AGRICULTURAL LAND SOIL INVESTIGATION

Project No. NG24838

PREPARED FOR:

metrovancouver
SERVICES AND SOLUTIONS FOR A LIVABLE REGION

And,

ALC
Agricultural Land Commission

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1 EXECUTIVE SUMMARY

INTRODUCTION

Placement of fill in the Agricultural Land Reserve (ALR) is regulated to varying degrees depending on the end use of the land. In recent years concerns have been raised on how effective fill placement has been both within the regulatory regime and at the onsite management level. These concerns are partly fueled by the perception that significant financial incentives (tipping fees upwards of $200 per truck) are driving fill applications on agricultural land. The issue has generated discussions between the Agricultural Land Commission (ALC), Metro Vancouver Regional District (MVRD), local governments, provincial agencies, and the agriculture industry on how to better manage fill placement such that its use is beneficial.

The key objectives of this investigation were to evaluate the outcomes of previously approved ALC applications for placement of fill within the MVRD; identify the factors that contributed to the positive and negative outcomes of placement of fill in the ALR; and, recommend management practices and policy development/legislative changes that could be adopted to ensure that placement of fill in the ALR provides benefits to the agricultural capability of the land.

The investigation was carried out in three parts.

- Part one was a review of a database that included information on 107 applications for the placement of fill within MVRD that were submitted to the ALC between 2006 and 2016. The database was comprised of information gleaned from the original applications as well as ALC application decisions and fill project monitoring reports. As part of the review, additional information was collected from various sources including significant use of qualitative observations of both on line imagery and road side observations.
- Part two was an evaluation of the application sites using various qualitative observational tools. Results of the database review were used to rank the sites for more detailed evaluation.
- Part three was a review of ALC legislation and policies as well as local government soil bylaws within the MVRD. The review focussed on critical sections that dealt with fill and how those sections could be strengthened.

The key guiding principle to the review of any fill placement proposal is that it must be a positive improvement to the agricultural potential of the land. The activity must also not cause harm to the land or to any adjacent land.

KEY FINDINGS

The initial database contained 107 files. Of those, 77 had received either approval or approval with conditions. Another 22 files were refused by the Commission. Some of the original applications were reconsidered (as per Section 51 of the *Act)* and eight of the previously refused applications were included as approved. This meant the final database for analysis contained 99 fill applications. The initial review of the approved sites was carried out solely as a desktop exercise to determine if further examination, either on site or by roadside survey, was required.

There are many reasons why fill was required by applicants and ranged from improving capability to the construction of buildings. The majority of the applications (68%) were to improve drainage and/or overall capability. This situation was expected considering the wet coastal climate and abundance of low land or flood plain soils. Of the 68%, two thirds of the applicants indicated a desire to improve drainage or proposed a soil-bound agricultural (crop) production end use. Approximately 20% of the application sites for placement of fill were for uses that were clearly not related to agriculture (i.e., commercial development recreational or housing).

As a method of distinguishing the sites, a visual rating system was established. The sites were ranked as **Good, Fair or Poor,** in terms of the agricultural capability of the site post fill. An additional separation was made for sites with no farming activity. These ratings were based on several factors that ultimately contributed to either positive or negative outcomes of the placement of fill:

- level of agricultural activity of the site;
- the appearance of the crop health or farm productivity (e.g., livestock);
- evidence of continued drainage or drought conditions;
- soil quality; and,
- site configuration (e.g., topography of fields after fill placement).

The results of the visual rating indicated that 17% of the fill sites were ranked as Good while 22% were ranked as Fair with an additional 25% ranked as Poor. Nearly 25% of the approved fill sites were not being used for farming purposes. In general, properties that were larger in size with lower fill volumes and percentage of area covered tended to be ranked as Good, whereas sites that were ranked Poor tended to be smaller properties with greater fill volumes or percentage of area covered.

Numerous issues were also identified on fill sites, including:

- the over application of fill (i.e., substantially above surrounding grade, abrupt sidewalls) creating "landing pads" often for some future activity.
- multiple sites were domed, seemingly to shed water. There was evidence that this was creating impacts to adjacent land and in several instances the crops planted in these domed sites were not performing any better than surrounding unfilled lands.
- a small, but identifiable number of sites were not being used for the future use proposed in the application (e.g., were now vacant or in non-farm use).
- instances where it was clear that the fill materials were of poor quality (i.e., high coarse fragments or texture/structure substandard for cropping use).
- a significant number of the sites (41%) that had indicated drainage issues or improved capability prior to fill placement continued to have issues after completion of the fill project.

RECOMMENDATIONS

Fill deposition in the ALR is regulated under the *Agricultural Land Commission Act* (*Act*) and *Agricultural Land Reserve Use, Subdivision and Procedure Regulation* (*Regulation*). This study only reviewed applications to place fill that fell within the Allowed Use provisions of that legislation. Throughout this investigation it became clear that the most important changes that are necessary to improve the outcomes of the ALC application process, must consider the legislation and ALC policy in relation to the following three uses.

1. The placement of fill on land in relation to drainage and irrigation infrastructure. There were several examples of excessive use of fill to raise the overall elevation of land under the guise of diking rather than using traditional on-farm drainage practices or growing suitable crops.

2. The placement of fill in relation to the "farm house" (Sec. 18 *Act*). Fill can be placed on 0.2 ha and 1 m above grade without a non-farm use application. There were numerous instances where fill pads placed on small (approximately 4 ha) parcels where almost double the allowed size (average 0.48 ha) and well above the 1 m elevation allowed. These pads were also often set well back (>60 m) from road frontages. The fill pad and its placement have created a larger footprint that cannot be farmed due to slope and location of the pad. Integration of the “home plate” concept is recommended.

3. The placement of fill in relation to "farm use" activities (activities that cannot be prohibited). The area that can be filled must be less than 2% of the property for the allowed use unless specific conditions are met. Many instances were noted where fill is being applied in greater volumes/depths than required for the foundations of farm buildings under the guise of a future use that is not consistent with the agricultural character of the land or surrounding properties. In addition to legislation and policy changes, a review of how consultation between the local government building approval process and ALC staff handle applications is recommended.

In addition to these findings, two specific administrative issues were identified: to the use of bonding and the monitoring reports.

1. The ALC’s system for collecting a financial security was not consistent either in terms of whether a bond was requested, or the amount of the bond in relation to fill volume or parcel size, or when the ALC released the bond upon completion of the fill project. Effective use of bonding may assist in managing the financial incentive and promoting better use and management of fill.
2. Monitoring reports were not submitted to the ALC as per the conditions of the approvals, with about 20% of the sites having no indication of reports on file. A standard template and expectations for reporting on the progress of fill projects will assist in better tracking and control of projects including when to proceed with enforcement activities if the situation arises.

The most critical changes for improving the process and success around the placement of fill in the ALR involve four additional items:

1. Consistency in wording and procedures related to local government soil bylaws needs to be improved. This could be assisted by the development of a minister’s bylaw standard for fill.

2. Coordination between local government and ALC staff in terms of sharing information on applications for fill whether they fall within the ALC ‘Non-farm Use’ or ‘Notice of Intent’ streams.

3. Possible creation of a ‘fill bylaw’ by the ALC to clarify the regulatory procedures and administrative control over fill applications and use in the ALR.

4. Creation of a ‘best practices for fill’ guidance document to supports the existing ALC Policy and Criteria documents as well as the potential fill bylaw. The guidance document would provide more in-depth information on topics such as site evaluation prior to potential fill application, fill soil quality, and site management throughout the filling process.

The final recommendations are around the regional management of fill. Consideration should be given to taking the approach of highest and best use from strategic approach in the region rather than simple site by site applications.

1. Single agency oversight is recommended to direct fill to specific uses such as the construction of dikes in light of impending climate change impacts on sea level and river flow. Or the use of structural fill only for construction and backfilling of aggregate extraction sites.
2. Management of fill at the site development plan and construction approvals level to direct separated materials to appropriate use and disposal sites as part of the construction approval process. This would allow for the planned and approved use of clean topsoil for soil bound production purposes, structural subsoils for construction, and disposal of mixed or contaminated materials at separate and appropriate locations.

TABLE OF CONTENTS

List of Figures

List of Tables

Abbreviations or Acronyms Commonly Used in this Report

Act	*Agricultural Land Commission Act*
ALC	Agricultural Land Commission
ALR	Agricultural Land Reserve
MWRD	Metro Vancouver Regional District
NOI	Notice of Intention
OMRR	*Organic Matter Recycling Regulation*
QP	Qualified Professional
Regulation	*Agricultural Land Reserve Use, Subdivision and Procedure Regulation*
WSA	*Water Sustainability Act*

2 PURPOSE OF THE INVESTIGATION

2.1 OBJECTIVES

The purpose of this study was to document how the current Agricultural Land Commission (ALC) application process, which allows for the placement of fill on agricultural land, is impacting soils and crop production on sites in the ALR.

The ALC is interested in knowing if current fill practices that are approved through the fill placement application process are benefiting the long-term agricultural viability of land in the ALR. The results of this study will help to guide policies related to fill deposition in the ALR. Additionally, MVRD is seeking empirical evidence of poor fill practices to help communicate the value proposition of addressing the use of fill on agricultural land.

MVRD, in partnership with the ALC, retained the services of a professional agrologist with expertise in soils, reclamation, and, drainage to investigate fill practices and determine if they are improving agricultural capability and viability of ALR lands.

The key objectives of this investigation were to:

- evaluate the outcomes of previously approved ALC applications for placement of fill by reviewing file data and making site observations;
- identify the factors that contributed to the positive and negative outcomes of placement of fill in the ALR; and
- provide recommendations of management practices and policy development/legislative changes that could be adopted to ensure that placement of fill in the ALR provides benefits to the agricultural capability of the land.

2.2 BACKGROUND

Fill deposition in the ALR is regulated under *Act* and the *Regulation*.

There are multiple regulatory pathways by which fill moves to land within the ALR as shown in Figure 1. Some of these pathways are authorized by the ALC or a municipal government while other pathways are the result of illegal filling activity. The primary regulatory agencies are municipal governments, which use 'soil removal and deposition bylaws, and the ALC, which uses provisions for the *Act* and *Regulation*. This project was directed to investigate only the ALC application process and how it might better align with the municipal bylaw process.

For the most part, placement of soil in the ALR is considered a non-farm use (*Act* S. 20 (2)) and as such requires an application to the ALC. If the landowner intends to use the land for a prescribed use (*Act* 2. 20 (4) and *Regulation* S. 4) they must submit a Notice of Intent (NOI) to the ALC prior to engaging in that intended use. Uses of fill associated with a designated farm use (*Regulation* S. 2) and permitted uses for

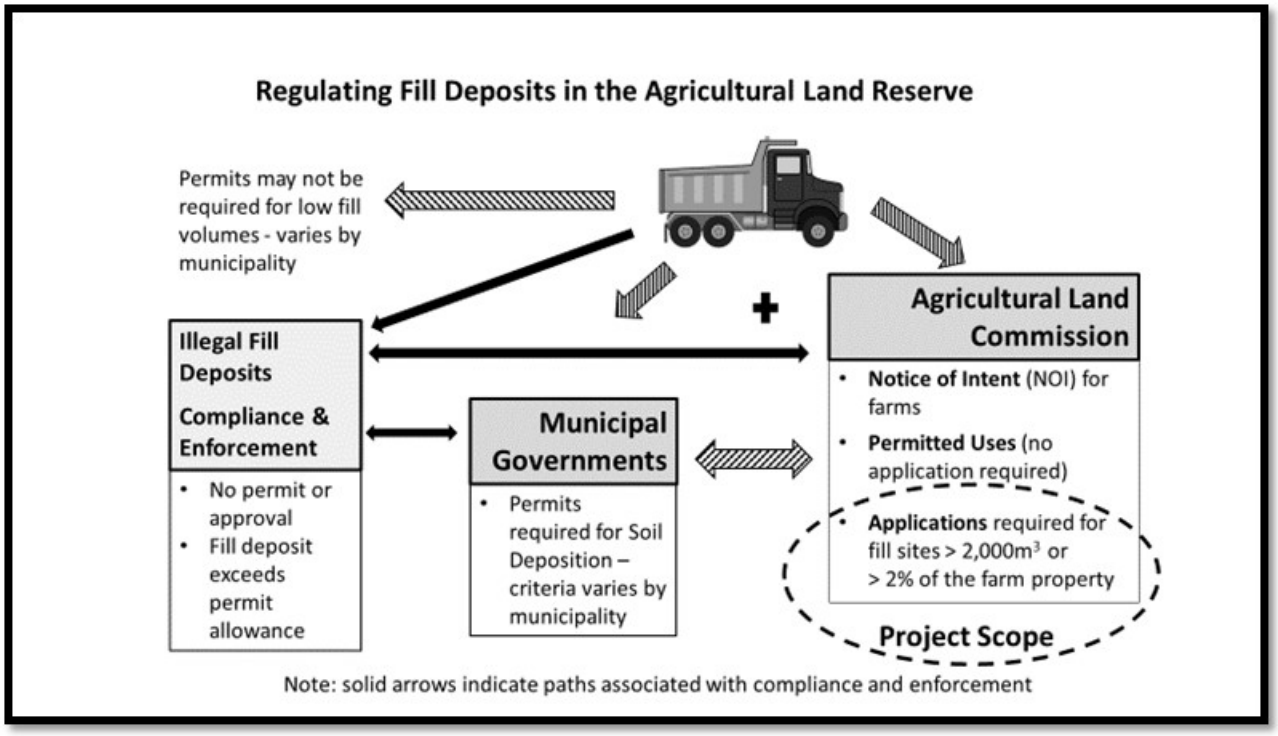
land in an ALR (*Regulation* S. 3) do not require notification to the ALC. For all other uses of fill in the ALR an ALC application is required.

An application for the placement of fill outside of the permitted uses as identified in Sections 2 and 3 of the *Regulation* are typically made by landowners wishing to deposit fill on their land to improve poor drainage (i.e., alleviate high water table issues) or change topography that adversely affects agricultural production. Under the *Regulation*, landowners can submit a non-farm use application to place fill on their property in the ALR. These applications are first reviewed by the applicable local government and require a resolution from council prior to being forwarded to the ALC.

If an application to deposit fill is approved by the ALC, the applicant is permitted to deposit a specified volume of fill according to the terms and conditions outlined in the ALC decision. In general, all approved fill sites must be overseen by a qualified professional who is required to prepare an operational plan and reclamation plan to guide work on the site, monitor all site activities, and provide regular status updates to the ALC.

The scope of this project was to review only the portion of the pathways related to non-farm use applications for the placement of fill requiring approval by the ALC and that were greater than 2,000 m^3 and/or covered more than 2% of the parcel (circled in Figure 1).

Figure 1: Regulating Fill Deposits in the Agricultural Land Reserve



3 METHODOLOGY

The Agricultural Land Soil Investigation was completed in three parts: 1) a database review; 2) a site review; and 3) a review of legislation, policy and bylaws. Over the duration of the investigation a project

management team consisting of one staff member from each MVRD and ALC provided support to the contractor through regular meetings and review of data and draft reports. The project was also supported by a project Advisory Committee that included the two aforementioned organizations as well as representatives for local municipalities and the BC Ministry of Agriculture. The Advisory Committee met initially to provide guidance on approaches, information of specific sites, and a review on the initial breakdown of sites to be reviewed. The Advisory Committee also participated in a discussion of the preliminary project results.

3.1 PART 1) DATABASE REVIEW

A review of a database compiled by the ALC and MVRD was conducted. The initial database included information on over 100 soil fill deposition applications within the Metro Vancouver region that were submitted to the ALC between 2006 and 2016 (the "study area") and contained information gleaned from the original applications, ALC application decisions and fill project monitoring reports. The database included:

- ALC application file number
- location and applicant identification
- reason for fill placement
- volume of fill
- fill area
- decision (approved or refused)
- amount of financial security for approved fill sites
- current status (i.e., active/complete)

As part of the review, additional information was collected from various sources. This included current land use of the sites (agricultural or non-agricultural), cropping and/or current site condition, comments from monitoring reports, and visual observations.

Results of the initial database review were used to rank the sites for more detailed evaluation. The rankings were: a) "consider an on–site inspection"; b) "review by drive-by"; or c) "no on-site inspection or drive-by". Originally the detailed evaluation was to include physical on-site inspections of between 5 and 10 sites. However, early in the project it was decided that access to individual properties would be a challenge, so a variety of remote sensing methods were used instead of detailed soil capability investigations.

3.2 Part 2) Site Investigation

An evaluation of the application sites using various qualitative observational tools was completed using the following information sources:

- satellite or other imagery:
    - Google Earth Pro including Google Street View and historical imagery
    - Municipal web mapping (images including recent and historical aerial photo imagery and/or LIDAR and/or contour mapping when available), zoning, property reports
- file information: ALC/MVRD database, ALC decision files (on-line and hard copy)
- Soil Survey Mapping and Agriculture Capability Mapping accessed via BC Soil Information Finder Tool for the study area
    - https://www2.gov.bc.ca/gov/content/environment/air-land-water/land/soil-information-finder
- drive-by surveys conducted on various dates between July and November 2017
- personal communication with individuals including agency/municipal staff

The qualitative observations made included a review of any on-site or off-site water management concerns such as indications of drought or flooding and restrictions to flow of regional drainage. Observations were made of land slope, elevation to adjacent properties and of site stability concerns (i.e., erosion, settling or slumping) were present. Where possible, observations were made of soil physical conditions such as apparent levels of organic matter, coarse fragments and texture. Cropping and crop health was observed from a generalized perspective (e.g., was a crop present, was it uniform, did it compare favourably to nearby crops, or were there obvious signs of poor growth).

3.3 Part 3) Legislation, Policy and Bylaw Review

The third component of the investigation was to complete a review of the *Act* and *the* Regulation and current policies related to fill. In addition, local government "soil removal and soil deposit bylaws" for municipalities within the MVRD were reviewed. The review of these regulatory materials focussed on sections that dealt with fill, and whether those sections could be strengthened.

4 RESULTS OF PART 1 DATABASE REVIEW

4.1 APPLICATION STATUS AND END-USE

The final compilation of the database included 107 applications. During the review it was determined that 77 of these applications were either initially approved or approved with conditions. Thirty (30) applications in the database were refused upon initial application to the ALC. Under Section 51 of the *Act* applicants can request reconsidered. On reconsideration by the ALC, 8 of those applications were subsequently approved with conditions, and as such they are represented only as approved sites within the results.

Through review of the data base and ALC files it was determined 37 of the applications were denoted as "Approved" based on the straight forward decisions by the ALC. No additional conditions were appended to theses approvals. An additional 40 applications were denoted as "Approved with Conditions". These sites had a range of additional conditions added to the approval conditions such as fill quality, soil movement, temperature, and moisture conditions under which soil should be managed, installation of drainage system, reclamation, irrevocable letter of credit[1], phasing of the project, additional monitoring/reporting, and the active participation of a Qualified Professional. The remaining 22 of the applications were refused by the ALC (Table 1).

The initial review of these 77 approved sites was carried out solely as a desktop exercise to determine which applications required further examination, either on site visit or by roadside survey. The initial separation resulted in 13 possible sites for further on-site investigation, 19 for roadside survey and the remainder to be reviewed using available database or aerial imagery. However, as a result of challenges related to site access, it was determined that the review would consist of intensive use of available imagery, data base, application files and more roadside investigation for all 77 sites. For the purposes of reviewing applications, including reason for fill, proposed volumes and end use of the site the 22 refused sites were included as part of the database analyses.

Table 1 also reveals that there are more applications in some municipalities, namely the Township of Langley, as compared to other municipalities. In discussions with municipal staff at the project Advisory Committee, two specific observations were made regarding this trend. The first was the proximity of potential fill sites in "rural" municipalities to development sites within the urban municipalities. This distance effects the travel time for hauling fill from the source site and can influence where the soil will be deposited. The second observation was during the study timeframe from 2006-2016, municipal soil bylaws and bylaw enforcement in some municipalities was increased reducing poor fill practices in some areas (i.e., Surrey and Delta).

[1] Also referred to as a bond or security for conditions of approval for a fill application

Table 1: Fill Application Status by Municipal Government

Municipal Government	Application Status			Grand Total
	Approved	Approved with Conditions	Refused	
City of Coquitlam	1	-	-	1
City of Pitt Meadows	2	5	1	8
City of Richmond	2	4	2	8
City of Surrey	3	4	2	9
Corporation of Delta	2	2	-	4
District of Maple Ridge	1	-	1	2
Township of Langley	26	25	16	67
Grand Total	**37**	**40**	**22**	**99**

As part of the initial review, consideration was given to the proposed and apparent "end use" of the site. Table 2 shows the distribution of the sites by local municipality and on the "end use" of the property. The determination of "end use" was based on either the fill application and/or the visual evidence of the current land use from online imagery. Note: the end use was confirmed for several sites during the second part of this project.

Municipal Government	Projects: "Agriculture Use" (active or completed)	Projects: "Non-Farm Use"	Grand Total
City of Coquitlam	-	1	1
City of Pitt Meadows	2	6	8
City of Richmond	6 [a]	2	8
City of Surrey	8	1	9
Corporation of Delta	4	-	4
District of Maple Ridge	2	-	2
Township of Langley	53 [a]	14	67
Grand Total	**75**	**24**	**99**

a - final land use of 6 sites (**2** in Richmond and **4** in Township of Langley) remains undetermined – assumed to be "agricultural use"

Table 2: Intended End Use of land following Application of Fill

4.1.1 Locations of Approved Fill Sites

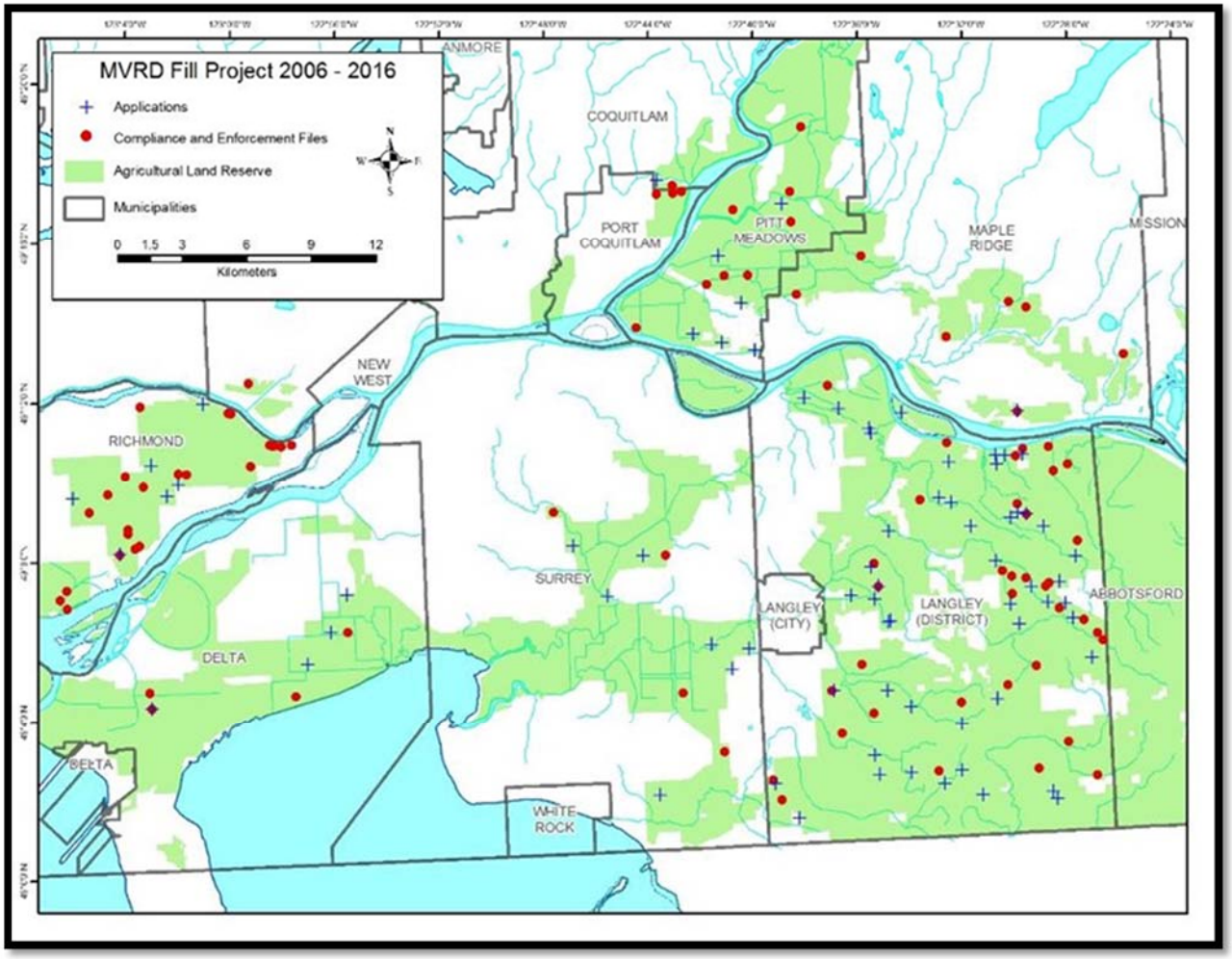
Figure 2 provides a visual image of the spatial distribution of the 77 fill application sites that were approved or approved with conditions on the ALR within the study area.

4.1.2 Compliance and Enforcement on Fill sites

ALC staff reported that during the 2006 - 2016 study period, in addition to the 99 applications reviewed in this investigation, compliance and enforcement actions were undertaken on over 80 fill sites in the Metro Vancouver area. Distribution of these sites within the study area is identified in Figure 2. These additional sites were not part of this review but indicate an additional significant level of fill activity within the study area.

Compliance and Enforcement (C&E) on the approved fill sites was noted within the ALC application database. Results of the database query indicated a small number of sites with any C&E activity. From the results of the visual rating of the sites (discussed in detail later in this report) there was an indication that more C&E actions could have possibly been justified. Several sites appeared to have larger volumes of fill, poor fill quality or site management issues as well as a configuration that may cause off site impacts (e.g., slope, or blocking of drainage).

Figure 2: Spatial Distribution of Approved Fill Applications and Compliance and Enforcement Sites



4.2 Reasons for Placement of Fill

Based on the ALC approved placement of fill applications, a host of reasons were presented for why the fill was required. These are represented in Table 3 below in relation to the approval status of the application. As would be anticipated in a region of high rainfall and floodplain or fine textured soils, the most common reason given for why fill is required was to alleviate drainage concerns (50%) or improve the capability (20%) of the land. Approximately 28 percent of the applications with the stated goal of improving drainage were refused. The reasons for refusal ranges from potential impacts on adjacent land to a determination that fill was not justified when the sites were compared to similar sites. Of the sites that indicated the fill application was to improved capability, about half had mapped agricultural capability limitations[2] of soil moisture deficiency "A" or adverse topography "T" while the other half had excess water "W" limitations. Sites with the intended goal of improving drainage were dominated by soils with an agricultural capability limitation of "W".

Table 3: Reasons for Fill Application

	Application Status			
Reason for application	**Approved**	**Approved with conditions**	**Refused**	**Grand Total**
buildings	4	4	3	11
drainage	17	17	13	**47**
drainage / recontour	2	1	-	3
filling pond	1	-	-	1
improve capability	5	8	5	**18**
landscaping	-	2	-	2
paddock	-	1	-	1
parking	1	-	-	1
ponds	1	-	-	1
privacy berms	1	-	-	1
public use	-	1	-	1
reclamation	1	2	-	3
recontour	3	3	1	7
improve capability & drainage	1	1	-	**2**
Grand Total	37	40	22	99

[2] Agriculture Capability Subclass - Limitations

Symbol	Limitation	Symbol	Limitation
W	Excess water (groundwater)	N	Salinity
T	Adverse topography	C	Adverse climate (excluding precipitation)
I	Inundation (flooding by streams, etc.)	R	Shallow soil over bedrock and/or bedrock outcroppings
A	Soil moisture deficiency	F	Low fertility
D	Undesirable soil structure	E	Erosion
P	Stoniness	X	Cumulative and minor adverse conditions

Although somewhat expected, approximately 20% of the applications stated that the reason for fill placement was not related to soil bound agricultural activity. The majority of these were for building construction, while some were agriculture related.

In the fill applications, proponents or their representatives often state the end use of the site. Table 4 provides a comparison of the observed actual use of the site versus the justification for fill given in the application for why fill is required. On sites that had limited evidence of agricultural activity, the proposed end use was used for this comparison. About half (51%) of the sites applying for fill placement to improve drainage or improve capability were sites where soil bound[3] agriculture activities such as berry or vegetable production was occurring.

Table 4: Reason for Fill Application Versus Actual Use of Site

General Site Use / Reason for Fill	aquaculture	berries	commercial	composting	farm yard	forage	gravel pit	greenhouse	industrial	livestock	mixed	nursery	pasture	recreational	residential	turf	vacant	vegetables	Grand Total
buildings		1	3		2			3							2				11
drainage		12	1			8				7		2	6	3	2	2	2	2	**47**
drainage / recontour						1		1								1			3
filling pond										1									1
improve capability		6				2		1	1	1	1	1	3		1		1		**18**
improve capability / drainage																	1	1	**2**
landscaping					1										1				2
paddock										1									1
parking										1									1
ponds	1																		1
privacy berms										1									1
public use														1					1
reclamation		1					1								1				3
recontour		3		1		1					1						1		7
Grand Total	1	**23**	4	1	3	**12**	1	5	1	12	3	3	**9**	4	7	**3**	5	**3**	99

4.3 Acceptable Reasons for Fill

Upon review of the database, application files, and collected visual observations for the sites, it was evident that the reasons for proposed fill applications were wide ranging. In some circumstances the

[3] "soil bound production" includes those land uses that on growing crops in soil on the site. In this study that includes cultivated land used for berry, forage, pasture, turf and vegetable production.

reasons were not clearly related to either the inherent site capability or in line with the stated final allowed use of the land within the ALR.

For a regulatory agency, either the ALC or a municipal government, to determine if a fill application is legitimate, they must rely on staff knowledge, information provided in the application or contracted expertise. To strengthen the quality and type of information provided by Qualified Professional (QP), there should be some reliance placed on professional reports provided with applications. The following section describes the specific aspects of an application that can be considered of acceptable reasons for the application of fill followed by a discussion on what is not concerned acceptable.

4.3.1 Change in Capability

A change in capability means to remove specific limitations. This change would include placing relatively small volumes of fill to adjust grade in swales (i.e., "W", "I" and possibly "T"), additions of finer textured materials or the removal of rock/stones to adjust texture or coarse fragment percentages (i.e., 'A', 'D', 'P'). As part of the application, evidence must be provided as to how the limitation is affecting the intended farm use of the sites. Such evidence could be that the site has been "farmed" prior to the fill proposal but production has not been optimized, or that on similar adjacent sites the limitation has a negative effect. If this evidence is not provided, the proponent has not sufficiently demonstrated that other options for management or removal of capability limitations have been attempted.

4.3.2 Change in Overall Land Configuration

A change of overall land configuration for a specific purpose can involve minor changes to the slope/orientation of the property (to relieve a "T" limitation). A limited number of situations may arise where topography limits the ability to configure fields or irrigation systems for efficient production. In this situation, the site needs to be graded in one direction to capture light/heat, graded for water management such as for cranberries or flood irrigation, or terraced for planting of vineyards/tree fruits. Both regrading and fill may be combined to adjust a "T" limitation.

4.3.3 Construction of a Foundation Pad for Farm Use

Construction of a foundation pad for a building for a designated farm use is an acceptable reason for fill. For example, fill would be used for a greenhouse or poultry barn (>2% parcel coverage) or livestock barn (< 2% parcel coverage). These structures are covered within the existing legislation. In contrast, when the majority of the surface area of a parcel is covered with fill to a depth greater than required for a stable foundation for the farm building, fill sites can have the potential to cause drainage concerns to adjoining parcels.

4.3.4 Creation of a Working Platform

Creation of a working platform for very specific aspects of a farming operation other than the main farm building can be acceptable. For example, a livestock holding area, storage or processing structures, access road, dike or water retention facility which allows the creation of more "utility" on site for the agricultural operation.

4.3.5 Unacceptable Reasons for fill

It is unacceptable to place construction overburden specifically for the purpose of disposal and not for the purpose of improving agricultural capability or suitability. Several applications within the database listed the reason for fill as the construction of a farm house, farm building or horse farm. In several

cases, the fill was placed in what appears to be a “landing pad” for future non-farm use and not the intended use indicated in the application. Many of these landing pads are more than one metre above existing site grade, have steep side slopes on the fill pad and appear to be interfering with local hydrology. They appeared to be disposal sites rather than improvements to agricultural capability.

5 RESULTS OF PART 2 SITE INVESTIGATION

A visual rating system was created to separate fill application sites into groups to report on the "results" of the filling activity or fill project. The ratings were based on the various qualitative observations collected on each site. These ratings categorize the project files into five broad classes. The first three classes, Good, Fair and Poor are based on agricultural or potential agricultural use, while the remaining two classes are generally based on either a non-agricultural use or ALC refusal of the fill application. Table 5 provides a more detailed description on each of the ratings. Within the database and from the collected observations, there was clear separation of the sites from the standpoint of "farmed" or "non-farm use". There was also clear separation of sites that showed the deposition of fill was effective or ineffective in terms of either improving or maintaining agricultural production on the site.

Separating sites that were considered a good use, or a poor use of fill was relatively straightforward. For the good sites there was clear indication of farming activity and healthy crops. In addition, the sites blended well into the landscape from a topographic standpoint. The most common indicators of poor sites were a lack of a change in use, no farm use or extremely poor production indicators such as continued poor drainage or drought conditions demonstrated by imagery or from roadside visual observations. Many poor rated sites had excessive amounts of fill (i.e., domed shape or steep side slopes) or evidence of poor quality materials (i.e., visible coarse fragments).

Section 5.1 provides examples, including photos, of the site ratings (Good, Fair, Poor) while Section 5.2 provides the overall visual ratings for the study area.

Table 5: Visual Rating Criteria for Fill Sites

Rating	Fill (i.e., quality/volume)	Land Use (i.e., agricultural activity, relationship to adjacent uses)
Good (G)	• no perceived quality issues • amount matches or appears to closely match application • volume/depth appropriate to use and adjacent uses	• agricultural activity taking place or could be reasonably expected to take place • no visible issues with crop growth and variability of crop cover less than prior to filling • agricultural activity not out of character with adjoining agricultural uses • no perceived impacts to adjacent land
Fair (F)	• some perceived quality issues (e.g., texture) • amount appears to be inconsistent with application • volume/depth not appropriate to use and adjacent uses	• land is not being actively farmed for soil bound agriculture crops • agricultural use may be reasonable but some noticeable issues • evidence of impacts on crop (e.g., poor growth or variability visible) • land configuration and/or water management infrastructure does, or has the potential to, impact adjacent users (e.g., land is domed, drainages are blocked) • some visual or file information indicating volume of fill placed potentially greater than initially proposed
Poor (P)	• clearly identifiable quality issues (e.g., stones) • amount greater than approved in application • volume/depth excessive in relation to adjacent uses	• land is definitely not being actively farmed for soil bound crops (although it may still have farming capability) • clear evidence of negative crop impacts (i.e., drought or flooding) or land is simply an abandoned fill pad • fill is definitely creating negative impacts on adjacent users (i.e., blocked drainage, steep side slopes) • visual or file information clearly indicating volume of fill placed greater than initially proposed
Not farmed (X)		• land is not being used for farm use or for an allowed non-farm use • land has been converted to commercial/industrial, recreational/park, or strictly residential use • enforcement action underway
Refused (R)		• applications refused by ALC • Note: sites originally removed and subsequently approved and/or sites where filling occurred after a refusal are not included
Unknown (?)		• use and condition in relation to fill proposal cannot be determined based on accessible information • proposed fill activity has not been initiated

5.1 Imagery of Selected Sites to Illustrate Visual Ratings

5.1.1 Example 1: Good Rating. Cropped land used for blueberries.

- Uniform crop cover, limited volume, soil fill quality like existing soils.
- First image aerial overview.
- Second image taken from road – area of view indicated by yellow arrows. Note small amount of fill forming berm adjacent to first crop row

Figure 3: Good rating: land used for blueberries

5.1.2 Example 2: Fair Rating. Land to be cropped to blueberries.

- First image is aerial overview of fill area (light coloured soil with no crop)
- Second image shows how fill is domed with abrupt breaks to adjacent field
- Third image shows significant concentration of coarse fragments within fill

Figure 4: Fair rating: land to be used for blueberries

5.1.3 Example 3: Good Rating. Non-soil bound agriculture for an outdoor livestock area

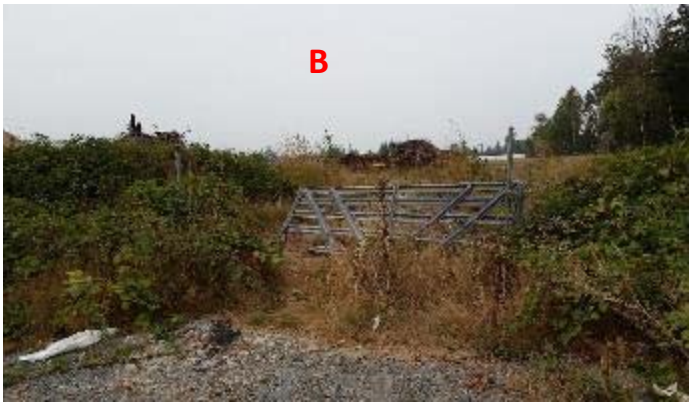
- First view is aerial overview
- Second image is of area highlighted within the yellow arrows.

Figure 5: Good rating: non-soil bound agriculture

5.1.4 Example 4: Fair Rating Non-soil bound agriculture (nursery/greenhouses).

- Average depth of fill proposed in the application was 0.55 m
- Depth of fill at rear of property is at least 2 m above road grade (images B & C)
- Property at upper end of watershed and land has gentle slope. Fill has potential to impede flow from adjacent properties

Figure 6: Fair rating: non-soil bound agriculture



5.1.5 Example 5: Residential Not farmed X Rating for house fill pads.

- Although these fill pads were not sites within the database they are examples of an X rating
- Fill is placed as preload and is ultimately not to exceed 1 m depth and 2000 m^2
- Of a range of sights surveyed using Google tools – the average area coved by these pads was calculated at 4,800 m^2
- Red boxes outline the extent of fill pads
- Second image is a roadside view of a preload pad estimated to be over 3 m depth

Figure 7: X rating: residential fill pads

5.1.6 Example 6: Poor rating (bare at time of inspection – proposed for blueberries)

- Fill material compacted, fine textured, and litter with coarse woody material
- No topsoil salvaging was evident

Figure 8: Poor rating: proposed for blueberries

5.2 Visual Rating Results

Three sites that had received a refusal by the ALC were included in the visual rating results. These were added as they were observed to have received fill; however, they had not been noted as compliance and enforcement sites and appeared to be suitable for farm use. That meant that 56 (57%) sites were rated for farm uses, 19 (20%) were noted as refused and 23 (23%) were rated as not used for farming purposes.

A surprisingly low number (13%) of approved fill sites were ultimately rated as Good. An additional 18% were ranked as Fair. This left about 37% of the sites rated as Poor (Table 6). Considering that placement of fill was intended to improve the capability, suitability or overall function of agriculture on the site, these results reveal that placement of fill is not necessarily improving agriculture and the continued approval of fill placement as a mechanism for improving capability needs modification.

5.2.1 Distribution of Sites Based on Visual Rating

The tables below are comparing the visual ratings with various aspects of the applications. In Table 6 the visual rating is compared to the approval. In this table there are no clear trends as to why sites were ranked Good, Fair or Poor. One might expect that applications approved with conditions would be more predominantly in the Good rating, but that did not occur, as the outcomes were distributed somewhat equally across the Good, Fair and Poor ratings.

Table 6: Visual Rating versus Approval Status

	Visual Inspection Rating						
Approval status	Good	Fair	Poor	Refused	Not Farmed	Unknown	Grand Total
Approved	6	7	10		12	2	37
Approved with conditions	7	11	8		10	4	40
Refused			2	19	1		22
Grand Total	13	18	20	19	23	6	99

The comparison of visual rating versus reason for fill as proposed in the original application (Table 7) may be the only comparison that presents a trend that should raise a flag for future fill approvals. A significant number of the sites that had indicated drainage issues or improved capability of the site as the reason for the fill application continued to have issues after completion of the fill project. In these instances, the reason for the poor ranking was that the sites remained in very low intensity as abandoned or poorly utilized pasture. Visual inspection of one blueberry site indicated that there were coarse fragments, exposed subsoil, a very rough surface and the crop was in extremely poor condition. Of the sites that ranked as fair, over half were sites with blueberries as the crop in production or intended crop; however, the crops were doing poorly in relation to other blueberry crops on surrounding land or there were visual soil quality concerns.

Table 7: Visual Rating versus Reason for Fill

Reason for Fill	Visual Inspection Rating						
	Good	**Fair**	**Poor**	**Refused**	**Not Farmed**	**Unknown**	**Grand Total**
buildings	1	2	1	3	4		11
drainage	9	3	11	10	9	5	47
drainage / recontour		2	1				3
filling pond	1						1
improve capability	1	9	2	5	1	1	18
improve capability / drainage			1			1	2
landscaping					2		2
paddock	1						1
parking					1		1
ponds					1		1
privacy berms			1				1
public use					1		1
reclamation			1		2		3
recontour		2	2	1	1		7
Grand Total	13	18	20	19	23	6	99

Comparisons were also made for operation type and municipal governments. In both cases the results were interesting but not significant. From the standpoint of operation type, again there was an expectation that sites with soil bound production would be more likely to rank in the Good rating due to the apparent dependency of producers on the soil resource for crop production. This was not the case with only 13% in the Good rating, and about 32% within each of the Fair and Poor ratings. An additional 13% were not being farmed.

Local municipalities are part of the approval and monitoring system for fill applications and have varying levels of oversight in fill applications. When looking at ratings versus local municipality, there was no indication that one municipality fared better than another in terms of the visual rating of sites. See Appendix 2 for tables showing details of these comparisons.

5.2.2 Comparison of Visual Rating to Property Size, and Fill Area, Volume and Depth

Table 8 provides comparisons of the average, maximum, minimum and median for property size, fill area/volume, and depth in relationship to the visual ratings. There was no significant trend although some general characteristics of the sites should be noted.

Good sites

- tended to be large properties with generally smaller fill areas
- primary reason for fill was to improve drainage
- the land had mixed uses, but was primarily soil bound cropping

Fair sites

- tended to be medium size properties with generally the highest fill area percentage
- primary reason for fill was to change capability
- land had mixed uses

Poor sites

- tended to be smaller properties with less areas covered by fill
- primary reason for fill was to improve drainage
- land had mixed uses but was mainly non-cropped

Table 8: Visual Rating compared to Property Size and Fill Amounts

Visual Rating		Total Property Area (ha)	Fill Volume (m^3)	Fill Area (ha)	Depth of fill (m)	Percent of are filled (%)
Good	average	16.0	38,085	3.6	1.4	22.5
N = 13	max	66.1	140,000	14.5	6.1	
	min	2.0	1,400	0.0	0.2	
	median	14.5	24,250	1.4	0.9	
Fair	average	9.4	45,293	7.1	1.6	75.5
N = 18	max	34.7	335,000	69.6	4.8	
	min	1.5	2,000	0.6	0.5	
	median	6.2	14,200	1.9	1.2	
Poor	average	6.9	28,405	2.3	0.9	33.3
N = 20	max	16.1	118,000	6.1	3.1	
	min	1.8	91	0.1	0.1	
	median	5.5	11,500	2.0	0.8	

6 RECOMMENDATIONS RESULTING FROM DATABASE AND SITE REVIEWS

During the review of the application database and sites it became evident that there is a need for some specific guidance and structure on what applications for placement of fill should contain in terms of information. There were clear indications that there is a lack of guidance or knowledge on the part of applicants, agents or Qualified Professionals on what is acceptable in terms of best management practices surrounding the use of fill. Two general topic areas stood out. The first relates to the understanding of agricultural capability versus crop suitability. The second are issues around best management practices for fill placement and the actual management of that placement.

6.1 CAPABILITY VS SUITABILITY

As noted in Section 4.2, the justification for fill provided by most applicants often refers to the desire to change the agricultural capability of ALR land. Although the agents or Qualified Professionals contracted by applicants should be able to provide the clear reason for the fill application, it appears there may a desire to change the site to be more suitable for one use rather than for a range of uses. The terms agricultural capability and suitability are often confused in discussions around the use of agricultural land.

The widely accepted definition of agricultural capability[4] addresses the range of cropping options on the site. This capability rating is the system that laid the foundation for placing of land in the ALR. It is tied to soil and climate and is primarily focussed on soil bound agriculture. The definition of capability does not speak to farm buildings, roads, or other structural features that relate to the movement of equipment or management of water. Capability also assumes that specific management practices (e.g., drainage, irrigation, cultivation, and the application of organic matter or nutrients) may be utilized to reduce the limitations on the range of crops that could potentially be produced on the site.

In contrast, suitability relates to the use of land for a specific crop(s). Although not developed for the wide range of cropping systems in BC, a land suitability rating system has been developed for some cropping systems in Canada[5]. The system generates a rating for specific crops based on soil-climate-landscape potential.

The placement of fill on a site could alter the site sufficiently to change the suitability rating for a specific crop or specific agriculture use in the case of non-soil bound agriculture. The concern arises that by using fill, a site may be converted to one suitability, potentially reducing the range of capability (e.g., rocky fill used to improve drainage for a blueberry farm but limits the production of field crops).

[4] Land Capability Classification for Agriculture in British Columbia MOE Manual 1, 1983, https://www.alc.gov.bc.ca/assets/alc/assets/library/agricultural-capability/land_capability_classification_for_agriculture_in_bc_1983.pdf

> Land capability classification indicates the type and extent of any soil and climate parameters which affect the range of crops that can be grown and/or the management inputs required.

[5] The use of the land suitability rating system to assess climate change impacts on corn production in the lower Fraser Valley of British Columbia, P.-Y. Gasser, C.A.S. Smith, J.A. Brierley, P.H. Schut, D. Neilsen, and E.A. Kenney, Can. J. Soil Sci. 96: 256–269 (2016) http://www.nrcresearchpress.com/doi/pdf/10.1139/cjss-2015-0108

6.1.1 Recommendation

Consideration should be given to include land suitability as part of the application and approval process for placement of fill. This would allow for a more detailed assessment of the land allowing for some consideration of the cumulative effects of multiple limitations (i.e., soil, climate, topography) and the feasibility of a range of improvements (e.g., "normal" land management practices, placement of fill, or a non-farm use).

The key questions that should be answered as part of an application are:

- what is the current suitability? and;
- what is the future suitability for a specific crop or group of crops if the land is intended to remain in soil bound agricultural production?

These questions assume the land will remain or become more capable of producing a range of soil-bound agricultural uses. If the intention is to move away from soil bound production, this then becomes a much broader policy discussion for the ALC.

6.2 Site Specific Approval and Management considerations

Although there is some guidance provided in the current ALC *Regulations* and policy documents (Refer to Section 7), the following highlights some of the more specific set of recommendations for consideration, particularly in terms of the possible development of a "best practices guide for the placement of fill in the ALR". Appendix 1 includes more details on each of the following.

Site conditions

Has the inherent capability and suitability of the site been fully assessed prior to consideration of placement of fill as an option? The application should only be for improving capability.

Fill specifications

What are the characteristics of the fill materials and site in terms of texture, coarse fragment content, contaminants, and organic matter? The proposal must fully detail these and the potential risks and benefits related to them.

Conditions for fill approvals

Specific conditions such as topsoil salvage or the appropriate additions of soil amendments such as compost should be included in the proposal particularly as they relate to nutrient management on the site.

Depth and Fill Volumes

How much fill is required? This may be the most challenging question, although there are some valid reasons for setting reasonable limits on depth and volume particularly related to normal agricultural soil and water management.

Slope or Grade of Land

What is the slope or grade of the site and how will it be changed and why? Slope as it impacts surface drainage is only part of the consideration for water management; however, shedding water to adjacent lands may cause negative impacts. Slope may also impact future land use or site stability.

Bonding or Security

A consistent approach to collection of a bond related to fill volume and property size may counteract the perceived significant economic benefits from placement of fill.

Consistency of Plans Requirements for Placement of Fill Applications

Placement of fill proposals and site monitoring and closure reports have lacked consistency in both content and quality. The expectation of what is required and who is qualified (e.g., a QP) needs to be clearly specified.

Water control

This project was focused on sites within MVRD which has a moderate oceanic climate characterised wet winters and moderately dry summers. This means that water management, particularly as it relates to drainage and off-site impacts must be included in any proposal. Fill applications must also include considerations for impacts on irrigation.

6.3 Other Recommendations

The following recommendations go beyond those noted above that are site specific. At a regional level fill generated from construction or redevelopment activities has the potential to go to broader uses. The movement of fill material could also be controlled at a regional level to ensure a highest and best use rather than a rapid and simple 'disposal'.

6.3.1 Potential locations for fill deposition across the region

1. Dike construction. With the current predictions related to climate change there has been a significant amount of discussion around the need to raise and strengthen dikes. Although all fill materials may not be suitable for dike construction this option for fill could be a more appropriate use than land application.
    - The Fraser Basin Council is one source of information on diking needs https://www.retooling.ca/coastal_management.html
2. Backfilling of aggregate extraction sites. This is an option that is not being fully utilized, based on observation and personal communication.
    - Recommend use of guidance documents such as the 2004 Alberta Environment Code of Practice Guide for Pits http://aep.alberta.ca/land/land-industrial/programs-and-services/documents/GuideCodePracticePits-2004.pdf
3. Agency management or oversight. For either one of these options an overall single agency approach may be required to manage the movement of fill to the sites. This could be a provincial regulator such as the Ministry of Forests, Lands and Natural Resource Operations and Rural Development who are responsible for dike inspection.

6.3.2 Municipal control of Fill Movement

1. Development plan and construction approvals. As part of the municipal approval processes for redevelopment or issuance of building permits, a developer should be required to file a detailed plan indicating how excess soil materials or fill will either be used on site, separated to prevent contamination and the receiving end location of the removed materials. Separated topsoil and clean organic materials could be used to benefit final reclamation of a construction site rather than being removed off site. If they are moved off site, they could be targeted for use as topsoil

applications on appropriate soil bound agriculture production sites. Subsoil materials should be used for dikes, aggregate pit back fill or as subgrade on fill sites for farm buildings rather than final grade materials on fields.

7 PART THREE: REVIEW OF CURRENT LEGISLATION, REGULATION AND POLICY

There are several pieces of legislation, regulation and policy currently in use by the Agricultural Land Commission. The ALC legislation includes the *Act*, and the *Regulation*. The following section highlights the parts that govern fill use in the ALR.

7.1 AGRICULTURAL LAND COMMISSION ACT

Section 20 of the *Act*, [SBC 2002] Chapter 36 (ver. Current to Dec 6, 2017), titled, "Use of agricultural land reserve", pertains directly to the discussion of fill (see Appendix 3 for the text of Section 20). In addition, the definitions of "farm use", 'fill', "non-farm use", and "soil" play a role in the determination of the use of fill in the ALR.

Definitions of Note

> *"farm use" means an occupation or use of land for farm purposes, including farming of land, plants and animals and any other similar activity designated as farm use by regulation, and includes a farm operation as defined in the Farm Practices Protection (Right to Farm) Act;*
>
> *"fill" means any material brought on land in an agricultural land reserve other than materials exempted by regulation;*
>
> *"non-farm use" means a use of land other than a farm use;*
>
> *"soil" includes the entire mantle of unconsolidated material above bedrock other than minerals as defined in the Mineral Tenure Act;*

7.2 AGRICULTURAL LAND RESERVE USE, SUBDIVISION AND PROCEDURE REGULATION

There are four critical sections of the Regulation which pertain directly to the discussion of fill. These are Section 2: Activities designated as farm use, Section 3: Permitted uses for land in an agricultural land reserve, Section 4: Notification requirements for specified farm uses, and Section 5: Notification requirements for specified non-farm uses.

In addition, there are four other sections that pertain to the administration of applications, fees and penalties related to the application of fill and the use of land within the ALR. These are Sections 29, 33, 33.1 and 35. (See Appendix 3 for abbreviated text of these sections).

One definition of note in the *Regulation* that plays a role in determining the use of fill in the ALR is the term 'farm'.

> *"farm" means an occupation or use, for farm purposes, of one or several parcels of land or tenured areas of Crown land;*

7.3 OPTIONS TO REVISE THE ALC *ACT* AND *REGULATION*

Both the *Act* and *Regulation* relate to fill in two separate ways "allowed use" and "non-farm use". During the field investigation, numerous examples were evident where applicants appear to be abusing the intent of these uses. Observations included filling with excessive volumes, damage to lands or potential harm to adjacent lands. This portion of the report provides some interpretation of the relevant sections and observations made in relation to those sections.

7.3.1 Allowed Use Applications

- Fill can be placed on land in relation to drainage and irrigation infrastructure (Section 3(1) of *Reg*.). If the amount of fill is directly related to that infrastructure and not a widespread use to alter floodplain elevation, it can be allowed.
    - Recommend revising the *Regulation* as there are several examples of excessive use of fill under the guise of diking blueberries and cranberries that have caused harm to others, fouling of watercourses, and even the creation of unstable water storage reservoirs above existing grade. There appears to be a few landowners who, by their use of fill, dike their fields without dealing with traditional on-farm drainage, or grow unsuitable crops on whatever land they can purchase regardless of the capability limitations.

- Fill placed in relation to the "farm house" (Sec. 18 *Act*). Fill can be placed on 0.2 ha and 1 m above grade without a non-farm use application.
    - Recommend revising both the *Act* and *Regulations* or policy related to fill pads for dwellings. As an example, an area along 40th Ave roughly between 152nd and 176th Streets within the City of Surrey has numerous instances of these conditions being stretched. Most of these fill pads are placed on small parcels (less than 10 ac or 4 ha). The average fill pad size for house + driveway+ some accessory use is almost double (0.48 ha) the size allowed (range 0.17 to 1.23 ha) and most pads are well above the 1 m elevation allowed (based on Lidar/contour data and visual observations). Although several sites are still in a preload stage, most have structures in place. The fill pad and its placement have created a larger footprint that cannot be farmed due to slope and location of the pad. Many are set well back (>60 m) from road frontages and have a final thickness exceeding the allowed 1.0 m.

- Fill placed in relation to "farm use" activities (activities that cannot be prohibited). The area that can be filled must be less than 2% of the property for the allowed use unless specific conditions (Sec. 4 *Regulation* (abbreviated below)) are met. This section allows for broader use of fill subject to notification and with limited conditions for *"… the construction, maintenance, and operation of ... a greenhouse, … an intensive livestock operation or for mushroom production, … an aquaculture facility, … a composting facility for the production of Class A compost (defined by OMRR) or from agricultural waste, … if the area is over 2% of the parcel; and a turf farm...* "
    - Recommend consultation between local government building approval process and ALC staff to consider some changes to *Regulation*, Bylaws, or policy. This section of the *Regulation* seems to be experiencing some abuse or stretching of the need for fill. Fill is

being applied in greater volumes/depths than required for the foundations of the proposed operations or under the guise of a future use that is not consistent with the agricultural character of the land or surrounding properties.

7.3.2 Non-farm Use Applications

Under Section 29 of the *Regulation* in relation to Sec. 20 (Use) & Sec. 21 (Subdivision) of the *Act*, persons may apply for a non-farm use within the ALR.

- Applications for placement of fill occur under this section when they fall outside of the allowed use, for example, when fill is used to do one or more of the following:
    - raise the land above floodplain for buildings
    - reclaim the land to a higher capability (or for aggregate extraction)
    - prepare the land for a completely different agricultural use (e.g., grapes in a “wetland”or organic waste management, or “horse estates”)
    - change the grade/elevation of the land, including orientation towards the sun
    - improve drainage for crops - without using traditional farm drainage methods/tools (although the cropping is a farm use, applications are made under this provision when fill volumes are substantive)
    - conduct processing of farm products
    - provide additional space for farm family or farm worker housing
    - aesthetics - landscaping of the rural/farm estate

- Recommend review or changes to the interpretation of non-farm use within the ALR and what is deemed to be an acceptable application of fill for non-farm use. Visual examination of sites within the ALC database has indicated that many of the approved sites have issues. These include the over application of fill creating "landing pads" or “domes”. The **“**landing pads” are often substantially elevated above surrounding grade and have abrupt side slopes. The “domed” sites seem to be designed to shed water to adjacent land; however, in several instances the crops planted in these sites were not performing any better than surrounding unfilled lands. There are many situations where the future use proposed in the application is not yet occurring and the land is in non-farm use. There were also a few instances where it was clear that the fill materials were of poor quality (i.e., high coarse fragments percentages or texture/structure is substandard for cropping use).

There was evidence that this was creating impacts to adjacent land and in several instances the crops planted in these domed sites were not performing any better than surrounding unfilled lands.

7.4 Review of ALC Policies and Report Criteria

Of the several policies currently approved by the ALC, five policies, and one report criterion are of particular interest to the discussion of fill. These are:

7.4.1 Policy L-13, January 2016 – Activities Designated as A Permitted Non-Farm Use: Dikes for Flood Control and Irrigation in the ALR.

The policy specifically references Section 3(1) of the *Regulation*. Although the *Regulation* does not allow for widespread or area-based filling, it does allow for flood control or irrigation measures. Dikes can be used to prevent freshet flow and/or sea level flooding and/or impacts of seasonal storm flows. *Flood control works in and about a stream, regardless of their nature, are subject to the provisions of the *Water Sustainability Act (WSA)*. Works may also be used to capture or detain flows for irrigation purposes. *Water diversion and storage for irrigation must be licenced under the *WSA*. The policy indicates the amount of fill placed or soil removed for drainage or irrigation purposes must be justifiable to the Commission. (Note: items identified with "*" are deemed to be "work"' under the *WSA*).

Suggested clarifications:

The policy is generally acceptable but has a weakness in that it does not require the services of a QP (PEng or PAg) with applicable water management training and expertise to plan/design/approve the "proposed works". The impact of these works on the subject property and adjacent properties must be part of that consideration. The policy should also reference the *Water Sustainability Act*.

7.4.2 Policy L-15, January 2016 – Placement of Fill or Removal of Soil: Construction of a Single-Family Residence

The policy specifically references Section 18 of the *Regulation*. The policy discusses the definition of what constitutes a single-family residence and the associated structures and works related to that residence. It also places limits on the fill depth and land coverage by the fill pad and driveway access.

Suggested clarifications:

The policy is reasonable but has some weaknesses. The policy states that these areas are 0.2 ha, many are exceeding this size, are being placed beyond the 60 m suggested setback of the "home plate", and have a thickness of more than 1.0 m (see notes under Allowed Use Applications, Section 7.3.1). The policy should be updated to include the "home-plate" criteria specified in the Guide to Bylaw Development in Farming Areas (BC Ministry of Agriculture, 2015.) https://www.alc.gov.bc.ca/assets/alc/assets/library/land-use-planning/guide_for_bylaw_development_in_farming_areas_2015.pdf.

7.4.3 Policy L-14, January 2016 – Placement of Fill or Removal of Soil: Construction of Farm Buildings

The policy specifically references Sections 1.1, 2 and 2(4) of the *Regulation*. The policy discusses the appropriate placement of fill or removal of soil to construct farm buildings where the area of the farm building is less than 2% of the area of the parcel. It also notes that fill used to raise land not directly associated with the building requires a non-farm use application. Where buildings exceed 2% parcel coverage, Section 4 of the *Regulation* is referenced.

Suggested clarifications:

The weakness in the policy relates to farm-use and non-farm use designations. Designation of an activity as a farm-use (*Act*) implies that there are limited restrictions that can be placed on the placement of fill or removal of soil if the land owner is carrying out a farm use. Some additional issues that arise are: 1) how enforceable is the restriction of 2% coverage and is it only for the building footprint for non-farm use applications?; 2) what are the reasons for the application?; and, 3) what are the provisions in the application or approval and are the provisions enforceable or being enforced?

7.4.4 Policy L-23 Oct. 2017 – Placement of Fill for Soil Bound Agricultural Activities

This policy relates specifically to the placement of fill for non-farm use under Section 20 of the *Act*. It attempts to create a guidance template for the soil and site considerations which must be covered in any proposals submitted to the ALC. It also provides some indication of the best management practices that must be part of the fill placement proposal if the activity is approved.

Key to the review of the proposed applications is that the fill placement must be a positive improvement to the land. The activity must also not cause harm to the land or to adjacent land.

Suggested clarifications:

- It is not clear who defines the "standard agricultural best practices". It may be appropriate to add more details. These should include soil management practices e.g., cultivation and incorporation of soil amendments, and the use of water management tools including both drainage and irrigation practices.
- The limit of 0.5 m above maximum water table should be clarified to be water table in soil, not the level of water during inundation events. This also needs clarification in terms of remediation of adverse topography (T) and excess water (W) limitations if they are micro topographic areas within a field that may exceed the 0.5 m depth (e.g., the hummocky nature of the Whatcom-Scat-Nicholson (glacial marine sediments) soil complexes found in the Township of Langley).
- Having the finished grade sloped to provide a smooth transition to adjacent landforms is an appropriate recommendation, although there should also be a note that the property should not shed water to adjacent land without due consideration of how that water will be managed to prevent harm. Overall hydrology of the watershed in which the property resides must be considered.
- Allowing fill placement activities to extend up to two years is inconsistent with most local bylaws (within MVRD) which have a one-year permit term.

7.4.5 Policy P-10 Oct. 2017 – Criteria for Agricultural Capability Assessments

This policy is intended to provide information for professional agrologists submitting agricultural capability assessment reports. It lays out the specifics of what is required in a professional report to support agricultural capability assessments.

Suggested clarifications/additions:

- The policy limits agricultural capability assessments to only one professional licensing body in British Columbia, the BC Institute of Agrologists. The work of qualified

professionals licensed to practice under another body, such as Registered Professional Biologists or Professional Engineers and Geoscientists, should be accepted under the policy.

- Soil pit descriptions should also include horizon thickness and root abundance.
- Laboratory data should be used to revise fertility ratings. Since the standard soil survey and agricultural capability references do not have threshold values for available nutrients or "toxic elements or compounds", the following additional references should be added.
    - BC Ministry of Agriculture. 2012. Fraser Valley Soil Nutrient Survey (specifically, Table 4 soil nutrient risk ratings) https://www2.gov.bc.ca/gov/content/industry/agriculture-seafood/agricultural-land-and-environment/soil-nutrients/nutrient-management/technical-reports/soil-nutrient-studies
    - *Contaminated Sites Regulation*. B.C. Reg. 375/96. (specifically, Schedules 4 and 5 Column II Agricultural soil standards) http://www.bclaws.ca/civix/document/id/complete/statreg/375_96_07
- References in relation to 'Anthropogenic soils' are not included and should be added since there is a strong likelihood that professional agrologists will encounter non-natural soils in areas that have been under intensive agricultural production.
    - Pennock, D.J., K. Watson, and P. Sanborn. 2015. Section 4. Horizon Identification. From: D. Pennock, K. Watson, and P. Sanborn. Field Handbook for the Soils of Western Canada. Canadian Society of Soil Science. http://www.soilsofcanada.ca/links.php

7.4.6 Criteria for Technical Report Submitted by Consultants (Resource Extraction and Fill Placement)

These criteria have been derived to establish consistency in the quality and format of technical reports submitted to the ALC.

Suggested clarifications/additions:

- Section 2.4 of the document references existing drainage conditions on the land and adjacent properties. Increasingly, changes to soil-bound production also focus on the need for and operation of irrigation systems. Additions of fill should not adversely affect soil capability for irrigation. Appropriate irrigation water supply is not a given for all land in the ALR, so an assessment of irrigation capability and irrigation water supply should be added as a consideration within the technical reports.
- Most references, including this technical report criteria which are used to report project criteria and rehabilitation plans, do not specifically mention soil fertility levels or soil amendment use. This report criteria document may not be the best reference location but a best practices reference document should add additional information or criteria for soil quality (e.g., nutrient levels, OM%, pH, EC etc.)

7.5 BYLAWS

7.5.1 Review of Municipal Soil Bylaws

Local government soil removal and soil/fill deposit bylaws are in place in the seven "rural" municipalities within the MVRD. They were reviewed (Table 9) indicating a wide array of approaches to regulating soil removal and fill placement.

Table 9: Municipal Government Soil Deposit and Removal Bylaws

Municipality	Bylaw name	Number and Year
City of Delta	*Soil Deposit and Removal Bylaw*	7221 (2014)
City of Richmond	*Soil Removal and Fill Deposit Regulation*	8094 (2007) (amended No. 9002 (2017))
City of Coquitlam	*Soil Removal and Deposit Regulation*	1914 (1988) (last updated No. 4715 (2017))
City of Pitt Meadows	*Soil Removal and Fill Deposit Regulation Bylaw*	2593 (2013) (updated No. 2710 (2015))
City of Maple Ridge	*Soil Removal Bylaw*	6398 (2006) currently under review
Township of Langley	*Soil Deposit and Removal Bylaw*	4975 (2013) (amended No. 5120 (2015))
City of Surrey	*Soil Conservation and Protection Bylaw*	16389 (2007) (amended No. 17324 (2011))

While no two bylaws contain the exact same language, there are some similarities. The following topics are found in most of the bylaws:

- **Threshold volumes.** These are the volumes over which permits are required. The threshold is usually less than 100 m^3.
- **Permits.** All the bylaws contained permit provisions with varying levels of detail required to process the permit application. The details required ranged from simple application forms to detailed qualified professional reports.
- **Permit application fees**. All bylaws indicated a non-refundable flat rate permit fee with several requiring an additional fee per unit volume (e.g., \$0.50/m^3).
- **Detailed site management and reporting plans**. All bylaws required varying forms of site design/activity plans prior to an application being accepted for review and/or in advance of permit issuance, including documentation from appropriate professionals on the design operation and reporting of the fill or removal activities.
- **Security**. Not all bylaws required security and the level of security and its management is highly variable. Most municipalities that have a provision to charge a security use a per cubic meter rate (e.g., \$5/m^3) or some using a per hectare rate (e.g., \$2,500/ha).

- **Regulation**. Once a permit is granted regulating the activity is a key focus for all including nuisance related issues (i.e., noise, traffic, dust, etc.) and volume reporting.
- **Offences and penalties**. Penalties relating to permit conditions are included in all but the penalty level was quite variable, from as low as $2,000 up to full costs.
- **Insurance**. A requirement for General Liability Insurance is common.

Recommendations for Municipal Soil Bylaws:

As either a best practice or as a "Ministers Standard", a bylaw template should be developed such that there are standard sections and equivalent requirements for the removal of soil and/ the placement of soil/fill. Section 551 of the *Local Government Act* provides authority to the Minister of Agriculture to establish agricultural standards for local governments as they prepare bylaws that affect agriculture. Although not a bylaw standard, the Ministry of Agriculture information sheet "Guidelines for Farm Practices Involving Fill" was prepared as an attempt to provide some guidance for the appropriate use of fill. However, it did not provide guidance on how fill should be regulated by a local or provincial government.

In addition to a bylaw standard, coordination between the ALC and local governments is required. During discussions with the Advisory Committee it became clear that there is a need to coordinate a process on how fill applications should be reviewed, shared and approved. This approach should include fill applications that require a NOI as well as those requiring a non-farm use application. One reason for this is that a decision to allow a fill project could be overturned within 60 days by the Commission chair. If a local government were to issue a permit within that 60-day period, the project may have proceeded to a substantial degree making regulatory action and reclamation a challenge. A second reason is that uses of fill covered under a NOI may require building permits as well as soil/fill permits from the municipal government.

7.5.2 ALC Bylaw Authority

The ALC has the legislative authority under Section 9 of the *Act* (see below) to create other regulatory tools beyond the current use of policies.

> ***ALC ACT***
> ***Operation of the commission***
> ***9*** *The commission may pass resolutions and bylaws it considers necessary or advisable for the management and conduct of its affairs, the exercise of its powers and the performance of its duties and functions.*

Recommendations for an ALC Bylaw:

Although the specific wording is the realm of legislation drafters, the following are the recommended topic areas that should be included in an ALC fill placement bylaw.

- Clear definitions of what constitutes acceptable fill materials, particularly in relation to quality.
- Provision of general best management practices or linkages to best management practice guidance requirements for fill site design, operation, and closure such that there is limited risk to the land, adjacent land, and future use.
- Clear definition of farm activities that could benefit from the appropriate use of fill

- Linkages with other legislation such as *Water Sustainability Act* as to how filling impacts water and works in and about a stream. This should include impacts on wetland, drainage, water storage, and construction of flood protection or irrigation structures.
- Linkages to legislation such as *Species at Risk Act* (s) and how filling activity could harm or benefit habitat for threatened or endangered species.
- Addition of specific requirements for contents of application and reporting, including plans on how the site will be operated, managed and "closed".
- Inclusion of application and permit fees, financial security (bonds), and insurance as mandatory requirements of for a fill project.
- Clear definition of the roles and requirements of the applicant, agent, QP, local government, and ALC in how an application is handled.

APPENDIX 1 DRAFT CONCEPTS FOR A "BEST PRACTICES GUIDE FOR THE PLACEMENT OF FILL IN THE ALR"

Site conditions

- What was the inherent capability? The application should only be for improving capability.
- Is the current or intended activity soil-bound?
- What was the inherent utility for the intended purpose? Is the intended purpose appropriate?
- Is or was the site farmed?
- Is there topsoil/organics worth salvaging?
- Can the site be graded rather than filled?
- Are standard (normal) soil management practices such as drainage, irrigation, and cultivation in place or capable of being put in place to reduce or eliminate the need for fill?

Fill specifications

- Texture:
  - fill materials should not be not more than two textural classes different than existing soil;
  - fill material should be well sorted, falling within one or two textural classes; and,
  - fill material should be less than 40% clay and less than 80% sand, unless a very specific reclamation plan details sound academic reasons for being outside these conditions.
- Coarse fragment (CF) and organic matter percentage (OM%) of fill should be appropriate to end use without limiting capability and future soil-bound use.
- Coarse fragments should be less than 10% of total volume (CF being greater than 7.5 cm). If the site was stone free, then the fill must be stone free as rock picking has limited practicality and success.
- Organic materials deposited as amendments with the fill project need to meet *OMRR* Class A compost standards (or class B if accompanied by an approved "land application plan") and not be used as a fill (i.e., mixed into existing site or added to mineral fill soil or applied as a mulch/top-dress for a specific cropping plan).
- Foreign matter and contaminant levels should meet or exceed Agriculture Limits in specified Schedules of the *Contaminated Sites Regulation* (i.e., metals/organic compounds) or *OMRR* for organic amendments (e.g., less than 1% foreign matter).
- Woody materials (large woody debris (LWD) in water or coarse woody debris (CWD) on land) should not be acceptable unless specific "biodiversity" habitat features are being incorporated/required for the site (i.e., conditions of approval by environmental regulators if wetlands or watercourses are being impacted). This must be part of the application plan.

Conditions for fill approvals

- Topsoil salvage: Approvals must contain requirements for topsoil salvage. The best management guide would provide details on how this could be achieved and guidance for appropriate use of the salvaged topsoil.
- Additions of appropriate soil amendments: Conditions of approval fill applications and best practices should require the appropriate use of soil amendments such as compost during or after filling activity for soil bound cropping to improve soil quality, tilth, and nutrient levels.

Depth and Fill Volumes

- For fields, the depth of fill should not be more than 0.5-meter on average over the entire cropped area. This also assumes topsoil salvage or incorporation of topsoil like materials at the soil surface as part of the depth calculation. The plan must include drainage works for fill that is placed in wet areas. Plans should also include evidence of considerations for irrigation water supply if fill will remove potential for subsurface irrigation or is designed to improve capability for soil-bound agriculture operations that require irrigation.

Table 10: Query Results - Fill Depth and Volumes for Approved Applications

	Total Property Area (ha)	Fill Volume (m^3)	Fill Area (ha)	Depth of fill applied (m)
average	14.3	29,890	4.5	1.0
median	7.0	16,500	2.0	0.8
maximum	168.0	335,000	69.6	6.1
minimum	0.4	91,000	0.0	0.1
count	77 (Note: one approved extraction site was removed from this data)			

Slope or Grade of Land

- Land should not be sloped to shed water to any adjacent properties without the addition of a water management system (i.e., ditches and subsurface drains).
- Doming an existing site which results in more land consumed by ditches and "unfarmable" slopes (>5% grade) is not acceptable.
- Creation of "landing platforms" (fill pads with steep side slopes) should not be allowed in any proposal.

Consistency of Plans Requirements for Placement of Fill Applications

All applications under "non-farm use" and many under the wider scope of "allowed use provisions" come into the ALC accompanied by a report from a Qualified Professional (QP). The conditions of the application approval then require some form of monitoring and reporting of the project by the QP. From detailed review of a selection of files there appears

to have been many inconsistencies and issues to the policy and procedures for accepting and reviewing reports. The lack of consistent and proper monitoring has likely been the result of ALC staffing levels and expertise, the provisions of the *Act* and *Regulation*, and the qualifications/integrity of the QPs.

- Plans must be completed by a Qualified Professional (QP). "QP" does not simply imply a designation, it requires a level of knowledge, training, experience, and reliability/integrity.
- The criteria for a QP to complete an agricultural capability assessment could be mirrored to provide similar requirements for a QP completing plans for the application of fill. These plans need to go beyond the scope of the simple application of the fill to include impacts on issues such as local hydrology.
- Who reviews the plans? If the QP completing the plan is qualified, then there should be limited concern about who is reviewing the plan as long as all the necessary elements are covered. However, the local government and/or ALC should retain an individual (employed or contracted) to provide a third-party review.
- Who oversees activities on site and who reports on those activities? The conditions of the approval should specify who should monitor a site and how often it should be done. It should also include the level and frequency of reporting.
- Approving agencies must review and follow through with actions if site plans and monitoring are not followed.

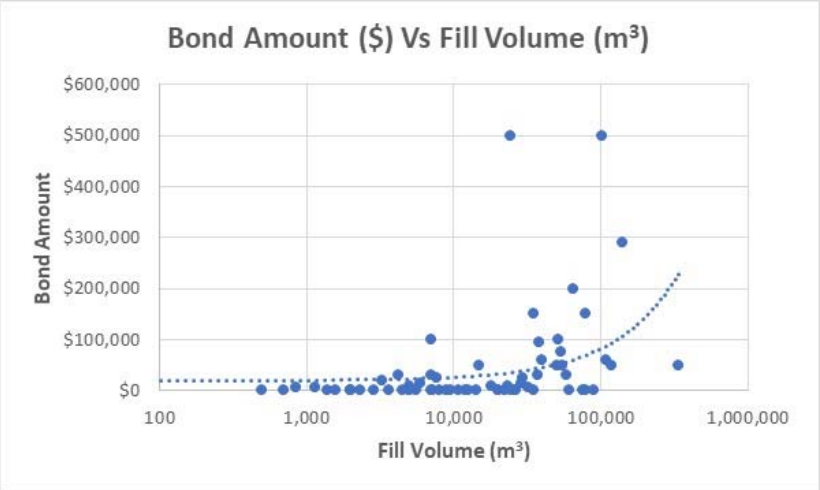
Bonding or Security

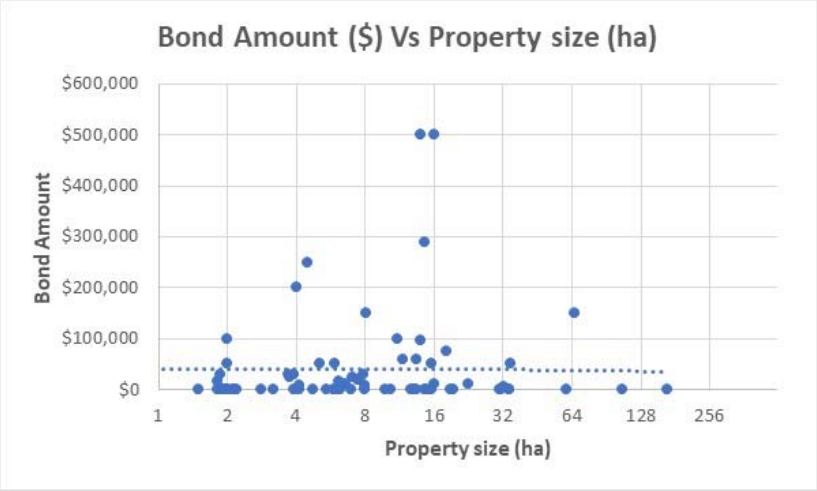
- With tipping fees paid to 'dump' fill reported to be from $100 to $200 per truck load (12 -14 m^3), there appears to be significant financial incentive to receive fill materials.
- Example:
  - Tipping fee paid ≈ $42,000. Assume 0.50 m spread over 1 ha @ 12 m^3/load = 416 loads X $100 per load
  - Cost to remove this volume could be upwards of $25,000. This would be based on easy removal using a bucket loader, a fleet of trucks and a short haul under ideal operating conditions. No restoration costs are included.
- Most local governments have soil deposit bylaws which require some form of security above and beyond the permit fees collected.
- Security at a local government level is primarily based on volumetric formulas ranging from $0.5 to $5.0 per m^3. Some use a per hectare rate. Several do not have an upper limit on the bond. Note that bonding rates are under review by at least two municipalities to increase the per cubic meter rates.
- The system of bonding, based on the information gleaned from the database and ALC files, has not been managed in a consistent fashion. It has not been tied to either fill volume or property size. The requirement for or release of the bonds has not been handled in a similar fashion for all files. Bonds have not increased based on an increase in volume nor have they been tied to property size. In some cases, no bonds were collected, in other cases bonds were released before the final closure of the file.
- The ALC should follow a system of bonding that is similar to that of the permitting municipality. The bond could be collected in conjunction with the permitting the

municipality, where the bond is collected, on a per unit basis. The unit should be $/m^3 with a minimum amount specified.

- The figures below provided a comparison of bond amount ($'s) to both fill volume (m^3) and property size (ha) based on information collected in the database and ALC Decision files.

Figure 9: Database Query Results Bonds Vs Fill Volume or Property Size





Water control

- Has a full hydrological assessment been completed (or is it required?). The following are situations when an assessment should be required:
  - The proposal is to create dikes to protect against freshet, winter storm or sea level rise flooding.

- The applicant is intending to fill wetlands or raise low areas over more than 25% of the property. This will likely adversely impact flood mitigation or wildlife habitat.
- Fill will be blocking or diverting flow to or from adjacent properties. The impacts on adjacent or downstream lands must be reviewed.
- The proposal is to create wetlands or other water holding features to capture rather than discharge water. This would include the creation of irrigation or storm water management reservoirs.

APPENDIX 2 ADDITIONAL VISUAL RATING TABLES

Additional Comparisons of Visual Ratings to Operation Type (Table 9) and Municipal Government (Table 10).

Table 11: Visual Rating Versus Operation Type

Operation type	Visual Inspection Rating						
	Good	Fair	Poor	Refused	Not farmed	Unknown	Grand Total
aquaculture					1		1
berries	2	7	3	6	3	2	23
commercial				1	3		4
composting					1		1
farm yard			1	1	1		3
forage	3	3	2	2	2		12
gravel pit					1		1
greenhouse	2	3					5
industrial		1					1
livestock	4	1	3	1	2	1	12
mixed	1		1				2
nursery	1		1		1		3
pasture		2	4	3			9
recreational					4		4
residential			1	2	4		7
turf			1			2	3
vacant	1		3	1			5
vegetables				2		1	3
Grand Total	13	18	20	19	23	6	99

Table 12: Visual Rating Versus Municipal Government

Municipal Government	Visual Inspection Rating						
	Good	Fair	Poor	Refused	Not Farmed	Unknown	Grand Total
City of Coquitlam					1		1
City of Pitt Meadows		2		1	5		8
City of Richmond	1		1	2	2	2	8
City of Surrey	2	2	2	2	1		9
Corporation of Delta	2	1	1				4
District of Maple Ridge		1		1			2
Township of Langley	8	12	16	13	14	4	67
Grand Total	**13**	**18**	**20**	**19**	**23**	**6**	**99**

APPENDIX 3 *ALC ACT* AND *REGULATIONS*

Agricultural Land Commission Act

Section 20 is a key section of the *Act*, [SBC 2002] Chapter 36 (ver. Current to Dec. 6, 2017) which pertains directly to the discussion of fill.

Relevant Section of Act

Use of agricultural land reserve

20 (1) A person must not use agricultural land for a non-farm use unless permitted under this Act.

(2) For the purposes of subsection (1), except as provided in the regulations, the removal of soil and the placement of fill are non-farm uses.

(3) An owner of agricultural land or a person with a right of entry to agricultural land granted by any of the following may apply to the commission for permission for a non-farm use of agricultural land:

(a) the Surface Rights Board, or its predecessor, the Mediation and Arbitration Board, under the Petroleum and Natural Gas Act, the Mining Right of Way Act or section 19 of the Mineral Tenure Act;

(b) [Repealed 2010-9-1.]

(c) any other authority under an enactment.

(4) A person who intends to use agricultural land for a prescribed use that involves soil removal or placement of fill must give notice of that intention to the commission in the prescribed form at least 60 days before engaging in the intended use.

(5) In response to a notice under subsection (4) or if a person engages in a use specified in subsection (4) without giving the required notice, the chief executive officer, by written order, may

(a) if the owner of the land agrees to restrictions on the use, specify terms and conditions for the conduct of that use of the agricultural land, or

(b) order that an application to the commission under subsection (3) is required for permission to engage in the use and may include as a term in the order that the person cease or not engage in the use until the application is determined.

(6) If the chief executive officer does not respond to a notice under subsection (4) within 30 days by making an order under subsection (5), the owner of the land may engage in the intended use.

Agricultural Land Reserve Use, Subdivision and Procedure Regulation

There are four critical sections of the Regulation which pertain directly to the discussion of fill. These are Section 2: Activities designated as farm use, Section 3: Permitted uses for land in an agricultural land reserve, Section 4: Notification requirements for specified farm uses, and Section 5: Notification requirements for specified non-farm uses. There are four other sections of note that pertain to the administration of applications, fees and penalties. These are Sections 29, 33, 33.1 and 35.

Relevant Sections of Regulation

Part 2 — Permitted Uses

Activities designated as farm use

2 *(1.1) The activities designated under this section as farm uses for the purposes of the Act must not be prohibited*

(a) by any local government bylaw except a bylaw …, or

(b) by a law of the applicable treaty first nation government, …

(2) The following activities are designated as farm use for the purposes of the Act:

(a) farm retail sales …

(c) storing, packing, preparing or processing farm products, …

(d) land development works including clearing, levelling, draining, berming, irrigating and construction of reservoirs and ancillary works if the works are required for farm use of that farm; …

(i) the storage and application of fertilizers, mulches, and soil conditioners;

(j) the application of soil amendments collected, stored, and handled in compliance with the Agricultural Waste Control Regulation, B.C. Reg. 131/92; …

(k) the production, storage, and application of compost from agricultural wastes produced on the farm for farm purposes in compliance with the Agricultural Waste Control Regulation, B.C. Reg. 131/92;

(l) the application of compost and biosolids produced and applied in compliance with the Organic Matter Recycling Regulation, B.C. Reg. 18/2002;

(m) the production, storage and application of Class A compost in compliance with the Organic Matter Recycling Regulation, B.C. Reg. 18/2002, if all the compost produced is used on the farm; …

(o) the construction, maintenance and operation of farm buildings including, but not limited to, any of the following:

(i) a greenhouse;

(ii) a farm building or structure for use in an intensive livestock operation or for mushroom production;
(iii) an aquaculture facility; …

(2.1) A winery or cidery, and ancillary uses, are designated as farm uses …
(2.3) A brewery, distillery or meadery, and ancillary uses, are designated as farm uses …
(3) Any activity designated as farm use includes the construction, maintenance, and operation of a building, structure, driveway, ancillary service or utility necessary for that farm use.
(4) Unless permitted under the Water Sustainability Act or the Environmental Management Act, any use designated under any of subsections (2) to (2.3) includes soil removal or placement of fill necessary for that use as long as it does not
(a) cause danger on or to adjacent land, structures or rights of way, or
(b) foul, obstruct or impede the flow of any waterway.
(5) The removal of soil or placement of fill as part of a use designated under any of subsections (2) to (2.3) must be considered to be a designated farm use and does not require notification except under section 4

Permitted uses for land in an agricultural land reserve
3 *(1) The following non-farm uses are permitted in an agricultural land reserve unless otherwise prohibited by a local government bylaw or, for lands located in an agricultural land reserve that are treaty settlement lands, by a law of the applicable treaty first nation government: …*
(k) aggregate extraction, if the total volume of materials removed from the parcel is less than 500 m^3 and if
(i) any previous extraction from the parcel is rehabilitated in accordance with subsection (3) before a further extraction is made, and
(ii) the cultivatable surface layer of soil is salvaged, stored on the parcel and available for rehabilitation in accordance with subparagraph (i); …
(n) construction and maintenance, for the purpose of drainage or irrigation or to combat the threat of flooding, of
(i) dikes and related pumphouses, and
(ii) ancillary works including access roads and facilities; …
(3) If a use is permitted under subsection (1) (k) it is a condition of the use that once the extraction of aggregate is complete, the disturbed area must be rehabilitated in accordance with good agricultural practice.
(4) The following non-farm uses are permitted in an agricultural land reserve and must not be prohibited by a local government bylaw or, for lands located in an agricultural land reserve that are treaty settlement lands, by a law of the applicable treaty first nation government: …
(i) surface water collection for farm use or domestic use, water well drillings, connection of water lines, access to water well sites and required rights of way or easements; ….
(5) Any permitted use specified in subsection (1) or (4) includes the construction, maintenance and operation of buildings, structures, driveways, ancillary services and utilities necessary for that use.
(6) Unless permitted under the Water Sustainability Act or the Environmental Management Act, any use specified in subsection (1) or (4) includes soil removal or placement of fill necessary for that use as long as the soil removal or placement of fill does not
(a) cause danger on or to adjacent land, structures or rights of way, or
(b) foul, obstruct or impede the flow of any waterway.

Part 3 — Soil Removal and Placement of Fill
Notification requirements for specified farm uses
4 *(1) The removal of soil and placement of fill for the following farm uses are exempt from the requirement to file an application under section 20 of the Act if the requirements in subsections (2), (3) and (4) are met:*
(a) the construction, maintenance and operation of a greenhouse on an area of land if the area occupied by the greenhouse is greater than 2% of the area of the parcel;
(b) the construction, maintenance and operation of a farm building or structure, for use in an intensive livestock operation or for mushroom production, if the area occupied by the farm building or structure is greater than 2% of the area of the parcel;
(c) the construction, maintenance and operation of an aquaculture facility if the area occupied by the aquaculture facility is greater than 2% of the area of the parcel;
(d) the construction, maintenance and operation of a composting facility for the production of Class A compost as defined in the Organic Matter Recycling Regulation, B.C. Reg. 18/2002 or compost from agricultural waste, if the area occupied by the facility is greater than 2% of the area of the parcel;
(e) a turf farm.
(2) An owner must notify the commission and the applicable local government or treaty first nation government of the owner's intent to remove soil or place fill for the uses described in subsection (1) at least 60 days before engaging in the intended use by filing with the commission a notice in a form acceptable to the commission.
(3) If the chief executive officer requests additional information on the extent and method of soil removal or placement of fill within 30 days of receipt of the notice under subsection (2), it must be provided by the owner of the land in the form of an amended notice within 30 days of receipt of the request.
(4) The owner must comply with the restrictions on the use and the terms and conditions for the conduct of that use of agricultural land ordered by the chief executive officer under section 20 (5) of the Act provided that the order is made within 30 days of a notice under subsection (2) or within 45 days of an amended notice under subsection (3).
(5) If the owner does not agree to the restrictions on the use or the terms and conditions ordered by the chief executive officer, the owner may apply to the commission for permission for a non-farm use under section 20 (3) of the Act.

Notification requirements for specified non-farm uses

5 *(1) The removal of soil and placement of fill are exempt from the requirement to file an application under section 20 of the Act as long as the requirements in subsections (2), (3) and (4) are met and the removal or placement is for one or more of the following uses:*

(a) aggregate extraction if the total volume of material removed is more than 500 m^3;

(b) peat extraction;

(c) placer works including the exploration, development and production of placer minerals as defined in the Mineral Tenure Act;

(d) the construction, maintenance, and operation of a composting facility for the production of managed organic matter.

(2) The owner must notify the commission and the applicable local government or treaty first nation government of the owner's intent to remove soil or place fill for the uses described in subsection (1) at least 60 days before engaging in the intended use by filing with the commission a notice in a form acceptable to the commission.

(3) If the chief executive officer requests additional information on the extent and method of soil removal and reclamation within 30 days of receipt of the notice under subsection (2), it must be provided in the form of an amended notice within 30 days of receipt of the request.

(4) The owner must comply with the restrictions on the use and the terms and conditions for the conduct of that use of agricultural land ordered by the chief executive officer under section 20 (5) of the Act provided that order is made within 30 days of a notice under subsection (2) or within 45 days of an amended notice under subsection (3).

(5) If the owner does not agree to the restrictions on the use or the terms and conditions ordered by the chief executive officer, the owner may apply to the commission for permission for a non-farm use under section 20 (3) of the Act.

Part 10 — Applications for Non-farm Use or Subdivision of Agricultural Land

Application must be filed with local government or treaty first nation government

29 *(1) An owner of agricultural land who wishes to use that land for a non-farm use or who wishes to subdivide that land may apply for permission under section 20 or 21 of the Act.*

(2) An application under section 20 or 21 of the Act must be in a form acceptable to the commission and must be filed,

(a) if the application is one referred to in section 34 (3.1) of the Act, with the commission, or

(b) in any other case, with the applicable local government or treaty first nation government.

(3) Subsections (1) and (2) do not apply to applications for transportation or utility uses filed with the commission under section 6 of this regulation.

Part 11 – General

Application fees

33 *(1) In subsection (1.1), **"application"** means an application made for the purpose of seeking permission under any of the following sections of the Act:*

(a) section 20 or 21, for a use or subdivision of agricultural land to which section 4 of this regulation does not apply;

(b) section 29 or 30, for the exclusion of land from the agricultural land reserve;

(c) section 34 (6), for applications filed directly with the commission.

(1.1) The prescribed application fees are as follows:

(a) $1 500, if the application is made in respect of land located entirely or partially in Zone 1;

(b) $900, if the application is made in respect of land located entirely in Zone 2.

(2) The prescribed portion of the application fee that a local government or first nation government may retain for the purposes of section 35 (1) of the Act is $300 for an application

(a) for exclusion under section 29 or 30 of the Act, or

(b) for use or subdivision under section 20 or 21 of the Act.

(3) The prescribed times for the purposes of section 35 (1) (b) of the Act are at a time that occurs on or before March 31, June 30, September 30 and December 31 of each year.

(4) The prescribed portion of an application fee that may be remitted by the commission to a local government or first nation government for the purposes of section 35 (5) of the Act is $200.

Other fees

33.1 *(1) In this section, **"document administration"** means the administration, processing, preparation, review, execution, filing or registration of any of the following by the commission, other than in the context of an application made under the Act:*

(a) a report;

(b) a survey or map;

(c) a contract or similar legal instrument;

(d) a record that must be approved, filed or registered under an enactment;

(e) a subdivision plan, a statutory right of way or a covenant, including related records necessary for deposit of the subdivision plan, statutory right of way or covenant with the Registrar of Land Titles;

(f) a form of security.

(2) If, on approving an application made under the Act, a term or condition described in Column 1 of the following table is imposed on the applicant, the applicant must pay the fee set out in Column 2 opposite the term or condition:

Item	***Column 1*** ***Term or Condition***	***Column 2*** ***Fee ($)***

1	*Document administration*	*150 for each record*
2	*Site inspection*	*350 for each inspection*
3	*The monitoring of activities carried out on land surveyed as being less than 0.8 ha*	*500*
4	*The monitoring of activities carried out on land surveyed as being between 0.8 ha and 4 ha*	*1 000*
5	*The monitoring of activities carried out on land surveyed as being more than 4 ha*	*2 000*

(3) No fee is payable under item 2 of the table in subsection (2) if item 3, 4 or 5 of the table applies.

(4) The fees set out in items 1 and 2 of the table in subsection (2) are payable at the time the term or condition is imposed.

(5) The fees set out in items 3 to 5 of the table in subsection (2) are payable annually, on the date set by the person who approves the application, for each year or part of a year that monitoring is carried out.

Penalties

35 *(1) Before the chief executive officer levies a penalty under section 54 of the Act, the chief executive officer must consider all of the following:*

(a) any contravention of a similar nature by the person;

(b) the gravity and magnitude of the contravention;

(c) whether the contravention was deliberate, repeated or continuous;

(d) whether there was an economic benefit derived by the person from the contravention;

(e) the person's cooperativeness and efforts to correct the contravention;

(f) the degree to which the contravention detrimentally affected or impaired the agricultural capability of the land or its suitability for farming.

(2) The penalty which the chief executive officer may levy is in the complete discretion of the chief executive officer, but must not exceed $100 000 for any single contravention.

(3) The maximum penalty which the chief executive officer may levy for a second or subsequent contravention is double the amount of the penalty levied for the first contravention.

(4) If the chief executive officer levies a penalty under section 54 of the Act against an owner of agricultural land, the chief executive officer must give the owner a notice setting out all of the following:

(a) the nature of the contravention;

(b) the amount of the penalty;

(c) the date by which the penalty must be paid;

(d) a description of the owner's right to appeal the penalty.