

- GENERAL NOTES:
- ALL ROAD, DRAINAGE, AND RELATED WORK WITHIN THE MOTI RIGHT OF WAY MUST BE COMPLETED TO MINISTRY OF TRANSPORTATION (MoT) STANDARDS.
 - A PERMIT TO CONSTRUCT WORKS WITHIN THE RIGHT OF WAY MUST BE OBTAINED FROM THE MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE (MOTI) PRIOR TO COMMENCING WITH THE WORK.
 - CONTRACTOR TO ARRANGE FOR AN ON SITE MEETING WITH MOTI STAFF, UTILITY PERSONNEL, AND CONSULTANT PRIOR TO START OF WORK.
 - CONTRACTOR TO PROVIDE TEMPORARY SIGNAGE AND TRAFFIC CONTROL TO MOTI STANDARDS.
 - WHERE DAMAGED, REINSTATE ROADS AND SERVICES TO APPLICABLE STANDARDS.
 - THE LOCATION AND ELEVATIONS OF EXISTING SERVICES SHOWN IS APPROXIMATE ONLY. CONTRACTOR TO CONFIRM LOCATIONS PRIOR TO START OF RELATED WORK.

- DRAINAGE
- ALL WORK TO MOTI STANDARDS (CRUSHED GRAVEL BEDDING).
 - ALL CULVERTS TO INCLUDE 1H:6V ROCK STACK HEADWALLS FROM 0.2m BELOW THE INVERT TO 0.2m ABOVE THE TOP OF THE CULVERT. ALTERNATIVE CONCRETE FILLED SANDBAG HEADWALLS.
 - MINIMUM 0.40m COVER ON CULVERT. 350mm OF COVER MAY BE APPROVED IF THERE ARE CONFLICTS WITH OTHER SERVICES.
- WATER :
- ALL WORK AND MATERIALS ARE TO BE AS DESCRIBED IN THE REGIONAL DISTRICT OF NANAIMO BYLAW NO. 500 SCHEDULE 4C. CONNECTION OR ALTERATION TO EXISTING WATERWORKS DISTRICT OWNED UTILITIES TO BE UNDERTAKEN BY LITTLE QUALICUM WATER WORKS FORCES OR THE APPROVED WATERWORKS AUTHORITY.
 - A 'PERMIT FOR WATERWORKS CONSTRUCTION' WILL BE REQUIRED FROM THE HEALTH AUTHORITY. ALL WORKS WILL CONFORM TO THE REQUIREMENTS OUTLINED IN THE PERMIT.
 - UPON APPROVAL OF THE PERMITS, LITTLE QUALICUM AND THE REGIONAL DISTRICT SHALL BE NOTIFIED FORTY-EIGHT (48) HOURS PRIOR TO COMMENCEMENT OF WORK.
 - MAINTAIN WATER SERVICES TO SURROUNDING PROPERTIES AT ALL TIMES.
 - WATERMAIN PIPE: PVC CL150 DR18 (AWWA STANDARD C900) CSA B137.3. (PRESSURE CLASS 235).
 - FOR ALL WATERMANS: MIN. 1.2m COVER IN MoTI DEDICATION, 1.0m OTHERWISE.
 - ALL WATERMANS TO BE RESTRAINED AS REQUIRED.
 - DO NOT BEND WATERMAIN PIPE. DEFLECT JOINTS WHERE REQUIRED AT HALF THE MANUFACTURER'S RECOMMENDATION (DIFFERENT MANUFACTURER'S HAVE DIFFERENT MAXIMUMS)
 - CONTRACTOR TO PRESSURE TEST, CHLORINATE, FLUSH, BACTERIA TEST AND CONNECT THE WATERMANS UNDER THE DIRECTION OF THE ENGINEER. CHLORINATION AND DISINFECTION TO AWWA C651.
 - MINISTRY OF ENVIRONMENT AND FISHERIES AND OCEANS CANADA REGULATIONS TO BE FOLLOWED PRIOR TO DISCHARGING TO ANY DRAINAGE COURSE.
 - WATERMAIN MINIMUM 3.0m CLEAR DISTANCE HORIZONTALLY AND MINIMUM 0.45m CLEAR DISTANCE ABOVE A SANITARY SEWER OR STORM DRAIN UNLESS OTHERWISE PERMITTED BY THE ENGINEER AS SHOWN ON THE DRAWINGS.
 - WHERE REQUIRED CLEARANCES ARE NOT FEASIBLE, TAPE ALL WATERMAIN JOINTS WITHIN 3m OF THE SANITARY SEWER OR DRAIN USING SHRINK WRAP TAPE OR PETROLEUM TAPE c/w FILLER TO AWWA STANDARDS. ARRANGE CROSSINGS SUCH THAT CROSSOVER OCCURS ON NOMINAL PIPE LENGTH CENTERS.

- HYDRO, TELEPHONE, CABLE, STREETLIGHTING AND GAS
- CONTACT "FIRST CALL" AT 1-800-474-6886 A MINIMUM OF 48 HOURS PRIOR TO START OF CONSTRUCTION.
 - BC HYDRO, TELUS, SHAW CABLE AND GAS FACILITIES ARE SHOWN SCHEMATIC ON THIS DRAWING. REFER TO UTILITY COMPANY DRAWINGS FOR CONSTRUCTION DETAILS.
 - COORDINATE WITH UTILITY INSTALLATIONS BY OTHERS.

- ROADS
- DRIVEWAY ROAD STRUCTURE MIN. 75 mm ASPHALT ON MIN 100 mm OF 25 mm MINUS BASE GRAVEL ON MIN 250mm OF SUBBASE GRAVEL ON APPROVED SUBGRADE UNLESS OTHERWISE APPROVED BY THE GEOTECHNICAL ENGINEER.
 - GRAVEL SHOULDER TO EXTEND MIN. 200mm BEYOND EDGE OF ASPHALT FOR DRIVEWAY ENTRANCE AS SHOWN.

WATER SERVICE

DOMESTIC AND FIRE FLOW DEMAND PROVIDE BY MECHANICAL ENGINEER AS FOLLOWS

- DOMESTIC WATER DEMAND 110 GPM - 75# DOMESTIC WATER SERVICE
- FIRE FLOW DEMAND 270 GPM - 100# FIRE WATER SERVICE

BASED ON THIS A 75# SERVICE IS REQUIRED. TO PROVIDE ADEQUATE FILLING OF THE FIRE TRUCKS AS FAST AS POSSIBLE, THE MECHANICAL ENGINEER HAS RECOMMENDED A 100MM# DOMESTIC WATER SERVICE.

SANITARY SERVICE

SANITARY FIXTURE UNITS PROVIDED BY MECHANICAL AS 30FU. THIS REQUIRES 100# SERVICE AT 1%. TO ENSURE ADEQUATE VELOCITIES IN THE SERVICE, 100# SERVICE AT 2% TO BE PROVIDED BETWEEN BUILDING AND SEPTIC TANK.

CONSULTANT LIST

ARCHITECT - PRAXIS ARCHITECTS INC.
 MECHANICAL - AME CONSULTING GROUP LTD.
 CIVIL - JE ANDERSON & ASSOCIATES
 STRUCTURAL - RJC ENGINEERS
 ELECTRICAL - AES ENGINEERING LTD.
 SURVEYOR - SIMS ASSOCIATES LTD.

DRAWING LIST		
DRAWING NUMBER	DRAWING NAME	DATE
89638 C1	SERVICING PLAN, KEY PLAN AND NOTES	2022 03 04
89638 C2	GRADING PLAN	2022 03 04
89638 C3	DETAILS AND EROSION & SEDIMENT CONTROL PLAN	2022 03 04



LEGAL DESCRIPTION	LOT 1, DISTRICT LOT 80, NEWCASTLE DISTRICT, PLAN 41282
PROJECT DATUM	

ISSUED		LEGEND	
6	ISSUED FOR TENDER	2022 07 22	BK
5	ISSUED FOR BUILDING PERMIT APPLICATION	2022 05 20	BK
4	ISSUED FOR 90% DESIGN	2022 01 13	BK
3	ISSUED FOR 60% DESIGN	2021 08 26	BK
2	ISSUED FOR COORDINATION	2021 08 18	BK
1	ISSUED FOR COORDINATION	2021 05 20	BK
NO.	DESCRIPTION	YYYY MM DD	DE DA CK

J.E. ANDERSON & ASSOCIATES
 SURVEYORS - ENGINEERS

VICTORIA NANAIMO PARKSVILLE CAMPBELL RIVER

#1A-3411 SHENTON ROAD, NANAIMO, BC V9T 2H1

PHONE: 250-758-4631 EMAIL: nanaimo@jeanderson.com WEB: www.jeanderson.com

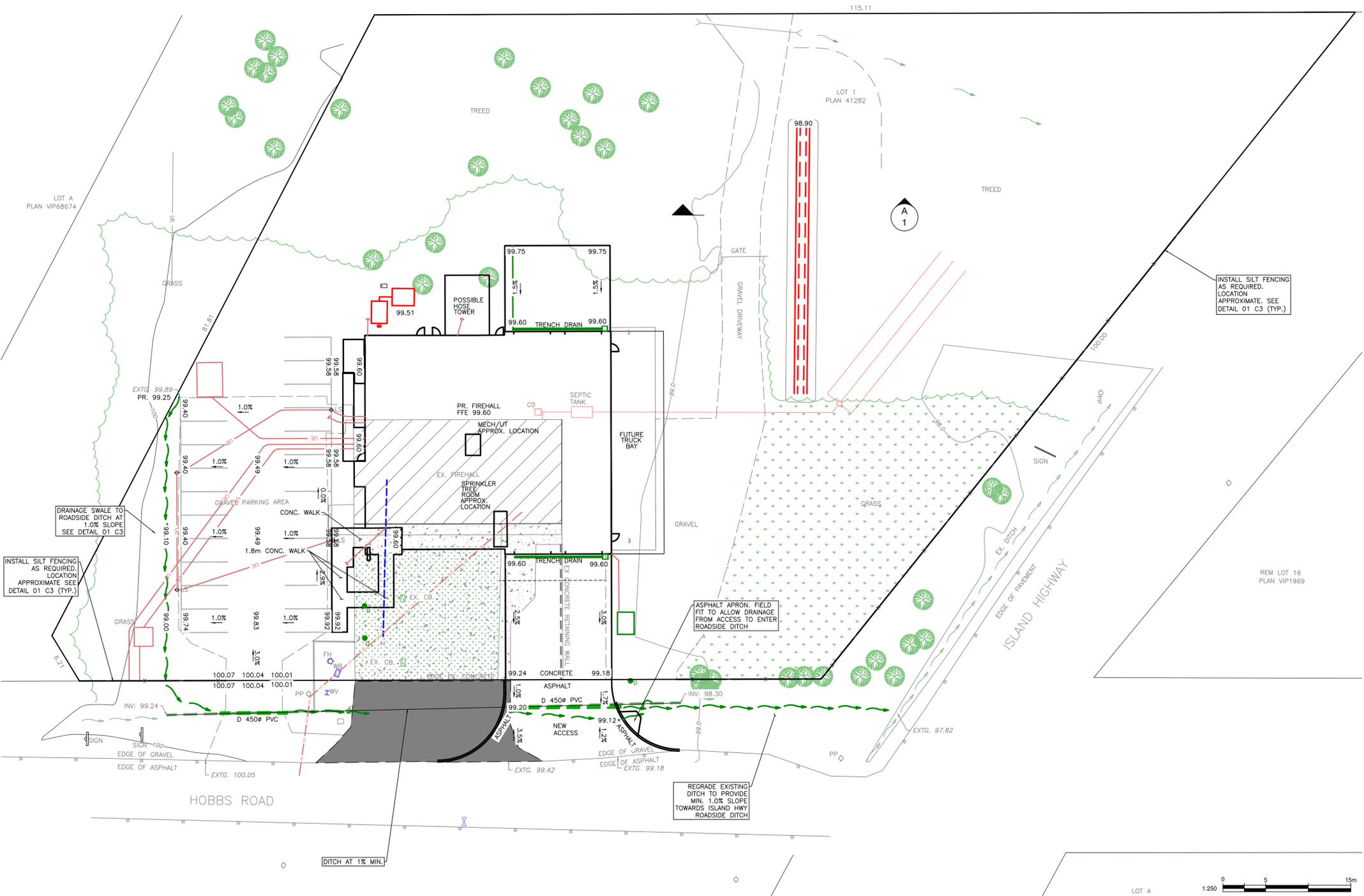


JURISDICTION	REGIONAL DISTRICT OF NANAIMO
CLIENT	PRAXIS ARCHITECTS INC.
PROJECT	230 HOBBS ROAD DASHWOOD FIRE HALL SERVICING PLAN & NOTES
	89638 01 C1
ENGINEERS SEAL	MUN. DWG NUM --- SHEET 1 OF 3

N:\Data\SURVEY PROJECTS\89638 Dashwood Fire Hall\07 - Engineering\02 - Drawing & Surveying\89638 Dashwood Fire Hall.dwg Plot Date: July 22, 2022



LOT 20
PLAN 1969



GENERAL NOTES
- SEE GENERAL NOTES ON DWG 89638 01-C1
EROSION AND SEDIMENT CONTROL
- SEE NOTE ON SHEET 89638 C3.

LEGAL DESCRIPTION	LOT 1, DISTRICT LOT 80, NEWCASTLE DISTRICT, PLAN 41282
PROJECT DATUM	

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4	ISSUED FOR 90% DESIGN	2021 01 13		BK	
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2	ISSUED FOR COORDINATION	2021 08 18		BK	
1	ISSUED FOR COORDINATION	2021 05 20		BK	

ISSUED		LEGEND	
LAMP STANDARD	LS	CLEANOUT	□
POLE (Hydro, Tel.)	PP	CATCHBASIN	□
U/G WIRING	UE	MANHOLE	○
GAS	G	SERVICE RISER	○
WATER	W	MOUNTABLE CURB	MC
SEWER	S	NON-MOUNT. CURB	NMC
DRAIN	D	EDGE ASPHALT	—
		DITCH	—
		METER	⊙
		FLUSH VALVE	⊙
		VALVE	⊙
		REDUCER	⊙
		HYDRANT	⊙
		AIR VALVE	⊙

JEA **J.E. ANDERSON & ASSOCIATES**
SURVEYORS - ENGINEERS
VICTORIA NANAIMO PARKSVILLE CAMPBELL RIVER
#1A-3411 SHENTON ROAD, NANAIMO, BC V9T 2H1
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JURISDICTION
REGIONAL DISTRICT OF NANAIMO

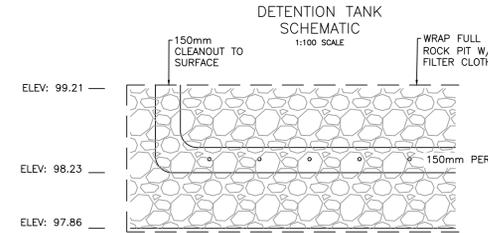
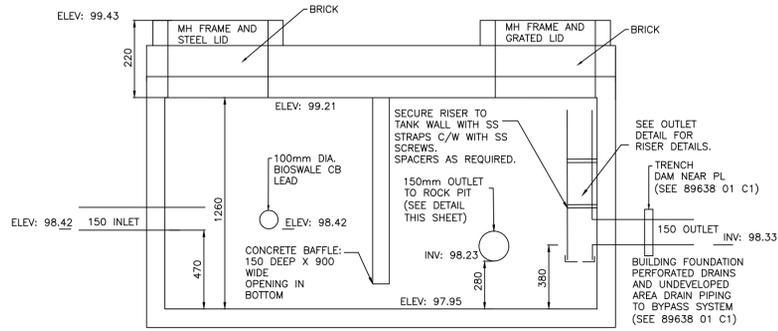
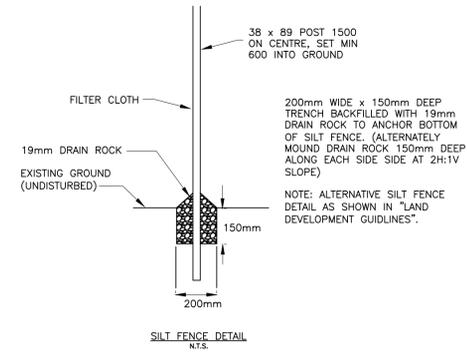
MUN. FILE	---
CLIENT	PRAXIS ARCHITECTS INC.
PROJECT	230 HOBBS ROAD DASHWOOD FIRE HALL GRADING PLAN
	89638 01 C2
ENGINEERS SEAL	
MUN. DWG NUM	---
SHEET	2 OF 3

EROSION NOTES SPECIFIC TO PROJECT

- PERFORM WORK IN DRY TIMES WHEN POSSIBLE.
- CONTRACTOR TO CONTROL EROSION AND SEDIMENT AT SOURCE AND CONTAIN WITHIN SITE LIMIT.
- MEASURES TO BE ADDRESSED DURING CONSTRUCTION AND AMENDED TO SUIT CONDITIONS.
- INSTALL SILT FENCE WHERE REQUIRED.
- DO NOT REMOVE VEGETATION AND TOPSOIL WHERE POSSIBLE.
- DO NOT COMPACT THE SOIL AND MINIMIZE STRIPPING AS THIS WILL INCREASE SILT PRODUCTION

EROSION AND SEDIMENT CONTROL

- EROSION AND SEDIMENT CONTROL FOR THIS PROJECT WILL BE AS OUTLINED IN THE FISHERIES AND OCEANS CANADA AND MINISTRY OF WATER, LANDS, AND AIR PROTECTION HANDBOOK ENTITLED "LAND DEVELOPMENT GUIDELINES FOR THE PROTECTION OF AQUATIC HABITAT, SEPTEMBER 1993" AND "ENVIRONMENTAL BEST MANAGEMENT PRACTICES FOR URBAN AND RURAL LAND DEVELOPMENT IN BRITISH COLUMBIA, JUNE 2004".
- THE CONSULTANT ASSUMES NO RESPONSIBILITY FOR DAMAGES RESULTING FROM IMPROPER EROSION AND SEDIMENT CONTROL MEASURES UNDERTAKEN BY THE CONTRACTOR.
- ANY DIRECTION GIVEN BY THE ENGINEER TO THE CONTRACTOR FOR EROSION AND SEDIMENT CONTROL AND NOT FOLLOWED BY THE CONTRACTOR IS TO BE REPORTED TO THE NCID AND REGIONAL DISTRICT IMMEDIATELY.
- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT NO MUD, SOIL, SILT, OR ANY OTHER SUBSTANCES ARE SPILLED, DROPPED, WASHED, OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY. THE CONTRACTOR IS TO CLEAN ANY SUCH MATERIAL IMMEDIATELY, I.E. STREETS ARE TO BE CLEANED AFTER WORK STOPPAGE EACH DAY.
- STRIP AND GRUB ONLY THOSE AREAS NECESSARY FOR THE CURRENT CONSTRUCTION. STAGE CONSTRUCTION OPERATIONS TO LIMIT DISTURBANCE AND DO NOT STRIP ANY AREA UNTIL REQUIRED.
- SILT FENCING IS TO BE INSTALLED AROUND ALL STOCK/SPOIL PILES, OR PILES ARE TO BE OTHERWISE COVERED TO LIMIT EROSION AND SEDIMENT GENERATION.



TANK NOTES

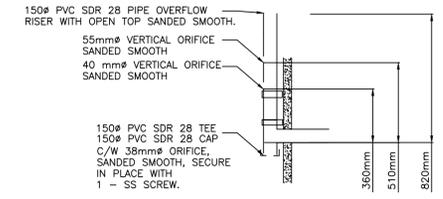
DANS 1000 IGL HOLDING TANK C/W BAFFLE CONSTRUCTED FOR H2O DYNAMIC LOADING (TANK AND TOP). REQUIREMENT FOR H2O LOADING CAN BE RELAXED IF IT WILL NEVER BE SUBJECT TO VEHICLE LOADING. INSIDE DIMENSIONS APPROXIMATELY 2370 LONG, 1730 WIDE, 1260 HIGH. APPROXIMATELY 110mm THICK WALLS.

ROCK PIT NOTES

INSTALL 7.0m WIDE X 14.0m LENGTH X 1.35m DEEP OF DRAIN ROCK (132 m³ OF DRAIN ROCK) SHOWN ON 89638 01-C1.

TANK DETENTION MAINTENANCE

- MAINTENANCE BY THE LOT OWNER MUST INCLUDE THE FOLLOWING:
- MAINTAIN GRATE, INLETS, AND ALL OUTLETS FREE OF DEBRIS AT ALL TIMES. CHECK OUTLETS EVERY SIX MONTHS, IN THE FALL PRIOR TO THE RAINY SEASON, AND DURING HEAVY RAINFALLS.
- CONFIRM SATISFACTORY OPERATION DURING HEAVY RAINFALLS.
- ENSURE OVERFLOW ROUTES FROM SUMP GRATE ARE KEPT CLEAR AT ALL TIMES, PARTICULARLY DURING HEAVY RAINFALLS.
- DO NOT ENTER TANK WITHOUT PROPER EQUIPMENT AND TRAINING AS THE AIR MAY BE DANGEROUS TO BREATHE. USE CONFINED SPACE ENTRY PROCEDURES.
- CLEAN FLOATING DEBRIS OUT OF TANK AT EVERY INSPECTION, AND CLEAN SUMP WHENEVER DEPTH OF SEDIMENT IS OVER 50mm.
- REPAIR/REPLACE SYSTEM WHENEVER SYSTEM BECOMES NON FUNCTIONAL.



STORM WATER MANAGEMENT:

COVENANT REQUIRED.

- DETENTION TANK AND ROCK PIT WILL BE USED TO LIMIT FLOWS FROM THE BUILDING ROOFS AND DRIVEWAY TO PRE-DEVELOPMENT LEVELS FOR THE 5 AND 100 YEAR RETURN STORMS.

DRAINAGE CALCULATIONS:

OBJECT IS TO LIMIT POST DEVELOPMENT 5 AND 100 YEAR RETURN FLOWS TO PRE-DEVELOPMENT FLOWS.

ASSUME NO FLOWS/NEGLECTIBLE FLOWS FROM PERIMETER DRAINS. PERIMETER DRAINS ARE TO BYPASS THE DETENTION TANK SYSTEM.

NO ALLOWANCE FOR UPHILL FLOWS.

ASSUME THAT ROOF AREAS AND HARD SURFACE DRIVEWAYS THAT FLOW TO DETENTION ARE 1243 SQUARE METRES.

RAINFALL INTENSITIES BASED ON NANAIMO IDF CURVES (UPDATED MAY 2020). USING SCS METHOD AND HYDROCAD TO CALCULATE PRE AND POST CONDITIONS. SAMPLE CALCULATIONS:

FOR 2 YEAR RETURN STORM, 1243 SQ. M. HARD SURFACE TO DETENTION.
Q PRE = 1.9 L/s
Q POST = 1.8 L/s

FOR 5 YEAR RETURN STORM, 1243 SQ. M. HARD SURFACE TO DETENTION.
Q PRE = 3.4 L/s
Q POST = 3.4 L/s

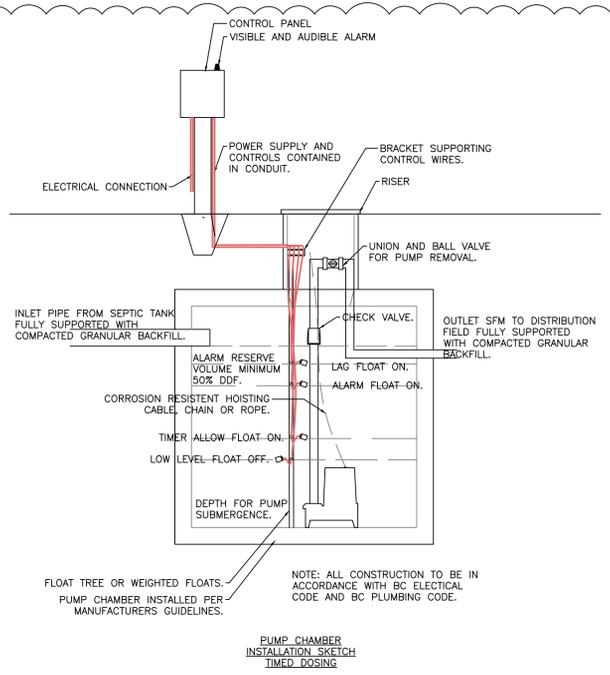
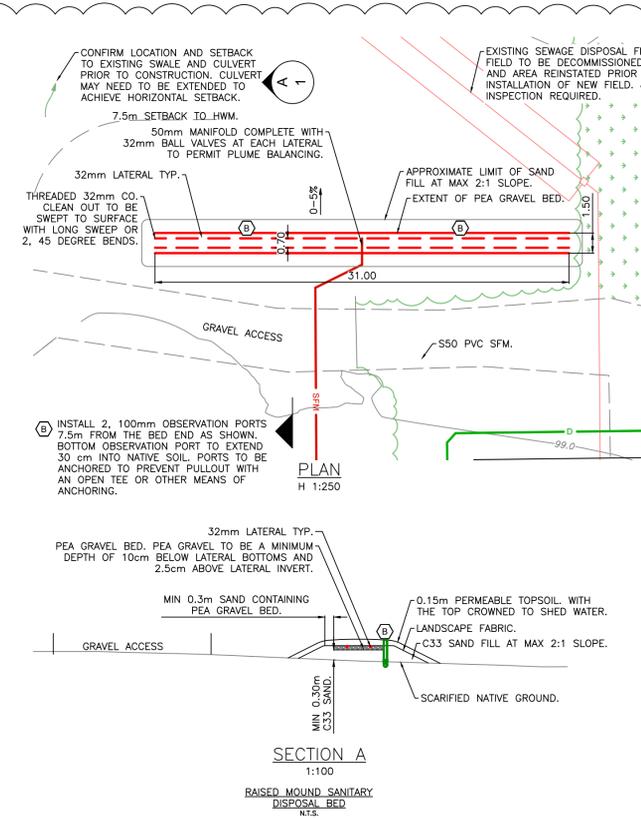
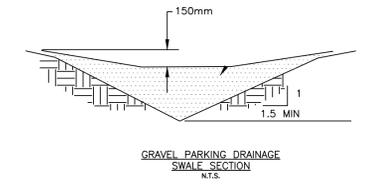
FOR 100 YEAR RETURN STORM, 1243 SQ. M. HARD SURFACE TO DETENTION.
Q PRE = 8.4 L/s
Q POST = 8.4 L/s

COVENANT REQUIRED

HYDROCAD10 STORM SOFTWARE (RAINFALL DURATION = 24hr)

EVENT	24hr RAINFALL DEPTH	OUTFLOW	WATER LEVEL WITHIN STORAGE
2yr	98mm	1.8 L/s	0.36 m (98.69)
5yr	123mm	3.3 L/s	0.51 m (98.84)
100yr	192mm	8.2 L/s	0.82 m (99.15)

NOTE: ELEVATIONS ARE RELATIVE TO AN INVERT OUT OF 0.00m



SEPTIC SYSTEM DESIGN AND DETAILS PREPARED AND PROVIDED BY PHIL BUCHANAN P.ENG. (J.E. ANDERSON & ASSOCIATES). SEE SEWERAGE SYSTEM FILING PK21-239 FOR ADDITIONAL SYSTEM DESIGN DETAILS.

N:\Data\Survey\PROJECTS\89638-Dashwood-Fire-Hall\07 - Engineering\Fire Hall\07 - Engineering\02 - Drawings & Sketches (Eng)\89638-Eng-Basis.dwg Plot Date: July 22, 2022

LEGAL DESCRIPTION	LOT 1, DISTRICT LOT 80, NEWCASTLE DISTRICT, PLAN 41282
PROJECT DATUM	1 ISSUED FOR COORDINATION 2 ISSUED FOR COORDINATION 3 ISSUED FOR 60% DESIGN 4 ISSUED FOR 90% DESIGN 5 ISSUED FOR BUILDING PERMIT APPLICATION 6 ISSUED FOR TENDER

NO.	DESCRIPTION	YYYY MM DD	DE	DA	CK
1	ISSUED FOR COORDINATION	2021 05 20	BK		
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6	ISSUED FOR TENDER	2022 07 22	BK		

LEGEND	
LAMP STANDARD	ΦLS
POLE (Hydro, Tel.)	ΦPP
U/G WIRING	UE
GAS	G
WATER	W
SEWER	S
DRAIN	D
CLEANOUT	□
CATCHBASIN	□
MANHOLE	□
SERVICE RISER	○
MOUNTABLE CURB	MC
NON-MOUNT. CURB	NMC
EDGE ASPHALT	—
DITCH	—
METER	⊙
FLUSH VALVE	⊙
VALVE	⊙
REDUCER	⊙
HYDRANT	⊙
AIR VALVE	⊙

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JURISDICTION REGIONAL DISTRICT OF NANAIMO
ENGINEERS SEAL

MUN. FILE ---
CLIENT PRAXIS ARCHITECTS INC.
PROJECT 230 HOBBS ROAD DASHWOOD FIRE HALL DETAILS AND EROSION AND SEDIMENT CONTROL PLAN
89638 01 C3
MUN. DWG NUM --- SHEET 3 OF 3