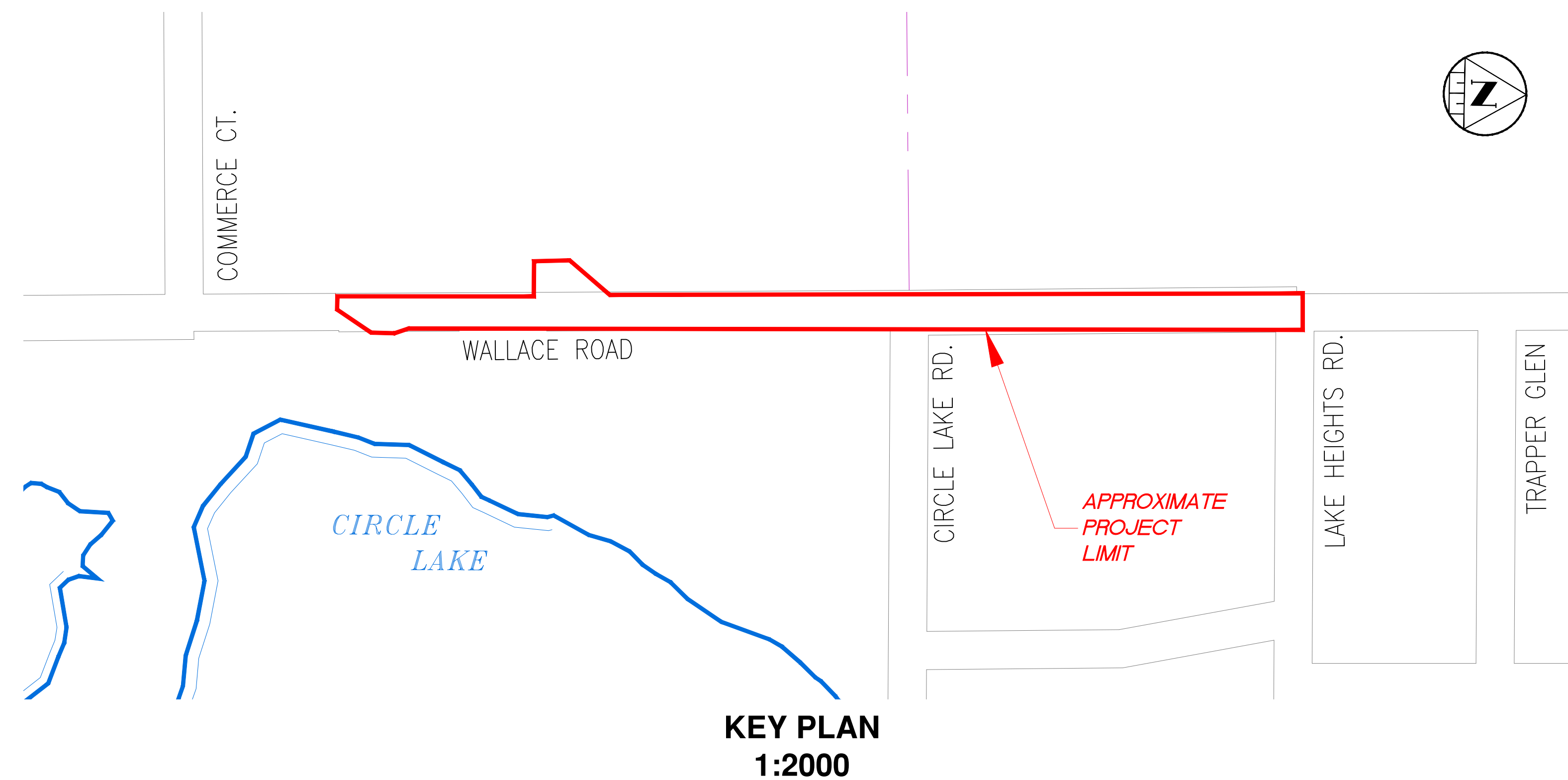


THE CORPORATION OF THE CITY OF NORTH BAY

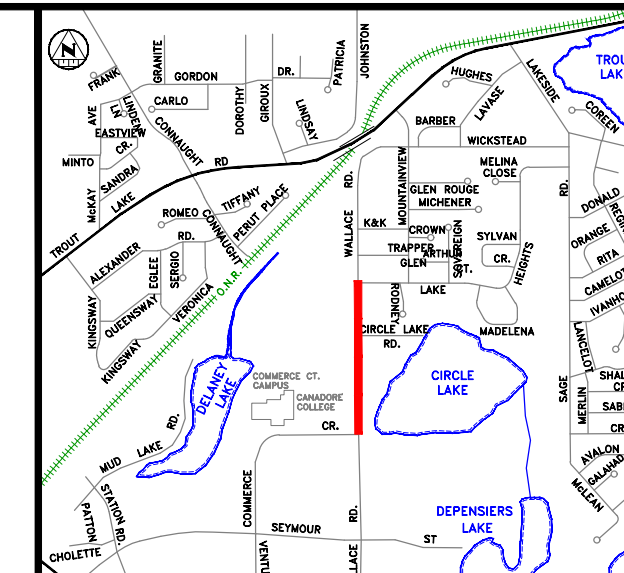
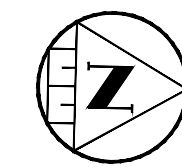
WALLACE ROAD SEWAGE PUMPING STATION, SANITARY SEWER AND FORCEMAIN

TENDER 2021-17



LIST OF DRAWINGS:

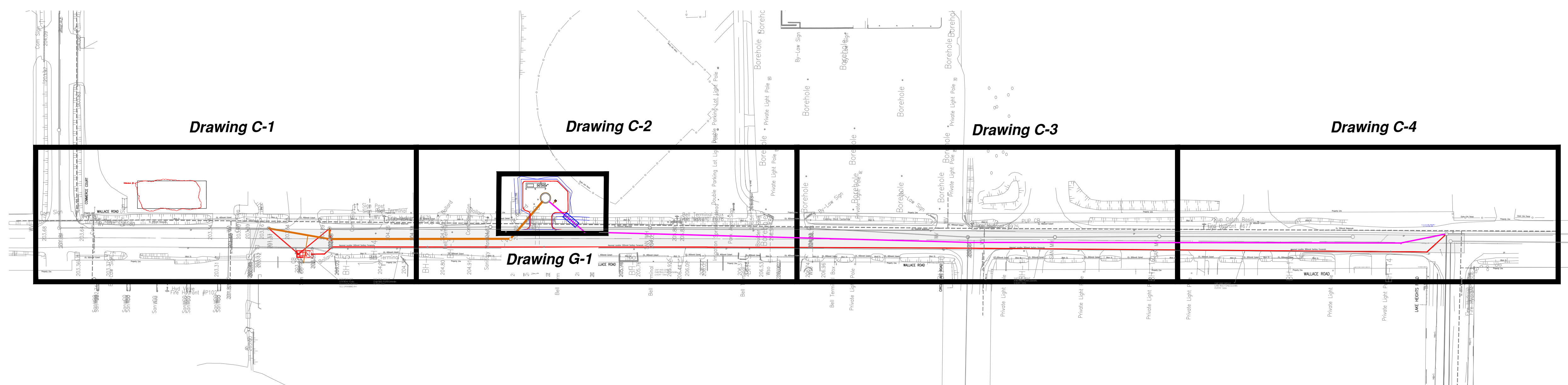
SHEET No.	DWG No.	DESCRIPTION	SHEET No.	DWG No.	DESCRIPTION
1		COVER PAGE	12	E-1	ELECTRICAL SITE PLAN
2	GP-1	GENERAL PLAN	13	E-2	SINGLE LINE / GROUNDING / P&ID
3	C-1	WALLACE ROAD, STA. 0+000 TO STA. 0+160	14	E-3	PANEL SECTION AND DETAILS 2
4	C-2	WALLACE ROAD, STA. 0+160 TO STA. 0+320	15	E-4	FIELD POWER PANEL DETAILS
5	C-3	WALLACE ROAD, STA. 0+320 TO STA. 0+480	16	E-5	FIELD CONTROL PANEL DETAILS
6	C-4	WALLACE ROAD, STA. 0+480 TO STA. 0+624.270	17	E-6	PLC PANEL DETAILS
7	D-1	CONSTRUCTION DETAILS 1	18	E-7	CONTROL SCHEMATICS 1
8	R-1	EXISTING PUMPING STATION REMOVAL + DETAILS 2	19	E-8	CONTROL SCHEMATICS 2
9	G-1	SITE PLAN AND DETAILS	20	E-9	PANEL DETAILS 1
10	M-1	WET WELL PLAN AND SECTIONS	21	E-10	HAZARD ZONES
11	M-2	SPS DETAILS 1			



KEY PLAN

NOTES:

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3.	MAY 28 2021		ISSUED FOR CONSTRUCTION



Disclaimer:
The information contained on this drawing may be based upon data provided by others and may not have been verified by either as-constructed drawings or an Ontario Land Surveyor. The City of North Bay cannot accept responsibility for errors or omissions on any information shown herein. Field verification, land surveys or excavation (with City approvals) may be required to determine actual location of any and all utilities or property lines.



**WALLACE ROAD
SEWAGE PUMPING
STATION, SANITARY
SEWER AND FORCEMAIN
TENDER 2021-17**

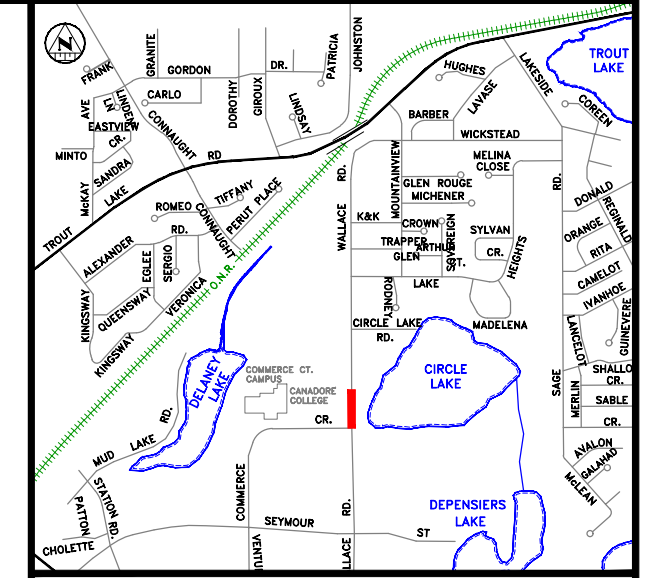
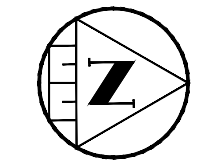
NEW CONSTRUCTION

GENERAL PLAN

designer G.W.C.	checked by: G.Mc.
date 03/05/2021	approved by: A.L.
scale 1:1000 1:200	
drawing number GP-1	sheet 2 of 21

LEGEND

EXISTING	REMOVALS	PROPOSED
BURIED GAS LINE	CONCRETE SIDEWALK	STORM SEWER
BURIED BELL LINE	WATERMAIN VALVE	STORM MANHOLE
BELL MANHOLE	FIRE HYDRANT	CATCHBASIN
WATERMAIN	MAINS: SANITARY, WATER AND STORM	CATCHBASIN MANHOLE
GEOTECHNICAL BOREHOLE	CATCHBASIN	DOUBLE CATCHBASIN
GEOTECHNICAL AUGER PROBE	STORM MANHOLE	SUB-DRAIN
CHAINLINK FENCE	SANITARY MANHOLE	SANITARY SEWER
HYDRO POLE WITH ANCHOR GUY	SANITARY MANHOLE	SANITARY MANHOLE
HYDRO POLE WITH STREET & TRANSFORMER	SANITARY SERVICE CLEANOUT	WATERMAIN
SHRUBS	WATERMAIN VALVE	WATER SERVICE VALVE
VEGETATION OUTLINE	CONCRETE CURB WITH DROP	FIRE HYDRANT
DECIDUOUS TREE	SIDEWALK TACTILE PLATE	CONCRETE CURB WITH DROP
CONIFEROUS TREE	TOP OF BANK	SANITARY FORCEMAIN
RETAINING WALL	EDGE OF PAVEMENT	
TOP OF BANK		
EXCAVATION LIMITS		
PROJECT ALIGNMENT		
WATER VALVE		
LOT / CONCESSION LINES		
SANITARY MH		
EDGE OF DITCH		
CENTERLINE OF DITCH		
STORMWATER MH		
STORMWATER CB		
SURVEY BENCHMARK		



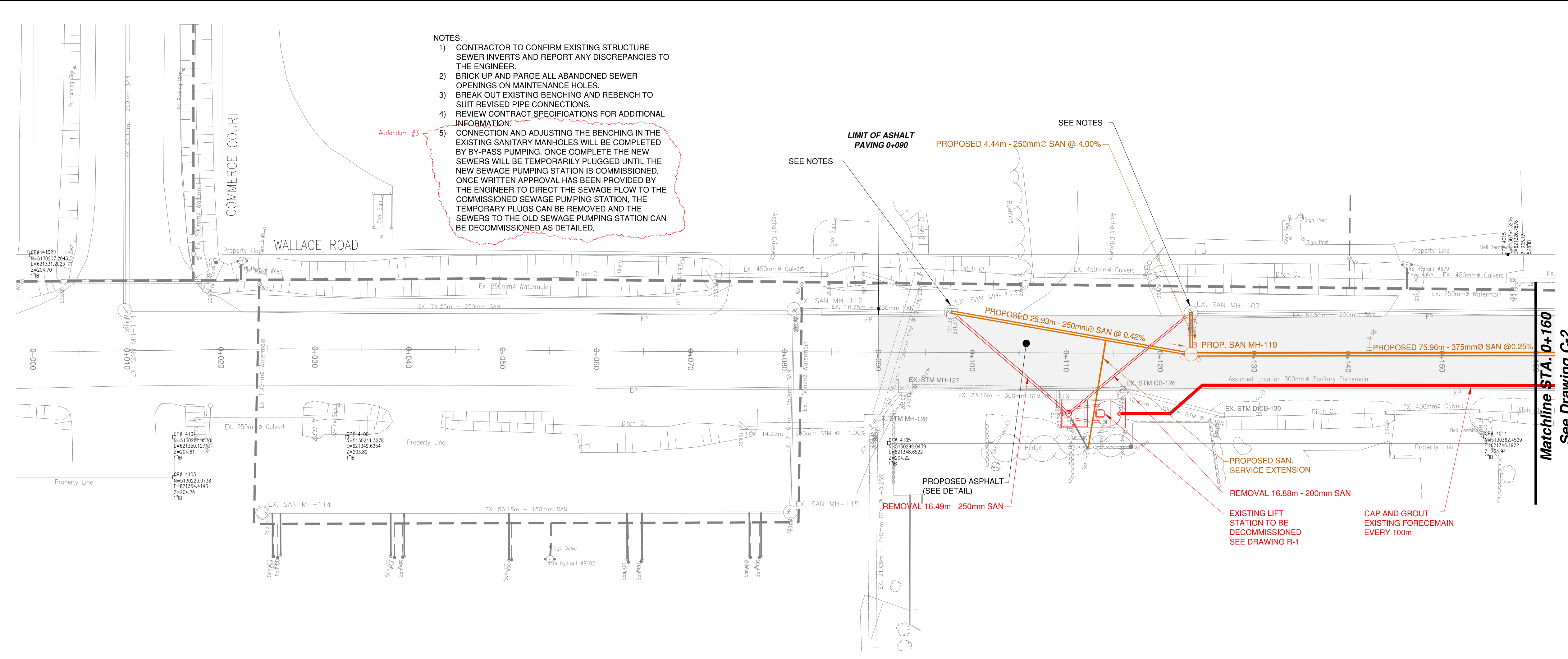
KEY PLAN

LEGEND



- NOTES:**
- CONTRACTOR TO CONFIRM EXISTING STRUCTURE SEWER INVERTS AND REPORT ANY DISCREPANCIES TO THE ENGINEER.
 - BRICK UP AND PARGE ALL ABANDONED SEWER OPENINGS ON MAINTENANCE HOLES.
 - BREAK OUT EXISTING BENCHING AND REBENCH TO SUIT REVISED PIPE CONNECTIONS.
 - REVIEW CONTRACT SPECIFICATIONS FOR ADDITIONAL INFORMATION.
 - CONNECTION AND ADJUSTING THE BENCHING IN THE EXISTING SANITARY MANHOLES WILL BE COMPLETED BY BY-PASS PUMPING. ONCE COMPLETE THE NEW SEWERS WILL BE TEMPORARILY PLUGGED UNTIL THE NEW SEWAGE PUMPING STATION IS COMMISSIONED. ONCE WRITTEN APPROVAL HAS BEEN PROVIDED BY THE ENGINEER TO DIRECT THE SEWAGE FLOW TO THE COMMISSIONED SEWAGE PUMPING STATION, THE TEMPORARY PLUGS CAN BE REMOVED AND THE SEWERS TO THE OLD SEWAGE PUMPING STATION CAN BE DECOMMISSIONED AS DETAILED.

Addendum #3



- NOTES:**
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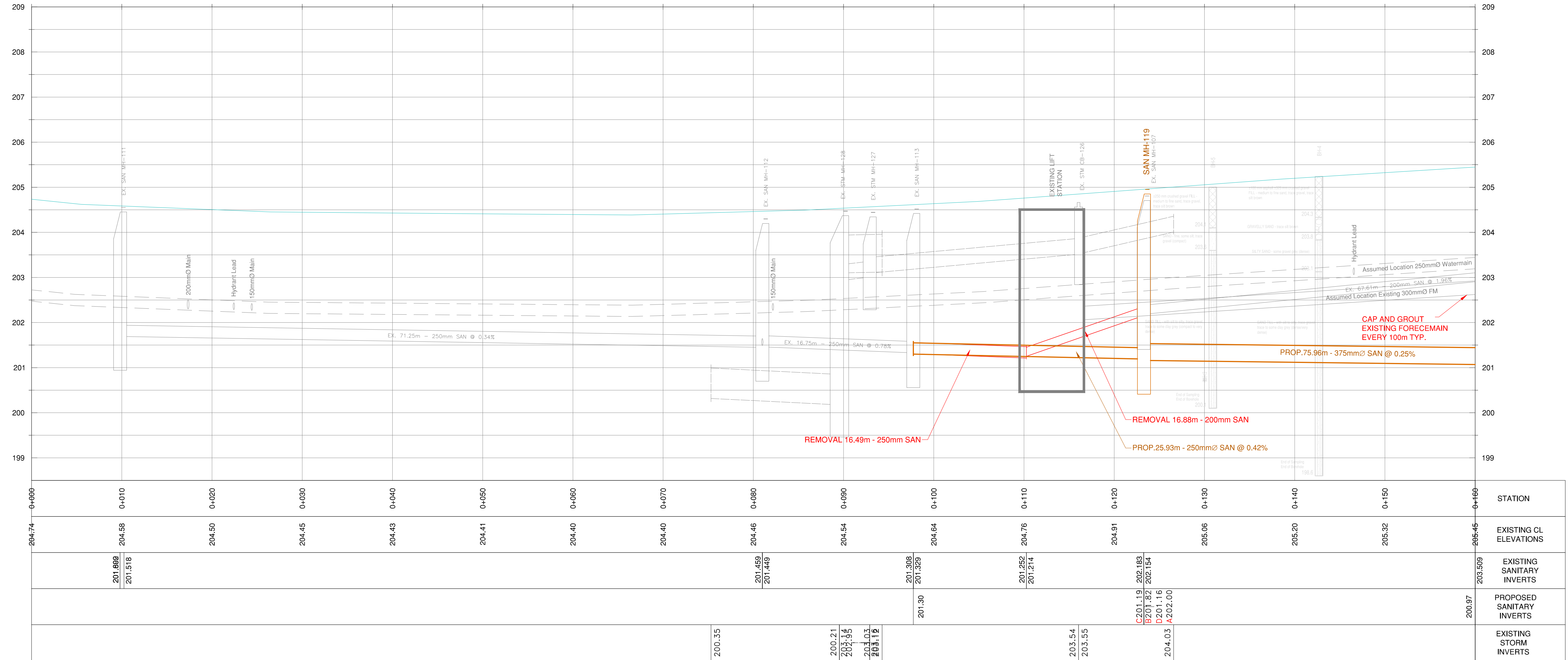
WALLACE ROAD SEWAGE PUMPING STATION, SANITARY SEWER AND FORECMAIN TENDER 2021-17

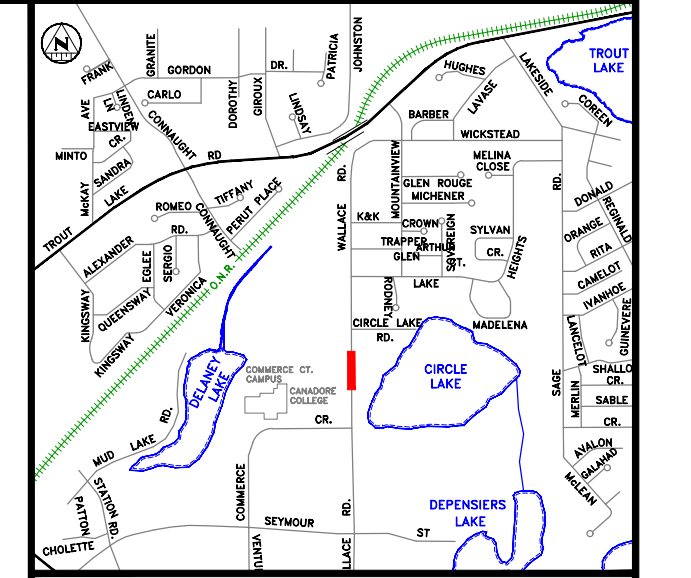
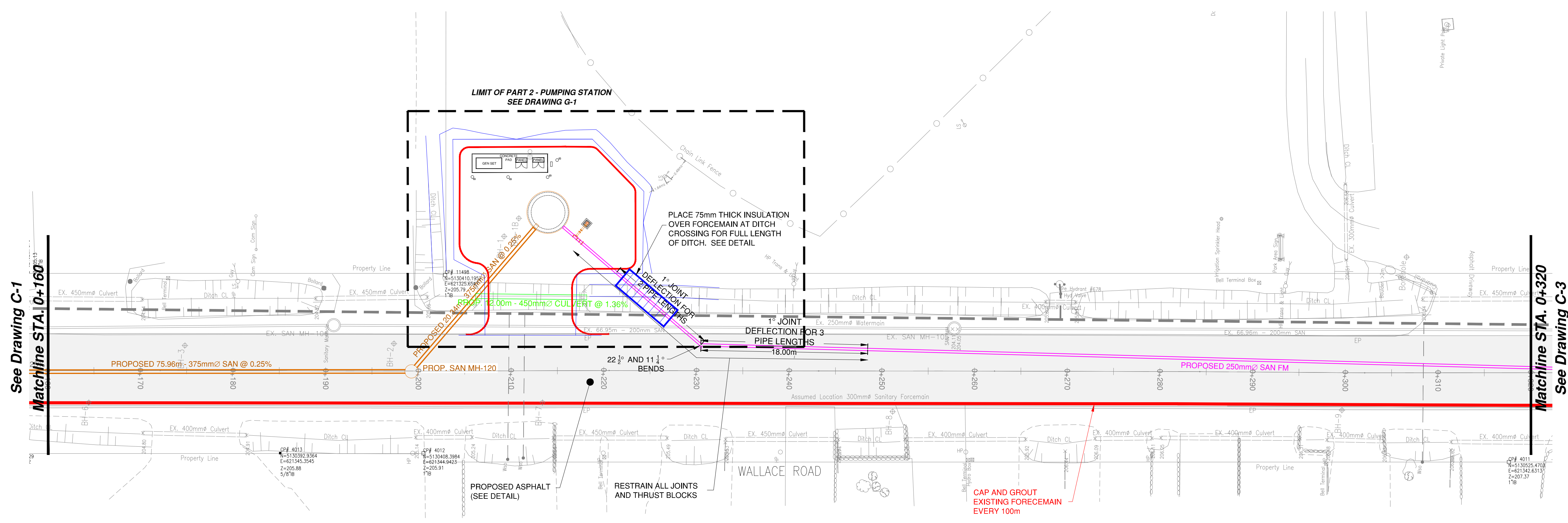
NEW CONSTRUCTION

WALLACE ROAD

Sta: 0+000 To 0+160	
designer G.W.C.	checked by G.Mc.
date 03/05/2021	approved by A.L.
scale H.1:250 V.1:50	
drawing number C-1	sheet 3 of 21

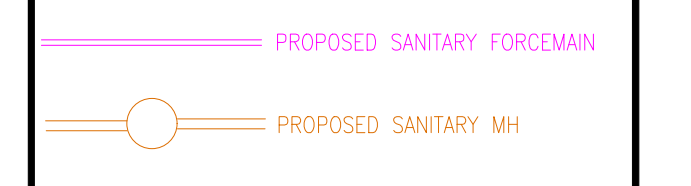
WALLACE ROAD





KEY PLAN

LEGEND



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REVISIONS

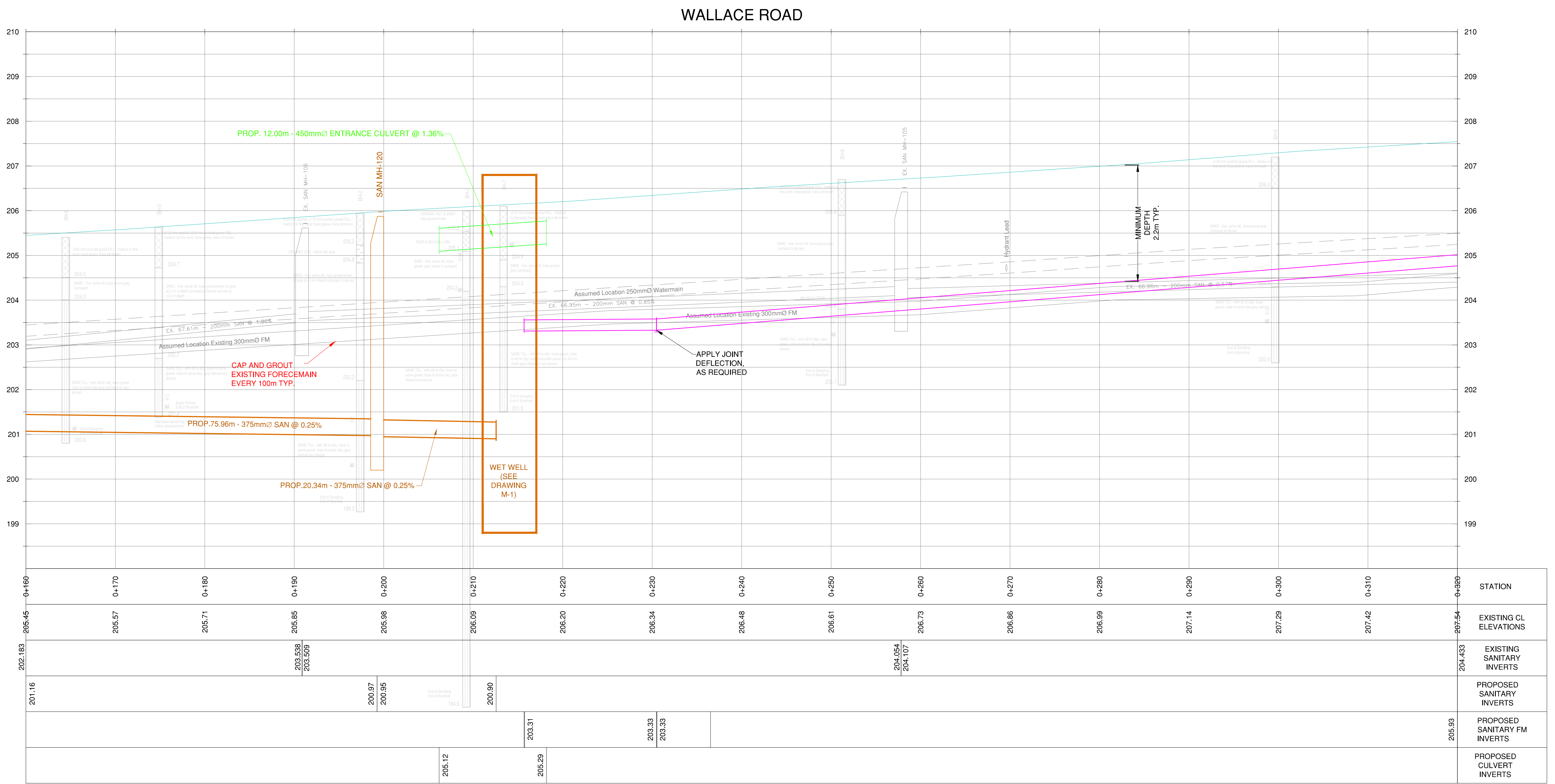
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WALLACE ROAD SEWAGE PUMPING STATION, SANITARY SEWER AND FORCEMAIN TENDER 2021-17

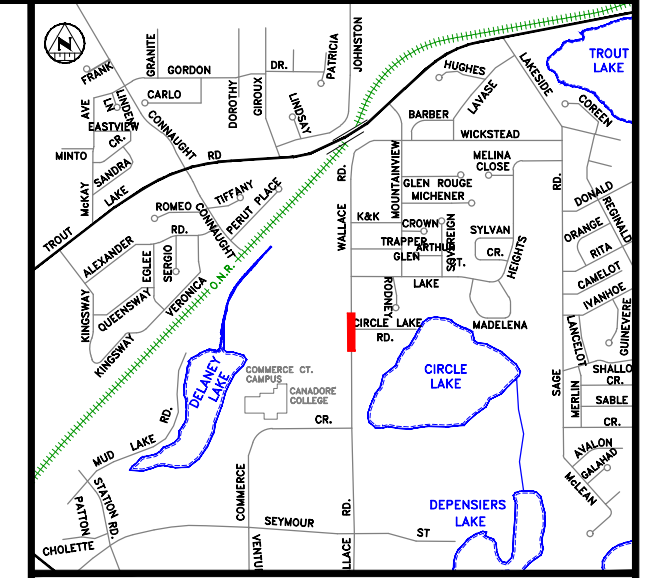
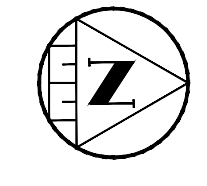
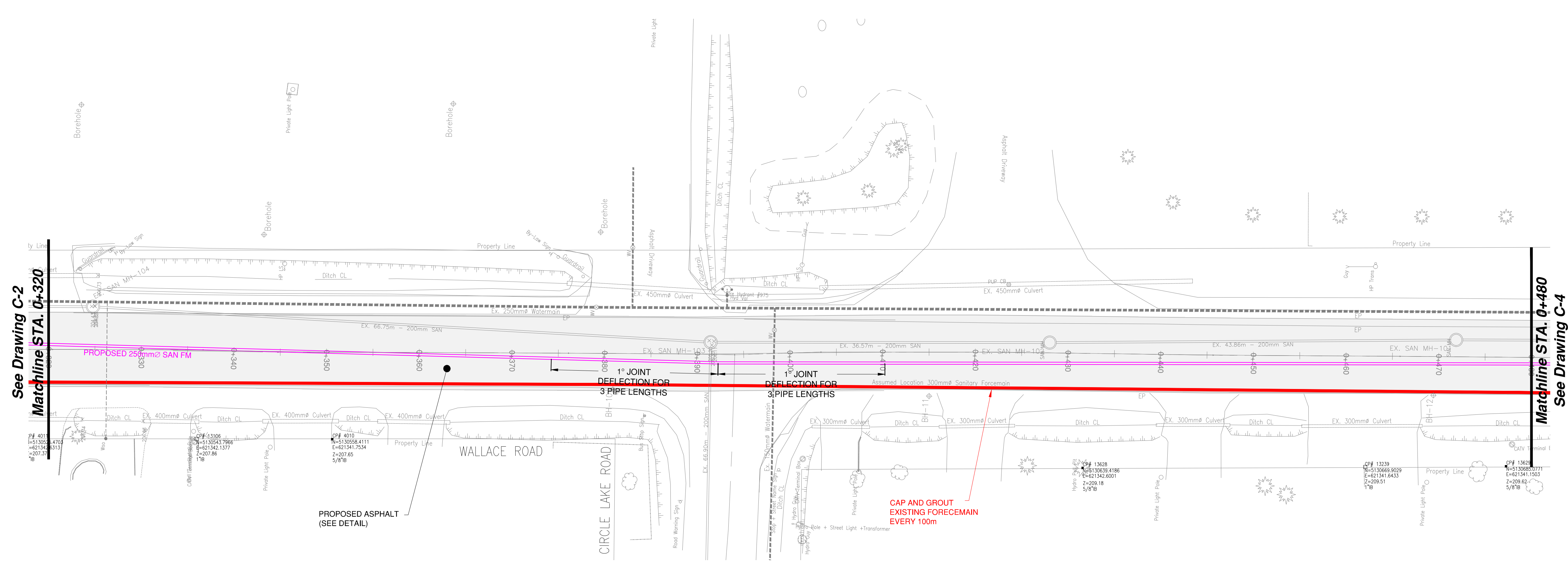
NEW CONSTRUCTION

WALLACE ROAD	
Sta: 0+160 To 0+320	
designer G.W.C.	checked by G.Mc.
date 03/05/2021	approved by A.L.
scale H:1:250 V:1:50	sheet 4 of 21
drawing number C-2	



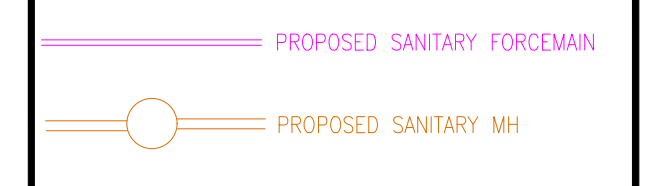
WALLACE ROAD

STATION	EXISTING CL ELEVATIONS	EXISTING SANITARY INVERTS	PROPOSED SANITARY INVERTS	PROPOSED SANITARY FM INVERTS	PROPOSED CULVERT INVERTS
0+160	205.45	204.16			
0+170	205.57	203.598 203.509			
0+180	205.71				
0+190	205.85	200.97 200.95			
0+200	205.98				
0+210	206.09	200.90			
0+220	206.20				
0+230	206.34	203.33 203.33			
0+240	206.46				
0+250	206.61	204.054 204.107			
0+260	206.73				
0+270	206.86				
0+280	206.99				
0+290	207.14				
0+300	207.29				
0+310	207.42				
0+320	207.54	204.433	205.93		



KEY PLAN

LEGEND



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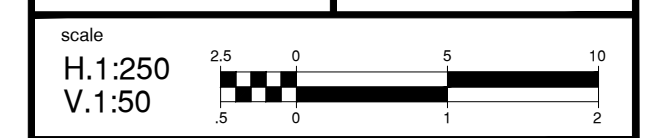
WALLACE ROAD SEWAGE PUMPING STATION, SANITARY SEWER AND FORECMAIN TENDER 2021-17

NEW CONSTRUCTION

WALLACE ROAD

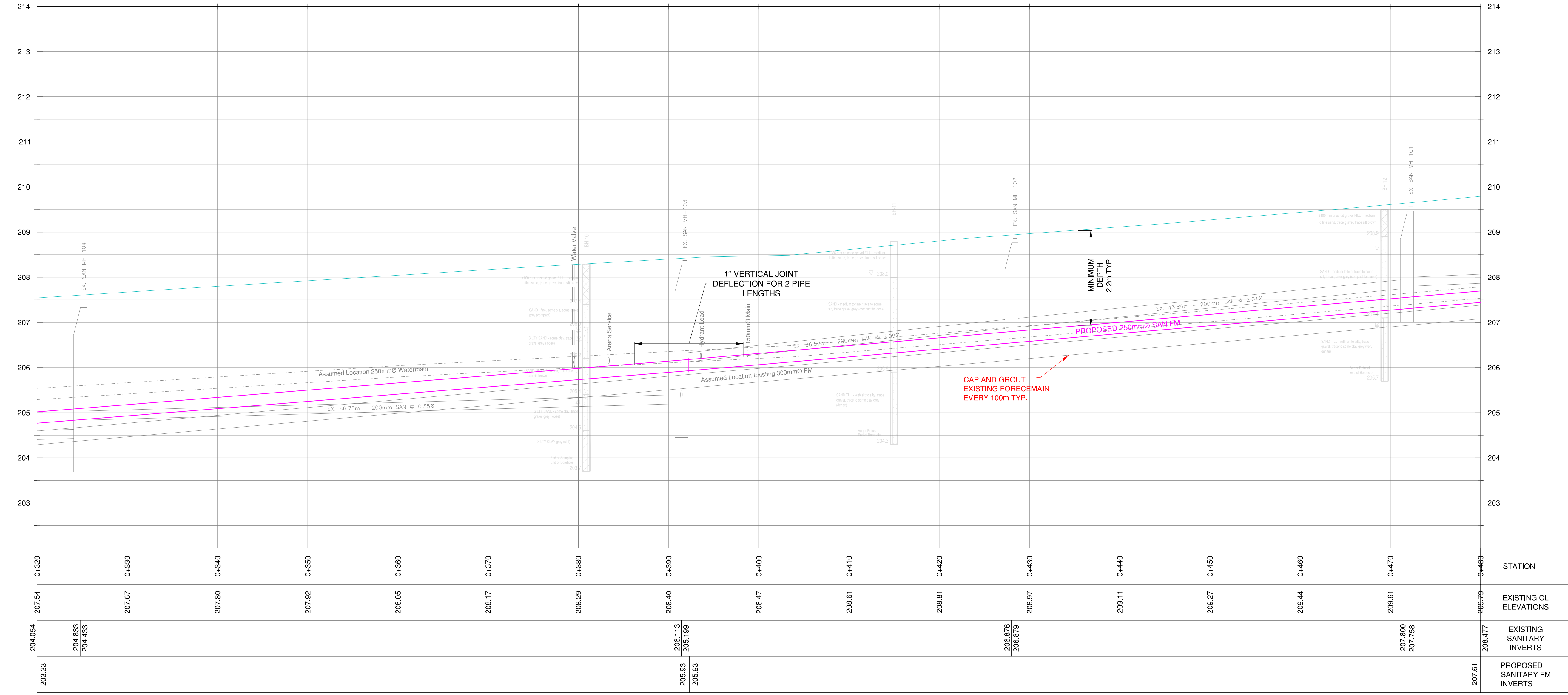
Sta: 0+320 To 0+480

designer G.W.C.	checked by G.Mc.
date 03/05/2021	approved by A.L.

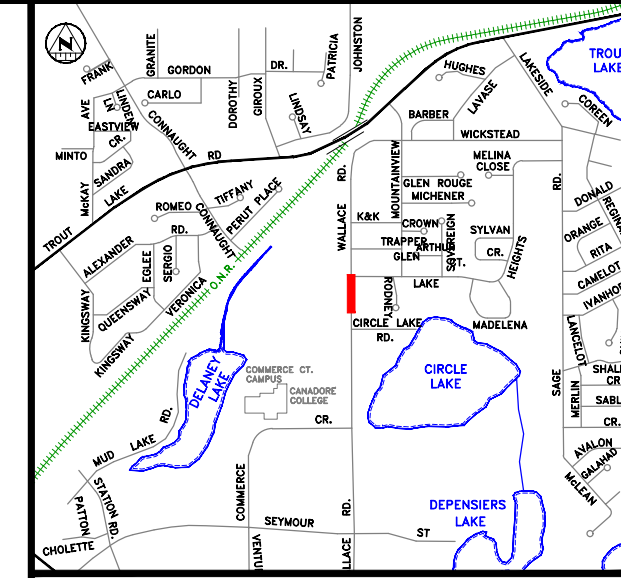
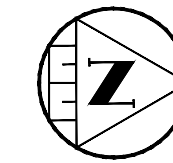


drawing number C-3	sheet 5 of 21
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WALLACE ROAD

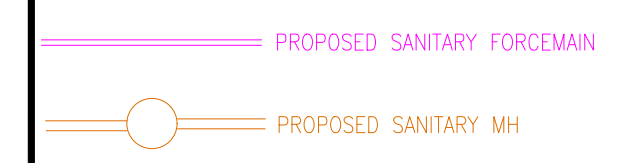


STATION	EXISTING CL ELEVATIONS	EXISTING SANITARY INVERTS	PROPOSED SANITARY FM INVERTS
0+320	207.54	204.833	205.93
0+330	207.67	204.403	205.93
0+340	207.80		
0+350	207.92		
0+360	208.05		
0+370	208.17		
0+380	208.29		
0+390	208.40	206.113	205.93
0+400	208.47	205.198	205.93
0+410	208.61		
0+420	208.81		
0+430	208.97	206.876	206.879
0+440	209.11		
0+450	209.27		
0+460	209.44		
0+470	209.61	207.800	207.758
0+480	209.79	206.477	206.477



KEY PLAN

LEGEND



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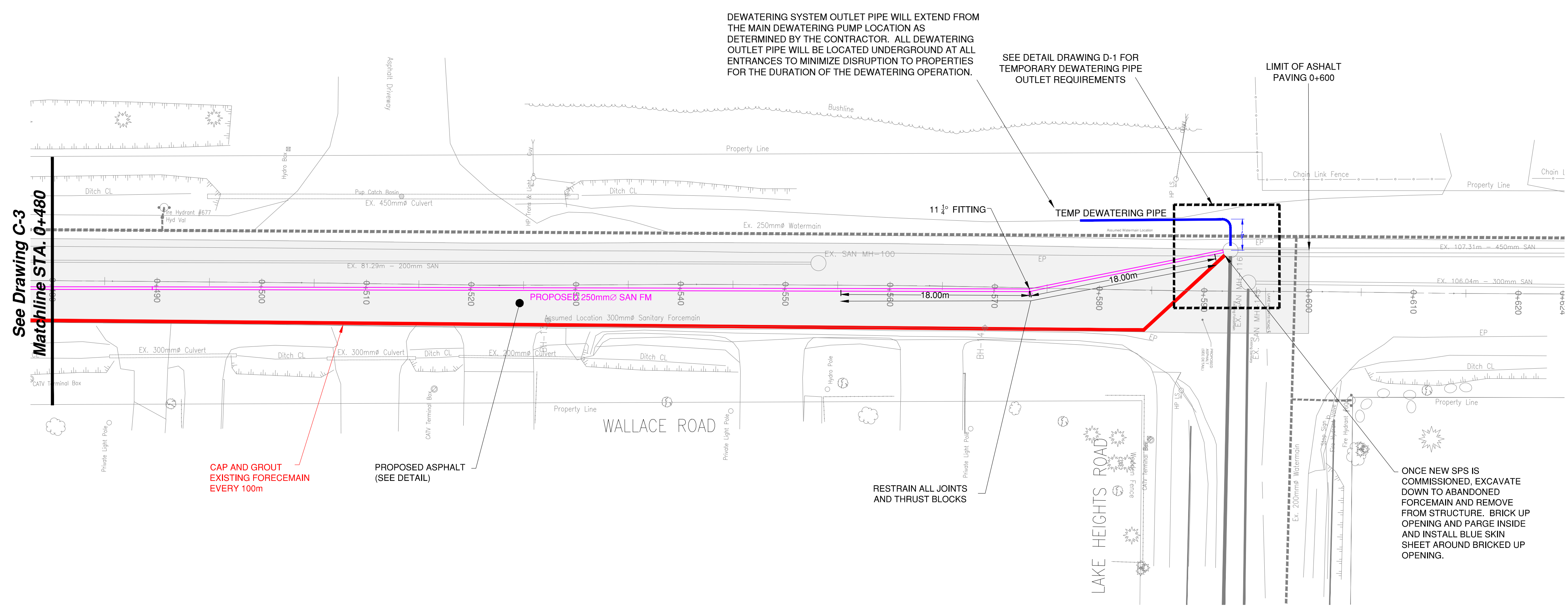


WALLACE ROAD SEWAGE PUMPING STATION, SANITARY SEWER AND FORCEMAIN TENDER 2021-17

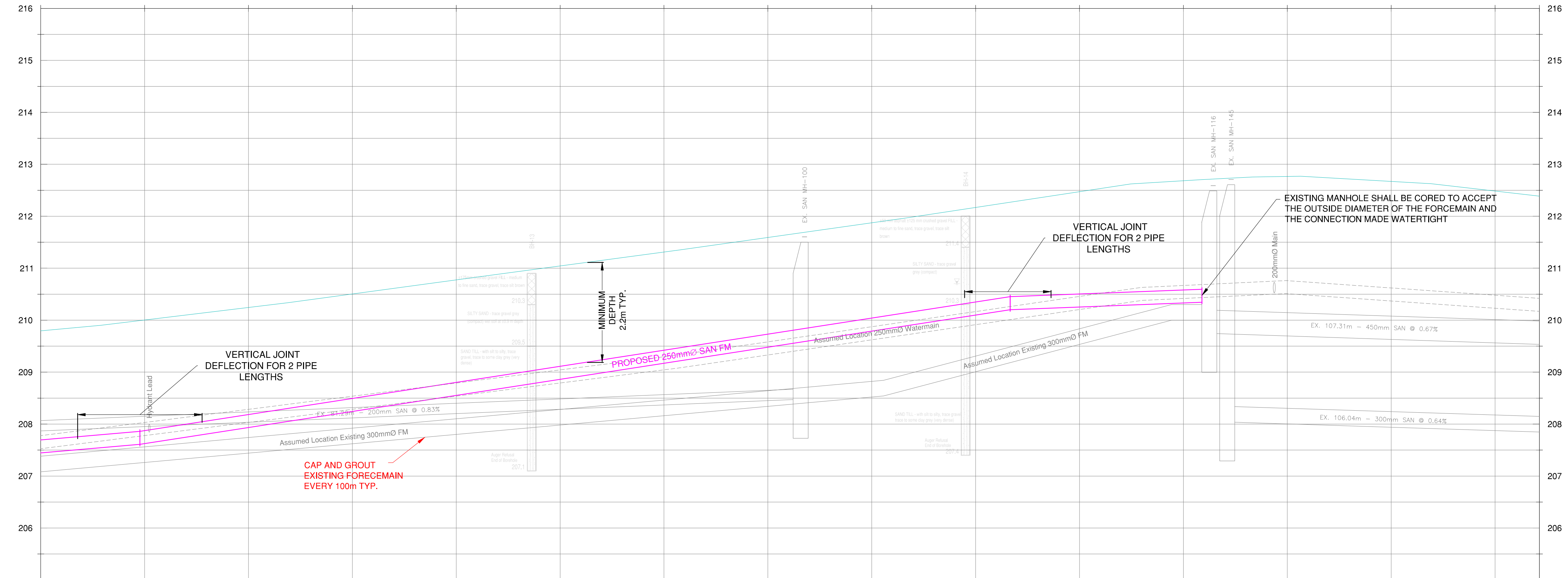
NEW CONSTRUCTION

WALLACE ROAD

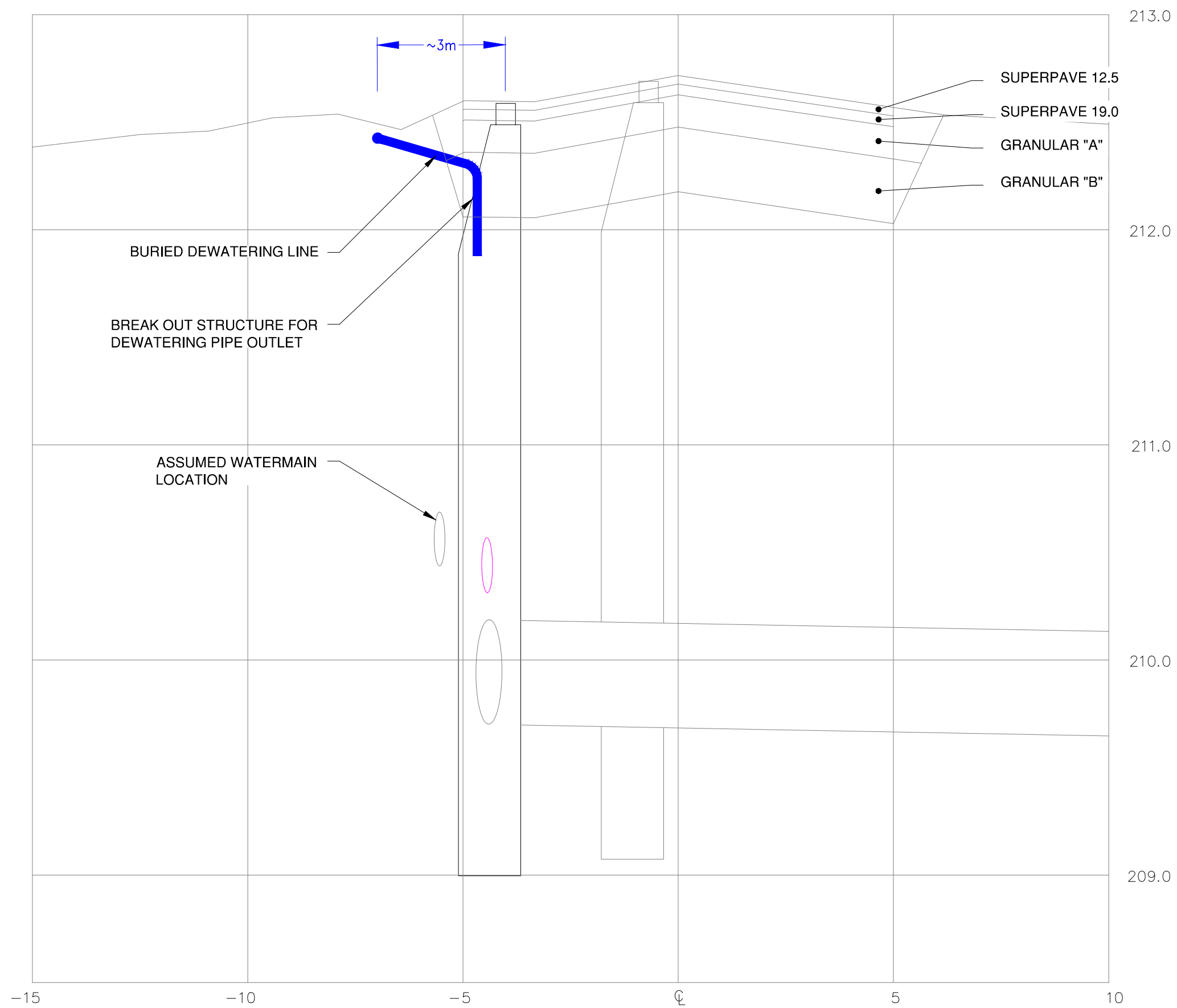
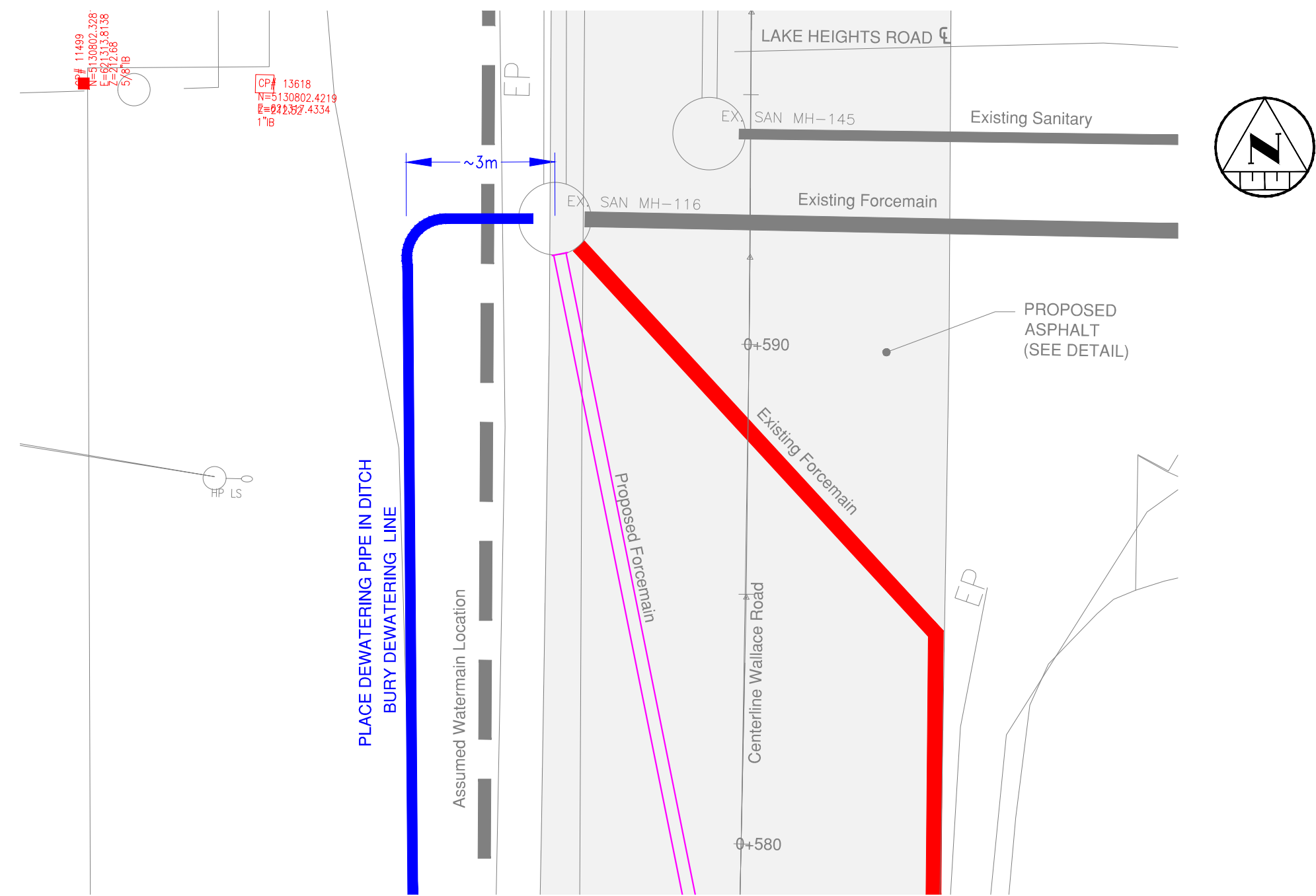
Sta: 0+480 To 0+624.270	
designer G.W.C.	checked by: G.Mc.
date 03/05/2021	approved by: A.L.
scale H:1:250 V:1:50	
drawing number C-4	sheet 6 of 21



WALLACE ROAD

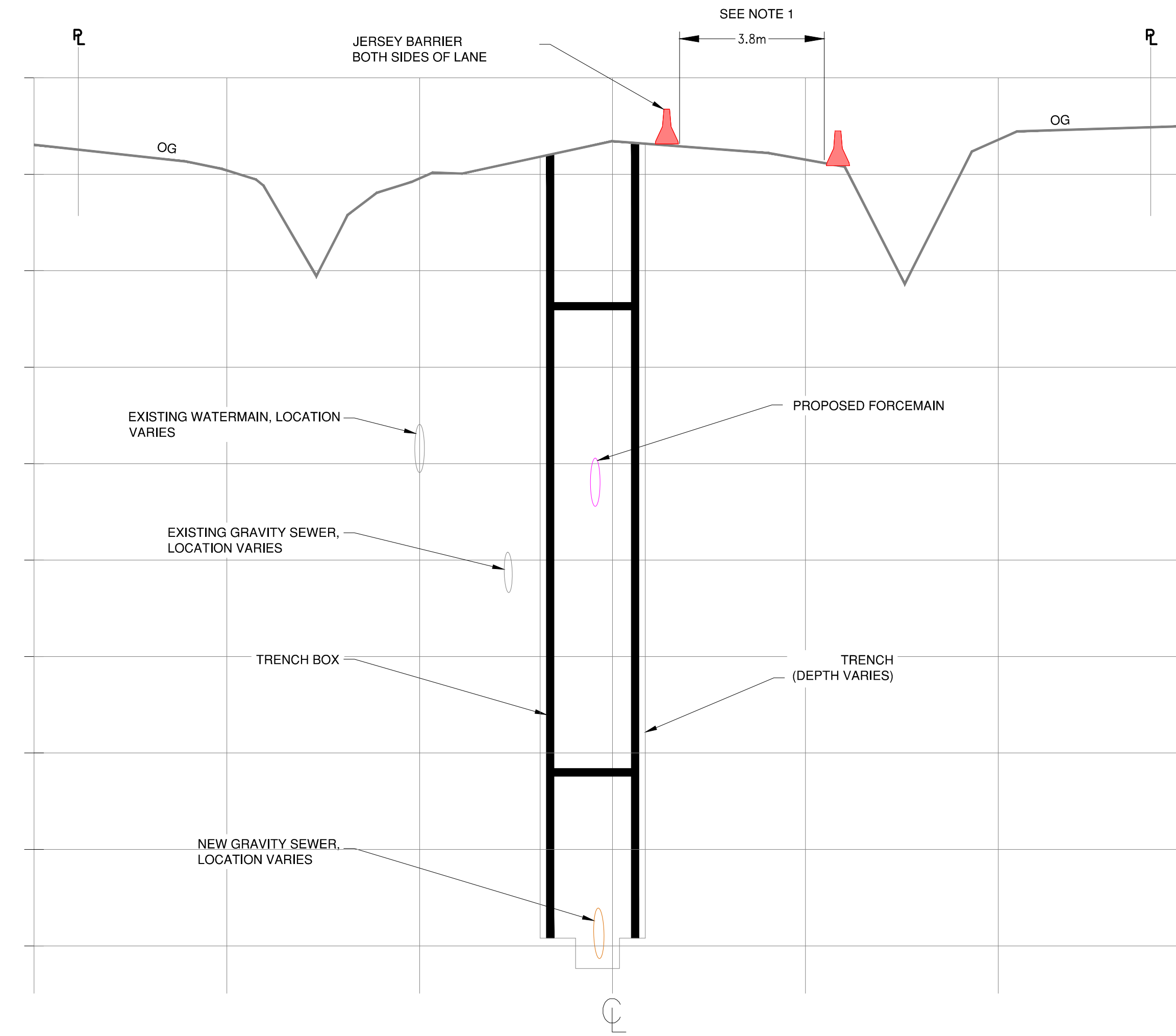


STATION	EXISTING CL ELEVATIONS	EXISTING SANITARY INVERTS	PROPOSED SANITARY FM INVERTS
0+480	207.800	207.93	207.61
0+490	210.00	207.61	207.61
0+500	210.24		
0+510	210.50		
0+520	210.78		
0+530	211.04		
0+540	211.31		
0+550	211.59		
0+560	211.87		
0+570	212.17		
0+580	212.47		
0+590	212.68	209.746	210.35
0+600	212.77	208.041	210.20
0+610	212.67		210.20
0+620	212.49		
0+624.27	212.39	209.988	



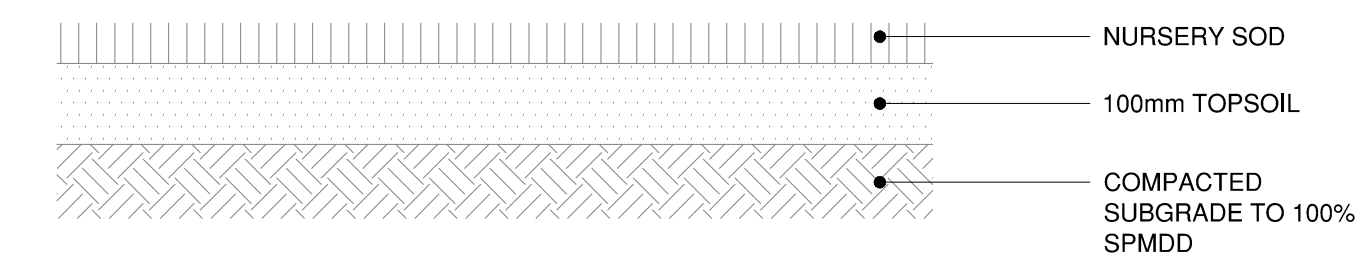
DETAIL SECTION - DEWATERING OUTLET
NTS

- NOTES:
- 1) RUN DEWATERING LINES ALONG THE WEST DITCH OF WALLACE ROAD FROM THE NEW SPS SITE AND SANITARY SEWER, TO THE MANHOLE AT LAKE HEIGHTS ROAD.
 - 2) DO NOT BLOCK THE DITCH OR CULVERT WHEN RUNNING THROUGH A CULVERT.
 - 3) BURY THE DEWATERING LINE FROM THE DITCH TO THE MANHOLE.
 - 4) BREAK INTO THE MANHOLE, FEED THE LINE SO THE WATER DRAINS DIRECTLY INTO THE MANHOLE.
 - 5) UPON COMPLETION OF THE PROJECT, REMOVE THE DEWATERING LINE AND REPAIR THE MANHOLE, AND RESTORE ROAD / SHOULDER / DITCH TO EXISTING OR BETTER CONDITION.

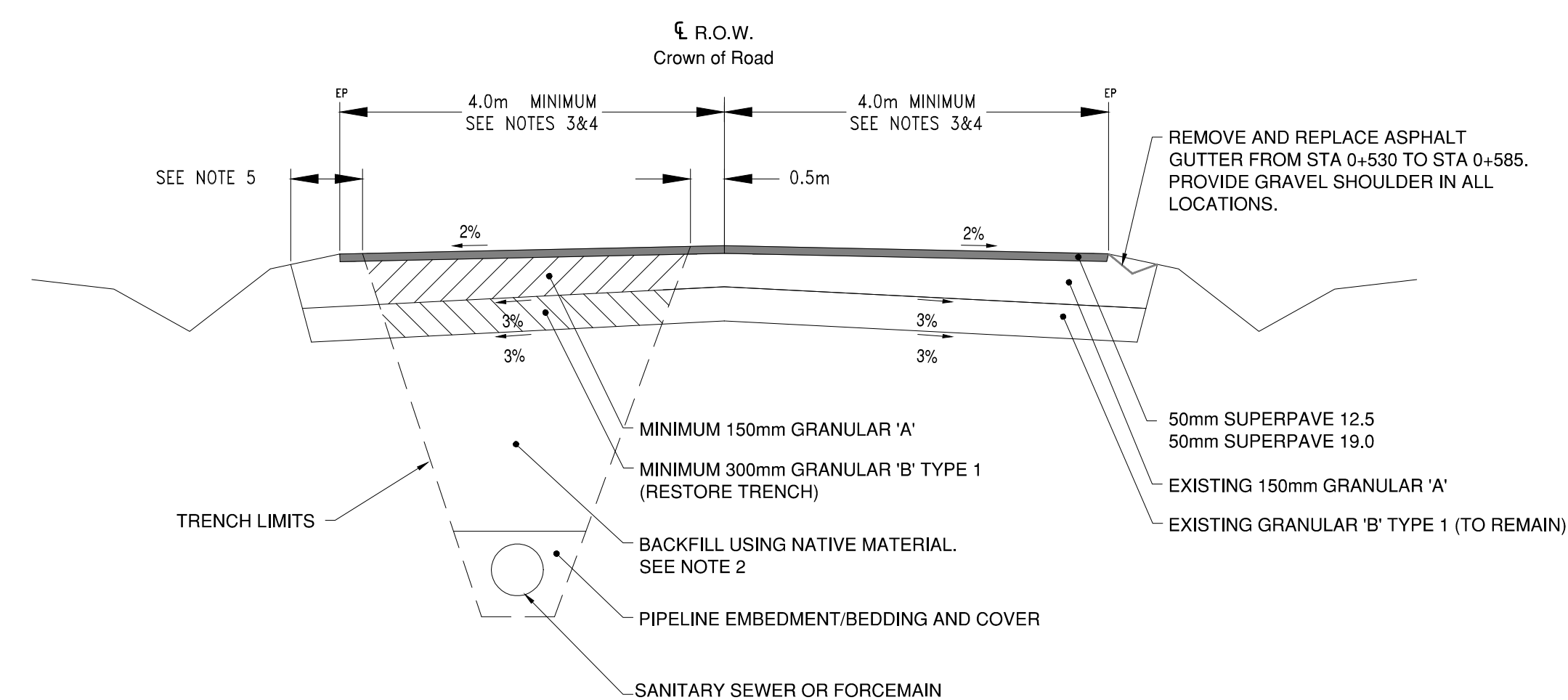


TRAFFIC CONTROL - TRENCH DETAIL
NTS

- NOTES:
- 1) MAINTAIN A SINGLE LANE OF TRAFFIC WITH A MINIMUM LANE WIDTH OF 3.75m, OPEN AT ALL TIMES, MANUAL FLAGGING DURING CONSTRUCTION AND TEMPORARY TRAFFIC LIGHTS DURING ALL OTHER TIMES.
 - 2) LOCATION OF SINGLE LANE OF TRAFFIC WILL BE ADJUSTED TO SUIT TRENCH CONSTRUCTION.

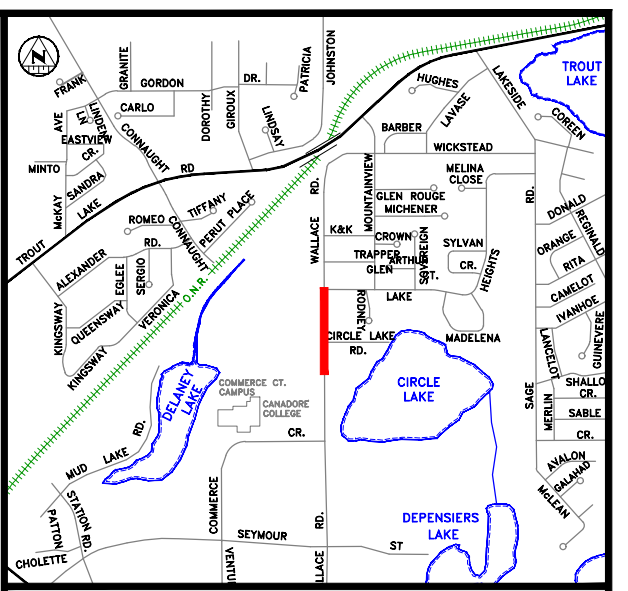


GRASS RESTORATION DETAIL
NTS



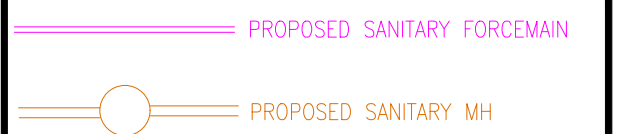
TYPICAL WALLACE ROAD RESTORATION SECTION
NTS

- NOTES:
- 1) PAYMENT FOR RIGHT-OF-WAY RESTORATION WILL BE PAID UNDER THE PART 1 - HORIZONTAL WORKS, IN THE SCHEDULE OF PRICES AND ITEMS.
 - 2) CONTRACTOR WILL MANAGE NATIVE MATERIAL TO ENSURE SUFFICIENT BACKFILL IS AVAILABLE. SATURATED MATERIAL WILL BE PLACED IN A LOCATION FOUND BY THE CONTRACTOR UNTIL IT REACHES OPTIMUM MOISTURE CONTENT AS DETERMINED BY THE CONTRACTORS GEOTECHNICAL ENGINEER. BACKFILL WITH DISSIMILAR MATERIAL FROM THE NATIVE MATERIAL WILL NOT BE PERMITTED.
 - 3) MATCH EXISTING ROAD GRADE AND ROAD WIDTH (MINIMUM 4.0m)
 - 4) REMOVE EXISTING ASPHALT PAVEMENT AND ADD GRANULAR 'A' BASE AS REQUIRED TO OBTAIN ORIGINAL ROAD PROFILE.
 - 5) WHERE DISTANCE TO EDGE OR ASPHALT PAVEMENT FROM EDGE OF TRENCH IS 1m OR LESS THE BASE AND SUB-BASE MATERIALS WILL BE REMOVED AS PART OF THE ROAD RESTORATION.



KEY PLAN

LEGEND



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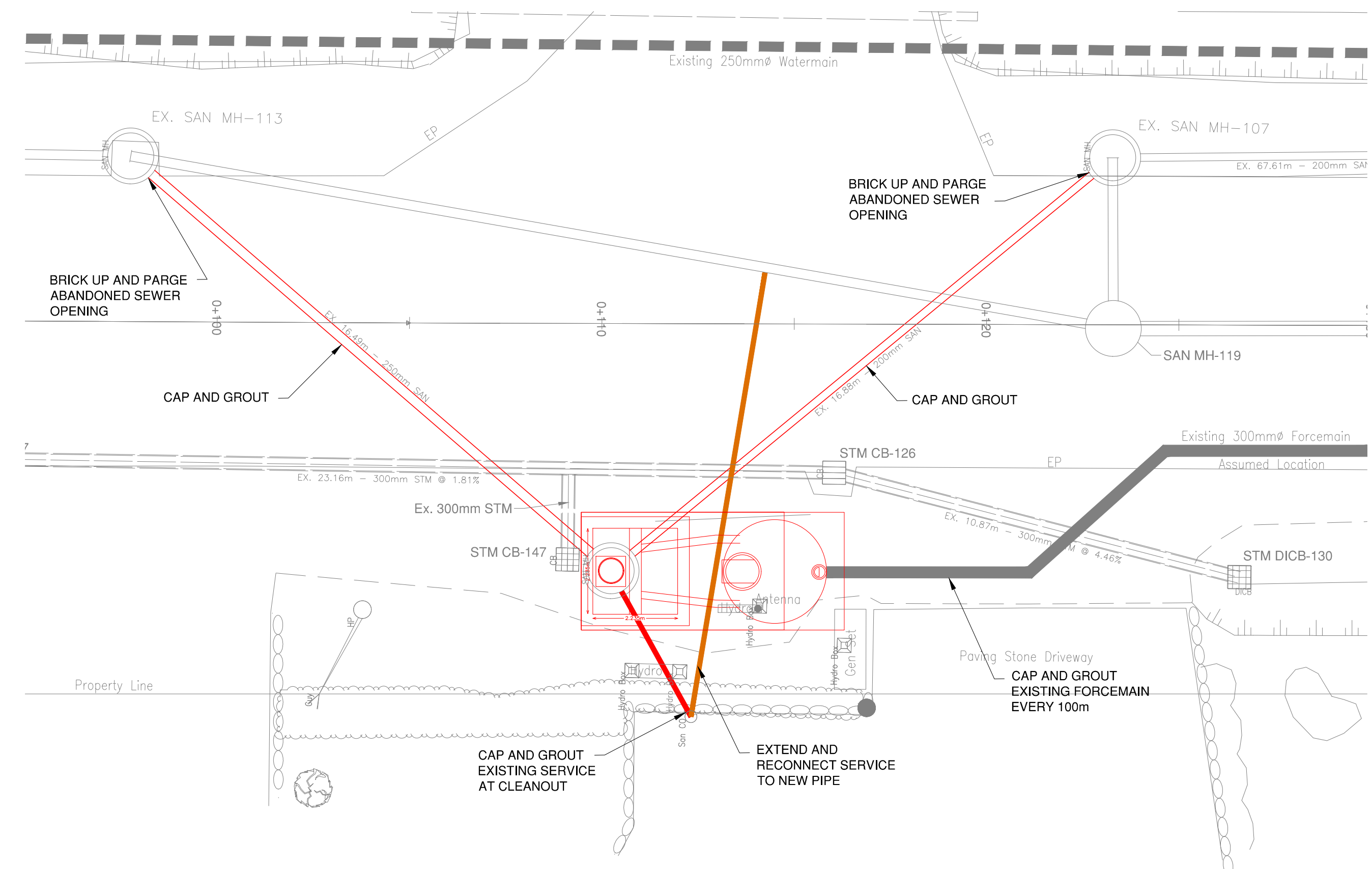


WALLACE ROAD SEWAGE PUMPING STATION, SANITARY SEWER AND FORCEMAIN TENDER 2021-17

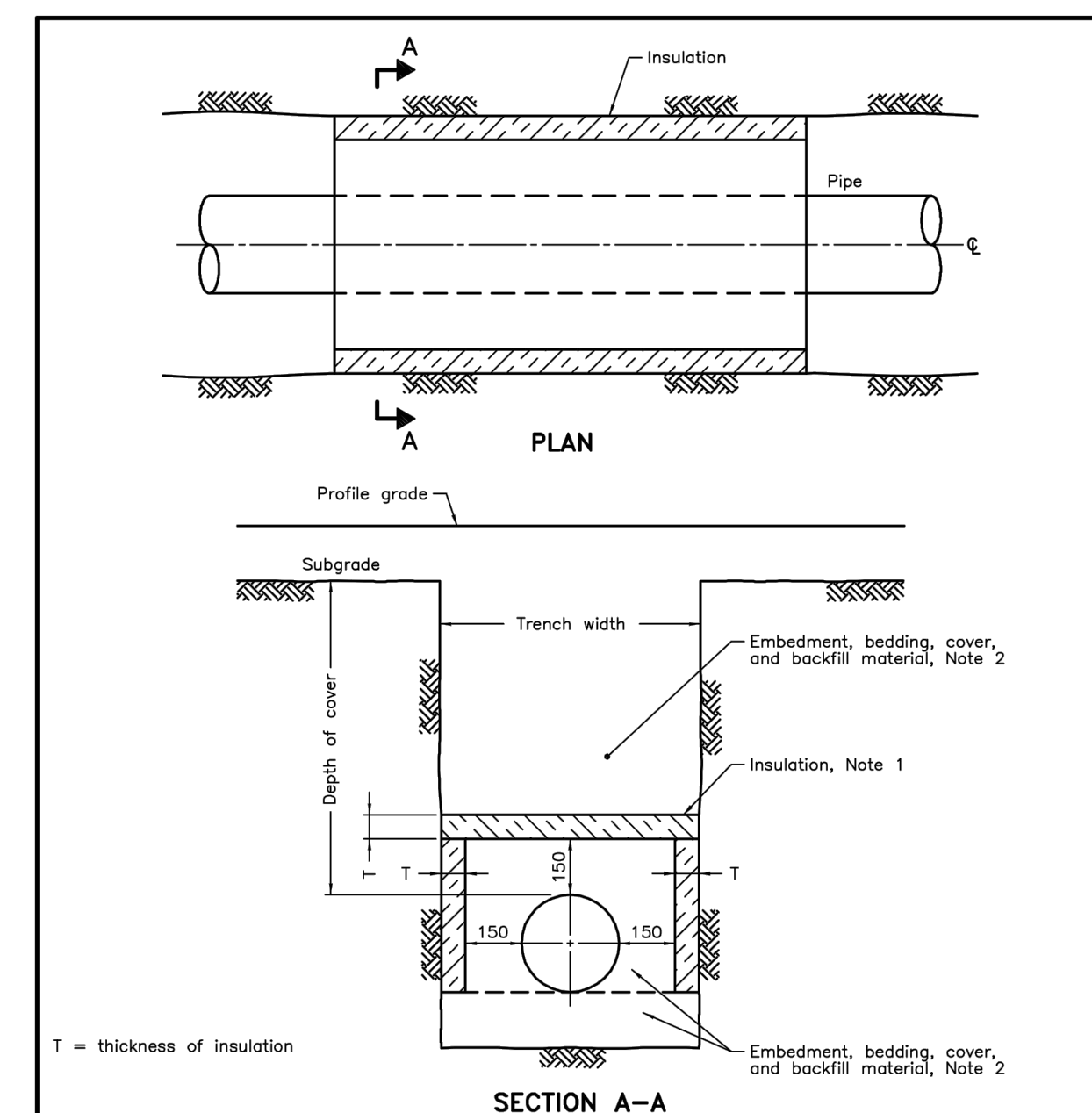
DETAILS

CONSTRUCTION DETAILS 1

designer G.W.C.	checked by G.Mc.
date 03/05/2021	approved by A.L.
scale As Shown	
drawing number D-1	sheet 7 of 21

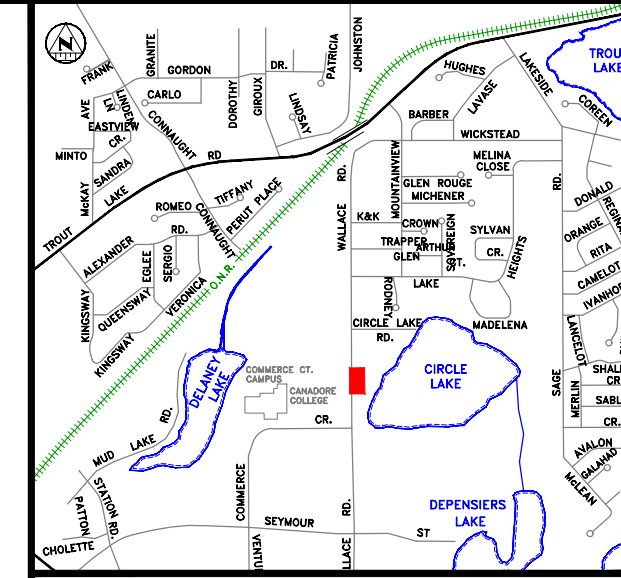


EXISTING SPS - SITE PLAN
1:100



NOTES:
 1 The insulation material shall be extruded polystyrene according to OPSS 1605 with a minimum compressive strength of 275 kPa.
 2 Pipe embedment or bedding, cover, and backfill shall be according to:
 a) Flexible OPSS 802.010, 802.013, 802.020, and 802.023.
 b) Rigid - OPSS 802.030, 802.031, 802.032, 802.033, 802.050, 802.051, 802.052, and 802.053.
 A Minimum insulation thickness shall be 50mm.
 B Joints shall be staggered for multiple insulation sheets.
 C All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING Nov 2015 Rev 0
INSULATION FOR SEWERS AND WATERMAINS IN SHALLOW TRENCHES
 OPSD 1109.030

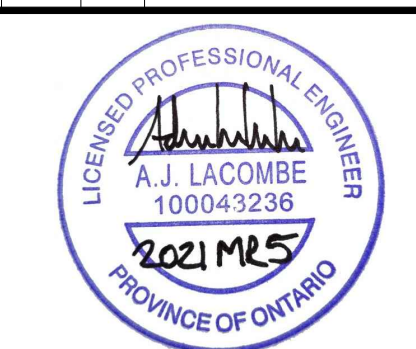


KEY PLAN
LEGEND

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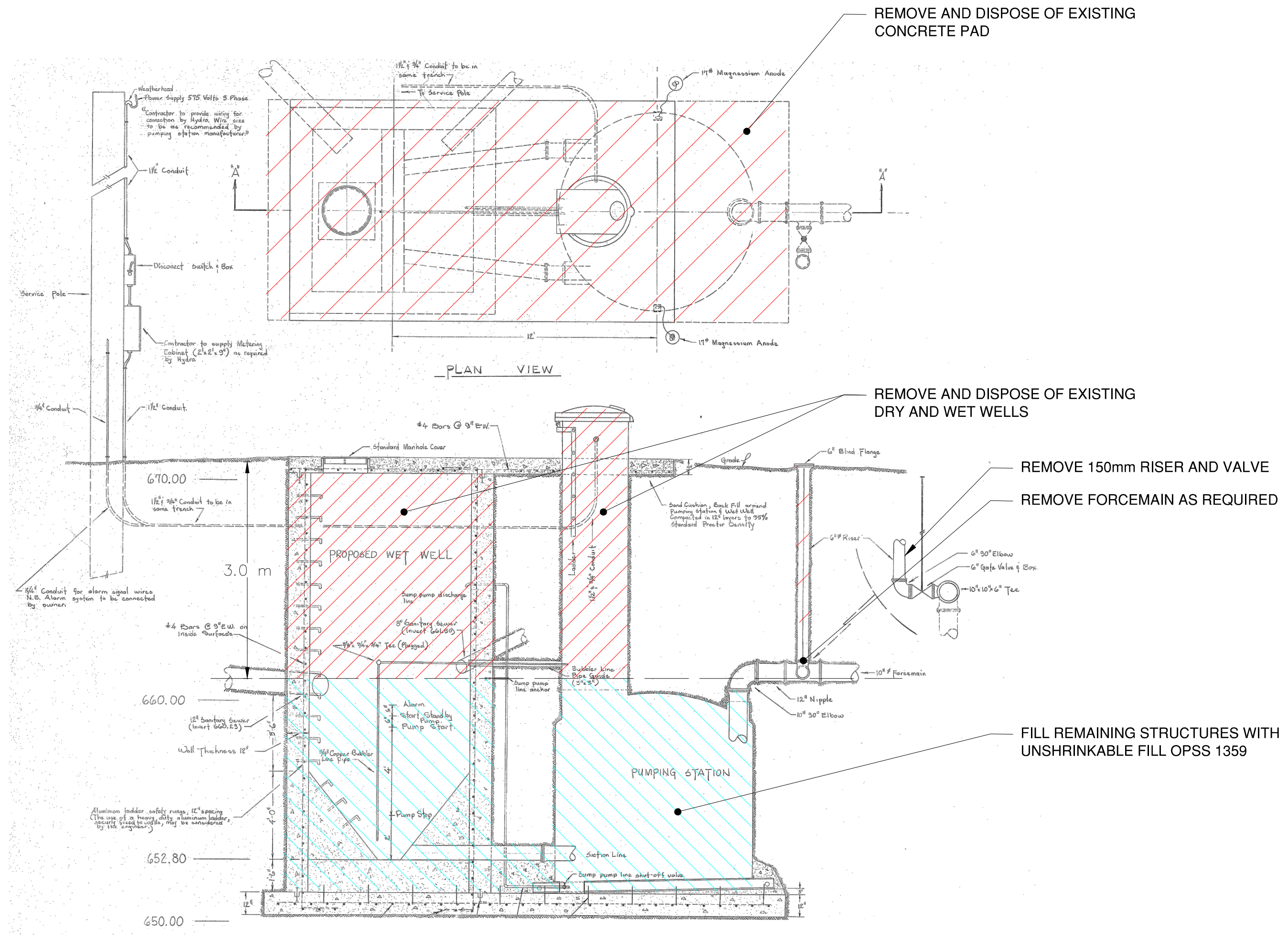


WALLACE ROAD SEWAGE PUMPING STATION, SANITARY SEWER AND FORCEMAIN TENDER 2021-17

REMOVALS + DETAILS 2

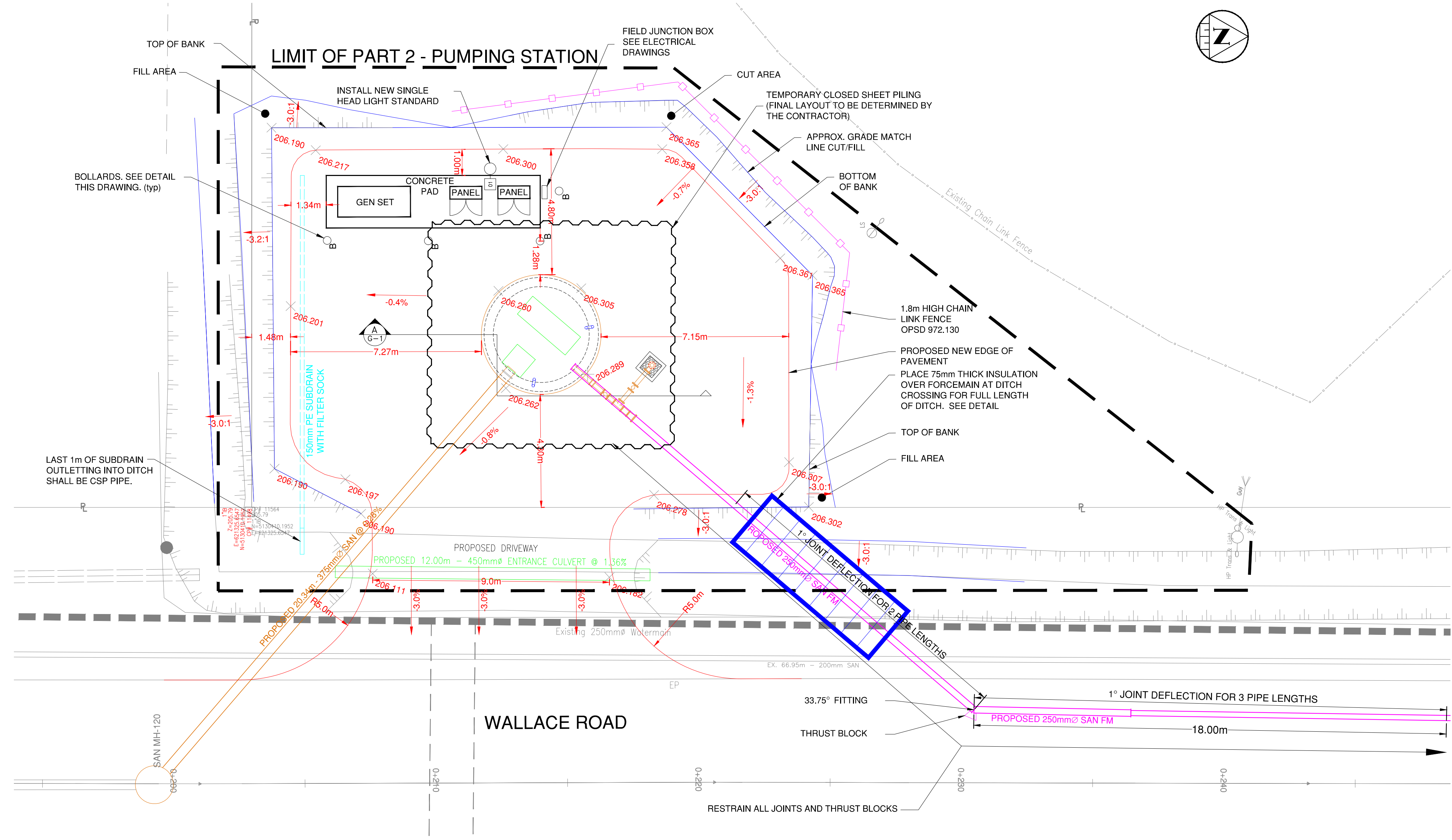
EXISTING PUMPING STATION REMOVAL

designer G.W.C.	checked by G.Mc.
date 03/05/2021	approved by A.L.
scale As Shown	
drawing number R-1	sheet 8 of 21

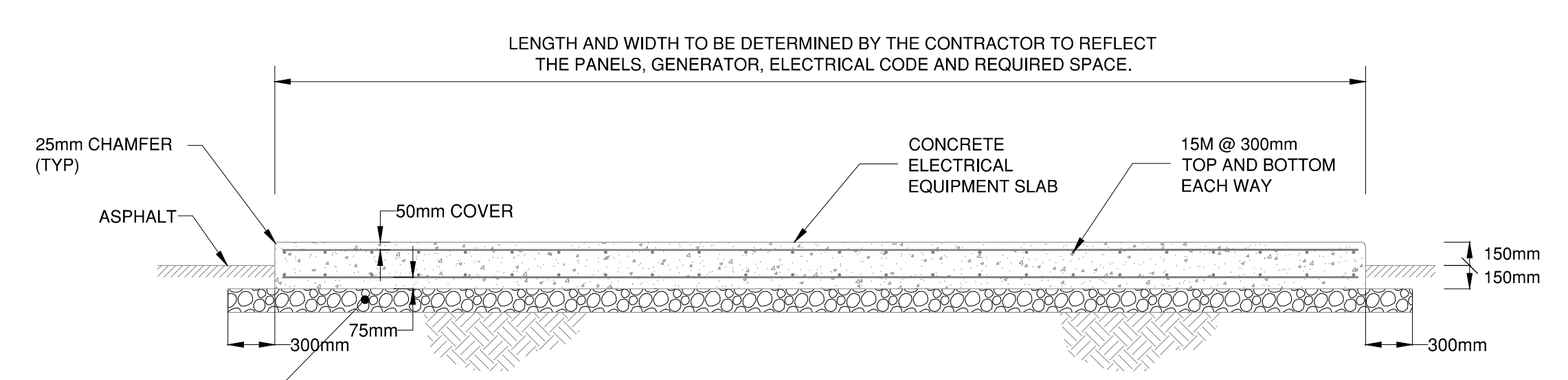


EXISTING PUMPING STATION REMOVAL
NTS

- NOTES:**
- EXISTING SEWAGE PUMPING STATION WILL BE MAINTAINED UNTIL THE NEW PUMPING STATION HAS COMPLETED ITS TRIAL RUN PERIOD. REMOVAL WILL ONLY OCCUR ONCE WRITTEN APPROVAL IS PROVIDED BY THE CITY OF NORTH BAY.
 - PUBLIC WORKS WILL IDENTIFY ITEMS TO BE SALVAGED FROM THE EXISTING PUMPING STATION.
 - NOTIFY PUBLIC WORKS TO PICK UP SALVAGED ITEMS FROM THE EXISTING PUMPING STATION.
 - CONTRACTOR WILL COORDINATE REMOVAL OF ELECTRICAL POWER WITH NORTH BAY HYDRO.

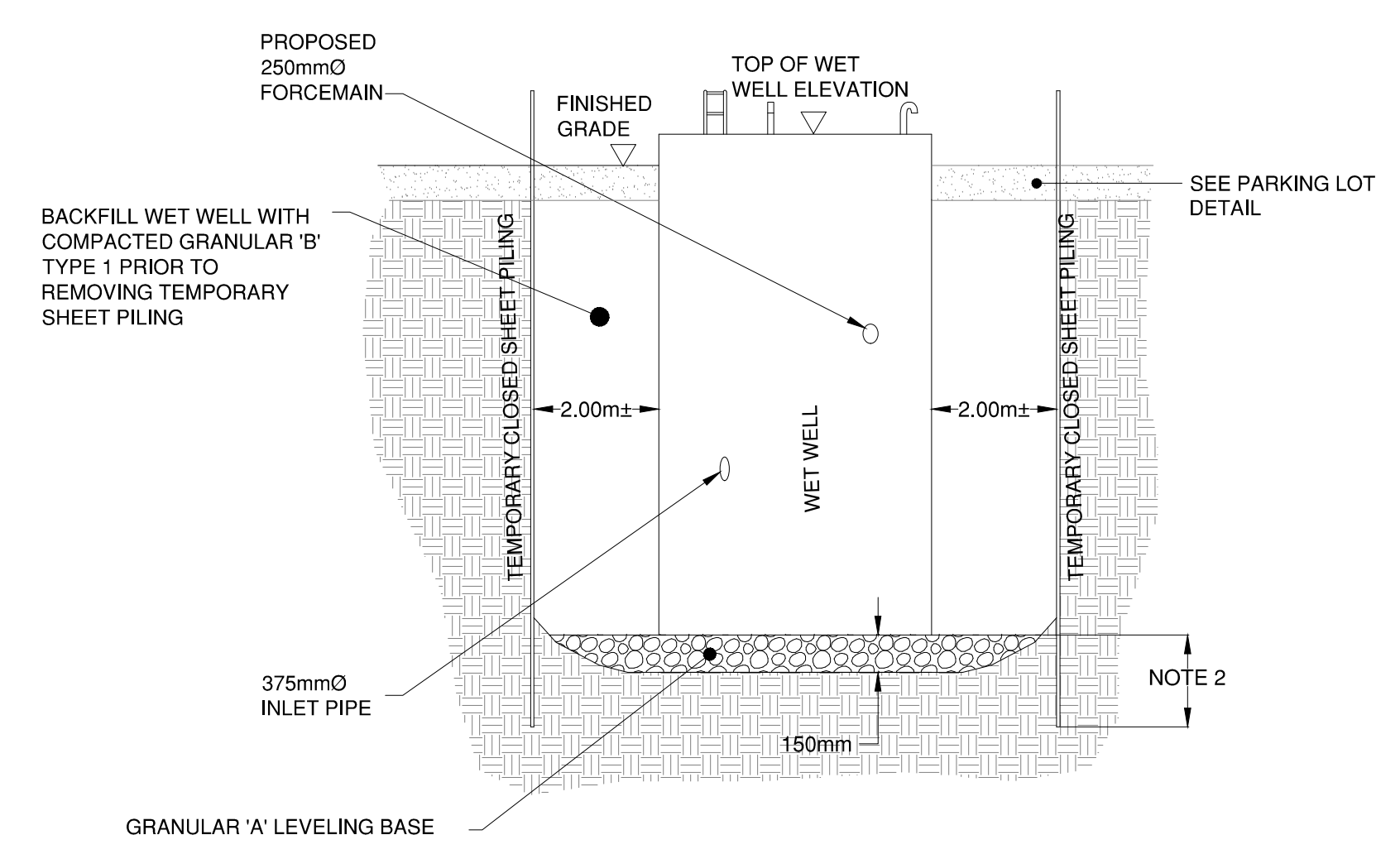


SITE PLAN
1:100



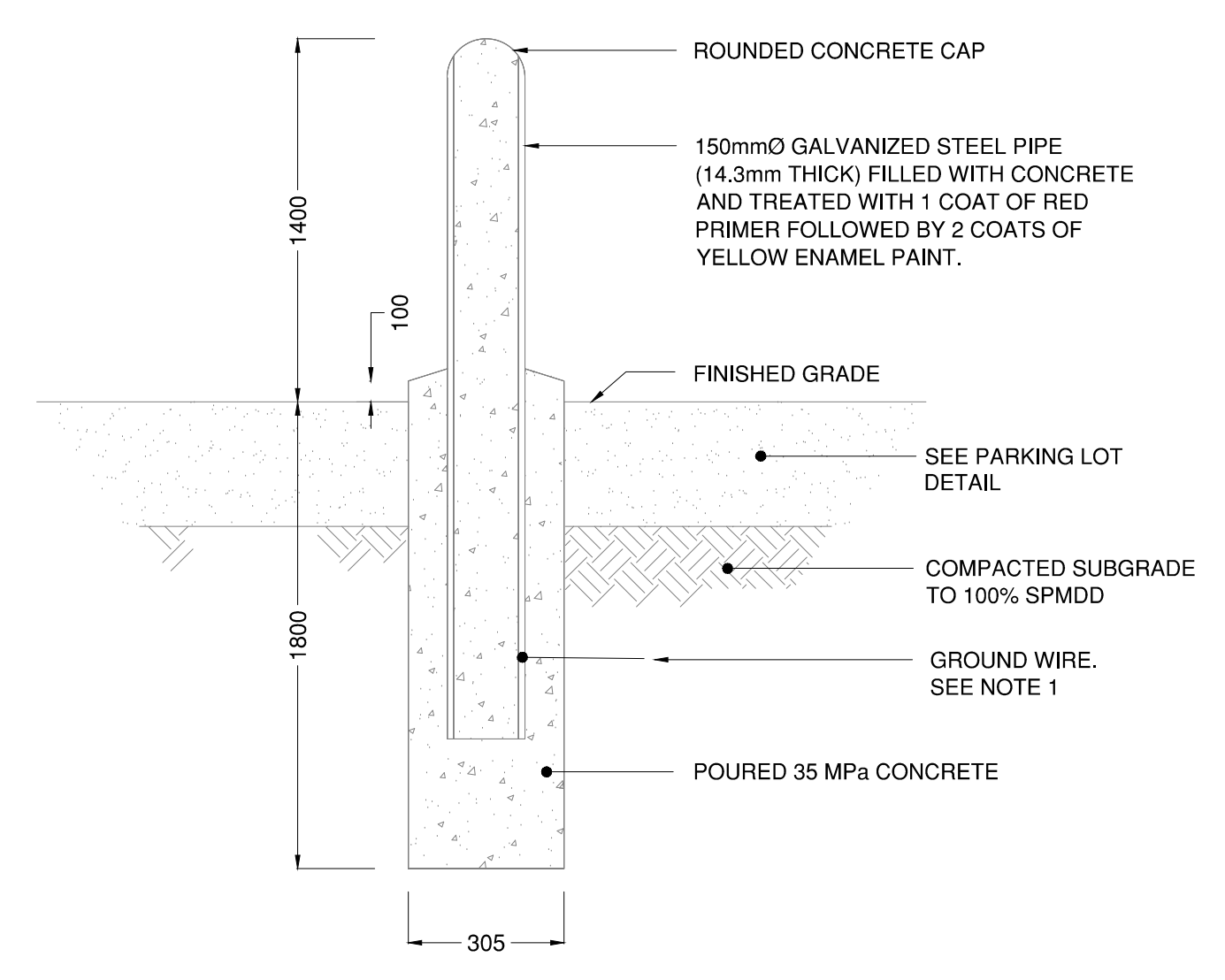
ELECTRICAL CONCRETE PAD
DETAIL
NTS

- NOTES:
- 1) LOCATION OF SLAB TO BE CONFIRMED BY OWNER.
 - 2) LOCATION OF PENETRATIONS TO BE VERIFIED BY OWNER AND GENERATOR SUPPLIER.
 - 3) PENETRATIONS THROUGH SLAB FOR SERVICES TO BE 300mm x 300mm MAXIMUM AND ARE TO BE FRAMED WITH 1-15M x 900mm LONG ON ALL FOUR SIDES AT MID-DEPTH.
 - 4) PENETRATIONS TO BE 300mm MINIMUM APART.
 - 5) GENERATOR ANCHORAGE TO CONCRETE FOUNDATION TO BE DESIGNED BY CONTRACTOR.
 - 6) PAD LENGTH AND WIDTH WILL BE DETERMINED BY THE CONTRACTOR. WIDTH PLUS MINIMUM OF 0.300m ON EACH SIDE.



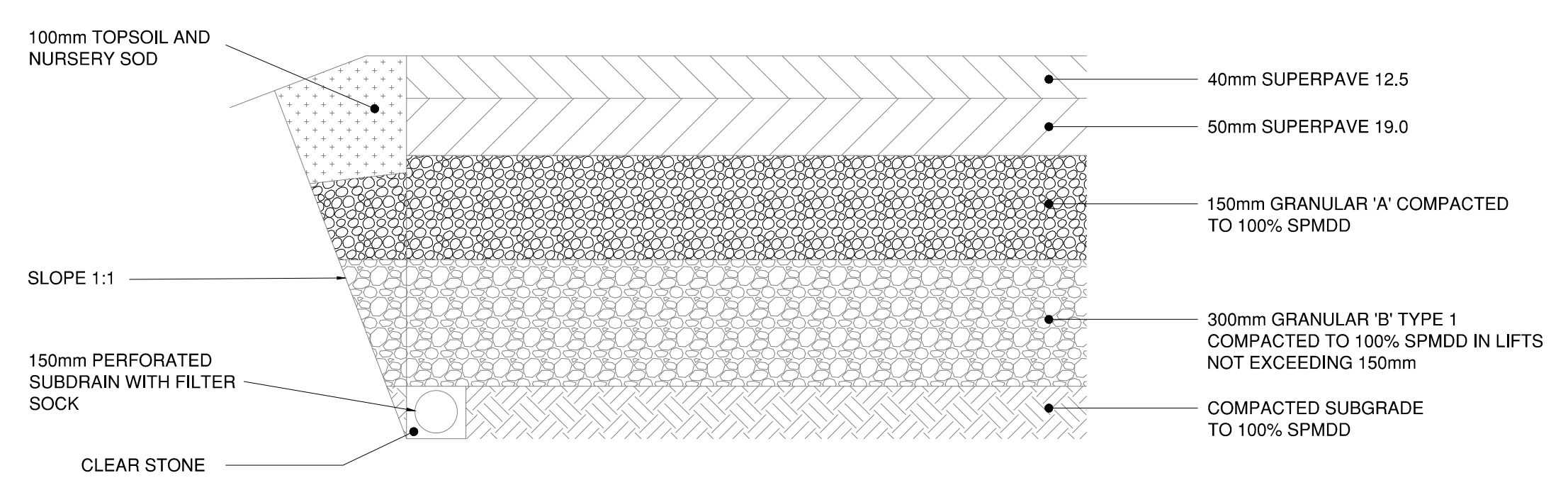
SECTION
NTS
A
G-1

- NOTES:
- 1) REVIEW SPECIFICATIONS FOR TEMPORARY CLOSED SHEET PILING REQUIREMENTS.
 - 2) DEPTH OF PILING BELOW THE BOTTOM OF THE WET WELL TO BE DETERMINED BY THE CONTRACTOR.
 - 3) CONTRACTOR MUST REVIEW THE GEOTECHNICAL REPORT WHEN DETERMINING CLOSED STEEL SHEET PILING (SHORING) INSTALLATION METHOD.
 - 4) CONTRACTOR MUST REVIEW THE GEOTECHNICAL AND DEWATERING ASSESSMENT REPORT TO DETERMINE APPROPRIATE DEWATERING METHOD.

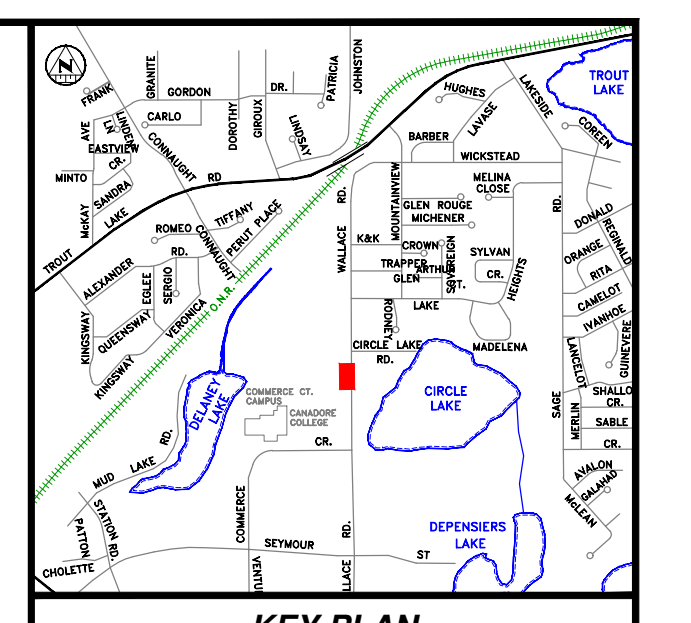


BOLLARD DETAIL
NTS

- NOTE:
- 1) PROVIDE GROUND WIRE CONNECTION FOR EACH BOLLARD, TO GROUNDING SYSTEM. (SEE ELECTRICAL DRAWINGS)
 - 2) FINAL LOCATIONS TO BE DETERMINED BY THE ENGINEER



PARKING LOT DETAIL
NTS



KEY PLAN

- LEGEND**
- PROPOSED SANITARY FORCEMAIN
 - PROPOSED SANITARY MH
 - BOTTOM/TOP PROPOSED BANK
 - PROPOSED EDGE OF PAVEMENT
 - PROPOSED GRADING
 - PROPOSED ELEVATIONS

- NOTES:**
- 1) THE UTILITIES INFORMATION CONTAINED ON THIS DRAWING MAY BE BASED UPON DATA PROVIDED BY OTHERS AND MAY NOT HAVE BEEN VERIFIED BY EITHER AS-CONSTRUCTED DRAWINGS OR AN ONTARIO LAND SURVEYOR. THE CITY OF NORTH BAY CANNOT ACCEPT RESPONSIBILITY FOR ERRORS OR OMISSIONS ON ANY INFORMATION SHOWN HEREIN. FIELD VERIFICATION, LAND SURVEYS OR EXCAVATION (WITH CITY APPROVALS), MAY BE REQUIRED TO DETERMINE ACTUAL LOCATION OF ANY AND ALL UTILITIES OR PROPERTY LINES.

REVISIONS

no.	date	by	description
1.	MAR 05 2021	GWC	ISSUED FOR ECA
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3.	MAY 28 2021		ISSUED FOR CONSTRUCTION

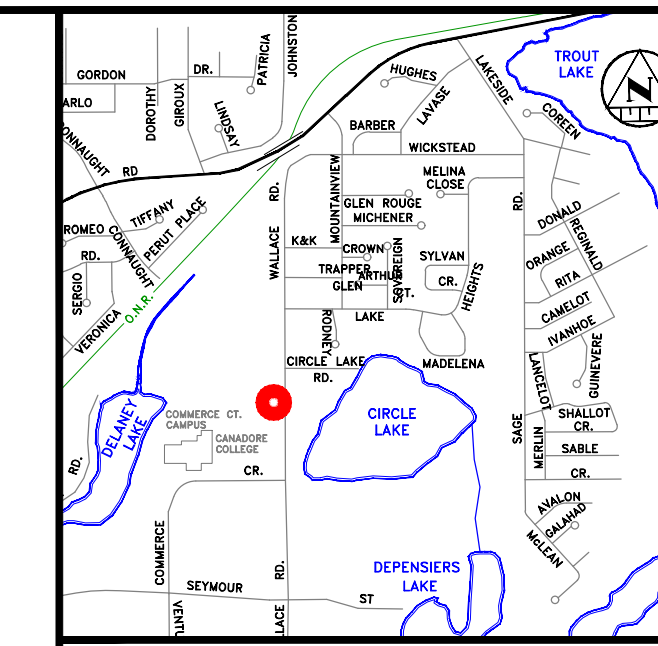


WALLACE ROAD SEWAGE PUMPING STATION, SANITARY SEWER AND FORCEMAIN TENDER 2021-17

NEW CONSTRUCTION

SITE PLAN AND DETAILS

designer G.W.C.	checked by G.Mc.
date 03/05/2021	approved by A.L.
scale 1:100 1:20	sheet 9 of 21



KEY PLAN

REVISIONS

no.	date	by	description
1.	MAR 05 2021	GWC	ISSUED FOR ECA
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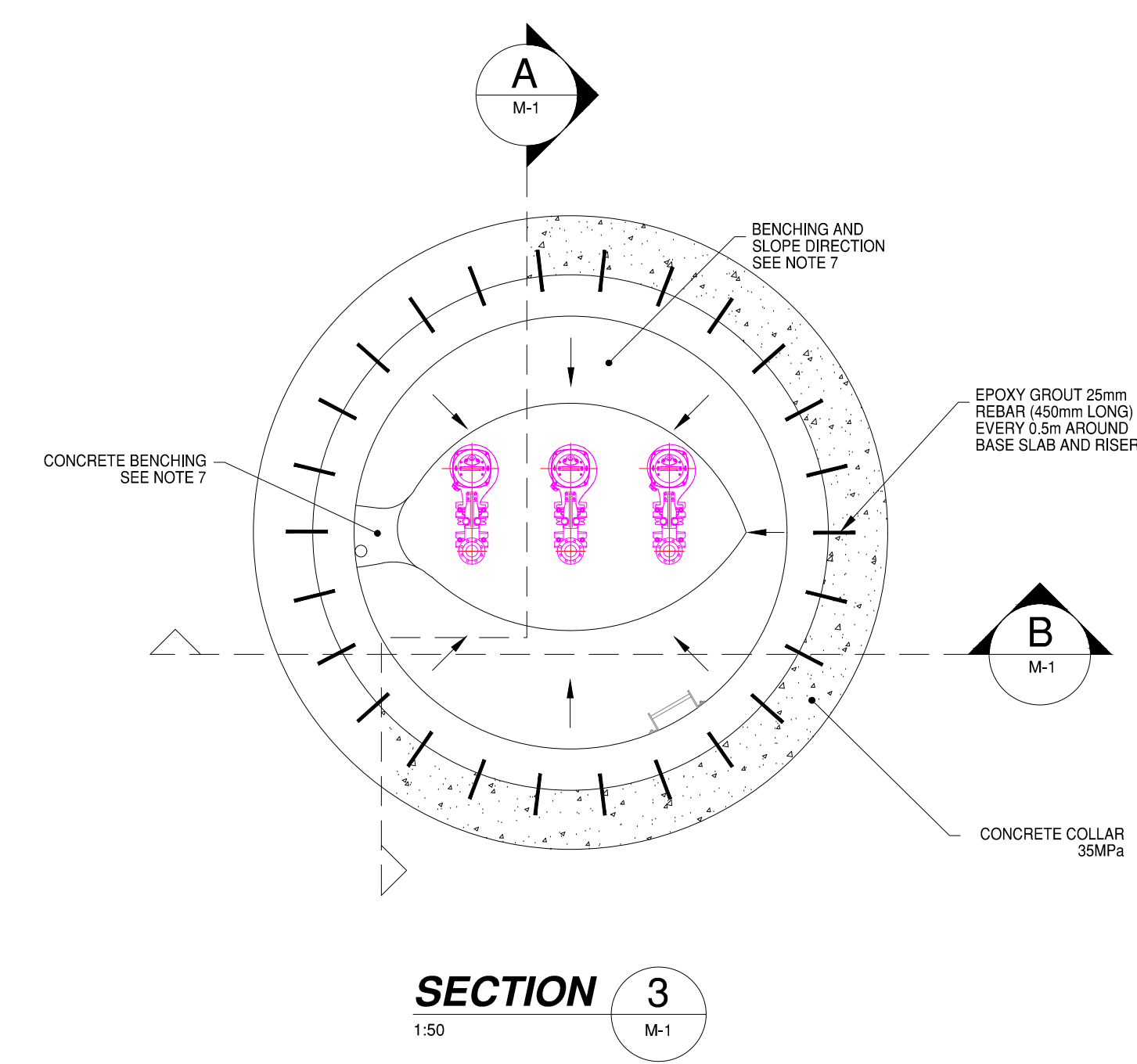


WALLACE ROAD SEWAGE PUMPING STATION, SANITARY SEWER AND FORCEMAIN TENDER 2021-17

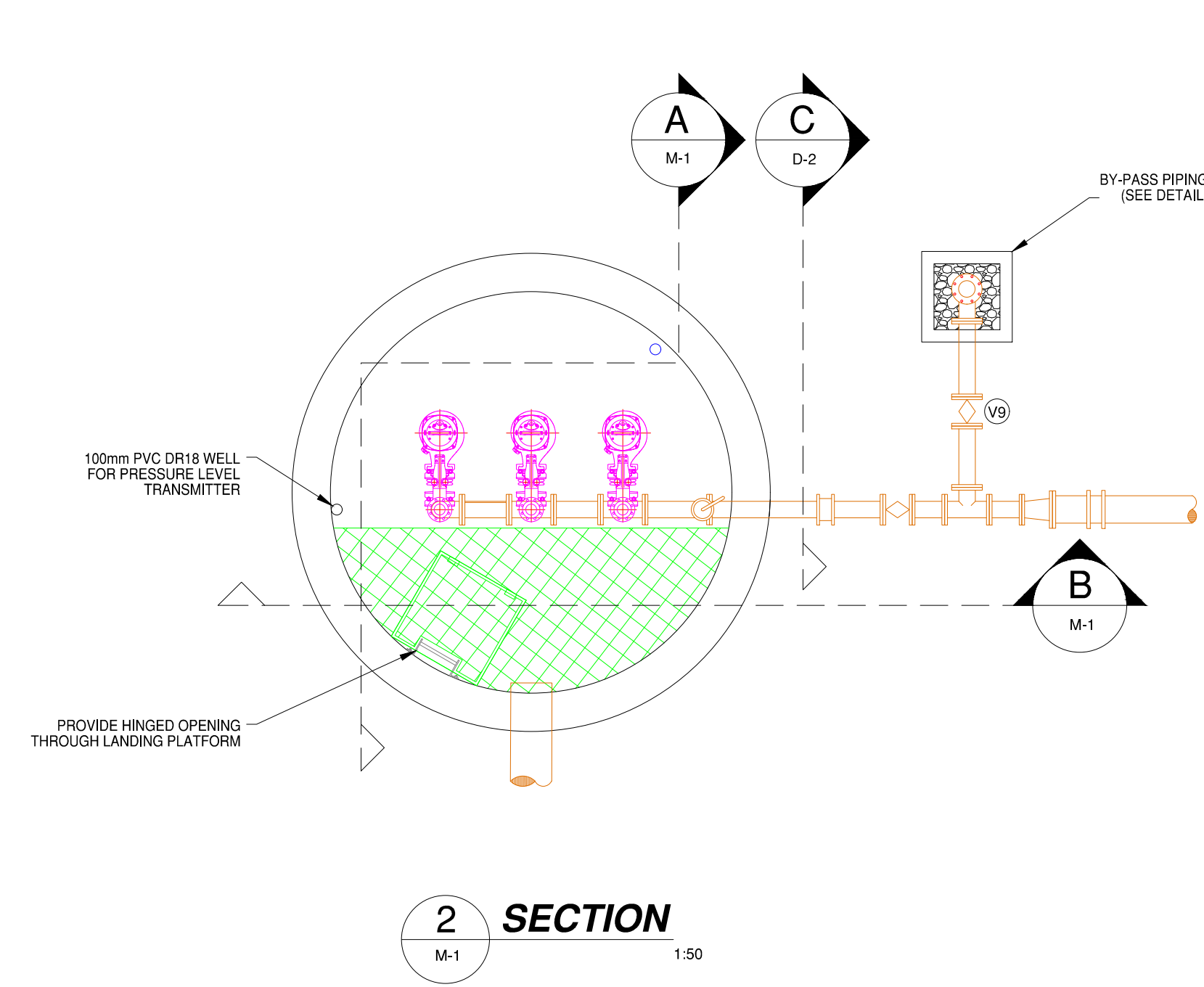
MECHANICAL

WET WELL PLAN AND SECTIONS

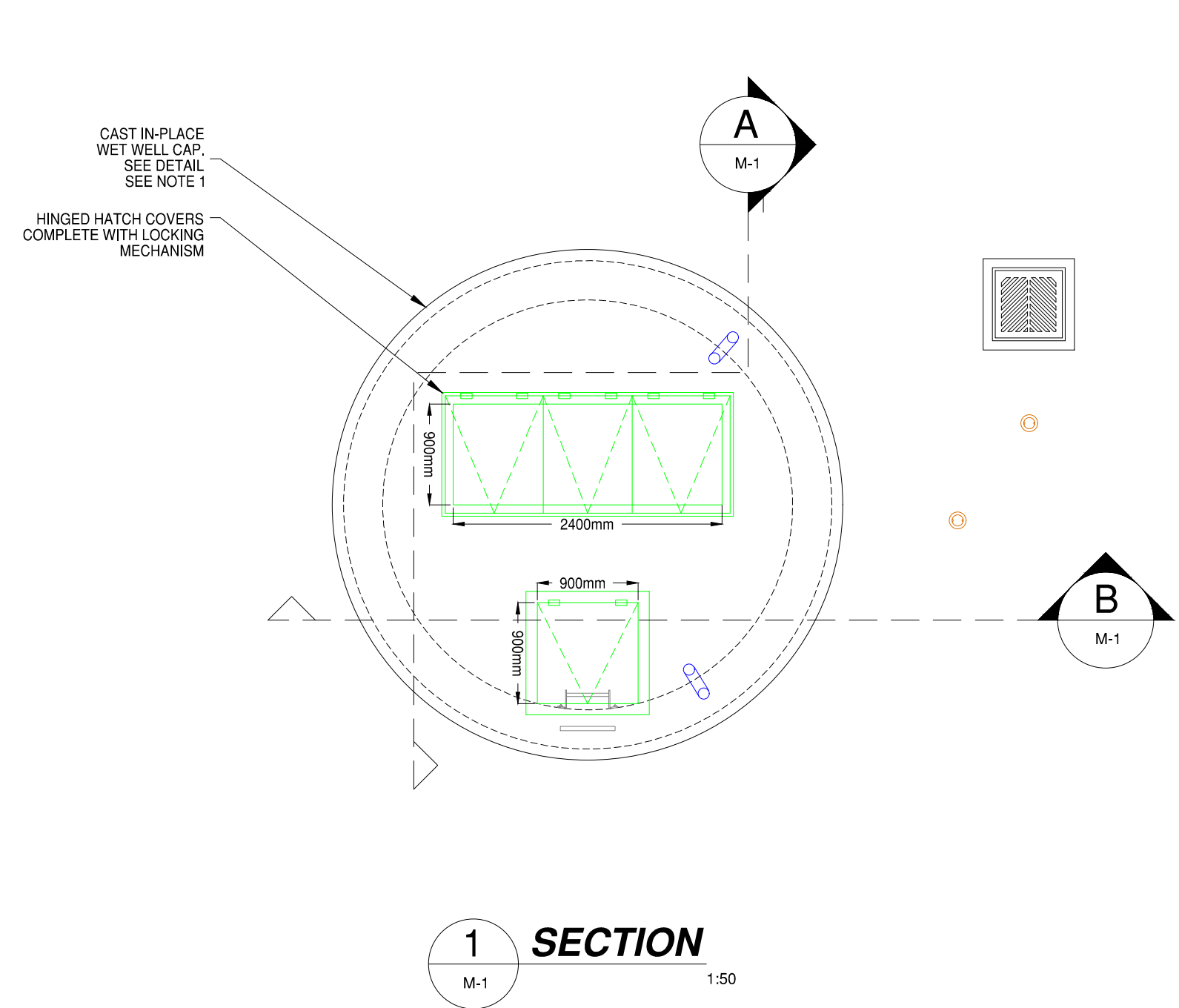
designer G.W.C.	checked by G.M.C.
date 03/05/2021	approved by A.L.
scale AS SHOWN	
drawing number M-1	sheet 10 of 21



SECTION 3
1:50
M-1



SECTION 2
1:50
M-1



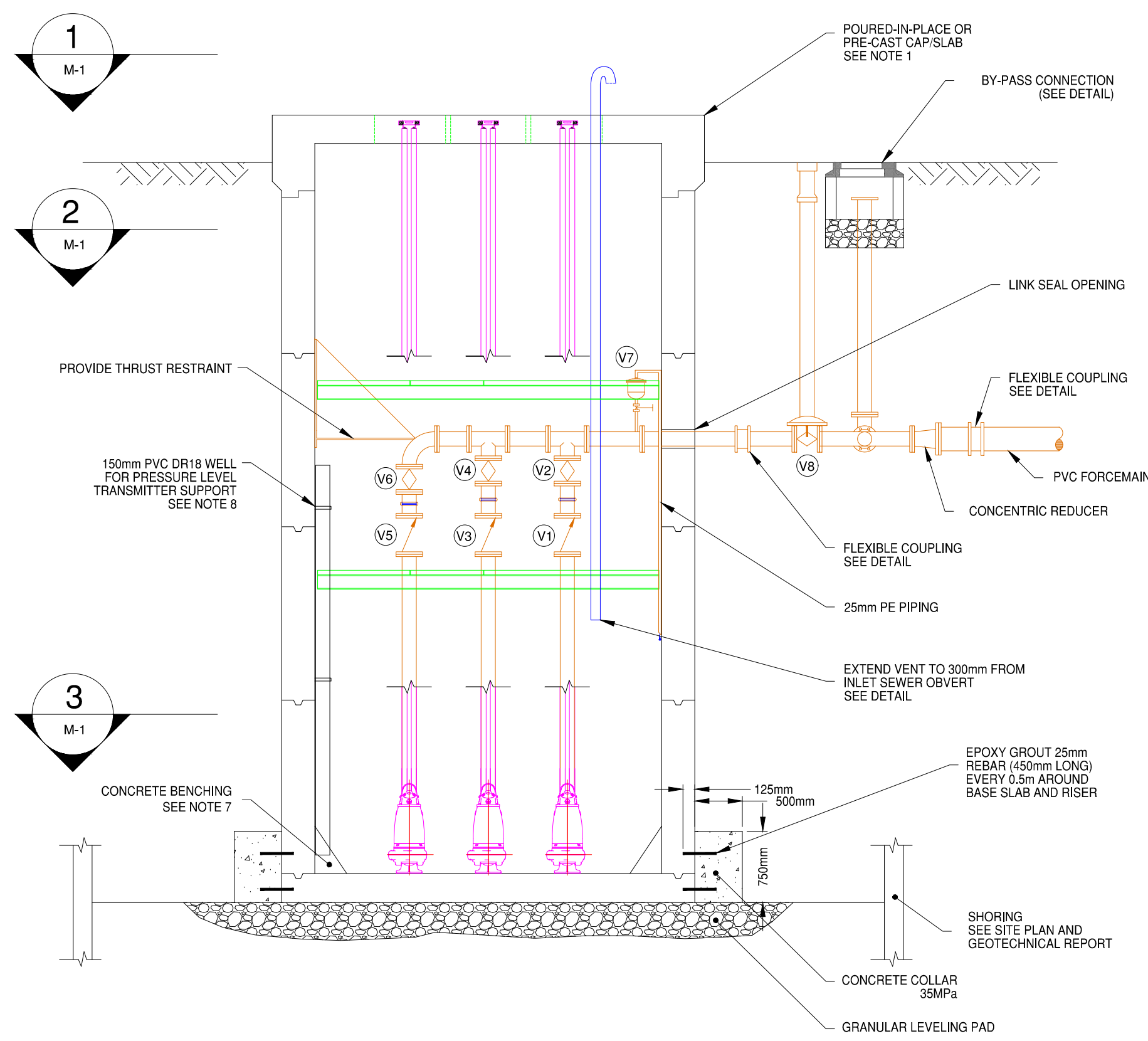
SECTION 1
1:50
M-1

VALVE SCHEDULE

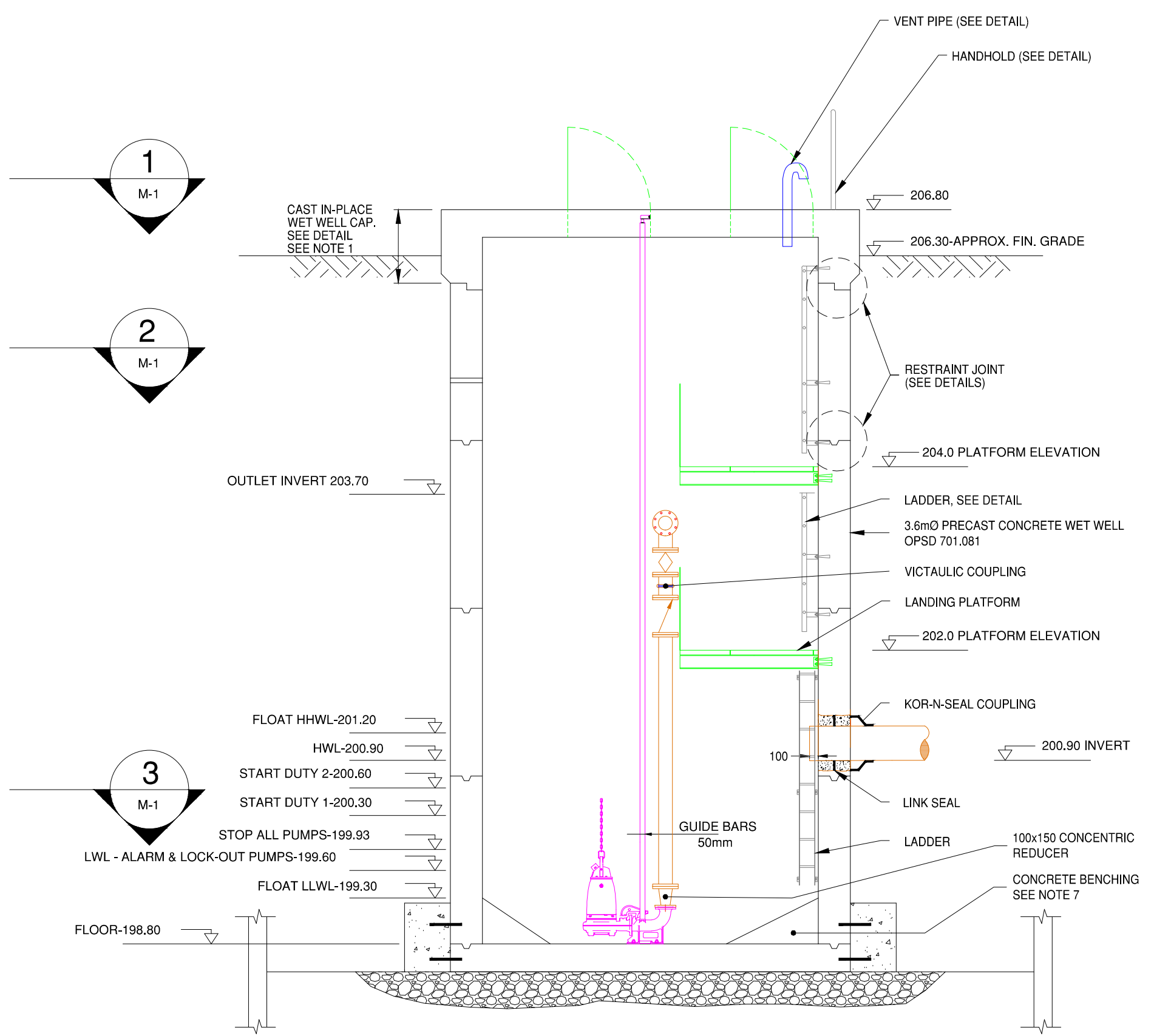
VALVE No.	SIZE	TYPE	OPERATOR	MODE	LOCATION
V1	150	SWING FLEX CHECK VALVE	-	-	PUMP No. 1 DISCHARGE
V2	150	PLUG VALVE	MANUAL	N/O	PUMP No. 1 DISCHARGE
V3	150	SWING FLEX CHECK VALVE	-	-	PUMP No. 2 DISCHARGE
V4	150	PLUG VALVE	MANUAL	N/O	PUMP No. 2 DISCHARGE
V5	150	SWING FLEX CHECK VALVE	-	-	PUMP No. 3 DISCHARGE
V6	150	PLUG VALVE	MANUAL	N/O	PUMP No. 3 DISCHARGE
V7	50	AIR RELEASE	MANUAL	-	PUMP DISCHARGE HEADER
V8	150	PLUG VALVE	MANUAL	N/O	PUMP DISCHARGE HEADER
V9	150	PLUG VALVE	MANUAL	N/C	BY-PASS PIPING

NOTES:

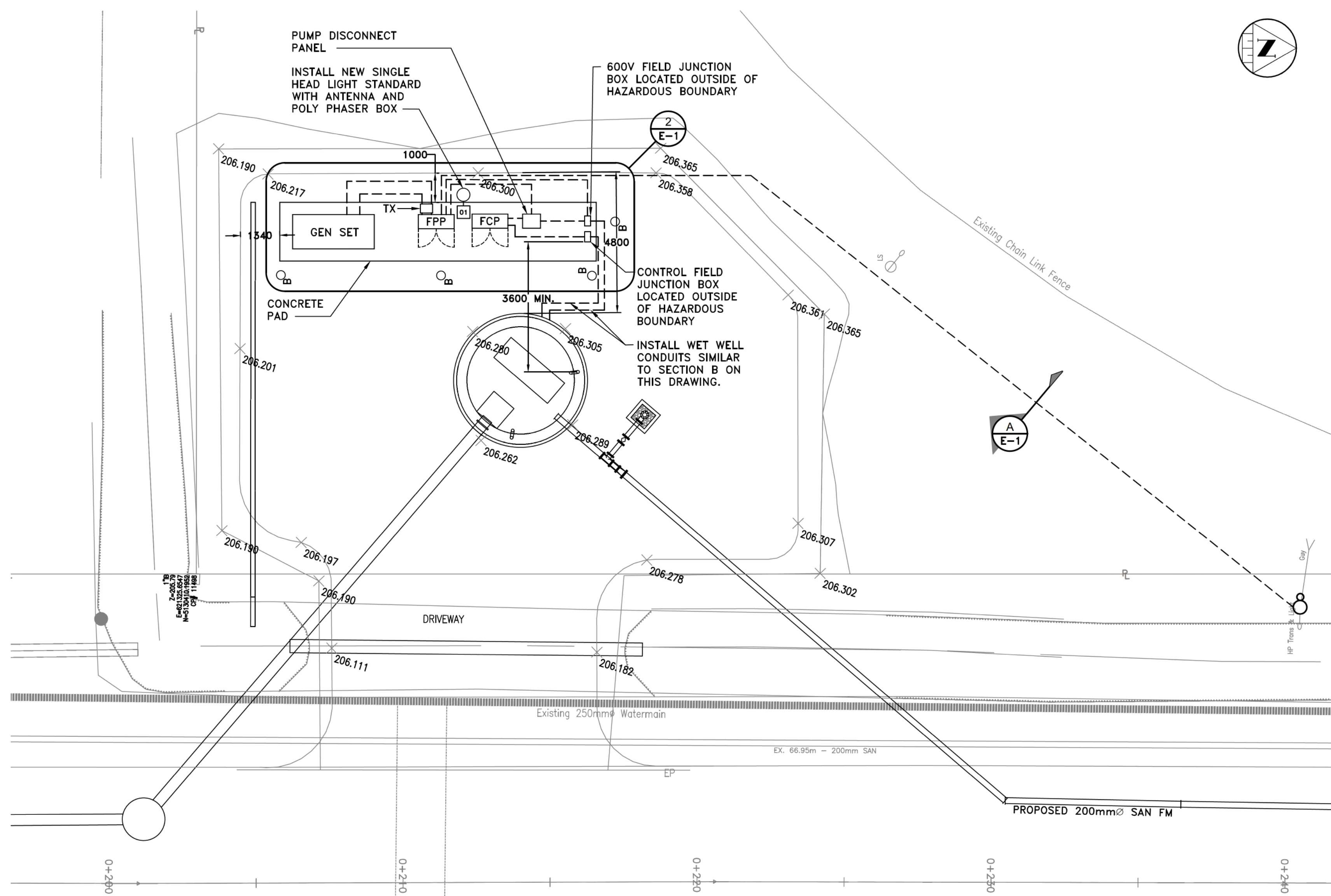
- POURED-IN-PLACE OR PRE-CAST WET WELL CAP/SLAB SHALL BE DESIGNED BY A PROFESSIONAL ENGINEER LICENSED TO PRACTICE IN THE PROVINCE OF ONTARIO.
- CONTRACTOR WILL COORDINATE WET WELL INSTALLATION WITH DEWATERING OPERATIONS REQUIRED FOR THE SANITARY SEWER INSTALLATION.
- ALL PROCESS PIPING WITHIN THE WET WELL AND THE BY-PASS SHALL BE DUCTILE IRON CL53 WITH DUCTILE IRON FLANGED FITTINGS AND RATED FOR 1034 KPa (150 psi) COLD WATER WORKING PRESSURE.
- ALL PRESSURE PIPING SHALL BE MECHANICALLY RESTRAINED TO RESIST THRUST AND VIBRATION.
- ALL NUTS, WASHERS AND BOLTS ON EQUIPMENT, VALVES, DUCTILE IRON PIPING AND FITTINGS WITHIN THE WET WELL AND BY-PASS PIPING, SHALL BE STAINLESS STEEL.
- ENSURE THE DEWATERING SYSTEM IS IN PLACE PRIOR TO EXCAVATING DOWN TO THE STRUCTURE SUBGRADE ELEVATION. ENSURE THE WET WELL IS FILLED WITH WATER IF THE DEWATERING SYSTEM IS REMOVED TO PREVENT FLOATING. WET WELL SHALL REMAIN FILLED WITH WATER IF DEWATERING IS COMPLETE.
- ADJUST BENCHING TO ACCOMMODATE PRESSURE LEVEL TRANSMITTER AND FLOAT.
- PROVIDE STRAPS / SUPPORT BRACKET FOR PRESSURE LEVEL TRANSMITTER PIPE.
- PROVIDE 50mm THREADED PIPE CONNECTION AND SHUT OFF VALVE FOR AIR RELEASE VALVE.



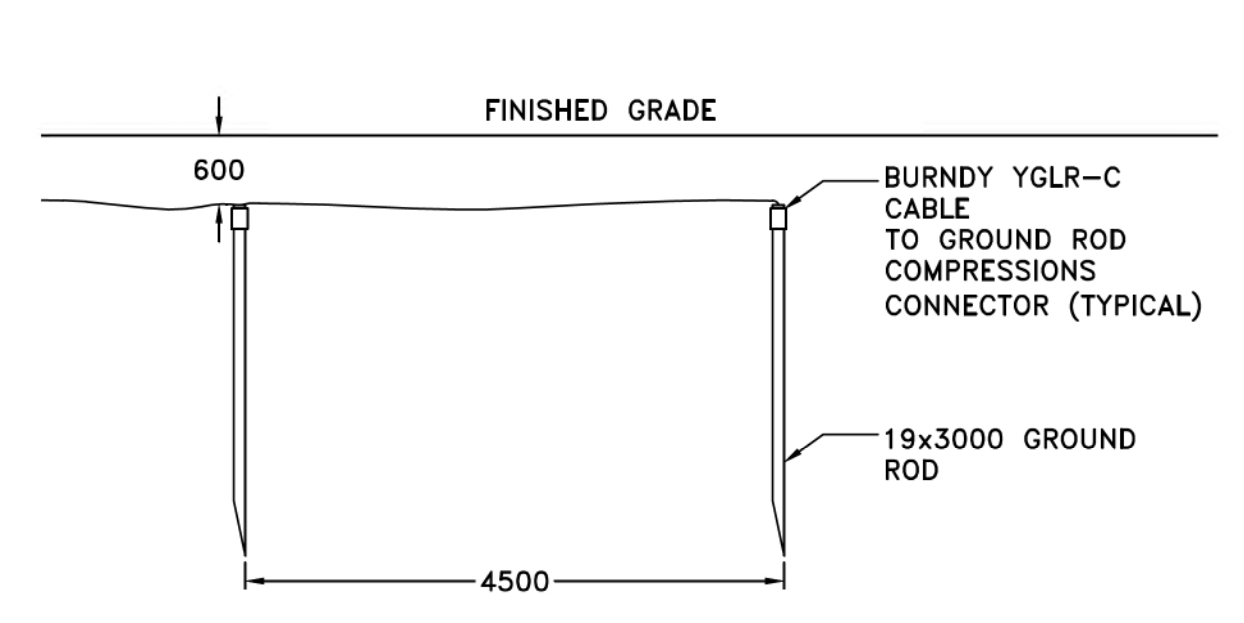
SECTION B
1:50
M-1



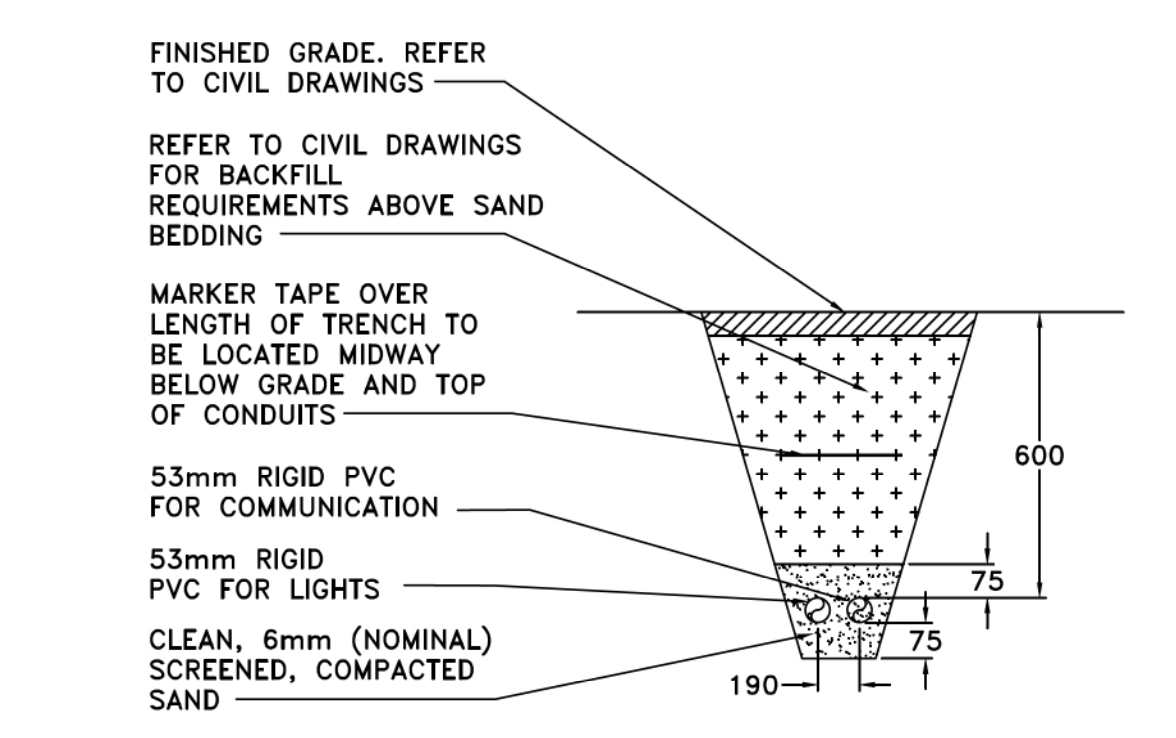
SECTION A
1:50
M-1



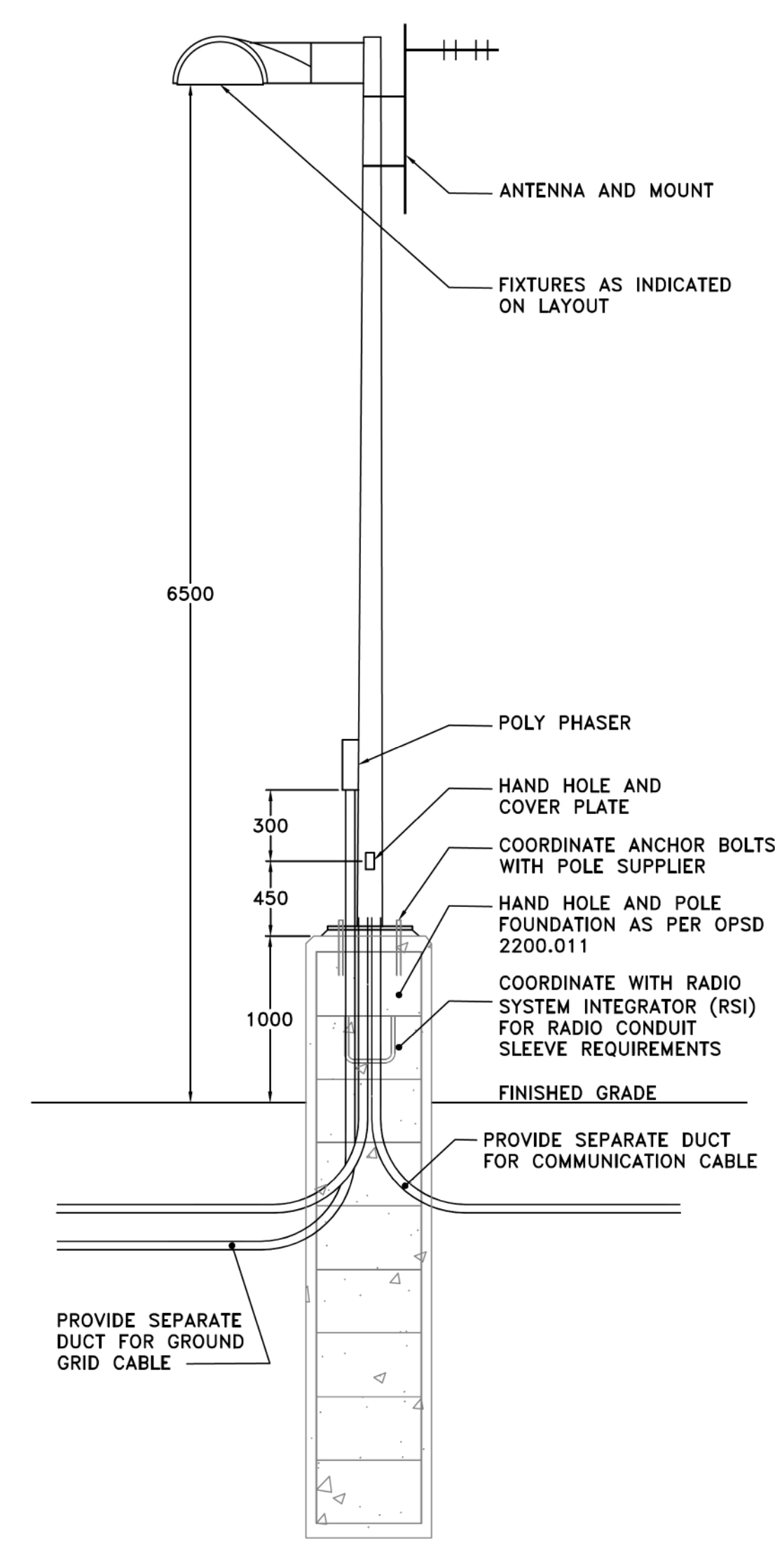
1 ELECTRICAL SITE PLAN
SCALE: NTS



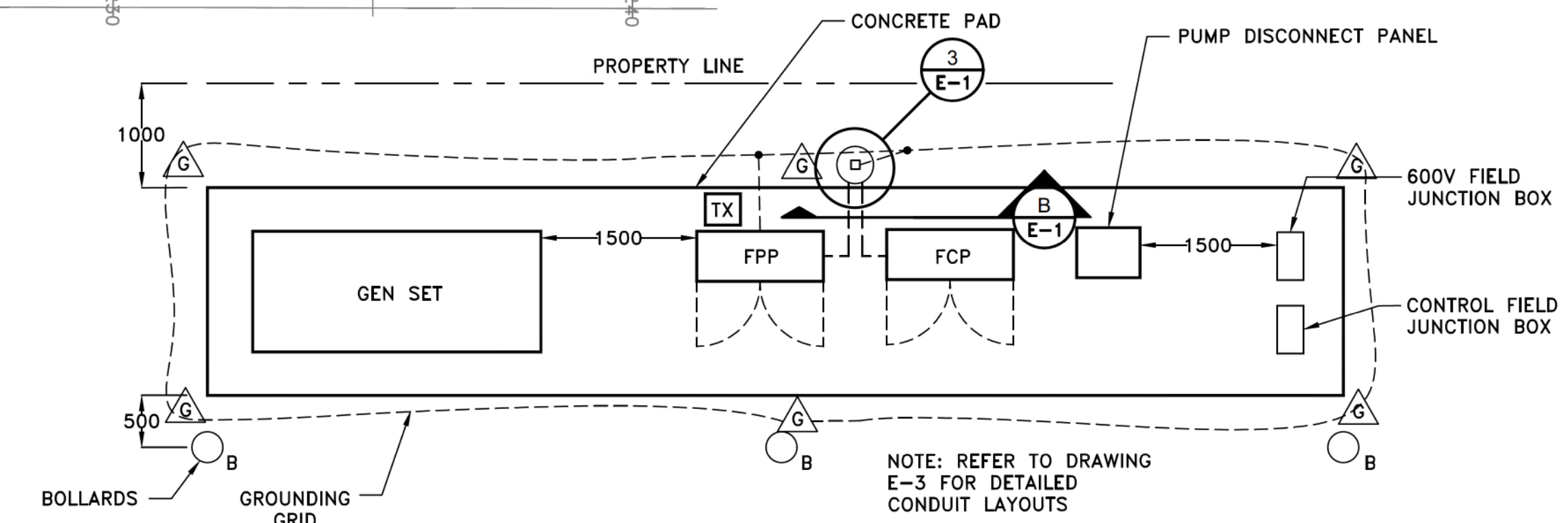
4 GROUNDING GRID SECTION
SCALE: NTS



B SECTION B - LIGHTING TRENCH
SCALE: NTS



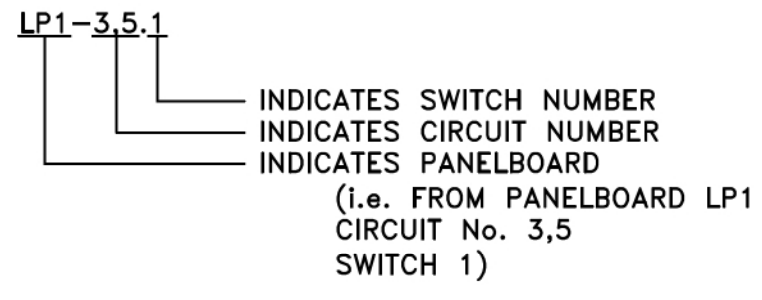
3 SINGLE HEAD LIGHT STANDARD DETAIL (TYP)
SCALE: NTS



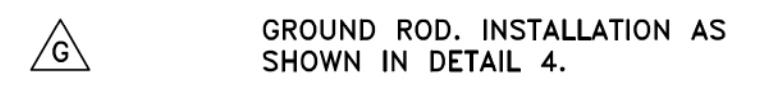
2 ELECTRICAL PAD PLAN
SCALE: NTS

TYPICAL CIRCUIT NUMBERS

UNLESS INDICATED OTHERWISE, ALL CIRCUIT NUMBERS WILL BE INDICATED ON PLANS AS FOLLOWS:



POWER SYSTEM

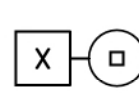


GROUND ROD. INSTALLATION AS SHOWN IN DETAIL 4.

LIGHTING SYSTEM



TYPICAL LOW VOLTAGE PHOTOCELL SUITABLE FOR INTERIOR OR EXTERIOR APPLICATIONS. SUPPLY AND INSTALL COMPLETE WITH SUITABLE POWER PACK FOR CIRCUITS BEING CONTROLLED (I.E. ONE POWER PACK PER CIRCUIT). PHOTOCELL MUST FAIL TO "ON" CONDITION. SEE SPECIFICATIONS.



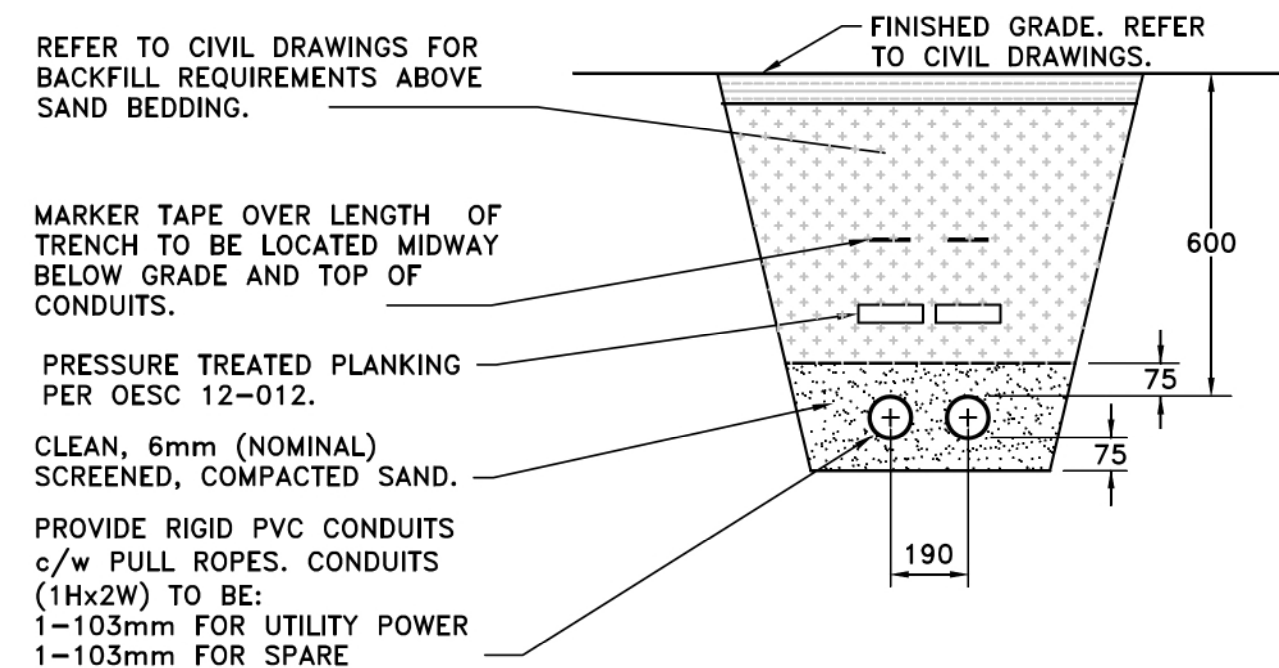
TYPICAL SINGLE CONFIGURATION LIGHT STANDARD

MISCELLANEOUS ABBREVIATIONS/SUBSCRIPTS

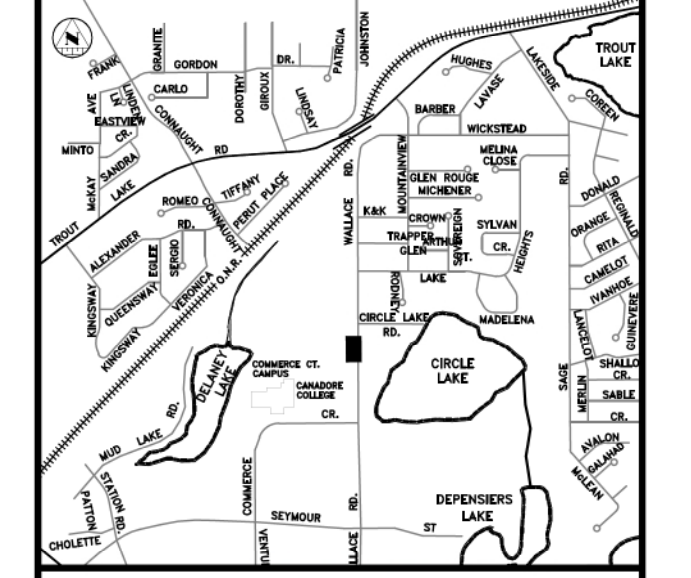
- AWG - AMERICAN WIRE GAUGE
- CCT - CIRCUIT
- DC - DIRECT CURRENT
- GFCI - GROUND FAULT CIRCUIT INTERRUPTER
- INT - INTERRUPT
- KW - KILOWATT
- LTG - LIGHTING
- LV - EXTRA LOW VOLTAGE (LESS THAN 50V)
- MCM - THOUSAND CIRCULAR MILS
- PNL - PANEL
- SPD - SURGE PROTECTIVE DEVICE
- RCPT - RECEPTACLE
- TYP - TYPICAL
- VA - VOLTAMPERE
- VAC - VOLTS ALTERNATING CURRENT
- WP - WEATHER PROOF
- XFO - TRANSFORMER

NOTES:

1. CONTRACTOR TO CO-ORDINATE ALL WORK WITH NORTH BAY HYDRO.
2. CONTRACTOR SHALL CO-ORDINATE THE SUPPLY AND INSTALLATION OF METER AND SERVICE CONDUCTORS BY NORTH BAY HYDRO. ALL DUCTS, POLE GUARD, AND METER BASE SHALL BE SUPPLIED BY THE CONTRACTOR.
3. ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE NOTED.



A SECTION A - ELECTRICAL SERVICE TRENCH
SCALE: NTS



KEY PLAN

LEGEND

- PROJECT ALIGNMENT
- WATERMAIN/SERVICE
- WATER VALVE
- SANITARY/MH
- EDGE OF DITCH CENTERLINE OF DITCH
- VEGETATION
- STORMWATER MH
- STORMWATER CB
- SURVEY BENCHMARK
- PROPOSED SANITARY FORCEMAIN
- PROPOSED SANITARY/MH
- BURIED ELECTRICAL CONDUIT
- BOLLARD

REVISIONS

no.	date	by	description
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4	MAY 28 2021	M.A.T.	ISSUED FOR CONSTRUCTION



Disclaimer: The information contained on this drawing may be based upon data provided by others and may not have been verified by either as-constructed drawings or an Ontario Land Surveyor. The City of North Bay cannot accept responsibility for errors or omissions on any information shown herein. Field verification, land surveys or excavation (with City approval) may be required to determine actual location of any and all utilities or property lines.



WALLACE ROAD SEWAGE PUMPING STATION, SANITARY SEWER AND FORCEMAIN TENDER 2021-17

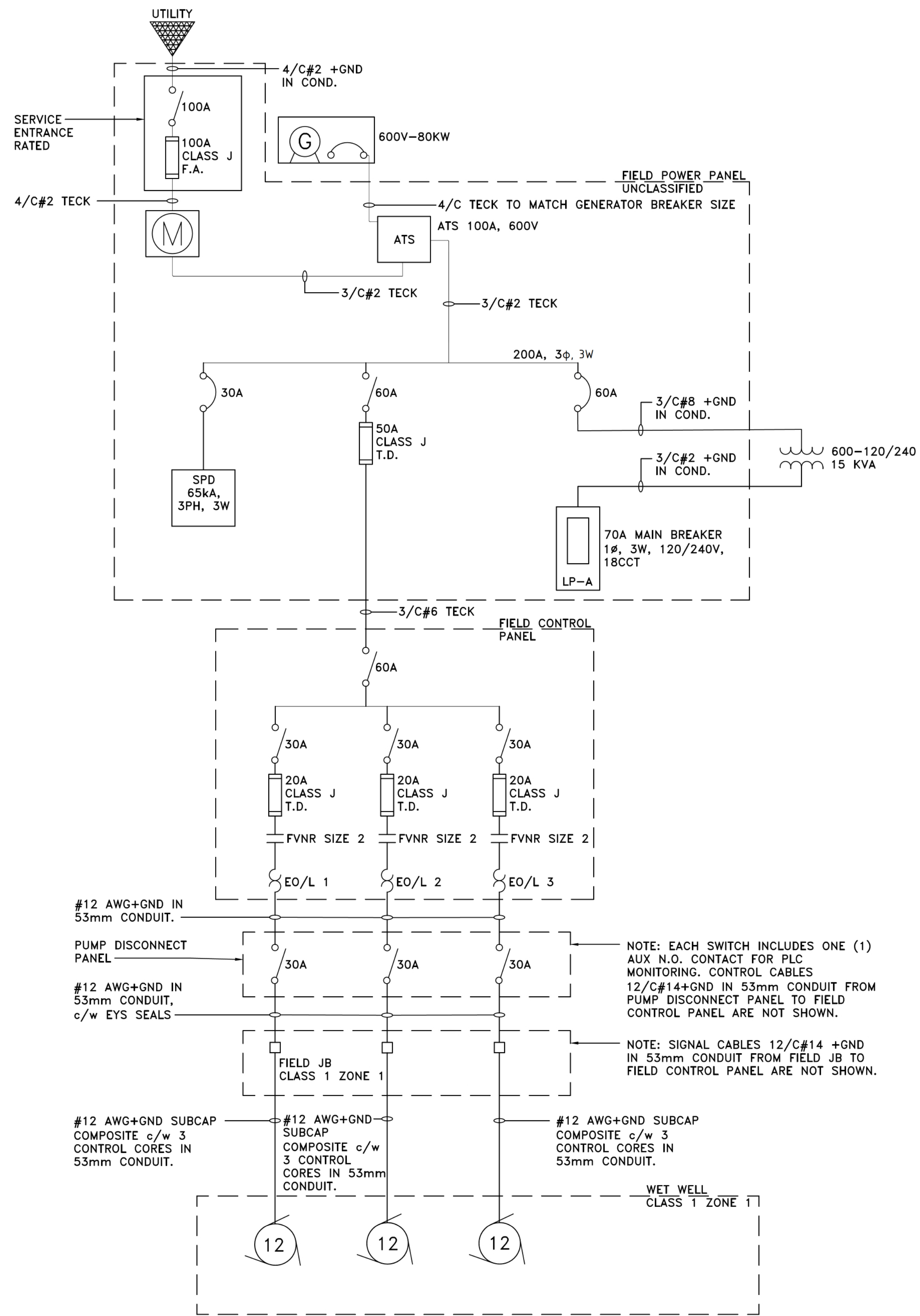
ELECTRICAL

ELECTRICAL SITE PLAN

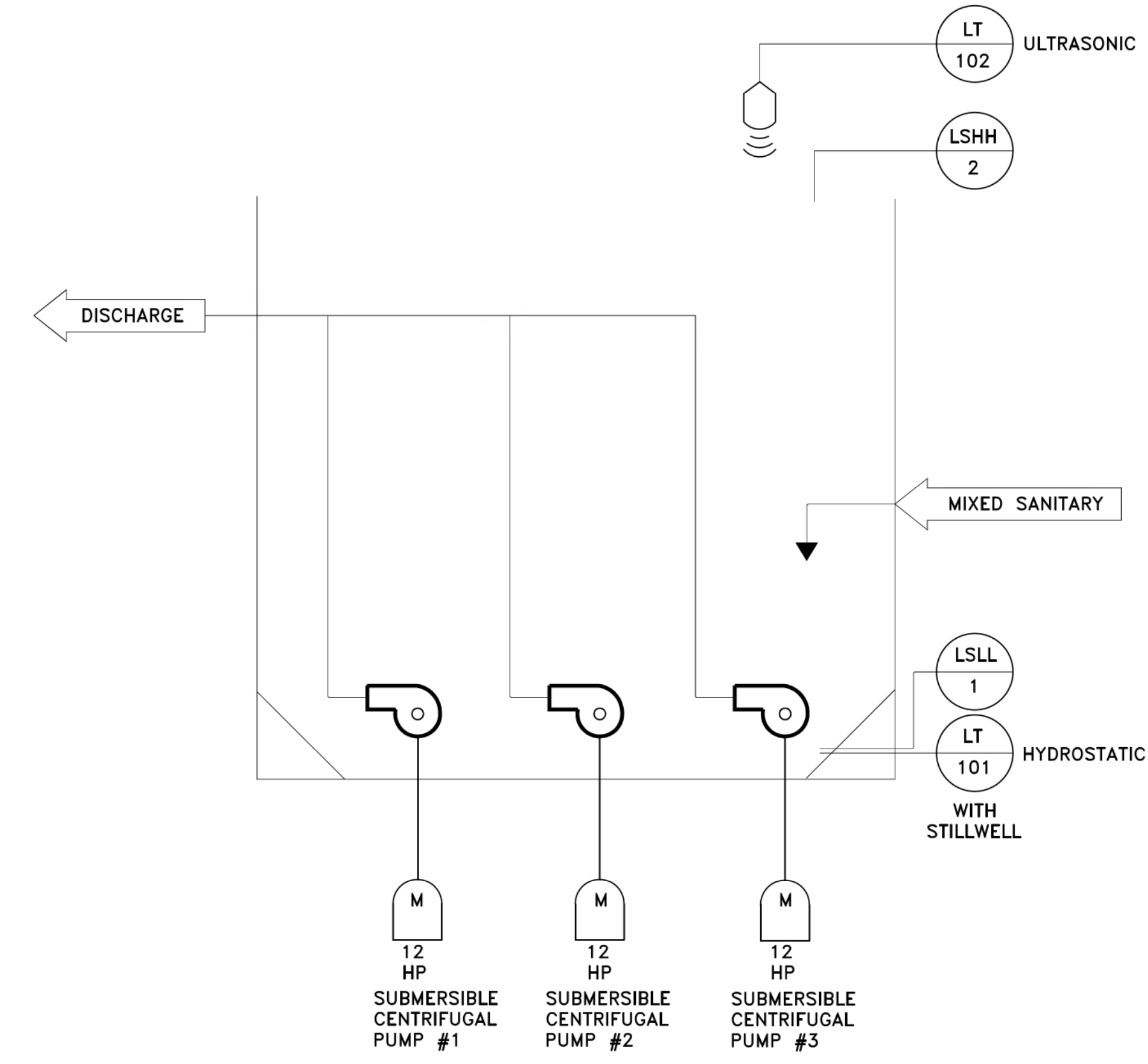
designer D.N.P.R.	checked by: S.M.
date 05/13/2020	approved by: D.K.J.
scale AS SHOWN	
drawing number E-1	sheet 12 of 21

OUTDOOR LIGHTING SCHEDULE

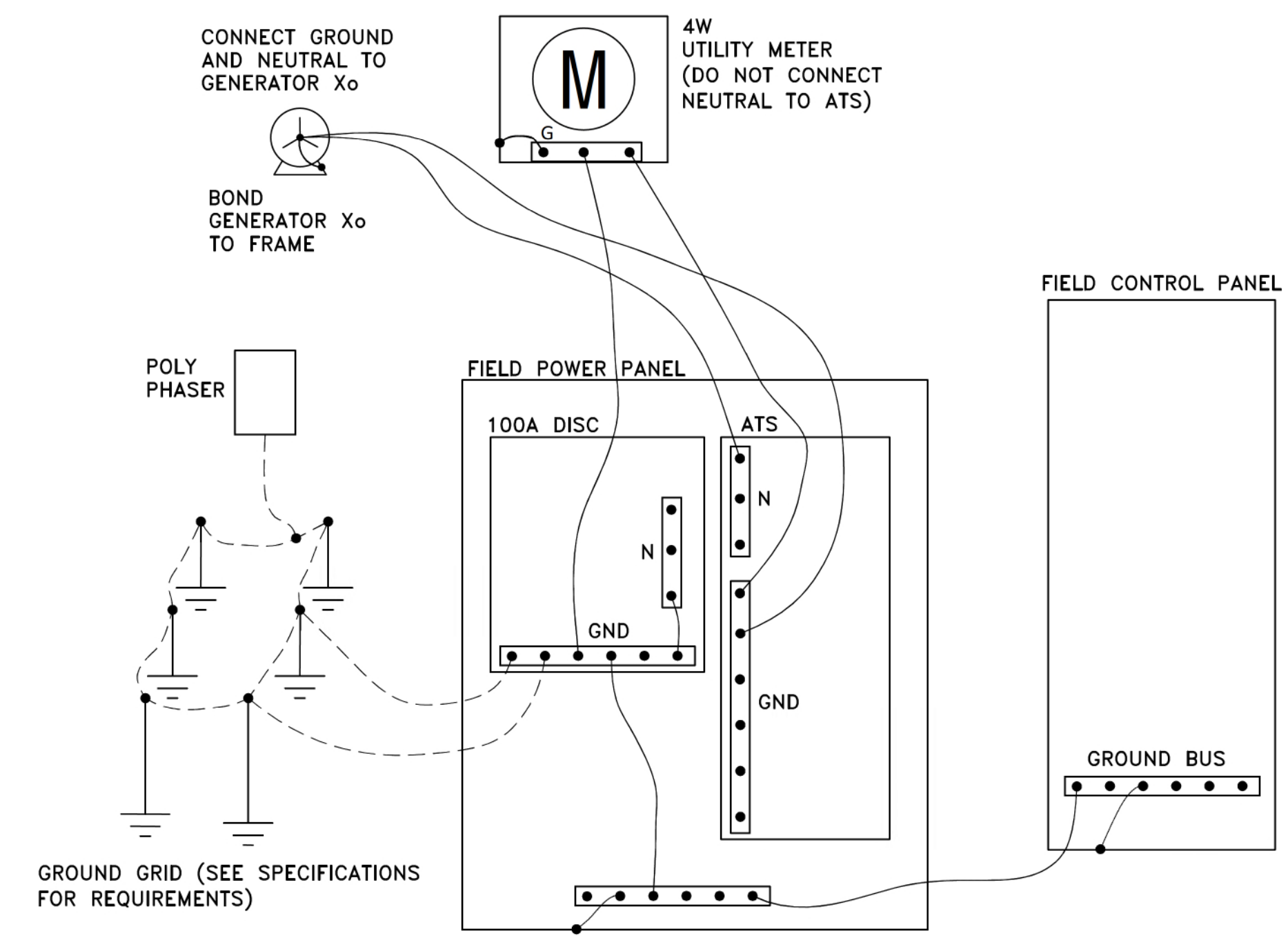
TYPE	FIXTURE DESCRIPTION	MODEL NUMBER	LAMP(S)	DISTRIBUTION
01	20,000 LUMEN MIN. 120VAC LED POLE MOUNTED AREA LUMINAIRE. FIXTURE TO BE WHITE. HOUSE SIDE SHIELD AS INDICATED. 250W MAX. FULL CUTOFF. INTEGRAL PHOTOCELL AS INDICATED.	LITHONIA - DSX2 OR PRE-APPROVED EQUIVALENT	LED 4000K, 80CRI MIN. 100 LED 700mA DRIVE CURRENT	TYPE II SHORT



1 SINGLE LINE DIAGRAM
E-2 SCALE: NTS



2 PROCESS FLOW DIAGRAM
E-2 SCALE: NTS



3 GROUNDING SCHEMATIC
E-2 SCALE: NTS

LEGEND

- CIRCUIT BREAKER
- FUSE (T.D.=TIME DELAY, F.A.=FAST ACTING)
- MOTOR CONTACTOR
- ELECTRONIC OVERLOAD
- 3 PHASE MOTOR, HP AS INDICATED
- PANEL INTEGRATED TRANSFORMER
- GENERATOR
- DISCONNECT SWITCH

REVISIONS

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WALLACE ROAD SEWAGE PUMPING STATION, SANITARY SEWER AND FORCEMAIN TENDER 2021-17

ELECTRICAL

SINGLE LINE/ GROUNDING/P&ID

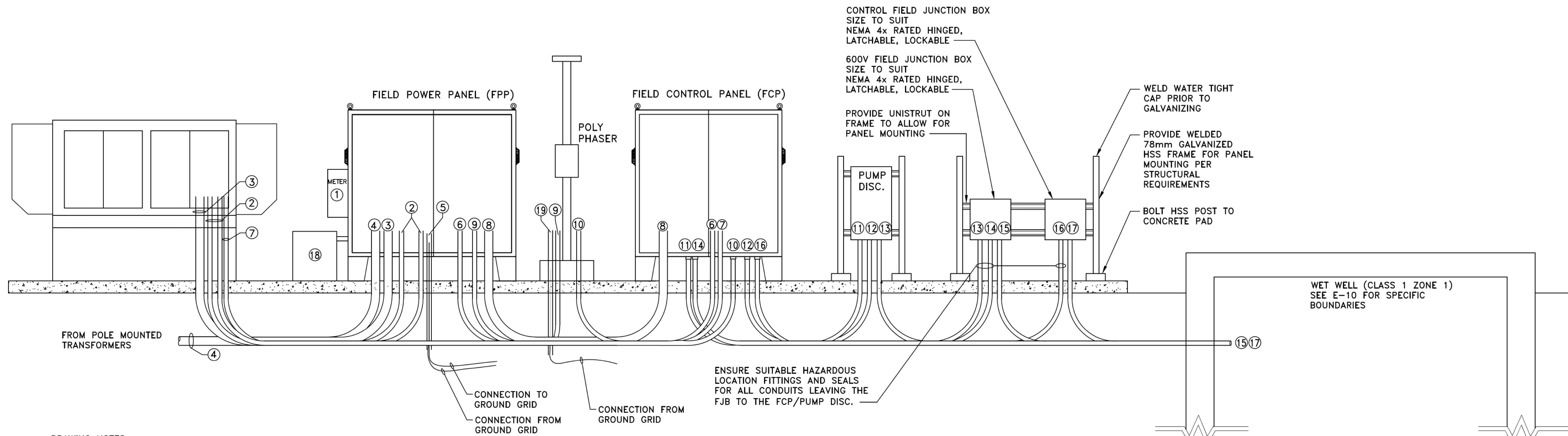
designer D.N.P.R.	checked by: S.M.
date 05/13/2020	approved by: D.K.J.
scale N.T.S.	
drawing number E-2	sheet 13 of 21

LEGEND:
GROUNDING ROD(S)

GENERAL NOTES:

A. DRAWING IS MEANT TO SHOW MAIN SERVICE GROUNDING CONNECTIONS. NOT ALL REQUIRED GROUNDING/BONDING IS SHOWN ON THIS SCHEMATIC. ALL GROUNDING AND BONDING TO BE COMPLETED AS PER THE ONTARIO ELECTRICAL SAFETY CODE.

B. SIZE ALL BONDING CONDUCTORS AS PER OESC TABLE 16 OR AS SPECIFIED



DRAWING NOTES:

1. CO-ORDINATE METER CABINET REQUIREMENTS WITH NORTH BAY HYDRO.
2. TWO (2) 53mm CONDUITS FOR CONTROLS AND 120V POWER BETWEEN GENERATOR & FPP.
3. 103mm CONDUIT FOR POWER FROM GENERATOR TO ATS.
4. TWO (2) 103mm CONDUITS FOR POWER AND SPARE FROM XFO TO SERVICE RATED DISCONNECT SWITCH.
5. 53mm CONDUIT FOR GROUND CONDUCTORS. STUB OUT 300mm PAST CONCRETE PAD.
6. 53mm CONDUIT FOR CONTROLS FROM FPP TO FCP.
7. 53mm CONDUIT FOR CONTROLS BETWEEN GENERATOR & FCP.
8. 103mm CONDUIT FOR POWER FROM FPP TO FCP.
9. 53mm CONDUIT FOR LIGHTING POWER FROM FPP TO LIGHT STANDARD.
10. 53mm CONDUIT FOR RADIO COMMUNICATION FROM POLY PHASER TO PLC.
11. 53mm CONDUIT FOR POWER FROM PUMP PANEL TO PUMP DISCONNECT.
12. 53mm CONDUIT FOR CONTROLS FROM PUMP DISCONNECT TO PLC.
13. 53mm CONDUIT WITH EYS FOR POWER FROM PUMP DISCONNECT TO 600V FIELD JB.
14. 53mm CONDUIT WITH EYS FOR CONTROLS FROM 600V FIELD JB TO PUMP PANEL.
15. 53mm CONDUIT FOR POWER & MONITORING FROM 600V FIELD JB TO PUMPS IN WET WELL.
16. 53mm CONDUIT WITH EYS FOR CONTROLS FROM CONTROL FIELD JB TO PLC.
17. 53mm CONDUIT FOR CONTROLS FROM WET WELL LEVEL SENSORS TO CONTROL FIELD JB.
18. TRANSFORMER ON PAD OR SHELF. PROVIDE TWO (2) 53mm RGS CONDUITS TO FPP FOR PRIMARY AND SECONDARY POWER.
19. 53mm CONDUIT FOR GROUNDING GRID TO POLY PHASER. STUB OUT 300mm PAST POLE FOUNDATION.
20. EXCEPT FOR CONDUITS (4) AND (18) ABOVE, INSTALL ALL CONDUITS SIMILAR TO TYPICAL SECTION B ON DRAWING E-1.

1 ELECTRICAL SECTION
E-3 SCALE: NTS

LP-A
120/240 VAC 1Ph, 3W
70A MAIN BREAKER, 18 cct.

LOAD	DESCRIPTION	BRKR	CCT	CCT	BRKR	DESCRIPTION	LOAD
	LTG OUTDOOR	15A, 1P	1	2	15A, 1P	FCP 24VDC POWER SUPPLIES	
	RECEPTACLE	15A, 1P	3	4	60A, 2P	GENERATOR POWER	
	RECEPTACLE	15A, 1P	5	6			
	FPP PANEL HEATER	15A, 1P	7	8	15A, 1P	FCP PANEL HEATER	
	FPP PANEL FAN	15A, 1P	9	10	15A, 1P	FCP PANEL FAN	
	SPARE	15A, 1P	11	12	15A, 1P	SPARE	
			13	14			
			15	16			
			17	18	xxA, 2P	SURGE PROTECTION (SPD)	

NOTES:

1. CONTRACTOR SHALL PROVIDE MECHANICAL PROTECTION FOR ALL EXPOSED CONDUITS TO REDUCE THE RISK OF DAMAGE FROM VANDALISM. RIGID METAL (ALUMINUM OR GALVANIZED) CONDUIT MAY BE USED ABOVE GRADE TO PROTECT CABLING. WHERE NON-RUGGEDIZED GENERATOR COMPONENTS OR PVC CONDUITS ARE EXPOSED ABOVE GRADE, THE CONTRACTOR SHALL FABRICATE AND INSTALL STAINLESS STEEL PANELS TO PROTECT THOSE EXPOSED PARTS.

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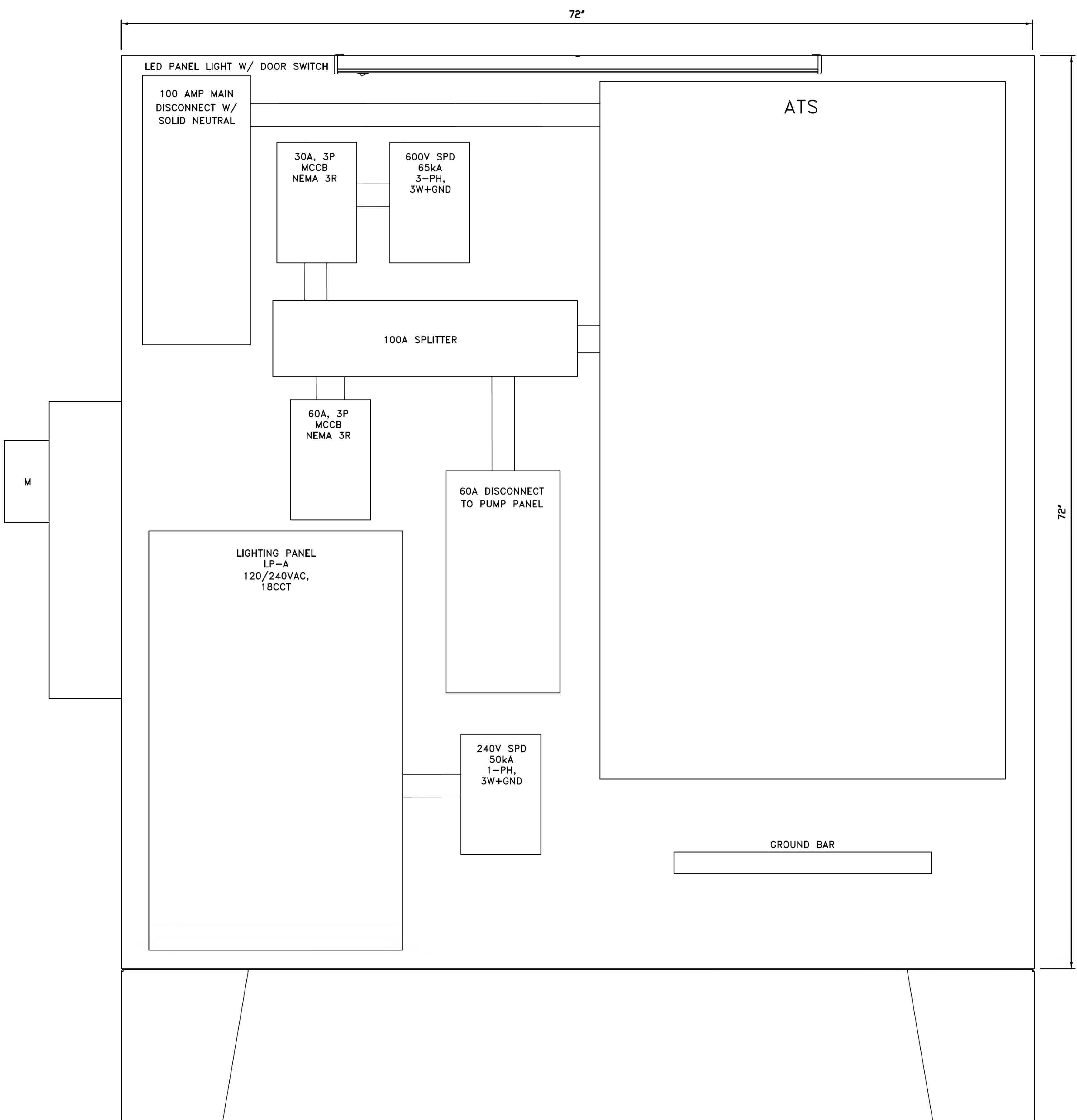
**WALLACE ROAD
SEWAGE PUMPING
STATION, SANITARY
SEWER AND FORCEMAIN
TENDER 2021-17**

ELECTRICAL

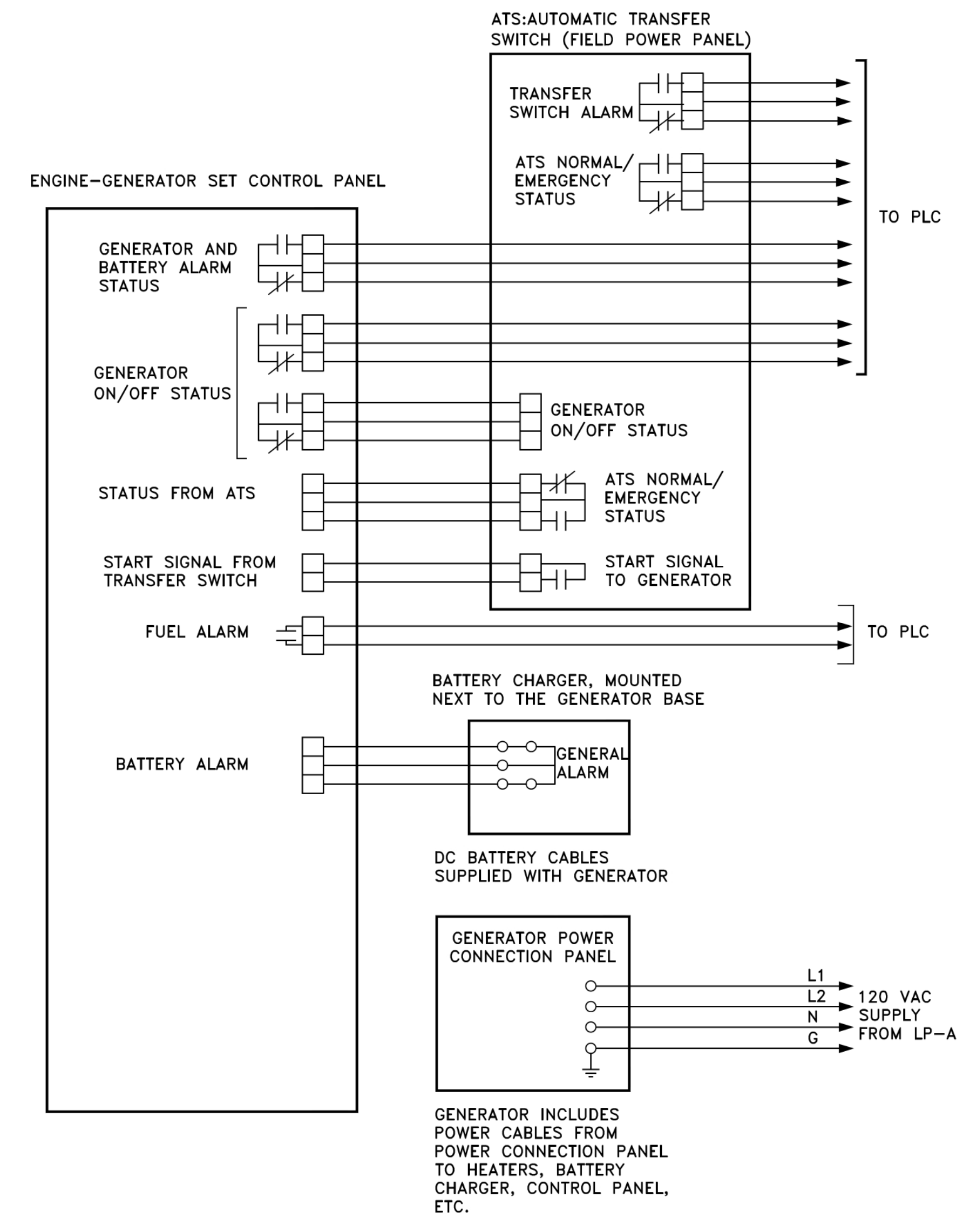
**PANEL SECTION
AND DETAILS 2**

designer D.N.P.R.	checked by: S.M.
date 02/03/2021	approved by: D.K.J.
scale N.T.S.	
drawing number E-3	sheet 14 of 21

1 FIELD POWER PANEL LAYOUT
SCALE: NTS



2 ENGINE GENERATOR & ATS CONTROL WIRING INTERFACE DIAGRAM
SCALE: NTS



NOTES:

1. IN FPP, PROVIDE TWO (2) TEMPERATURE SWITCHES FOR HIGH AND LOW TEMPERATURE MONITORING BY PLC, ONE (1) FINGER-SAFE 120VAC PANEL HEATER WITH BUILT-IN THERMOSTAT, AND PANEL COOLING FAN WITH THERMOSTAT CONTROL. INSTALL PANEL VENTS ON OPENINGS TO PROTECT FROM WEATHER COMPLETE WITH INSECT SCREENS.

REVISIONS

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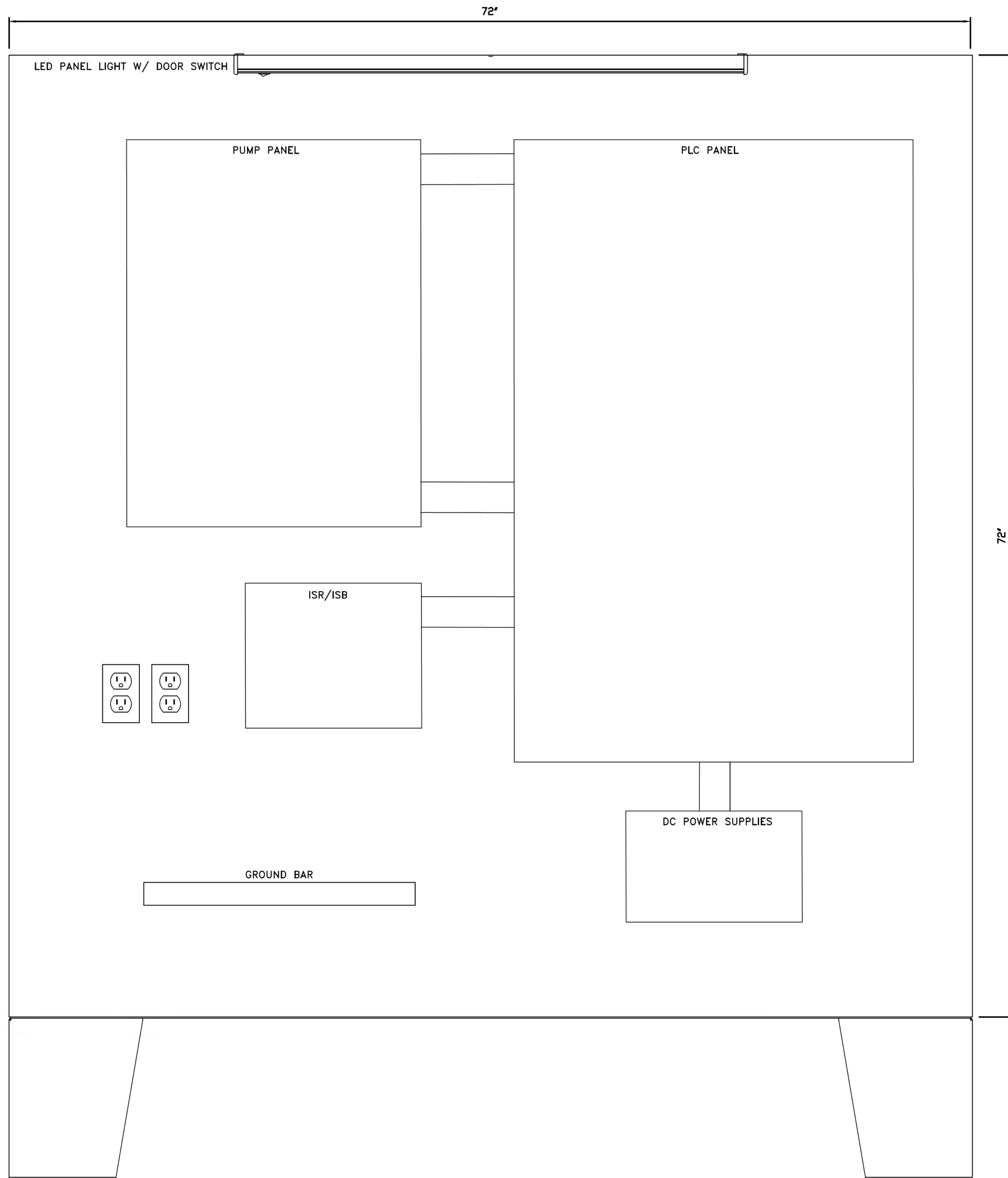


WALLACE ROAD SEWAGE PUMPING STATION, SANITARY SEWER AND FORCEMAIN TENDER 2021-17

ELECTRICAL

FIELD POWER PANEL DETAILS

designer D.N.P.R.	checked by: S.M.
date 05/13/2020	approved by: D.K.J.
scale N.T.S.	
drawing number E-4	sheet 15 of 21



NOTES:

1. PUMP PANEL SHALL INCLUDE THE FOLLOWING COMPONENTS:
 - a. NEMA 1 ENCLOSURE, SIZED TO SUIT, LOCKABLE.
 - b. MAIN DISCONNECT SWITCH, 60A, UNFUSED, 600V, ACCESSIBLE WITHOUT OPENING PUMP PANEL AND SUITABLE FOR LOCK & TAG.
 - c. SPLITTER BLOCK, RATED FOR 60A, 600V, FOR POWER DISTRIBUTION AS INDICATED.
 - d. THREE (3) SETS OF FUSED DISCONNECT SWITCHES, 600V, 3-PHASE, c/w 20A CLASS J TIME DELAY FUSES.
 - e. THREE (3) MOTOR STARTERS, SIZE 2, 24VDC COIL, MINIMUM ONE NO AUX CONTACT, SUITABLE FOR 12HP @ 3-PHASE 600V, c/w SMART OVERLOADS (E300 OR APPROVED EQUIVALENT WITH ETHERNET COMMUNICATIONS).
 - f. THREE (3) PUMP MOTOR PROTECTION UNITS, MINICASII OR APPROVED EQUIVALENT. REFER TO SPEC 11130.
 - g. FOUR (4) CONTROL RELAYS, 24VDC COIL, MINIMUM TWO FORM C CONTACTS RATED FOR 2A @ 24VDC.
 - h. TWO (2) TIMING RELAYS, 24VDC COIL, MINIMUM TWO TIME DELAYED OUTPUT CONTACTS (NOTC) RATED FOR 2A @ 24VDC WITH ADJUSTABLE TIMER (0-60 SECONDS MINIMUM RANGE).
 - i. THREE (3) ELAPSED TIME METERS, 24VDC ENERGIZED, NON-RESETTABLE, MOUNTED ON PANEL FACE.
 - j. DIN RAIL, TERMINAL BLOCKS, WIREWAY, ETC. AS REQUIRED.
2. DC POWER SUPPLY PANEL SHALL INCLUDE THE FOLLOWING COMPONENTS:
 - a. NEMA 1 ENCLOSURE SIZED TO SUIT, LOCKABLE.
 - b. TWO (2) WEIDMULLER FUSED TERMINAL BLOCKS: 120VAC, FUSE SIZE TBD. MODEL #1012300001.
 - c. TWO (2) WEIDMULLER TERMINAL BLOCKS: 120VAC, BEIGE, MODEL #1020000000.
 - d. WEIDMULLER TERMINAL BLOCK: GREEN, MODEL #1020080000.
 - e. TWO (2) OMRON 24VDC POWER SUPPLIES, MODEL #S8VK-C12024.
 - f. FOUR (4) WEIDMULLER TERMINAL BLOCKS: 24VDC, BLUE, MODEL #1020090000.

NOTES:

1. IN FCP, PROVIDE TWO (2) WEATHERPROOF AND GFI DUPLEX RECEPTACLES, TWO (2) TEMPERATURE SWITCHES FOR HIGH AND LOW TEMPERATURE MONITORING BY PLC, ONE (1) FINGER-SAFE 120VAC PANEL HEATER WITH BUILT-IN THERMOSTAT, AND PANEL COOLING FAN WITH THERMOSTAT CONTROL. INSTALL PANEL VENTS ON OPENINGS TO PROTECT FROM WEATHER COMPLETE WITH INSECT SCREENS.

REVISIONS

no.	date	by	description
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2	FEB 4 2021	M.A.T.	ISSUED FOR ECA
3	MAR 16 2021	M.A.T.	ISSUED FOR TENDER
4	MAY 28 2021	M.A.T.	ISSUED FOR CONSTRUCTION



**WALLACE ROAD
SEWAGE PUMPING
STATION, SANITARY
SEWER AND FORCEMAIN
TENDER 2021-17**

ELECTRICAL

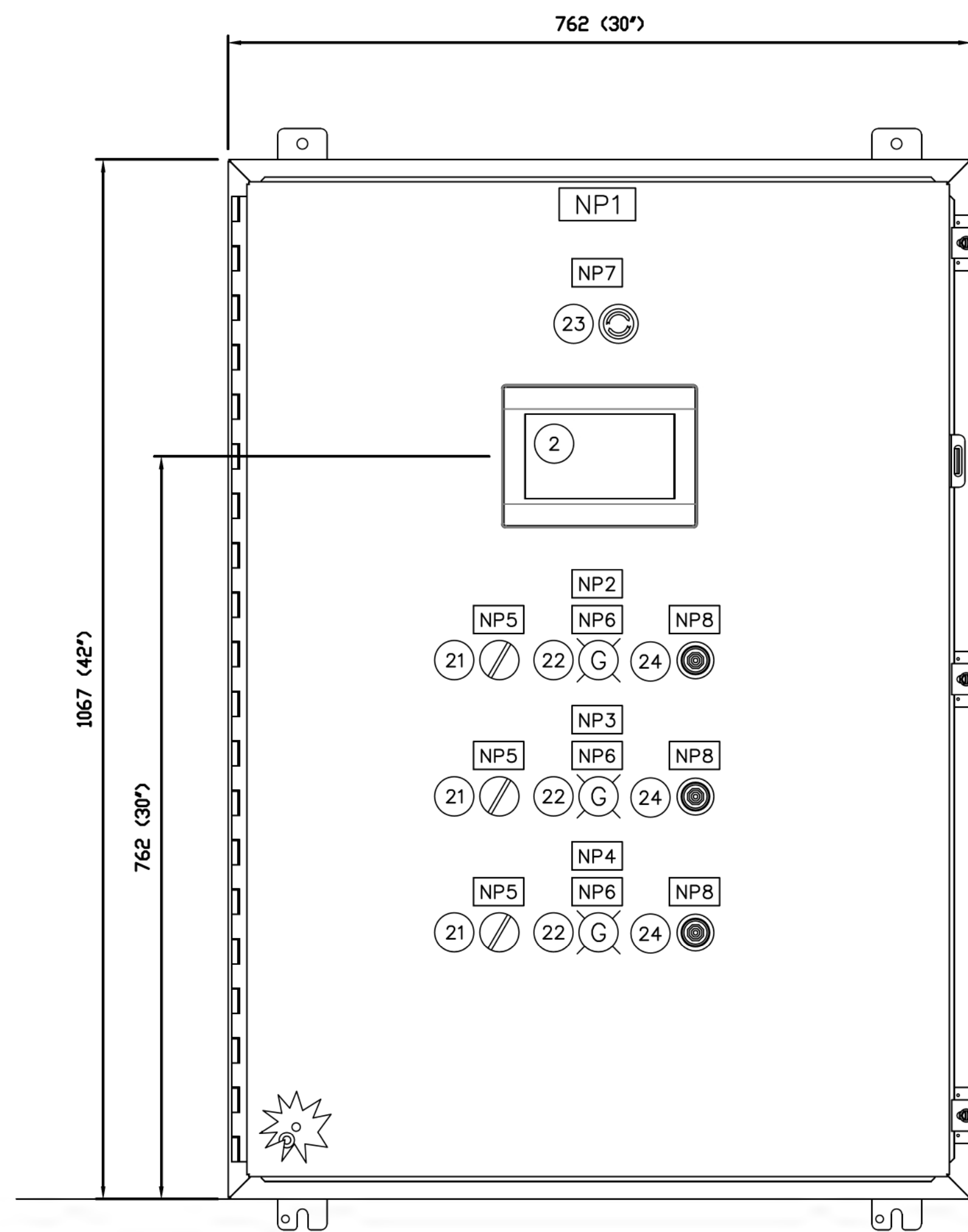
**FIELD CONTROL
PANEL DETAILS**

designer: D.N.P.R. checked by: S.M.

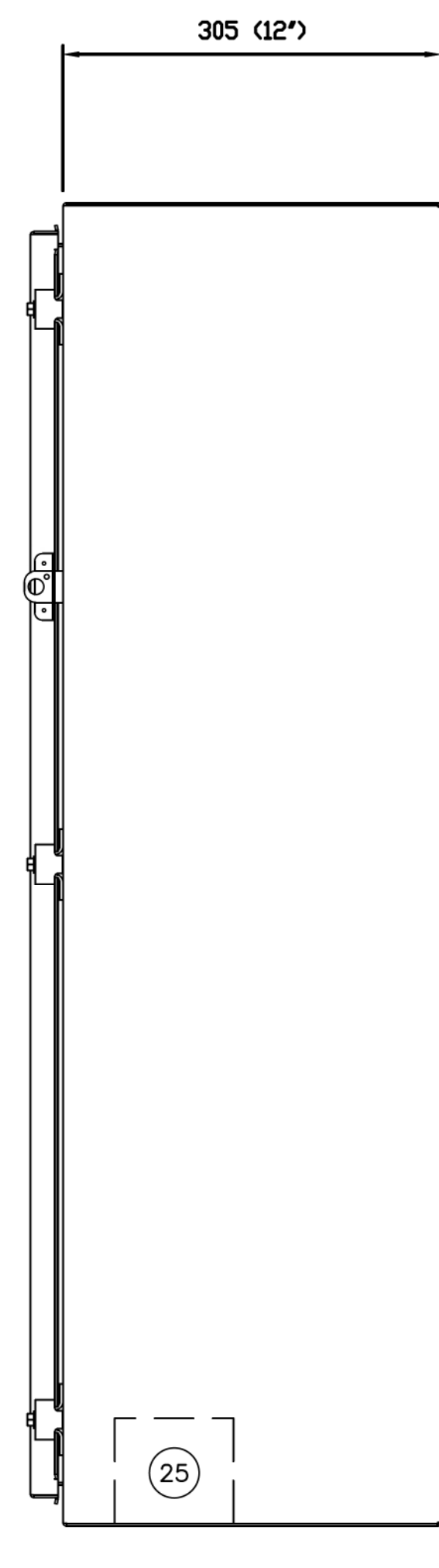
date: 05/13/2020 approved by: D.K.J.

scale: N.T.S.

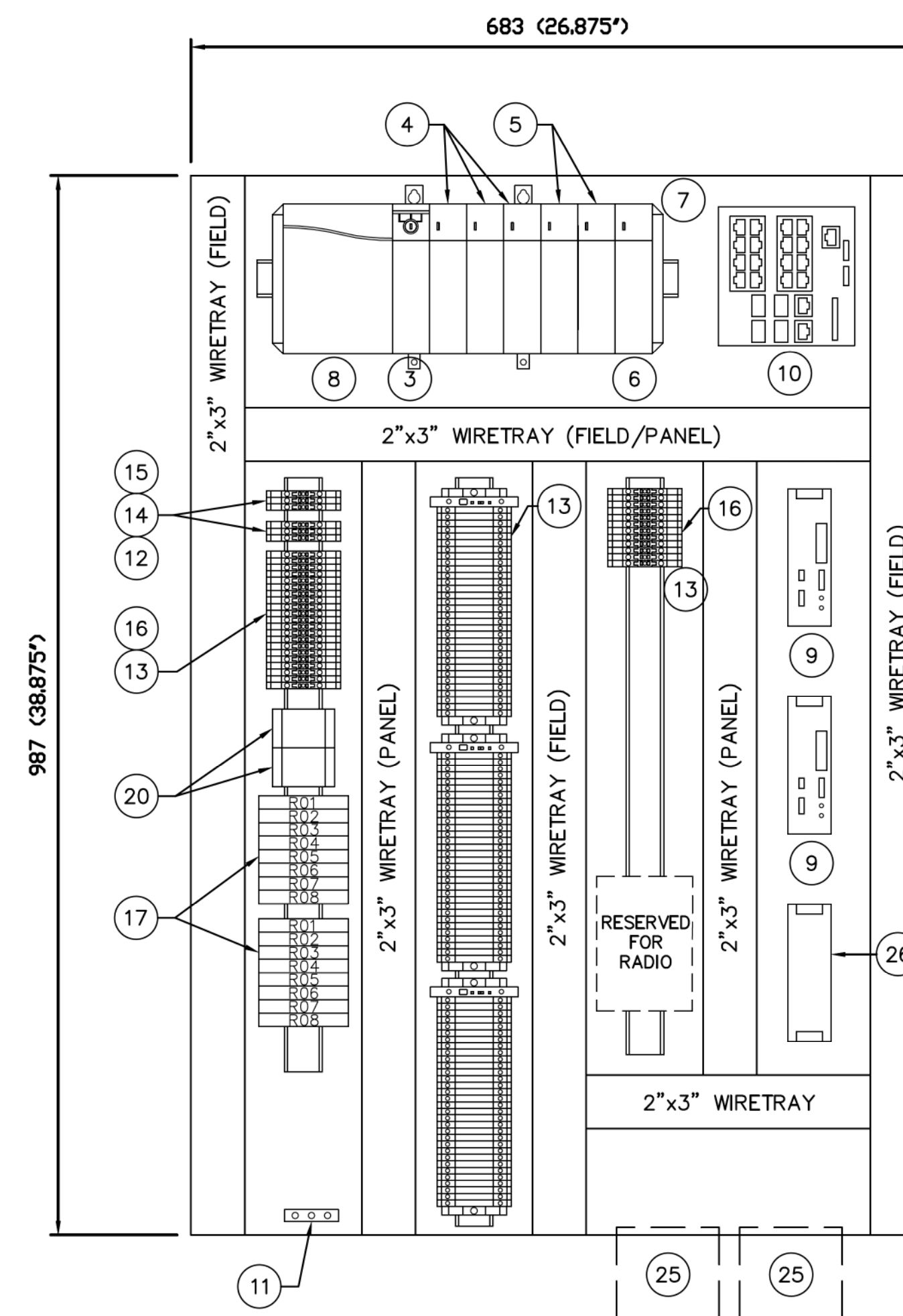
drawing number: E-5 sheet: 16 of 21



FRONT VIEW



RIGHT VIEW



PANEL LAYOUT

NOTE: CONTRACTOR SHALL PROVIDE FOR A SEPARATE INTRINSICALLY SAFE BARRIER PANEL SUITABLY SIZED FOR THE APPLICATION AND MOUNTED WITHIN THE VICINITY OF THE PLC PANEL. PANEL CONSTRUCTION, PANEL APPURTENANCES AND ARRANGEMENT SHALL BE SIMILAR TO ICP'S AS OUTLINED WITHIN THESE DRAWINGS. CONTRACTOR SHALL PROVIDE SHOP DRAWING TO ENGINEER FOR REVIEW AND APPROVAL. REFER TO SPECIFICATIONS DETAILS AND REQUIREMENTS.

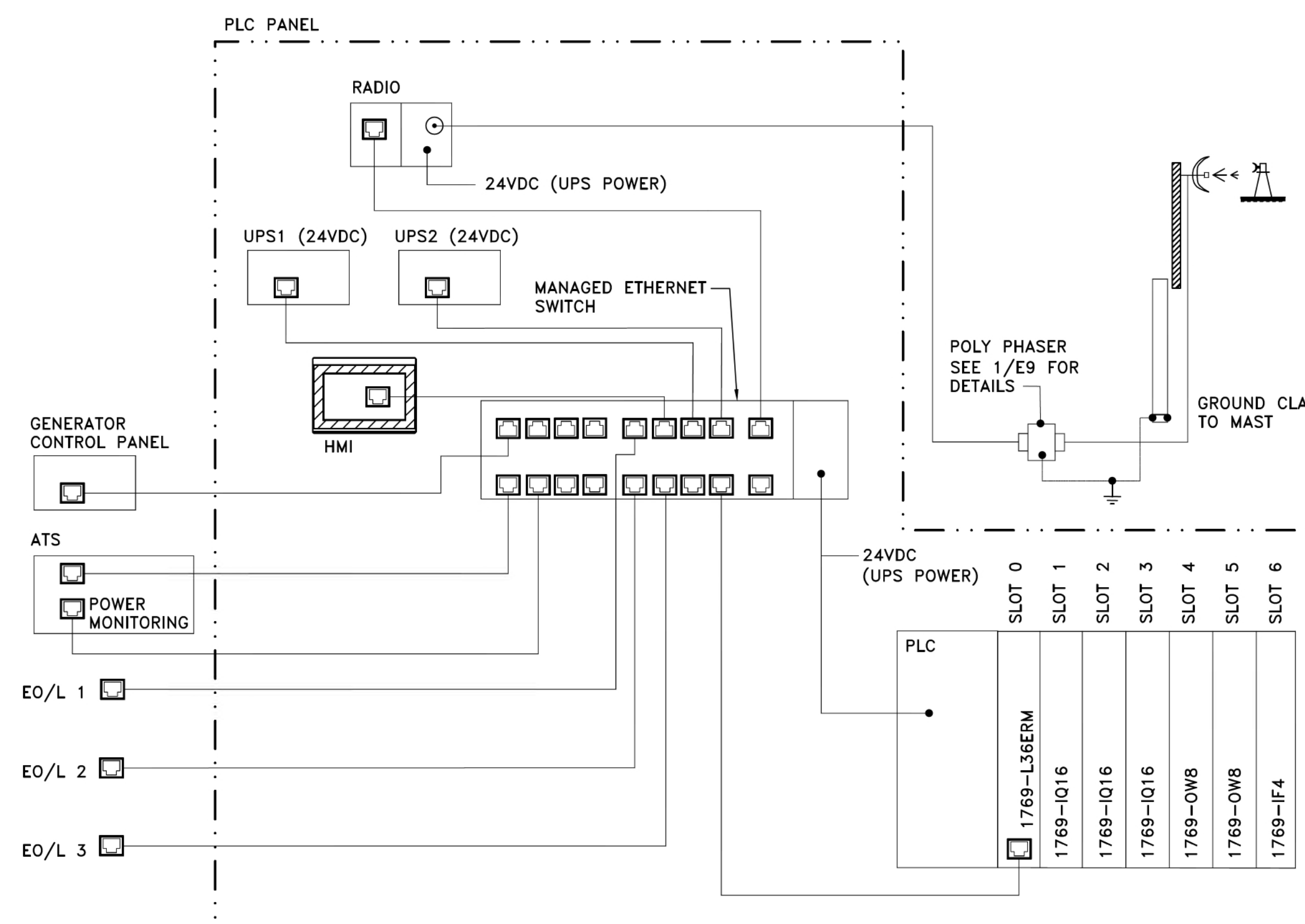
**INTRINSICALLY SAFE
BARRIER PANEL WALL
MOUNT (ICP-400102)**

BILL OF MATERIAL			
ITEM	QTY	DESCRIPTION	MODEL
1	1	NEMA 12 ENCLOSURE - 42"H x 30"W x 12"D	N12-423012
2	1	ALLEN BRADLEY PANELVIEW PLUS, 7-12.1"	2711P-T12W22D9P
3	1	COMPACTLOGIX PROCESSOR, 2MB USER MEMORY	1769-L36ERM
4	3	COMPACTLOGIX 16 POINT DIGITAL INPUT MODULE	1769-IQ16
5	2	COMPACTLOGIX 8 POINT DIGITAL OUTPUT MODULE	1769-OW8
6	1	COMPACTLOGIX 4 POINT ANALOG INPUT MODULE	1769-IF4
7	1	COMPACTLOGIX RIGHT END CAP	1769-ECR
8	1	COMPACTLOGIX POWER SUPPLY, 13A	1769-PA4
9	2	PHOENIX CONTACT UPS	2906994
10	1	STRATIX 5700 MANAGED ETHERNET SWITCH	1783-BMS12T4E2CGL
11	1	GROUNDING BAR	-
12	LOT	WEIDMULLER BEIGE TERMINAL BLOCKS	1020000000
13	LOT	WEIDMULLER BLUE TERMINAL BLOCKS	1020090000
14	LOT	WEIDMULLER GREEN TERMINAL BLOCKS	1020080000
15	LOT	120VAC WEIDMULLER FUSE HOLDER	1012300001
16	LOT	24VDC WEIDMULLER FUSE HOLDER	1011300001
17	LOT	24VDC WEIDMULLER CONTROL PANEL RELAY	8881580000
18	(1)	PEPPERL + FUCH INTRINSICALLY SAFE RELAY	KFA5-SR2-EX2.W
19	(2)	XYLEM INTRINSICALLY SAFE BARRIER	843055
20	2	OMRON 3 POLE RELAYS	MK3P5
21	3	SELECTOR SWITCH	800T-J2A
22	3	GREEN INDICATING LIGHT, PTT	800T-QT24G
23	1	EMERGENCY PUSH-PULL STOP BUTTON	800T-FX6A1
24	3	MOMENTARY RESET BUTTON	800T-A2A
25	2	ENERGY STORAGE UNIT	2320416
26	1	ORING REDUNDANCY MODULE	2320173
27	(2)	OMRON 24VDC POWER SUPPLY	S8VK-C12024

GENERAL NOTES:

- A ALL QUANTITIES LISTED IN THIS BILL ARE FOR ESTIMATING PURPOSES ONLY.
- B ALL PANEL DOOR MOUNTED DEVICES TO BE FINGER SAFE. PROVIDE GUARDING AS REQUIRED.
- C PROVIDE AN ANTI-GLARE PROTECTOR FOR THE HMI SCREEN (BOM ITEM #2).

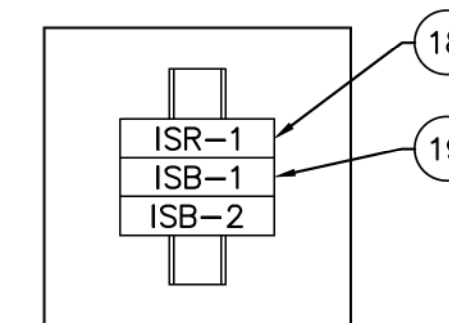
TAG	CONTROL PANEL (TEXT) BLACK LETTERS ON WHITE ADHESIVE	TEXT HT. (mm)
NP1	CITY OF NORTH BAY WALLACE ROAD FIELD CONTROL PANEL (FCP-1)	8
NP2	PUMP NO.1	6
NP3	PUMP NO.2	6
NP4	PUMP NO.3	6
NP5	OFF HAND AUTO	6
NP6	RUNNING	6
NP7	STOP	6
NP8	RESET	6



2 COMMUNICATION TOPOLOGY
SCALE: NTS

1 PLC PANEL LAYOUT
SCALE: NTS

LEGEND



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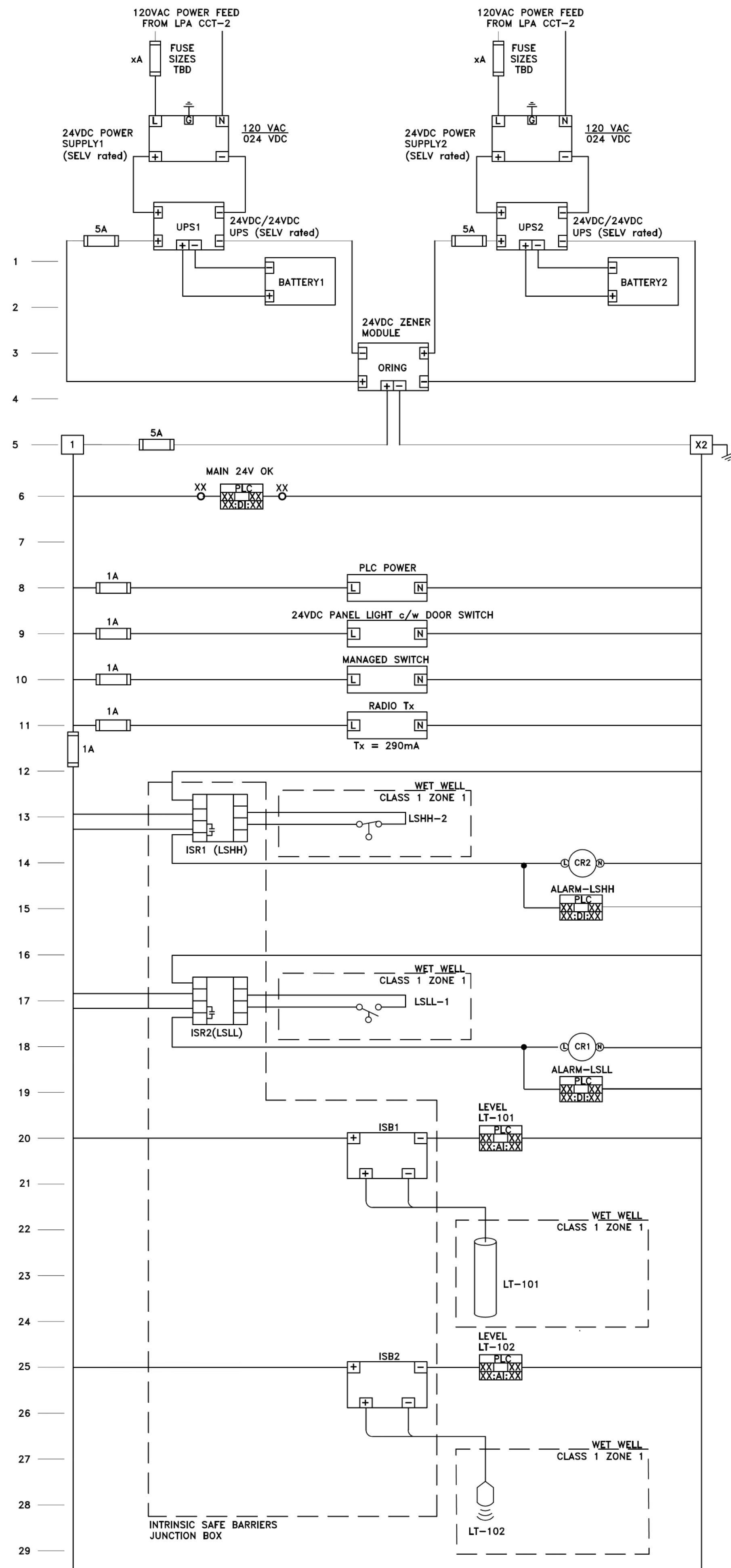


**WALLACE ROAD
SEWAGE PUMPING
STATION, SANITARY
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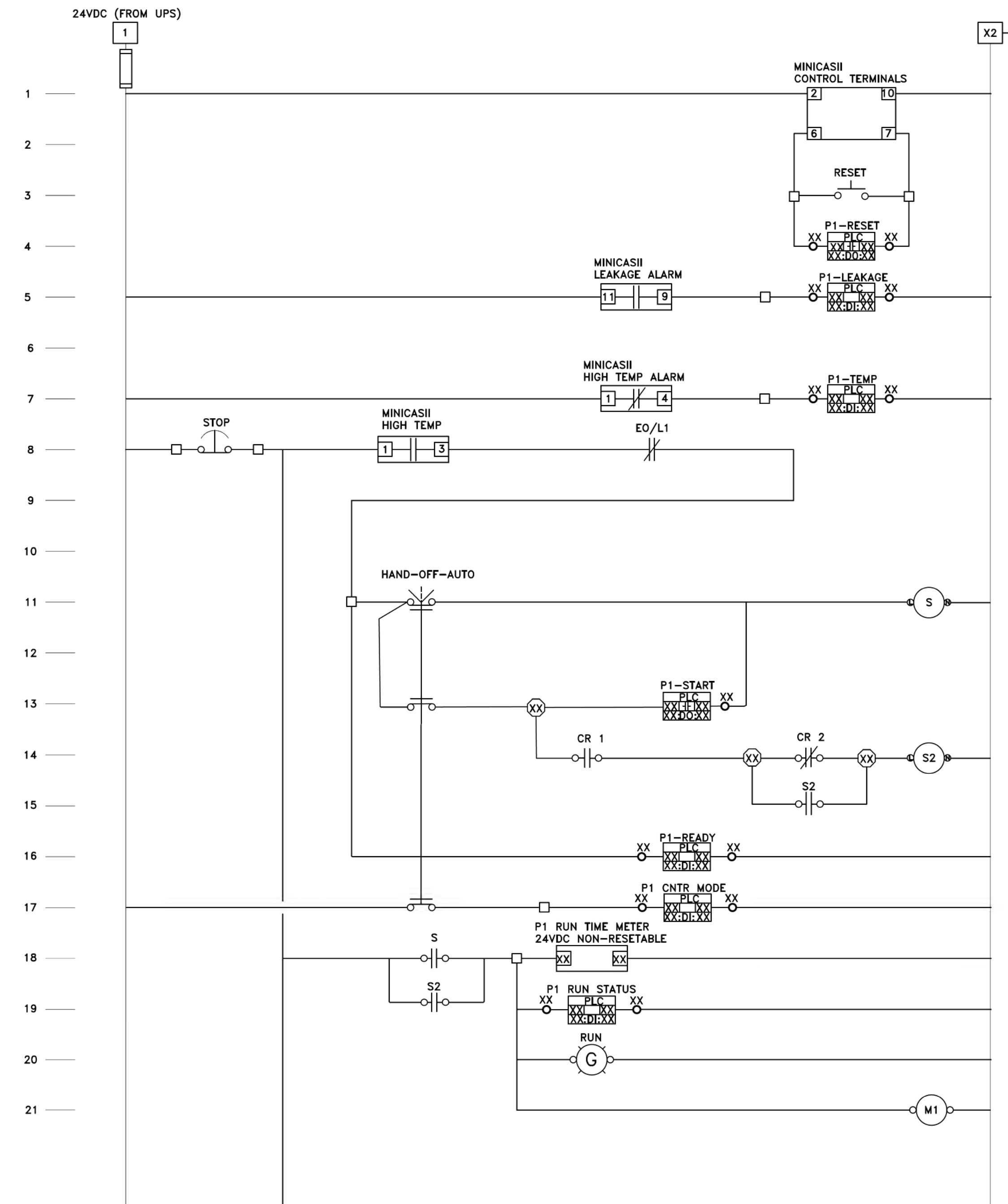
ELECTRICAL

PLC PANEL DETAILS

designer D.N.P.R.	checked by: S.M.
date 02/03/2020	approved by: D.K.J.
scale N.T.S.	
drawing number E-6	sheet 17 of 21



1 SHARED CONTROL LOGIC & ELV POWER
SCALE: NTS



2 PUMP 1 CONTROL LOGIC
SCALE: NTS

LEGEND

- N.C. CONTACT
- N.O. CONTACT
- COIL
- LED INDICATOR LIGHT
- N.O. MOMENTARY PB
- EMERGENCY STOP
- TERMINAL BLOCK
- PLC DIGITAL INPUT
- PLC DIGITAL OUTPUT
- PLC ANALOG INPUT
- N.O. FLOAT
- N.C. FLOAT

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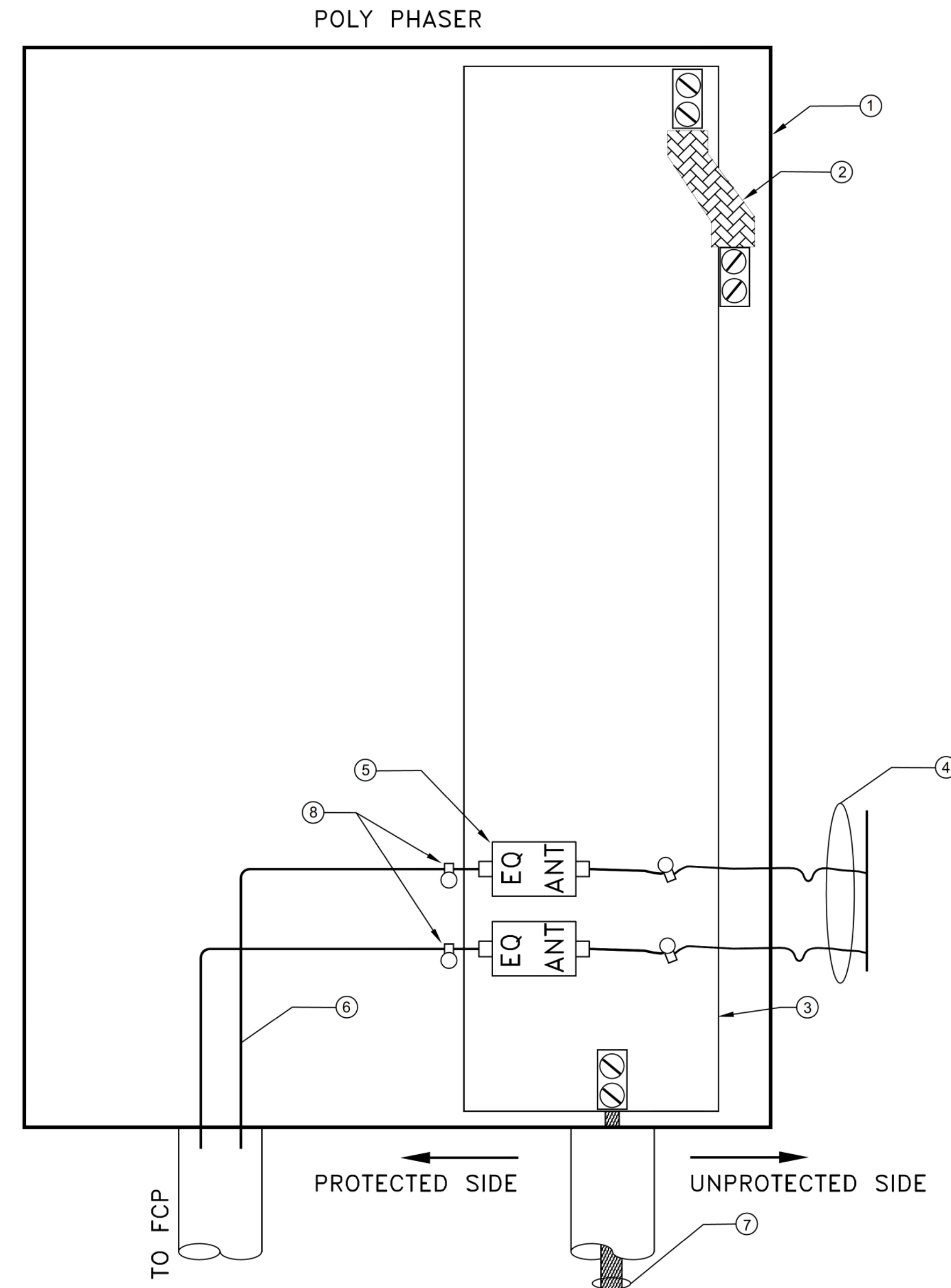


**WALLACE ROAD
SEWAGE PUMPING
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ELECTRICAL

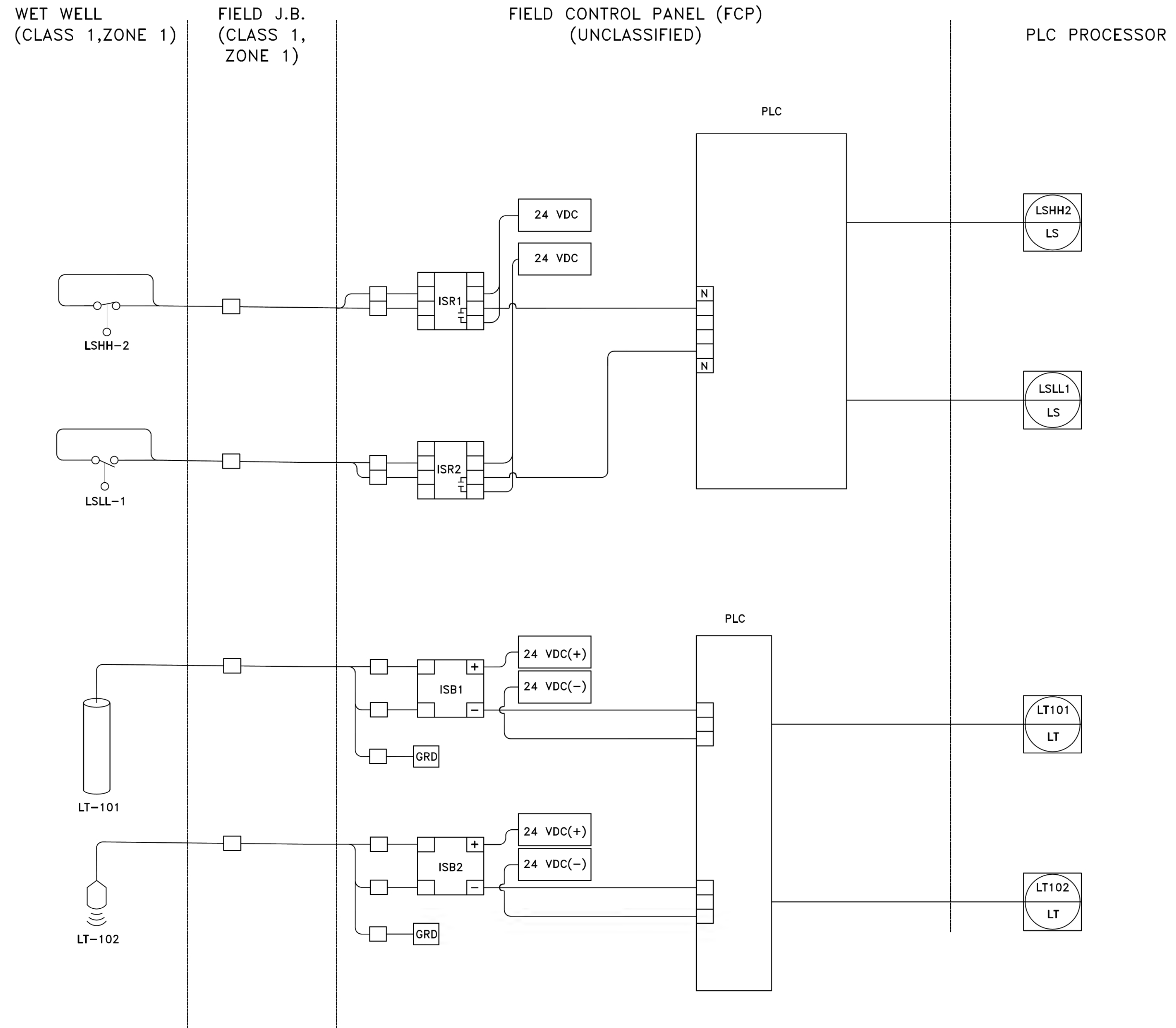
**CONTROL
SCHEMATICS 1**

designer D.N.P.R.	checked by: S.M.
date 05/13/2020	approved by: D.K.J.
scale N.T.S.	
drawing number E-7	sheet 18 of 21



DRAWING NOTES:

1. NEMA 4 RATED ENCLOSURE; SIZE TO SUIT
2. 25mm BRAIDED COPPER STRAP c/w BOLT CONNECTORS FROM COPPER BACKPLANE TO ENCLOSURE.
3. COPPER BACK PLANE FOR SINGLE POINT GROUNDING.
4. CABLE TO ANTENNA. SIZE AND FIT CABLE TO ENSURE NO SPOILING IN THE ENCLOSURE (TYPICAL). PROTECT ANTENNA CABLES FROM POLY PHASER TO A HEIGHT OF 4m ABOVE GRADE USING RIGID PVC CONDUIT. UNPROTECTED CABLES FROM 4m HEIGHT TO ANTENNA.
5. LIGHTNING ARRESTOR MOUNTED SECURELY TO COPPER BACK PLANE. SUPPLIED BY SPECTRUM AND INSTALLED IN PANEL BY ELECTRICAL TRADE.
6. PROTECTED CABLE TO RADIO MODEM. SIZE AND FIT CABLE TO ENSURE NO SPOILING IN THE ENCLOSURE.
7. 2/0 BARE COPPER c/w BOLT CONNECTORS IN 53mm PVC FOR CONNECTION TO GROUND GRID.
8. TIE WRAP CABLE AND SECURE TO COPPER BACK PLANE.



LEGEND

- LS LEVEL SWITCH
- LT LEVEL TRANSMITTER
- LSLL LEVEL SWITCH LOW-LOW
- LSHH LEVEL SWITCH HIGH-HIGH
- ISB INTRINSICALLY SAFE BARRIER
- ISR INTRINSICALLY SAFE RELAY

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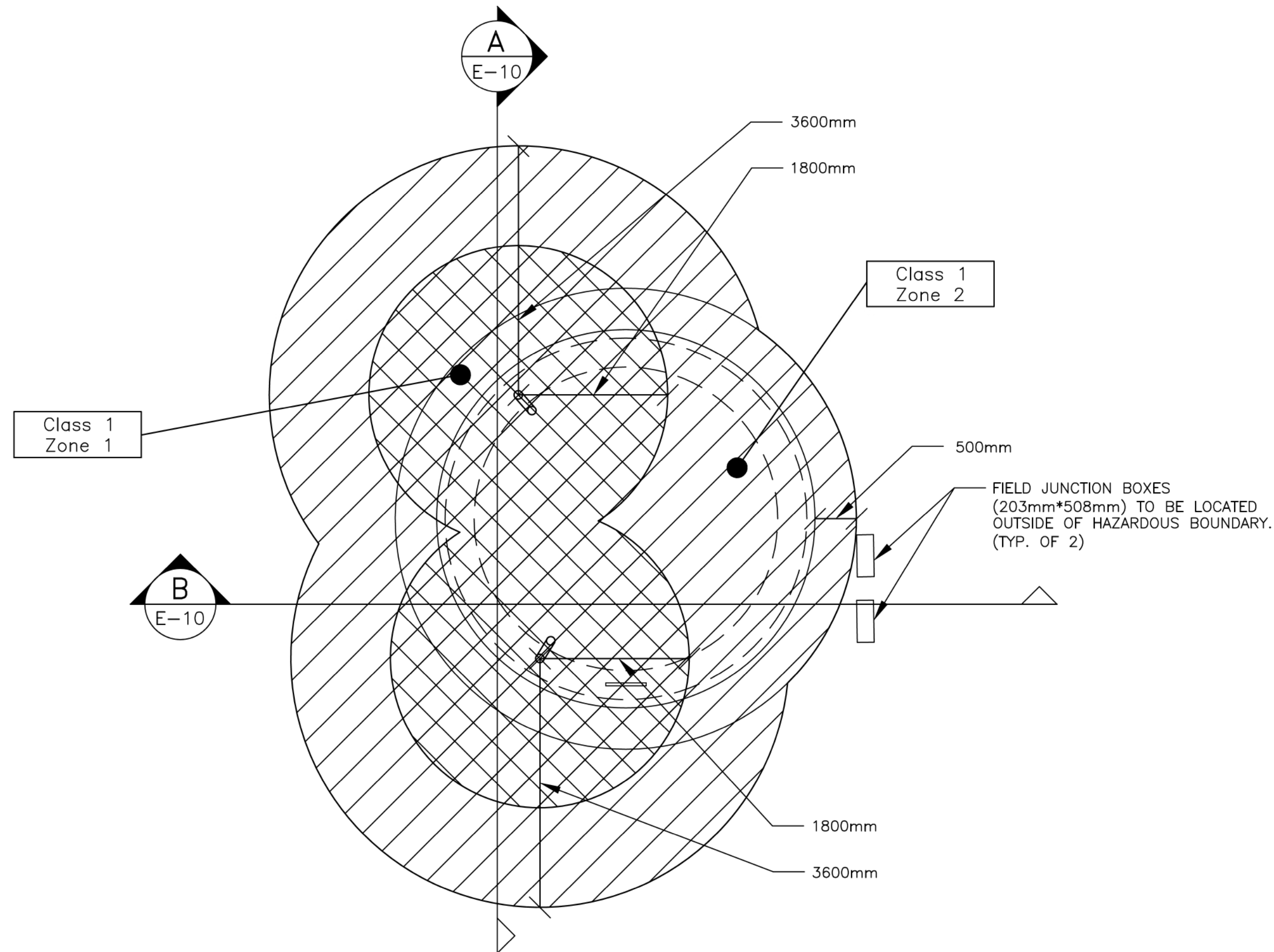


WALLACE ROAD SEWAGE PUMPING STATION, SANITARY TENDER 2021-17

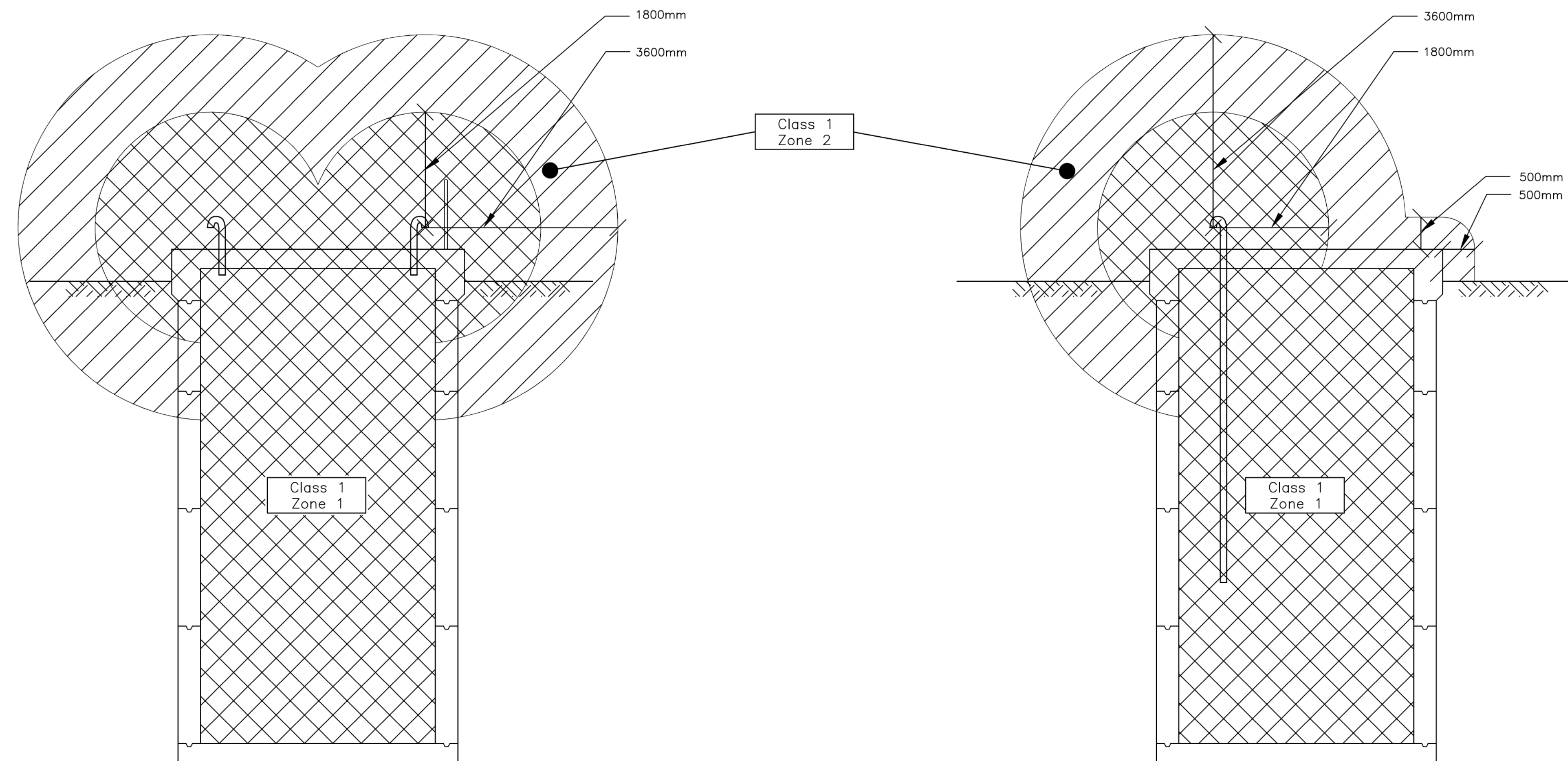
ELECTRICAL

PANEL DETAILS 1

designer D.N.P.R.	checked by: S.M.
date 05/13/2020	approved by: D.K.J.
scale N.T.S.	
drawing number E-9	sheet 20 of 21



1 HAZARDOUS LOCATION BOUNDARY (PLAN VIEW)
SCALE: NTS
E-10



2 HAZARDOUS LOCATION (SECTION A)
SCALE: NTS
E-10

3 HAZARDOUS LOCATION (SECTION B)
SCALE: NTS
E-10

DRAWING NOTES:

1. THE 600V FIELD JUNCTION BOX AND THE CONTROL FIELD JUNCTION BOX SHALL BE CONSIDERED TO CONTAIN CLASS 1, ZONE 1 ATMOSPHERES. EYS POTTING SHALL CREATE A PERMANENT BARRIER TO PREVENT THIS HAZARD FROM REACHING THE PUMP DISCONNECTS OR THE FCP.

LEGEND

- CLASS 1 ZONE 1
- CLASS 1 ZONE 2

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ELECTRICAL

HAZARD ZONES

designer: D.N.P.R. checked by: S.M.

date: 05/13/2020 approved by: D.K.J.

scale: N.T.S.

drawing number: E-10 sheet: 21 of 21