

SETON - EDWARD ROAD CHF

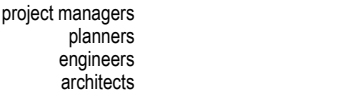
CIVIL WORKS

DRAWING INDEX	
DWG NO.	DWG TITLE
C100	KEY PLAN
C200	SITE SERVICING
C300	SITE GRADING
C301	SECTIONS

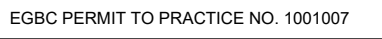


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ISSUED FOR SCHEMATIC DESIGN
2025-07-04
1
REVISIONS
DESIGNED BY:
LG
CHECKED BY:
KB
DRAWN BY:
LG
DRAWING DATE
2025-07-02
SCALE:
N/A
CONSULTANT

EGBC PERMIT TO PRACTICE NO. 1001007
PROJECT NAME
SETON (SHALATH) EDWARD ROAD CHF
CLIENT
TSAL'ALH FIRST NATION
PROJECT ADDRESS
EDWARD RD SHALATH BC
DRAWING TITLE
TITLE PAGE
REVISION No.



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 CANADA V7M 3J9
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SETON (SHALATH)
EDWARD RD
CHF

CLIENT
TSAL'ALH FIRST
NATION

PROJECT ADDRESS
EDWARD RD
SHALATH
BC

DRAWING TITLE

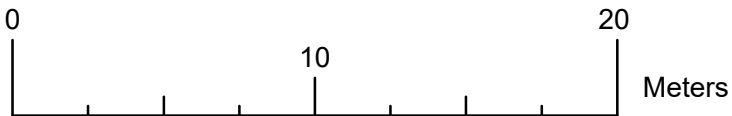
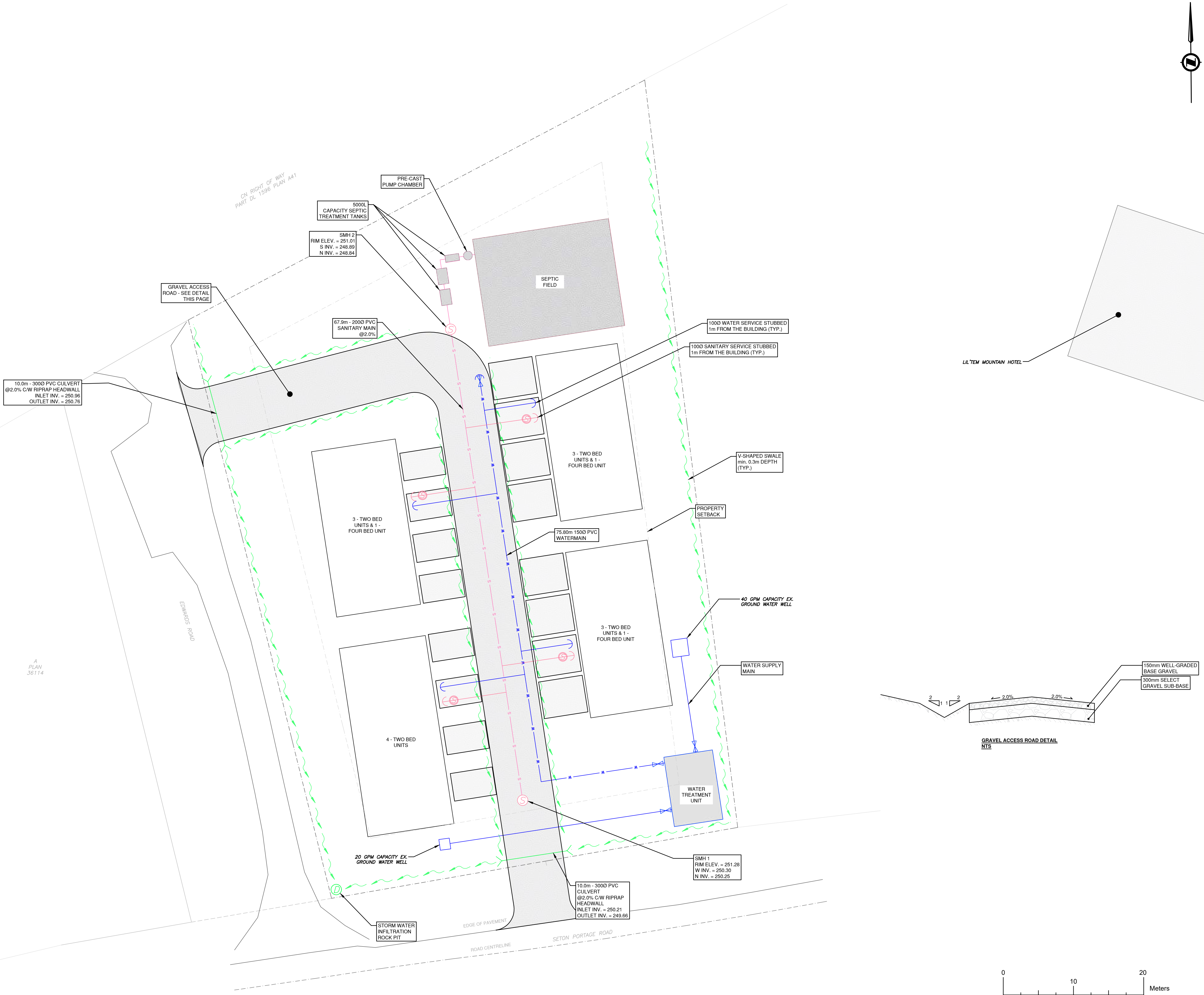
KEY PLAN

REVISION No. _____

PROJECT NUMBER 6275

C100

LEGEND	
SWALE	
SANITARY SEWER MAIN	
WATER MAIN	
WATER SERVICE LINE	
SANITARY SEWER SERVICE LINE	
SANITARY CLEAN OUT	
SANITARY MANHOLE	
ROCKPIT	
SANITARY SEWER CAP	
WATER CAP	
WATER VALVE	
CULVERT	
PROPERTY SET BACK	
LOT BOUNDARY	



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2025-07-04
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LG
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DRAWN BY:
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DRAWING DATE
2025-06-20
SCALE
1:250
CONSULTANT
EGBC PERMIT TO PRACTICE NO. 1001007
PROJECT NAME
SETON (SHALATH) EDWARD RD CHF
CLIENT
TSAL'ALH FIRST NATION
PROJECT ADDRESS
SETON PORTAGE SHALATH, BC
DRAWING TITLE
SITE SERVICING PLAN
REVISION No.
PROJECT NUMBER
6275

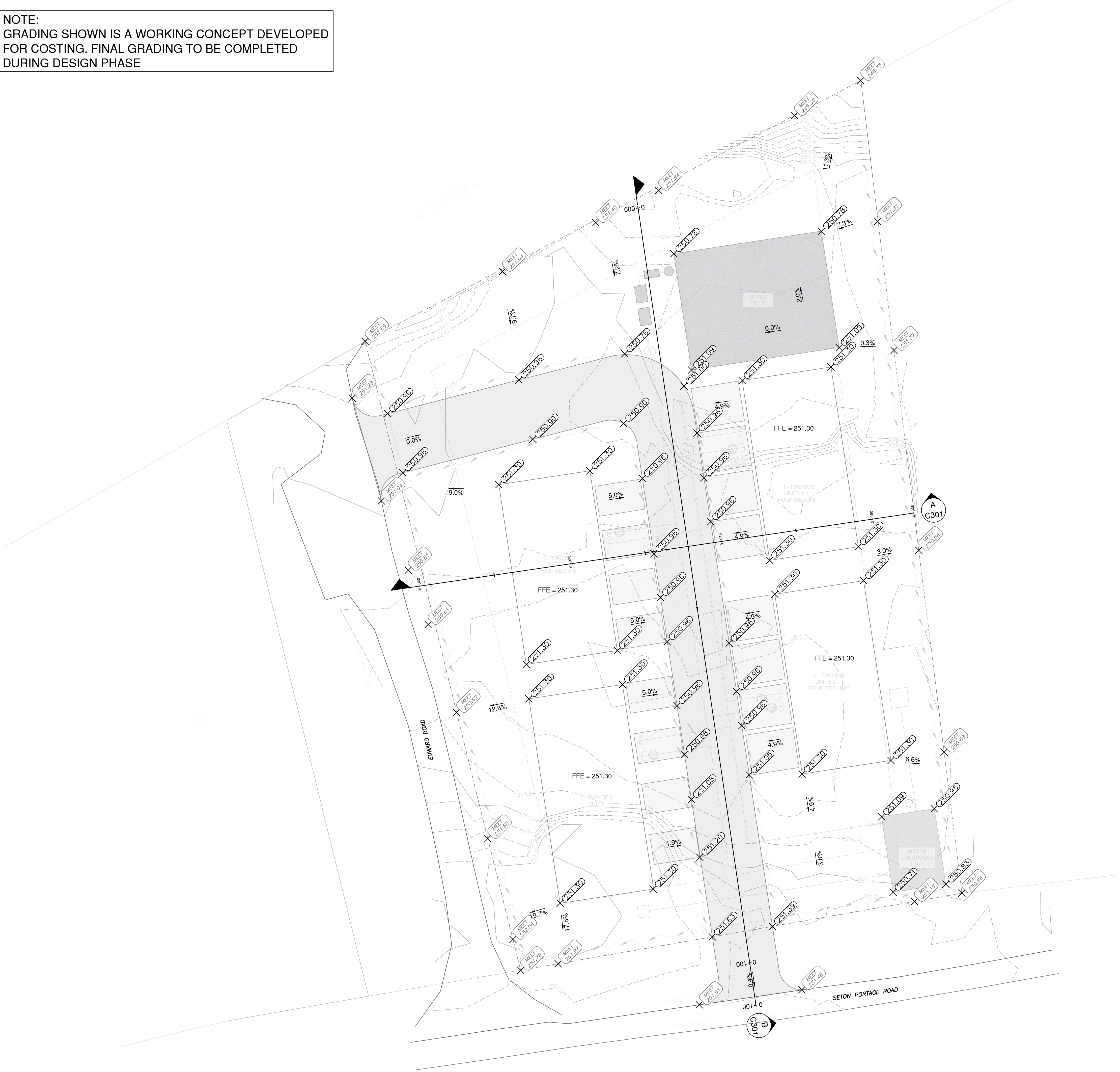
NOTE:
GRADING SHOWN IS A WORKING CONCEPT DEVELOPED
FOR COSTING. FINAL GRADING TO BE COMPLETED
DURING DESIGN PHASE

DNA

project managers
planners
engineers
architects

David Nairne + Associates Ltd

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ISSUED FOR SCHEMATIC DESIGN	1
2025-07-04	
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SCALE:	
1:250	
CONSULTANT	

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PROJECT NAME

SETON (SHALATH)
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CHF

CLIENT

TSAL'ALH FIRST
NATION

PROJECT ADDRESS

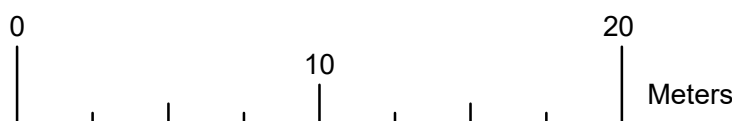
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BC

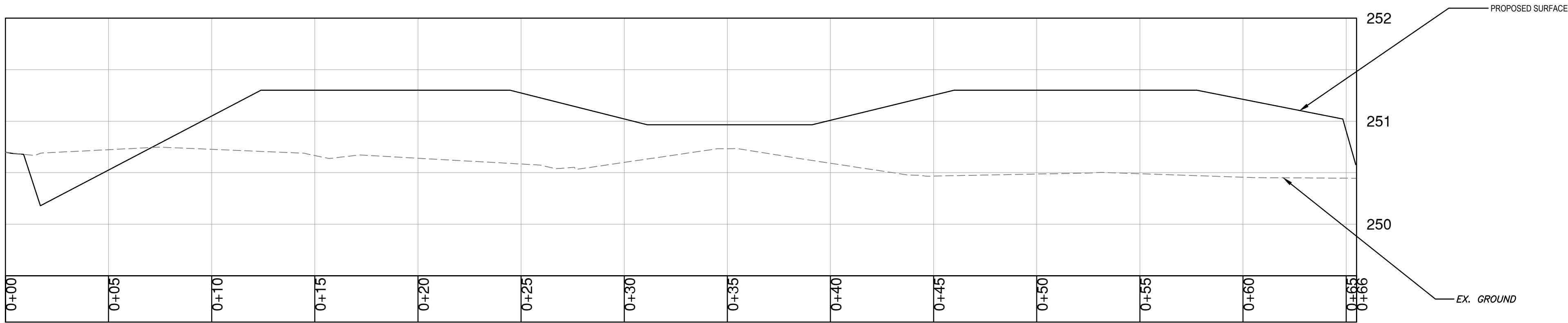
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SITE GRADING
PLAN

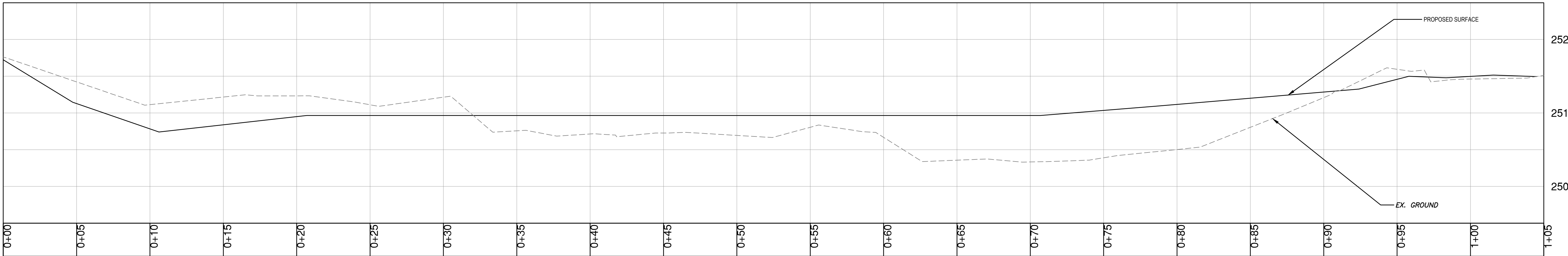
REVISION No.

LEGEND	
ELEV. LABEL LOCATION	
MEET ELEV. LABEL	
SLOPE LABEL	





VERTICAL PROFILE VIEW - A
(SCALE 5H:1V)



VERTICAL PROFILE VIEW - B
(SCALE 5H:1V)

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SCALE:	
N/A	
CONSULTANT	

EGBC PERMIT TO PRACTICE NO. 1001007
PROJECT NAME
SETON (SHALATH) EDWARD RD CHF
CLIENT
TSAL'ALH FIRST NATION
PROJECT ADDRESS
EDWARD RD SHALATH BC
DRAWING TITLE
SITE GRADING SECTIONS
REVISION No.

Tsal'alh First Nation - CHF Application
Civil - Schedule of Quantities

			Unit	Quantity	Unit Rate	Cost
A		General				
A.1		Mobilization / Demobilization (Civil)	LS	1		
A.2		Layout and Record Surveys	LS	1		
A.3		Environmental and Archaeological Protection	LS	1		
A.4		Demolition of Three Existing Houses	LS	1		
					Subtotal	
1.0		Water Site Work				
1.1		Supply and Install Water Main	l.m	80		
1.2		Supply and install Appurtenances				
	1.2.1	Bends	ea	6		
	1.2.2	100mm Dia. Service c/w curb stop - 9m Av. Length	ea	4		
					Subtotal	
2.0		Water Treatment and Storage				
2.1		Supply and Install Water Treatment			See attached supplier quote	
	2.1.1	Prefabricated Seacan	LS	1		
	2.1.2	Carbon Filters	LS	1		
	2.1.3	Freight	LS	1		
	2.1.4	Startup and Commissioning	LS	1		
	2.1.5	Site Preparation and Foundation	LS	1		
	2.1.6	Well Pump, Pitless Adapter, piping and Install	LS	1		
	2.1.7	Electrical and Controls	LS	1		
2.2		Backup generator	LS	1		
2.3		Re-Establish Well Housing	LS	1		
2.4		Supply and Re-Install Well Pumps	LS	2		
2.5		25m ³ Water Storage Tank	LS	1		
2.6		Pneumatic Pressure Tanks	LS	2		
					Subtotal	
3.0		Sanitary Site Work				
3.1		Supply and Gravity Sanitary Main	l.m	70		
3.3		Supply and install Appurtenances				
	3.3.1	1050mm dia. Benched Manholes	ea	2		
	3.3.2	100mm dia. Service c/w Clean Out - 9m Av. Length	ea	4		
					Subtotal	
4.0		Sanitary Treatment and Dispersal Field				
4.1		Supply and Install Treatment			See attached supplier quote	
	4.1.1	Below Grade Treatment tanks	LS	2		
	4.1.2	Balancing tank	LS	1		
	4.1.3	100 square foot blower building	LS	1		
	4.1.4	Electrical Service and Controls	LS	1		
	4.1.5	Site Preparation	LS	1		
	4.1.6	Dispersal Pumps	LS	2		
4.2		350m ² Dispersal Field c/w Distribution Box, Laterals, and Media	LS	1		
					Subtotal	
5.0		Stormwater and Surface Drainage				
5.1		Ditching	l.m	400		
5.2		Stormwater Infiltration Rock Pit	LS	1		
5.3		Storm Services	ea	4		
5.4		300mm dia. CSP Culverts c/w Riprap Headwalls - 10m Length	ea	2		
					Subtotal	
6.0		Earthworks				
6.1		Engineered Fill	c.m	1200		
6.2		19mm Base Gravel	c.m	700		
6.3		75mm Crushed Granular Sub-Base Gravel	c.m	300		
6.4		Excavation to Disposal (Including 0.15m Stripping Depth)	c.m	1000		
6.5		Excavation to Re-Use	c.m	600		
					Subtotal	
					15% Contingency	
					Total	

Tsal'Alh First Nation
c/o David Nairn + Associates Ltd.
By email

Attention: Stuart Purves, P.Eng
Tel: (604) 984-3503
Email: spurves@davidnairne.com

RE: Tsal'Alh First Nation wwtp Budget Estimate

BACKGROUND

Tsal'Alh First Nation, located near Lillooet, BC, is looking for a wastewater treatment solution for six new townhouse buildings that are being built by BC Housing. The system will fall under BC Ministry of Health, requiring Type 2 or 3 treatment (more/most stringent) due to proximity to water wells.

To meet the effluent requirements, ECOfluid proposes to use Upflow Sludge Blanket Filtration (USBF) technology which is inexpensive in terms of both capital and operating costs, followed by UV disinfection (if Type 3). ECOfluid has designed, built and operated – or trained band members to operate – several treatment plants for small First Nation communities in BC. Examples include Nanoose First Nation (where band operators were trained to operate the technology from start-up 20 years ago), the Osoyoos Indian Band and the Shishalh Nation.

While flow projections are not available, given the number of units to be serviced, ECOfluid proposes a system to treat a Maximum Day Flow of 22.7 m³/d, which is the maximum flow allowable under Ministry of Health regulations. Should David Nairn + Associates (DNA) determine that the flow capacity can be reduced, ECOfluid can revise this proposal accordingly.

The following table summarizes the design parameters used to create this budget proposal.

DESIGN PARAMETERS

Parameter	Unit of Measure	Influent ⁽¹⁾	Effluent ⁽²⁾ Type 2/3
Average Day Flow	[m ³ /d]	18	
Maximum Day Flow	[m ³ /d]	22.7	
Peak Instantaneous Flow	[L/s]	0.7	
BOD ₅	[mg/L]	300	< 10
TSS	[mg/L]	300	< 10
Fecal Coliforms	[MPN/100 mL]		< 400 ⁽³⁾
TKN	[mg/L]	50	
Fats, Oil and Grease	[mg/L]	50	
Temperature	[°C]	8-22	
pH		6-9	

Notes:

1. Plant designed to receive wastewater having parameters lesser than or equal to the values shown
2. When operated by qualified operators and in accordance with ECOfluid and equipment vendors' operating manuals and instructions. Actual results are expected to be much better than regulatory requirement
3. Disinfection required for Type 3 treatment only

BUDGET SCOPE

	Qty	Description
Engineering and Design Services	lot	- Process and mechanical design for USBF Bioreactor system including Trash/Equalization Tank, Effluent Dosing Tank and Sludge Holding Tank - Civil design criteria for pre-cast concrete TT, EQ, Bioreactor, ED and SH tanks - Mechanical installation drawings - Equipment and Operations & Maintenance manuals
Equipment and Components Supply	2	<u>Equalization Pumps</u> (2) submersible Equalization Pumps (1 duty/1 standby) single phase fractional horsepower c/w 304SS EZ lift-out hardware
	1 lot	<u>USBF Bioreactor Equipment</u> - Influent Basket Screen 304SS mesh with 6mm openings (1) epoxy-coated mild steel USBF clarifier (1) air-lift RAS pump (1) submersible WAS pump - Coarse and fine air diffusers
	2	<u>Effluent Dosing Pumps</u> (2) submersible Effluent Dosing Pumps (1 duty/1 standby) single phase fractional horsepower c/w 304SS EZ lift-out hardware
	2	<u>UV Disinfection (optional)</u> (1 duty/1 standby) low-pressure-type UV disinfection units, required for Type 3 system only
	1 lot	<u>Sludge Holding Aeration</u> Coarse air diffusers
	3	<u>Air Blowers</u> (3) regenerative air blowers (2 duty/1 standby) ~3kW c/w inlet filter, pressure gauge, pressure relief valve and check valve
	lot	<u>Instrumentation and Controls</u> - Control Panel (PLC and MCC) in NEMA 12 enclosure based on 3-phase power c/w Hand-Off-Auto (HOA) selectors for above motors, operator interface for equipment settings, emergency off button, instrument monitoring, alarm monitoring and logging - UL approved - c/w float switches, air pressure switch, flow meter (magmeter)
On-site Services	lot	Commissioning, start-up and operator training: 2 site days

BUDGET PRICES

Budget estimate for above scope of work is \$130,000 ex works ECOfluid and excluding taxes. If UV is required, the two "optional" units shown in the scope above can be added for about \$5,000.

Once the scope of work is finalized, the budget can be refined to a firm price quote.

NOTES AND EXCLUSIONS

The following have not been included in the budget.

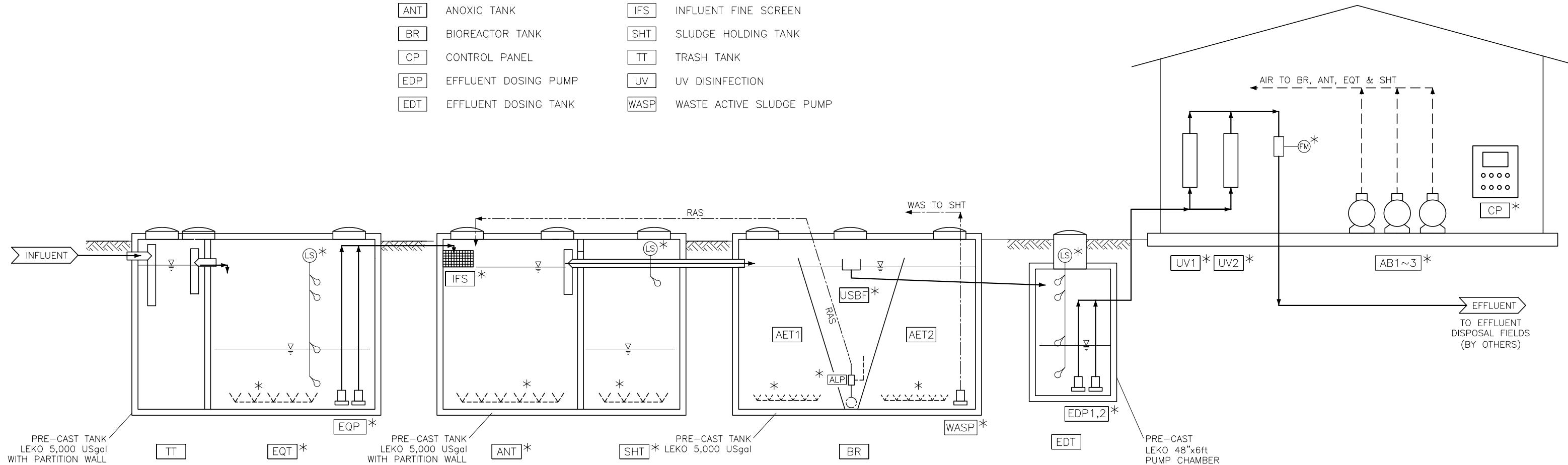
- PRICE IMPACT OF TRADE TARIFFS, IF ANY
- Site installation of equipment
- Supply of precast concrete tanks (can be added upon request – estimated value ~\$40,000)
- Design and supply of enclosure for UV, air blowers and control panel (building size: ~8' x 10')
- Electrical design
- Design, supply or installation of backup power generator
- Design, supply or installation of disposal fields – NOTE: Effluent Dosing Pumps are sized assuming effluent disposal fields are adjacent to the plant and at same or similar elevation
- Permits and approvals

ATTACHMENTS

- ECOfluid drawing Q2510-101 – Preliminary Process Flow Diagram
- ECOfluid drawing Q2510-201 – Preliminary Plant Layout

LEGEND

[AB]	AIR BLOWER	[EQP]	EQUALIZATION TANK PUMP
[AET]	AERATION TANK	[EQT]	EQUALIZATION TANK
[ANT]	ANOXIC TANK	[IFS]	INFLUENT FINE SCREEN
[BR]	BIOREACTOR TANK	[SHT]	SLUDGE HOLDING TANK
[CP]	CONTROL PANEL	[TT]	TRASH TANK
[EDP]	EFFLUENT DOSING PUMP	[UV]	UV DISINFECTION
[EDT]	EFFLUENT DOSING TANK	[WASP]	WASTE ACTIVE SLUDGE PUMP



* DENOTES SUPPLIED BY ECOFLUID



ECOfluid Systems Inc.
Suite 1900 - 200 Granville St.
Vancouver, B.C. V6C 1S4

TSAL'ALH FIRST NATIONS WWTP
LILOOET, BC

PERMIT TO PRACTICE (BC) NO: 1003403

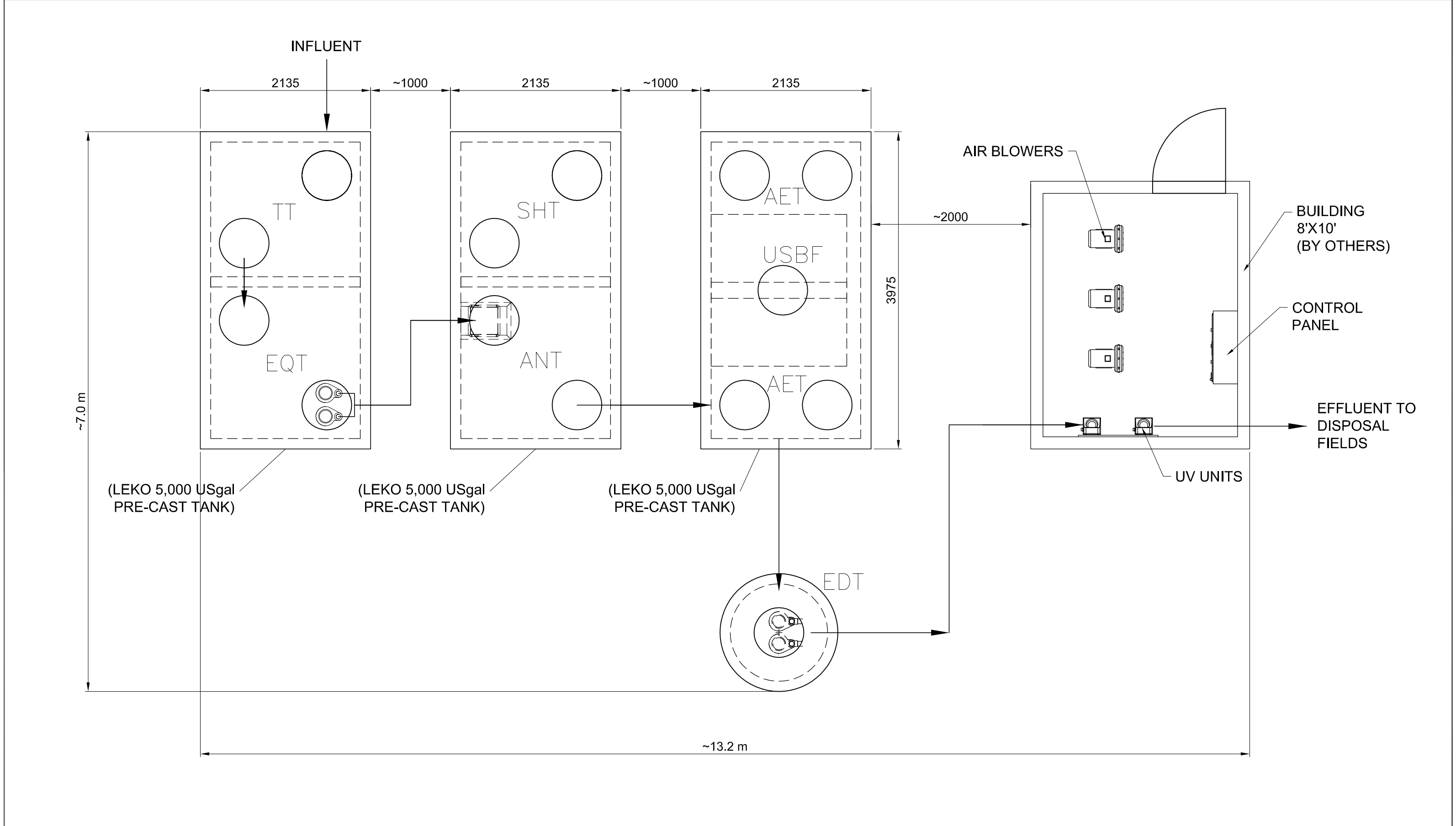
PROCESS FLOW DIAGRAM

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EXPRESS WRITTEN CONSENT OF ECOFLUID SYSTEMS INC.

DWG. NO. Q2510-101 REV: A

PRELIMINARY

A	04/15/25	ZL	-	-	ISSUED WITH PROPOSAL
REV	DATE	DRAWN	CHK'D	APP'D	DESCRIPTION



A	04/15/25	ZL	-	-	ISSUED WITH PROPOSAL
REV	DATE	DRAWN	CHK'D	APP'D	DESCRIPTION

PRELIMINARY

 ECOfluid Systems Inc. Suite 1900 - 200 Granville St. Vancouver, B.C. V6C 1S4		TSAL'ALH FIRST NATIONS WWTP LILLOOET, BC	
PERMIT TO PRACTICE (BC) NO: 1003403		PRELIMINARY PLANT LAYOUT	
ALL INFORMATION CONTAINED HEREIN IS CONFIDENTIAL AND MAY NOT BE REPRODUCED IN ANY MANNER WITHOUT THE EXPRESS WRITTEN CONSENT OF ECOFLUID SYSTEMS INC.		DWG. NO.	Q2510-201 REV: A