

Initial Report Regarding Soils and Fill Placed at 3850 Swamp Road

Owner: Kevin Schmidt

March 12, 2021



Report Prepared by Dr. Scott Smith P.Ag. and Carl Withler P.Ag.

Kelowna B.C.

This report has been prepared by Professional Agrologists at the request of the land owner, Mr. Kevin Schmidt, to assist him in confirming that soils placed on his property currently are suitable for fill material in farm development and to support his application to the Agricultural Land Commission (ALC) for permission to retain these soils on site and ultimately continue filling and top dressing his land for farming purpose.

This initial report shall follow the following outline to provide the audience with all site specific information gathered by the authors and recommend a path forward for the land owners.

Report outline:

1. Site history and context
2. Assessment of fill to date
3. Recommended actions
4. General Commentary
5. Statement of Qualifications.

Site history and Context: the property in question has been owned by Casorso/Schmidt family members for over 100 years and because of it's swampy nature and seasonal flooding has not been developed as an intensively farmed parcel to date. Over the history of owning the parcel, the family has foraged a few pigs on the property occasionally and most recently leased the property to an adjacent land owner who wished to cut hay on it. This lease was terminated in 2018 and from that point forward Mr. and Mrs. Schmidt (Casorso family members) have focussed on raising the land level through filling to produce crops, possibly hops or blueberries, and building a house to raise their young family.

It is worth noting that during this historical review, of the property that the fill currently placed without permission on the property is not the first fill to be placed on the property. Ortho image and Google Earth images reviews have confirmed that fill material from the development of the traffic circle and Swamp road drainage improvements have been placed on the property as early as 2009 and possibly earlier. (Refer to photo 1 below)



Photo 1: City of Kelowna ortho image dated 2012 showing fill placed on site after development of traffic circle and Swamp road drainage improvement.

As well, it is known by the authors of this report that works carried out by the Mission Creek restoration Initiative and City of Kelowna starting in 2010 had the dykes set back from Mission Creek along the North Western edge of this property with the permission of the ALC. Once the dyke setback project was completed the land was returned to market as improved agricultural lands seeking fill to raise the rooting zone out of the water table. This is the activity that the Schmidt family were undertaking when the current Stop Work order was placed.

Assessment of Fill to Date: starting on March 4, 2021 Dr. Scott Smith began investigations into the fill on site attempting to determine its suitability as fill material. This investigation included composite, randomized soil sampling for texturing as well as parent material origin. Added to these basic soil tests literature reviews were completed on previously submitted soil analysis from the stated excavation site as well as on site review at the corner of Cook and Truswell road in Kelowna. Lastly, basic conversations were held with excavation staff, on site at the Cook and Truswell excavation.

After thorough review of the above stated information, it is believed that 926 loads of fill material were placed on 3850 Swamp road from the Truswell excavation and mixed with pre-existing fill material from City of Kelowna road works (traffic circle/Swamp road drainage) creating an approximately 1 m fill on approximately 1/3 of the property. Filling stopped at the placement of the Stop Work orders.

At the writing of this report, investigations into salinity of the placed soils are underway and will be available on March 15th, 2021, but from all testing this fill is suitable for agricultural fill. Refer to Appendix 1 for specific commentary. Also attached is the lab results confirming lack of hydrocarbons in the soil placed at 3850 Swamp road.

Recommended Actions: assuming soil test results due March 15 do not show salinity problems and the fill on site is suitable for its intended purpose the following actions should be undertaken:

- The owners, or agent, of 3850 Swamp road should make formal application to place fill to the ALC prior to April 1, 2021 as outlined in compliance documentation from ALC staff. This report should be appended to the application with a finalized version of this report based on ALC and City of Kelowna feedback.
- Culverts should be placed at current driveway entrances to prepare for water movement during freshet. This should be done after seeking permission to work on site is granted by ALC staff.
- Should approval be granted from the ALC for existing material to remain on site and further fill material to be added to finish filling clean, tested fill should be secured and

site monitoring applied by a third party to confirm fill limits to February 4, 2021 plans developed by Ferguson Surveying and currently in possession of ALC staff.


- Once filling is complete, top soil should be secured, not more than two texture classes different than the place fill and incorporated to a 6' depth and then top dressed with 4' of soil to initiate framing.
- Upon completion of filling and top dressing the landowner should apply to the city to build a primary farm residence and declare a farm footprint.

General Commentary: the author of this report has known the Casorso/Schmidt families for over 17 years and watched the development of Swamp road and various facilities along Swamp road for that same period of time. It is my opinion that the fill placed on 3850 Swamp road was not placed for financial benefit of the land owner or a disregard for ALC and City legal requirements. It is my opinion that this activity took place based on a lack of understanding of the time and administrative efforts required to legally place fill on agricultural properties.

I am of the opinion that if ALC permission to continue filling is granted that there will be fairly rapid farm development and that this land intended for agricultural production will be a contributing part of B.C.'s food sustainability and agricultural gross domestic product.

The authors remain committed to assisting the land owner and ALC staff come to resolution on this issue of mutual concern and are available at either parties request to answer questions or provide follow up information.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Carl Withler', with a stylized flourish at the end.

Carl Withler P.Ag. (#695)

Appendix 1: Initial Findings of Dr. Scott Smith based on March 4, 2021 site review, soil texturing work and document review.

To: Carl Withler, P.Ag.

From: Scott Smith, P.Ag.

Date: March 10, 2021

Re: 3850 Swamp Rd fill inspection

On March 4, 2021 I visited the subject parcel at 3850 Swamp Rd. The site has been partially filled with approximately one meter depth of mixed fill. Based on Google imagery, initial filling occurred on the eastern end of the property prior to 2009 and has continued intermittently since that time.

The majority of the most recent fill on the site is of a sandy loam texture with 25 % gravel content. There are also areas of fill that are much finer in texture, likely clay loam with 15 to 20 % gravel content. I sampled both types for laboratory analyses. Both of these materials were calcareous, i.e. they contained free lime as detected in the field by reaction with HCl. As such, both fill materials are alkaline in reaction with pH probably >8.0. This is typical of most unweathered, unconsolidated, soil parent materials in the Okanagan Valley.

I also visited the site of road work along Lakeshore Dr adjacent to the El Dorado resort where the recent fill is thought to have been sourced. It was not possible to determine the exact nature of the source materials, whether they were native to the construction site or had been transported and/or mixed at some point in the past. No one working at the site was able to confirm that they represented the fill material used at Swamp Rd. There was very limited exposure of these materials at the construction site, but two samples were collected. The first was of a very sandy and gravelly material, much coarser than anything observed at the Swamp Rd property, and a second finer material (silty clay loam) that was much more like that observed at Swamp Rd. As with the fill materials observed at the Swamp Rd site, both of these materials were moderately calcareous and alkaline in their reaction.

I have read the laboratory report from CARO labs (Project number 2020-045-2000) with respect to samples submitted by Keltech Environmental from a stockpile of fill at 550 Truswell Rd that was reportedly the source of recent fill for Swamp Rd. The results of analyses indicate that the material was free of any significant contaminants. To my knowledge, no contaminant assessment has been made from the various fill materials *in-situ* at 3850 Swamp Rd.

My observations of soil texture, pH and calcareousness will be confirmed following lab determinations of these properties. One additional property, soil salinity, which was not determined in the field will be tested in the lab. I don't anticipate that any of the samples will be saline, but it is important to check this as even small amounts of salts in the material would negatively affect its suitability as an agricultural subsoil.

Based on my observations on March 9th of routine physical and chemical properties of the fill materials deposited at 3850 Swamp Rd, I see nothing that would render these materials unsuitable as agricultural subsoils. I will confirm my conclusions in a final report follow receipt of laboratory results.

Statements of Qualifications as Required by the Professional Governance Act of B.C.

C.A. Scott Smith M.Sc. P. Ag. Statement of Qualifications

Scott Smith is a Professional Agrologist registered and in good standing in the province of British Columbia. Because of this registration he is bound by a code of ethics and guided by standard and normal practices of agrology. His work draws on knowledge and experience gained from working over 45 years in soil science in agricultural and forested environments.

Scott worked for the Research Branch of Agriculture and Agri-Food Canada for 35 years as a soil scientist. During that time, he worked in both Yukon and British Columbia conducting soil surveys and eventually becoming the National Program lead for the Canadian Soil Information Service. He also worked internationally conducting inventory and research in many countries including Russia, Finland, USA, China (Tibet), Argentina as well as the Canadian arctic. He is a member in good standing of the Canadian Society of Soil Science.

During his career Scott authored or co-authored more than 70 research reports and over 100 technical reports. He retired from Agriculture and Agri-Food Canada in 2017 and since that time has provided soil consulting services throughout the Okanagan Valley primarily to the wine industry.

C.E. Withler B.Sc. P.Ag-Statement of Qualifications.

Carl Ernest Withler, is a Professional Agrologist (#695) registered and in good standing in the province of British Columbia and has been so for over 30 years. Because of this registration he is bound by a code of ethics, guided by standard and normal practices and uses scientific and field information to come to logical and rational recommendations and decisions.

Specific to this report Mr. Withler has spent 40 years in production agriculture working in every commodity from animal husbandry to tree fruit horticulture in Canada and abroad. During his working career Mr. Withler worked very closely with the Agricultural Land Commission (ALC), Ministry of Agriculture Strengthening Farming program staff and Local Government planners to create and review bylaws related to agricultural production. As well, Mr. Withler is relied on by Farm Industry Review board hearings as a "Knowledgeable Person" and allowed to offer opinion regarding normalized farming practices. Recently, the author retired from the provincial civil service as the Industry Specialist for the Tree fruit and Grape industries and is working as an Environmental Farm planner and replant inspector for the Treefruit Replant program. Mr. Withler is now the lead Agrologist for Green Spark Consulting

Inspection of Soil Fill
3850 Swamp Road, Kelowna, BC

Report Prepared for: Carl Withler P.Ag.

Prepared by: Scott Smith P.Ag.

March 15, 2021

Background

On March 3, 2021, I visited the subject parcel at 3850 Swamp Rd at the request of, and accompanied by, Carl Withler. The site has been partially filled with approximately one meter depth of mixed fill. Based on Google imagery, initial filling occurred on the eastern end of the property prior to 2009 and has continued intermittently since that time.

Two composite soil samples were collected from the Swamp Rd property and two samples were collected from a road construction site approximately 1.5 km due south along Lakeshore Dr adjacent to the El Dorado resort where the recent fill is thought to have been sourced. This report contains analytical results for soil texture, pH, CaCO₃ equivalent concentration and soil salinity for the four soils sampled and revises slightly the assessment of soil properties given in an earlier interim report.

Results

The results from laboratory analyses are presented in Table 1. The majority of the most recent fill on the site is of a sandy loam texture (sample BC21-02) with a field estimate of 25 % gravel content. There are also areas of fill that are much finer in texture (BC21-01), sandy clay loam with 15 to 20 % estimated gravel content. Both of these materials were calcareous, i.e. they contain free lime as CaCO₃ which had also been detected in the field by reaction with HCl. As such, both fill materials are weakly alkaline in reaction with pH just above neutral. This is typical of most unweathered, unconsolidated, soil parent materials in the Okanagan Valley. Both samples were very weakly saline, probably not enough to affect most field crops if this fill is to act as a subsoil.

Table 1. Soil properties as determined by laboratory analyses for the four soil samples collected. Soil particle size determined by the hydrometer method. Methods for the other analyses available from the report author.

Sample	Description	pH (CaCl ₂)	Texture				CaCO ₃ equiv		Salinity (EC)	
			% sand	% silt	% clay	Class	%	Rating	dm/m	Rating
BC21-01	Fine textured fill, Swamp Rd	7.3	46	25	29	Sandy clay loam	8.5	moderately calcareous	2.7	very weakly saline
BC21-02	Composite sample of all fill, Swamp Rd	7.4	57	26	17	Sandy loam	5.5	weakly calcareous	2.3	very weakly saline
B21-03	Grab sample #2, Lakeshore Rd construction site	7.4	68	24	8	Sandy loam	4.5	weakly calcareous	0.5	non saline
BC21-04	Grab sample #1, Lakeshore Rd construction site	7.6	67	24	9	Sandy loam	5	weakly calcareous	0.6	non saline

At the Lakeshore Rd construction site, it was not possible to determine if these suspected source materials were native to the site or had been transported and/or mixed at some point in the past. No one working at the site was able to confirm that they represented the fill material used at Swamp Rd. There was very limited exposure of these materials, but two samples were collected. Both were gravelly, sandy loam texture and somewhat coarser than the fill observed at the Swamp Rd property. The samples (BC21-03, BC21-04) of these materials collected at Lakeshore Rd were moderately calcareous, alkaline in their reaction and completely non-saline.

Conclusions

I have read the laboratory report from CARO labs (Project number 2020-045-2000) with respect to samples submitted by Keltech Environmental from a stockpile of fill at 550 Truswell Rd that was reportedly the source of recent fill for Swamp Rd. The results of analyses indicate that the material was free of any significant contaminants. To my knowledge, no contaminant assessment has been made from the various fill materials *in-situ* at 3850 Swamp Rd.

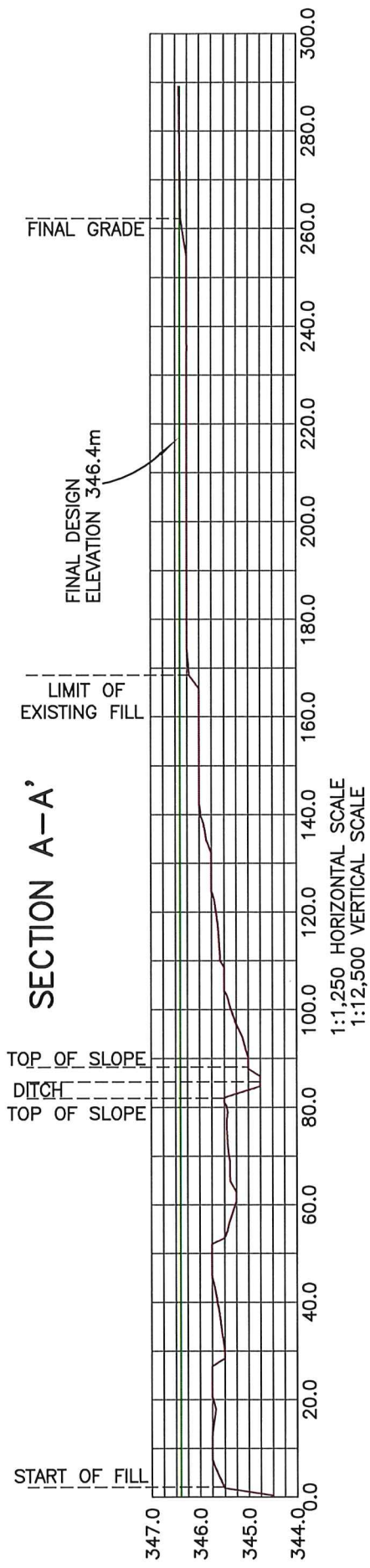
Based on my field observations on March 9th and subsequent laboratory analyses of routine physical and chemical properties of the fill materials deposited at 3850 Swamp Rd, I see nothing that would render these materials unsuitable as agricultural subsoils.

Respectfully submitted,



C.A. Scott Smith M.Sc., P. Ag.





NOTE: ELEVATIONS ARE GEODETIC
— REFERENCED TO CGVD28 DATUM.

PROPOSED GRADE IS APPROXIMATE AND WAS CALCULATED USING THE ELEVATION OF THE EXISTING FILL AT THE SOUTH WEST CORNER

CLIENT: SCHMIDT, KEVIN	DATE: FEBRUARY 4, 2021	
SCALE: AS SHOWN	FILE: 22470	DRAWN BY: RD
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