Your Name and/or Company

Registered Onsite Wastewater Practitioner
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Health Authority Initial Filing For Construction of Sewerage System: Site investigation report, record of design and specifications

Date: December 20, 2014

Legal Description: Lot 7, Section 14, Range 5, Cedar District, Plan VIP58378
PID 025 344 754

Street Address: 2222 Raven Road, Nanaimo, BC

GPS location: N 49.12345, W 124.12345 (centre of dispersal field)

Property Owner: Michael J. Smith and Mary E. Smith
2222 Raven Road, Nanaimo, BC. V9P 2N8
250 123 4567
Email msmith@shaw.ca

Summary of Proposed Works: (*also see site plan attached*)
New onsite wastewater system to replace the original system (performance malfunction), to serve an existing 4 bedroom, 427 m^2 (4598 ft^2) residence, on a 2.14 ha (5.28 acre) lot.

Proposed wastewater system:

- Daily design flow 1890 L/day.
- Type 1 effluent.
- Continued use of existing 3405 L (750 g) concrete septic tank, for initial settling chamber.
- Add new 2724 L (600 g) Acme Precast concrete tank in series (to receive effluent from original tank), working capacity 6130 L (1350 g), single compartment. Effluent filter to be installed at outlet of new tank.
- New 2043 L (450 g) pump chamber, concrete, single compartment, Acme Precast.
- Pressure distribution with demand dosing using a Myers ME 75 (230V, 3/4 HP) effluent pump … weighted floats … and a Rhombus IFS simplex control panel with flow monitoring by cycle count and high level alarm.
- Pressure dispersal to a raised sand mound, with a 2.7 x 18 m rock filled dispersal bed with three laterals, centre feed manifold, creating six lateral sections.
- Installers should refer to the detailed construction specifications p 6 – 9 and the attached drawings.

Site Information:

Total parcel size: 2.14 ha (5.28 Ac)

Potable Water Source: On site drilled well

Topography: The proposed dispersal system alignment is on contour, with a 9 % slope perpendicular to the bed centerline.

General Description:
The proposed dispersal area and adjacent areas are forested. The proposed tank locations are within a grassy lawn. Significant portions of the lot are characterized as 'wet'. An area of seasonally saturated soil with ponding and surface flow is located 8 m downslope from the dispersal area. The remainder of the lot also has very wet conditions, including permanent water bodies (swamp) and seasonal water courses. The proposed dispersal site is a high portion of the lot - a ridge, with well drained conditions and elevation substantially above the 'wet' areas.

Site/ Soil Evaluation: *see attached drawing for test pit locations*
Native Soil in area of proposed dispersal field:

Test pit #1:

0 – 10 cm	Dark brown loamy sand texture, with high organics content (top soil) Single grain structure type with loose consistence Many fine to large roots, <5% coarse fragment content, dry
10 – 40 cm	Light reddish brown, loamy sand texture Single grain structure type, loose consistence Many fine to large roots, 10% gravel, dry
40 – 60 cm	Medium grey, sandy loam texture Weak grade, blocky structure type, soft consistence No roots, 10% gravel, dry
60 cm +	Bedrock, dry, no water seepage.
The limiting condition in test pit 1 is rock (restrictive) at 60 cm.	
Perc testing adjacent to TP1: 7 minutes per inch in the 'B' horizon (25 cm depth)	

Test pit #2:

0 – 10 cm	Dark brown loamy sand texture, with high organics content (top soil) Single grain structure type with loose consistence Many fine to large roots, <5% coarse fragment content, dry
10 – 60 cm	Medium reddish brown, loamy sand texture Single grain structure type, loose consistence Many fine to large roots, 10% gravel, dry
60 – 80 cm	Medium grey, sandy loam texture Weak grade, blocky structure type, soft consistence No roots, 15% gravel, dry
80 cm +	Bedrock, dry, no water seepage.
The limiting condition in test pit 2 is rock (restrictive) at 80 cm.	
Perc testing adjacent to TP2: 6 minutes per inch in the 'B' horizon (45 cm depth)	

Vertical Separation Design Limit:

The VS design limit elevation is selected based on the shallowest limiting condition within the proposed dispersal area, indicated by test pit #1, restrictive rock at 70 cm depth.

60 cm native soil depth plus minimum sand media depth of 60 cm = 120 cm as constructed VS

Constraints and design rationale:

Constraints	**Mitigating Strategies**
Simply put, most areas of the lot are wet.	The dispersal site selection is based substantially on ensuring suitable horizontal separation from 'wet' areas. The location is the highest portion of the lot, a ridge, with well drained conditions and elevation substantially above the 'wet' areas.
The depth of suitable soil is relatively shallow, 70 cm. The shallowest horizon has high organic content … and brush removal is required … therefore the initial 10 cm will be substantially 'stripped'. The remaining depth of suitable native soil is 50 to 70 cm. Downslope areas are poorly drained, including seasonally wet areas and a permanent swamp (over 30 m setback). The receiving area adjacent to the proposed dispersal system has decreasing depth of unsaturated soil. Surface trickle flows appear at surface approximately 8 m from the proposed dispersal bed.	A raised configuration is selected to mitigate shallow soil depth. A sand mound is selected rather than at grade or at grade plus blinding layer … since the available area is limited, therefore it is advantageous to use the greater HLR for sand mound. Additional rationale includes consideration of the wet conditions in downslope areas. To improve assurance of suitable treatment, the pressure dispersal bed will be placed on minimum sand media depth of 60 cm at the highest existing grade portions, with the sand depth increasing over most of the dispersal area – as required to level the infiltrative surface, resulting in over 90 cm sand depth over the deeper portions. This will provide as constructed VS ranging from 120 cm minimum to over 150 cm VS at deeper portions … significantly greater than the minimum required VS.
The existing 3400 L (750 g) concrete septic tank is in good condition and can be considered for continued use but is undersized relative to current standards. SPM tank sizing standards require 5670 L (1250 g) minimum total septic tank working volume.	A new 2725 L (600 g) single compartment concrete tank will be added to increase total working volume to 6125 L (1350 g).

<u>Record of Design Information and Calculations:</u>

Source: Wastewater source is typical residence with volume, strength and constituents expected to fall within domestic sewage parameters of the SSR and residential sewage parameters of SPM Table III- 8 … no garburator, no water softeners, no unusual usage, etc.

DDF (Daily design flow):
DDF is selected as per SPM table II- 8 for a 4 bedroom residence with 427 m^2 living area, with a calculated allowance for living area in excess of the 330 m^2 "maximum" floor area as follows:

1600 L/day + 3 L/m^2 x (427 m^2 – 330 m^2) = 1891 ≈ 1890 L DDF

The owners anticipate three persons typical occupancy, which is less than the 4.5 person guideline from Table II- 9, therefore no additional flow allowance is required.

HLR (Hydraulic loading rate selected for design):
The infiltrative surface is sized based on an HLR of 40 L/day/m^2 for type 1 effluent to mound sand as per SPM Table II- 24.
The maximum basal loading rate is selected at 60 L/m^2 as per Table II- 22, for type 2 effluent to loamy sand with favourable structure and consistence category and 'checked against' Table II - 23 for perc rate in the 4 - 7.5 min/in category. Since that basal loading rate exceeds the sand media loading rate, the basal area is adequate, as per SPM II- 6.15.2.

AIS (Calculation of minimum area of infiltrative surface):

1890 L/day ÷ 40 L/day/m^2 = 47 m^2

LLR (Linear loading rate and calculation of minimum system length):
The applicable LLR standard is 110 L/m, as per SPM Table II- 27 for 9% slope, 60 cm depth of loamy sand with favourable structure category.
The proposed LLR is, 1890 L/day DDF ÷ 18 m system length = 105 L/m LLR, meeting the standard.

Configuration of Dispersal System:

- 2.7 m x 18 m rock filled bed providing 49 m^2 AIS, exceeding the minimum required area … and an effective LLR of 1105 L/m meeting the SPM LLR standard of 110 L/m.
- With three laterals, 18 m long, centre feed manifold creating six lateral sections, each 9m long, 90 cm separation between laterals, 45 cm from outer laterals to edge of bed.

Total length of laterals for calculation of orifice spacing:
18 m length x 3 lateral sections = 54 m

Number of orifices:
Based on SPM standard (Table II- 43) of .56 m^2 effective AIS/ orifice.

49 m^2 AIS ÷ 0.56 m^2/orifice = 88 orifices,
rounded to 90 orifices in total to be divisible by six lateral sections …
with 15 orifices per each of six lateral sections.

Orifice spacing:
Total length of laterals ÷ total number of orifices ...

54 m ÷ 90 orifices = 0.6m, 60 cm orifice spacing,

and 30 cm spacing from proximal and distal ends of each lateral section.

Dosing volume: To achieve 80% of pump cycle at full pressurization for even distribution, while keeping the dose as small as possible to minimize soil saturation, a guideline of 5 x the volume of the laterals is used.

(54 m of laterals x 0.98 L/m volume for 1 ¼" sched 40) = 53 L system volume

5 times the draining volume is, 53 L x 5 = 256 L/dose

Soil dose frequency check, to meet SPM Table II- 10 'normal' dose category

1890 L/day DDF ÷ 8 doses per day = 236 L / dose

Therefore, the selected dose volume is 230 L/dose, which maximizes soil dose frequency while ensuring even distribution over at least 60% of the pump cycle.

Reserve volume (pump on float to alarm on float):

15% of daily design flow, 1890 L x 15% = 284 L

Alarm reserve volume (alarm on float to max working capacity of the pump chamber):

50% of DDF, 1890 L x 50% = 945 L

Float Settings:
Based on Acme Precast 450 g concrete tank with approximately 17 L/cm drawdown volume, and approximately 132 cm internal height to inlet invert.

Alarm float setting:

To provide 50% DDF alarm reserve above alarm on:

945 L alarm reserve volume ÷ 17 L/cm drawdown volume = 56 cm,
132 cm internal height – 56 cm = 76 cm alarm switch height from inside bottom of tank to float switch activation - partially up position.

On float setting:

To provide 15% DDF reserve from pump on to alarm on:

284 L reserve volume ÷ 17 L/cm = 17 cm
76 cm alarm float partially up (switching height) – 17 cm reserve volume = 59 cm pump on switch height from inside bottom of tank to pump on float switch activation - partially up.

Off float setting:

To provide dose volume of 230 L/dose from pump on to pump off:

230 L dose volume ÷ 17 L/cm = 14 cm
59 cm pump on float up height – 14 cm dose volume = 45 cm pump off switch height from inside bottom of tank to pump off float switch activation - partially down position.

Total dynamic head and pump sizing
Required pump flow based on 3/16 inch orifices is 0.61 usgpm (from SPM V2 orifice discharge tables) for desired 2 ft. squirt height:

(90 lateral orifices + 1 pump chamber orifice) x 0.61 usgpm/orifice ≈ 55 usgpm

Total dynamic head:
The friction loss factor used for TDH calculations is 6′/100′, from SPM V2 worksheets based on 55 usgpm flow in 2″ sched 40 pipe.

Lift head is approximately =	20.0′
Friction loss:	
2″ forcemain allowance, 220′ x 6′/100′ =	13.2′
2″ fitting allowance, 60′ x 6′/100′ =	3.6′
Residual loss (squirt loss through orifices), 1.3 x 2′ =	3.0′
Allowance (fudge factor) for losses in the laterals (valves etc.) =	5.0′
Total dynamic head =	45′

Pump required for 55 usgpm flow to 45′ head based on manufacturer's pump curve is a Myers ME 75 (3/4 HP, 230V). Duty point is approximately equivalent to minimum required performance, 55 usgpm, resulting in squirt height of approximately 60 cm from lateral elevation.

Construction Specifications: *also see attached drawings*

Sand mound with rock filled dispersal bed

- Minimum bed dimensions are 2.7 m x 18 m … three laterals, centre feed manifold creating six lateral sections, each 9 m long, 90 cm separation between laterals, 45 cm from outer laterals to bed edges.
- Sand mound footprint will be approximately 7 m x 22 m to accommodate a minimum 2H:1V slope on toes of mound. Sand mantle toe extensions are recommended to increase the basal interface.
- To prepare the site, remove small trees and vegetation over the dispersal area.
- Scarify the basal infiltrative surface and the receiving soil at least 1m beyond the overall footprint of the mound.
- Place mound sand (as per SPM Table II - 25 specifications) to create a level infiltrative surface.
    - Minimum required depth is 60 cm, increasing as required to level the bed over sloping and irregular original grade.
    - The level area/sand infiltrative surface will be approximately 3.3 m x 18.6 m to provide a 30 cm 'apron' around the 2.7 m x 18 m rock bed.
    - Note that the media immediately below the dispersal bed must be specified clean course sand (or mound sand), but the remainder of the fill (toes of the mound and cover) can be other sand (such as pit run) with equivalent or better permeability.
    - Track pack the sand to prevent subsequent settling.

- Install two 4 inch PVC infiltrative surface observation ports within the bed.
  - One port at either end, approximately 2 m from the ends, between the laterals.
  - Place the bottom of the ports at a depth approximately 5 cm below the infiltrative surface.
  - Include drilled holes or saw cuts to perforate the bottom 15 to 20 cm of the port.
- Place minimum of 15 cm (6 inches) depth of washed pea gravel, minimum 2.7 m wide x 18 m long.
- Install the dispersal piping network:
  - With three – 31 mm dia. (1 ¼ inch) laterals, and a centre feed manifold splitting the three laterals into six lateral sections – each 9 m long … 18 m total length of bed.
  - Manifold requires a vertical 2 inch cleanout at the distal end of the manifold … using a long radius bend or 2 - 45° fittings with a short stub to bring the cleanout cap to slightly below surface grade, with threaded cap, and access provided by a 15 cm (6") round lawn box.
  - Manifold can be constructed with crosses or side by side 'T's, reducing to four - 31 mm dia. (1 ¼") ball valves for isolation of each lateral section (6). For each valve, provide a lawn box and a 15 cm dia. (6") pipe (PVC drain line) extension to increase the effective height of the lawn boxes – allowing hand access to the valves.
  - At the distal end of each lateral, install vertical cleanouts (4), using 2 – 45° s or long radius sweeps, extended to about 5 cm below finished grade, and with lawn boxes for access.
  - Ensure 90 cm horizontal separation between laterals, 45 cm from outer laterals to outer edges of bed.
  - Laterals drilled with 4.8 mm (3/16") holes at 12 o'clock orientation, 60 cm (24") spacing between orifices, with first and last orifice at approximately 30 cm (12") spacing from either end of each lateral section … ensure exactly 15 orifices per lateral section, total of 90 orifices in the dispersal bed.
  - Install dispersal piping to minimize draining volume and promote quicker pressurization, by placing the laterals as level as possible (level within ± 1 cm).
  - Include an orifice shield for each orifice.
  - Refer to additional detail in pipe specifications listed herein.
- Place minimum 5 cm pea gravel cover over the laterals and orifice shields.
- Cover pea gravel with untreated building paper (#2 dry sheathing) or low grade landscape fabric (unwoven, light weight).
- Place cover soil.
  - Cover the paper or fabric with a clean coarse sand (or mound sand) layer.
  - Then cap the mound sand with at least 5 cm (2 inches) of top soil or lawn sand.
  - Achieve a combined total depth of mound sand and topsoil/lawn sand that is 15 cm (6 inches) at the lower edge, to a maximum 30 cm (12 inches) at the higher edge.
  - Achieve a well graded, sloped surface with positive drainage and no potential ponding on the surface.

- Required minimum slope of toes is 2:1. A gentler slope is preferred, with extended toes, increased basal footprint.
- Note that the toes and toe blanket extension can be constructed using ‘cheap’ sand or pit run rather than C33.

Aggregates:

- Sand media must meet SPM specifications for mound sand as per SPM Table II- 25.
- Pea gravel must be thoroughly washed with minimal silt and clay, not exceeding 1% passing the #200 sieve.
- Note that specified sand media is required under the dispersal bed, but toes can be constructed using pit run or other suitable sandy soil with permeability of 2 minutes per inch or faster.
- Cover soil should be “top soil” or lawn sand suited for grass growth.
- Bedding material under the tanks must be free of coarse fragments larger than 10 mm (3/8”). Backfill material for sides and top of tanks must be free of coarse fragments larger than 25mm (1”). Care must be taken to avoid large rock in the native soil from contacting the tanks. Installer may decide to use sorted native material (without large fragments as described above) or screened bedding sand, C33 or pea gravel.
- Bedding material under and over piping must be free of coarse fragments larger than 10 mm (3/8”). Screened bedding sand is highly recommended. Bedding material depth must be at least 25 mm under and 75 mm over piping, and must in all cases be adequate to prevent contact of pipe with coarse fragments.

Pipe:

- 100 mm (4”) sewer connections must be CSA PVC drain line or better.
- Ensure minimum 2% fall from sewer service to septic tank and at least 1 % to pump chamber.
- Forcemain and manifold must be 50 mm (2”) sched 40.
- Laterals must be 31 mm (1 ¼”) sched 40 PVC.

Septic tank

- Existing concrete tank may be re used,with a new 600 g tank added to increase capacity. Add a new Acme PreCast single compartment concrete septic tank, low profile model 600 g, with dimensions as follows, 2.44 m (96”) long, x 1.52 m (60”) wide, x 1.22 m (48”) high, and inlet invert at 1.02 cm (40”) from outside bottom of tank.
- Select the excavation elevation to ensure at least 2% fall from the sewer service to the tank AND with consideration of riser heights (multiples of 15 cm) to ensure the green lids are flush with desired finished grade.
- In the new tank, install an effluent filter (Acme model AAA) at the outlet with handle extended to within 15 cm (6”) of access lid.

Pump chamber:

- Acme PreCast 450 g single compartment concrete pump tank, with dimensions 1.88 m (72") L x 1.37 m (54") W x 1.52 m (60") H, inlet invert at 1.32 m (52") from outside bottom of tank.
- Select the excavation elevation to ensure at least 1% fall from the outlet of the new septic tank AND with consideration of riser heights (multiples of 15 cm) to ensure the green lids are flush with desired finished grade.
- Ensure the pump chamber is located close enough to the control panel location to allow float wires and the pump power wire to pass through conduit to the panel without splices or additional junction box.

Pump, alarm, floats:

- Myers ME 75 (3/4 HP, 230V) effluent pump.
- Rhombus IFS simplex control panel, set for demand dosing. Install the panel at least 90 cm above ground, (on a post in this case due to distance from house), within line-of-sight to pump chamber.
- Extend the vertical pump discharge pipes upwards into the access riser to bring the valves and unions within 15 cm (6") of lid, elbowed back down to a lower discharge point.
- Include 2" valve and union at the top of the forcemain within the pump chamber (on the horizontal leg no more than 15 cm below the lid height) to allow easy removal of pump ... also include a pump lifting rope.
- Include a check valve on the vertical leg of the force main above the pump at least 90 cm above the pump tank floor and drill a 3/16" hole immediately below the valve to act as an air removal orifice.
- Install a float hanger with weighted floats, stainless bolts.
- Set the control floats for specified heights above the inside floor of the pump chamber, as listed below. Note that the floats engage the relevant circuit in a partially up or down position, not fully up or down. The final adjustments to float settings must be done when the control panel is energized and fully operational. Confirm that the relevant event (alarm, pump on or off) occurs at the specified liquid height ± 1 cm.
    - Alarm float setting: 76 cm
    - On float setting: 59 cm
    - Off float setting: 45 cm

Electrical:

- All electrical work is to be performed by a qualified electrician, as per applicable codes AND as per these specifications.
- **Electricians note: the standards related to sewerage systems (as listed here by the Authorized Person - Planner) must be complied with in addition to electrical codes. Feel free to contact the Planner for additional clarity (cell. 250 954 7769).**
- Provide two separate electrical circuits, one for the control panel/alarm (115V), and a second circuit for the pump (230V). This will prevent power disruption to the control

panel/alarm if there is a pump failure or other condition that 'trips' the pump power supply breaker in the control panel or in the main panel.

- The control panel must be mounted in an external location, within line of sight of the pump chamber, at least 90 cm above finished grade. In this case a post will be required adjacent to the pump chamber, due to significant distance from house wall. Consult drawings and/or contact the Planner for guidance.
- The Rhombus control panel will serve as junction box for pump power and control floats.
- Control floats must be connected to specific terminals in the control panel, as labelled.
- The pump must be 'hard wired' to terminals in the control panel.
- The wiring from the pump chamber to the control panel <u>must be enclosed in conduit,</u> and the conduit must have adequate size to allow easy removal and replacement of any single float wire, or re and re of the pump electrical supply wire.
- Any conduit used for wiring from the pump chamber to the control panel or junction box must be sealed to prevent corrosive gases and moisture passing from the pump chamber. Groundwater or rainwater entry must also be prevented if applicable.
- There must be no electrical connections or junctions inside the pump chamber.

Miscellaneous specs and installation procedures:

- Ensure the soil conditions in the dispersal area will promote vertical flow, so that soils will receive effluent without causing any significant horizontal flow or ponding.
    - Assess conditions. Adjust procedures and/or do not install in wet conditions.
    - Prevent excessive disturbance or compaction or smearing of the original soil in the dispersal area and downslope receiving areas; do not back trucks onto area, do not drive any rubber tired machinery over infiltrative surfaces or basal interfaces, minimize loads, do not smear soils with the back or bottom of the bucket.
    - Scarify the infiltrative surface effectively (or the basal interface for raised systems), loosen the soil surface thoroughly but do not disturb the underlying soil excessively, scarify only to a shallow depth (approximately 10 cm).
    - When placing sand media, minimize compaction of the basal interface and underlying soil by keeping at least 30 cm depth of sand fill under the tracks. Do not use rubber tired machinery for placing sand media.
- Ensure no subsequent settling or misalignment of tanks.
    - Provide consistent support of the tanks, ensure the depth of pea gravel or bedding material placed under the tanks is consistent by not over excavating and by making the excavation reasonably level before placing bedding. Then, for flat bottomed tanks, the pea gravel or bedding sand should be exceptionally level (±6 mm, ¼ inch or better).
    - Place water inside the tanks before backfill to secure them in place. This is always recommended but is especially critical if any groundwater is present in the excavation … which could cause shifting or floatation of the tank before or during or after backfill.
    - Place backfill material consistently around tanks and with suitable care to avoid excessive side pressure that could cause the tank to shift.
    - Keep tires or tracks away from the tanks to avoid excessive side pressure.

- Ensure there is no risk of any tank movement, floating, or distortion that could be caused by excessive elevations of groundwater. If there is a risk of high water table conditions, drain the tank backfill area to an elevation at or below 2/3 of tank height (lower for poly tanks), by using drain rock leading to the foundation perimeter drain, or by installing rock and a piping system that will discharge to other downslope point on the property. If this is not practical, then use anchoring methods approved by the tank manufacturer, and inspected and approved by the Planner. On this site, preliminary assessment indicates no such pre cautions are necessary, but the planner will attend the site during excavation to confirm.
- Ensure there is no subsequent settling, distortion or misalignment of the inlet and outlet piping for the septic tank and pump chamber AND provide reliable support for all piping systems including force mains etc.
    - Use suitable backfill material (unsaturated, granular material) under the piping to the full depth of the excavation or trench.
    - Use effective compaction techniques, such as a jumping jack, with soil lifts not exceeding 18 inches depth, or other methods approved by the Planner.
    - An alternative is to use rock fill under the piping to the full depth of the excavation.
- Protect all tanks and piping systems by using bedding material as described in the aggregate specifications section.
- Ensure that sewage or effluent will not leak from tanks or associated piping and that groundwater will not infiltrate tanks or any part of the system. Perform water tight testing of tanks and associated piping. Typically, this is done by installing suitable plugs in inlet piping and outlet piping, then filling tanks with water to 5 cm above tank lid within the risers, and confirming leak free condition after 24 hours (as per SPM III-6.4.3.2).
- Perform flushing and testing of the forcemain and dispersal piping, in a manner that reduces the risk of clogging the discharge orifices, as follows:
    - Use the effluent pump and clean water.
    - Remove the forcemain cleanout cap at distal end of manifold, close all the lateral isolation valves. Flush the forcemain. Replace threaded cap.
    - Then, before performing the squirt test, remove distal cleanout caps on the dispersal laterals, flush each lateral section individually, with just one valve open, all others closed (to direct full flow through just one lateral section).
    - Then perform the squirt test for all laterals simultaneously, by installing a temporary cap with 3/16” orifice on the distal cleanouts of all the laterals, open all lateral valves, engage the pump for a normal dose and confirm minimum 24” squirt height from laterals. Record the actual squirt height as measured from the top of the lawn boxes.
- Establish appropriate vegetation cover of the dispersal field (grass) or ensure the owner agrees to this task.
- Ensure the dispersal field and tanks are protected during and after construction from traffic, heavy loads, surface or sub surface flows of water. This may require fencing, rock barriers or other suitable means to restrict access, and may require drainage systems such as swales and/or interceptor drains.

Contact the Planner, Bob Smith, before starting construction, to schedule a preconstruction meeting, and to make arrangements for construction oversight, final inspection and system commissioning.

Declaration:

These plans and specifications are consistent with standard practice with regard to the Sewerage System Regulation and the Sewerage System Standard Practices Manual of the B.C. Ministry of Health. I have conducted a site evaluation and exercised due diligence. I am a registered on-site practitioner authorized to design and construct or provide oversight, for the system designed herein.