REGIONAL DISTRICT OF BULKLEY-NECHAKO

Planning Department Referral Report

File No. RZ C-01-25

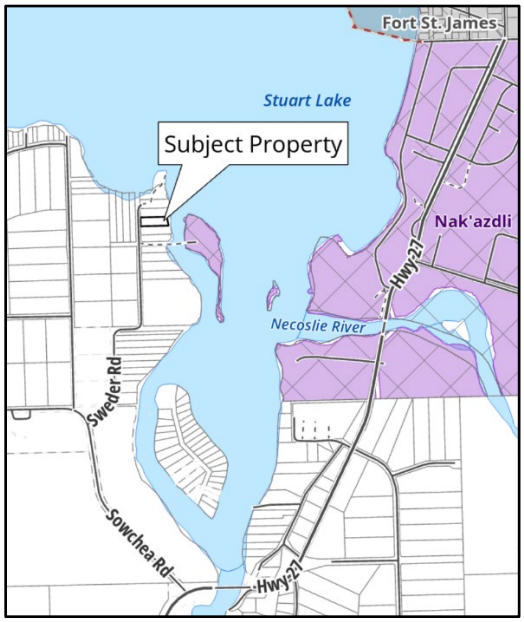
Written By: Cameron Kral, Planner

APPLICATION SUMMARY

Name of Agent / Owner:	Timothy Shumaker
Electoral Area:	Electoral Area C (Fort St. James Rural)
Subject Property:	1238 Sweder Road, legally described as Lot A, District Lot 1268, Range 5, Coast District Plan, EPP146626.
Property Size:	0.12 ha (1.3 ac)
OCP Designation:	Lakeshore (L) Designation in Fort St. James Rural Official Community Plan Bylaw No. 2054, 2024 (the OCP)
Zoning:	Waterfront Residential II Zone (R4) in Regional District of Bulkley-Nechako Zoning Bylaw No. 1800, 2020 (the Zoning Bylaw)
Building Inspection	Within the Building Inspection area
Fire Protection	Within the Fort St. James Rural Fire Protection Area
Existing Land Uses:	None
Location:	Approximately 1.2 km southwest of the District of Fort St. James and less than 100 m west of Nak'azdli IR 1.

PROPOSAL

Location Map



The applicant purchased the subject property from the Province in 2025. At the time, the property contained two Single Family Dwellings (the principal dwelling and a guesthouse) and a storage building. Due to the poor condition of the buildings, the principal dwelling and the storage building have been demolished. The applicant wishes to rebuild the principal dwelling and restore or rebuild the guesthouse for residential use.

The Waterfront Residential II Zone (R4) only allows one Single Family Dwelling with an attached Secondary Suite, or one Two Family Dwelling on the property. Two detached dwellings are not permitted in the R4 Zone. Therefore, the applicant is proposing to amend the R4 Zone in the Zoning

bylaw to allow the subject property to have two detached Single Family Dwellings without Secondary Suites. Staff note this proposal would not increase the total number of dwellings allowed on the property, only the form of dwellings.

DISCUSSION

The RDBN has no building permit records for the subject property. The property only contains the former guesthouse which is unoccupied (see attached Site Visit Photos). The Planning Department received one bylaw complaint regarding the dilapidated nature of a dwelling on the property in 2024, prior to the applicant taking ownership of the property.

Official Community Plan (OCP) and Zoning

The subject property is designated Lakeshore (L) pursuant to the OCP and zoned Waterfront Residential II Zone (R4) pursuant to the Zoning Bylaw. The intent of the L Designation is to accommodate the demand for residential development in close proximity to Stuart Lake and any other lake in the Plan area.

Section 3.5.2 of the OCP contains the following L Designation policies related to the proposal:

(9) Rezoning applications to allow a 2nd single family dwelling on a parcel in a Residential Zone may only be considered under the following circumstances.

(a) It has been demonstrated that any existing on-site sewage disposal system is authorized by Northern Health and is in good working order.

(b) It has been demonstrated that the parcel can accommodate an on-site sewage disposal system for two dwellings.

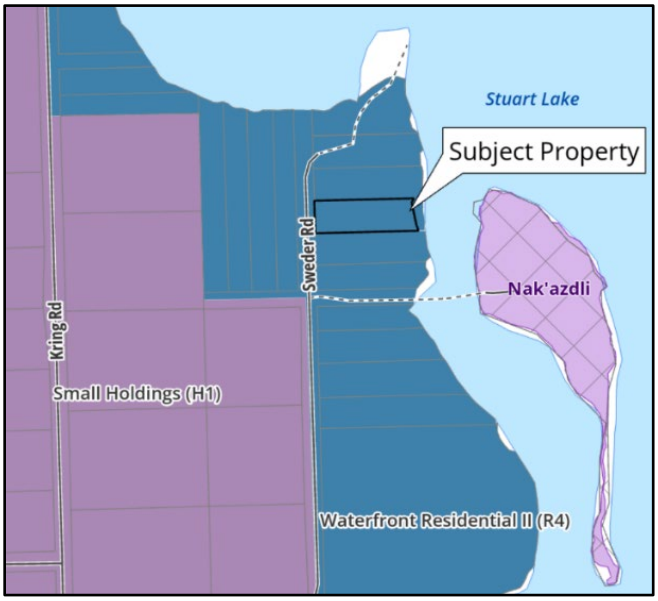
(c) The development is compatible with adjacent land uses and maintains the rural character of the area; and,

(d) The parcel is not located within a floodplain or on other hazard lands.

(10) Only one single family dwelling shall be permitted on a parcel in a Residential Zone.

OCP policy 3.5.2 (10) states only one Single Family Dwelling shall be permitted on a parcel in a Residential Zone. However, OCP policy 3.5.2 outlines several conditions for the consideration of a rezoning application to allow a second Single Family Dwelling.

Zoning Map



The applicant provided the attached report from a Professional Engineer stating the subject property can accommodate a Type 1 sewage disposal system for two 1-bedroom dwellings and an RV.

Approximately 40 per cent of the subject property is designated as Floodplain under Section 12 (a) (iv) of Floodplain Management Bylaw No. 1878, 2020 (the Floodplain Management Bylaw). New construction must comply with floodplain setbacks and elevation levels as prescribed in the Floodplain Management Bylaw.

Conformity with Northern Health regulations and the Floodplain Management Bylaw is ensured during the Building Permit process. There are no known notable wildlife or ecological values identified in the OCP on the subject property.

REFERRALS

This application is being referred to the Electoral Area C (Fort St. James Rural) Advisory Planning Commission, the District of Fort St. James and RDBN Building Inspection.

ATTACHMENTS

- Applicant Submission
- Waterfront Residential II Zone (R4), RDBN Zoning Bylaw No. 1800, 2020
- Site Visit Photos

For whom all is involved:

I've included a few words to give context to our intentions to apply for a text amendment to the zoning of our property.

Yvonne and I purchased the property through a tax sale in spring of 2025. It was advertised as having a primary dwelling that might be repairable as well as a guest home. Ultimately being sold in "as is" condition. After a tour of the home it was clear that salvation of the primary dwelling was not possible. Mold and rot from years of enduring the weather with a damaged roof took its toll on the home.

The blue roofed "guest house" was in contrast, in good condition. We made our offer to the crown for the property and it was accepted. We were unaware of the restrictive zoning stipulations at this time. It was logical to us that we could have two dwellings on the property given that it had two dwellings on the property when it was purchased from the crown and was being sold in "as is" state.

We later learned, zoning would only allow for a duplex. Instead of trying to do things the sneaky way, because where there is a will there is a way, we are seeking a legal amendment to allow for the same density on the property that the OCP plans for, while continuing to have the dwellings separated by approximately 100ft. It is our opinion that this separation of the dwellings is closer aligned with the rural feel of the area compared to having a duplex built on the property.

We would like to assure you that we are taking the utmost consideration of the planning of our property. The vision of our plan is very closely in line with the objectives and policies of the OCP of Fort St. James. Specifically, in regards to the housing details and objectives outlined in sections 3.5 and 4.5; The need for quality housing options to meet the diverse needs of the residents, the need to replace housing built in the 1960s, while ensuring there are no negative impacts to the natural environment. Additionally, adherence to the stipulations of building code on or near historical flood plains as described in the floodplain management bylaw number 1878, 2020. Both the blue roofed suite and the septic field that would service both dwellings will be above the 1-200 year flood plain.

We hope that the judicial team on this file will also consider that when the property was inhabited and in better condition, it maintained two lived in dwellings for over a decade without any issue or complaint from the RDBN or the property's neighbors, and without negative impact to the natural environment. There would be effectively no change to the property from the status quo, a modest dwelling built near the lake with a separate tasteful guest house. This time with a septic system that is engineered with respect to the natural environment.

Most sincerely,
Tim and Yvonne Shumaker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17930006
Stuart Lake
1238 Sweder Road
12798436
Sweder Rd
12801437

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N <-----> S
I
W

property is
130m long

property is
44m wide

It is our intention to move the blue roofed guest house to a more suitable location and one day construct a dwelling near where the demolished buildings previously existed.


Blue Shaded is 1 in 200 years flood plain.
Both the blue roofed guest house and the septic field will be out of the 200 year flood plain for good measure.

Neighbourly endorsement for application to amend zoning text

Project Overview: We are preparing to submit a text amendment application to the regional district. The purpose of this amendment is to modify the text description of our 1.3-acre lakefront property to permit the construction of two separate dwellings. One being a cottage for our family to use and the other being a "bachelor" style guest house.

History: Existing when we acquired the property were two dwellings and a shop/barn. Due to compromised structural integrity, one dwelling and the barn were subsequently demolished. The remaining dwelling is in good condition and we intend to relocate it to a more suitable position on the property.

Current Zoning and Proposed Use: The property is currently zoned R4 (Lakefront Residential), which permits a primary residence with an attached secondary suite. Our proposal includes utilizing the pre existing 30ft x 15ft dwelling as a guest house. In the future, we plan to construct a second single-family dwelling closer to the lake for our personal use. It should be noted that neither the guest house or primary dwelling will have a secondary suite.

Importance of Neighbourly Consent: The regional district mandates a detailed application for this text amendment. Obtaining the endorsement of our neighbours prior to submission can increase the likelihood of our success.

Application Requirements: The regional district also requires several other criteria to move ahead with the zoning amendment, all of which have been carefully considered and addressed:

Septic System: A septic system approved for the increased density is required. Our septic field has been engineer-designed with considerations for the lake at the edge of the property.

- This has been completed through Mcelhanney

Plan: Detailed plan showing two dwellings, septic, setbacks (property lines, lake)

-a copy of our site plan is attached

Flood Plain: Both the septic field and the guest house, will be built above the 1 in 200-year flood plain.
Signage: We will post a sign at the front of our property, as required, to notify the public of our intentions for the zoning text amendment.
Rural Neighbourhood Character: The regional district emphasizes respecting the rural energy of the neighbourhood. We believe that while current zoning allows for a duplex, having a separate and spaced-out guest house on the property will align better with the rural nature of the area.

In signing this document I am giving my endorsement of the zoning text amendment for 1238 Sweder Road.

- **Name:** Garry & Barabara Miller
-
- **Address:** 1296 Sweder Road
-
- **Signature:** [redacted]
-
- **Date:** Nov. / 21 / 2025

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- **Name:** Eric & Rosa Dueck .
-
- **Address:** Box 697 Ft. St. James P
-
- **Signatu**[redacted]
-
- **Date:** Nov / 20 / 2025

1308 Sweder Rd.

1238 Sweder Road Pressures Trenches Design Brief

July 27, 2025 | Revision 0

Submitted to: Tim Shumaker
Prepared by: McElhanney

Contact
Cristina Hutchinson
Project Manager
250-961-5741
chutchinson@mcelhanney.com

Address
12 – 556 North Nechako Road, Prince George BC Canada, V2K 1A1

Prepared by
Mattaya Burke

Reviewed by
Cristina Hutchinson

Our file: 2341-21966-00

northern health
the northern way of caring

Sewerage System Record

Office use only → Filing #:

1. Property information

☐ New construction ☐ Alteration ☐ Repair ☐ Amendment - Original filing #

Tax assessment roll number (If roll number not applicable, please include Land Use Permit number/License number): 26-756-01097.000

PID #: 012-798-436

Legal land description (plan, lot, district lot, block, range, section, township): Lot 18 District Lot 1268 Range 5 Coast District Plan 1333

Street (civic) address or general location: 1238 Sweder Road

City/postal code: Fort St James V0J 1P0

2. Owner information

Name of legal owner: John and Sheila Thobo-Carlsen

Mailing address: PO Box 70

Phone: 250-561-2229

City: Fort St James

Province: BC

Postal code: V0J 1P0

3. Authorized person information

Name of authorized person: Cristina Hutchinson

Registration #: 37510

Mailing address: 12-556 North Nechako Road

Phone: 2509615741

Email: chutchinson@mcelhanney.com

City: Prince George

Province: BC

Postal code: V2K1A1

4. Structure information

Sewerage system will serve

☐ Single family dwelling ☐ Other structure (specify) ☐ Other dwelling (specify)

Number of bedrooms: 3

Total living area (m²) including finished basement: < 330

Lot size (ha): 0.526

The design daily domestic sewage flow is (check one): ☐ Less than or equal to 9100 litres ☐ More than 9100 litres but less than 22700 litres

5. Site information

Depth of native soil to seasonal high water table or restrictive layer (cm): 240cm

Information respecting the type, depth and porosity of the soil is attached: ☐ Yes ☐ No

GPS location of system (decimal degrees) Latitude: 54.43195 Longitude: 124.27549 Horizontal accuracy (m): 5

☐ Recreational GPS ☐ Differential GPS

6. Drinking water protection

Will the sewerage system be located less than 30 m from a well? ☐ Yes ☐ No

If yes, attach a professional's report and specify the intended distance (m):

Distance of proposed sewerage system to closest surface water (m): > 30m

7. System information

Sewerage treatment method: ☐ Type 1 ☐ Type 2 ☐ Type 3

8. Legal or regulatory considerations

Are there any restrictive covenants/easements which will affect the design or location of the sewerage system? ☐ Yes ☐ No

If yes, please explain and attach supporting documents.

Is this filing submitted as a result of an order from the Health Authority?

☐ Yes (attach a copy of the order) ☐ No

9. Plot plan and specifications

☒ Plot plan (to scale) and specifications are attached

☒ The plans and specifications are consistent with current standard practice

Source of standard practice: ☐ Ministry of Health Standard Practice Manual ☐ Other

10. Authorized person's signature

Signature: [redacted]

Date: 2025-07-15

Seal

Office use only

Receipt number:

Admin to copy completed form and distribute as follows:

- Original: NH file
- Copies: Building authority, owner, and authorized person

Print Form Reset Form

Your Challenge.
Our Passion.

Our File: 2341-121966-00

July 14, 2025

1238 Sweder Road

We are pleased to submit the attached Record of Sewage Filing and Design Brief, including Issued for Construction drawings, in support of your proposed development. This brief is a requirement of the Health Act - Sewerage System Regulation. The intent is to document the site assessment process, the system design criteria, and to demonstrate that the system will not cause, or contribute, to a health hazard.

Should you have any questions or require anything further, please do not hesitate to contact the undersigned.

Sincerely,
McElhanney Ltd.

Cristina Hutchinson, P.Eng.
chutchinson@mcelhanney.com | 250-561-2229

Contents

Appendices

1. Introduction

This brief is a requirement of the Health Act - Sewerage System Regulation. The intent is to document the site assessment process, the system design criteria, and to demonstrate that the system will not cause, or contribute, to a health hazard. This design brief has been prepared for the purpose of documenting the design and certification of the construction of a septic system servicing the following:

- The property on LOT 18, PLAN PRP1333, DISTRICT LOT 1268, RANGE 5, COAST RANGE 5 LAND DISTRICT
- Two 1-bedroom cabins and an RV
- The property is located southwest of Fort St James next to Stuart Lake
- The total area of the lot is approximately 1.3 acres (0.53 Ha.)
- The property is owned by John Thobo-Carlsen and Sheila Thobo-Carlsen

McElhanney Ltd. Has been engaged to design, prepare drawings for, and certify the construction of a new sewage disposal system to service the proposed home. McElhanney has designed a septic field (pressurized trench system) with type 1 pre-treatment via septic tanks to service the residence.

As described in the following sections, the site has good capacity for receiving effluent. The soils are well suited for supporting a buried trench septic system with gravity distribution. The system can be constructed within the available area on the property while maintaining the required setbacks from the property lines, water wells, and breakout points as stipulated in the Sewerage System Standard Practice Manual (SPM).

2. Design Criteria

The SPM presents minimum design flow rates for residences. These design flow rates consider the number of bedrooms and the square footage of the residence or development.

- Maximum house size = up to 330 m^2 (3,552 square feet) total
- Maximum number of occupants = 9
- Design flow rate = up to 1,600 L/day

The proposed onsite sewage disposal system will support the development as listed above. If the residence is to be different than what is listed above, the owner shall contact McElhanney to confirm whether the system can support the change.

3. Site Assessment

The design and selection of a sewage treatment and disposal system depends primarily on design flow and site constraints, such as setback requirements, available land area, limiting soil hydraulics, and treatment abilities. The site assessment is the critical stage in evaluating the combined site/soil information to determine:

- The degree of constraints and associated health and/or environmental risks;
- The type of treatment and/or disposal required;
- The complexity of the system and/or reliability of design/construction needed to ensure that no health risks will be caused by the system operation; and
- The need for a reserve effluent disposal area.

We reviewed the proposed development and the requirements of the Health Act with the owner. Using a lot plan to delineate site constraints, a conceptual location of the proposed home was chosen for the septic system location. We visited the site to identify local site characteristics and witness test pits. Information regarding soil type and structure was gathered from the soil investigation on the property.

We reviewed the general site layout, topography, and soil conditions. The soil texture, structure, and color were evaluated at various depths in the test pits. A copy of the test pit log is included in Appendix D. The following characteristics were identified from our soil investigation:

Soil Texture	Loamy sand
Soil Structure and Consistency	Loose and granular
Soil Color and Moisture Content	Brown and damp
Soil Permeability	Field Saturated Hydraulic Conductivity (Kfs) value between 1500 and 3500 mm/day
Soil Depth	305cm
Groundwater	None present
Vertical Separation	minimum 2.4m
Horizontal Separation	> 15 meters from property lines > 30 meters from water wells > 60 meters from any residence > 30 meters from permanent freshwater body (Stuart Lake)
Site Topography	0-5% slope

4. Design Criteria and Sizing

Design criteria, which control the design of an onsite sewage system, include the daily sewage flow rate, hydraulic loading rates, vertical separation requirements, and site layout constraints. Most of the design criteria are stipulated in the Sewerage System – Standard Practice Manual.

The Hydraulic Loading Rate (HLR) is the net rate at which effluent can be applied to a particular type of native soil. HLR is used to calculate the minimum infiltrative area.

HLR	= 30L/day/m^2
Infiltrative Area	= DDFR / HLR
	= 1600L/day / 30L/day/m^2
	= 56.3 m^2 infiltrative area required

The Linear Loading Rate (LLR) of the native soil is used to calculate the minimum system contour length.

LLR	= 90L/day/m
Minimum Length	= 1600L/day / 90L/day/m
	= 17.8m

Based on the infiltrative area and minimum system contour length, the system dimensions can be calculated.

Lateral width	= 0.8m
Number of laterals	= 8
Lateral Length	= 9.345m

Design drawings illustrating the details of the septic field sizing and layout are included in Appendix B.

5. Septic System Components

5.1. SEPTIC TANK AND PUMP CHAMBER

The SPM stipulates that septic tanks should have a minimum working volume of three days' detention time, based on the DDFR.

- Septic tank sizing = 3,405L (750 Imp. Gal.)
- Number of compartments = 2
- Septic tank material = concrete

  2 septic tanks that are each 750gal (1 for each cabin)

To remove additional solids from the effluent prior to distribution, a Polylok PL-122 effluent filter shall be installed at the outlet of the septic tank. The filter shall be capable of removing 1.6mm (1/16") diameter solids and will be easy to access and remove for cleaning.

The pressurized distribution system relies on a pump to provide dosed flow to the system.

- Pump Chamber sizing = 3,405L (750 Imp. Gal.)
- Number of compartments = 2
- Pump Chamber material = concrete

  Pump chamber that is 750gal

Between doses, when the pump is not running, effluent from the discharge of the septic tanks is stored within a pump chamber. In addition to storing effluent between distribution field doses, the pump chamber includes an emergency reserve volume to allow for storage in case of pump failure.

5.2. PUMP AND ALARM PANEL

Using the system curve from the design of the pressure distribution system, a pump can be selected.

- Pump – Myers ME40 Effluent Pump
- Pump Operating Point – 104.9 L/min (27.7 gallon per minute)
- Pump Run Time – 3 minutes 49 seconds
  =400L/104.9L/min

The pump will be connected to a control panel with a float switch that will control the on/off cycle of the pump. The redundant off is used to ensure that if anything electrical was to fail, the pump will shut off prior to draining the tank. Float configurations are specified in the design drawings. The 'high water override' will be placed above the timer float to provide equalization capacity in the tank. The 'high water overflow limit' will provide an additional half day of storage capacity before overflow of the tank occurs. The 'high water alarm' will be placed below the high-water override to alert the owners in the event the high-water override is being utilized, or a pump failure has occurred.

Other pumps may also achieve the same system performance. The engineer should be consulted before substituting an equivalent pump. It is advisable that the owner/installer contacts the engineer prior to installation of the septic tank and pump chamber to confirm building plumbing elevations and their effect on the pump selection.

The following alarm / control panel has been specified for this system:

- Alarm Panel – SJE Rhombus Tank Alert AB
- Control Panel Setup – Demand dose

The dose volume can be calculated as follows:

Dose Volume = DDF / (number of doses) x 110% + Transport Line & Manifold

- Doses per day – 4
- Dose Volume – 400L

Dose volume = 1,600L per day/ 4 doses per day = 400L

The pump chamber requires an audible/visible alarm on the control panel that is connected to the float inside the pump chamber to warn of high-water levels in the case of a pump malfunction. In the event of a pump failure the owners will have just over half day's capacity for emergency effluent storage before the tank overflows. It is imperative that in the event of an alarm activation, water use be restricted, and the cause of the alarm activation be determined.

5.3. DISCHARGE PIPING AND TRANSPORT LINE

A small hole should be drilled in the discharge pipe between the pump and check valve inside the pump chamber to allow air from the pump volute to discharge on pump start-up and to break any vacuum that might form when the pump shuts off to eliminate any siphoning.

A small hole should also be drilled on the bottom of the transport line inside the pump chamber to allow drainage back into the tank between doses. The transport line should be installed with a 1% slope back towards the tank from the field to allow the transport line to drain between doses.

5.4. PRESSURE DISTRIBUTION SYSTEM

Pumping is necessary in delivering effluent from the septic tanks to the field. Pressure distribution will greatly increase the longevity of the trenches and allows for the installation of longer laterals.

The pressure distribution system for this site shall consist of the following:

- 50mm (2") transport pipe
- Eight 32mm (1 1/8") diameter lateral pipes
- Lateral pipes shall have 3.2mm (1/8") diameter holes drilled at intervals of 0.9m (4').

- The holes shall be drilled so that they are facing up; with every fourth hole drilled facing down and covered with orifice shields to ensure the pipes drain at the end of each pump cycle.

The pressure distribution piping shall be installed with buried plastic infiltrator chambers.

The design of the pressure distribution system is an iterative process, which varies depending on the design flow, elevation from the pump tank to the field, length of laterals and pump size. Once all of the above are taken into consideration, the intent is to minimize the dose amount required to fully pressurize the system, maximize even distribution throughout the field, and achieve sufficient flows and pressure in the transport pipe and orifice holes so as to minimize the potential for build-up of solids or clogging the distribution system.

The design of this distribution system has been completed using computer aided software that simplifies the calculations of flow and head loss and generates system curves for pump selection. A copy of the system and pump curves is included in Appendix F.

6. Reserve Area / Future Construction

The operating life of onsite systems in not infinite, most systems will ultimately require, in the long term, replacement. The life of a system varies significantly but is generally intended to be 20-40 years. A reserve area should be set aside on the property for any future work required on the septic field.

7. Construction Certification

Under the Sewerage Regulation, construction of the system must be completed by a Registered Installer or supervised by a Professional Engineer. Should the property owner wish to construct the new system without the services of a Registered Installer, the construction schedules and activities must be coordinated with the designers. Signing and sealing of “As-Built” system record drawings requires that the designer have an appropriate level of involvement during construction. Once the system has been constructed and inspected in accordance with the Plans and Specifications, a Letter of Certification and an Operation and Maintenance Manual must be provided to Northern Health and the system owner.

APPENDIX A

Statement of Limitations

Statement of Limitations

Use of this Report. This report was prepared by McElhanney Ltd. ("**McElhanney**") for the particular site, design objective, development and purpose (the "**Project**") described in this report and for the exclusive use of the client identified in this report (the "**Client**"). The data, interpretations and recommendations pertain to the Project and are not applicable to any other project or site location and this report may not be reproduced, used or relied upon, in whole or in part, by a party other than the Client, without the prior written consent of McElhanney. The Client may provide copies of this report to its affiliates, contractors, subcontractors and regulatory authorities for use in relation to and in connection with the Project provided that any reliance, unauthorized use, and/or decisions made based on the information contained within this report are at the sole risk of such parties. McElhanney will not be responsible for the use of this report on projects other than the Project, where this report or the contents hereof have been modified without McElhanney's consent, to the extent that the content is in the nature of an opinion, and if the report is preliminary or draft. This is a technical report and is not a legal representation or interpretation of laws, rules, regulations, or policies of governmental agencies.

Standard of Care and Disclaimer of Warranties. This report was prepared with the degree of care, skill, and diligence as would reasonably be expected from a qualified member of the same profession, providing a similar report for similar projects, and under similar circumstances, and in accordance with generally accepted engineering and scientific judgments, principles and practices. McElhanney expressly disclaims any and all warranties in connection with this report.

Information from Client and Third Parties. McElhanney has relied in good faith on information provided by the Client and third parties noted in this report and has assumed such information to be accurate, complete, reliable, non-fringing, and fit for the intended purpose without independent verification. McElhanney accepts no responsibility for any deficiency, misstatements or inaccuracy contained in this report as a result of omissions or errors in information provided by third parties or for omissions, misstatements or fraudulent acts of persons interviewed.

Effect of Changes. All evaluations and conclusions stated in this report are based on facts, observations, site-specific details, legislation and regulations as they existed at the time of the site assessment/report preparation. Some conditions are subject to change over time and the Client recognizes that the passage of time, natural occurrences, and direct or indirect human intervention at or near the site may substantially alter such evaluations and conclusions. Construction activities can significantly alter soil, rock and other geologic conditions on the site. McElhanney should be requested to re-evaluate the conclusions of this report and to provide amendments as required prior to any reliance upon the information presented herein upon any of the following events: a) any changes (or possible changes) as to the site, purpose, or development plans upon which this report was based, b) any changes to applicable laws subsequent to the issuance of the report, c) new information is discovered in the future during site excavations, construction, building demolition or other activities, or d) additional subsurface assessments or testing conducted by others.

Independent Judgments. McElhanney will not be responsible for the independent conclusions, interpretations, interpolations and/or decisions of the Client, or others, who may come into possession of this report, or any part thereof. This restriction of liability includes decisions made to purchase, finance or sell land or with respect to public offerings for the sale of securities.

APPENDIX B

Design Drawings

McElhanney Cover D - 2021-05-11

CLIENT

Tim Schumaker

ADDRESS / CONTACT INFO.

339 OMINECA ST, VANDERHOOF, BC
Email: Tim.Shu91@gmail.com

PROJECT NAME

SWEDER ROAD SEPTIC

DESCRIPTION

PRESSURE TRENCH DESIGN DRAWINGS

McELHANNEY PROJECT

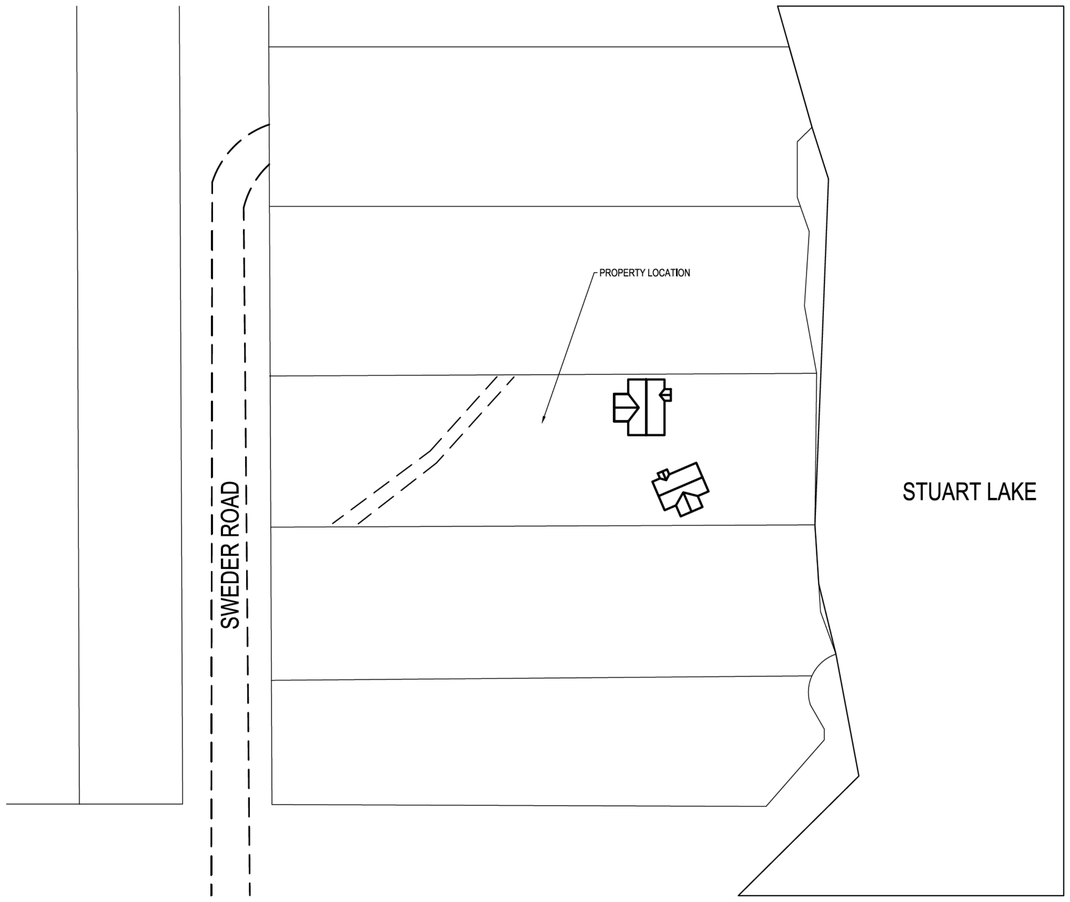
2341-21966-00

OTHER REFERENCE

N/A

STATUS

Rev 0



AREA PLAN
NTS

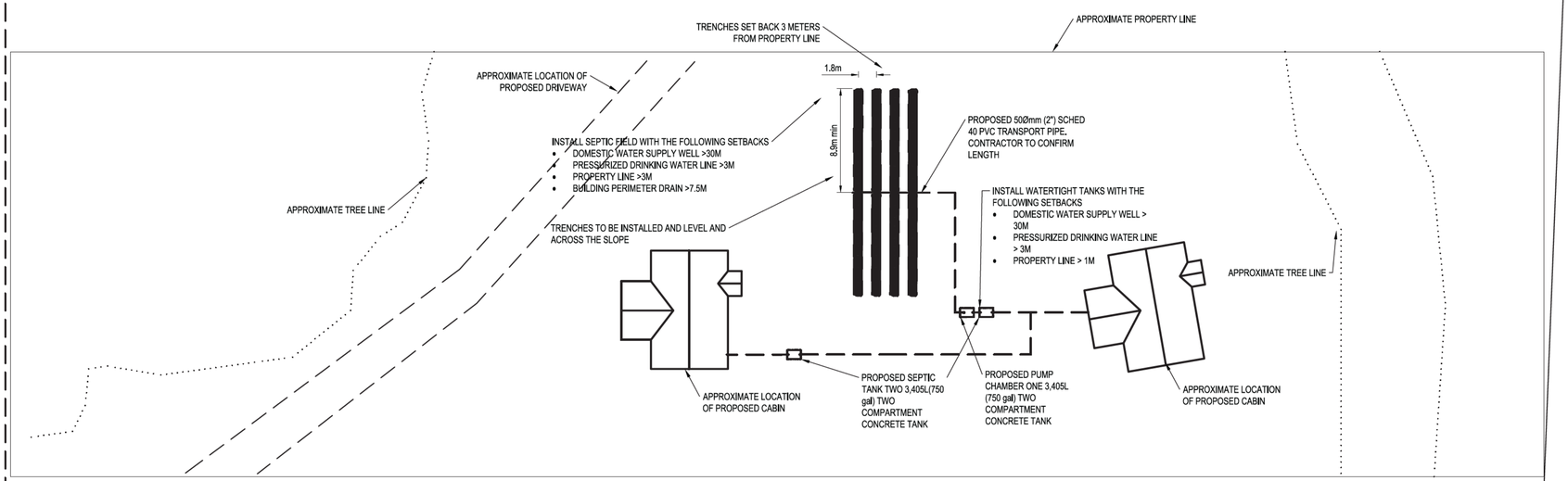
INDEX OF DRAWINGS

Drawing No	Description
C000	TITLE
C001	SITE PLAN
C400	SEPTIC FIELD PROFILES
C901	TANK SECTION AND DETAIL
C902	INFILTRATOR CHAMBER DETAILS

McElhanney

SWEDER ROAD

STUART LAKE



GENERAL CONSTRUCTION NOTES:

1. ALL DIMENSIONS AND ELEVATIONS IN METERS UNLESS OTHERWISE SPECIFIED.
2. ALL LEGAL LINES, BUILDING, ROAD EDGE LOCATIONS ARE APPROXIMATE. CONTRACTOR TO LOCATE IRON PINS TO ENSURE THE PROPOSED WORKS ARE INSTALLED IN THE CORRECT LOCATION.
3. MCELHANNEY IS NOT RESPONSIBLE FOR THE CONSTRUCTION OF THE SEWERAGE SYSTEM. SEWERAGE SYSTEM IS TO BE CONSTRUCTED AND INSTALLED BY A QUALIFIED CONTRACTOR ACCORDING TO THE DRAWINGS AND THE DESIGN BRIEF (COLLECTIVELY REFERRED TO AS THE PLANS).
4. ANY REQUESTED CHANGES TO THE SEWERAGE SYSTEM DESIGN MUST BE COMMUNICATED AND CONFIRMED WITH THE ENGINEER. IF THERE ARE DISCREPANCIES BETWEEN THE DRAWINGS AND THE DESIGN BRIEF, THE DRAWINGS WILL SUPERCEDE OR CONFIRM WITH ENGINEER.
5. THE SEWERAGE SYSTEM DESIGN IS BASED ON A LIMITED TEST PIT INVESTIGATION. MCELHANNEY IS NOT RESPONSIBLE FOR UNDERGROUND CONDITIONS VARYING FROM THOSE ENCOUNTERED DURING THE SITE INVESTIGATION. CONTRACTOR MUST NOTIFY ENGINEER IF SOIL CONDITIONS ENCOUNTERED DURING CONSTRUCTION DIFFER FROM THE SITE INVESTIGATION AND SOIL CONDITIONS LISTED IN THE DESIGN BRIEF.
6. MCELHANNEY SHALL PROVIDE A REVIEW OF THE CONSTRUCTED SEWERAGE SYSTEM PRIOR TO BACKFILL. THIS WILL INCLUDE, BUT MAY NOT BE LIMITED TO, INSPECTION OF THE TANKS, SEWERAGE SYSTEM, AND WITNESS OF PRESSURE TEST.
7. ANY RE-WORK OR SIGNIFICANT CHANGES REQUIRED RESULTING FROM THE CONSTRUCTION REVIEW SHALL BE COMMUNICATED TO THE CLIENT AND ARE NOT THE RESPONSIBILITY OF MCELHANNEY.
8. SEWERAGE SYSTEM SHALL BE CONSTRUCTED DURING DRY WEATHER AND WHEN THE SOIL MOISTURE IS LOW TO REDUCE RISK TO THE SEPTIC SYSTEM AND MAXIMIZE LONGEVITY OF THE SEPTIC SYSTEM. CONTACT THE ENGINEER IF EXCESSIVE SOIL MOISTURE IS ENCOUNTERED DURING CONSTRUCTION.
9. SEWERAGE SYSTEM SHALL BE CONSTRUCTED AWAY FROM TRAVELED SURFACES, ROOF RUNOFF, DRAINAGE, AND SNOW STORAGE. ROOF LEADERS, FOOTING DRAINS, SUMP PUMPS, AND ANY OTHER SOURCE OF SURFACE WATER OR GROUNDWATER MUST NOT BE CONNECTED TO THE SEWERAGE SYSTEM.
10. IT IS IMPORTANT TO DIVERT SURFACE WATER AWAY FROM THE ONSITE SEWAGE DISPOSAL SYSTEM; THIS CAN BE ACHIEVED BY CROWNING THE SYSTEM COVER AND USING DIVERSION SWALES OR INTERCEPTION DRAINS.
11. MCELHANNEY IS NOT RESPONSIBLE FOR SECURING ANY ELECTRICAL PERMITS OR ENGAGING THE APPROPRIATE QUALIFIED LICENSED ELECTRICIAN TO CONDUCT ANY AND ALL ELECTRICAL WIRING, CONNECTIONS, OR ENERGIZING THE SYSTEM.
12. IT IS THE HOMEOWNERS RESPONSIBILITY TO MAINTAIN THE SEWERAGE SYSTEM AS OUTLINED IN THE OPERATION AND MAINTENANCE MANUAL (PROVIDED AFTER CONSTRUCTION).

Rev	Date	Description	Drawn	Design	App'd
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0	6/27/2025	ISSUED FOR REVIEW	MB	JX	CH

0 1:200 10

ORIGINAL DWG SIZE: ANSI D (22" x 34")

McElhanney
Suite 12
556 North Nechako Road
Prince George BC
Canada V2K 1A1
T 250 561 2229

Approved Sealed

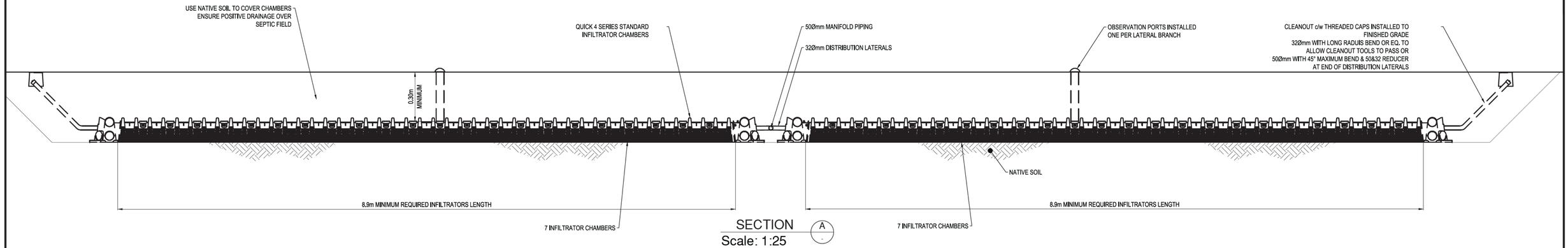
TIM SHUMAKER
1238 SWEDER ROAD, FORT ST JAMES, BC

SWEDER ROAD SEPTIC PRESSURE TRENCHES SITE PLAN

Drawing No. C001

Project Number	Rev.
23412196600	0

DESTROY ALL PRINTS BEARING PREVIOUS REVISION



SECTION A
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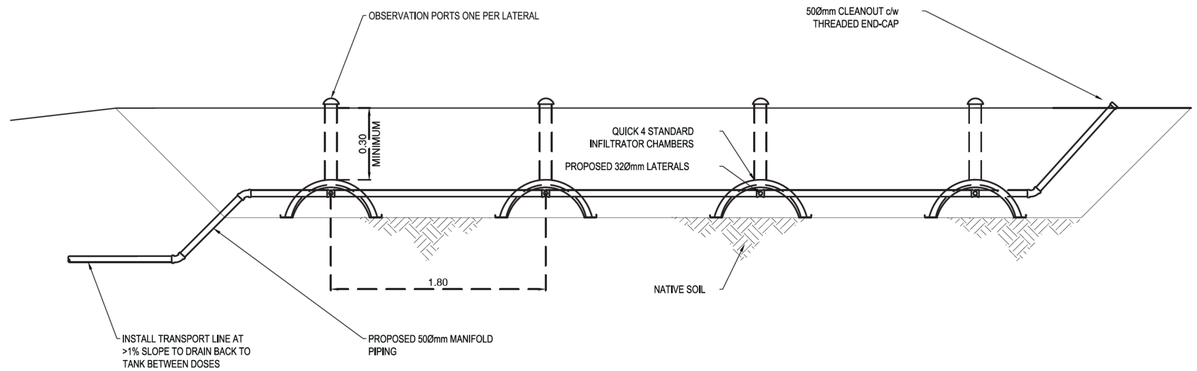

SECTION B
Scale: 1:25

DESIGN CALCULATIONS

HLR	LLR	DDF	# Chambers
30 (L/day/m2)	90 (L/day/m2)	1688 (L/day)	7

Rev	Date	Description	Drawn	Design	App'd
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ORIGINAL DWG SIZE: ANSI D (22" x 34")

McElhanney
Suite 12
556 North Nechako Road
Prince George BC
Canada V2K 1A1
T 250 561 2229

C.E. HUTCHINSON # 37516 — PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA

Approved Sealed

TIM SHUMAKER
1238 SWEDER ROAD

SWEDER ROAD SEPTIC PRESSURE TRENCHES SEPTIC FIELD PROFILES

Drawing No. C400

Project Number 2341-21966-00

Rev. 0

DESTROY ALL PRINTS BEARING PREVIOUS REVISION

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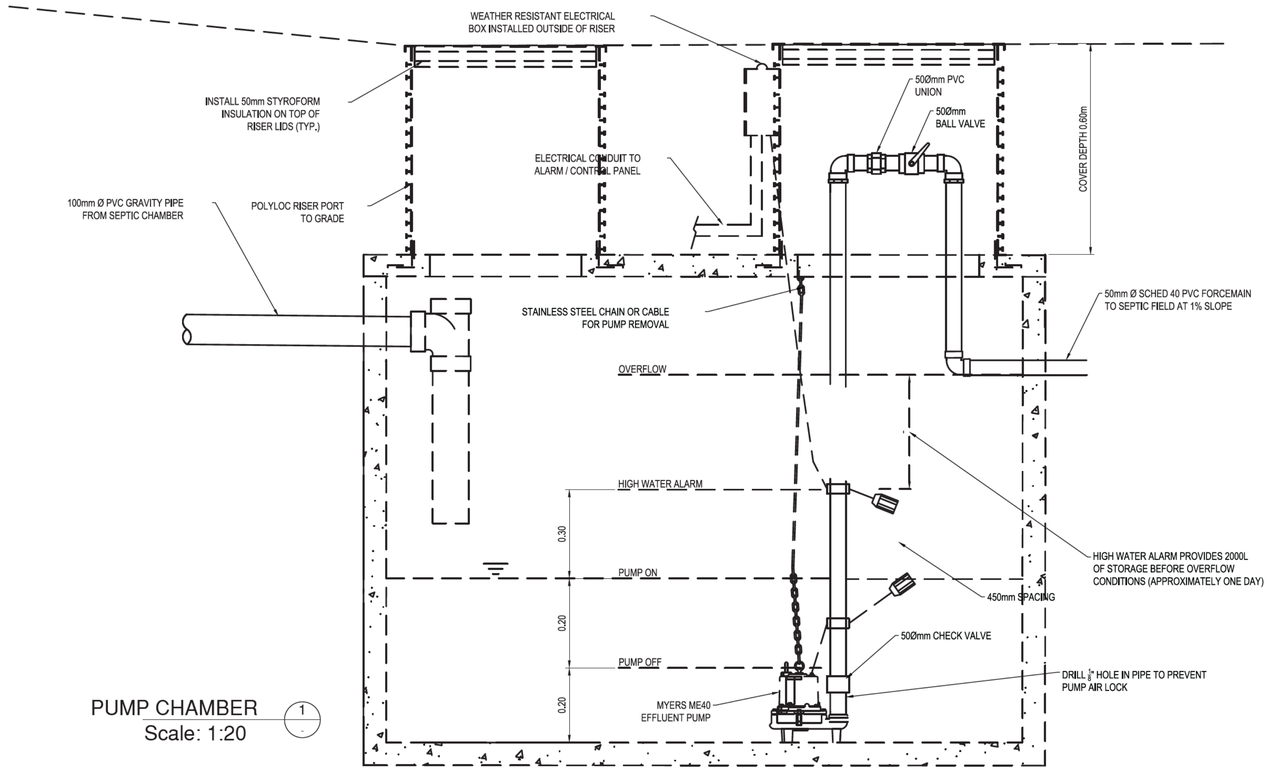
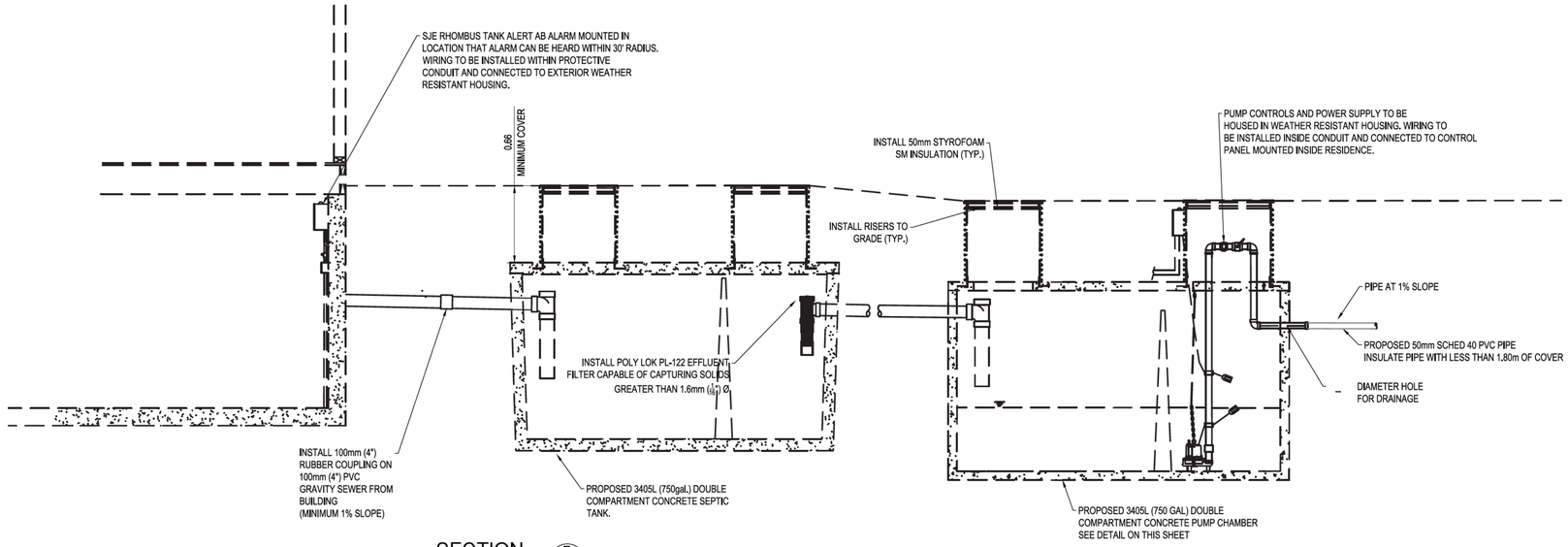


PUMP CHAMBER (1)
Scale: 1:20



SECTION (B)
Scale: 1:25

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ORIGINAL DWG SIZE: ANSI D (22" x 34")

McElhanney
Suite 12
556 North Nechako Road
Prince George BC
Canada V2K 1A1
T 250 561 2229

Approved Sealed

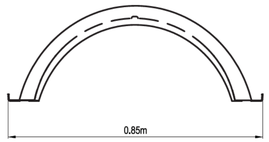
TIM SHUMAKER
1238 SWEDER ROAD, FORT ST JAMES, BC

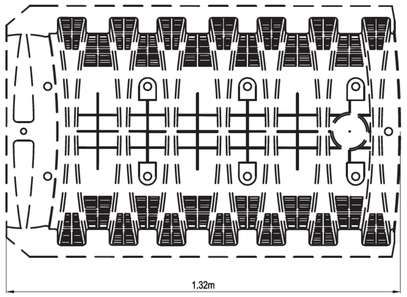
SWEDER ROAD SEPTIC PRESSURE TRENCHES TANK SECTION AND DETAIL

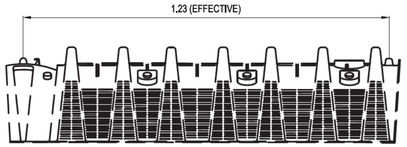
Drawing No. C901

Project Number 2341-21966-00

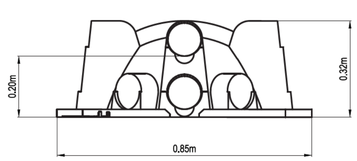
Rev. 0

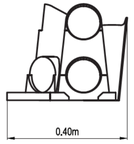


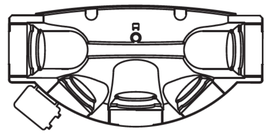




INFILTRATOR SYSTEMS INC. QUICK 4 STANDARD CHMABER







DETAILS 1
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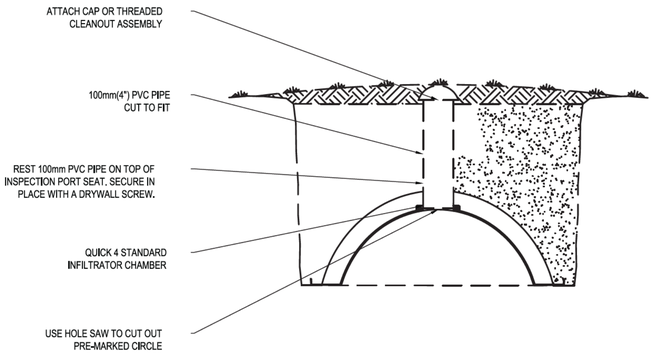

INSTALLATION SECTION DETAILS 3
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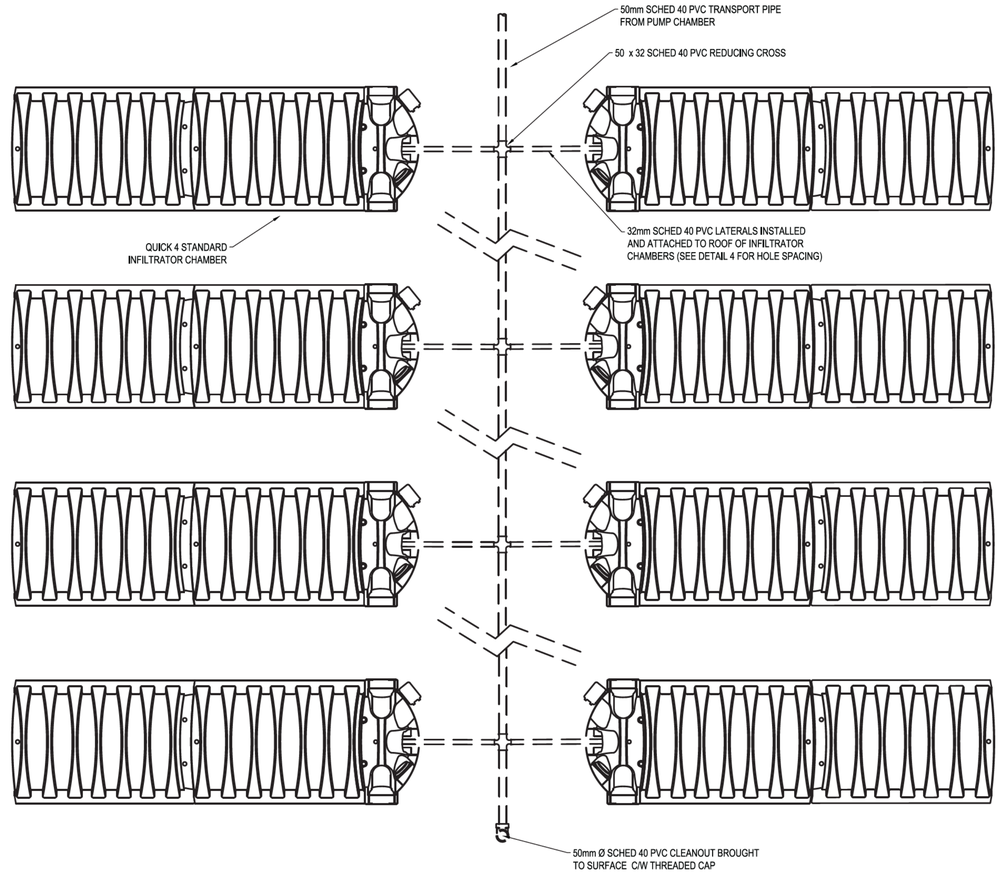
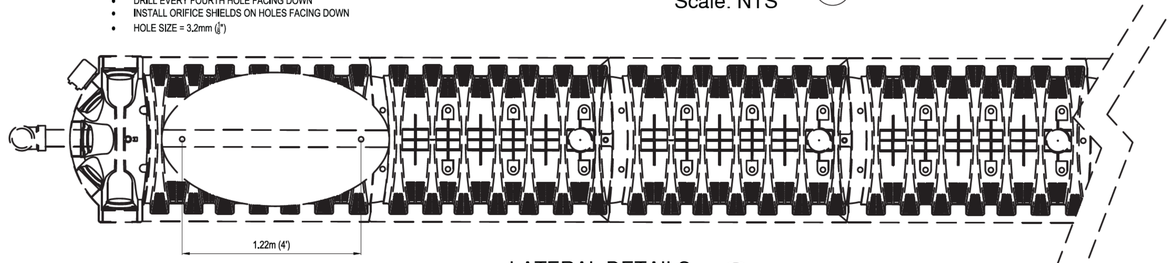


MANIFOLD DETAILS 2
Scale: NTS

LATERAL PIPE ORIFICE HOLES:
- DRILL HOLES FACING UP
- DRILL EVERY FOURTH HOLE FACING DOWN
- INSTALL ORIFICE SHIELDS ON HOLES FACING DOWN
- HOLE SIZE = 3,2mm (⅛")



LATERAL DETAILS 4
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Rev	Date	Description	Drawn	Design	App'd

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ORIGINAL DWG SIZE: ANSI D (22" x 34")

McElhanney
Suite 12
556 North Nechako Road
Prince George BC
Canada V2K 1A1
T 250 561 2229

Approved Sealed

TIM SHUMAKER
1238 SWEDER ROAD, FORT ST JAMES, BC

SWEDER ROAD SEPTIC PRESSURE TRENCHES INFILTRATOR CHAMBER DETAILS

Drawing No. C902

Project Number 2341-21966-00

Rev. 0

DESTROY ALL PRINTS BEARING PREVIOUS REVISION

DATE: 2025/09/04, 14:13 FILE: X:\2341\Projects\2341216600 Shumaker Sweder Rd Septic\07_DRAWINGS\01_Sheets\0201_pressure+trenches+Sweder.dwg

APPENDIX C

Title Search

TITLE SEARCH PRINT 2025-09-04, 13:47:16

File Reference: 2341-21105-99 Requestor: Ron Sanchez

Declared Value $N/A

CURRENT AND CANCELLED INFORMATION SHOWN

Title Issued Under SECTION 172 LAND TITLE ACT

Land Title District PRINCE RUPERT
Land Title Office PRINCE RUPERT

Title Number P12578
From Title Number 57292I

Application Received 1985-10-31

Application Entered 1985-11-01

Registered Owner in Fee Simple
Registered Owner/Mailing Address: JOHN PERCH THOBO-CARLSEN, ECONOMIC DEVELOPMENT OFFICER
SHEILA ANNE THOBO-CARLSEN, HOMEMAKER
P.O. BOX 70
FORT ST. JAMES, BC
V0J 1P0
AS JOINT TENANTS

Taxation Authority Prince George Assessment Authority

Description of Land
Parcel Identifier: 012-798-436
Legal Description:
LOT 18 DISTRICT LOT 1268 RANGE 5 COAST DISTRICT PLAN 1333

Legal Notations
CERTIFICATE OF FORFEITURE, TAXATION (RURAL AREA) ACT, SEE PN2889
1999-01-26

Charges, Liens and Interests
Nature: MORTGAGE
Registration Number: P12579
Registration Date and Time: 1985-10-31 13:08
Registered Owner: THE ROYAL BANK OF CANADA
Cancelled By: **PM3471**
Cancelled Date: **1998-01-23**

Nature:	JUDGMENT
Registration Number:	TE6645
Registration Date and Time:	1991-02-19 10:57
Registered Owner:	HER MAJESTY THE QUEEN IN RIGHT OF CANADA
Remarks:	AS TO THE UNDIVIDED 1/2 INTEREST OF JOHN PERCH THOBO-CARLSEN RENEWED BY TG1523
Cancelled By:	**CA5628529**
Cancelled Date:	**2016-11-04**

Nature:	JUDGMENT
Registration Number:	TG1523
Registration Date and Time:	1993-02-09 13:12
Registered Owner:	HER MAJESTY THE QUEEN IN RIGHT OF CANADA
Remarks:	AGAINST THE INTEREST OF JOHN PERCH THOBO-CARLSEN RENEWAL OF TE6645 RENEWED BY TJ1573
Cancelled By:	**CA5628529**
Cancelled Date:	**2016-11-04**

Nature:	JUDGMENT
Registration Number:	TJ1573
Registration Date and Time:	1995-02-06 10:56
Registered Owner:	THE CROWN IN RIGHT OF CANADA
Remarks:	RENEWAL OF TG1523 AS TO THE UNDIVIDED 1/2 INTEREST OF JOHN PERCH THOBO-CARLSEN SEE ALSO TE6645
Cancelled By:	**CA5628529**
Cancelled Date:	**2016-11-04**

Nature:	JUDGMENT
Registration Number:	TJ3604
Registration Date and Time:	1995-03-27 10:56
Registered Owner:	THE CROWN IN RIGHT OF CANADA
Remarks:	AGAINST THE INTEREST OF JOHN PERCH THOBO-CARLSEN RENEWED BY TL3856
Cancelled By:	**CA5628530**
Cancelled Date:	**2016-11-04**

Nature:	JUDGMENT
Registration Number:	TL3856
Registration Date and Time:	1997-03-13 08:53
Remarks:	RENEWAL OF TJ3604 AGAINST THE INTEREST OF JOHN PERCH THOBO-CARLSEN RENEWED BY PN6000
Cancelled By:	**CA5628530**
Cancelled Date:	**2016-11-04**

Nature:	JUDGMENT
Registration Number:	PL29671
Registration Date and Time:	1997-05-22 14:07
Registered Owner:	THE CROWN IN RIGHT OF CANADA
Remarks:	AS TO THE UNDIVIDED 1/2 INTEREST OF JOHN PERCH THOBO-CARLSEN
Cancelled By:	**CA5628531**
Cancelled Date:	**2016-11-04**

Nature:	JUDGMENT
Registration Number:	PN6000
Registration Date and Time:	1999-02-19 11:59
Registered Owner:	THE CROWN IN RIGHT OF CANADA
Remarks:	RENEWAL OF TL3856 AS TO THE INTEREST OF JOHN PERCH THOBO-CARLSEN
Cancelled By:	**CA5628530**
Cancelled Date:	**2016-11-04**

Nature:	CROWN DEBT
Registration Number:	BA68827
Registration Date and Time:	2006-02-27 08:44
Registered Owner:	THE CROWN IN RIGHT OF CANADA
Remarks:	AS TO THE INTEREST OF JOHN PERCH THOBO-CARLSEN
Cancelled By:	**BB1511685**
Cancelled Date:	**2014-02-03**

Duplicate Indefeasible Title	NONE OUTSTANDING
Transfers	NONE
Pending Applications	NONE
Corrections	NONE

APPENDIX D

Test Pit Logs

FIELD BOREHOLE LOG

PROJECT 1238 Sweder rd Septic

McElhanney

PROJECT NO.	2341-21966-00	DATE	2025-05-14	BOREHOLE NO.	TP25-01
LOCATION	1238 Sweder rd, Prince George, BC	ELEV.		LOGS BY	Hannah Searls
DRILL RIG	35G Deere	DIA.		OPERATOR	

	N	DENSITY		N	CONSISTENCY
MINOR SOIL TYPE e.g. silty, clayey, etc	N	DENSITY	MINOR SOIL TYPE e.g. silty, clayey, etc	N	CONSISTENCY
MOISTURE dry, moist, wet, saturated	0-4	VERY LOOSE	MOISTURE dry, moist, wet, saturated	<2	VERY SOFT
DENSITY	4-10	LOOSE	DENSITY	2-4	SOFT
GRADATION poorly or well	10-30	COMPACT	GRADATION poorly or well	4-8	FIRM
SIZE RANGE fine, medium coarse	30-50	DENSE	SIZE RANGE fine, medium coarse	8-15	STIFF
COLOUR	>50	VERY DENSE	COLOUR	15-30	VERY STIFF
INCLUSIONS/ODOUR			INCLUSIONS/ODOUR	>30	HARD

BOULDER: >300mm COBBLE: 300-75mm GRAVEL coarse: 75-19mm GRAVEL fine: 19-4.75mm

SAND coarse: 4.75-2mm SAND medium: 2-0.425mm SAND fine: 0.425-0.075mm SILT: 0.075-0.002mm CLAY: <0.002mm

"and" 35-50%, "y" 20-35%, "some" 10-20%, "trace" 0-10% Occasional, Frequent, Abundant

Depth ( )	USC	CLASSIFICATION	SAMPLE NO.	TYPE	DEPTH ( )	SPT N or PP	Sample Description & Notes
0-0.8ft		Organic layer, rootlettes hanging from, red colour from surface water.					
0.8ft-3ft		Sand course trace silt. some rootlettes, damp, low plasticity.	**1**	**G**	**3 ft**		
3ft-10ft		Sand course trace silt, large root, damp, low plasticity.					

Sloughing zones:	**WELL DETAILS**
Seepage zones:	LENGTH OF RISER
Possible GWT at:	LENGTH OF SCREEN
Depth to bottom of hole upon completion:	CUTTINGS FROM
Depth to water upon completion:	BENTONITE FROM
REMARKS	SAND FROM
	HEIGHT ABOVE GROUND
	DEPTH TIP BELOW GROUND
	TYPE OF COVER

Identifying soil texture by measurement

1. Spread soil on a newspaper to dry. Remove all rocks, trash, roots, etc. Crush lumps and clods.
2. Finely pulverize the soil.
3. Fill a tall, slender jar (like a quart jar) ¼ full of soil.
4. Add water until the jar is ¾ full.
5. Add a teaspoon of powdered, non-foaming dishwasher detergent.
6. Put on a tight fitting lid and shake hard for 10 to 15 minutes. This shaking breaks apart the soil aggregates and separates the soil into individual mineral particles.
7. Set the jar where it will not be disturbed for 2-3 days.

8. Soil particles will settle out according to size. **After 1 minute,** mark on the jar the depth of the sand.

9. **After 2 hours,** mark on the jar the depth of the silt

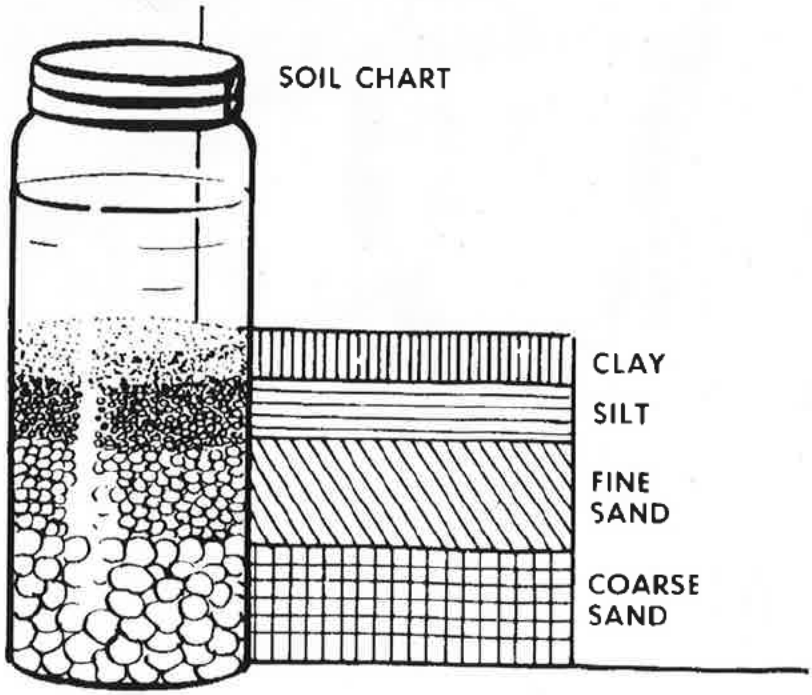
10. **When the water clears** mark on the jar the clay level. This typically takes 1 to 3 days, but with some soils it may take weeks.

11. Measure the thickness of the sand, silt, and clay layers.

TP25-02
SWEDER RD

a. Thickness of sand deposit, 30.30mm
b. Thickness of silt deposit 2.57mm
c. Thickness of clay deposit 2.71mm
d. Thickness of total deposit 35.58mm

12. Calculate the percentage of sand, silt, and clay.



[clay thickness] / [total thickness] = 7.6% percent clay

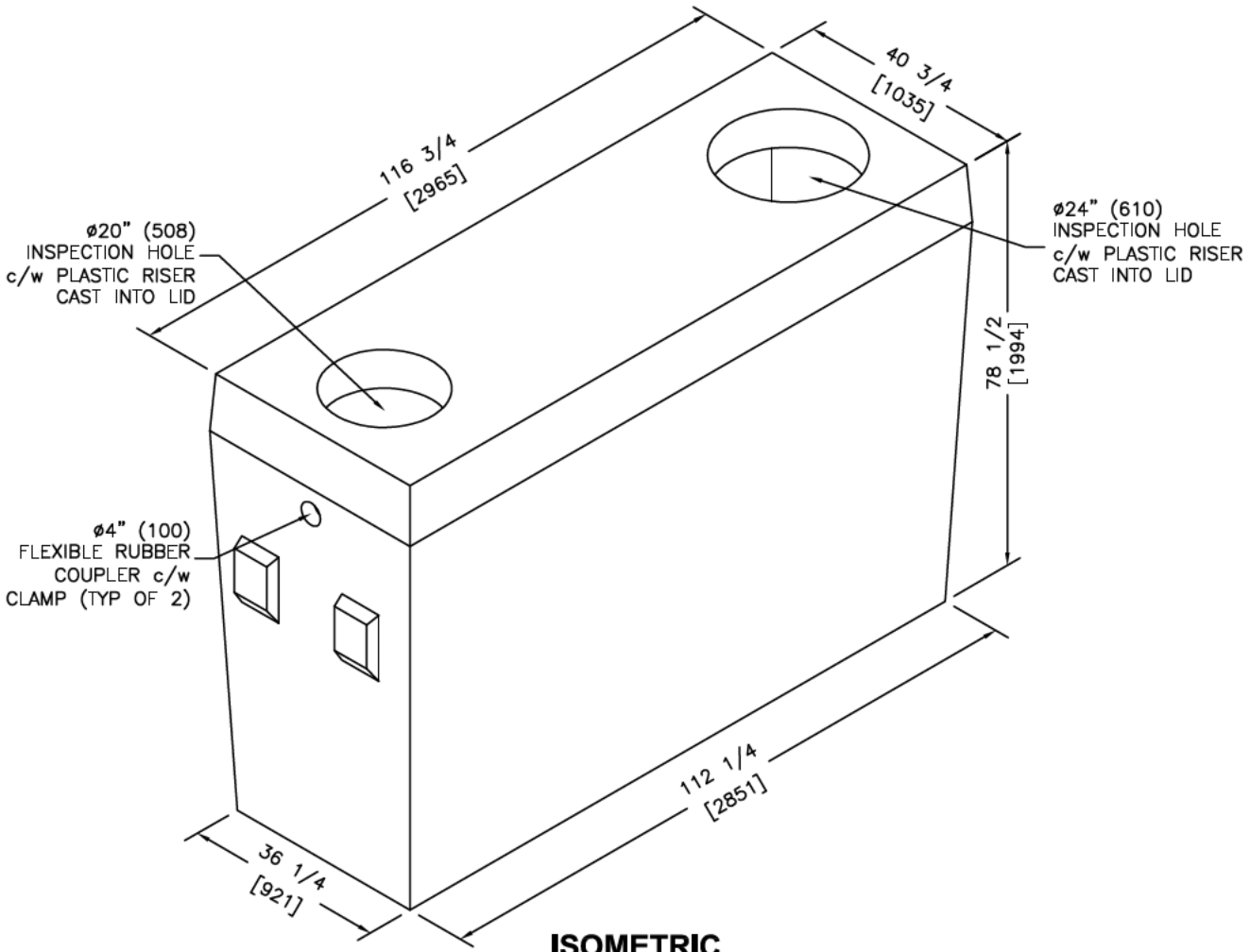
[silt thickness] / [total thickness] = ~~7.6%~~ 7.2% percent silt

[sand thickness] / [total thickness] = 85% percent sand

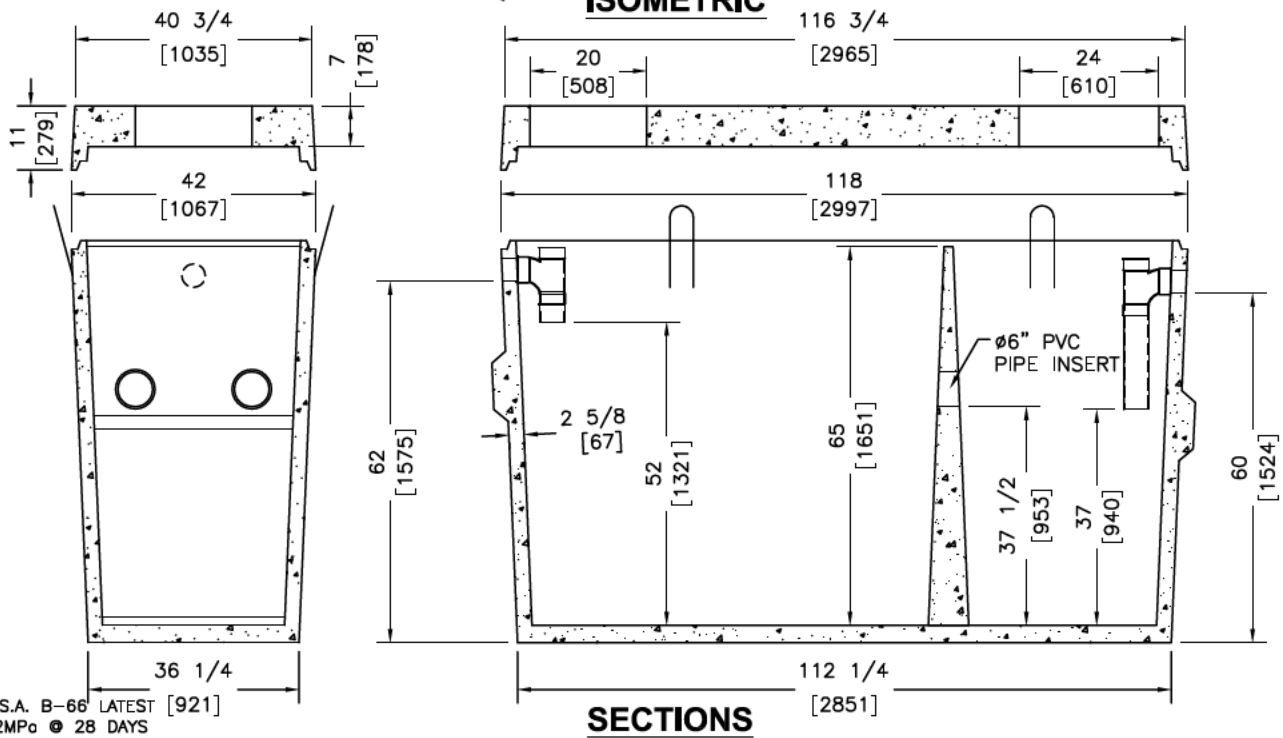
13. Turn to the soil texture triangle and look up the soil texture class.

APPENDIX E

Tank Shop Drawings



ISOMETRIC



SECTIONS

C.S.A. B-66 LATEST
32MPa @ 28 DAYS
TANK: 2743 kg LID: 1363 kg

REVISED: OCT 1 2019

KON KAST
products (2005) ltd.
"Committed To Quality And Service"

ph: (250) 765 1423
fx: (250) 765 0820
www.konkast.com

DESCRIPTION

750 GAL (3405L) TWO COMPARTMENT SEPTIC TANK - IND

DRAWN BY: PKR
DATE: JUN 20 05
SCALE: NTS

DRAWING:

136

APPENDIX H

Pump Specifications

PENTAIR MYERS

DATA SHEET

EFFLUENT PUMPS

ME SERIES

The Myers ME Series Effluent Pumps are designed specifically for effluent pressure distribution mounds, trenches and high-flow drainage applications. Heavy-duty construction with finest corrosion-resistant materials for years of extended service in the harshest environments. Available in single and double-seal models; thermoplastic and bronze impeller models.

APPLICATIONS

Effluent removal, sump drainage, water transfer, and flood control.

Tested & Certified to UL778 and CSA 108.
3 Year Warranty

FEATURES

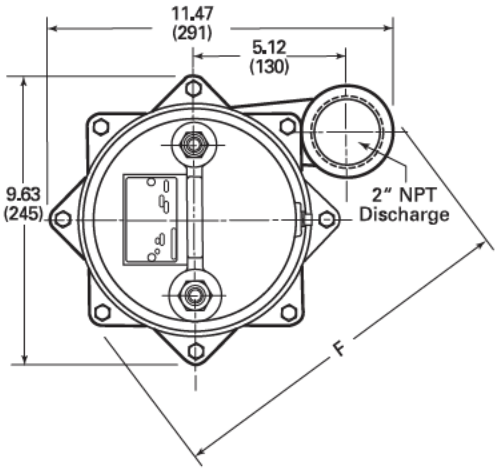
- **Cast Iron Tough:** All cast-iron housing and volute case resists the most extreme corrosive environments.
- **High Efficiency Dosing:** Engineered thermoplastic or bronze (optional) two-vane impeller provides ideal performance for efficient dosing.
- **Jam Proof:** Enclosed impeller design eliminates jamming between impeller and volute.
- **Powerful Torque:** High-torque, permanent split capacitor (PSC) motor; no starting switches or relays to wear out.
- **Runs Cooler:** Rugged, oil-filled motor for bearing lubrication and maximum heat dissipation.
- **Leak Protection:** Optional leak probe senses water leakage past seal (dual seal motors only).
- **Thermal Protection:** Heat sensor overload protection with automatic reset when motor cools to a safe operating temperature (single phase only).

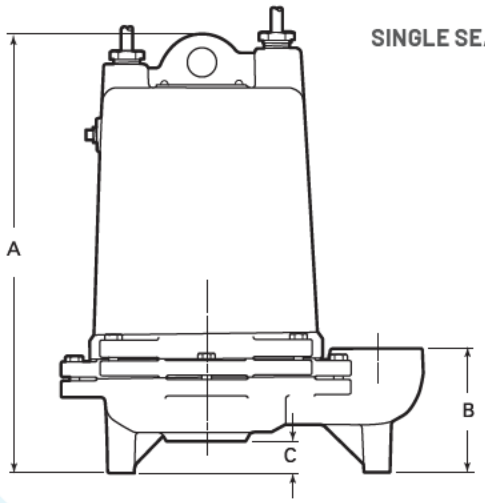
SPECIFICATIONS

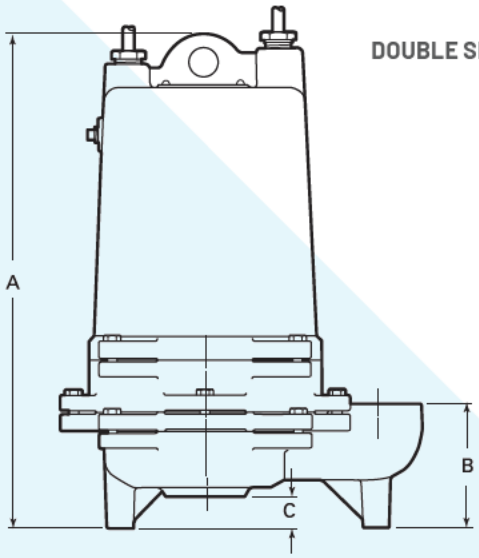
- **Capacities:** Up to 120 GPM (454 LPM)
- **Shut-Off Head:** Up to 95′ (28.9 m)
- **Max. Spherical Solids:** 3/4″ (19 mm)
- **Liquids Handling:** Domestic effluent and drain water
- **Motor/Electrical Data:** 1/2 HP, 115V, 1Ø; 1/2 to 1-1/2 HP, 230V, 1Ø; 208/230/460/575V, 3Ø; oil-filled, permanent split capacitor type, 1Ø, 3450 RPM, 60Hz
- **Acceptable pH Range:** 6-9
- **Specific Gravity:** .9-1.1
- **Viscosity:** 28-35 SSU
- **Discharge NPT:** 2″
- **Housing:** Cast iron
- **Volute Case:** Cast iron
- **Impeller:** Thermoplastic, or bronze (optional)
- **Minimum Sump Diameter:** Simplex: 24″ (61.0 cm) Duplex: 36″ (91.4 cm)
- **Power Cord:** 20′

M9023SSE (08-01-23)

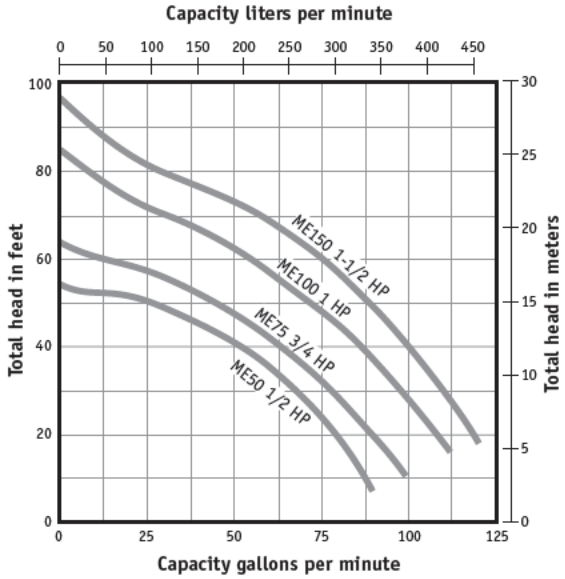
DIMENSIONS







PUMP PERFORMANCE



CATALOG NUMBER	INCHES (MILLIMETERS)			
	A	B	C	F
ME50S	16.8 (427)	4.09 (104)	1.03 (26)	12.13(308)
ME50D	18.6 (472)	4.09 (104)	1.03 (26)	12.13 (308)
ME75S, ME100S, ME150S	16.8 (427)	4.0 (102)	1.06 (27)	12.5 (318)
ME75D, ME100D, ME150D	18.6 (472)	4.0 (102)	1.06 (27)	12.5 (318)

ORDERING INFORMATION

CATALOG NUMBER	HP	VOLTS	PHASE	DISCHARGE NPT	SWITCH TYPE	APPROX. CORD LENGTH	WT. LBS
Single Seal							
ME50S-11	1/2	115	1	2"	Manual	20'	73
ME50S-01	1/2	200	1	2"	Manual	20'	73
ME50S-21	1/2	230	1	2"	Manual	20'	74
ME50S-03	1/2	200	3	2"	Manual	20'	74
ME50S-23	1/2	230	3	2"	Manual	20'	74
ME50S-43	1/2	460	3	2"	Manual	20'	74
ME50S-53	1/2	575	3	2"	Manual	20'	74
ME75S-21	3/4	230	1	2"	Manual	20'	81
ME75S-23	3/4	230	3	2"	Manual	20'	81
ME100S-01	1	200	1	2"	Manual	20'	83
ME100S-21	1	230	1	2"	Manual	20'	83
ME100S-03	1	200	3	2"	Manual	20'	83
ME100S-23	1	230	3	2"	Manual	20'	83
ME100S-43	1	460	3	2"	Manual	20'	83
ME100S-53	1	575	3	2"	Manual	20'	83
ME150S-01	1-1/2	200	1	2"	Manual	20'	84
ME150S-21	1-1/2	230	1	2"	Manual	20'	84
ME150S-03	1-1/2	200	3	2"	Manual	20'	85
ME150S-23	1-1/2	230	3	2"	Manual	20'	85
ME150S-43	1-1/2	460	3	2"	Manual	20'	85
ME150S-53	1-1/2	575	3	2"	Manual	20'	85
Double Seal							
ME50D-11	1/2	115	1	2"	Manual	20'	88
ME50D-01	1/2	200	1	2"	Manual	20'	88
ME50D-21	1/2	230	1	2"	Manual	20'	88
ME50D-03	1/2	200	3	2"	Manual	20'	88
ME50D-23	1/2	230	3	2"	Manual	20'	88
ME50D-43	1/2	460	3	2"	Manual	20'	88
ME50D-53	1/2	575	3	2"	Manual	20'	88
ME75D-01	3/4	200	1	2"	Manual	20'	95
ME75D-21	3/4	230	1	2"	Manual	20'	95
ME75D-03	3/4	200	3	2"	Manual	20'	95
ME75D-23	3/4	230	3	2"	Manual	20'	95
ME75D-43	3/4	460	3	2"	Manual	20'	95
ME75D-53	3/4	575	3	2"	Manual	20'	95
ME100D-01	1	200	1	2"	Manual	20'	97
ME100D-21	1	230	1	2"	Manual	20'	97
ME100D-03	1	200	3	2"	Manual	20'	97
ME100D-43	1	460	3	2"	Manual	20'	97
ME150D-01	1-1/2	200	1	2"	Manual	20'	98
ME150D-43	1-1/2	460	3	2"	Manual	20'	98

293 Wright St
Delavan, WI 53115
Ph: 888.987.8677
Fx: 800.426.9446

490 Pinebush Rd, Unit 4
Cambridge, Ontario N1T 0A5, Canada
Ph: 800.363.7867
Fx: 888.606.5484

pentair.com

Pump Selection for a Pressurized System - Single Family Residence Project

Parameters

Discharge Assembly Size	2.00	inches
Transport Length	295	feet
Transport Pipe Class	40	
Transport Line Size	2.00	inches
Distributing Valve Model	None	
Max Elevation Lift	10	feet
Manifold Length	20	feet
Manifold Pipe Class	40	
Manifold Pipe Size	1.25	inches
Number of Laterals per Cell	8	
Lateral Length	30.7	feet
Lateral Pipe Class	40	
Lateral Pipe Size	1.25	inches
Orifice Size	1/8	inches
Orifice Spacing	4	feet
Residual Head	5	feet
Flow Meter	None	inches
'Add-on' Friction Losses	0	feet

Calculations

Minimum Flow Rate per Orifice	0.43	gpm
Number of Orifices per Zone	64	
Total Flow Rate per Zone	27.7	gpm
Number of Laterals per Zone	8	
% Flow Differential 1st/Last Orifice	0.2	%
Transport Velocity	2.7	fps

Frictional Head Losses

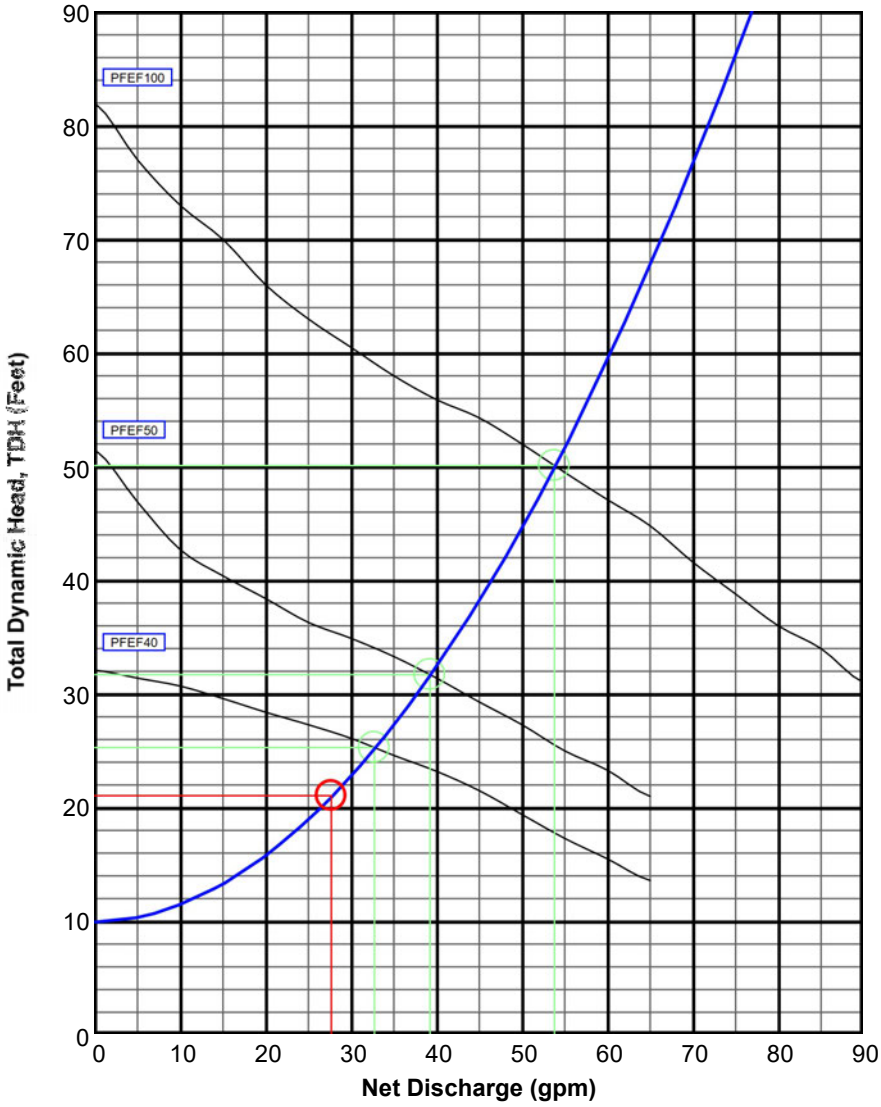
Loss through Discharge	1.5	feet
Loss in Transport	3.9	feet
Loss through Valve	0.0	feet
Loss in Manifold	0.5	feet
Loss in Laterals	0.0	feet
Loss through Flowmeter	0.0	feet
'Add-on' Friction Losses	0.0	feet

Pipe Volumes

Vol of Transport Line	51.4	gals
Vol of Manifold	1.6	gals
Vol of Laterals per Zone	19.1	gals
Total Volume	72.1	gals

Minimum Pump Requirements

Design Flow Rate	27.7	gpm
Total Dynamic Head	21.0	feet



PumpData

PKP350 Effluent Pump
1/2HP, 115V 1Ø

PFEF40 Effluent Pump
4/10HP, 115/230V 1Ø

PFEF50 Effluent Pump
1/2HP, 115/230V 1Ø

Legend

System Curve:
Pump Curve:
Pump Optimal Range:
Operating Point:
Design Point:

Orenco SYSTEMS
PROTECTING THE WORLD'S WATER

Contact
Cristina Hutchinson, P.Eng.
250-961-5741
chutchinson@mcelhanney.com

McElhanney

BEST MANAGED COMPANIES CANADA

SECTION 8.0 - WATERFRONT RESIDENTIAL II ZONE (R4)

8.0.1 Permitted Uses

1. Principal Uses

   a) Single Family Dwelling
   b) Two Family Dwelling
   c) A building containing three Dwelling Units where each of the Dwelling Units is occupied by only one resident, only on the Parcel legally described as Lot 2, Plan 3309, District Lot 314, Range 5, Coast District.

8.0.2 Density

1. Not more than one Single Family Dwelling or one Two Family Dwelling shall be located on a Parcel.

2. Notwithstanding Section 8.0.2 (1), two Single Family Dwellings where each Single Family Dwelling contains only one Dwelling Unit, are permitted on the Parcel legally described as Lot 2, District Lot 2545, Range 5, Coast District, Plan 3722.

8.0.3 Limitations on Use

1. A Two Family Dwelling is not a permitted use on the Parcel legally described as Lot 2, Plan 3309, District Lot 314, Range 5, Coast District.

8.0.4 Parcel Area

1. The minimum Parcel area that may be created by subdivision is 8,000 square metres (1.98 acres).

8.0.5 Minimum Water Frontage

1. The minimum Water Frontage that may be created by subdivision is 60 metres (197 feet).

8.0.6 Parcel Coverage

1. Structures shall not cover more than thirty-three percent of a Parcel area.

8.0.7 Setback

1. No Structure or part thereof, shall be located within the setback prescribed below:

   a) 7.5 metres (24.60 feet) from the Front Parcel Line;
   b) 2 metres (6.56 feet) from the Rear Parcel Line, which does not abut a Highway;
   c) 2 metres (6.56 feet) from each Side Parcel Line, which does not abut a Highway;
   d) 4.5metres (14.76 feet) from any Parcel Line which abuts a Highway."

8.0.8 Height

1. The maximum Height for a fence shall be 1.2 metres (4 feet) in a Front Yard and 1.8 metres (6 feet) in any other Yard.

RZ C-01-25 Site Visit Photos, dated December 18, 2025

Driveway, facing east; subject property (left) and 1308 Sweder Road (right):

Unoccupied dwelling (guesthouse), facing west towards Sweder Road:


castle
building centres
TYPAR
HouseWrap

Facing east towards Stuart Lake; building (left) on 1216 Sweder Road:

Facing east towards Stuart Lake from property centre:

Facing west towards Sweder Road from southeast subject property corner:

Facing west towards Sweder Road from property centre: