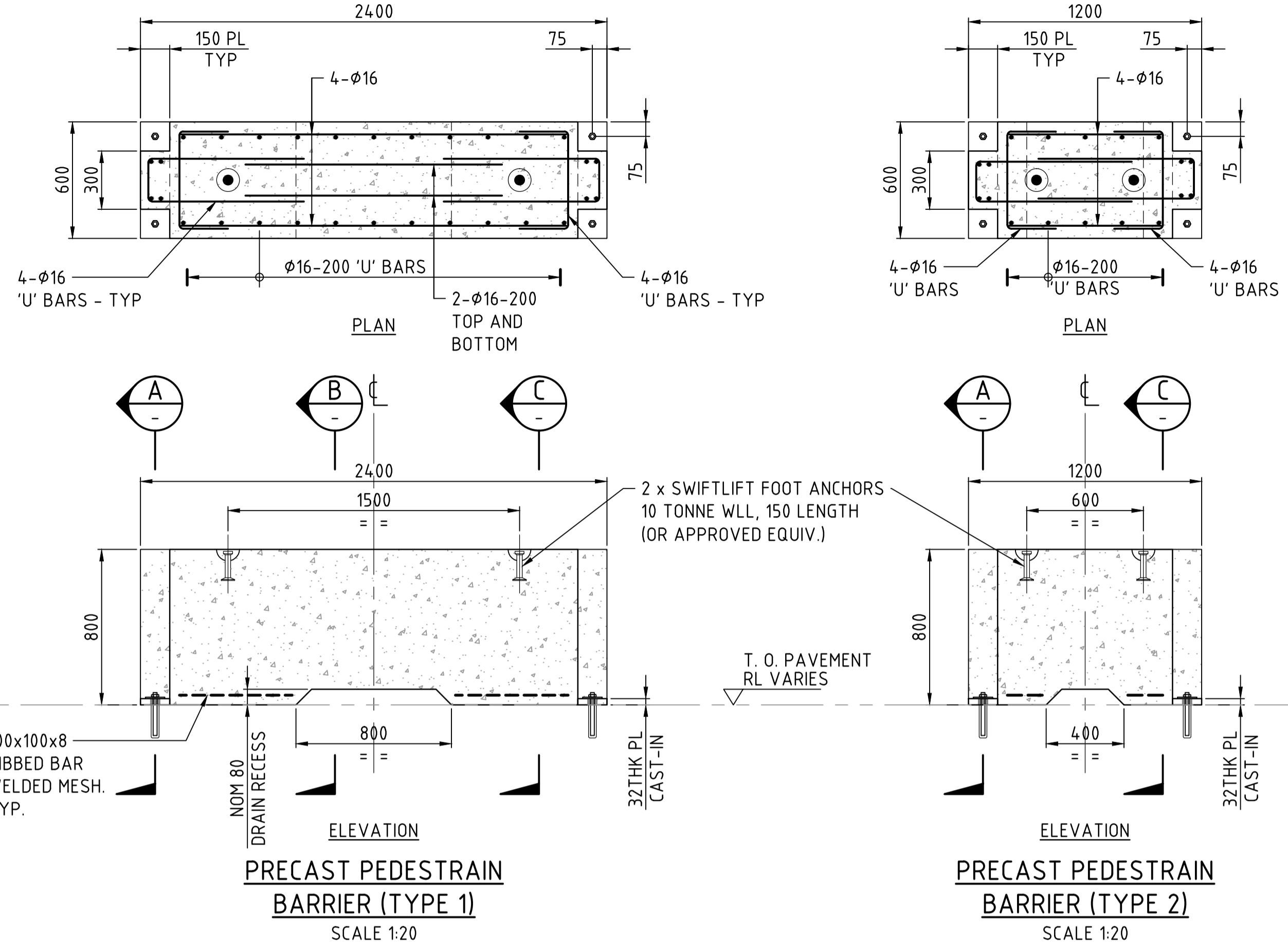
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PROJECT NO.	ACTIVITY NO.	BY DOMINANT
171288	DSN R.KHAN	16OCT12
SCALE	PACKAGE CODE	DRN S.LEUNG 16OCT12
NTS	CHK D.POSTOLOWICZ	16OCT12
	APP R.LO	16OCT12
AREA	MINING	
STRUCTURAL	STRUCTURAL STANDARDS	
STRUCTURAL STANDARDS	CONCRETE NOTES	



DRAWING NO.	171288-1000-DD20-SDD-5005
CLIENT DWG. NO.	1000-15-Z1-5005
REV.	2R1



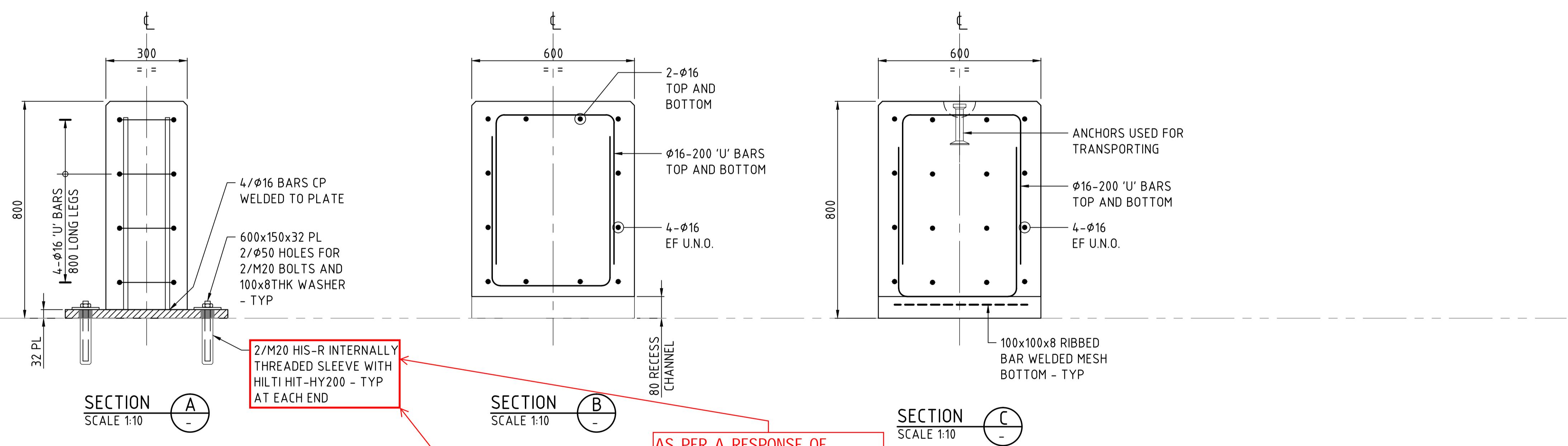
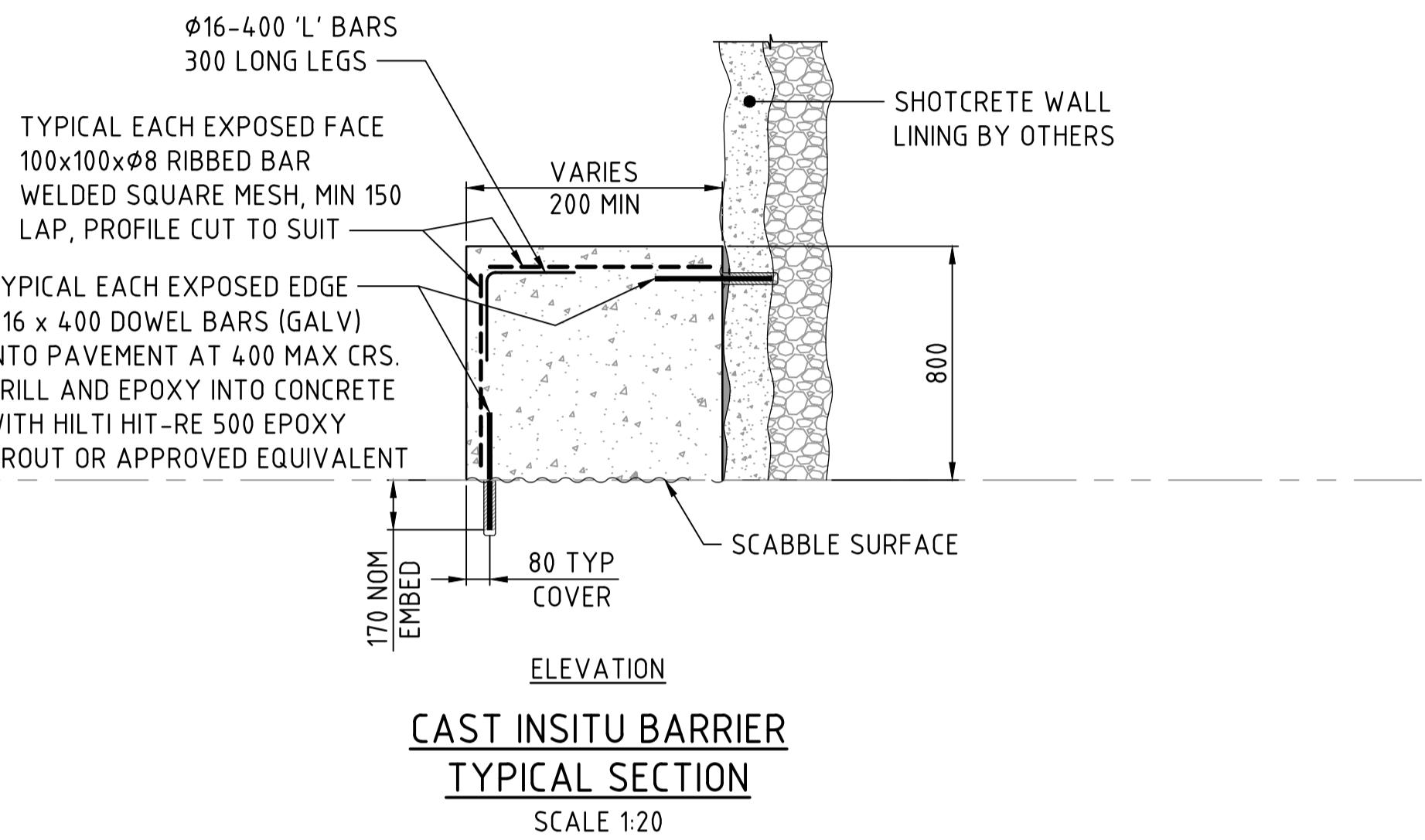




AS PER A RESPONSE OF CW2107475-A008-0343_R1-7, ALL PEDESTRIAN BARRIERS WERE PAINTED WITH SAFETY YELLOW (RAL 1021) STRIPED WITH BLACK.

MCS property
REDLINE / "AS-CONSTRUCTED"
Print name: MUNGUNKHUU BATDELGER
Signature: Mungunkhuu Batdelger 2020.01.17 16:43:07 +08'00'
Rev. OR1 Date: 2020.01.17
Package No: C-003B /CW2107475
Site instruction No: N/A
Change <input checked="" type="checkbox"/> No Change <input type="checkbox"/>

JACOBS
RED-LINE
Print Name:
Signature:
Rev. OR1 Date: 2020/01/18
PACKAGE: C-003B /CW2107475/
CONTRACTOR: MCS property
CHANGE <input checked="" type="checkbox"/> NO CHANGE <input type="checkbox"/>



AS PER A RESPONSE OF CW2107475-A010-0215_R1-7, HILTI HIT-V-F 8.8 HDG M20x130 WAS USED FOR SLEEVE INSTEAD OF ASTM A325 M20 BOLT.

AS PER A RESPONSE OF CW2107475-A010-0149_R1-7, M20 HIS-R INTERNALLY THREADED SLEEVE WAS SUBSTITUTED WITH M20x205 HIS-N SLEEVE.

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REV.	DATE	REVISION DESCRIPTION	DES. CHK	APPROVED	REV.	DATE	REVISION DESCRIPTION	CHK.	APPROVED	REFERENCE DRAWING No.	REFERENCE DRAWINGS	 Oyu Tolgoi LLC ОЮУ ТОЛГОЙ ХХК	PRODUCED BY P. SAFARI	DESIGNED BY D. HOGG	DRAWN BY D. HOGG
0	18.01.19	ISSUED FOR CONSTRUCTION	DH MS	PS BP						1165-15-R1-1105	GENERAL ARRANGEMENT - BUS STOP AREA	Oyu Tolgoi LLC ОЮУ ТОЛГОЙ ХХК	CHECK DESIGN M. STEVENSON	CHECK DRAWING P. JULIUS	
													CONTRACT NO	LEAD ENGINEER P. SAFARI	APPROVAL DATE 18.01.19
													DRAWING SIZE A1	AREA PROJECT ENGINEER B. POPOLIZIO	
													PLOT SCALE	PROJECT MANAGER	APPROVAL DATE 18.01.19
													CAD FILE NAME 1164-15-R1-1106.DWG	CLIENT	APPROVAL DATE ---
													SCALE AS SHOWN	DRAWING NUMBER 1164-15-R1-1106	REV OR1

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NOTES
1. FOR NOTES AND LEGEND REFER DRG 1164-15-R1-1100.
CONSTRUCTION ISSUE

STAMPING PAGE - REDLINES & BLUELINES

(1) CONTRACTOR STAMPS	<p>MCS property</p> <p>REDLINE / "AS-CONSTRUCTED"</p> <p>Print name: ODONCHIMEG BUKHBAATAR</p> <p>Signature:</p> <p>Rev. 1RL Date: 2020.09.25</p> <p>Package No: C003B /CW2107475/</p> <p>Site instruction No: N/A</p> <p>Change <input type="checkbox"/> No Change <input checked="" type="checkbox"/></p>							
(2) EMPC STAMPS - (FE/CONST.)	REV. 1RL	REV.						
	<p>JACOBS®</p> <p>RED-LINE</p> <p>CONSTRUCTION Date: 1</p> <p>Signature: 1</p> <p>Name: 1</p> <p>FIELD ENGINEER Date: 2</p> <p>Signature: 2</p> <p>Name: 2</p> <p>PACKAGE: C- 003B</p> <p>CONTRACTOR: MCSP</p> <p>CHANGE <input type="checkbox"/> NO CHANGE <input checked="" type="checkbox"/></p>							
(3) COMMISSIONING (STAMPS)	REV.	REV.	REV.	REV.	REV.	REV.	REV.	REV.

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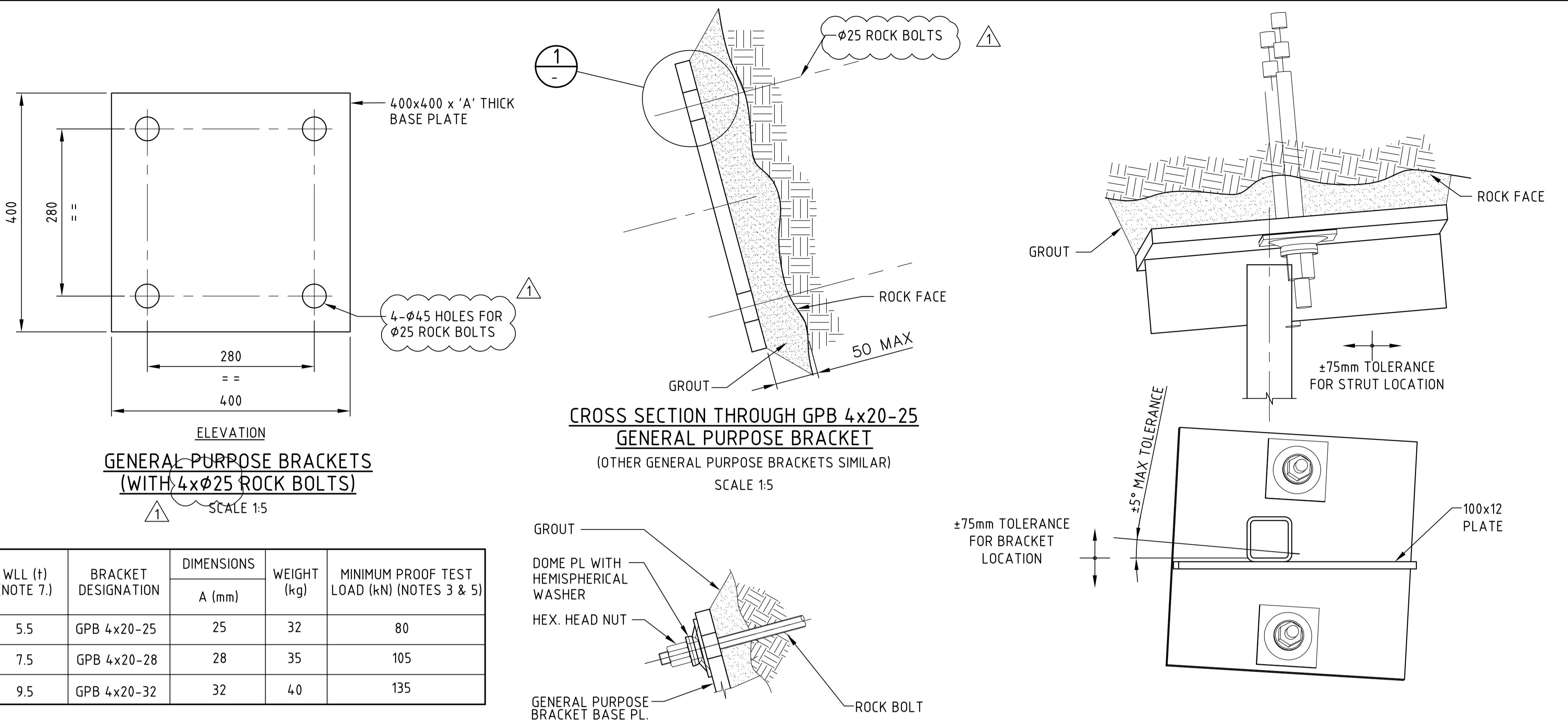
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NOTE 4: OT. DOC NUMBER MUST BE THE SAME NUMBER THAN THE DOCUMENT TO BE REDLINED (MANDATORY)

NOTE 5: FIELD ENGINEERING TEAM TO DEFINE REVISIONS ON EACH ON EACH BLOCK - SECTION (2)

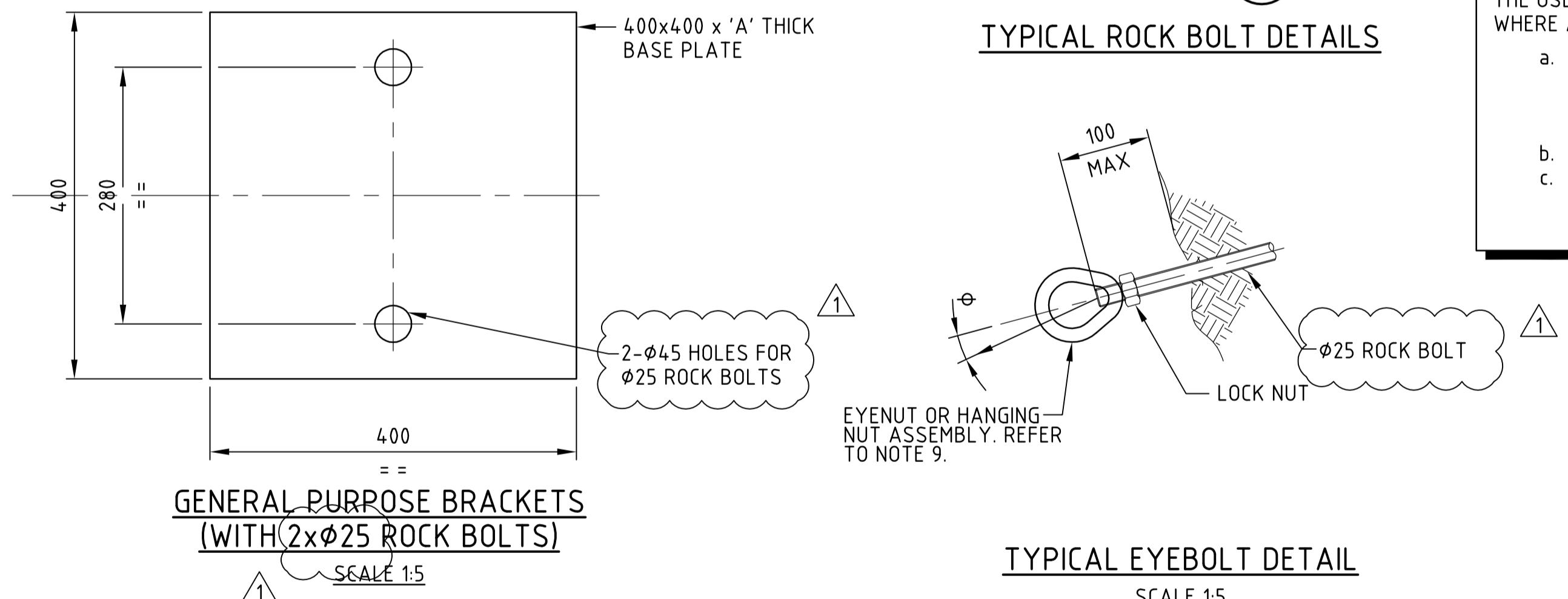
OT DOC. NUMBER 1800-15-S1-1203

FORM: 0000-01-FRM-1112_0



WLL (t) (NOTE 7.)	BRACKET DESIGNATION	DIMENSIONS	WEIGHT (kg)	MINIMUM PROOF TEST LOAD (kN) (NOTES 3 & 5)
		A (mm)		
5.5	GPB 4x20-25	25	32	80
7.5	GPB 4x20-28	28	35	105
9.5	GPB 4x20-32	32	40	135

WLL (t) (NOTE 7.)	BRACKET DESIGNATION	DIMENSIONS	WEIGHT (kg)	MINIMUM PROOF TEST LOAD (kN) (NOTES 3 & 5)
		A (mm)		
5.5	GPB 4x20-25	25	32	80
7.5	GPB 4x20-28	28	35	105
9.5	GPB 4x20-32	32	40	135



WLL (t) (NOTE 7.)	BRACKET DESIGNATION	DIMENSIONS	WEIGHT (kg)	MINIMUM PROOF TEST LOAD (kN) (NOTES 3 & 5)
		A (mm)		
2	GPB 2x20-16	16	20	60
3.5	GPB 2x20-20	20	25	100
4.5	GPB 2x20-25	25	32	145

WLL (t) (NOTE 7.)	BRACKET DESIGNATION	DIMENSIONS	WEIGHT (kg)	MINIMUM PROOF TEST LOAD (kN) (NOTES 3 & 5)
		A (mm)		
2	GPB 2x20-16	16	20	60
3.5	GPB 2x20-20	20	25	100
4.5	GPB 2x20-25	25	32	145



WLL (t) (NOTE 9.)	ϕ (DEGREES)	MINIMUM PROOF TEST LOAD (kN) (NOTES 3 & 5)
0.5	10	12
1	5	24

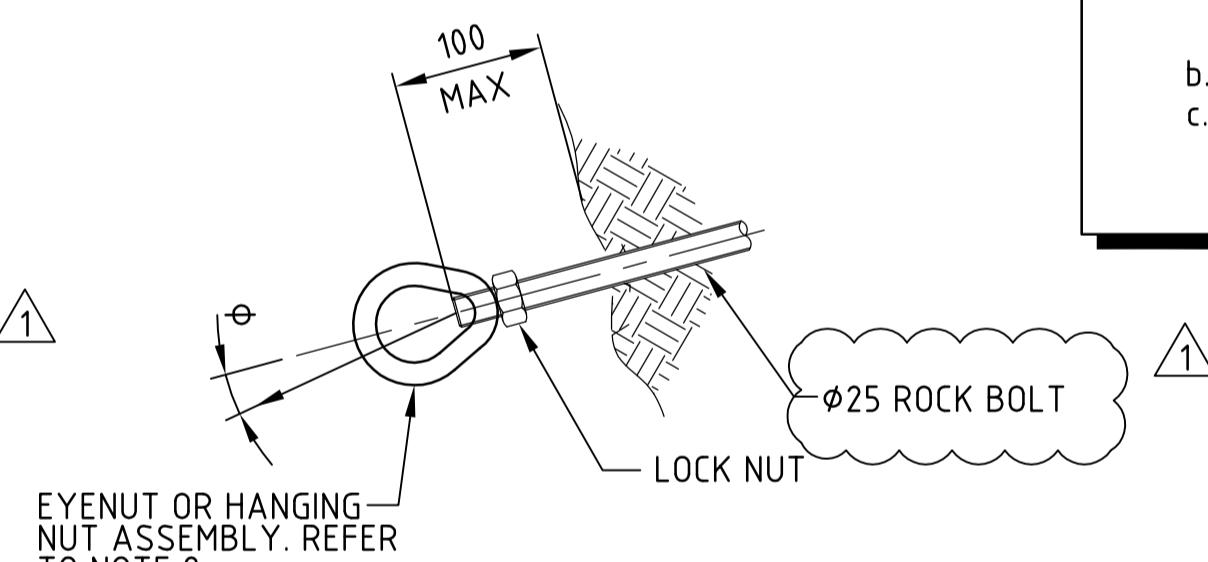
WLL (t) (NOTE 9.)	ϕ (DEGREES)	MINIMUM PROOF TEST LOAD (kN) (NOTES 3 & 5)
0.5	10	12
1	5	24

GENERAL PURPOSE BRACKET

TYPICAL APPLICATION

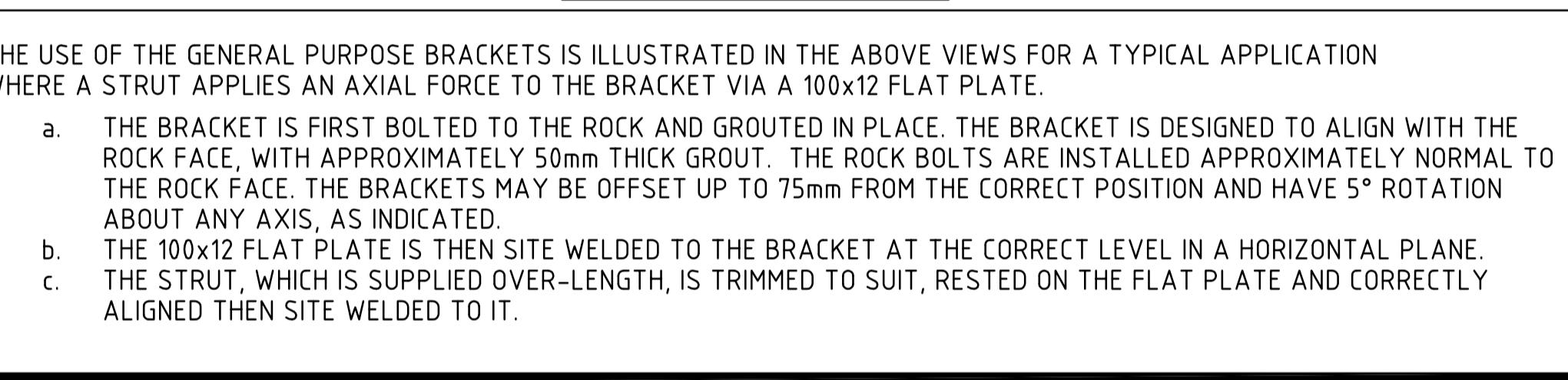
THE USE OF THE GENERAL PURPOSE BRACKETS IS ILLUSTRATED IN THE ABOVE VIEWS FOR A TYPICAL APPLICATION WHERE A STRUT APPLIES AN AXIAL FORCE TO THE BRACKET VIA A 100x12 FLAT PLATE.

- a. THE BRACKET IS FIRST BOLTED TO THE ROCK AND GROUTED IN PLACE. THE BRACKET IS DESIGNED TO ALIGN WITH THE ROCK FACE, WITH APPROXIMATELY 50mm THICK GROUT. THE ROCK BOLTS ARE INSTALLED APPROXIMATELY NORMAL TO THE ROCK FACE. THE BRACKETS MAY BE OFFSET UP TO 75mm FROM THE CORRECT POSITION AND HAVE 5° ROTATION ABOUT ANY AXIS, AS INDICATED.
 - b. THE 100x12 FLAT PLATE IS THEN SITE WELDED TO THE BRACKET AT THE CORRECT LEVEL IN A HORIZONTAL PLANE. THE STRUT, WHICH IS SUPPLIED OVER-LENGTH, IS TRIMMED TO SUIT, RESTED ON THE FLAT PLATE AND CORRECTLY ALIGNED THEN SITE WELDED TO IT.



DETAIL
SCALE 1:5





NOTES

- NOTES**

 1. 'WLL' DENOTES 'WORKING LOAD LIMIT'
 2. ALL STEELWORK, ROCK BOLTS, GROUT AND TESTING REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE GENERAL NOTES ON DRAWING 1800-15-S1-1201.
 3. 100% OF ROCK BOLTS SHALL BE INDIVIDUALLY PROOF TESTED TO THE NOMINATED TENSILE CAPACITY.
 4. ALL PLATES SHALL BE GB/T1591 Q235B OR ASTM A36 GRADE.
 5. SUPPORTS DESIGNED FOR CATEGORY 'A' LIFTING DEVICE AS PER ASME BTH-1 2014 WITH LOAD FACTOR OF 2.4 AND FOR TOLERANCES PROVIDED.
 6. SUPPORTS ARE DESIGNED FOR UP TO 10,000 LOAD APPLICATION CYCLES OVER DESIGN LIFE AS PER AISC 360-10.
 7. WLL TO BE BEAD WELDED ONTO OUTSIDE FACE OF PLATE IN 25mm HIGH LETTERS.
 8. WEIGHT OF BRACKET EXCLUDES ROCK BOLTS.
 9. EYE NUT OR HANGING NUT ASSEMBLY SHALL BE RATED FOR THE NOMINATED WLL AS A MINIMUM

CONSTRUCTION ISSUE



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SCALE 1:5

A scale bar representing 500 millimeters. It features a horizontal line with tick marks. Major numerical labels are placed above the line at 0, 100, 200, 300, 400, and 500. Between each major label, there are five smaller tick marks, indicating increments of 10 units (10 mm). The first two tick marks are explicitly labeled with the values 100 and 50 respectively below the line.

JACOBS

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Singapore, 048623 (the offshore Contractor)

STAMPING PAGE - REDLINES & BLUELINES

(1) CONTRACTOR STAMPS	<p>MCS property</p> <p>REDLINE / "AS-CONSTRUCTED"</p> <p>Print name: MUNGUNKHUU BATDELGER</p> <p>Signature:</p> <p>Rev. 2RL Date: 2020.09.08</p> <p>Package No: C-005D /CW2104151/</p> <p>Site instruction No: N/A</p> <p>Change <input type="checkbox"/> No Change <input checked="" type="checkbox"/></p>							
(2) EMPC STAMPS - (FE/CONST.)	REV. 2RL	REV.						
	<p>JACOBS®</p> <p>RED-LINE</p> <p>CONSTRUCTION Date: 1</p> <p>Signature: 1</p> <p>Name:</p> <p>FIELD ENGINEER Date: 2</p> <p>Signature: 2</p> <p>Name: 2</p> <p>PACKAGE: C-005D</p> <p>CONTRACTOR: MCS property</p> <p>CHANGE <input type="checkbox"/> NO CHANGE <input checked="" type="checkbox"/></p>							
(3) COMMISSIONING (STAMPS)	REV.	REV.	REV.	REV.	REV.	REV.	REV.	REV.

NOTE 1: START ADDING STAMPS - FROM LEFT TO RIGTH

NOTE 2: IN THE CASE THAT MORE SPACES FOR STAMPS ARE NEEDED, ADD AN ADDITIONAL STAMPING PAGE TO THE PDF

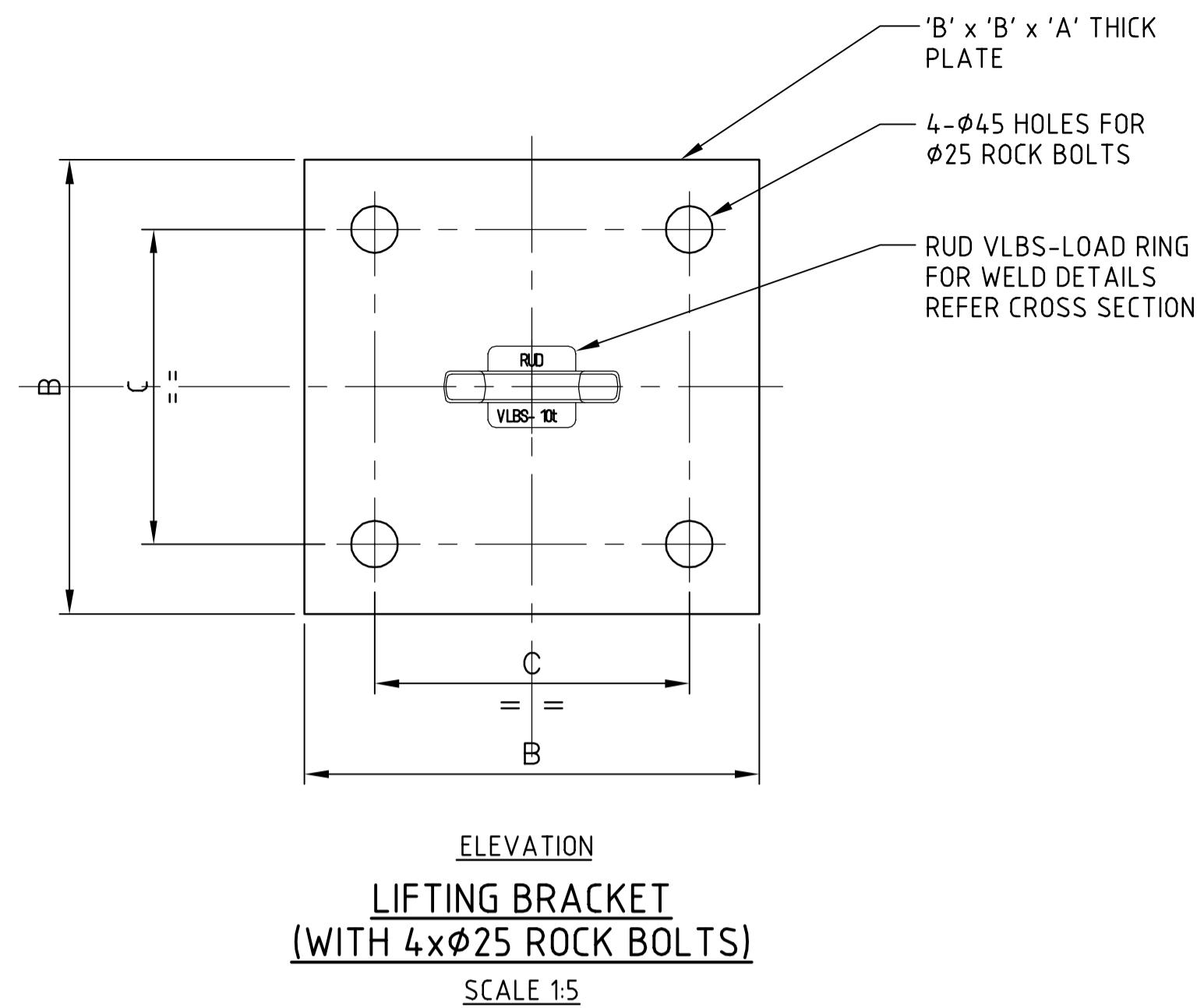
NOTE 3: STAMPING PAGE MUST BE FIRST PAGE OF THE DOCUMENT

NOTE 4: OT. DOC NUMBER MUST BE THE SAME NUMBER THAN THE DOCUMENT TO BE REDLINED (MANDATORY)

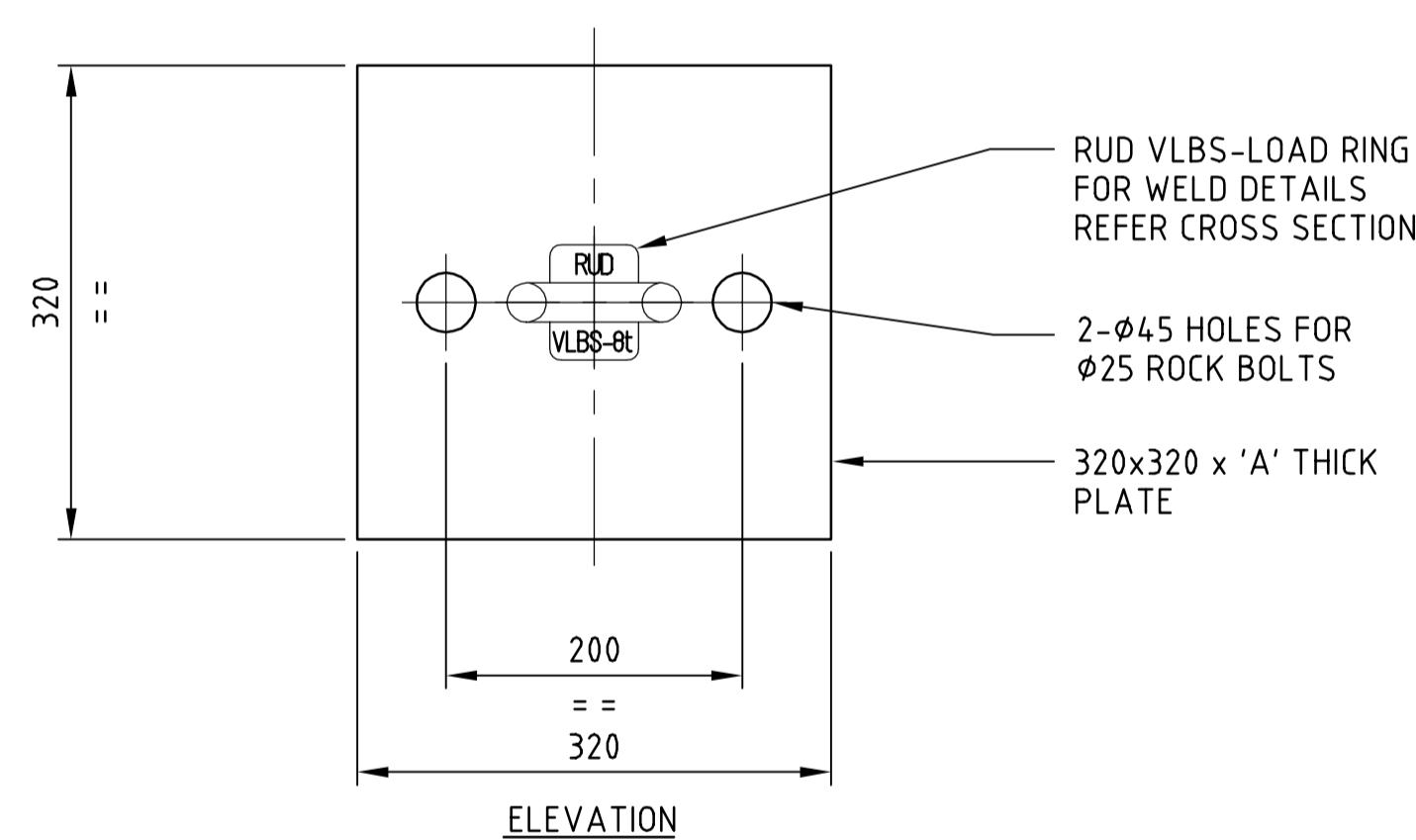
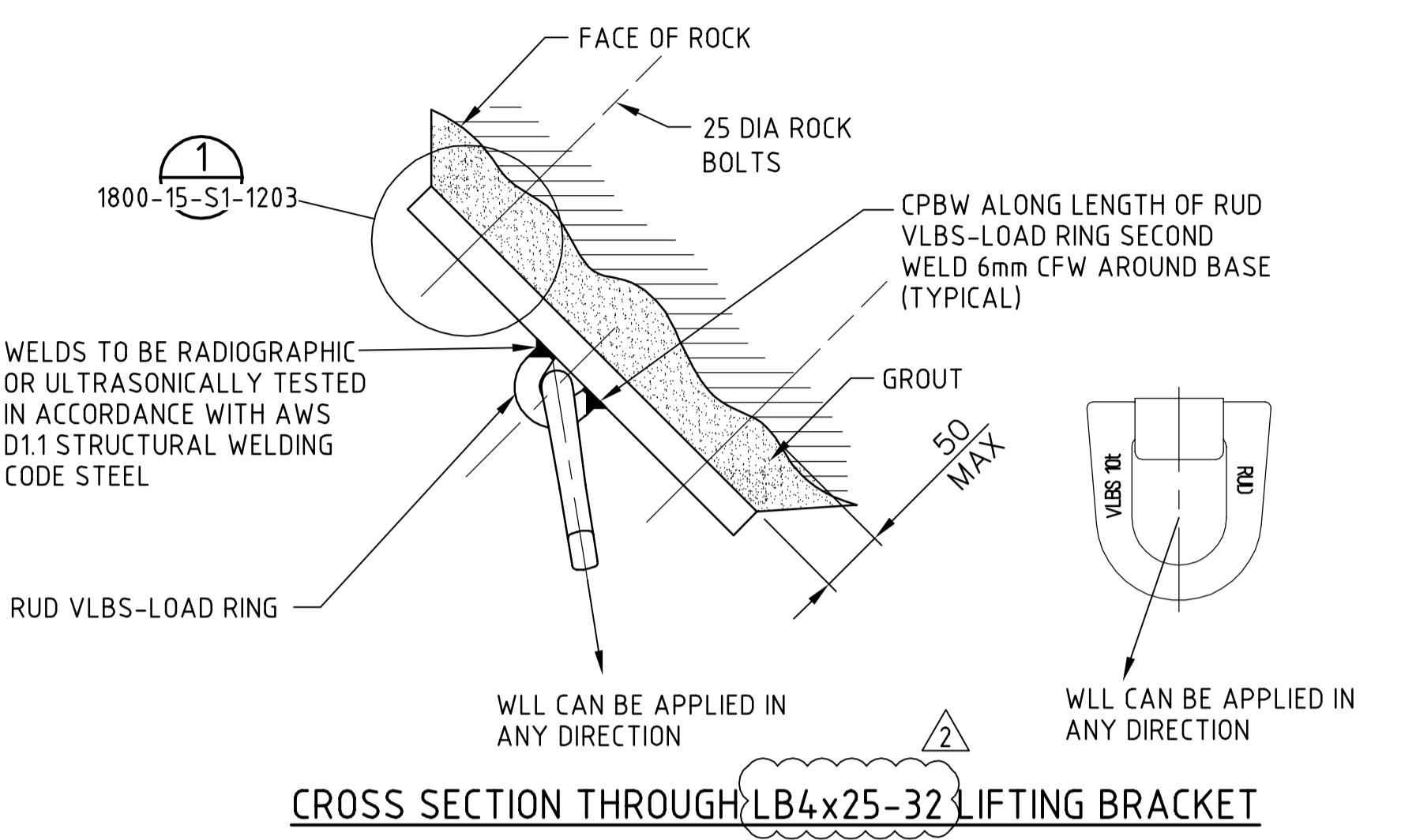
NOTE 5: FIELD ENGINEERING TEAM TO DEFINE REVISIONS ON EACH ON EACH BLOCK - SECTION (2)

OT DOC. NUMBER 1800-15-S1-1204

FORM: 0000-01-FRM-1112_0



WLL (t) (NOTE 3)	BRACKET DESIGNATION	RUD VLBS- LOAD RING WITHOUT SPRING	DIMENSIONS			WEIGHT (kg) (NOTE 8)	MINIMUM PROOF TEST LOAD (kN) (NOTES 4 & 6)
			A (mm)	B (mm)	C (mm)		
8	{ LB 4x25-28 }	VLBS -10	28	360	240	32	50
10	{ LB 4x25-32 }	VLBS -10	32	390	270	41	60
12	{ LB 4x25-35 }	VLBS -16	35	420	300	52	75



WLL (t) (NOTE 3)	BRACKET DESIGNATION	RUD VLBS- LOAD RING WITHOUT SPRING	DIMENSIONS	WEIGHT (kg) (NOTE 8)	MINIMUM PROOF TEST LOAD (kN) (NOTES 4 & 6)
			A (mm)		
3	LB 2x25-16	VLBS - 4	16	14	40
4.5	LB 2x25-20	VLBS - 6.7	20	18	55
6	LB 2x25-25	VLBS - 6.7	25	22	75

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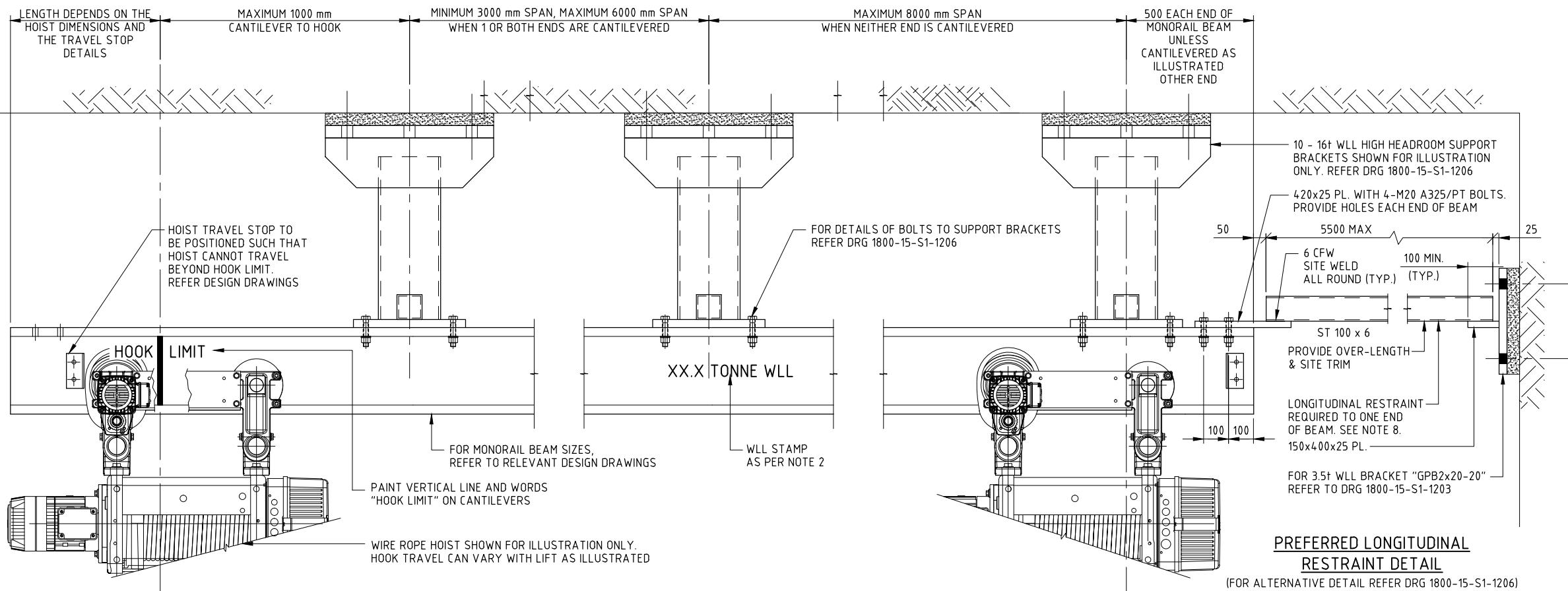
- ## NOTES

 1. 'WLL' DENOTES 'WORKING LOAD LIMIT'.
 2. ALL STEELWORK, ROCK BOLTS, GROUT AND TESTING REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE GENERAL NOTES ON DRAWING 1800-15-S1-1201.
 3. WLL TO BE BEAD WELDED ONTO TOP SIDE OF BASE PLATE IN 25mm HIGH LETTERS.
 4. 100% OF ROCK BOLTS SHALL BE INDIVIDUALLY PROOF TESTED TO THE NOMINATED TENSILE CAPACITY.
 5. ALL PLATES SHALL BE GB/T 1591 Q235B OR ASTM A36 GRADE.
 6. SUPPORTS DESIGNED FOR CATEGORY 'A' LIFTING DEVICE AS PER ASME BTH-1 2014 WITH LOAD FACTOR OF 2.4.
 7. SUPPORTS ARE DESIGNED FOR UP TO 10,000 LOAD APPLICATION CYCLES OVER DESIGN LIFE AS PER AISC 360-10.
 8. WEIGHT OF BASE PLATE INCLUDES ALL WELDED COMPONENTS BUT NOT ROCK BOLTS.
 9. 'CPBW' DENOTES 'COMPLETE PENETRATION BUTT WELD'
 10. 'CEW' DENOTES 'CONTINUOUS FILLET WELD'

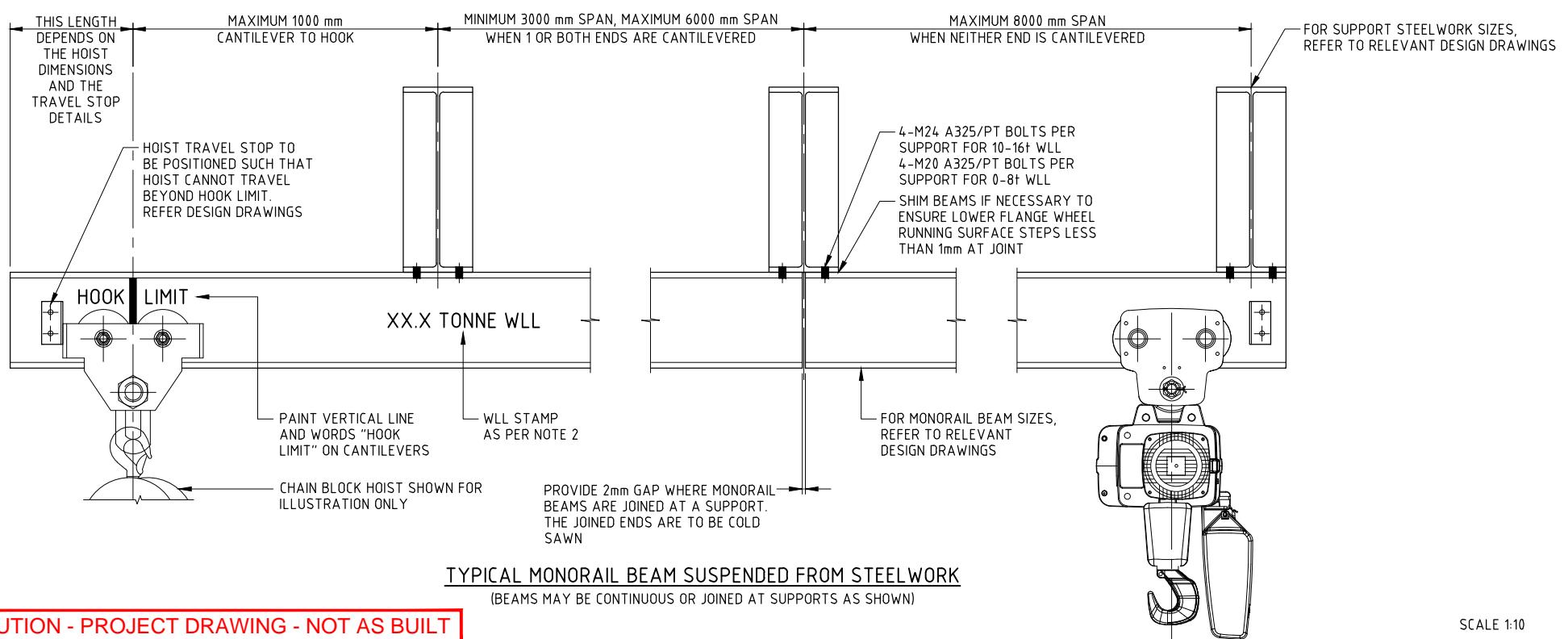
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<p>OYU TOLGOI UNDERGROUND PROJECT UNDERGROUND INFRASTRUCTURE AND MINING STRUCTURAL STANDARD DRAWING ROCK BOLTING DETAILS SHEET 2 OF 2</p>		
SCALE AS SHOWN	DRAWING NUMBER 1800-15-S1-1204	REV. 2RL



TYPICAL MONORAIL BEAM SUSPENDED FROM ROCK
(BEAMS SUPPORTED FROM ROCK BOLTED SUPPORT BRACKETS SHALL BE CONTINUOUS)



TYPICAL MONORAIL BEAM SUSPENDED FROM STEEL WORK
(BEAMS MAY BE CONTINUOUS OR JOINED AT SUPPORTS AS SHOWN)

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REV.	DATE	REVISION DESCRIPTION		DES. CHK.	APPROVED	REV.	DATE	REVISION DESCRIPTION		DES. CHK.	APPROVED	REFERENCE DRAWING NO.	REFERENCE DRAWINGS
0	08/02/17	ISSUED FOR CONSTRUCTION		SG	DR							1800-15-S1-1201	GENERAL NOTES
				JDL	BP							1800-15-S1-1203	ROCK BOLTING DETAILS SHEET 1 OF 2
												1800-15-S1-1206	MONORAIL BEAM SUPPORT BRACKET DETAILS SHEET 1 OF 2
												1800-15-S1-1207	MONORAIL BEAM SUPPORT BRACKET DETAILS SHEET 2 OF 2



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NOTES

1. ALL STEELWORK SHALL BE IN ACCORDANCE WITH THE GENERAL NOTES ON DRAWING 1800-15-S1-1201.
 2. MONORAIL BEAMS SHALL BE PAINTED YELLOW AND SHALL HAVE THE CAPACITY PAINTED ON BOTH SIDES OF THE WEB IN 150mm HIGH BLACK LETTERS.
 3. WHERE THE BEAM IS CANTILEVERED BEYOND THE END SUPPORT, A VERTICAL LINE IS TO BE PAINTED ON THE WEB 1000mm MAX. FROM THE CENTRELINE OF THE SUPPORT AND THE WORDS "HOOK LIMIT" PAINTED ON THE WEB AS SHOWN IN THE ELEVATION.
 4. BEAMS SUPPORTED FROM STRUCTURAL STEELWORK MAY BE CONTINUOUS OR JOINED AT THE SUPPORTS. BEAMS SUPPORTED FROM ROCK USING ROCK BOLTED BRACKETS SHALL BE CONTINUOUS. CONTINUOUS BEAMS MAY BE SPLICED USING COMPLETE PENETRATION FULL STRENGTH BUTT WELD LOCATED NEAR 1/4 SPAN POINTS. THE LOWER FLANGE WHEEL RUNNING SURFACES (TOP AND SIDES) ARE TO BE GROUND FLUSH.
 5. HOIST TRAVEL STOPS ARE REQUIRED BOTH ENDS. THE DESIGN OF THE STOP DEPENDS ON THE LOCATION AND DIMENSIONS OF ANY BUFFERS AND THE IMPACT FORCE FOR THE SELECTED HOIST. THEY MAY BE FIXED TO THE WEB OR TO THE UNDERSIDE OF THE FLANGE AS REQUIRED TO SUIT THE HOIST.
 6. CURVED MONORAIL BEAMS MAY BE MANUFACTURED BY FABRICATING THEM FROM GR 345B PLATE, BY COLD BENDING, OR BY INDUCTION BENDING.
 7. IT IS ASSUMED THAT THE NUMBER OF LIVE LOAD CYCLES IS LESS THAN 20,000. AS PER AISC 360-10, MONORAILS LOADED MORE FREQUENTLY SHALL HAVE THE DESIGN REVIEWED BY THE DESIGN ENGINEER.
 8. 1 OFF EITHER LONGITUDINAL RESTRAINT OR ALTERNATIVE LONGITUDINAL RESTRAINT REQUIRED FOR EACH MONORAIL BEAM SUSPENDED FROM ROCK. REFER DRG 1800-15-S1-1206 FOR ALTERNATIVE LONGITUDINAL RESTRAINT DETAIL.

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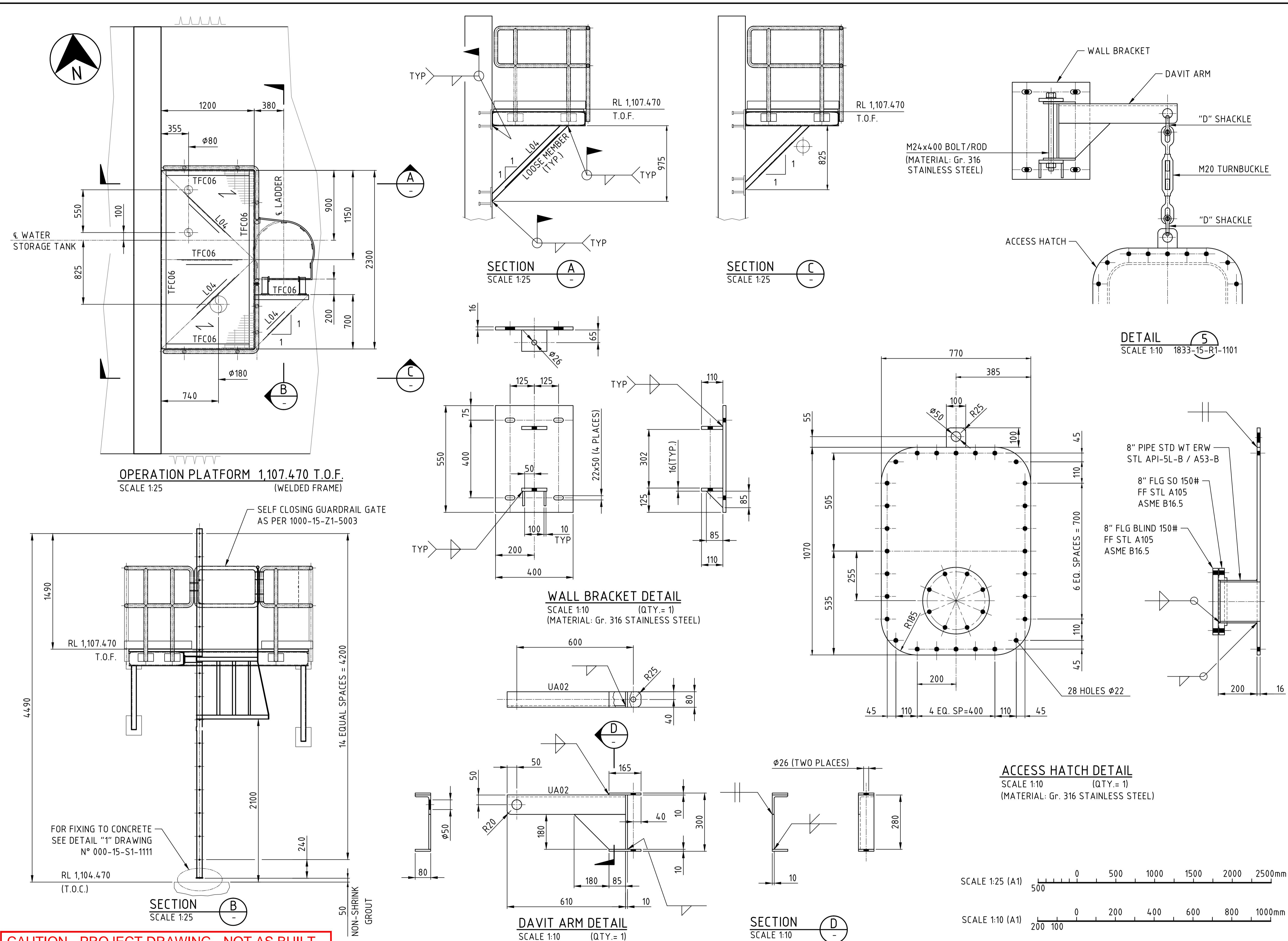
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100 200 300 400 500 600 700 800 900 1000

EFFECT

OYU TOLGOI UNDERGROUND PROJECT
UNDERGROUND INFRASTRUCTURE AND MINING
STRUCTURAL STANDARD DRAWING
MONORAIL BEAM DETAILS

SCALE	AS SHOWN	DRAWING NUMBER	1800-15-S1-1205	REV.
				0



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PRODUCED BY	DESIGNED BY I. PALMA	DRAWN BY R. SAGARDIA	OYU TOLGOI UNDERGROUND PROJECT UNDERGROUND CONVEYOR INCLINE INCLINE CONVEYORS – FIRE AND SERVICE WATER STEELWORK – PLAN AND SECTIONS
PROJECT NO SN1809	CHECK DESIGN E. GONZALEZ	CHECK DRAWING O. RIVERA	
CONTRACT NO	LEAD ENGINEER F. ALVAREZ	APPROVAL DATE	
DRAWING SIZE A1	AREA PROJECT ENGINEER	ENGINEERING MANAGER E. MARIN	
PLOT SCALE	PROJECT MANAGER	APPROVAL DATE	
CAD FILE NAME 1833-15-S1-1101.DWG	CLIENT	APPROVAL DATE	SCALE AS SHOWN
			DRAWING NUMBER 1833-15-S1-1101
			REV. 0