Township of Langley

Est. 1873

REPORT TO MAYOR AND COUNCIL

PRESENTED:	JUNE 10, 2019 - REGULAR AFTERNOON MEETING	**REPORT:**	19-89
FROM:	ENGINEERING DIVISION	**FILE:**	SO 1974
SUBJECT:	SOIL DEPOSIT APPLICATION FOR PROPERTY AT 22260 - 26 AVENUE		

RECOMMENDATION:

That Council not refer the soil deposit application for 22260 – 26 Avenue to the Agricultural Land Commission and direct staff to not process the application further.

EXECUTIVE SUMMARY:

On September 26, 2018 the Township of Langley received an application from Madrone Environmental Services on behalf of the property owner of 22260 – 26 Avenue (Zhi Yang Wu), to deposit 2,600m^3 or approximately 370 single truckloads of soil to elevate the topography of the land and ultimately improve pasture for cattle on the property which is located in the Agricultural Land Reserve (ALR).

As the application volume exceeds 600m^3, on January 21, 2019 the Township mailed an information package and ballot papers to surrounding property owners within 1.6km of the subject property to obtain community input on the application pursuant to Council Policy No. 05-008.

On February 11, 2019 Policy No. 05-008 was revised which included two significant changes. The balloted area was amended from 1.6km to 1.0km and the threshold of support was reduced from 80% to 67%. As the petition was in progress during this policy change, staff have presented the results for both balloted areas to reflect the previous and current policy. The results of the mail-out and ballot process are outlined in this report, indicating a 55% support based on current Policy.

Section 9.3 of the Policy provides direction that generally, applications will be supported by Council, when more than 80% (previous policy) or at least 67% (current policy) of the surrounding property owners responding, support the application. As the level of support for this application was 61% and 55% respectively, the recommendation is that this application not be referred to the Agricultural Land Commission (ALC) and that staff be directed not to process the application further. Section 9.3 does provide the option to refer the application to the ALC if Council considers that there are reasons which would merit a departure from the general level of support rule.

PURPOSE:

This report provides Council with information and a recommendation with respect to an application for soil deposition at 22260 – 26 Avenue which is being processed pursuant to Soil Deposit and Removal Policy No. 05-008.

BACKGROUND/HISTORY:

On September 26, 2018 the Township of Langley received an application and report from Madrone Environmental Services on behalf of the property owner of 22260 – 26 Avenue (Zhi Yang Wu) to deposit soil to elevate the topography of the land and ultimately improve pasture for beef cattle on the property. The report prepared by Madrone includes a Soil Deposit Assessment and Erosion and Sediment Control Plan for the property and is included as Attachment A.

As the volume proposed to be deposited exceeds 600m^3, the Township mailed an information package and ballot to surrounding property owners to obtain community input on the proposed deposition as per Council approved Policy No. 05-008.

Pursuant to the Policy, the general public was notified by advertising the application in the local newspapers and the Township's website. The property owner also installed the required soil deposit application sign at the property.

DISCUSSION/ANALYSIS:

The property at 22260 – 26 Avenue is zoned RU-3 and is located in the ALR. The application proposes to deposit 2,600m^3 or approximately 370 single truck loads of material. The Madrone report advises that trucks are to access the property via major arteries such as Highway 1, Fraser Highway, Highway 13, and lastly 224 Street. A non-refundable volume fee of $2,600 ($1/ m^3) and a refundable security deposit in the amount of $13,000 ($5/m^3) would be required should the application be authorized by Council to proceed. The required application fee has been collected.

The information packages and ballots were mailed on January 21, 2019 with a deadline for responses of March 22, 2019.

On February 11, 2019 Policy No. 05-008 was revised which included two significant changes. The balloted area was amended from 1.6km to 1.0km from the boundary of the property to a minimum of five properties and the threshold percentage was reduced from 80% to 67%. As the petition was in progress during this policy revision, staff have presented the results for both balloted areas to reflect the previous and current policy. Both balloted areas are shown on maps in Attachments B and C. One letter was received from a property owner regarding the petition process and the letter has been included as Attachment D.

The results of the petition are as follows:

Item	1.6km Results (previous policy)		1.0km Results (current policy)	
	Total	Percentage	Total	Percentage
Total ballots mailed out	171	100%	130	100%
Total property owners not responding	120	70%	90	69%
Total ballot responses received	51	30%	40	31%
Ballots received in support	**31**	**61%**	**22**	**55%**
Ballots received against	20	39%	18	45%

Upon consideration of the application, Section 9 of the Policy provides guidance that Council may consider the following outcomes for applications on ALR lands:

- A resolution that the application be referred to the Agricultural Land Commission (ALC) for approval, subject to any conditions Council deems advisable, or
- A resolution that the application not be referred to the ALC for approval and not be further processed under the Bylaw, or
- A resolution that the applicant, Township staff, or other specified person(s) be invited to provide further submissions with respect to the application.

Section 9.3 of the Policy provides direction that generally applications will be supported by Council, when of the surrounding property owners responding, more than 80% (previous policy) or at least 67% (current policy) support the application. As the level of support for this application was 61% and 55% respectively, the recommendation is that this application not be referred to the ALC and that staff be directed not to process the application further. Section 9.3 does provide the option to refer the application to the ALC if Council considers that there are reasons which would merit a departure from the general level of support rule.

Respectfully submitted,

Richard Welfing
MANAGER, ENGINEERING SERVICES
for
ENGINEERING DIVISION

Attachment A Madrone Report

Attachment B 1.6km Properties Balloted Map

Attachment C 1.0km Properties Balloted Map

Attachment D Letter from resident at 22879 – 29B Avenue

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SOIL DEPOSIT ASSESSMENT & EROSION AND SEDIMENT CONTROL PLAN

22260 26 Avenue
Langley, BC

FOR:

Mr. Zhi Yang Wu
c/o Jason Cooley

BY:

Jessica Stewart, A.Ag., G.I.T.
Gordon Butt, M.Sc., P.Ag., P.Geo.
MADRONE ENVIRONMENTAL SERVICES LTD.

September 20, 2018

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SOIL DEPOSIT ASSESSMENT & EROSION AND SEDIMENT CONTROL PLAN

22260 26 Avenue Langley, BC

1 Introduction

Madrone Environmental Services Ltd. (Madrone) was retained by Mr. Jason Cooley to prepare a Soil Deposit Assessment and Erosion and Sediment Control Plan. The assessment and plan are for applications to the Township of Langley (TOL) and the Agricultural Land Commission (ALC) for a Soil Deposit Permit. The property is located within the Agricultural Land Reserve (ALR).

The property is owned by Mr. Zhi Yang Wu, who has retained Mr. Cooley as his agent and earthworks contractor. The property is located at 22260 26th Avenue, in Langley, B.C. (PID 013-261-461). The purpose of the proposed fill is to raise the level of a natural depression located immediately adjacent to, and west of, the main residence. The property is zoned as Rural (RU-3) according to the Township of Langley Zoning Bylaw 2500, Section 200[1]. The property is 15.6 ha (39.5 acres) in extent. The legal description is: Part1 N Part 2 S Part 3 SE Section 19 Township 10 Land District 36.

1.1 Description of Proposed Soil Project

Mr. Jason Cooley, an agent on behalf of the property owner Mr. Zhi Yang Wu, wishes to apply to deposit an estimated 2600 m^3 of clean imported soil on 0.26 ha of the 15.6 ha property to fill a depression. The raised profile will provide additional well-drained pasture/forage land for an existing beef cattle herd on site.

[1] https://www.tol.ca/at-your-service/engineering-building-development/development/zoning-bylaw/ Township of Langley Zoning Bylaw No. 2500.

The soil will be spread to an approximate average depth of 1.0 m, which will bring the depression to approximately 91 m above sea level (a.s.l.), which would be level with the topographic high to the west (and to the east where the driveway terminates near the residence). Prior to importation the native topsoil will be stripped to a depth of 15 cm (where feasible – the machine used may strip slightly more due to the size of the bucket) and then stockpiled. Upon completion of deposition and grading, the topsoil will be re-spread onto the surface and mixed in.

If the amount of topsoil sourced from the property is insufficient or lacking in organic content (as determined by a Professional Agrologist during a scheduled monitoring visit), imported topsoil will be acquired to complete the soil profile. The total volume of soil requested by this project will account for any topsoil needed (i.e. will not exceed the permitted amount).

2 Assessment Area Description

2.1 Land Use

The property is an active beef cattle farm (with farm status) and is zoned RU-3 (Rural) in the Township of Langley. There is one single family dwelling located in the northeast corner of the lot, with an entrance on 224th Street. This residence has an unofficial (not identified by BC Assessment or the TOL as a separate parcel) civic address of 2591 224th Street and is the site of "The Family Farm", which is used as a business location. There are two farm buildings located south of this residence, one of which is used as a barn for the beef cattle currently on site.

To the west of this residence, this is a newer single family dwelling on the property that is accessed via 26th Avenue. There is a small shed to the south of this residence. Mr. Wu and his family reside on the property and run the beef farm themselves. The family is also interested in bringing fruit trees onto the east side of the property near the other residence. Mr. Wu intends to purchase more beef cattle to augment his existing herd on site.

2.2 Landform and Topography

The site, in its current state, is characterized by undulating to gently rolling topography. Slopes on the property range from 2% (near level) to approximately 8%. The topographic layers from the Township of Langley Geosource mapping program[2] indicate that the

[2] https://mapsvr.tol.ca/geosource3/ Geosource Map Program. Township of Langley.

regional elevation is between 87 m and 92 m above sea level (a.s.l.). The topographic low is situated to the west and the topographic high is to the northeast corner. There are two large depressions on the property that have standing water for the majority of the year (even in the summer months). Spot elevations from the Geosource program show the larger, west depression (not the subject of this assessment) is situated at roughly 88-89 m a.s.l. (**Figure 2**). The smaller, eastern depression (subject of this assessment) lies at approximately 90.06 to 90.5 m a.s.l (peripheral).

The Township of Langley Geosource mapping program and the Province of BC iMapBC[3] map program were used to identify streams and their classifications for fish habitat. There are no identified watercourses on the property, according to these sources.

The property is located in the Lower Fraser Watershed Group[4]. The nearest fish-bearing stream identified by iMapBC is Anderson Creek. A tributary of Anderson Creek is located in the forested area on the neighbouring property to the south (along the southern property line), approximately 300 m from the proposed fill area. There is no mapped connectivity between this stream and the depressions on the property on iMapBC or the TOL Geosource Map program.

2.3 Review of Existing Maps and Information

Soils in the lower Fraser Valley were surveyed at a reconnaissance scale in the 1980's. Similarly, Land Capability for Agriculture (LCA) ratings were calculated and published as a series of maps. This section of the report summarizes the characteristics of the surveyed soils for the property. The source maps were printed at a scale of 1:25,000 and are based on a reconnaissance level soil survey and air photo interpretation and represent a broad interpretation of soils.

Existing soil survey maps indicate that the soils in the area are the Whatcom and Scat soil series. Whatcom soils are classified as Luvisolic Humo-Ferric Podzols and develop from a veneer of moderately fine- to fine-textured aeolian material overlying compact, fine-textured glaciomarine subsoils. These soils have a high water-holding capacity and experience slow to moderately slow surface runoff. Dense subsoils prohibit infiltration and cause perched watertables after storm events and during wet seasons.

[3] https://maps.gov.bc.ca/ess/hm/imap4m/ iMapBC 4.0 digital map layers.

[4] https://maps.gov.bc.ca/ess/hm/imap4m/ Fresh Water Atlas in iMapBC

Scat soils, classified as Orthic Humic Gleysols, are similar to Whatcom soils *but* they do not have an aeolian veneer. Consequently, they are poorly drained and experience perched watertables and surface ponding after storm events and during wet seasons. High watertables and dense subsoils restrict root growth below 50 cm depth. Scat soils are typically found in depressions adjacent to Whatcom soils.

Armstrong (1980) mapped the surficial geology of this area as being located on Fort Langley Sediments (FLc). These deposits are generally glaciomarine stony clayey silt to silty sand that is between 8 cm and 90 cm thick.

3 Observations

3.1 Soils

Jessica Stewart, A.Ag. of Madrone, assessed the property on August 2, 2018. I was met on site by Mr. Cooley and the property owner, who indicated the location of the depression to be filled by soil. A larger depression is located to the west and may be subject to a second fill assessment.

I recorded the overall topography, the site and surrounding land use, the area of the depression by a GPS unit, and the current vegetation. Appendix A contains the site photographs. Two soil pits were excavated to depths of 1 m in proposed fill area/depression. The two soil pits are described below.

The residence is situated on a raised but flat, graded area just east of the proposed fill site. To the east of this residence, there is a large pond (man-made, built sometime between 2006 and 2008 based on Google™Earth Pro imagery) and to the east of this, an additional residence at the corner of 26th Avenue and 224th Street. The depression is easily identifiable – the southern part of the depression is a topographic low that contains water even in August during our site visit. There is a pipe that drains additional collected subsurface water into this area. The property owner states that the depression contains standing water for much of the year and is not used as a pasture area for this reason.

The vegetation on site includes alder (*Alnus rubra*), Douglas-fir (*Pseudotsuga menziesii*), weeping willow (*Salix babylonica*), tall fescue (*Festuca arundinacea*), reed canary grass (*Phalaris arundinacea*) and bulrush (*Scirpus sp.*). Older trees (60 plus years) are clustered around the south property line and the residences in the northeastern corner of the property.

Pit #1 – Soil Profile Description

Horizon	Depth (cm)			Description
Ap/Ah	0	-	3	Medium brown; disturbed topsoil (very thin layer); few fine to medium roots; friable. No coarse fragments. Silt loam.
Bm	3	-	21	Light to medium grey brown; loam to silty loam; friable to slightly firm; few fine roots, few prominent orange mottles; <2% fine gravel, <1% cobble; aeolian (wind-blown silt) cap.
Bf	21	-	48	Light orange brown; fine sandy loam; firm; very few fine roots; abundant coarse orange mottles; less than 10% clay; <2% fine gravel. aeolian material.
IIAh	48	-	80+	Disturbed layer (flooded organics); dark brown; silt with humic organic material and woody fragments, burned wood; friable; no coarse fragments and no sand. Buried soil horizon.

Pit #2 – Soil Profile Description

Horizon	Depth (cm)			Description
Ap/Ae	0	-	4	Medium brown; disturbed topsoil (very thin layer); few fine roots; friable. No coarse fragments.
Bjf	4	-	20	Light brown-grey; fine sandy loam (very fine sand); firm; few fine to medium roots, few prominent orange mottles (increase with depth); <1% fine gravel; aeolian (wind-blown silt) cap.
IIBf	20	-	39	Light orange brown; silty clay loam (sticky); firm to very firm; very few fine roots; abundant coarse orange mottles; <1% fine gravel; aeolian material.
IIIAh	39	-	80	Disturbed layer; dark brown with grey lenses; silt loam with humic organic material and woody fragments; friable; no coarse fragments and no sand; few orange mottles. Buried soil horizon (possible: forested swamp).
IIICg	80	-	90+	Grey; silty clay loam, firm to very firm; no coarse fragments; no roots; many prominent coarse orange mottles; gleyed. Glaciomarine, potentially glaciolacustrine.

I augered a third pit to over 1 m deep along the western side of the depression to investigate whether different soils would be found. This augered pit is described as follows (note: no Ae or Ap horizon was encountered in this pit, possible due to ploughing and/or removal):

Augered Pit #3 - Soil Profile Description

Horizon	Depth (cm)			Description
Bfj	0	-	45	Light brown-grey; silt loam; friable; few very fine roots, few prominent orange mottles; no coarse fragments; aeolian (wind-blown silt) cap.
IIBf	45	-	80	Orange to grey brown; sandy clay loam (contains a coarse sand); firm; no roots; abundant coarse orange mottles; no coarse fragments. Different Bf horizon than Pits 1 and 2.
IICg	80+			Grey; gleyed; silty clay loam; no roots; very firm; many coarse orange mottles; no coarse fragments. Very dense.

Based on the soil profiles, I have classified the soil as an Orthic Humo-Ferric Podzol. The soil most closely corresponds to the Whatcom soil series described by Luttmerding (1980). The upper 40 cm corresponds to the aeolian (wind-blown) fine sands and silts. This is underlain by a mixed silt and organic layer that may correspond to a swampy lacustrine environment with decomposed logs (and burned logs from a forest fire) and vegetation. Below this (80 cm and deeper), the dense and clay-rich lacustrine or glaciomarine layer was encountered in Soil Pit 2 and in the augered pit 3 located on the west side of the depression.

3.2 Land Capability For Agriculture

LCA ratings are assigned, dependent upon soil and site conditions, according to specific criteria presented in Land Capability Classification for Agriculture in British Columbia (Kenk, 1983). The ratings describe the general suitability of the land for agriculture as seven classes for mineral soil and seven classes for organic soil. Agricultural capability classes are modified into subclasses when limitations to agriculture exist. There are twelve subclasses for mineral soils and nine subclasses for organic soils. LCA rating classes and subclasses are described in more detail in Appendix C.

In describing LC classes, the number refers to the class (1through 7) and the capital letter refers to the subclass, or nature of the limitation. Thus 3W has a capability of Class 3 (roughly half-way between the best – Class 1 – and the worst – Class 7 agricultural land. The W refers to wetness in the form of high and/or prolonged saturation and high watertables.

Based on our assessment, the soils located around the depression have a 3D limitation due to dense subsoils and undesirable soil structure. Below approximately 20-30 cm in depth from the surface, soils become firm to very firm in consistency, massive, and clay enriched. A root restricting layer (very few roots to no roots) occurs within 25-50 cm of

the mineral soil surface. The density of the silty clay loam (aeolian) cap results in low perviousness, which manifests as standing water in this area for much of the year.

There is a Class 4W limitation (a more serious limitation than the 3D limitation described above) due to excess water during the growing period. Water is near level with the surface of the soil during the winter months and well into later spring (even early summer). A review of Google™Earth Pro imagery from 2003 to 2018 shows that there is water in the depression that is the subject of this fill proposal for much of the year – the depression tends to 'dry out' between late July and late September, but water remains in the lowest part of the depression for the entire year. The larger depression to the west also contains water for the majority of the year.

The depressions are sparsely vegetated by Bulrush (*Scirpus)*, which livestock tend to avoid grazing[5] (sedges and rushes – see also photos of the site in Appendix A). These populate wet locations, including ponds, marshes, and lakes.

4 Soil Deposit Proposal

The proposed fill area is a topographic depression located between two topographic highs (one to the west and one to the east where the residence is). The depression is situated at an elevation of approximately 90 m a.s.l. whereas the elevation of the surrounding land is approximately 91 m a.s.l. The depression is approximately 2600 m^2 in extent, based on a traverse and review of imagery. My calculations show an estimated 2600 m^3 of soil is required to increase the elevation of the area by *average* depth of 1 m (refer to Figure 2 fill area cross sections). Note that the diagrams are vertically exaggerated.

The deposit area will be accessed from the existing driveway on the north side of the property (26th Avenue). I have communicated to the Client that major arteries such as Highway 1, Fraser Highway, Highway 13, and lastly 224th Street should be used by trucks to approach the property, to reduce traffic congestion on minor roads in the Langley area. A Traffic Management Plan can be produced following submission of this application, if requested by the TOL.

There is little existing topsoil however, I recommend stripping the upper 15 cm of the surface for the organic matter content (grass vegetation, LFH layer) and the small amount of topsoil on site. If topsoil is needed following an assessment by an Agrologist (prior to

[5] https://onpasture.com/2014/07/21/sneaky-pasture-weeds-sedges-and-rushes/

issuing the closure report), this will be sourced and placed on top such that it has a depth of at least 25 cm. The volume of soil requested accounts for 25 cm of topsoil.

The stripped topsoil and organics (grasses) will then be stockpiled in a safe location on-site. The stockpile or piles should be no more than 3 m high, with 5:1 (horizontal to vertical, or 20%) side slopes. They should be constructed such that water cannot accumulate on the surface (*i.e.* a pyramid).

The surface of the stock-pile(s) will be seeded with a suitable mixture of grass and/or grass/legumes if left for six months or more OR an erosion blanket or tarp will be placed over the stored topsoil for the duration of the deposit activities. Stripping and stockpiling of topsoil can proceed in stages in different areas over time, as judged by the owner or contractor.

To ensure topsoil does not become compacted, it should be handled only with moisture contents equivalent to field capacity (the moisture content of a soil after free water drainage has ceased) or less.

The imported soil will be placed and then spread to fill the "east" depression described in this assessment. The soil will bring the depression relatively level with the topographic high on the west side, which lies at approximately 91 m a.s.l. Soil placement activities should follow Soil Deposit and Removal Bylaw 2013 No.4975 Amendment Bylaw 2015 No. 5120 (Township of Langley, 2015)[6].

Madrone recommends that the 5 m buffer be maintained between the north property boundary at 26th Avenue and the extent of imported soil - no soil or topsoil stockpiles will be placed within the buffer. This is slightly increased from the TOL 3 m buffer requirement. We recommend a slightly increased buffer distance due to the lack of a ditch located between 26th Avenue and the proposed fill area (depression). Furthermore, any soil within 6 m of the property line should not slope more than 20% or 5:1 (horizontal: vertical).

Once the fill has been spread and graded the land may then be seeded with appropriate forage grass mix for Beef Cattle pasture.

[6] https://webfiles.tol.ca/Bylaws/Soil%20Deposit%20and%20Removal%20Bylaw%20(No.%204975).pdf Soil Deposit and Removal Bylaw No. 4975 Amendment Bylaw 2015 No. 5120

4.1 Erosion and Sediment Control Plan

An Erosion and Sediment Control Plan (ESCP) has been developed for the site based on the natural topography and conditions observed at the time of our assessment. The ESCP is a dynamic working document and is meant to be reviewed and if necessary amended on a regular basis (including during regular monitoring). **As the proposed footprint area is small (0.26 ha) and gently sloped to the south (towards the remainder of the property area), the risks involved with erosion and sediment movement are relatively low.** Excavation activities associated with the proposed construction do have the potential, however, of creating areas that are prone to erosion and subsequent sediment transportation.

This plan was prepared considering that following conditions on the site:

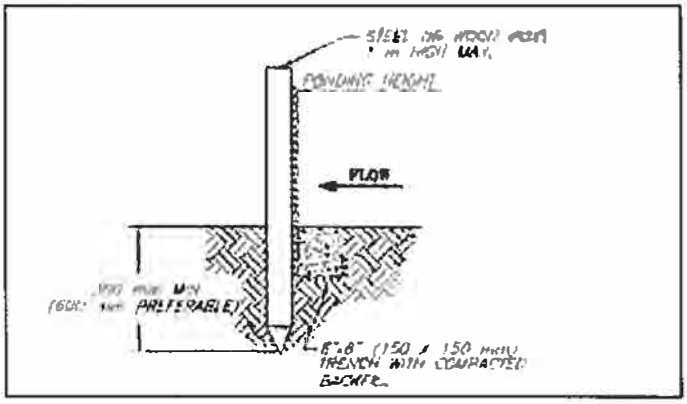
- There is **no** ditch located between the road and the property along the entire northern boundary at 26th Avenue;
- There are no mapped watercourses on the property;
- The depressions on the property are wet for much of the year – the soils can be wet well into the summer months before drying.

Considering these conditions, the following best management practices should be implemented prior to the commencement of topsoil stripping and soil filling:

- The access distance is short – there is an entrance located approximately 10 m from the driveway entrance, which branches from 26th Avenue. The driveway is graveled and 26th Avenue is paved. The driveway gravel cover can be augmented prior to soil placement. Gravel should be clean and 150 mm (6" clear) minimum in size. **Gravel brought to the site should not exceed 2 truckloads, or 14 m^3.**
- Silt fencing, installed according to the specifications in Drawing 1 and on Figure 2, will be placed near the property boundary along the northern side of the proposed fill area. This will prevent sediment from transporting off-site when it is placed and graded. There is a natural slope downwards to the south (where the fence line is) thus soil should be graded with a subtle slope to the south at no more than 2%. Sediment fencing must be installed properly, by backfilling the material with soil and attaching it firmly to stakes located on the downslope side of the fabric. Sediment fences should be inspected regularly to check for damage and to remove built up sediment (as necessary).

- Temporary polyethylene sheeting can be used for topsoil or imported soil stockpiles. Covering the material will prevent it from being displaced by rain drops and/or surface flowing water. This is a short-term erosion control BMP, and would be used in cases where stockpiles of material are to be moved.
- In addition we recommend shutting down all dumping and excavating/grading activities during periods of heavy rain, which define here as an excess of 25 mm of rain in 24 hours. Hourly rainfall (for nearby Langley) can be monitored on the following website:

http://www.flowworks.com/network/hmiscreens/langley/langley.aspx



DRAWING 1. DIAGRAM OF HOW TO PROPERLY INSTALL SEDIMENT FENCING.

4.2 Imported Soils, Final Land Capability

The final and future land capability will be influenced by the characteristics of the deposited soil. By importing good-quality subsoil (and if necessary, additional topsoil), the land capability for agriculture will be improved to 2W, which is characterized by excess water in the upper 50 cm (up to 50 cm above the original surface) for only short periods of the year (less than 2 weeks). The 1 m of fill will also improve the root restricting layer limitation (dense subsoils) from 3D to 1 (no limitation).

Contaminated soil, or soil that is suspected to be contaminated, must not be used. It should be free of foreign material and uncontaminated. Foreign material includes but is not limited to concrete, asphalt, waste, garbage, and lumber. The fill material should be inspected to ensure that it is acceptable for agricultural use.

Reviewing existing environmental reports, concerning potential contamination at the source site, can aid in selecting the best fill material. Soil sourced in areas that have a history, or suspected history, of industrial or commercial use must be tested prior to transportation. **Madrone can assist you with soil sampling and monitoring if you wish.**

The supplier of the fill material should warrant that the source soil is free from contaminants. We recommend that the owner signs a soil acceptance agreement with the parties responsible for supplying and transporting soils (see Appendix C for an outline).

If contaminated fill material is brought onto the site, the Wu family will assume liability for remediating the site and/or removing the contaminated material. **Mr. Cooley and Mr. Wu are expected to have an agreement in place regarding liabilities for soil importation.**

4.2.1 Physical and Chemical Properties of Acceptable Imported Soil

The soil should be free from construction debris, foreign material and contaminants. It should not contain more than 15% organic matter. As agricultural fill, the top 50 cm should consist of an appropriate growing medium, and should contain less than 10% coarse fragments (>2.5 cm or 25 mm). Ensure that the maximum content of stones and cobbles (fragments > 7.5 cm or 75 mm) conforms to the limits described for Class 2P of the BC Land Capability Classification for Agriculture: a total coarse fragment content (>25 mm) of less than 10% and less than 1% of coarse fragments larger than 75 mm ("stones"). **The texture should be a loam, silty loam or sandy loam.** If stones or cobbles are present, they should be removed, screened or crushed.

Below 50 cm, the soil should meet Class 3P criteria. To meet this, the soil should contain less than 10% coarse fragments (>2.5 cm), and less than 5% cobbles and stones (>7.5 cm).

4.3 Reclaimed Soil Profile

The reclaimed soil profile will have at least 15 cm of native topsoil will likely be mixed with imported good-quality topsoil, at the surface (depending on the amount of original topsoil recovered). This material will be underlain by the subsoils described above in Section 4.2.1.

5 Regional Hydrology

The gently rolling topography of the property makes the natural drainage difficult to discern. The topographic highs on the property drain naturally into the adjacent depressions. We anticipate that after fill rainwater will infiltrate into the soil column producing no overland flow. Our reclamation objectives will result in improved infiltration.

After the soil has been placed, the surface will be graded such that drainage disperses south and southeast, conforming to the natural slope in this direction. The southern perimeter of the property abuts a forested area. The 2600 m^3 of new soils should not result in a large introduction of water to the southern part of the property, but if ponding of water becomes an issue, a ditch can be installed along the southern perimeter of the property and sloped eastwards such that water drains towards the municipal ditch along 224th Street

Otherwise, the hydrologic conditions in the surrounding lands should not be affected by the placement activities. The surrounding properties have similar rolling topographies that have similar drainage issues as that on the subject property (ponding in depressions).

6 Reporting and Monitoring

Soil placement activities should be monitored periodically. Monitoring visits should be scheduled to coincide with important project milestones and randomly when the site is active. The important milestones are:

- After topsoil and organics have been stripped to ensure that the depth of stripping is sufficient. The first loads of soil will be spread at this point – the subsoil will be assessed for coarse fragment content.
- After significant rainfall event (25 mm/24 hours or greater) during filling to inspect the Erosion and Sediment Control (TOL ESC Bylaw requirement); OR if conditions are drier (summer fill placement), we recommend routine monitoring every 500 m^3 of soil brought to the site. This is also to ensure that coarse fragment content is not elevated in the imported soils.
- Once the imported soil has been graded, **prior** to spreading topsoil.
- When the reclaimed soil profile has been constructed. **If the topsoil depth is inadequate, imported soil may be acquired at this point.** The amount of soil will be recommended by a Professional Agrologist. The volume of soil requested in this application will account for any imported topsoil required, thus an additional permit will not be required.

The terms of your permit(s) may indicate that Madrone is expected to conduct inspections of the site and materials and to provide inspection reports to the Township of Langley. In this case, you should contact Madrone before you begin soil placement or site preparation work to develop a monitoring schedule that meets the conditions of your permit and conforms to our recommendations.

We recommend that accurate and complete records of all fill brought to the site is completed (see Appendix C). Records must contain, at a minimum, the location of the source site(s), the volume and number of loads with date and time of delivery, and the name of the trucking company.

Yours Truly,

Prepared by:

Jessica Stewart, A.Ag.

Reviewed by:

*This is a digitally signed Replacement of the official manually signed sealed document.

Gordon Butt, P.Ag., M.S., P.Geo.

MADRONE ENVIRONMENTAL SERVICES LTD.

7 References

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8 Limitations

The evaluations contained in this report are based on professional judgment, calculations, and experience. They are inherently imprecise. Soil, agricultural, hydrological, and drainage conditions other than those indicated above may exist on the site. If such conditions are observed, Madrone should be contacted so that this report may be reviewed and amended accordingly.

The recommendations contained in this report pertain only to the site conditions observed by Madrone at the time of the inspection. This report was prepared considering circumstances applying specifically to the client. It is intended only for internal use by the client for the purposes for which it was commissioned and for use by government agencies regulating the specific activities to which it pertains. It is not reasonable for other parties to rely on the observations or conclusions contained herein.

Madrone completed the field survey and prepared the report in a manner consistent with current provincial standards and on par or better than the level of care normally exercised by Professional Agrologists currently practicing in the area under similar conditions and budgetary constraints. Madrone offers no other warranties, either express or implied.

MADRONE
environmental services ltd

APPENDIX A

Site Photographs

Soil Pit 1, dug in the depression that is the subject of this fill proposal. There is a very thin Ap horizon (topsoil) followed by over 80 cm of aeolian silt and fine sand.

Soil Pit 2. Very similar soils as that in pit 1. This is located just east of the standing water in the lowest point of the depression.

Looking southwest across the property at the lowest point of the depression. A pipe that collects subsurface flow also drains into this area. This depression has standing water for much of the year. Note lack of grasses in the depression for cattle to forage.

Looking south along the topographic high situated to the west of the depression. The objective is to bring the land to the east (fill area, left) level to the land to the west, which is approximately 91 m a.s.l.

Looking east towards the residence with the proposed fill area (depression) in the foreground.

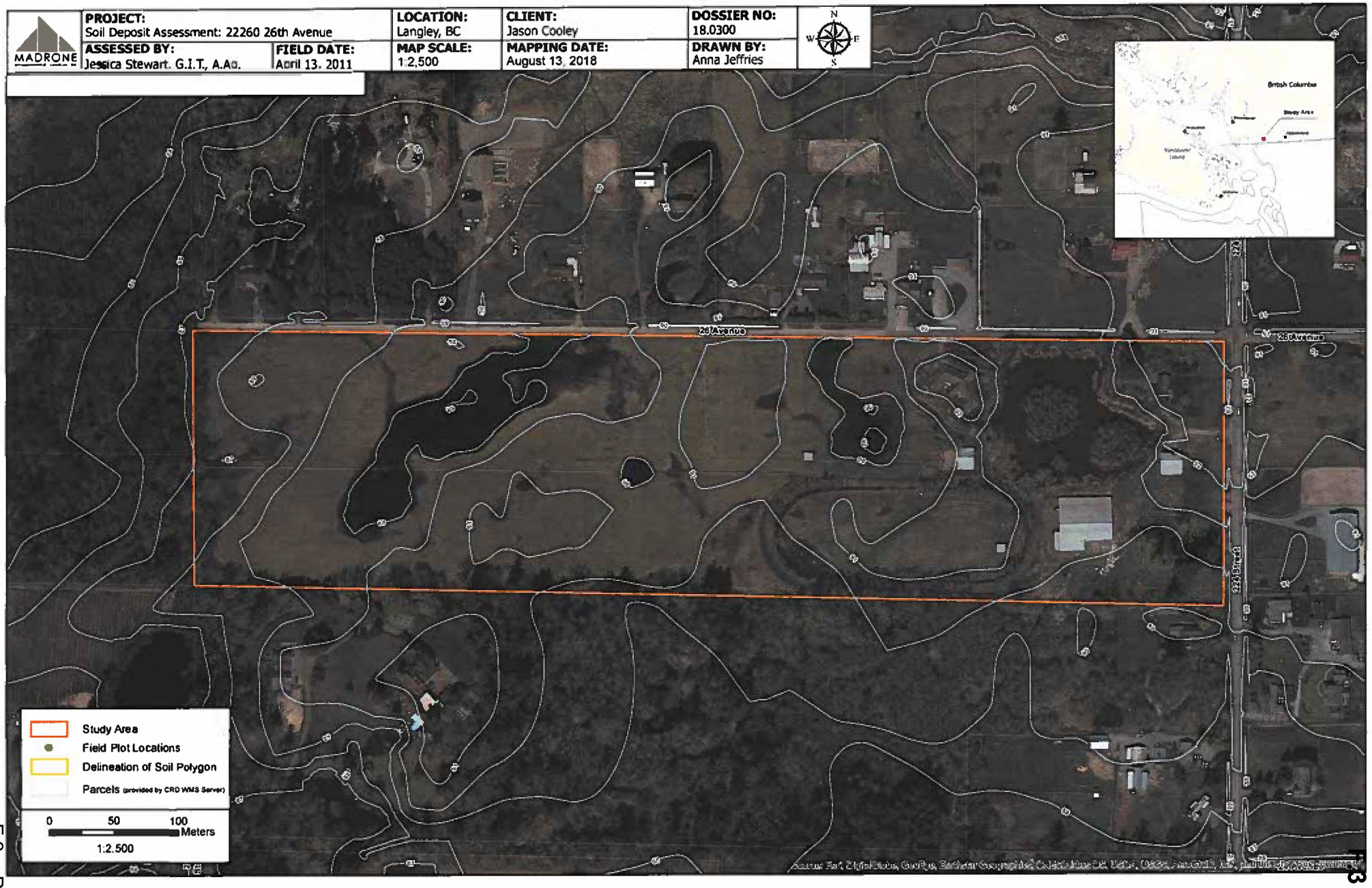
Coarse orange mottles located in the IB horizon in Soil Pit 2. This indicates fluctuating watertables in the soil profile.

Looking due east at the cattle barn in the distance. The purpose of the fill is create a raised, well-drained profile that will allow a greater area for cattle to forage (and growth of appropriate forage grasses for cattle to eat).

Photograph 8. The access gate located immed ately adjacent to the driveway from 26th Avenue.

APPENDIX B

Maps & Figures


PROJECT:
Soil Deposit Assessment: 22260 26th Avenue
LOCATION:
Langley, BC
CLIENT:
Jason Cooley
DOSSIER NO:
18.0300
ASSESSED BY:
Jessica Stewart. G.I.T., A.Ag.
FIELD DATE:
April 13. 2011
MAP SCALE:
1:2,500
MAPPING DATE:
August 13, 2018
DRAWN BY:
Anna Jeffries
N
W
E
S
British Columbia
Study Area
26 Avenue
Study Area
Field Plot Locations
Delineation of Soil Polygon
Parcels (provided by CRD WMS Server)
0
50
100
Meters
1:2,500

F.3

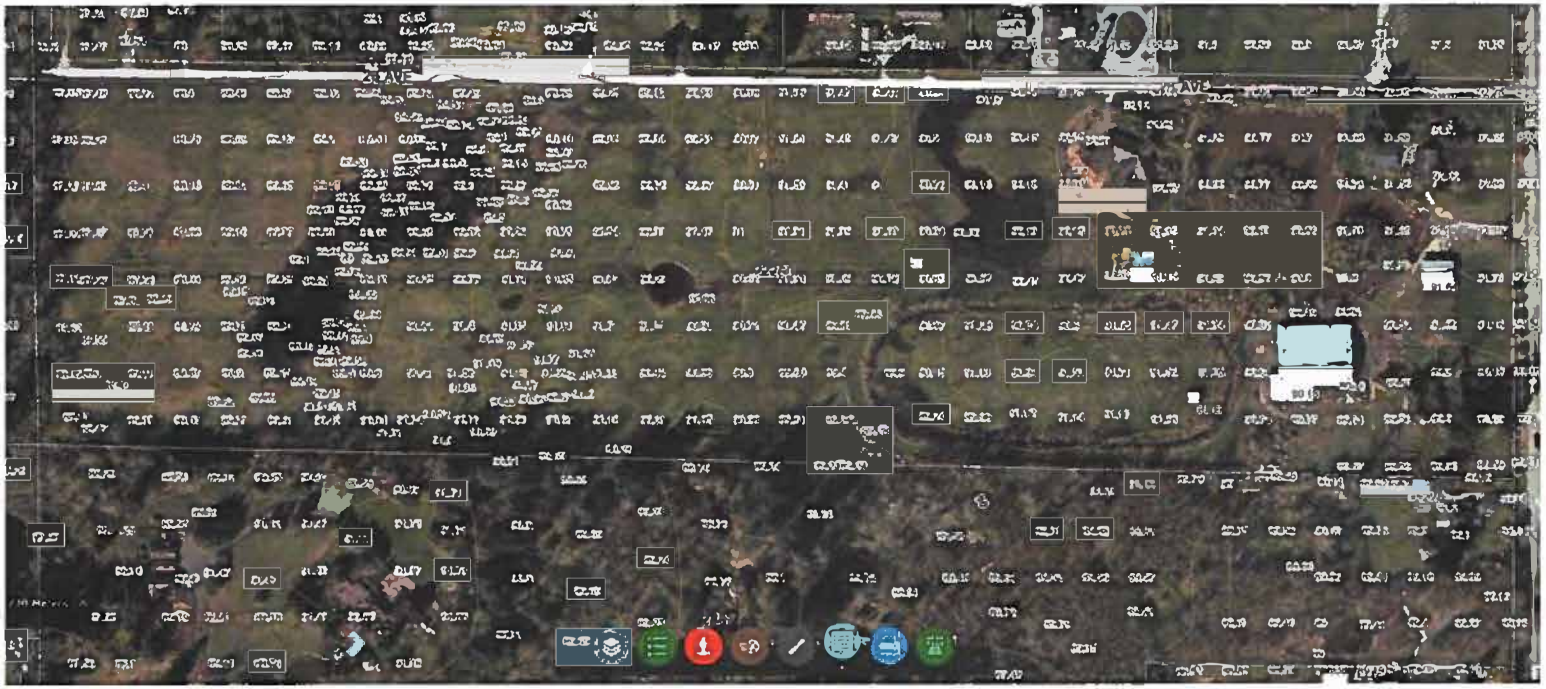
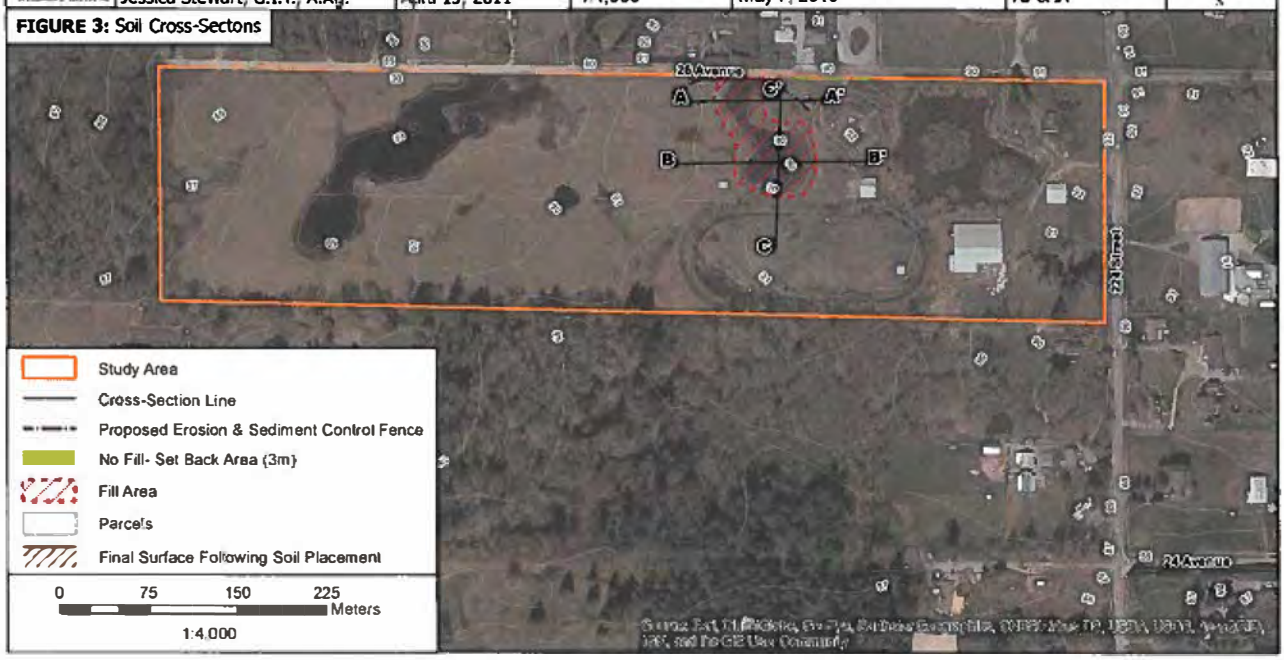
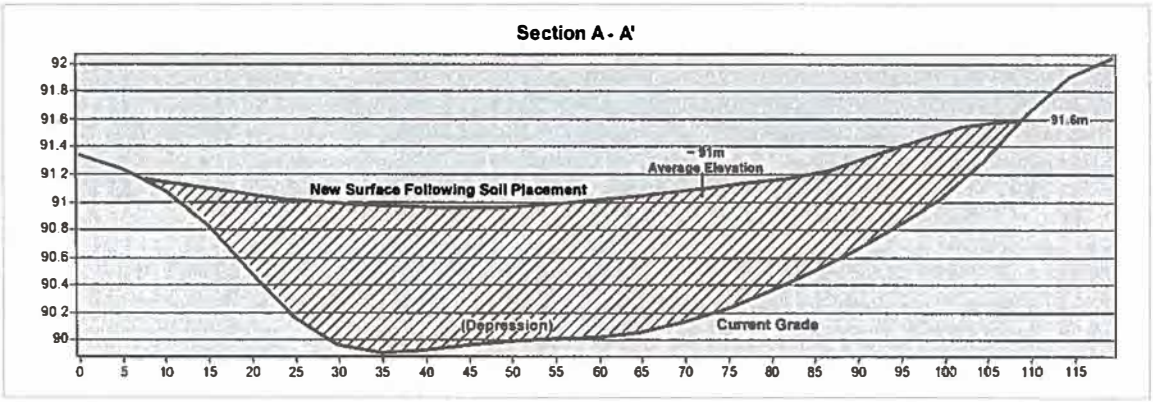


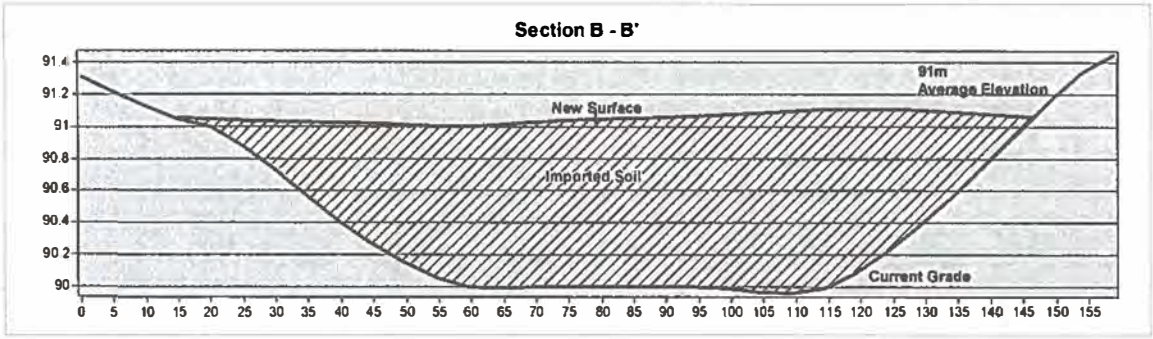
Figure 2. Township of langley spot elevations (geosource mapping program) for the property. The elevation of the depression near the residence (east) is approximately 90 m a.s.l. note standing water in the depression in this aerial photo.

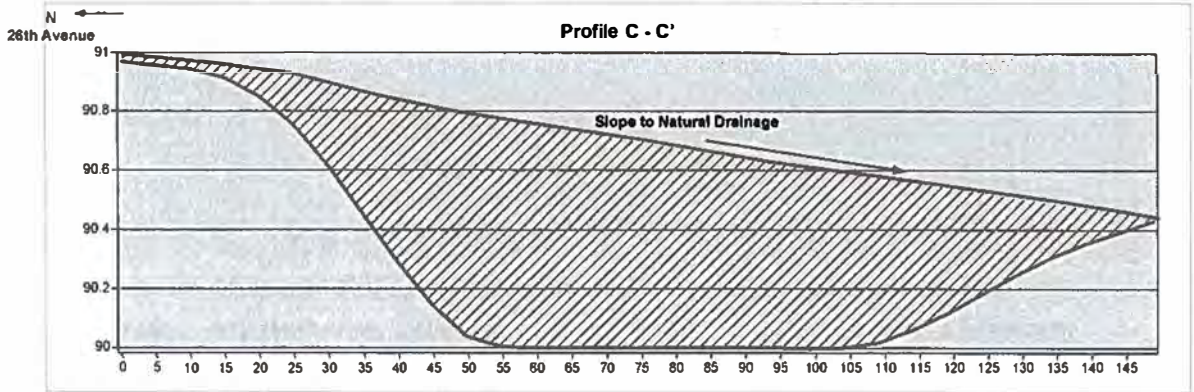
PROJECT: Soil Deposit Assessment: 22260 26th Avenue		LOCATION: Langley, BC	CLIENT: Jason Cooley	DOSSIER NO: 18.0330
ASSESSED BY: Jessica Stewart, G.I.T., A.Ag.	FIELD DATE: April 13, 2011	MAP SCALE: 1:4,000	MAPPING DATE: May 7, 2019	DRAWN BY: AJ & JY

FIGURE 3: Soil Cross-Sectons









APPENDIX C

Inclusions in Fill Assessment Reports

Inclusion in Fill Importation Assessment reports

For each source site, the owner/operator of the receiving site should secure a written Soil Acceptance Agreement with the parties responsible for supplying and transporting soils. The agreement should specify that:

The imported soil must not contain:

a. any contaminants in concentrations that exceed the standards in Schedule 7, Column III of the Contaminated Sites Regulation under BC's Environmental Management Act, or

b. any hazardous waste as defined in the Hazardous Waste Regulation of the Environmental Management Act,

The imported soil must not have been transported onto the donor site from another site,

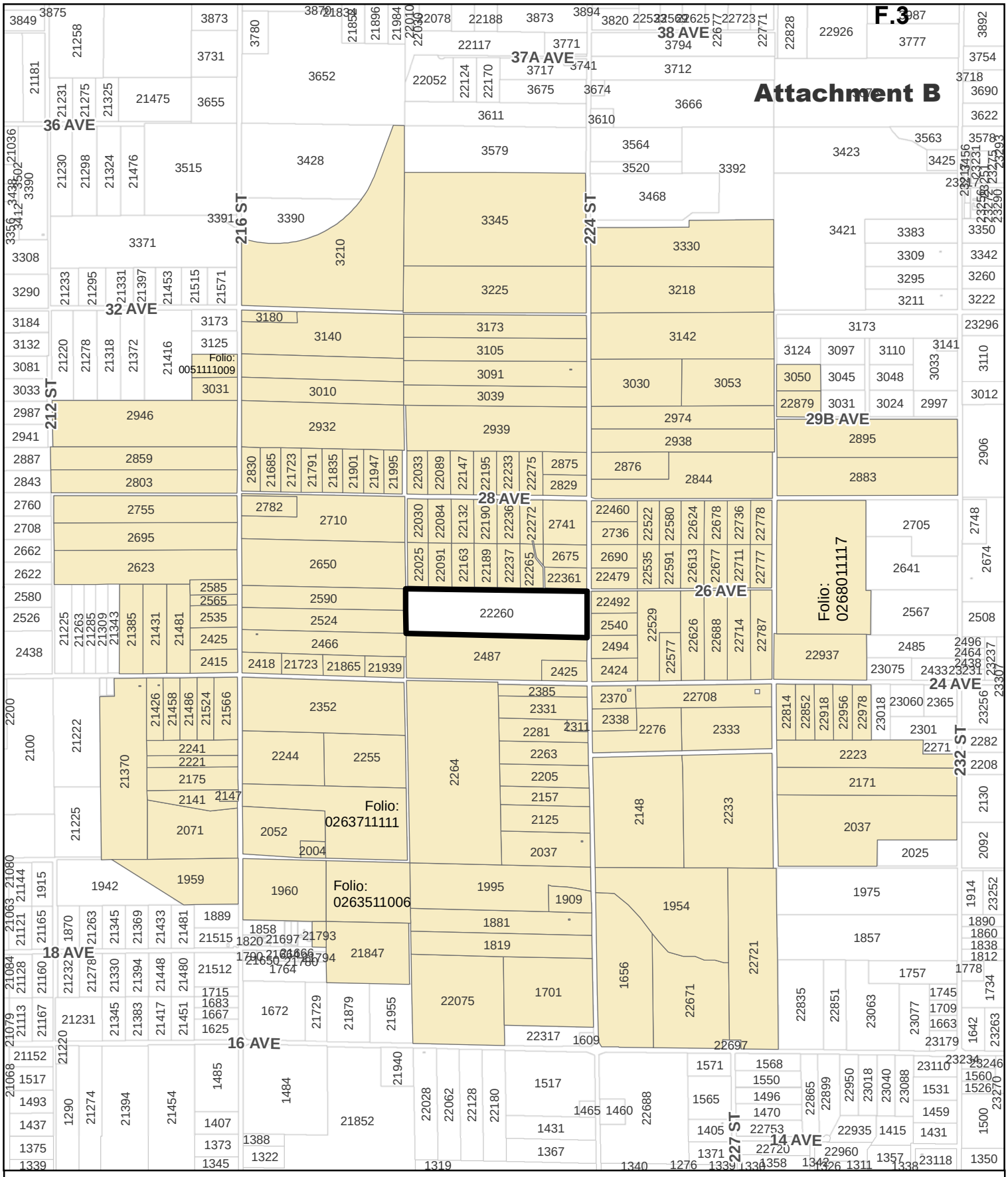
The owner of the receiving site has the right to test and/or require the supplier to test for contaminants and soil texture, and to inspect the source site,

The supplier will provide *all* available site contamination reports pertaining to the imported soil and that at minimum a Preliminary Site investigation Phase 1 (or Stage 1) or Phase 2 (or Stage 2) report will be provided for any source site that is an industrial, government or large residential development,

The parties supplying/transporting soils are responsible for removing any soils and remediating any resulting contamination if the soils are found to be contaminated or if the supplier failed to supply all available site contamination reports pertaining to the imported soil, and

Any loads arriving at the site without proper documentation of the source of the soil and evidence of Soil Acceptance Agreement for the source site will be refused entry.

Entrance to the receiving site should be controlled and records should be maintained that identify the source of each load and the parties supplying/transporting the load. Consideration should be given to requiring security deposits from the suppliers/transporters.



Township of Langley
Est. 1873

SO 1974 Properties Balloted (1.6 Km)

Version Date:
Tuesday, May 28, 2019

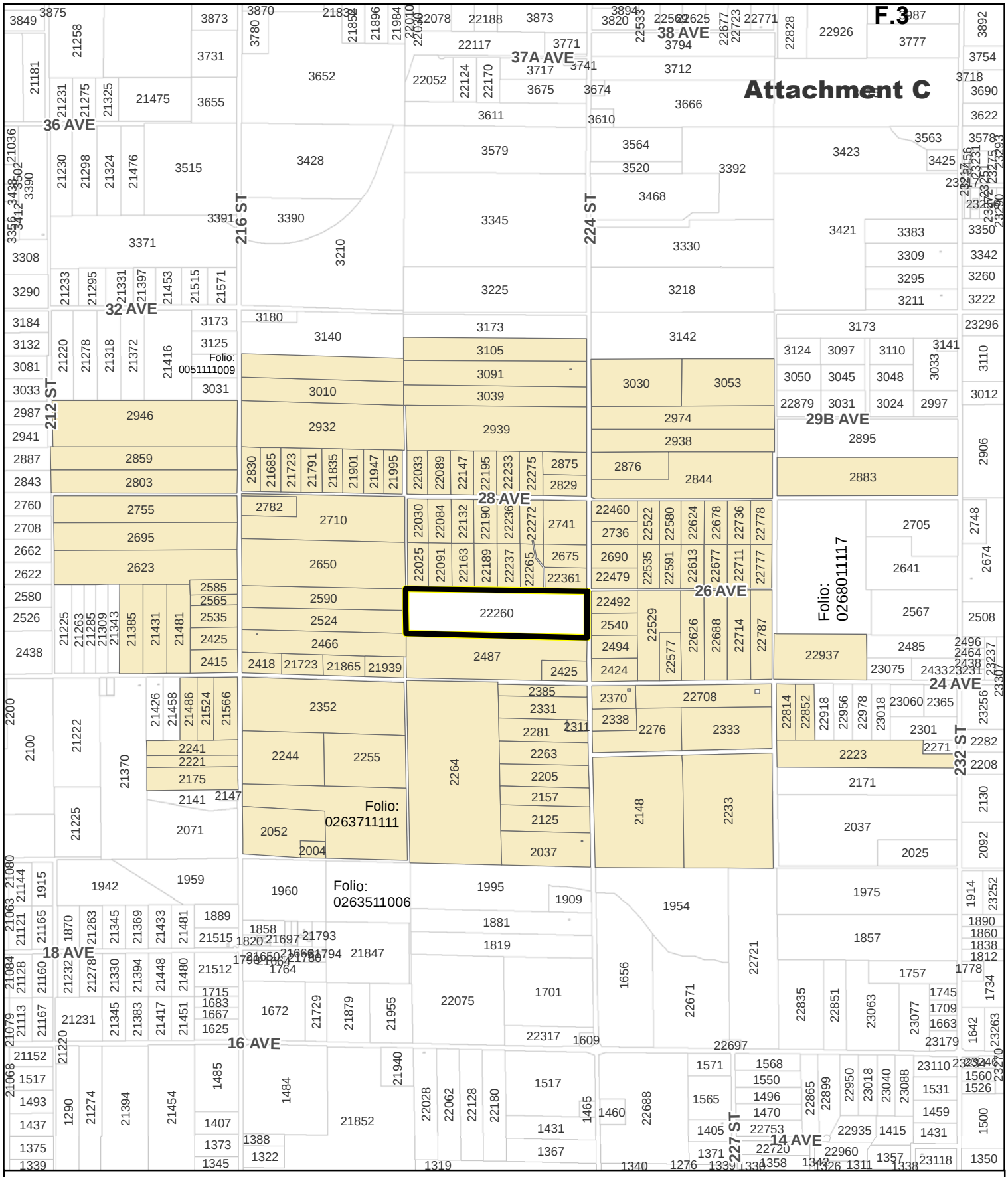
22260 26 Ave - Proposed Soil Work

Properties Balloted (171)

Surrounding Properties are within 1.6 km of of the boundary of the Subject Property

0 100 200 400 Meters

Path: N:\Maps\Custom Maps\Soils\SO1974\Map_SO001974_Properties_Balloted_1_6km_190516.mxd



Township of Langley
Est. 1873

SO 1974 Properties Balloted (1 Km)

Version Date:
Tuesday, May 28, 2019

22260 26 Ave - Proposed Soil Work

Properties Balloted (130)

Surrounding Properties are within 1 km of of the boundary of the Subject Property

0 100 200 400 Meters

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FOIPPA s.22(1)

FOIPPA s.22(1)
Langley, British Columbia FOIPPA
Fax: FOIPPA s.22(1)
Telephone: FOIPPA s.22(1)

February 6, 2019

Dear Sir/Madam,

Please find enclosed my vote for the Proposed Deposit of Soil at 2260 26 Avenue, Langley, BC.

I found this Petition very disturbing as it contained no meaningful information upon which I could make an intelligent decision as to whether support or not support the application.

I believe that the democratic process is something that we should value and safeguard. Asking people to vote with no intelligent information makes a mockery of democracy.

I called about this Petition and was provided information which allows me to provide a meaningful vote, but as I was concerned about the process, I asked some additional information.

I feel compelled to speak out.

Here are some of my concerns:

a. This process is unfair to the applicant. The applicant has a right to have his application determined on criteria relevant to legitimate concerns that the public may have that would affect his prima facie right to use his property as he sees fit. Failing to provide fundamental relevant information makes the process arbitrary and skews the process against the applicant as some intolerant people (who are people most likely to respond in the circumstances) may simply not like the idea of trucks going past their property even if it is for a limited period of time. Further, this process increases cost, not the least of which is delay. The lack of information and failure to provide place for expression of concern also takes away the applicant's ability to determine and address reasonable concerns that his neighbours may have;

b. This process is contrary to the public interest. I was left to believe after having all my questions answered that the vote was pivotal despite being arbitrary for the most part due to lack of information. I understand that the process involves primarily a general environmental review *before* approval and the vote. There is no systematic review or oversight of important environmental factors including checking for invasive species or contamination of the soil that may actually be placed on the property *after* approval.

I do not know the applicant or have any personal interest in this application. But I do care about fairness because someday it may be my neighbour or me who is subject to this arbitrary process.

Hopefully municipal employees have the knowledge, skill, and experience to be able to identify the issues relevant to an application, evaluate those issues based on facts which are relevant to the application balancing public interest with private interest, and make a decision which is objective, impartial, transparent, and fair. This process in my opinion contravenes fundamental administrative law principles. I believe it should be changed.

I look forward to hearing from you as to who I should speak to about changing this process. I would ultimately like to have this issue put forward for discussion at a Council meeting. Please advise me of the meeting schedules so I can find a meeting I will be able to attend.

Sincerely yours,

FOIPPA s.22(1)