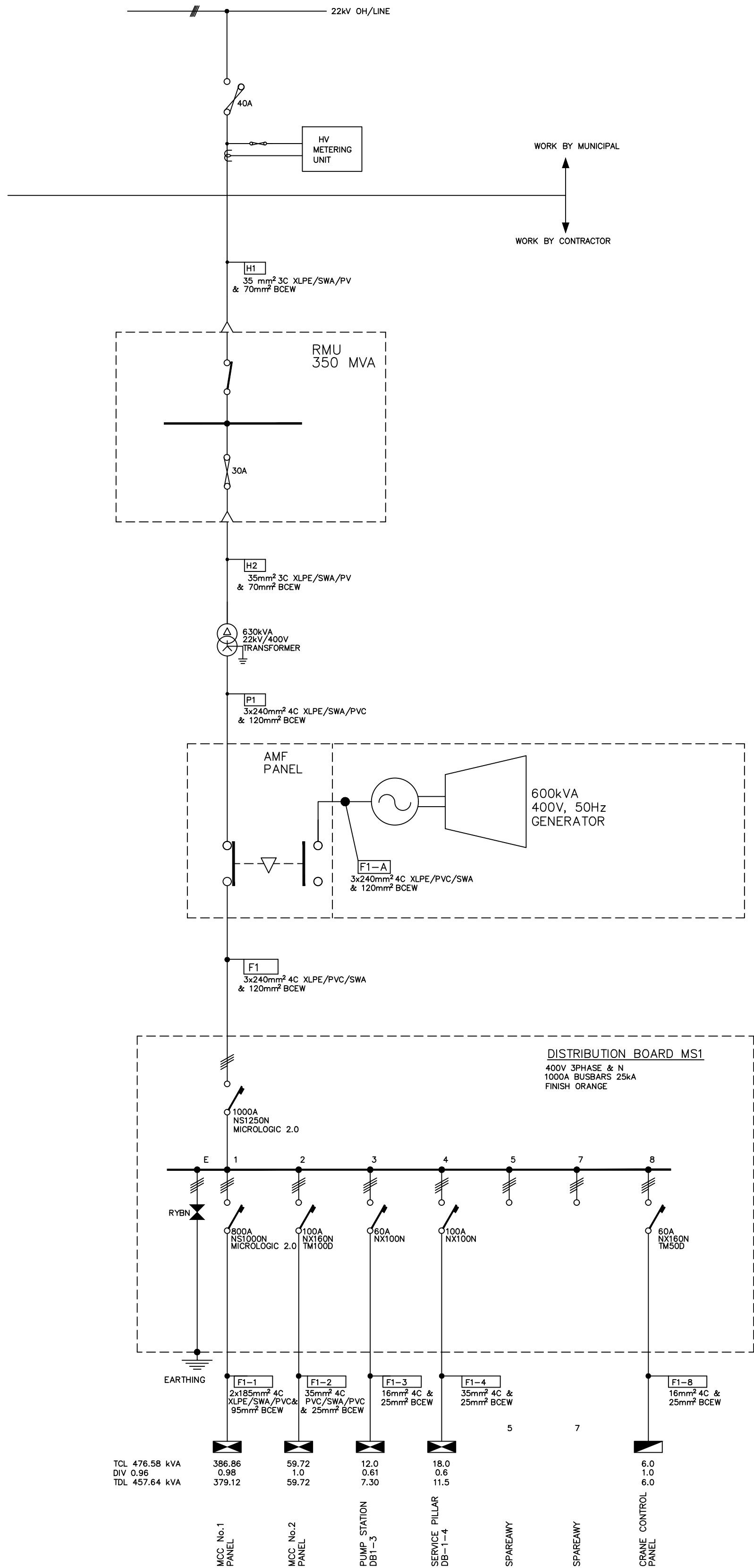
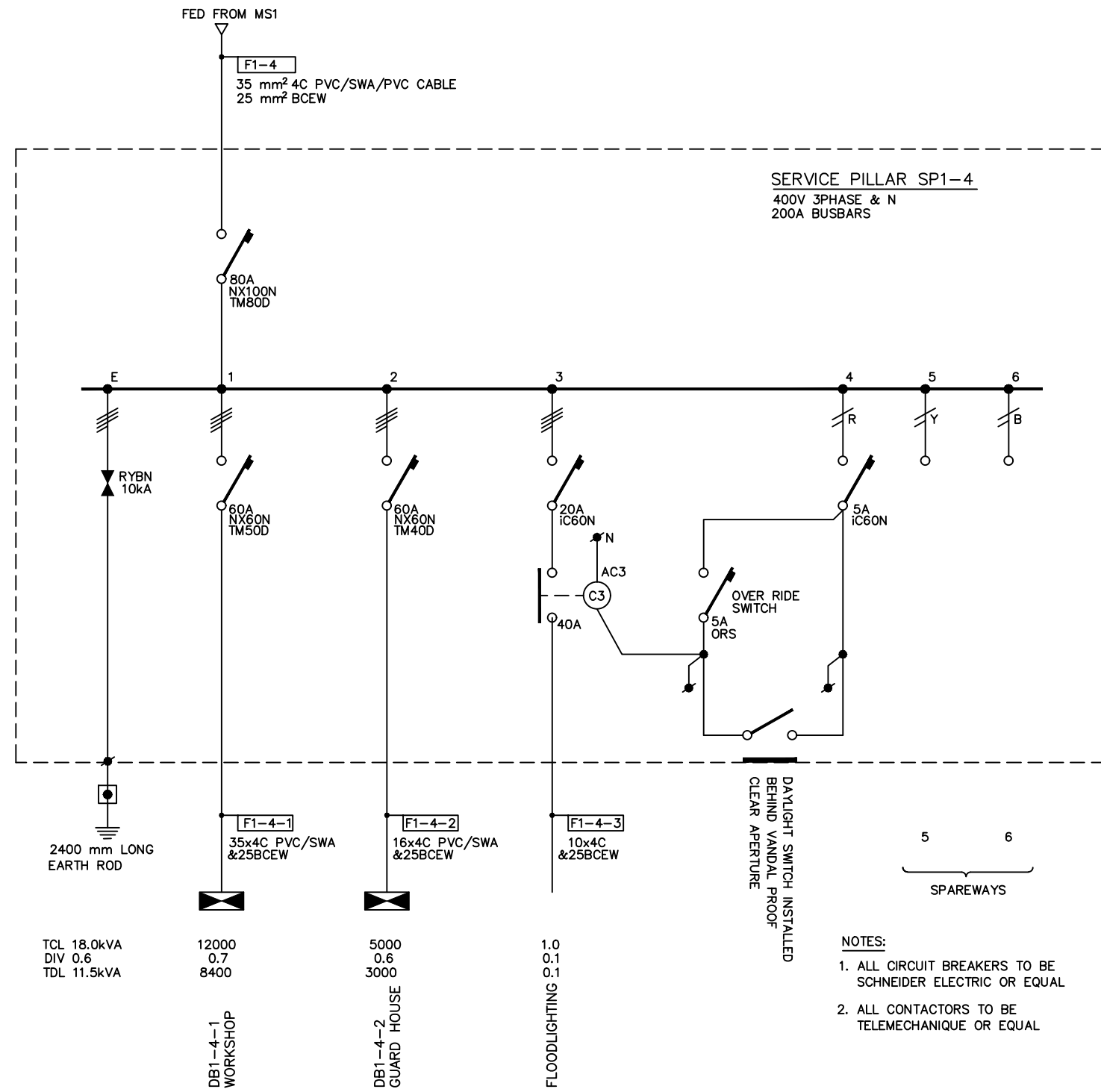
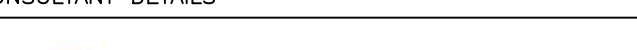

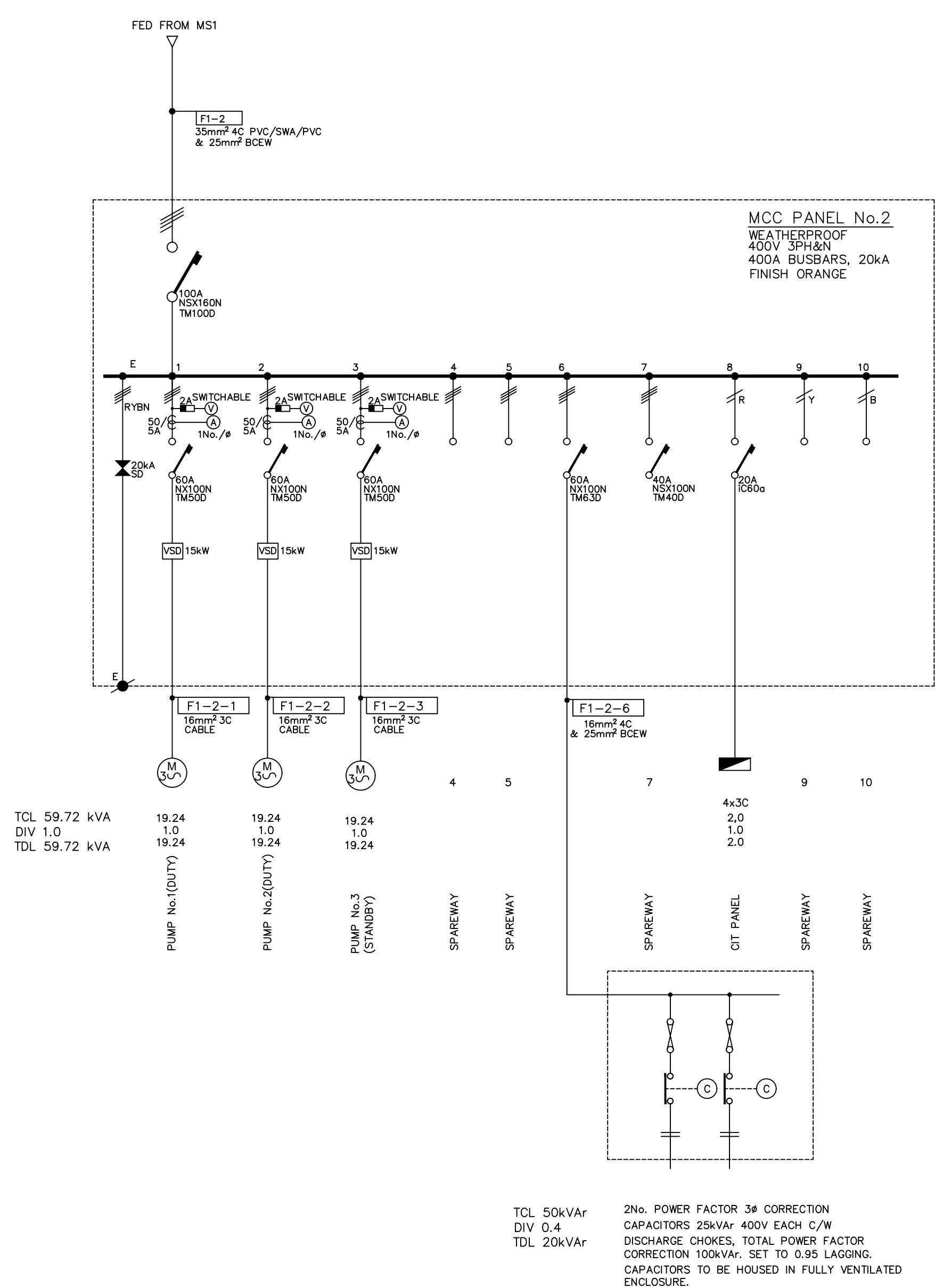


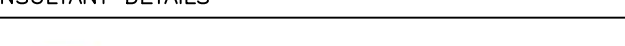
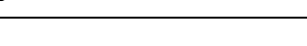
- NOTES
1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE SPECIFICATION AND ALL DRAWINGS LISTED THEREIN AND WITH THE ARCHITECTURAL, CIVIL AND STRUCTURAL CONTRACT DRAWINGS.
 2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SETTING OUT AND CHECKING ALL DIMENSIONS ON SITE.
 3. MAIN LV SWITCHBOARDS TO BE FREE STANDING FRONT ACCESS OF SHEET METAL CONSTRUCTION FOR MOUNTING INDOORS. CONTINUOUS EARTH BAR FULL LENGTH OF SWITCHBOARD TO BE PROVIDED.
 4. BOARD TO HAVE FINISH ORANGE TO BS381C.
 5. BOARD TO BE FITTED WITH VOLTMETER AND VOLTMETER SELECT SWITCH.
 6. SWITCHBOARD SHOP DRAWINGS TO BE SUBMITTED FOR APPROVAL PRIOR TO MANUFACTURE. SWITCHBOARD MANUFACTURER TO TAKE COGNIZANCE OF PROPOSED LOCATION OF BOARD AND ACCESS THERETO AND TO DESIGN ACCORDINGLY.
 7. TCL – TOTAL CONNECTED LOAD.
TDL – TOTAL DIVERSIFIED LOAD.
 8. ALL CIRCUIT BREAKERS TO BE SCHNEIDER ELECTRIC OR EQUAL AND APPROVED TO IEC947-2. THE CONTRACTOR SHALL NOTE THAT THE PROTECTION SCHEME HAS BEEN BASED ON DATA FOR MERLIN GERIN PRODUCTS.
 9. ALL CONTACTS AND RELAYS TO BE TELEMCHANIQUE OR EQUAL AND APPROVED.
 10. SURGE DIVERTORS TO BE FITTED ON ALL PHASES AND NEUTRAL.

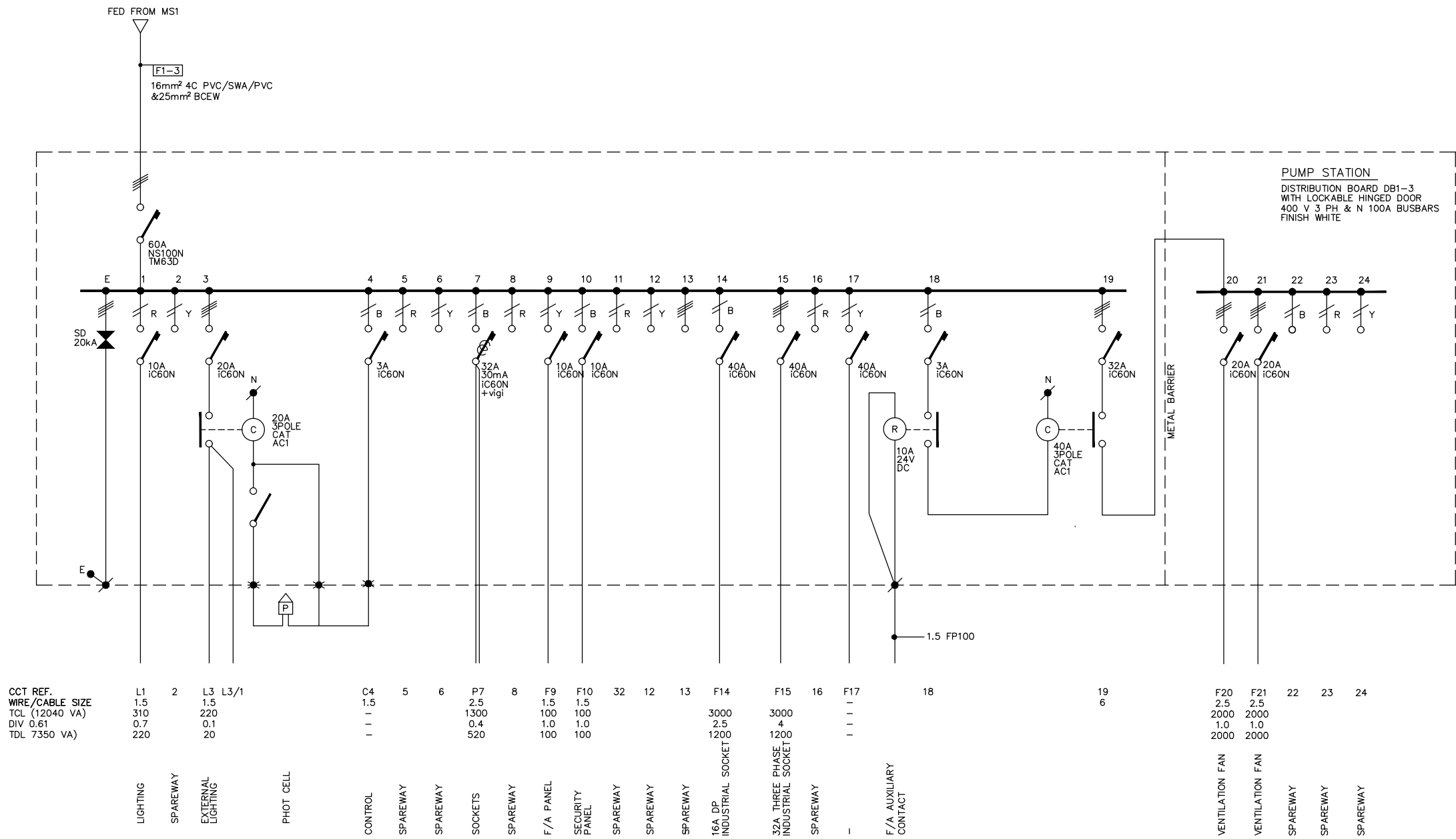
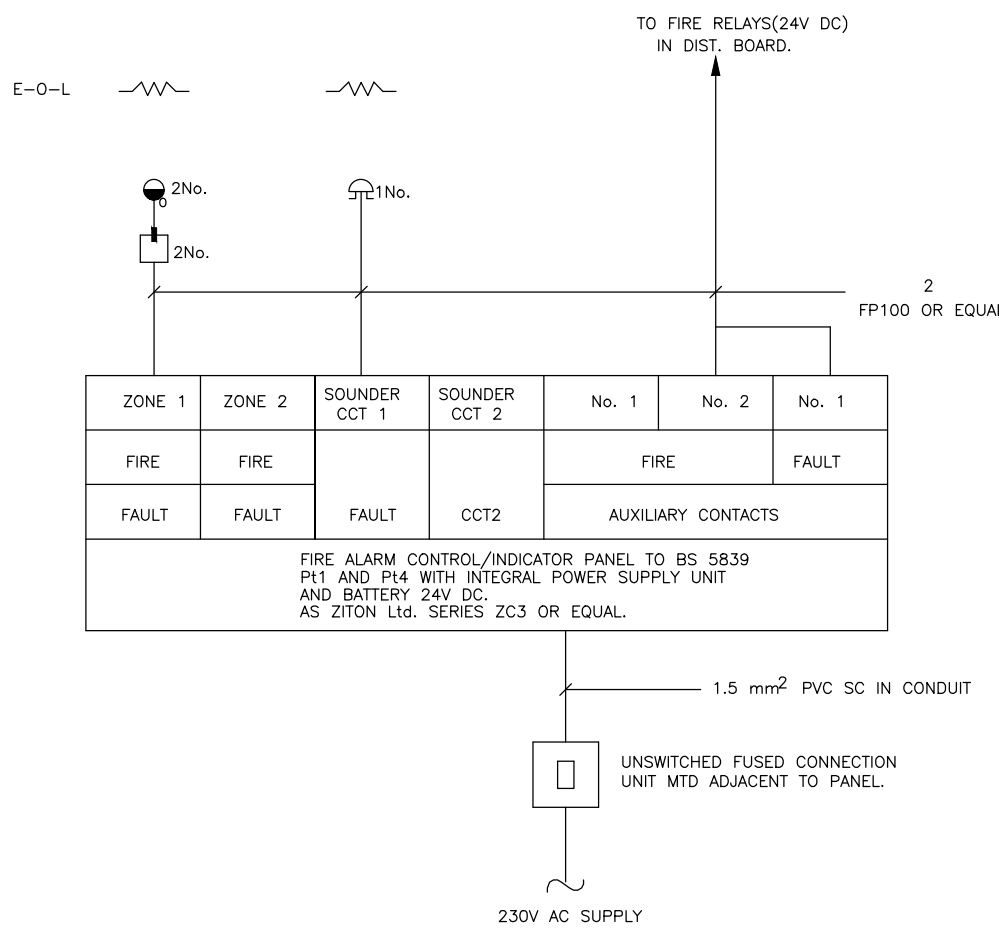
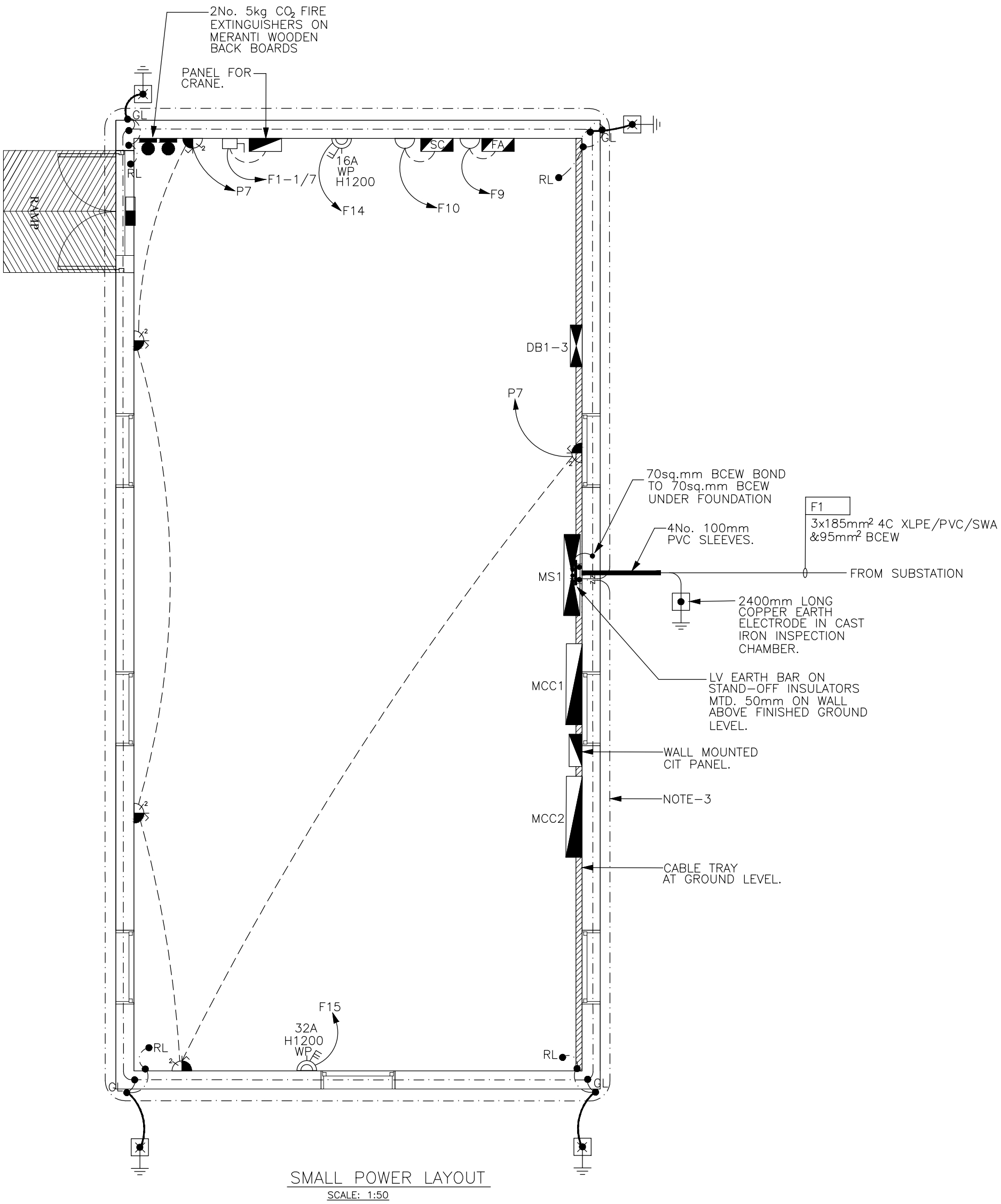
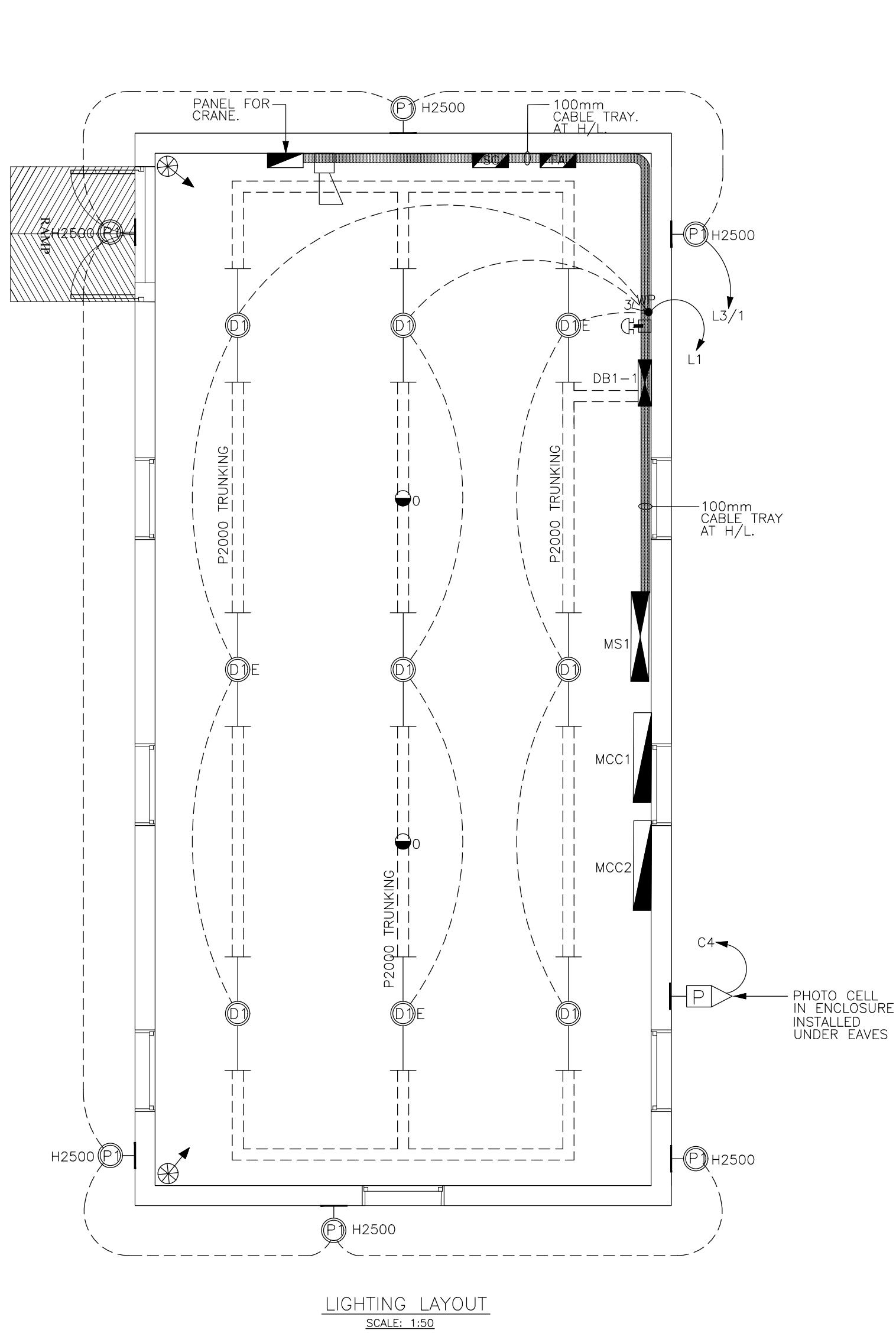


No.	AMENDMENTS	APPROVED	DATE	CONSULTANT DETAILS		DESIGNED	JPM	APPROVED	PROJECT		CLIENT DETAILS	SCALE	RECORD DRAWING				PRIVATE DRAWING No.	REVISION
				<div><div>Tel: 012 751 1168 Cell: 082 597 5054 mail: Masebenza@lefatsheinfra.co.za info@lefatsheinfra.co.za</div><div>WILLOW WOOD OFFICE PARK CNR 3RD AVENUE & CEDAR ROAD, BROADACRES</div></div>					DOORNPPOORT DAM BULK WATER SUPPLY					ON ORIGINAL A1 DRAWING	CERTIFIED RECORD DRAWING FOR CONTRACT : RECORD DRAWING _____ ENGINEER _____ DATE _____			
						DRAWN	JPM	NAME: SIGNATURE: DATE:	DRAWING DESCRIPTION			CONTRACT No.			CONTRACT DESCRIPTION	CERTIFIED	DATE	
						CHECKED	BADO		MAIN SINGLE LINE DIAGRAM									
						APPROVED	BADO											



- # NOTES
1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE SPECIFICATION AND ALL DRAWINGS LISTED THEREIN AND WITH THE ARCHITECTURAL, CIVIL AND STRUCTURAL CONSTRUCTION DRAWINGS.
 2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SETTING OUT AND CHECKING ALL DIMENSIONS ON SITE.
 3. MAIN LV SWITCHBOARDS TO BE FREE STANDING FRONT ACCESS OF SHEET METAL CONSTRUCTION FOR MOUNTING INDOORS. CONTINUOUS EARTH BAR FULL LENGTH OF SWITCHBOARD TO BE PROVIDED.
 4. BOARD TO HAVE FINISH ORANGE TO BS381C.
 5. BOARD TO BE FITTED WITH VOLTMEETER AND VOLTMEETER SELECT SWITCH.
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TDL = TOTAL DIVERSIFIED LOAD.
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 9. ALL CONTACTS AND RELAYS TO BE TELEMECHANIQUE OR EQUAL AND APPROVED.
 10. SURGE DIVERTORS TO BE FITTED ON ALL PHASES AND NEUTRAL.

No.	AMENDMENTS	APPROVED	DATE	CONSULTANT DETAILS		DESIGNED	JPM	APPROVED	PROJECT		CLIENT DETAILS		SCALE	RECORD DRAWING				
				<div><p>Tel: 012 751 1168 Cell: 082 597 5054 mail: Masebenza@lefatsheinfra.co.za info@lefatsheinfra.co.za</p><p>WILLOW WOOD OFFICE PARK CNR 3RD AVENUE & CEDAR ROAD, BROADACRES</p></div>	DRAWN	JPM	NAME:	DOORNPOORT DAM BULK WATER SUPPLY	DRAWING DESCRIPTION	MCC1 AND MCC2 SINGLE LINE DIAGRAMS		ON ORIGINAL A1 DRAWING		CONTRACT No.	CONTRACT DESCRIPTION	CERTIFIED	DATE	
					CHECKED	BADO	SIGNATURE:			CERTIFIED RECORD DRAWING FOR CONTRACT :				PRIVATE DRAWING No.	REVISION			
					APPROVED	BADO	DATE:			RECORD DRAWING _____ ENGINEER _____ DATE				PM01-E-004				

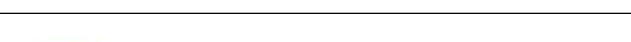



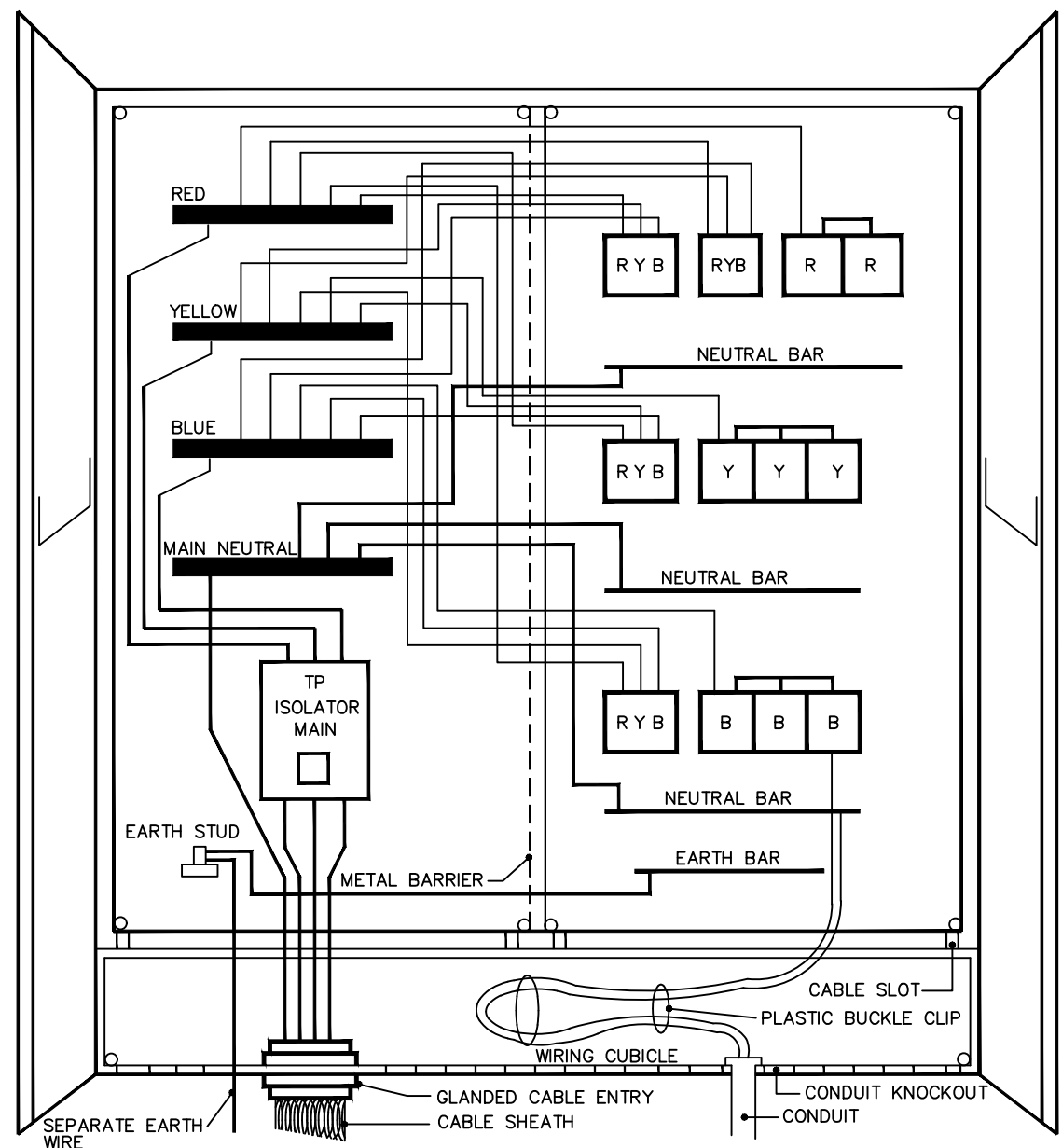
SCHEDULE OF LUMINAIRES	
D1	1x37W CORROSIVE PROOF LED LUMINAIRE
D1E	LUMINAIRE AS D1 BUT WITH EMERGENCY GEAR.
P1	34W WALL MOUNTED LED LUMINAIRE

- NOTES
1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE SPECIFICATION AND ALL DRAWINGS LISTED THEREIN AND WITH THE ARCHITECTURAL, CIVIL AND STRUCTURAL CONTRACT DRAWINGS.
 2. 2400mm LONG EARTH ELECTRODE C/W CAST IRON INSPECTION CHAMBER.
 3. 70mm² BCEW BURIED IN GROUND 600mm DEEP AND BONDED TO LIGHTNING PROTECTION SYSTEM AND EARTH BAR.

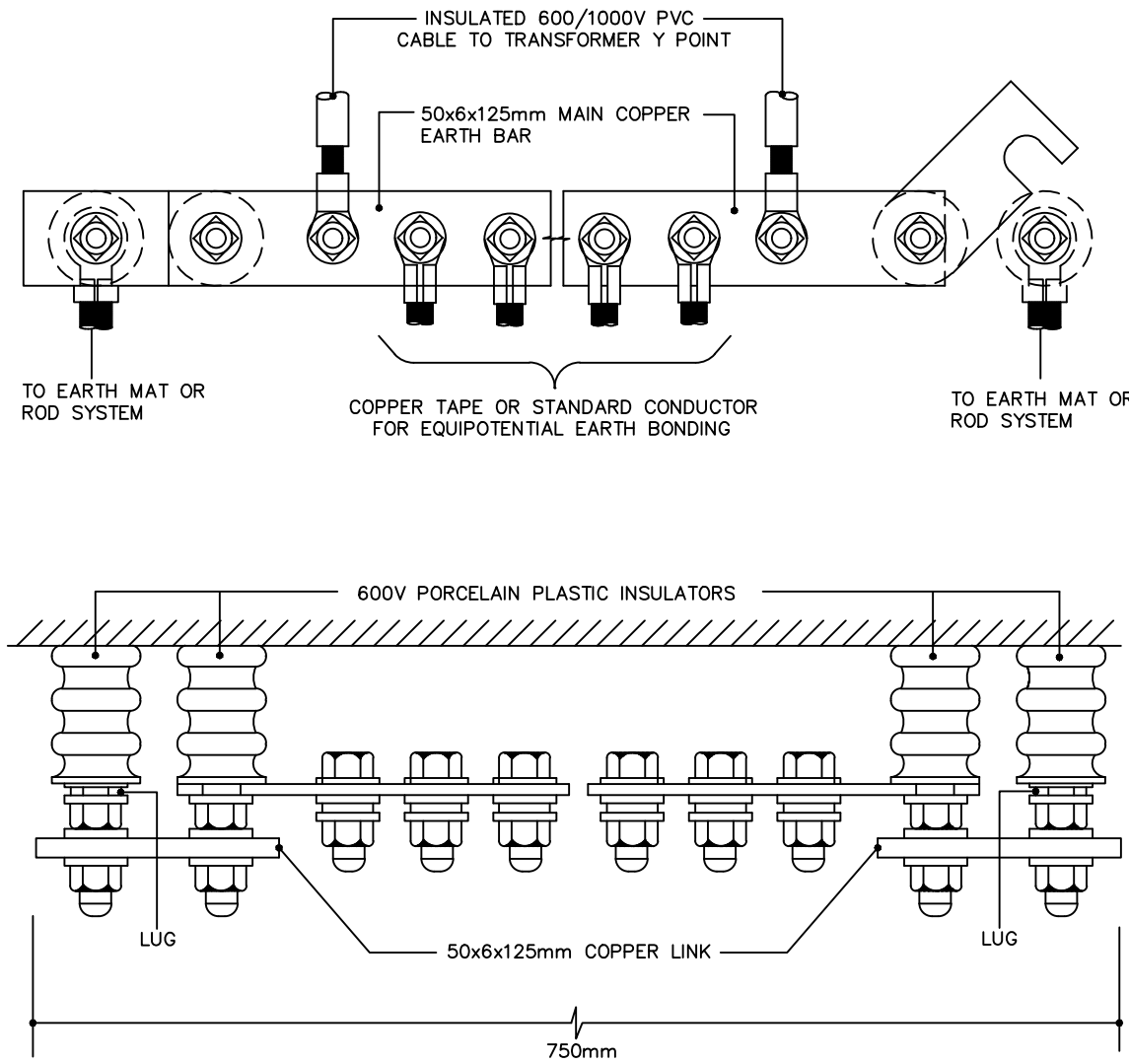
LEGEND OF SYMBOLS

- DISTRIBUTION BOARD
- CONTROL PANEL
- FIRE ALARM PANEL
- SECURITY ALARM PANEL
- 3 GANG 1 WAY SWITCH
- 16A TWIN SWITCH SOCKET OUTLET
- 16A DP INDUSTRIAL SOCKET
- 32A TP&N INDUSTRIAL SOCKET
- 13A FUSED CONNECTION UNIT
- 20A DP ISOLATOR
- PHOTO ELECTRIC CELL
- BREAK GLASS UNIT
- FIRE ALARM BELL
- SECURITY ALARM SOUNDER
- OPTICAL SMOKE DETECTOR
- PASSIVE INFRARED DETECTOR
- MAGNETIC DOOR CONTACT

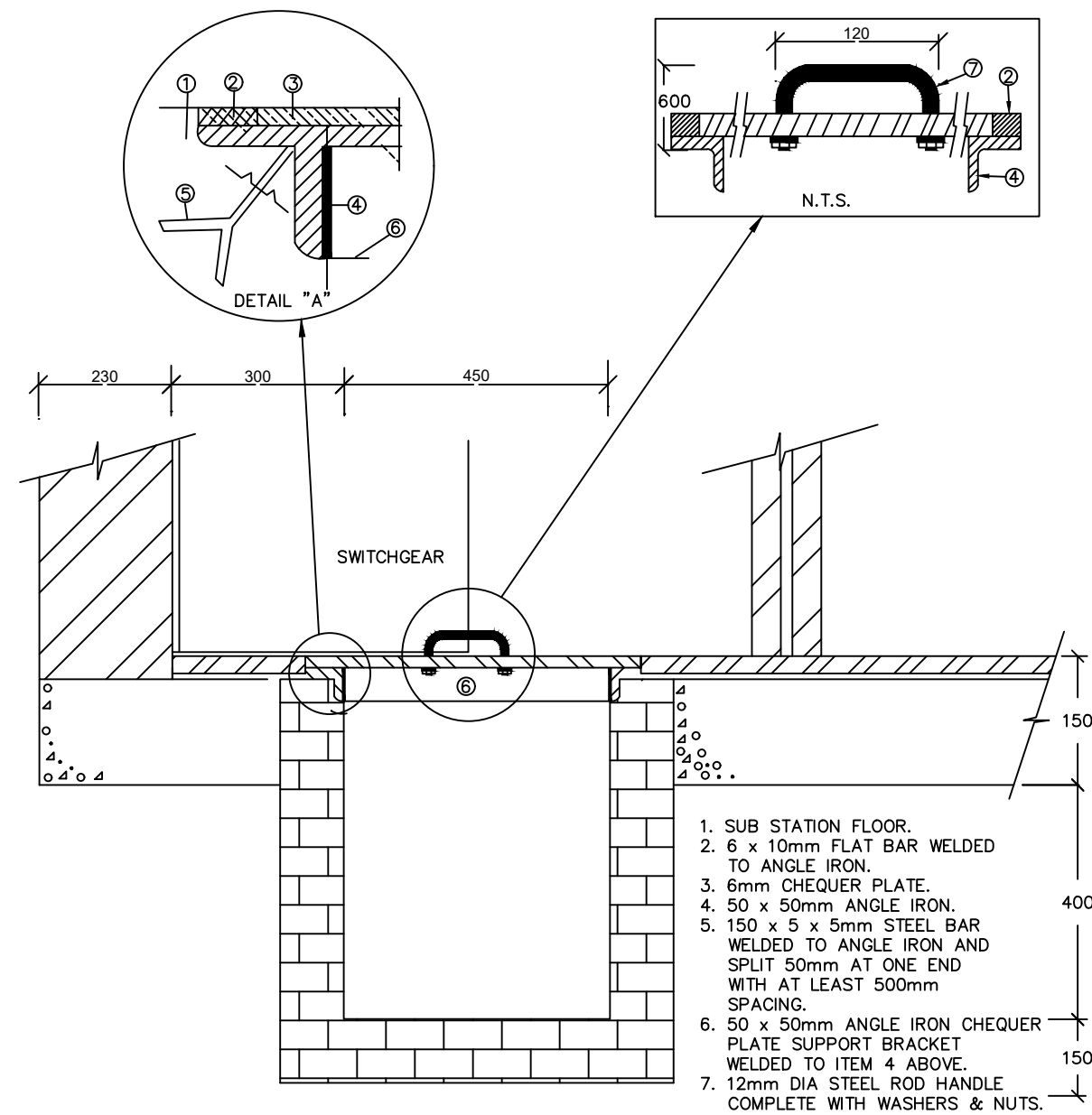
No.	AMENDMENTS	APPROVED	DATE	CONSULTANT DETAILS		DESIGNED	JPM	APPROVED	PROJECT		CLIENT DETAILS	SCALE	RECORD DRAWING				PRIVATE DRAWING No.	REVISION
				 <div>Tel: 012 751 1168 Cell: 082 597 5054 mail: Masebenza@lefatsheinfra.co.za info@lefatsheinfra.co.za</div> <div>WILLOW WOOD OFFICE PARK CNR 3RD AVENUE & CEDAR ROAD, BROADACRES</div>	NAME:			DOORNPOORT DAM BULK WATER SUPPLY					SCALE 1:50	CONTRACT No.	CONTRACT DESCRIPTION	CERTIFIED		
SIGNATURE:	DRAWING DESCRIPTION		ON ORIGINAL A1 DRAWING			CERTIFIED RECORD DRAWING FOR CONTRACT : RECORD DRAWING _____ ENGINEER _____ DATE _____												
										PUMP STATION – ELECTRICAL SERVICES LAYOUT								PM01 – E – 005



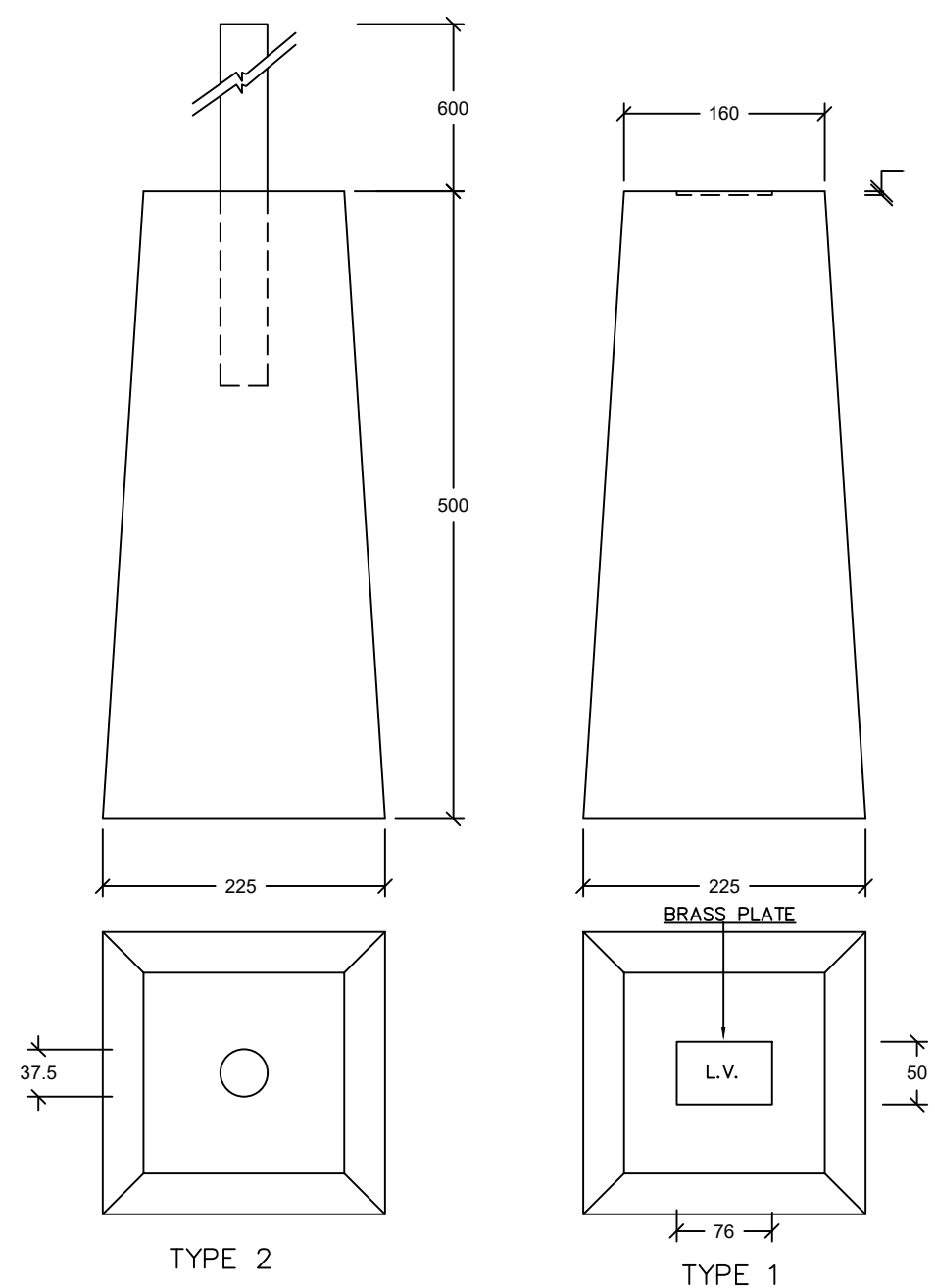
TYPICAL DETAIL OF DISTRIBUTION BOARD



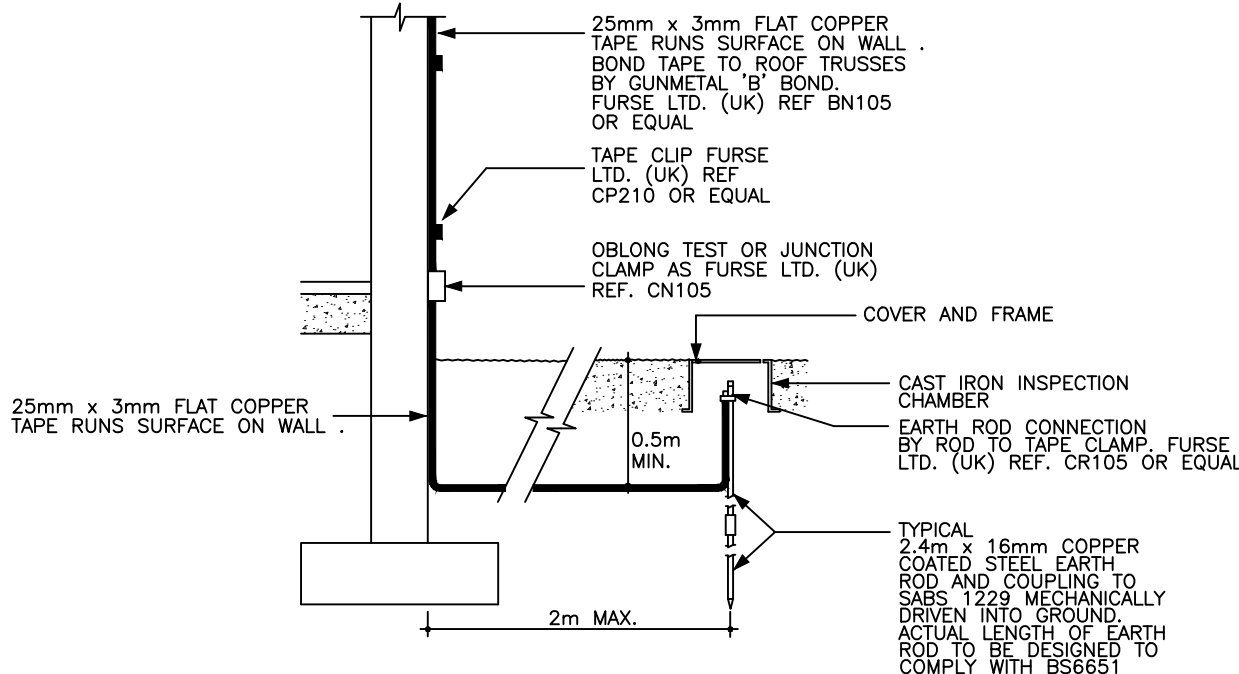
EARTH BAR ON STAND-OFF INSUL. DET.



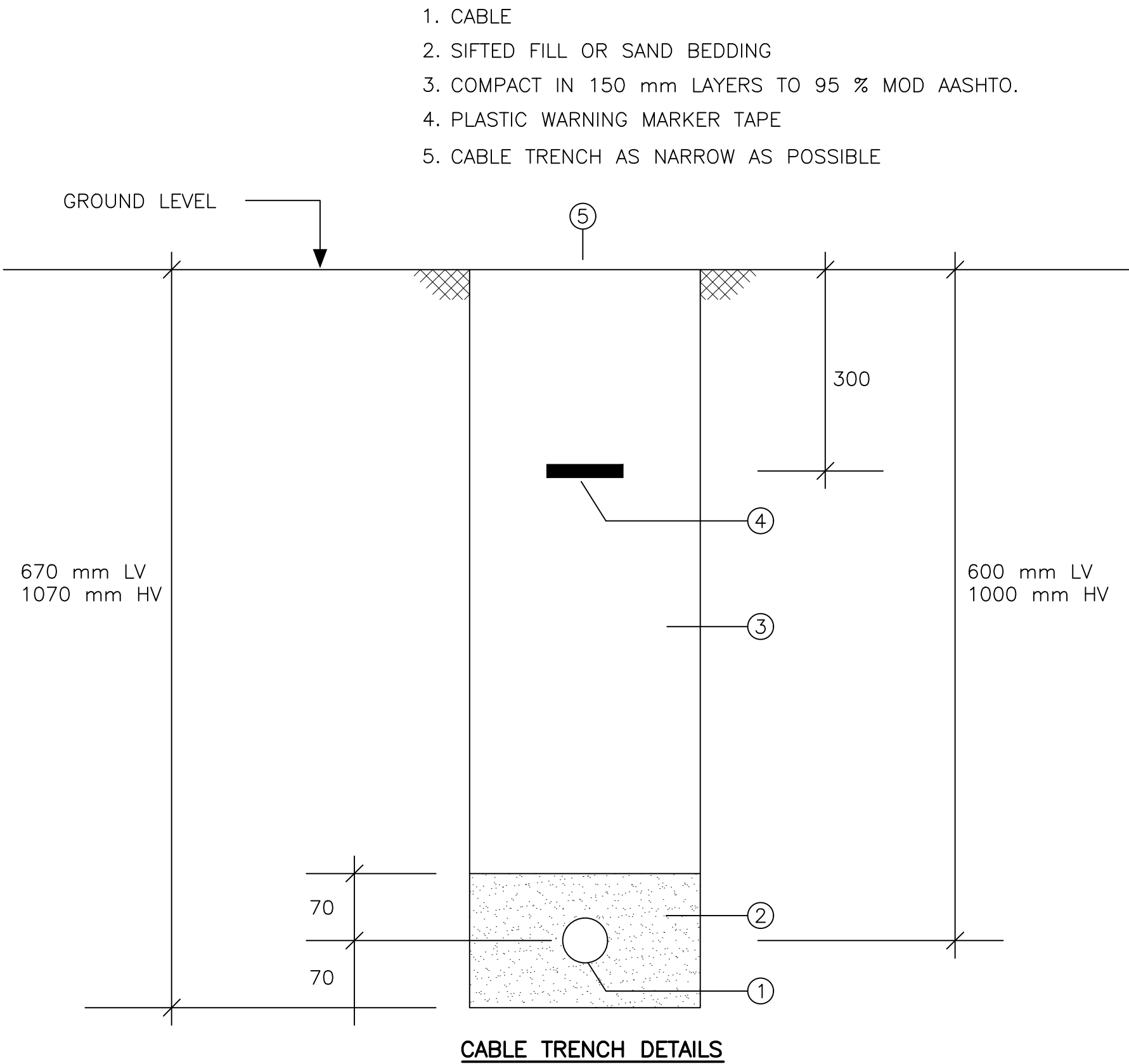
TRENCH AND COVER DETAILS




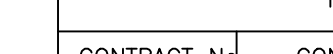
STANDARD DETAIL OF CABLE ROUTE MARKER

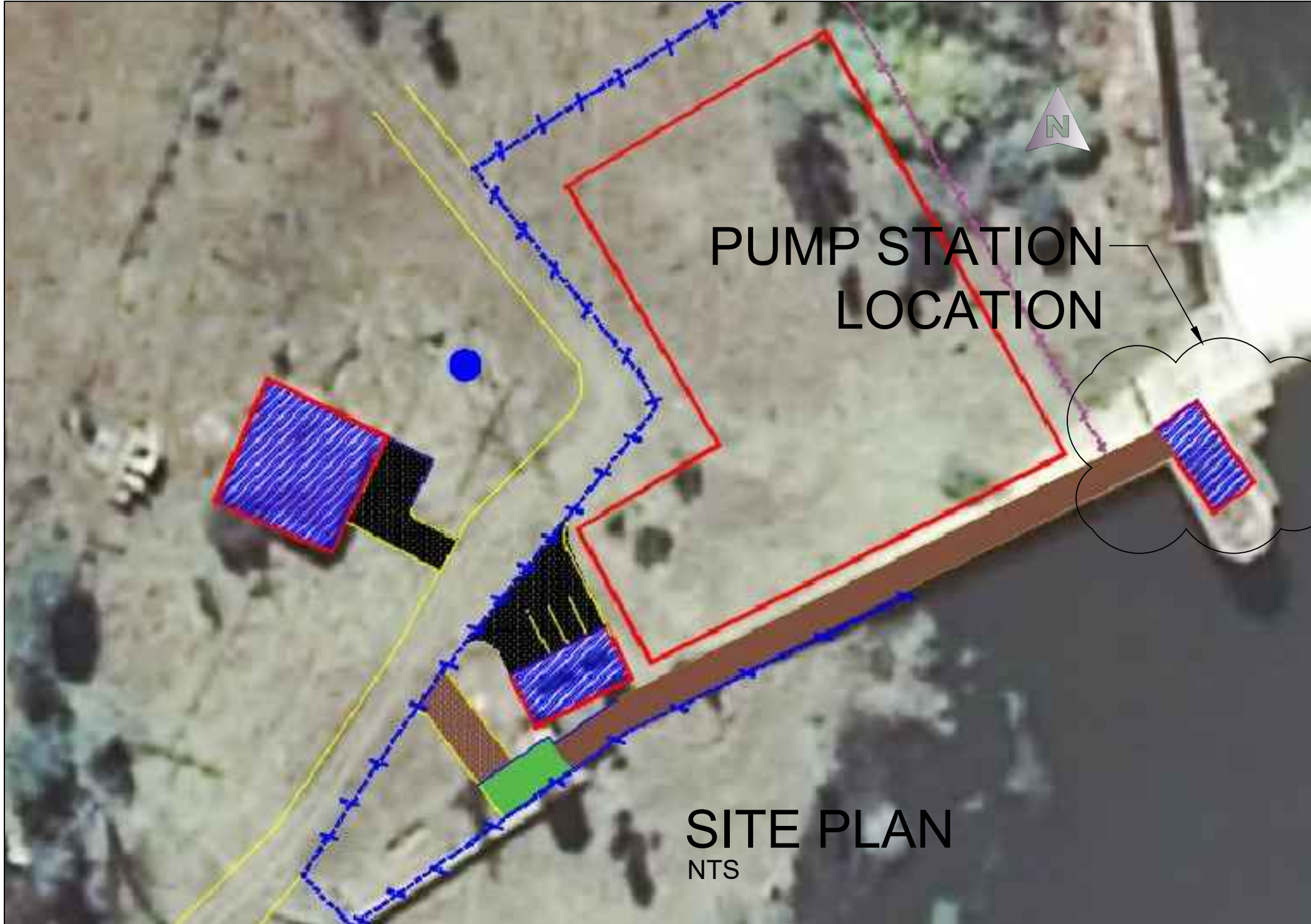


DOWN CONDUCTOR RUN ON SURFACE



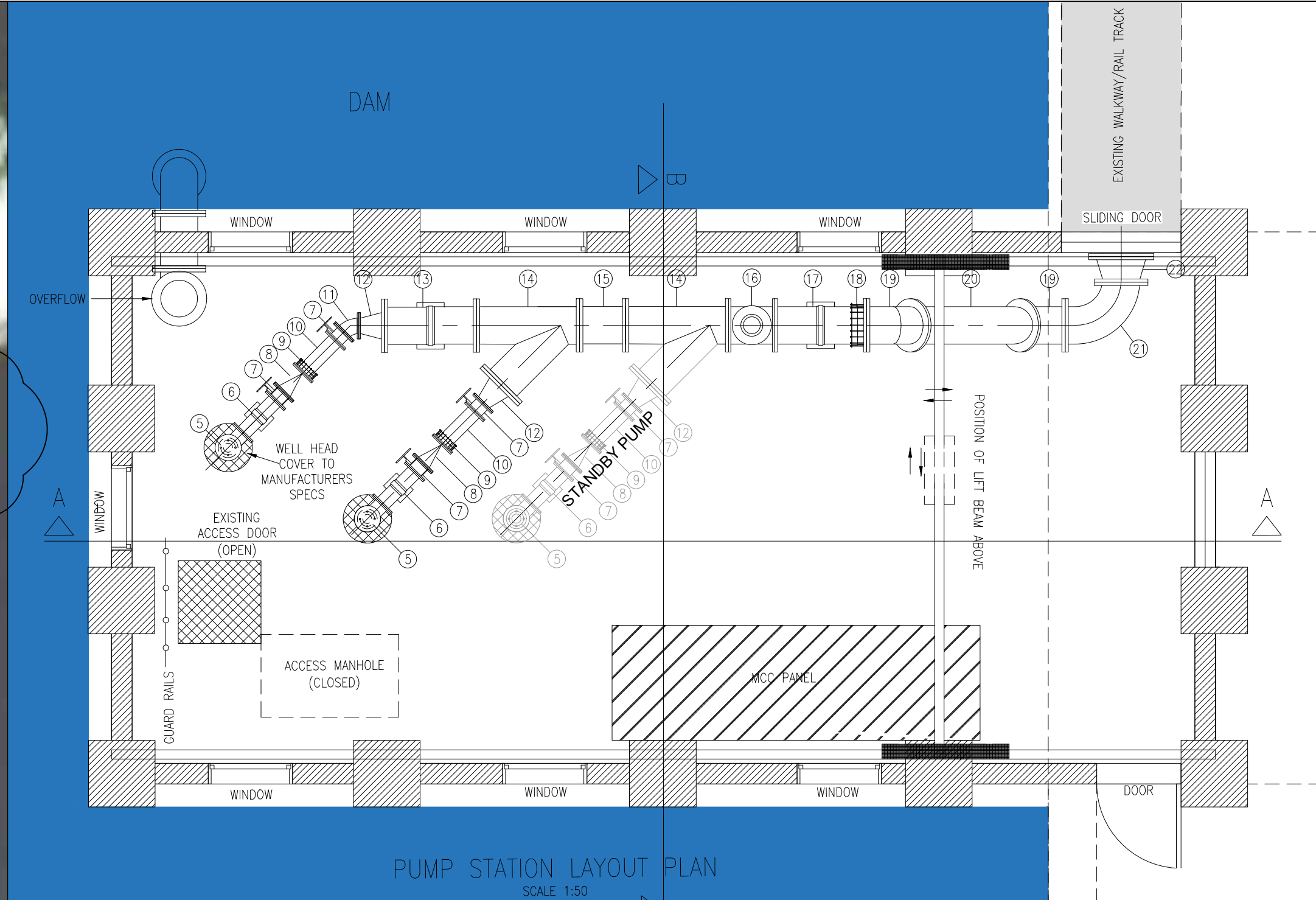
CABLE TRENCH DETAILS

No.	AMENDMENTS	APPROVED	DATE	CONSULTANT DETAILS		DESIGNED	JPM	APPROVED	PROJECT		CLIENT DETAILS		SCALE N.T.S	RECORD DRAWING																					
				<div><div>Tel: 012 751 1168 Cell: 082 597 5054 mail: Masebenza@lefatsheinfra.co.za info@lefatsheinfra.co.za</div><div>WILLOW WOOD OFFICE PARK CNR 3RD AVENUE & CEDAR ROAD, BROADACRES</div></div>		DRAWN	JPM	DOORNPOORT DAM BULK WATER SUPPLY				<table><tr><th>CONTRACT No.</th><th>CONTRACT DESCRIPTION</th><th>CERTIFIED</th><th>DATE</th></tr><tr><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td></tr></table>				CONTRACT No.	CONTRACT DESCRIPTION			CERTIFIED	DATE													CHECKED	BADO
CONTRACT No.	CONTRACT DESCRIPTION	CERTIFIED	DATE																																
									ELECTRICAL DETAILS			ON ORIGINAL DRAWING					PRIVATE DRAWING No.	REVISION																	
																	PM01—E—007																		



PUMP STATION LOCATION

SITE PLAN NTS



PUMP STATION LAYOUT PLAN SCALE 1:50

NOTES 3

GENERAL NOTES:

- ALL LEVELS TO BE CONFIRMED ON SITE.
- THIS DRAWING MUST BE READ IN CONJUNCTION WITH RELEVANT ENGINEERING DRAWINGS AND SPECIFICATIONS.
- DO NOT SCALE FROM THIS DRAWING, USE ONLY CALCULATED AND WRITTEN DIMENSIONS.
- ALL EXCAVATIONS SHOULD BE INSPECTED AND APPROVED BY THE ENGINEER ON SITE.
- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE INDICATED.
- ALL PIPE ITEMS ENCASED IN THE CHAMBER SHALL BE FILLED WITH ANCHOR FLANGES. PLAIN ENDED FLANGES WILL ONLY BE USED OUTSIDE THE CHAMBER.
- ALL STEEL PIPES WILL BE API 5Lx42 WITH WALL THICKNESS OF 4.5mm.
- LOOSE FLANGES WILL BE CUT AND WELDED ON SITE.
- ALL COATING AND LINING TO BE REPAIRED ACCORDING TO SPECIFICATION.
- POSITIONS OF CHAMBERS MUST BE DECIDED ON SITE ACCORDING TO TERRAIN.

ABBREVIATIONS:

NGL - NATURAL GROUND LEVEL
PIL - PIPE INVERT LEVEL
RL - REDUCED LEVEL

NOTE:

WELL HEAD SHALL BE DESIGNED AND FABRICATED TO BOREHOLE PUMP EQUIPMENT MANUFACTURER'S SPECIFICATIONS AND SHALL BE DESIGNED TO PREVENT STRESSES AND FAILURE DUE TO PUMP VIBRATION DURING NORMAL OPERATION

ALL REINFORCED CONCRETE WORKS TO BE CONSTRUCTED ACCORDING TO STRUCTURAL ENGINEERING DETAILS

NOTES 1

GENERAL CONCRETE AND MISCELLANEOUS:

- ALL CONCRETE EDGES TO 25mm CHAMFERED.
- CONCRETE CHAMBERS TO CLASS 25/19, BUNDING LAYER TO CLASS 15/19.
- ALL EXPOSED METAL WORK TO BE CR12 (UNPAINTED)
- BACK FILL BELOW CHAMBER TO BE COMPACTED IN LAYERS 150mm TO 90% MOD ASHTO.
- CHECK THAT PIPE SPECIALS FIT CORRECTLY IN THE CHAMBERS BEFORE MANUFACTURE.
- PIPES TO BE CUT ON SITE SHALL BE MANUFACTURED WITH EXTRA LENGTH OF 20 PERCENT.
- THE VALVE CHAMBER LID IS TO BE DESIGNED TO CARRY EXTERNAL VEHICLE LOADS.
- ALLOW FOR 3mm THICK GASKET BETWEEN FLANGES.
- EXISTING PIPES DIMENSIONS TO BE VERIFIED BEFORE ORDERING PIPE SPECIALS AND COUPLINGS.
- PROVIDE LIFTING LUGS WHERE REQUIRED.

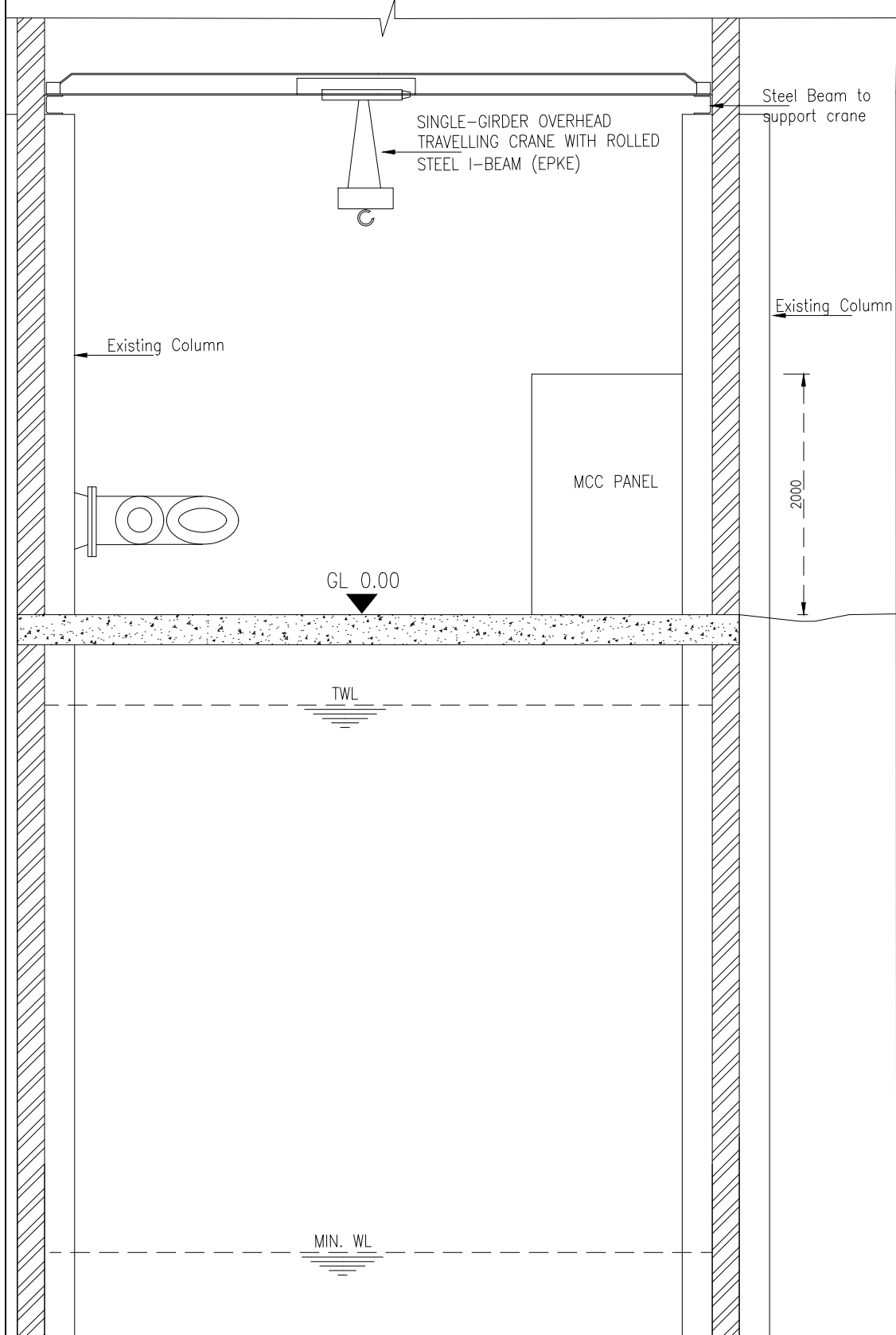
NOTES 2

PIPE NOTES:

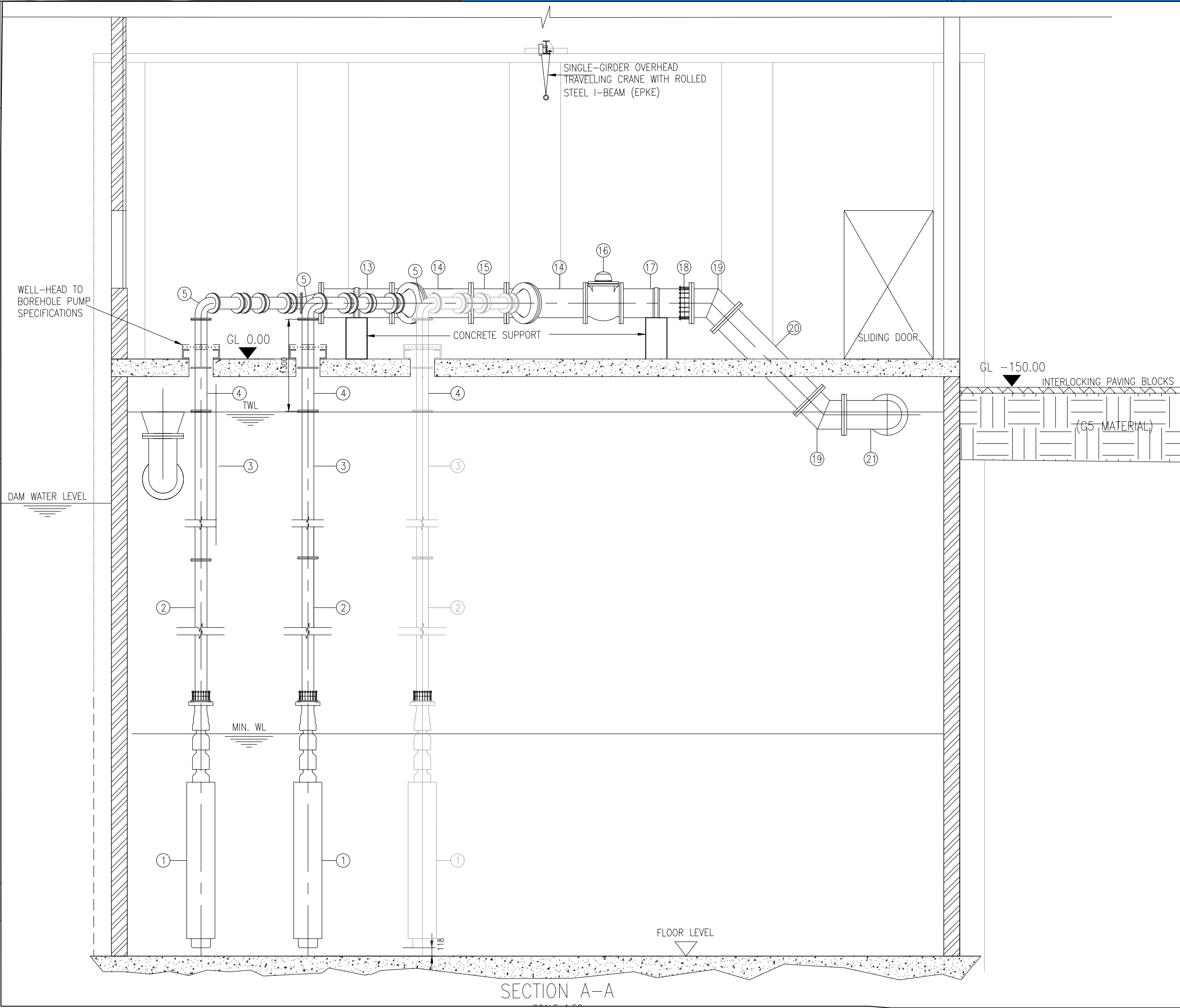
- FLANGES:
 - ALL DRILLED FLANGES TO SANS 1123 TYPE 3. FOR CLASSIFICATION REFER TO THE RELEVANT DRAWING.
 - PUDDLE FLANGES: SAME TYPE AND OD AS DRILLED FLANGES, FLAT FACED. NO DRILLING.
 - ANCHOR / TRUST FLANGES: SAME OD & " AS DRILLED FLANGES. FLAT FACED.
 - COUPLINGS BURIED IN SOIL TO BE PROTECTED IN ACCORDANCE WITH WS 9900, SECTION 13 (COATING SYSTEM PLUS PETROLATUM WRAPPING).
- CORROSION PROTECTION:
 - LINING: STEEL PIPES WILL BE PROTECTED INTERNALLY BY SOLVENT BORNE LIQUID EPOXY LINING WITH A MINIMUM THICKNESS OF 500 MICRONS.
 - COATING: EXTERNAL CORROSION PROTECTION WILL CONSIST OF A SINTAKOT 11 FUSION BONDED POLYETHYLENE COATING FOR PIPES INSTALLED UNDERGROUND. PIPES INSTALLED IN CHAMBER, RESERVOIR AND IN PUMP STATION WILL HAVE A SOLVENT FREE EPOXY COATING WITH MINIMUM THICKNESS OF 500 MICRONS.
 - FLANGE FACES: ALL FLANGES UNDERGROUND TO BE WRAPPED WITH DENSOTAPE.

PIPE SCHEDULE

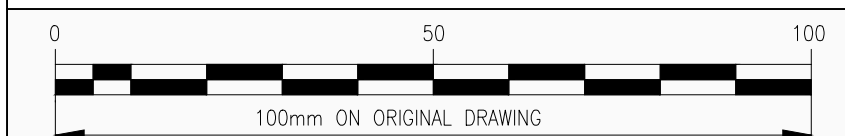
AIR VALVE	TOTAL	DIA (mm)	LENGTH (mm)	WALL THICKNESS (mm)	MATERIAL)	DESCRIPTION	CORROSION PROTECTION AS SHOWN ON PIPE NOTES		
							LINING	COATING	FLANGES
①	2	-	3482	-	VARIES	SUBMERSIBLE BOREHOLE PUMP Q=138.9l/s, h=219m	AS PER MANUFACTURE	AS PER MANUFACTURE	2.3
②	2	150	5960	4.8	HEAVY DUTY STEEL	STRAIGHT PIPE, BOTH ENDS FLANGED LENGTH TO BE CUT ON SITE	2.1	2.2	2.3
③	2	150	5960	4.8	HEAVY DUTY STEEL	STRAIGHT PIPE, BOTH ENDS FLANGED LENGTH TO BE CUT ON SITE	2.1	2.2	2.3
④	2	150	1300	4.8	HEAVY DUTY STEEL	STRAIGHT PIPE WITH PUDDLE FLANGE, BOTH ENDS FLANGED	2.1	2.2	2.3
⑤	2	150	-	4.8	HEAVY DUTY STEEL	EQUAL TEE, ALL ENDS FLANGED, WITH END CONNECTING AIR VALVE	2.1	2.2	2.3
⑥	2	150	500	4.8	HEAVY DUTY STEEL	STRAIGHT PIPE WITH LOOSE FLANGE, LENGTH TO BE CUT ON SITE	2.1	2.2	2.3
⑦	4	150	-	-	VARIES	BUTTERFLY VALVE (PN40)	AS PER MANUFACTURE	AS PER MANUFACTURE	2.3
⑧	2	150	415	-	VARIES	NON RETURN VALVE	AS PER MANUFACTURE	AS PER MANUFACTURE	2.3
⑨	2	150	-	-	COATED STEEL	DISMANTLING JOINT (PN40)	AS PER MANUFACTURE	AS PER MANUFACTURE	2.3
⑩	2	150	500	4.5	HEAVY DUTY STEEL	STRAIGHT PIPE, BOTH ENDS FLANGED LENGTH TO BE CUT ON SITE	2.1	2.2	2.3
⑪	1	150	-	4.5	HEAVY DUTY STEEL	45° BEND, ALL ENDS FLANGED	2.1	2.2	2.3
⑫	2	250x150	-	4.5	HEAVY DUTY STEEL	REDUCER	2.1	2.2	2.3
⑬	2	150	1000	4.5	API 5L x42 STEEL	STRAIGHT PIPE, ALL ENDS FLANGED	2.1	2.2	2.3
⑭	1	250	-	4.5	API 5L x42 STEEL	60° LATERAL TEE, ALL ENDS FLANGED	2.1	2.2	2.3
⑮	1	250	2500	4.5	API 5L x42 STEEL	STRAIGHT PIPE, ALL ENDS FLANGED	2.1	2.2	2.3
⑯	1	250	-	-	COATED STEEL	COSMO WP WATER METER (PN40)	AS PER MANUFACTURE	AS PER MANUFACTURE	2.3
⑰	1	250	1000	4.5	API 5L x42 STEEL	STRAIGHT PIPE, ALL ENDS FLANGED	2.1	2.2	2.3
⑱	1	250	-	-	VARIES	DISMANTLING JOINT (PN40)	AS PER MANUFACTURE	AS PER MANUFACTURE	2.3
⑲	1	250	-	4.5	API 5L x42 STEEL	45° BEND, ALL ENDS FLANGED	2.1	2.2	2.3
⑳	1	250	41653	4.5	API 5L x42 STEEL	STRAIGHT PIPE, ALL ENDS FLANGED	2.1	2.2	2.3
㉑	1	250	-	4.5	API 5L x42 STEEL	90° BEND, ALL ENDS FLANGED	2.1	2.2	2.3
㉒	1	400x250	-	4.5	HEAVY DUTY STEEL	REDUCER	2.1	2.2	2.3



SECTION B-B SCALE 1:50



SECTION A-A



No.	AMENDMENTS	APPROVED	DATE

CONSULTANT DETAILS

LEFATSHE
INFRASTRUCTURE SERVICES

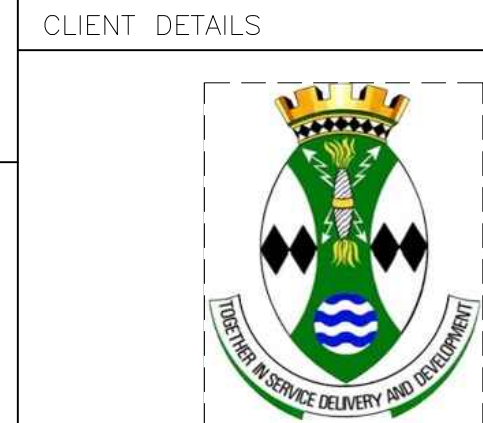
Tel: 012 751 1168
Cell: 082 597 5054
mail: Masebenza@lefatsheinfra.co.za
info@lefatsheinfra.co.za

WILLOW WOOD OFFICE PARK
CNR 3RD AVENUE & CEDAR ROAD, BROADACRES

DESIGNED	T. Molebye
DRAWN	T. Molebye
CHECKED	M. Matyeka
APPROVED	M. Matyeka

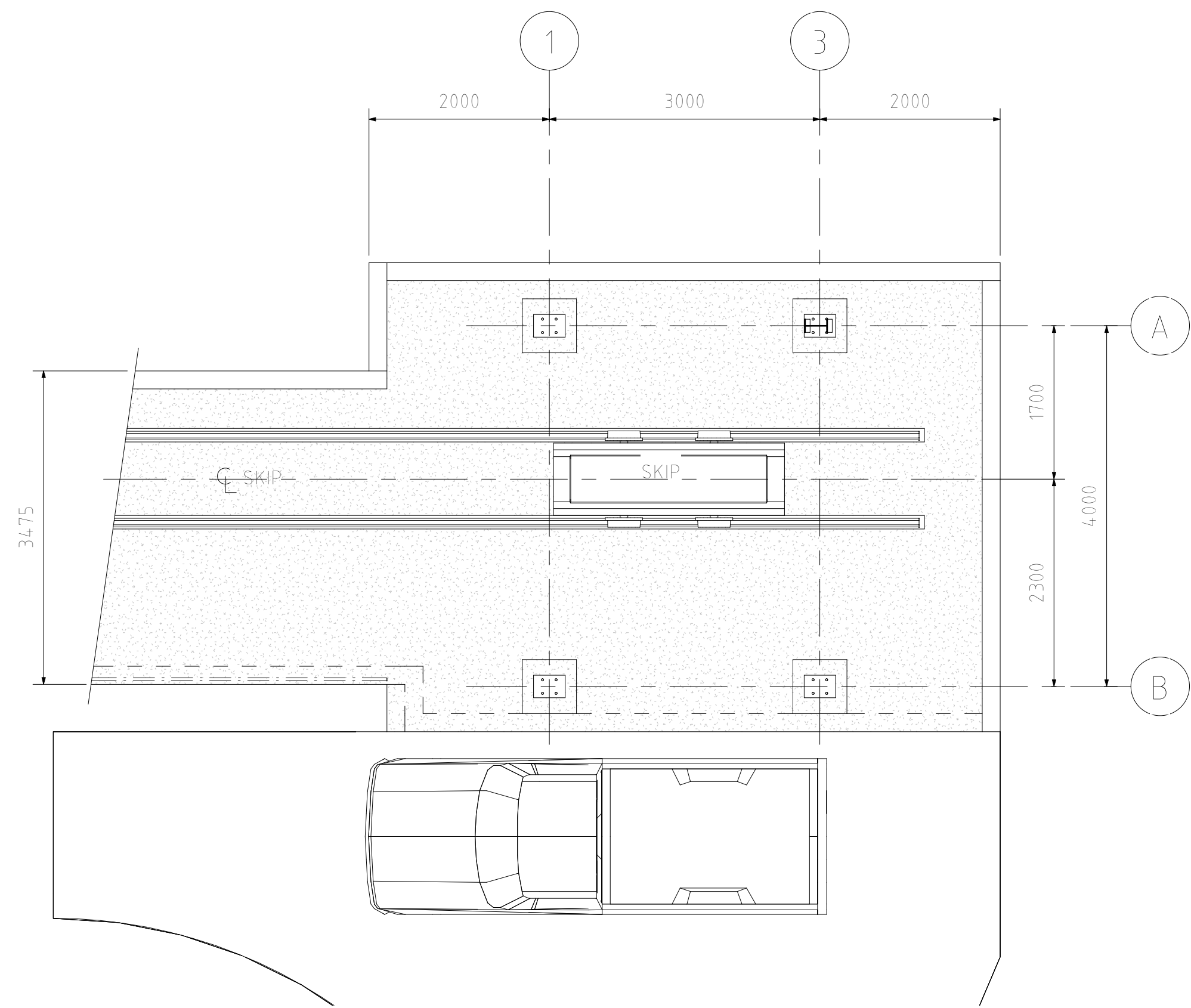
APPROVED	NAME:
	SIGNATURE:
	DATE:

PROJECT	KLARINET AND SIYANQOBA BULK WATER SUPPLY
DRAWING DESCRIPTION	PUMPING WATER MAIN DOORNPOORT PUMPSTATION LAYOUT AND SECTION



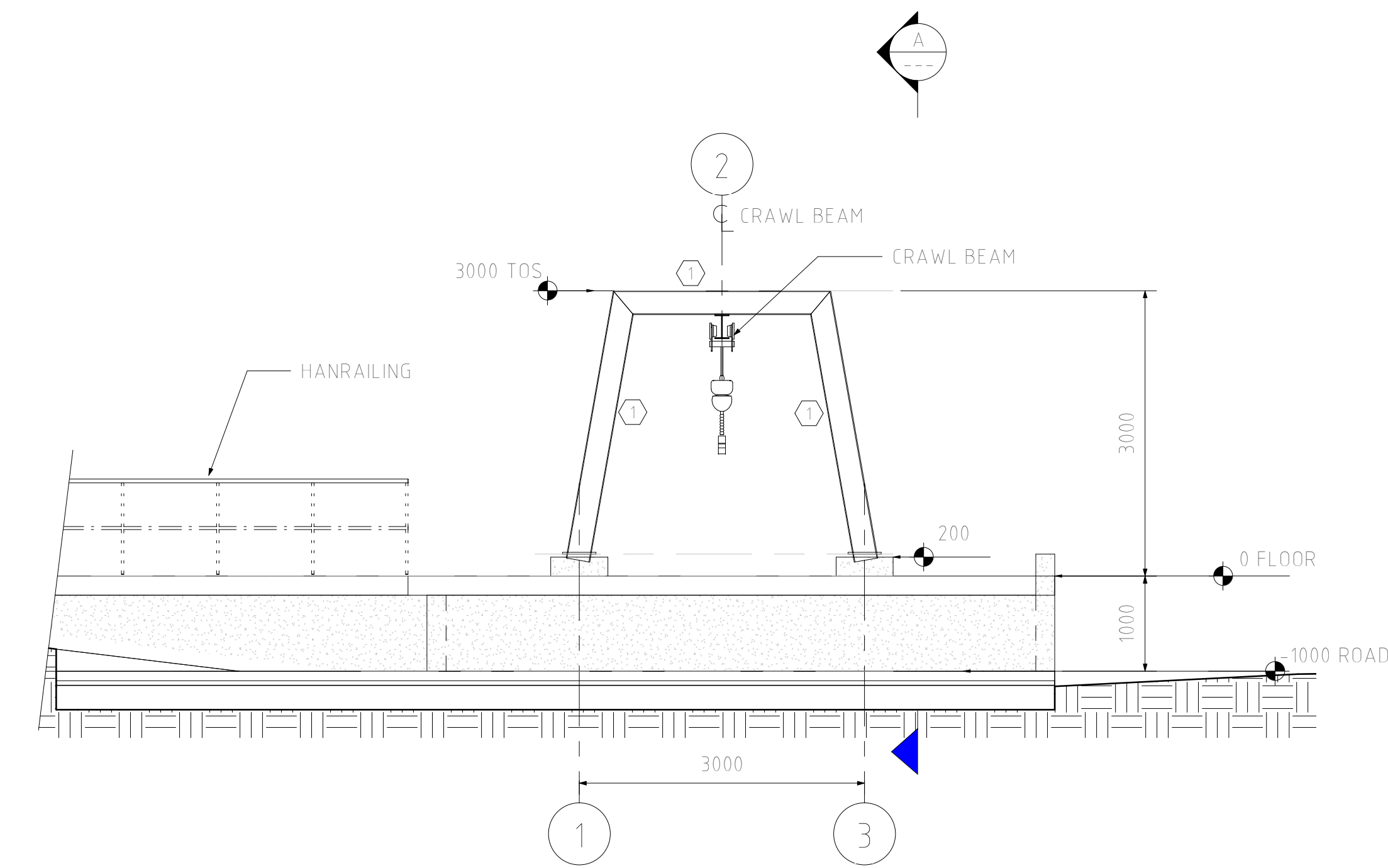
CLIENT DETAILS	SCALE	RECORD DRAWING
	AS SHOWN	CONTRACT No. CONTRACT DESCRIPTION CERTIFIED DATE
	ON	
	ORIGINAL	
	A1	
	DRAWING	CERTIFIED RECORD DRAWING FOR CONTRACT : ENGINEER DATE

PRIVATE DRAWING No.	REVISION
PM01-DET-005	V1



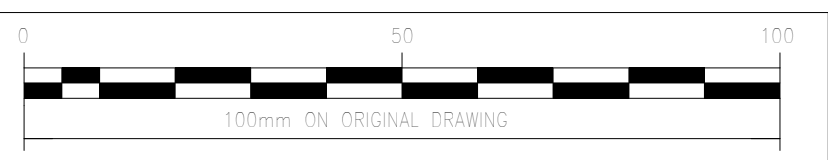
PLAN - LOADING BAY

1:50



ELEVATION - LOADING BAY

1:50



No.	AMENDMENTS	APPROVED	DATE

CONSULTANT DETAILS



Tel: 012 751 1168
Cell: 082 597 5054
mail: Masebenza@lefatsheinfra.co.za
info@lefatsheinfra.co.za

WILLOW WOOD OFFICE PARK
CNR 3RD AVENUE & CEDAR ROAD, BROADACRES

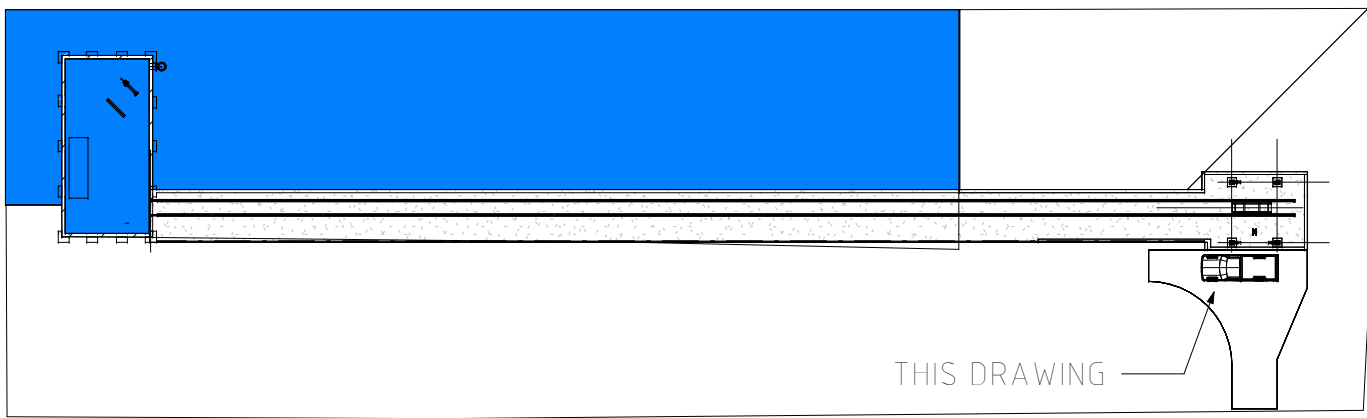
DESIGNED	P.CHASOWA
DRAWN	P.CHASOWA
CHECKED	B.MNTHALI
APPROVED	B.MNTHALI

APPROVED
NAME:
SIGNATURE:
DATE:

PROJECT
DOORNPOT DAM
DRAWING DESCRIPTION
LOADING AREA GENERAL ARRANGEMENT

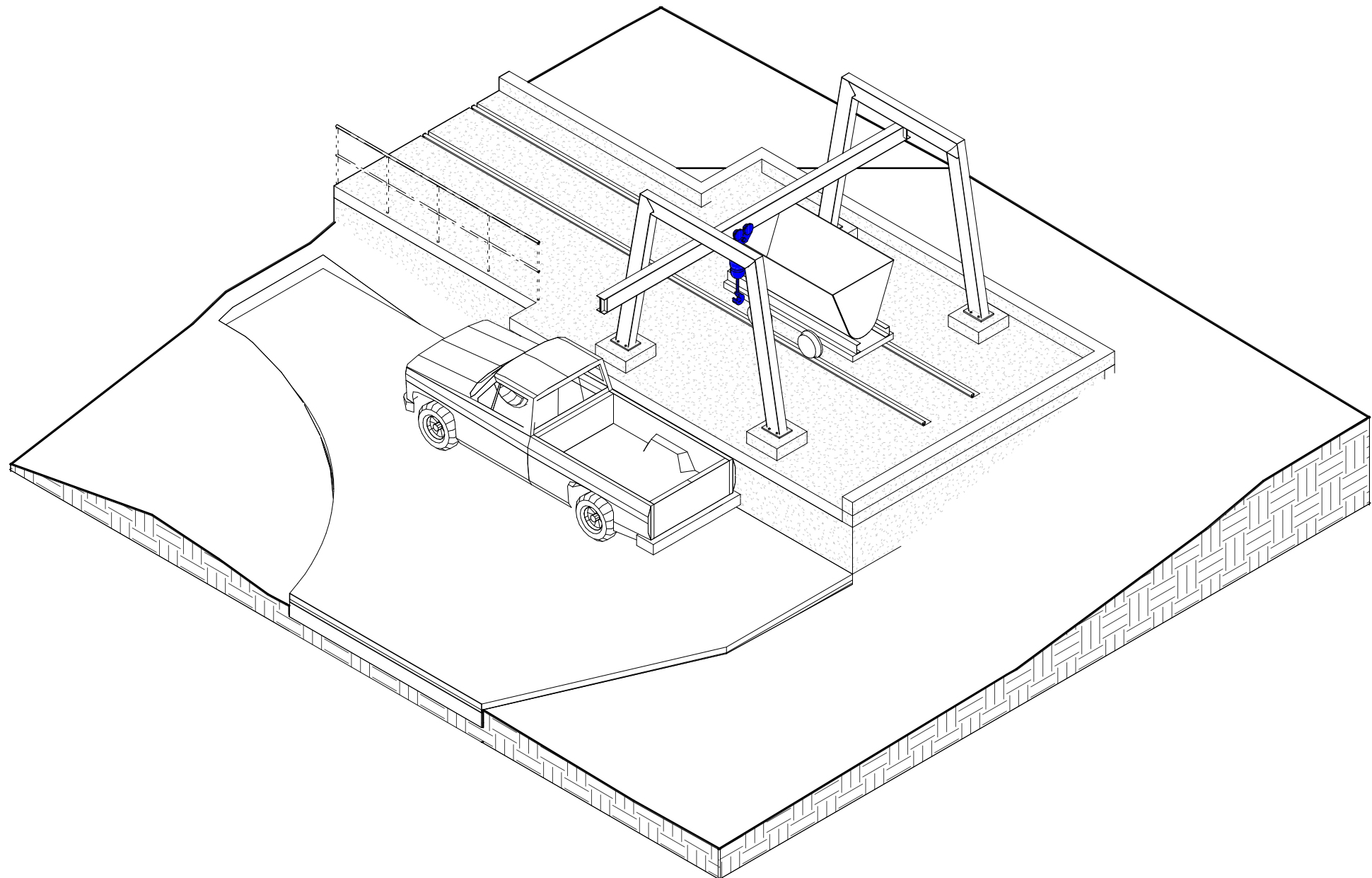
CLIENT DETAILS

SCALE	RECORD DRAWING				PRIVATE DRAWING No. PM01-MECH-GA-001	REVISION V1
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ON ORIGINAL A1 DRAWING						
	CERTIFIED RECORD DRAWING FOR CONTRACT :					
	ENGINEER		DATE			



KEYPLAN

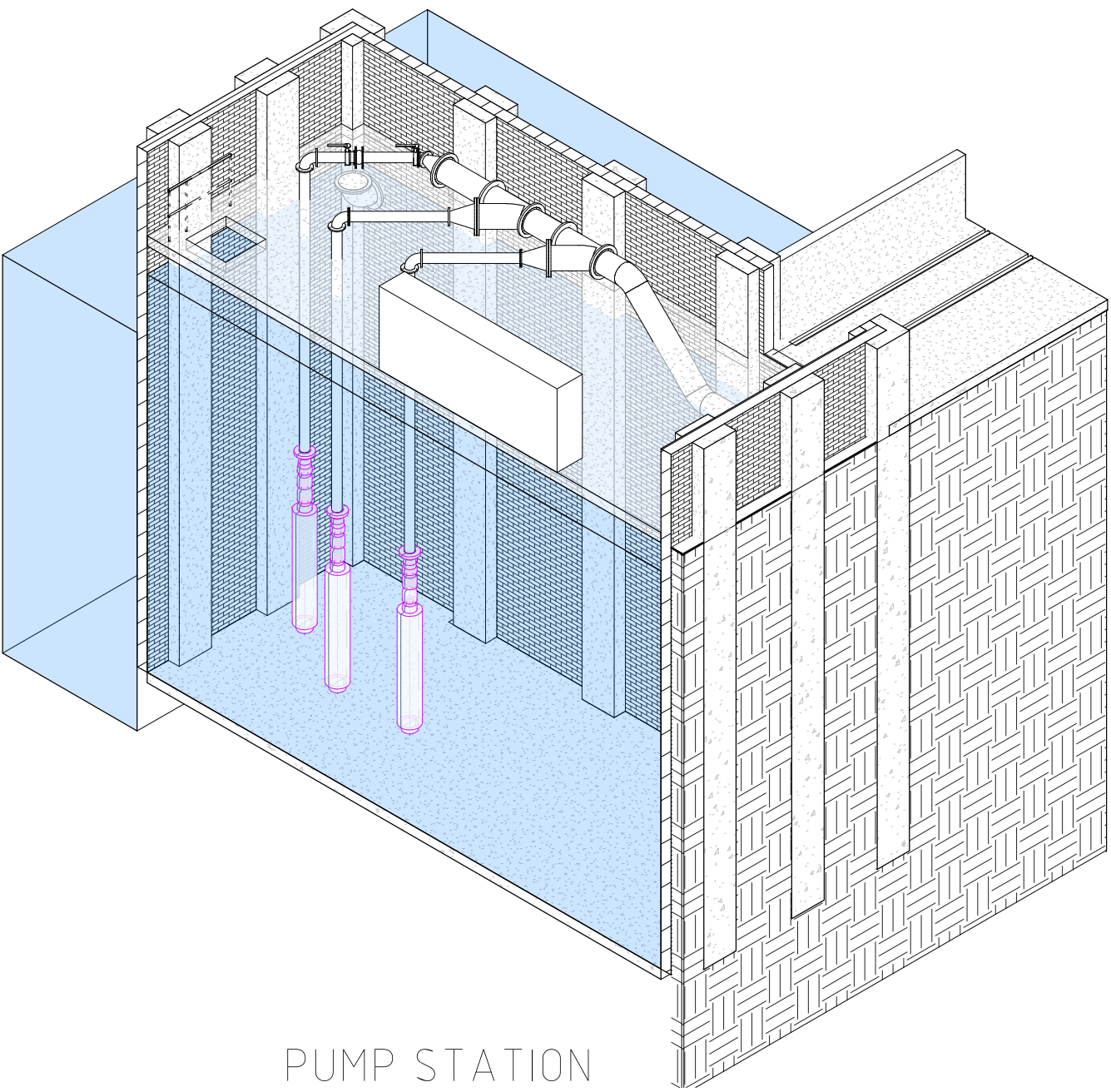
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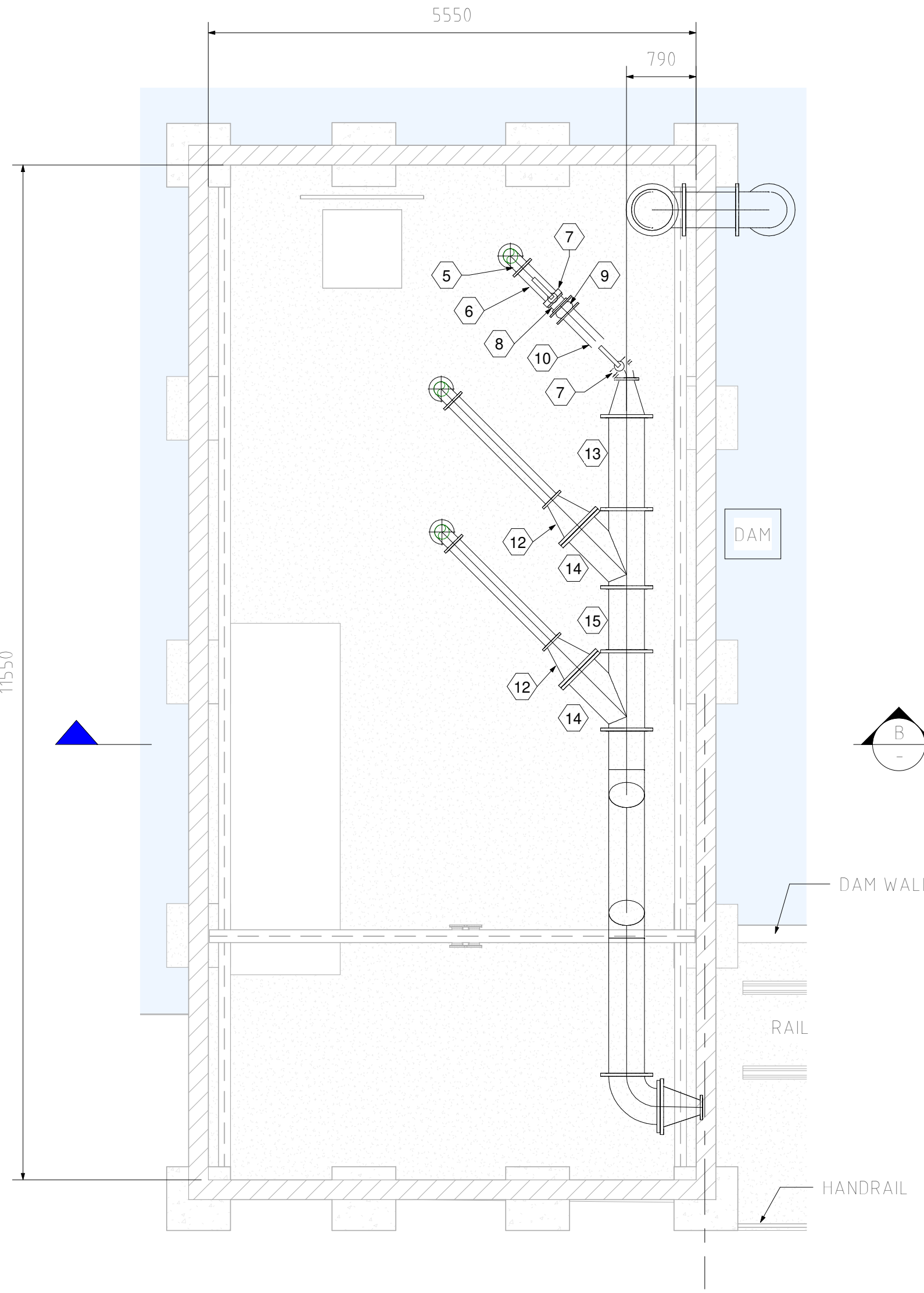
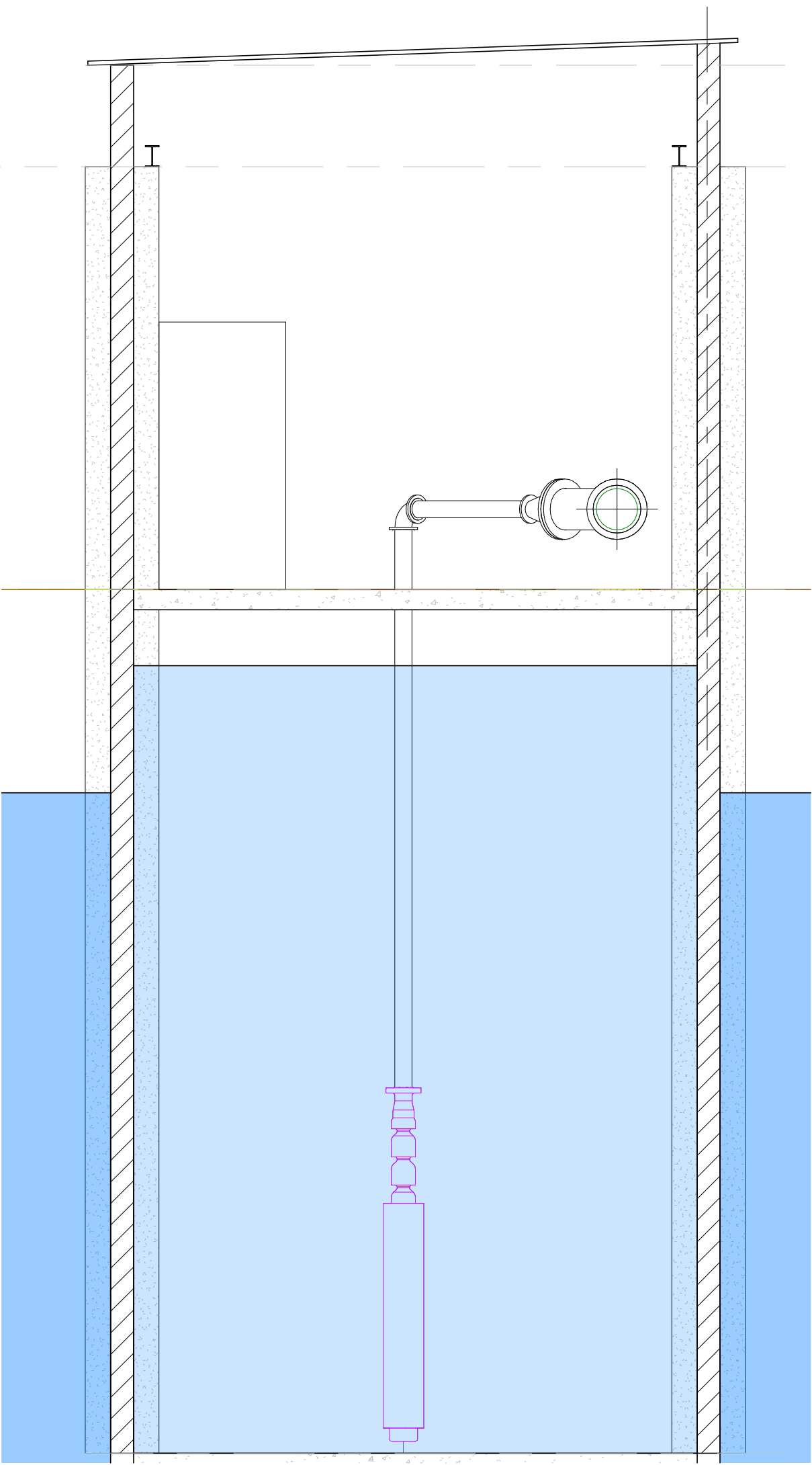
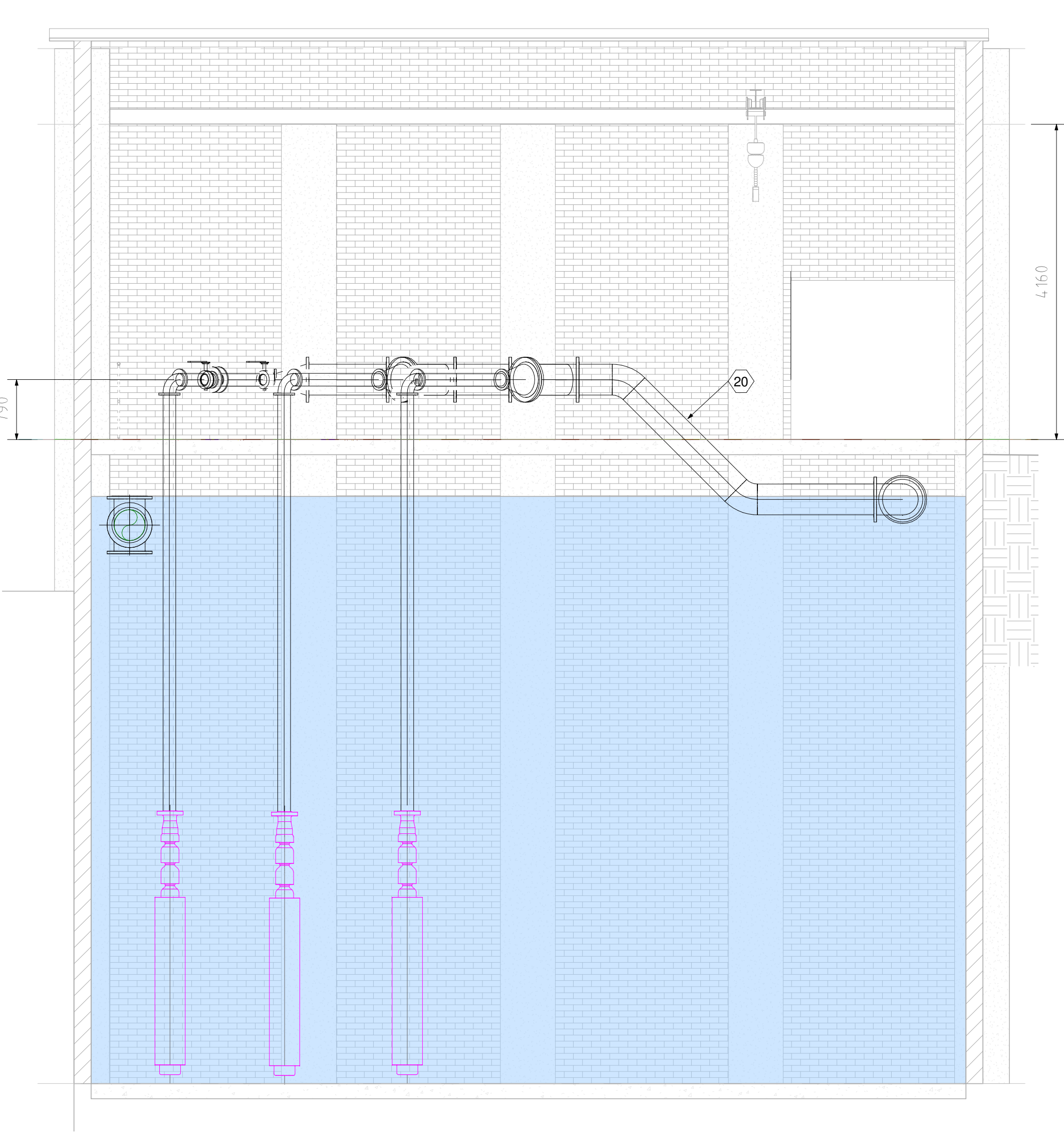
ISO

MEMBER LEGEND	
Type Mark	Type
1	254x146x311/B

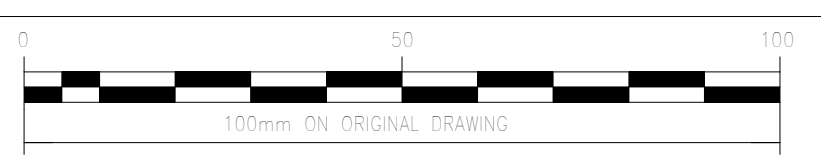
EQUIPMENT LIST	
ITEM	DESCRIPTION
A	3 TON SKIP
B	1 TON CHAIN BLOCK



PUMP STATION



PLAN - PUMP STATION



SECTION A-A
1:50

SECTION B-B
1:50

1:50

No.	AMENDMENTS	APPROVED	DATE

CONSULTANT DETAILS



LEFATSHE
INFRASTRUCTURE SERVICES

Tel: 012 751 1168
Cell: 082 597 5054
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WILLOW WOOD OFFICE PARK
CNR 3RD AVENUE & CEDAR ROAD, BROADACRES

DESIGNED	P.CHASOWA
DRAWN	P.CHASOWA
CHECKED	B.MNTHALI
APPROVED	B.MNTHALI

APPROVED
NAME:
SIGNATURE:
DATE:

PROJECT	DOORNPOT DAM
DRAWING DESCRIPTION	PUMP STATION PIPING LAYOUT

CLIENT DETAILS



MUNICIPAL COUNCIL OF JOHANNESBURG
DELIVERING BETTER SERVICES TOGETHER

SCALE	RECORD DRAWING			
	CONTRACT No.	CONTRACT DESCRIPTION	CERTIFIED	DATE
ON ORIGINAL A1 DRAWING				
CERTIFIED RECORD DRAWING FOR CONTRACT :				
ENGINEER				DATE
PRIVATE DRAWING No.				REVISION
PM01-MECH-LAY-002				V1