

REGIONAL DISTRICT OF NANAIMO

COOMBS-HILLIERS FIRE DEPARTMENT NEW WATER TANKS

GENERAL NOTES:

- ALL WORK AND MATERIALS ARE TO BE AS DESCRIBED IN THE CURRENT MMCD PLATINUM EDITION OR AS OTHERWISE APPROVED BY THE ENGINEER.
- CONNECTION TO, OR ALTERATION OF, EXISTING RDN-OWNED UTILITIES, REQUIRES AUTHORIZATION BY THE RDN ENGINEER.
- THE ENGINEER SHALL BE NOTIFIED 48 HOURS PRIOR TO COMMENCEMENT OF WORK.
- CONTRACTOR TO COMPLY WITH ALL APPLICABLE MINISTRY OF ENVIRONMENT REQUIREMENTS AT ALL TIMES DURING CONSTRUCTION.
- CONTRACTOR TO CONFIRM LOCATION OF EXISTING UTILITIES AT ALL CROSSINGS AND CONNECTIONS AND REPORT ANY DISCREPANCIES TO THE ENGINEER PRIOR TO CONSTRUCTION.
- ADJUST ALL MANHOLES, WATER VALVES, HYDRO VAULTS, ETC. TO MATCH NEW CONSTRUCTION.
- ALL LOCATIONS AND ELEVATIONS OF EXISTING UTILITIES SHOWN ARE APPROXIMATE ONLY AND SHOULD BE CONFIRMED BY USE OF A PIPE LOCATOR AND MANUAL DIGGING. ALL OR ANY STRUCTURES NOT NECESSARILY SHOWN. INFORMATION ON EXISTING STRUCTURES AND UTILITIES IS BASED ON ESTIMATED CONSTRUCTION EXTENTS, AND IS APPROXIMATE ONLY.
- ALL DIMENSIONS ARE IN METRIC UNITS, UNLESS NOTED OTHERWISE.
- CONTRACTOR TO MEASURE AND CONFIRM ALL OFFSETS IN THE FIELD PRIOR TO CONSTRUCTION. ANY DISCREPANCIES ARE TO BE REVIEWED WITH THE ENGINEER.

WATER SYSTEM NOTES:

- ALL UNDERGROUND WATER PIPING TO BE PVC C900 DR18 WITH JOINT RESTRAINTS, UNLESS NOTED OTHERWISE.
- PIPING BETWEEN TANKS TO BE 150#, SCHEDULE 10, TYPE 316 STAINLESS STEEL.
- WATER TANKS TO BE 10,000 U.S. GALLON, VRT HD STORAGE TANK PROVIDED BY BARR PLASTICS
- SEISMIC RESTRAINT SYSTEM TO BE DESIGNED, FURNISHED, AND INSPECTED BY TANK SUPPLIER'S ENGINEER

CONCRETE NOTES:

- ALLOWABLE BEARING PRESSURE: 150 kPa, AS DETERMINED BY LEA GEOTECHNICAL ASSESSMENT, COMPLETED OCTOBER 2017
- CONCRETE MATERIALS, QUALITY, MIXING, PLACING, FORMWORK, AND OTHER CONSTRUCTION PRACTICES TO CONFORM TO CSA-A23.1
- SUPPLY CONTROLLED CONCRETE IN ACCORDANCE WITH CSA-A23.1 WITH PROPERTIES NOTED BELOW:
 - CLASS OF EXPOSURE: C-1
 - MINIMUM 28-DAY COMPRESSIVE STRENGTH: 35MPa
 - MAXIMUM AGGREGATE SIZE: 20mm
 - AIR CONTENT CATEGORY: 1
 - MAXIMUM WATER/CEMENT RATIO: 0.40
 - CEMENT TYPE: GU
- NOTIFY ENGINEER 48 HOURS PRIOR TO CONCRETE PLACEMENT FOR REVIEW OF REINFORCEMENT AND FORMWORK
- FIELD AND LABORATORY TESTING OF CONCRETE TO BE COMPLETED BY A THIRD PARTY TESTING AND INSPECTION AGENCY APPROVED BY AND RESPONSIBLE TO THE ENGINEER. TESTING AGENCY SHALL BE CERTIFIED TO CSA-A283. ONE SET OF 3 CYLINDERS SHALL BE MADE FOR EACH DAY'S POUR. COPIES OF TEST RESULTS TO BE SENT TO THE ENGINEER AND CONTRACTOR. CONTRACTOR TO PAY FOR TESTS.
- COLD WEATHER REQUIREMENTS FOR PLACING CONCRETE AS DEFINED BY CAN/CSA 23.1, CLAUSE 7.4.2.5 MUST BE MET.
- HOT WEATHER REQUIREMENTS FOR PLACING CONCRETE AS DEFINED BY CAN/CSA 23.1, CLAUSE 7.4.1.8.1 MUST BE MET.
- REINFORCEMENT STEEL TO CONFORM TO CSA-G30.18, GRADE 400
- REINFORCEMENT IS NOT TO BE WELDED, UNLESS SPECIFICALLY APPROVED BY THE ENGINEER
- CLEAR CONCRETE COVER TO REINFORCEMENT TO MEET THE FOLLOWING:
 - CAST AGAINST FORMWORK OR EXPOSED SURFACE OF SLAB: 40mm
 - CAST AGAINST SOIL: 50mm

- REINFORCEMENT SPLICES TO CONFORM TO THE FOLLOWING TABLE:

REINFORCEMENT SPLICES				
TO BE READ IN CONJUNCTION WITH CONCRETE DESIGN NOTES:				
1. THIS TABLE IS BASED ON NORMAL-WEIGHT CONCRETE $f'_c = 35 \text{ MPa}$ AND ON REINFORCING STEEL $F_y = 400 \text{ MPa}$				
2. FOR STANDARD EMBEDMENT DEPTH INTO CONCRETE, DIVIDE BASIC TENSION LAP SPlice NUMBERS BY 1.3				
BAR SIZE	COMPRESSION SPlice (mm)	TENSION SPlice (mm)		
		VERTICAL OR BOTTOM HORIZONTAL BARS	TOP HORIZONTAL BARS	
10M	300	400	500	
15M	450	600	750	
20M	600	800	1000	
25M	750	1200	1525	
30M	900	1450	1825	
35M	1025	1700	2150	

- OPENINGS IN SLABS: PROVIDE TWO 15M BARS EACH SIDE, ONE EACH FACE, EXTENDING 600mm PAST THE OPENINGS, PLUS TWO 15M DIAGONAL BARS AT EACH CORNER, EACH FACE 1200mm LONG UNLESS NOTED OTHERWISE.
- DO NOT CUT REINFORCEMENT AT OPENINGS WHERE IT CAN BE SPREAD CONTINUOUS AROUND OPENING.
- ALL REINFORCEMENT TO BE SUPPORTED AT 900mm MAXIMUM SPACING
- DESIGN, FABRICATION, ERECTION, AND OTHER CONSTRUCTION PRACTICES TO CONFORM TO CAN/CSA-S269.3

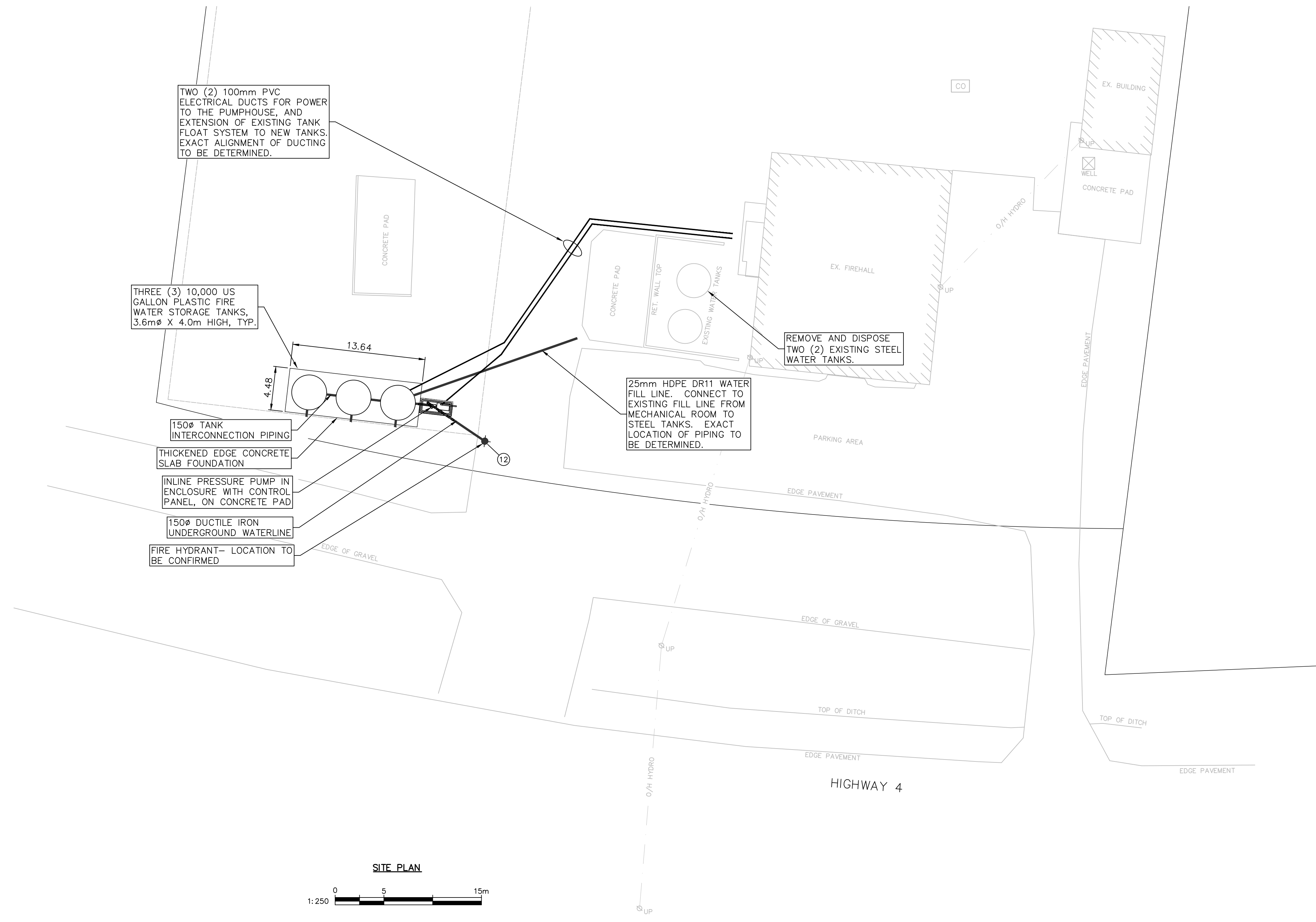
DRAWING LIST

DRAWING NO.	DRAWING TITLE	REVISION				
		A	B	C	D	E
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C01	SITE PLAN					X
C02	DETAILS					X

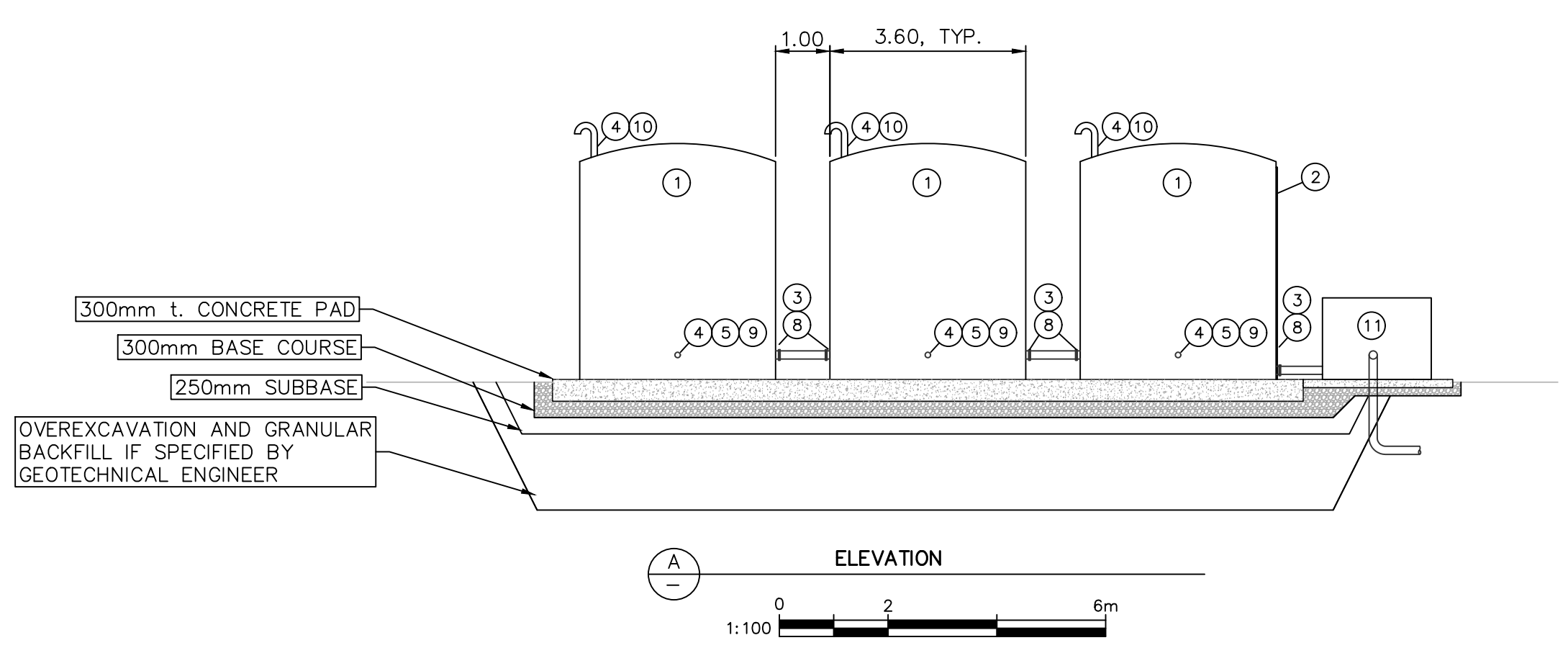
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D	13MAR18	CDR	ADDITIONAL DETAILS	CDR
C	16NOV17	CDR	ISSUED FOR REVIEW	CDR
B	04AUG17	RDE	REVISED TANK OPTION	CDR
A	27JUL17	MBR	ISSUED FOR REVIEW	CDR

COOMBS-HILLIERS FIRE DEPARTMENT WATER STORAGE TANK

COOMBS, BC



SITE PLAN
1:250



ELEVATION
1:100

EQUIPMENT SPECIFICATION		
ITEM	QTY.	DESCRIPTION
1	3	10,000 USG VRT HD STORAGE TANK WITH TOP-OPENING HATCH
2	3	25mm PVC SIGHT TUBE
3	5	150mm FLANGE FITTING
4	6	100mm FLANGE FITTING
5	3	100mm STORZ CONNECTIONS
6	3	LADDER ASSEMBLY WITH WELDED LUGS (NOT SHOWN)
7	3	HOT-DIP GALVANIZED SEISMIC RESTRAINT SYSTEM (NOT SHOWN)
8	4	RESILIENT TYPE 150mm GATE VALVE
9	3	100mm BALL VALVE
10	3	100mm TOP VENT, PIPING AND GOOSENECK, COMPLETE WITH BIRD AND VERMIN SCREEN
11	1	GRUNDFOS 50123LF PRESSURE INCREASING PUMP AND KIOSK ENCLOSURE. NAMEPLATE MOTOR RATING: 40.00hp/29.83 kW
12	1	FIRE HYDRANT ASSEMBLY

DRAWING TITLE:
SITE PLAN

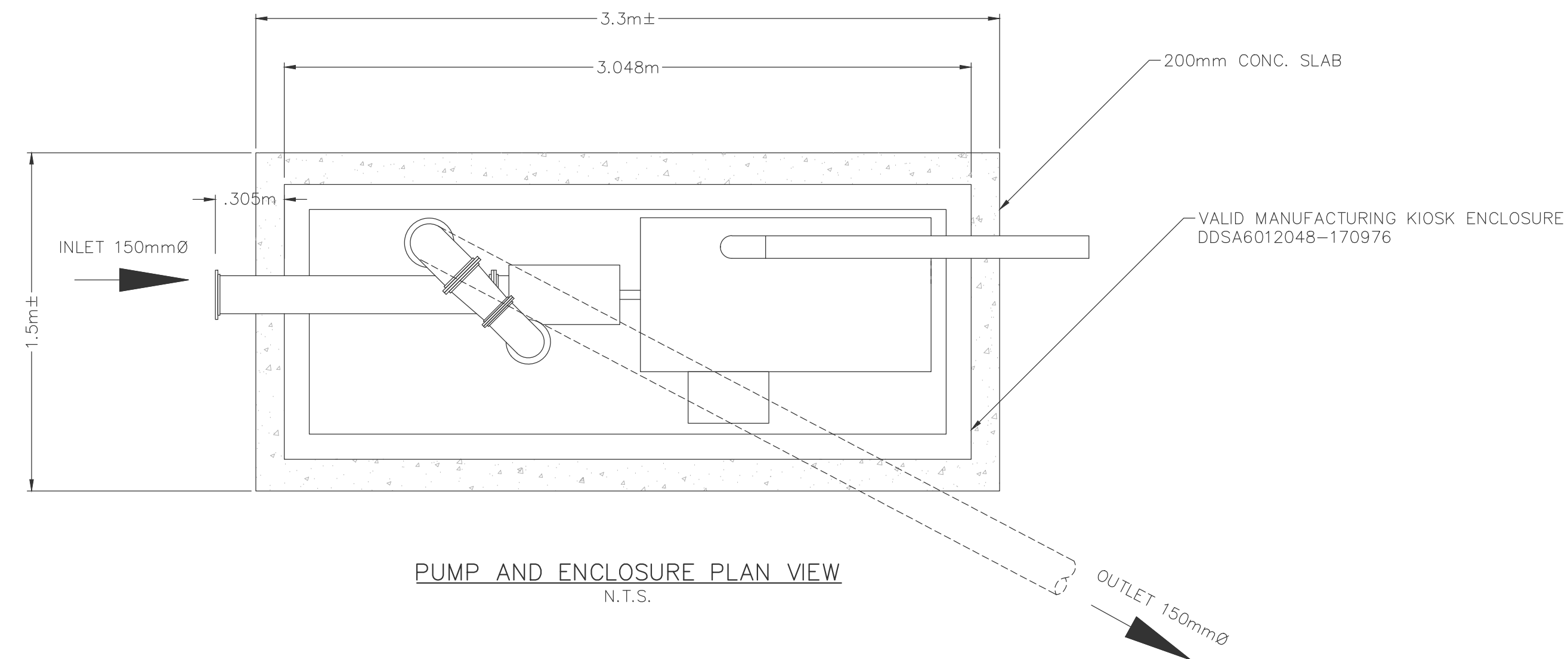


DESIGN BY: CDR	CHECKED BY: MBR
DRAWN BY: MBR/GPD	APPROVED BY: CDR
SCALE: HORIZ: 1:250 VERT: 1:250	SHEET: 2 OF 3
DATE: 13MAR18	ENG. FILE NUMBER: RDN 12-43406
PROJECT NUMBER: 1019-001	DRAWING NUMBER: C01
REV: E	

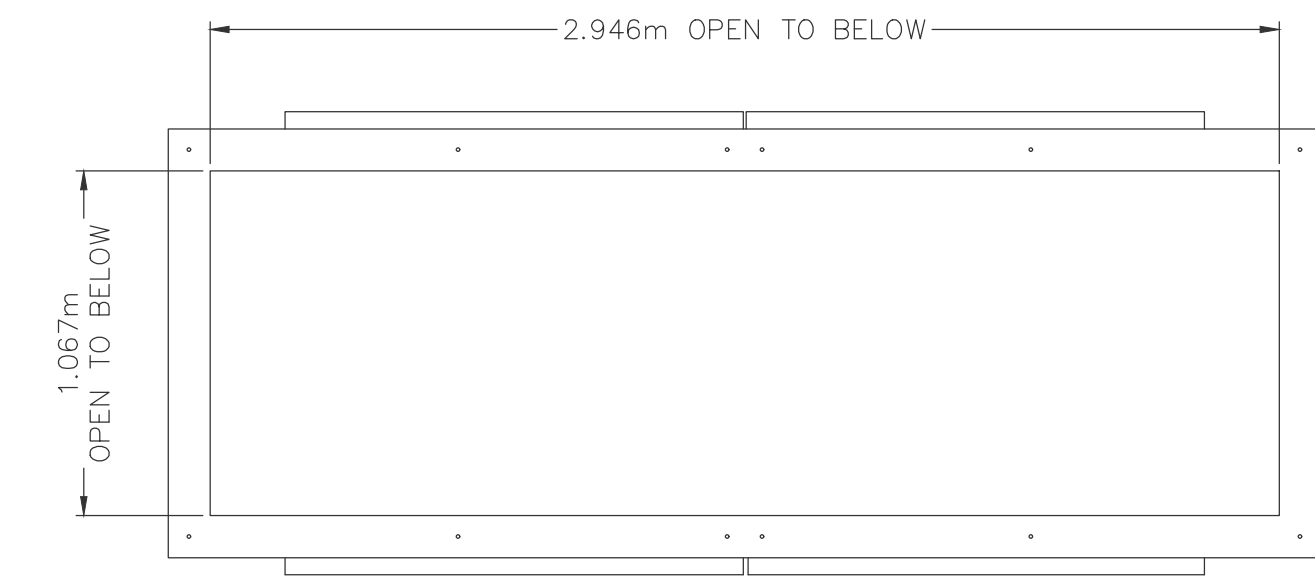
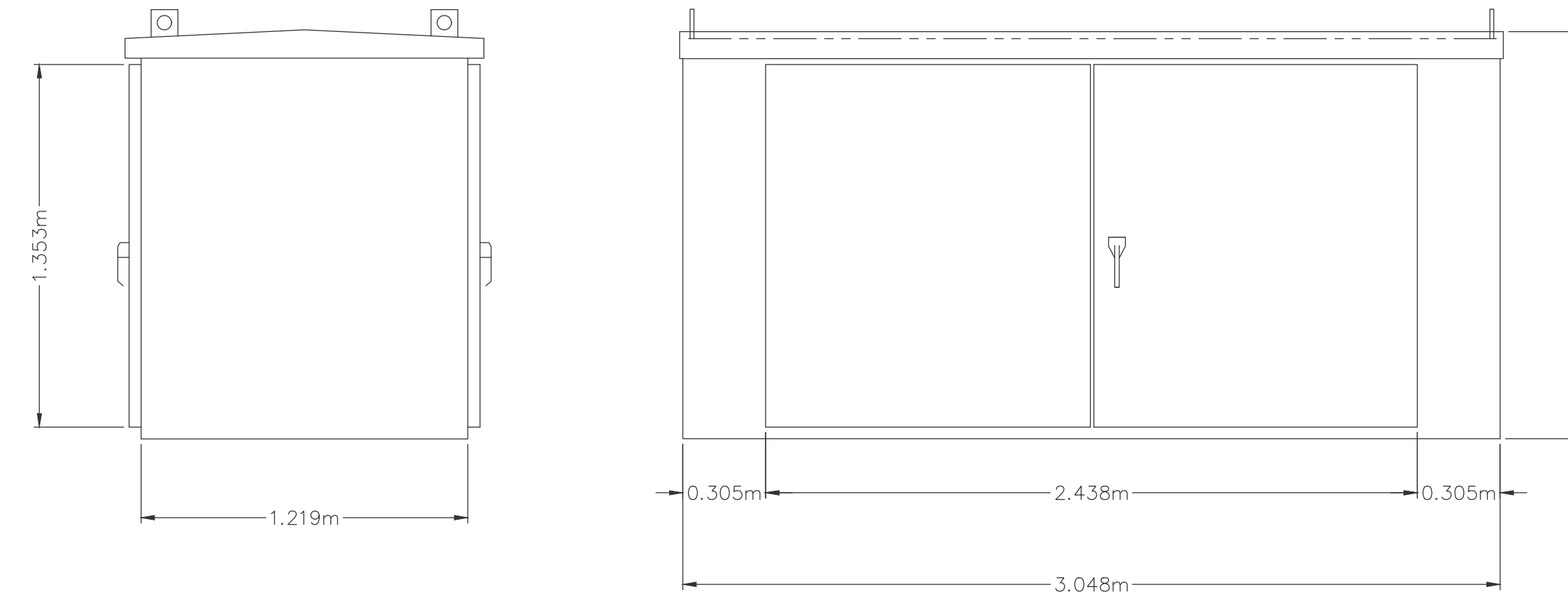
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**COOMBS-HILLIERS FIRE DEPARTMENT
WATER STORAGE TANK**

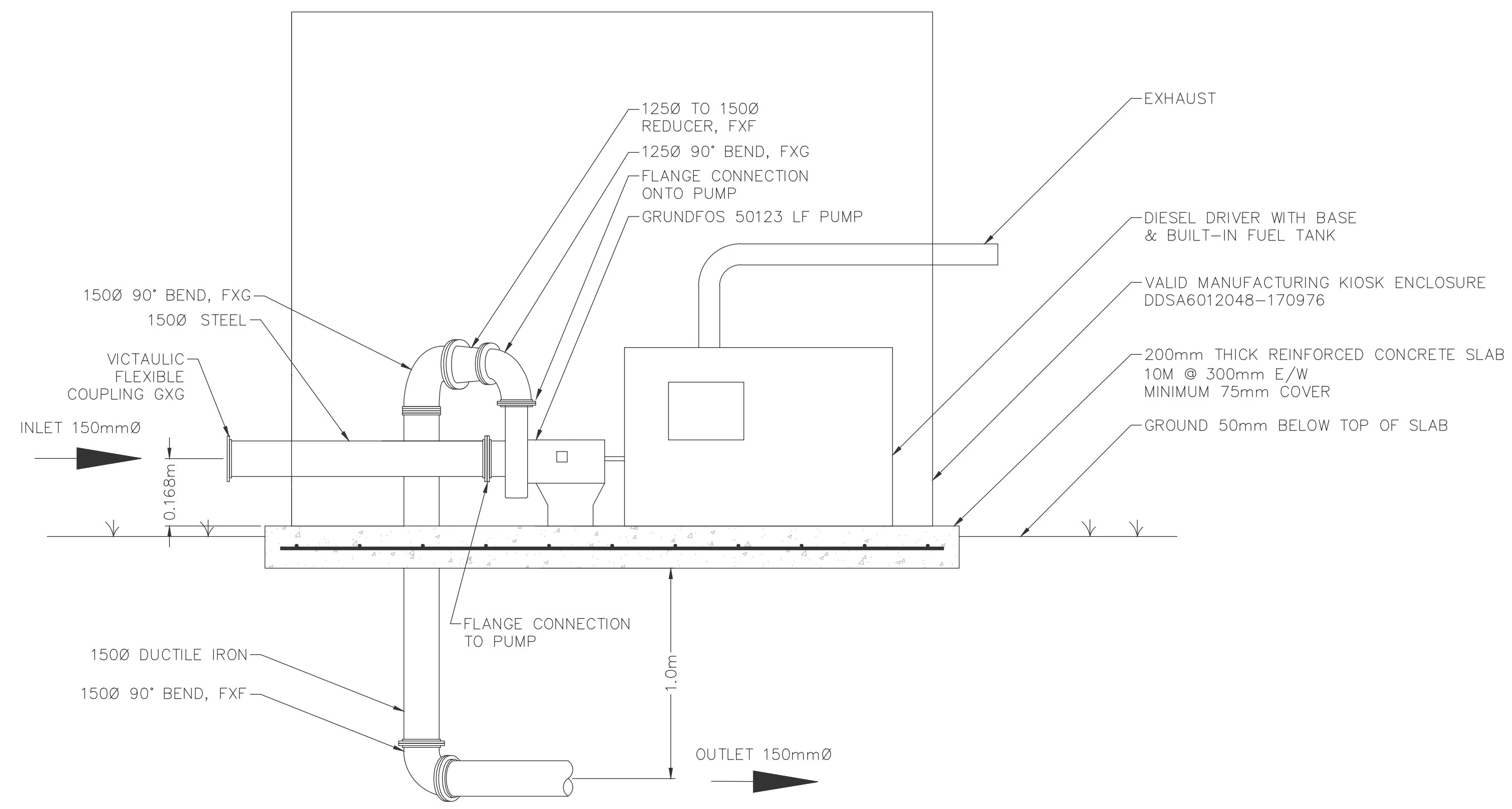
COOMBS, BC



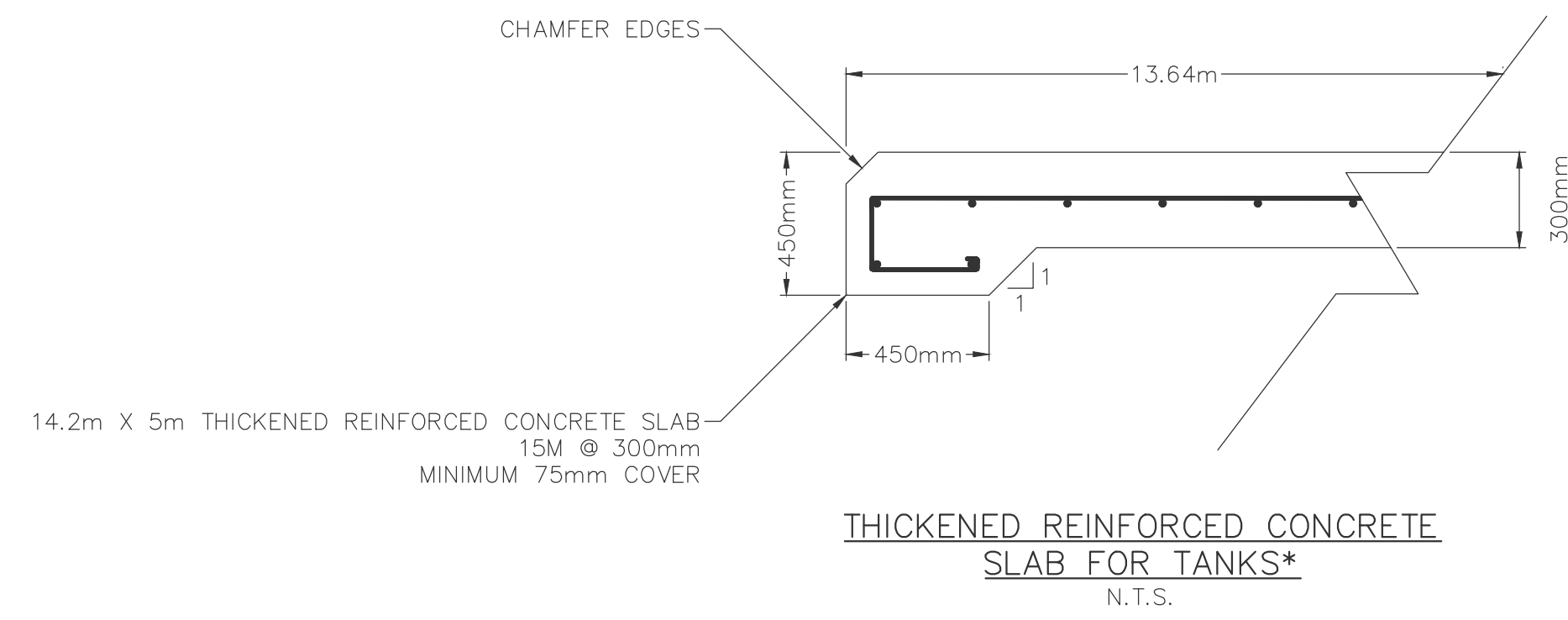
PUMP AND ENCLOSURE PLAN VIEW
N.T.S.



**KIOSK ENCLOSURE
(FOR INFORMATION ONLY)**
VALID MANUFACTURING MODEL: DDSA6012048-170976
N.T.S.



PUMP AND ENCLOSURE ELEVATION VIEW
N.T.S.



14.2m X 5m THICKENED REINFORCED CONCRETE SLAB
15M @ 300mm
MINIMUM 75mm COVER

**THICKENED REINFORCED CONCRETE
SLAB FOR TANKS***
N.T.S.

*FINAL DESIGN, IF MORE CONSERVATIVE FOR SEISMIC REQUIREMENTS, TO COME FROM TANK MANUFACTURER

DRAWING TITLE:
DETAILS


 #206-335 WESLEY STREET NANAIMO, BC V9R 2T5
 TEL: 250.591.7364 EMAIL: info@cascara.ca

DESIGN BY:	CDR	CHECKED BY:	MBR
DRAWN BY:	MBR/GPD	APPROVED BY:	CDR
SCALE:	SCALE: HORI: 1:250 VERT: DATE: 13MAR18 SHEET: 3 OF 3 ENG. FILE NUMBER: RDN 12-43406 PROJECT NUMBER: 1019-001 DRAWING NUMBER: REV: C02 E		