Comox Valley REGIONAL DISTRICT

Staff report

DATE: January 29, 2018

FILE: 3110-20/ALR 2B/3B 17

TO: Chair and Directors
Electoral Areas Services Committee

FROM: Russell Dyson
Chief Administrative Officer

Supported by Russell Dyson
Chief Administrative Officer

R. Dyson

RE: **Non-Farm Use within the Agricultural Land Reserve (Forest Lakewood BC)**
Lazo North (Electoral Area B)
Lot B, District Lots 217 and 245, Comox District, Plan EPP41203,
PID 029-405-491
District Lot 146, Comox District, except Plans 40898 & VIP74344,
PID 000-363-235

Purpose
To consider two applications (Appendix A and B) to place imported fill on a farm within the Agricultural Land Reserve (ALR) for the purpose of raising a field and building internal roads.

Recommendations from the Chief Administrative Officer:

1. THAT the Comox Valley Regional District forward to the Agricultural Land Commission the Agricultural Land Reserve non-farm use (placement of fill) application ALR 2B 17 (Forest Lakewood BC LLC) concerning the use of imported fill for the purpose of raising a field located on Lot B, District Lots 217 and 245, Comox District, Plan EPP41203, PID 029-405-491;

   AND THAT the Agricultural Land Commission be advised that the Comox Valley Regional District endorses the findings of the Agricultural Advisory Planning Commission that the fill not be used on the fields and that those areas affected by the fill be remediated;

   AND FINALLY THAT Comox Valley Regional District recommends that any approval by the Agricultural Land Commission of keeping the fill on the fields, and any requirement for remediation of the fields be reviewed in the context of the recommendations of the *"Comox Valley Regional District – Queen's Ditch Lowland Area Drainage Improvements - Options Analysis"*.

2. THAT the Comox Valley Regional District forward to the Agricultural Land Commission the Agricultural Land Reserve non-farm use (placement of fill) application ALR 3B 17 (Forest Lakewood BC LLC) concerning the use of imported fill for the purpose of building and repairing internal roads located on District Lot 146, Comox District, except Plans 40898 & VIP74344, PID 000-363-235;

   AND FINALLY THAT the Agricultural Land Commission be advised that the Comox Valley Regional District endorses the findings of the Agricultural Advisory Planning Commission that the imported fill only be used for the purpose of building and repairing internal roads.

3. THAT staff be directed to report back with a plan for public outreach and education to be developed in consultation with Agricultural Land Commission staff, Ministry of Agriculture staff, and the Agricultural Advisory Planning Commission regarding the Agricultural Land Commission's fill import regulations.

Executive Summary

- The proponent imported fill onto the farm to raise a field as a drainage improvement and to build and repair internal roads.
- These applications were submitted as result of an Agricultural Land Commission (ALC) compliance file and they are seeking to allow for the imported fill to remain on the property so the works can be completed.
- According to the applications seasonal flooding reduces the time that the field can be worked and makes repairs to internal roads necessary to maintain vehicle access around fields and to an irrigation pump house.
- The imported fill from the air force base's new retention ponds.
- The farm is located within the study area of the *"Queen's Ditch Lowland Area Drainage Improvements - Options Analysis"* which provides observations and recommendations regarding drainage towards to Queen's Ditch.
- The Agricultural Advisory Planning Commission (AAPC) recommends the imported fill only be used for building internal roads on the farm and not on the fields.
- Staff recommends forwarding the applications to the ALC with the comment that they endorse recommendation of the AAPC that the fill may be used for road building but not spread on fields, as well as the comment that any approval of keeping the fill on the fields or remediation of fields be made in the context of the *"Queen's Ditch Lowland Area Drainage Improvements - Options Analysis"*.

Prepared by:	Concurrence:	Concurrence:
J. MacLean	***A. Mullaly***	***A. MacDonald***
Jodi MacLean, MCIP, RPP Rural Planner	Alana Mullaly, M.Pl., MCIP, RPP Manager of Planning Services	Ann MacDonald, MCIP, RPP General Manager of Planning and Development Services Branch

Stakeholder Distribution (Upon Agenda Publication)

Applicant	✔

Background/Current Situation

The farm comprises of several properties amounting to about 107 hectare located in the Lazo area (Figure 1), south of the airport and Knight Road. It is within the lowland areas of the Lazo Creek Watershed which is the subject of the *"Comox Valley Regional District – Queen's Ditch Lowland Area Drainage Improvements - Options Analysis"* which recommends that agricultural lands should be subject to the provincial Agricultural and Rural Development Subsidiary Agreement requirements for drainage (Appendix C).

The field that is the subject of this application (Figure 2) drains to a series of private ditches which connects into the Queen's Ditch and flows westward into the sea. The Department of Defence channelized Lazo Creek in 1946 to create the Queen's Ditch as a means of draining wastewater from the air force base. Agricultural development around the Queen's Ditch was accommodated through private ditches around fields. Additional clearing and developing within the Lazo Creek Watershed, including for residential subdivisions, impervious surfaces, and other agricultural fields since then have added drainage burden to the Queen's Ditch, which combined with its very low gradient results in water backing up and flooding into the fields. In the past year, the Department of Defence excavated several detention ponds at the head of Queen's Ditch to help address the over-burdening

of the watercourse. The applicant accepted fill from this excavation (ponds noted in Figure 1) with the intention of using the clay for raising a field that, according to the application, was holding excessive water late into spring making the land unable to be worked until late-June/early-July and for using some of it for repairing and extending the internal farm roads (Figures 3 and 4).

Planning Analysis

Agricultural Land Reserve

As a result of an ALC compliance file, ALC staff instructed the applicant to halt the importing and spreading of fill on the subject property and to either remove the fill or apply for an ALR non-farm use application to allow for the placement of fill. The applicant has complied, leaving the remaining fill stockpiled on the site and submitted this application.

Official Community Plan

The subject property is designated Agricultural Areas within the Official Community Plan, Bylaw No. 337 being the "Rural Comox Valley Official Community Plan Bylaw No. 337, 2014". The objective of this designation is "*To promote agriculture and aquaculture as an important economic sector of the Comox Valley*" and Policy 58. (13) directs the Comox Valley Regional District (CVRD) to "*Protect farming integrity and function of land designated agricultural area*".

Zoning

The subject property is zoned Rural-ALR. Section 303(2)(ii) of the zoning Bylaw No. 2781, being the "Comox Valley Zoning Bylaw, 2005", states: *"All land development works shall be carried out in accordance with all Comox Valley Regional District, Provincial and Federal requirements"*. Pursuant to the ALR Regulations, land development works means *"clearing, levelling, draining, berming, irrigating and construction of reservoirs and ancillary works if the works are required for farm use of that farm"*. This ALR non-farm use application is the correct application to bring the land development works into compliance with the CVRD and provincial requirements.

Policy Analysis

Sections 2(4), 2(5), 3(6), 4 and 5 of the *Agricultural Land Reserve Use, Subdivision and Procedure Regulation* (ALR Regulations) make provisions for the placement of fill on properties within the ALR, including conditions when a non-farm use application is required.

Section 20(3) of the *Agricultural Land Commission Act* (ALCA) enables a property owner to apply to the ALC to seek approval for non-farm use of agricultural land. Section 25(3) of the ALCA states that this type of application may not proceed to the ALC unless authorized by a resolution from the local government.

Options

The CVRD board may support forwarding the application ALR 2B 17, concerning importing the fill for the purpose of raising the fields, to the ALC or refuse to forward the application. The board may also provide recommendations concerning the application for ALC consideration.

The CVRD board may support forwarding the application ALR 3B 17, concerning importing the fill for the purpose of repairing and building internal roads, to the ALC or refuse to forward the application. The board may also provide recommendations concerning the application for ALC consideration.

Staff recommends forwarding both applications to the ALC with an endorsement of the AAPC recommendation that the fields be remediated but that the fill may be used for road building and the recommendation that the *"Comox Valley Regional District – Queen's Ditch Lowland Area Drainage*

Improvements - Options Analysis" be forwarded to the ALC for consideration in any approvals for importing fill or orders to remediate land. Staff also recommends investigating the possibility of public outreach concerning placement of fill on ALR lands.

Financial Factors
Fees of $1,500 ($300 for the CVRD and $1,200 for the ALC) for each application have been collected for this non-farm use application in accordance with Section 35 of the ALCA.

Legal Factors
This report and the recommendations contained herein are in compliance with the ALCA, regulation and CVRD bylaws.

Regional Growth Strategy Implications
The Regional Growth Strategy, Bylaw No. 120, being the "Comox Valley Regional District Regional Growth Strategy Bylaw No. 120, 2010" (RGS) designates the subject property as being within the Agricultural Areas designation. Within this designation the intent of the RGS is *"to reinforce the policies and procedures within the ALR in order to support agricultural practices"*.

Intergovernmental Factors
A referral was issued on January 3, 2018, to the Ministry of Agriculture for comment on these applications. Regional agrologist Jill Hatfield conducted a site inspection, on January 17, 2018, with staff, members of the AAPC, along with the agent. Ms. Hatfield responded to the referral in a letter dated January 23, 2018 (Appendix D) in which she recommends removing the fill from the fields.

Interdepartmental Involvement
These ALR applications have been circulated to CVRD departments and no concerns were expressed.

Citizen/Public Relations
A referral was forwarded to the AAPC for review and comment. At its January 17, 2018 meeting, the AAPC recommended that the import fill only be used for building internal roads on the farm and that the affected fields be remediated to their original state under the supervision of a professional agrologist. Considered in their deliberations was need for the areas affected by the imported fill to be remediated and the effect of education of both land owners and haulers would have around importing fill into the ALR. Staff therefore recommends that the CVRD take the lead in initiating a public education project, regarding the ALC's regulations on importing fill. Planning staff will consult with ALC staff, the regional agrologist, Ministry of Agriculture planners, as well as the AAPC to prepare a public education proposal and report back to the EASC.

Attachments: Appendix A – "ALC application submission ALR 2B 17"
Appendix B – "ALC application submission ALR 3B 17"
Appendix C – "Agricultural and Rural Development Subsidiary Agreement"
Appendix D – "Ministry of Agricultural referral response"

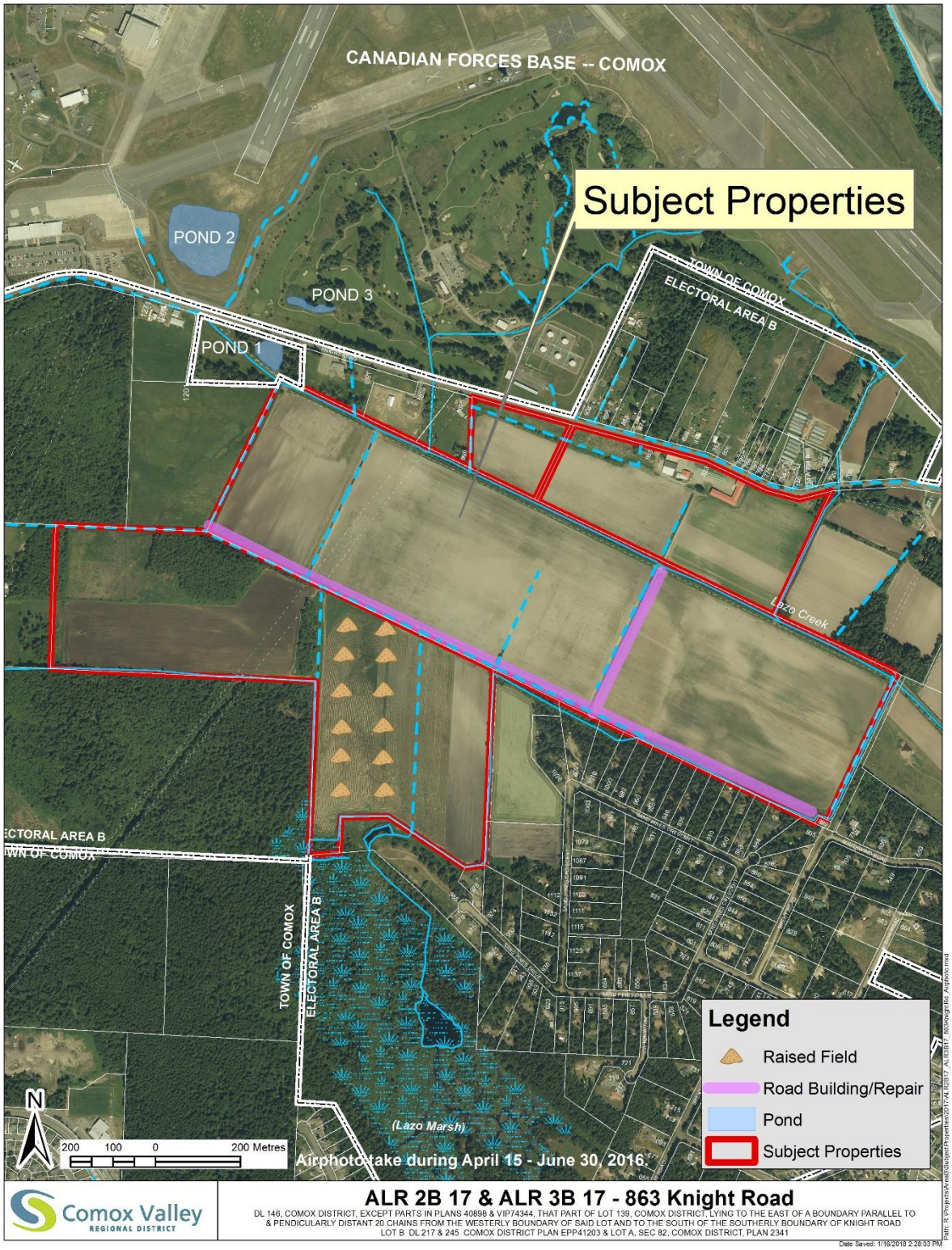

Figure 1: Air Photo (2016) with
Field Proposed to be Raised Highlighted with Triangles.

Figure 2: Northern Portion of Raised Field

Figure 3: Sample of Western end of Proposed Road to be Built Up.

Figure 4: Sample of Road to be Repaired (Facing North)
Stockpile of Fill in the Background
Private Ditch Leading on Left Side Leads to Queen's Ditch (in Background)

Provincial Agricultural Land Commission - Applicant Submission

Application ID: 57009
Application Status: Under LG Review
Applicant: Forest Lakewood BC LLC
Agent: Forest Lakewood BC LLC
Local Government: Comox Valley Regional District
Local Government Date of Receipt: 10/26/2017
ALC Date of Receipt: This application has not been submitted to ALC yet.
Proposal Type: Non-Farm Use (Placement of Fill)
Proposal: The current state of the property has been flooded from the rainy season Nov. until April each year and unable to be worked/farmed until late June/July due to saturation of the fields. We propose to build up the centre of the field to create a high point for drainage towards the drainage ditches on the east and west sides of the field. We would use the imported clay onsite for the field base. Step 1 would be to push current top material aside. Step 2 place clay base and compact with vibratory roller. Step 3 replace current top material as per diagram.

Agent Information

Agent: Forest Lakewood BC LLC
Mailing Address:
Box 297
Parksville, BC
V9P 2G4
Canada

Parcel Information

Parcel(s) Under Application

1. **Ownership Type:** Fee Simple
   Parcel Identifier: 029-405-491
   Legal Description: LOT B DISTRICT LOTS 217 AND 245 COMOX DISTRICT PLAN EPP41203
   Parcel Area: 40.4 ha
   Civic Address: 863 KNIGHT RD. COMOX
   Date of Purchase: 06/21/2013
   Farm Classification: Yes
   Owners
   1. **Name:** Forest Lakewood BC LLC
      Address:
      Box 297
      Parksville, BC
      V9P 2G4

Canada

Ownership or Interest in Other Lands Within This Community

1. **Ownership Type:** Fee Simple
   Parcel Identifier: 000-363-235
   Owner with Parcel Interest: Forest Lakewood BC LLC
   Parcel Area: 61.4 ha
   Land Use Type: Agricultural/Farm
   Interest Type: Full Ownership

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2. **Ownership Type:** Fee Simple
   Parcel Identifier: 000-363-286
   Owner with Parcel Interest: Forest Lakewood BC LLC
   Parcel Area: 3.3 ha
   Land Use Type: Agricultural/Farm
   Interest Type: Full Ownership

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3. **Ownership Type:** Fee Simple
   Parcel Identifier: 006-451-209
   Owner with Parcel Interest: Forest Lakewood BC LLC
   Parcel Area: 15.2 ha
   Land Use Type: Agricultural/Farm
   Interest Type: Full Ownership

Current Use of Parcels Under Application

1. Quantify and describe in detail all agriculture that currently takes place on the parcel(s).
Hay production on 120 acres

2. Quantify and describe in detail all agricultural improvements made to the parcel(s).
N/A

3. Quantify and describe all non-agricultural uses that currently take place on the parcel(s).
N/A

Adjacent Land Uses

North

Land Use Type: Agricultural/Farm
Specify Activity: crops for cattle feed

East

Land Use Type: Agricultural/Farm
Specify Activity: crops for cattle feed

South

Land Use Type: Residential
Specify Activity: single family dwellings

West

Land Use Type: Agricultural/Farm
Specify Activity: crops for cattle feed

Proposal

1. What is the purpose of the proposal? Describe any benefits to agriculture that the proposal provides.
The current state of the property has been flooded from the rainy season Nov. until April each year and unable to be worked/farmed until late June/July due to saturation of the fields. We propose to build up the centre of the field to create a high point for drainage towards the drainage ditches on the east and west sides of the field. We would use the imported clay onsite for the field base. Step 1 would be to push current top material aside. Step 2 place clay base and compact with vibratory roller. Step 3 replace current top material as per diagram.

2. Proposal dimensions

Total fill placement area (to one decimal place) *3.9 ha*
Maximum depth of material to be placed as fill *1.5 m*
Volume of material to be placed as fill *20000 m^3*
Estimated duration of the project. *5 Months*

3. Has a Professional Agrologist reviewed the project and provided a written report? If yes, please attach the Professional Agrologist report in the "Upload Attachments" section.
No

4. What alternative measures have you considered or attempted before proposing to place fill?
Swales

5. Describe the type of fill proposed to be placed.
imported clay

6. Briefly describe the origin and quality of fill. Has the fill been assessed by a qualified professional to verify its agricultural suitability? If yes, please attach the assessment report in the "Upload Attachments" section.
Fill from Department of National Defense across the road

7. Describe the type of equipment to be used for the placement of fill. If applicable, describe any processing to take place on the parcel(s) and the equipment to be used.
The equipment used will be D6 Dozer, 8' pad foot vibratory roller, John Deere 250 excavator and a dump truck with pup.

8. What steps will be taken to reduce potential negative impacts on surrounding agricultural lands?
Landscaping screen will be used along ditches

9. Describe all proposed reclamation measures. If a reclamation plan from a qualified professional is available, please summarize the reclamation and attach the full plan in the "Upload Attachments" section.

To build drainage grade in fields

Applicant Attachments

- Agent Agreement - Forest Lakewood BC LLC
- Proposal Sketch - 57009
- Other correspondence or file information - Soil Samples
- Other correspondence or file information - Adjacent Titles
- Other correspondence or file information - Adjacent Titles
- Other correspondence or file information - Adjacent Titles
- Site Plan / Cross Section - 57009
- Other correspondence or file information - Application
- Certificate of Title - 029-405-491

ALC Attachments

None.

Decisions

None.

FOREST LAKEWOOD BC LLC

APPLICATION

- Placement of fill for a farm/non-farm use.

CONTACT

- Marc Fortin
- Forest Lakewood BC LLC

Box 297
Parksville, BC
V9P 2G4

PARCEL UNDER APPLICATION

- Certificate of Title(s) Attached

LAND USE

- ALR

LOCAL GOVERNMENT

- Comox Regional District

PROPOSAL (Field 2)

The current state of the property has been flooded from the rainy season November until April each year and unable to be worked/farmed until late June/July due to saturation of the fields.

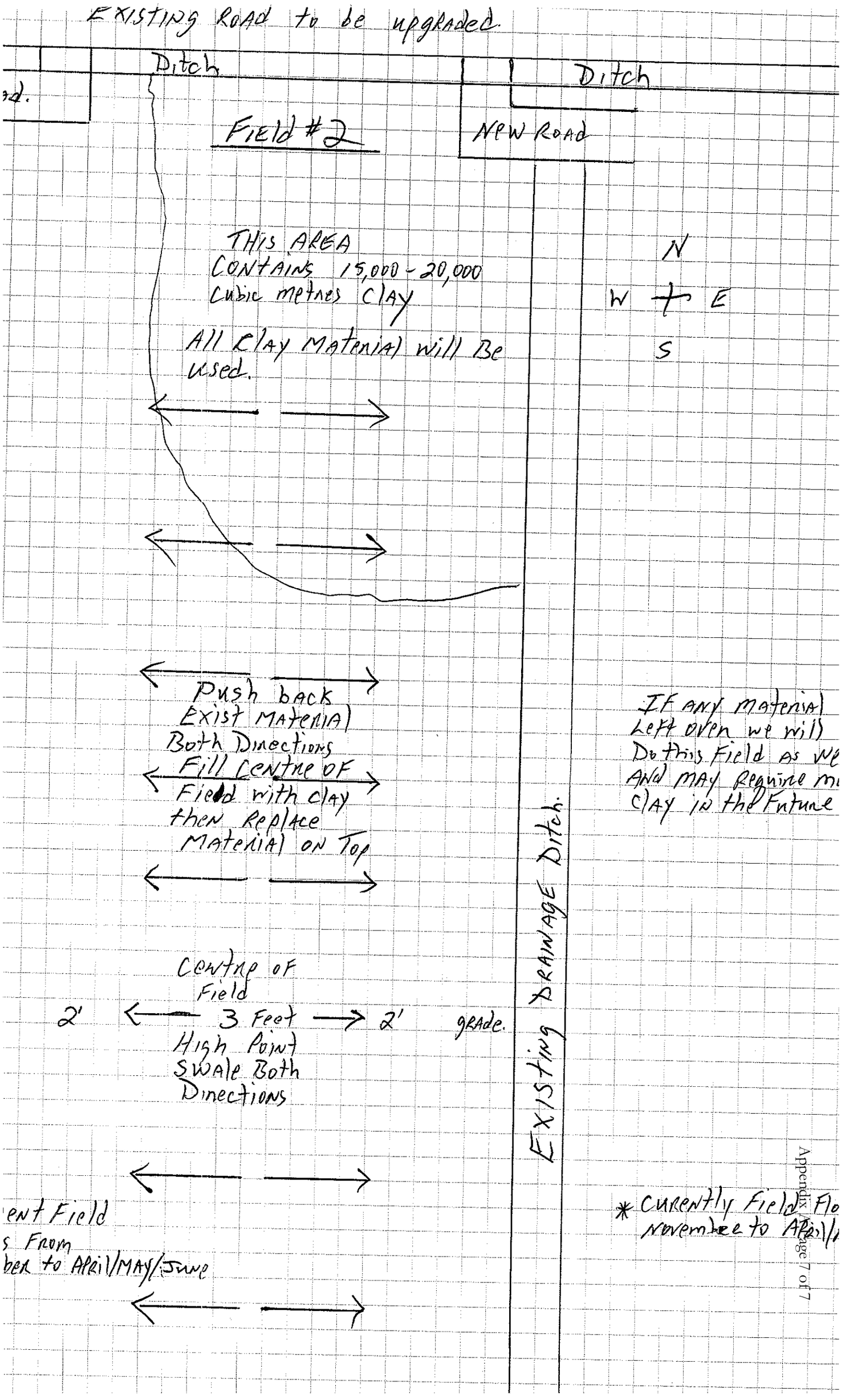
We propose to build up the centre of the field to create a high point for drainage towards the drainage ditches on the east and west sides of the field. We would use the imported clay onsite for the centre field base.

Step 1 would be to push current top material aside. Step 2 place clay base and compact with vibratory roller. Step 3 replace current top material as per diagram. The approximate area included is 3.98 ha and the depth varies from ½ metre to 1 ½ metres. All the clay onsite, 15,000 to 20,000 cubic meters will be used.

The duration of the project shall be in the summer months starting late June/July and ending September/October 2018.

The equipment to be used will be a D6 Dozer, 8' pad foot vibratory roller, John Deer 250 excavator and a dump truck with pup. Landscaping screen will be used along ditches.

Furthermore, once it can be obtained we will forward a completed agrologist report for your approval.


EXISTING ROAD to be upgraded.
Ditch
Ditch
NEW ROAD
FIELD #2
THIS AREA CONTAINS 15,000 - 20,000 Cubic Metres CLAY
All CLAY MATERIAL will Be used.
N
W
E
S
Push back EXIST MATERIAL Both Directions
Fill CENTRE OF Field with CLAY then Replace MATERIAL ON Top
IF ANY MATERIAL Left over we will Do this Field as we AND MAY Require m CLAY in the Future
EXISTING DRAINAGE Ditch.
CENTRE OF Field
2'
3 Feet
2'
grade.
High Point SWALE Both Directions
ent Field
s From
ber to APRIL/MAY/JUNE
* Currently Field Flo
November to April/
Appendix A Page 7 of 7

Provincial Agricultural Land Commission - Applicant Submission

Application ID: 56978
Application Status: Under LG Review
Applicant: Forest Lakewood BC LLC
Agent: Forest Lakewood BC LLC
Local Government: Comox Valley Regional District
Local Government Date of Receipt: 10/26/2017
ALC Date of Receipt: This application has not been submitted to ALC yet.
Proposal Type: Non-Farm Use (Placement of Fill)
Proposal: The current state of the property has been flooded from the rainy season November until April each year and unable to be worked/farmed until late June/July due to saturation of the fields. We propose to remove the fill as recommended by the ALC and use the fill to build up internal roads on the property and repair/build up existing roads. At present there is approximately 8,000 to 10,000 cubic metres of fill in Field 1 as per the diagram. We anticipate we will use all of this fill for the road building and repairs. There is approximately 1.35 kms. of new road and 1.5 kms. of existing roads to be built up 18-24" X 14' wide. We are currently running into the rainy season November to March/April and propose to start June/July 2018, so as to mitigate any material into our drainage ditches.

Agent Information

Agent: Forest Lakewood BC LLC
Mailing Address:
Box 297
Parksville, BC, BC
V9P 2G4
Canada

Parcel Information

Parcel(s) Under Application

1. **Ownership Type:** Fee Simple
   Parcel Identifier: 000-363-235
   Legal Description: DL 146 COMOX EXC PTS IN PLS 40898 & VIP74344
   Parcel Area: 61.4 ha
   Civic Address: 863 knight road, Comox
   Date of Purchase: 10/16/2017
   Farm Classification: Yes
   Owners
   1. **Name:** Forest Lakewood BC LLC
      Address:
      Box 297
      Parksville, BC, BC

V9P 2G4
Canada

Ownership or Interest in Other Lands Within This Community

1. **Ownership Type:** Fee Simple
   Parcel Identifier: 029-405-491
   Owner with Parcel Interest: Forest Lakewood BC LLC
   Parcel Area: 40.4 ha
   Land Use Type: Agricultural/Farm
   Interest Type: Full Ownership

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2. **Ownership Type:** Fee Simple
   Parcel Identifier: 006-451-209
   Owner with Parcel Interest: Forest Lakewood BC LLC
   Parcel Area: 15.2 ha
   Land Use Type: Agricultural/Farm
   Interest Type: Full Ownership

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3. **Ownership Type:** Fee Simple
   Parcel Identifier: 000-363-286
   Owner with Parcel Interest: Forest Lakewood BC LLC
   Parcel Area: 3.3 ha
   Land Use Type: Agricultural/Farm
   Interest Type: Full Ownership

Current Use of Parcels Under Application

1. Quantify and describe in detail all agriculture that currently takes place on the parcel(s).
ALR Land use currently was not used this year(2017) last year was used for Peas and Oats for cattle feed

2. Quantify and describe in detail all agricultural improvements made to the parcel(s).
The use of the fill for land development works and ancillary works that are required for farm use, such as maintaining and revamping roads is a designated farm use activity under section 2(2)(d) of the Agriculture Land Reserve Use, Subdivision and Procedure Regulation.

3. Quantify and describe all non-agricultural uses that currently take place on the parcel(s).
The proposed use for fill in constructing and maintenance of ancillary works to the farm's pump house, including the roads outlined in diagram leading to the pump house are permitted non-farm uses under section 3(1)(n) of the Agriculture Land Reserve Use, Subdivision and Procedure Regulation.

Adjacent Land Uses

North

Land Use Type: Agricultural/Farm
Specify Activity: crops for cattle feed

East

Land Use Type: Agricultural/Farm
Specify Activity: crops for cattle feed

South

Land Use Type: Residential
Specify Activity: single family dwellings

West

Land Use Type: Agricultural/Farm
Specify Activity: crops for cattle feed

Proposal

1. What is the purpose of the proposal? Describe any benefits to agriculture that the proposal provides.
The current state of the property has been flooded from the rainy season November until April each year and unable to be worked/farmed until late June/July due to saturation of the fields. We propose to remove the fill as recommended by the ALC and use the fill to build up internal roads on the property and repair/build up existing roads. At present there is approximately 8,000 to 10,000 cubic metres of fill in Field 1 as per the diagram. We anticipate we will use all of this fill for the road building and repairs. There is approximately 1.35 kms. of new road and 1.5 kms. of existing roads to be built up 18-24" X 14' wide. We are currently running into the rainy season November to March/April and propose to start June/July 2018, so as to mitigate any material into our drainage ditches.

2. Proposal dimensions

Total fill placement area (to one decimal place) *2 ha*
Maximum depth of material to be placed as fill *0.5 m*
Volume of material to be placed as fill *10000 m^3*
Estimated duration of the project. *4 Months*

3. Has a Professional Agrologist reviewed the project and provided a written report? If yes, please attach the Professional Agrologist report in the "Upload Attachments" section.
No

4. What alternative measures have you considered or attempted before proposing to place fill?
swale for drainage

5. Describe the type of fill proposed to be placed.
as per soil samples

6. Briefly describe the origin and quality of fill. Has the fill been assessed by a qualified professional to verify its agricultural suitability? If yes, please attach the assessment report in the "Upload Attachments" section.
soil from Department of National Defense golf course across the road

7. Describe the type of equipment to be used for the placement of fill. If applicable, describe any processing to take place on the parcel(s) and the equipment to be used.
D6 dozer, 8' pad foot vibratory roller, 6' smooth vibratory roller, John Deere 250 excavator and dump truck with pup.

8. What steps will be taken to reduce potential negative impacts on surrounding agricultural lands?
Landscaping screen will be used along all ditches

9. Describe all proposed reclamation measures. If a reclamation plan from a qualified professional is available, please summarize the reclamation and attach the full plan in the "Upload Attachments" section.
building up roads and building new roads

Applicant Attachments

- Agent Agreement - Forest Lakewood BC LLC
- Proposal Sketch - 56978
- Other correspondence or file information - application proposal
- Site Plan / Cross Section - 56978
- Other correspondence or file information - Adjacent Titles
- Other correspondence or file information - Adjacent Titles
- Other correspondence or file information - Adjacent Titles
- Certificate of Title - 000-363-235

ALC Attachments

None.

Decisions

None.

FOREST LAKEWOOD BC LLC

APPLICATION

- Placement of fill for a farm/non-farm use.

CONTACT

- Marc Fortin — Box 297
- Forest Lakewood BC LLC — Parksville, BC V9P 2G4

PARCEL UNDER APPLICATION

- Certificate of Title(s) Attached

LAND USE

- ALR

LOCAL GOVERNMENT

- Comox Regional District

PROPOSAL (Field 1)

The current state of the property has been flooded from the rainy season November until April each year and unable to be worked/farmed until late June/July due to saturation of the fields.

We propose to remove the fill as recommended by the ALC and use the fill to build up internal roads on the property and repair/build up existing roads. At present there is approximately 8,000 – 10,000 cubic meters of fill in Field 1 as per the diagram. We anticipate that we will use all of this fill for the road building and repairs. There is approximately 1.35 kms. of new road and 1.5 kms. of existing roads to be built up 18-24" X 14' wide.

We are currently running into the rainy season November to March/April and propose to start June/July 2018, so as to mitigate any material into our drainage ditches.

The equipment to be used will be D6 dozer, 8' pad foot vibratory roller, 6' smooth vibratory roller, John Deere 250 excavator and dump truck with pup. Landscaping screen will be used along the ditches.

Furthermore, the use of the fill for land development works and ancillary works that are required for farm use, such as maintaining and revamping roads is a designated farm use activity under section 2(2)(d) of the *Agriculture Land Reserve Use, Subdivision and Procedure Regulation*. Further, the proposed use for fill in constructing and maintenance of ancillary works to the farm's pump house, including the roads outlined in diagram leading to the pump house are permitted non-farm uses under section 3(1)(n) of the *Agriculture Land Reserve Use, Subdivision and Procedure Regulation.*

NEW Road .8 of a Km.

This Portion of Road Requires Apox 2232 cubic metens Fill From Fill Being Removed.

S
E + W
N

Pump House

material to be Removed by Knappit Contracting

EXISTING ROAD

FEILD #1

* Currently Field Floods Dueing Rainy season November to April/May/June.

THIS AREA CONTAINS 8000 - 10,000 cubic metens of Fill to be removed.

QUEENS DITCH

Bridge

NEW Road .8 of a KM.

This Portion of Road Requires apox 2232 cubic meters of Fill Being Removed.

S
E + W
N

Pump House

material to be Removed by Knappit Contracting

Future Location

EXISTING ROAD

FEILD #1

* currently Field Floods During Rainy Season November to April/MAY/June.

THis AREA Contains 8000 - 10,000 cubic meters of Fill to be removed.

← 3.5' HIGH BERM →

QUEENS DITCH

Bridge

Drainage
FACTSHEET

BRITISH COLUMBIA | Ministry of Agriculture

Order No. 535.100-2
November 2002

AGRICULTURAL DRAINAGE CRITERIA

Introduction

These criteria were developed to describe the level of drainage required to allow for good on-farm drainage. The criteria were used in projects under the Agricultural and Rural Development Subsidiary Agreement (ARDSA) that were intended to improve regional drainage and are commonly referred to as ARDSA criteria. They are also known as the "Agricultural Drainage Criteria".

Figure 1 Good Drainage on Productive Forage Land

The purpose of the Agricultural Drainage Criteria is to provide good drainage for low land crops to survive and thrive. The survival of crops depends upon the crop's roots not being saturated for long periods of time. The criteria were designed to limit the duration that the crop's roots are subjected to saturated soil conditions and provide a water table low enough to allow for good root growth.

Chronic flooding limits the range of crops that can be grown on farmland, reduces crop yields and in some cases leads to disease and pest management problems. Good drainage is required to ensure that farmers can produce marketable crops.

Regional Agricultural Drainage Criteria

The regional drainage criteria for agricultural areas are:

- To remove the runoff from the 10 year, 5 day storm, within 5 days in the dormant period (November 1 to February 28);
- To remove the runoff from the 10 year, 2 day storm, within 2 days in the growing period (March 1 to October 31);
- Between storm events and in periods when drainage is required, the base flow in channels must be maintained at 1.2 m below field elevation.
- The conveyance system must be sized appropriately for both base flow and design storm flow.

When conducting a drainage study using the above criteria, the flooding on the surface of the land is analyzed first, determining the length of time required to remove water from the surface of the land (field elevation). Generally surface flooding is limited to 4.5 days in the winter and 1.8 days in the summer.

The time for the water levels in the channel to return to base flow is then determined. To provide adequate drainage to the root zone, the water level should return to base flow levels within 6 hours during the summer and 12 hours in the winter after cessation of flooding.

The total time it takes to remove flooding and return the water level to base flow should not exceed 5 days in the winter and 2 days in the summer for the design storms stated in the first two criteria.

Explanation of Terms

Flooding

Flooding is considered to occur when the water levels exceed the designated field elevation.

Runoff

Runoff is considered all water above base flow that is not infiltrated.

Base Flow

Base flow is the amount of water flowing in the channel when there is no runoff from storm events.

In order to determine the effect that any changes in the watershed will have on water flows, an estimate of the base flow for summer and winter are required.

The summer base flow condition is to be based on available stream flow and precipitation data.

The winter base flow is calculated for an extremely wet period defined as 20 to 22 days of rainfall during a wet month.

On some systems the outlet is controlled by a pump station during freshet. The cycling of the pump determines water levels. Where the pump station operation governs the water levels, base flow water levels will be determined by the arithmetic mean of the maximum and minimum channel water elevations at the location that is near the lowest land in the flood cell.

Storm Flow

Storm water runoff should be calculated for summer and winter conditions using a one in 10 year return period for 5-day winter and 2-day summer storms.

The Rational and SCS method for calculating peak flows should not be used when designing regional drainage systems. These methods over simplify a very complex process. Continuous simulation models are more realistic and take into account rainfall events that last for many days.

Freeboard

Freeboard is the elevation difference between base flow water levels in the channel and the field elevation.

For the purposed of determining freeboard the baseflow water level in the ditches is determined by analyzing base flow periods during the growing season.

Ideally the freeboard should be 1.2m, this provides a good outlet for tile drains. A freeboard of 0.9m may be acceptable in some areas.

Field Elevation

The field elevation can be designated where 95% of the land in the flood cell lies above the determined elevation. This is a general guideline.

5% of the land would be below the designated field elevation. This 5% may receive less drainage benefits than the surrounding land.

Calculation of the Duration of Poor or InadequateDrainage

Inadequate drainage is considered to occur when water levels rise above base flow conditions and crop roots are affected.

The duration of poor drainage should be calculated by summing the periods of inundation for the entire period of influence of the storm event.

During the dormant and growing seasons a certain amount of inadequate drainage may occur but the duration must be limited to the stated criteria to prevent damage to the crops

Explanation of Criteria

Remove the runoff from the 10 year, 5 day storm, within 5 days in the dormant period (winter).

What does a 5 day 10 year storm mean?

A 5-day storm, 10-year storm indicates the volume of water that is required to be removed by the drainage system. This volume of water is to be removed within 5 days from the time the root zone is saturated.

The amount of rain that can fall in a 5-day 10-year storm varies around the province.

To determine the local 5-day 10 year storm precipitation data from a near by climate station is statistically analyzed to determine what the average rainfall would be for a storm lasting 5 days that would occur once every 10 years. This would be more severe than a storm that occurs once a year, just as a 100-year storm would be even more severe than a 10-year storm.

Choosing this storm event to be used for the design or assessment a drainage system means that there is a level of acceptable risk that is assumed. The risk is that every 10 years a storm may occur that is larger than the drainage system is designed to convey.

There is a chance that a 5-day 10-year storm will occur more than once in a single year. The probability of this occurring is very small.

Remove the runoff within 5 days.

The on-farm drainage system is an integral part of removing the water from the root zone. Most subsurface drainage systems are installed with the pipe outlet at 1.0-1.1m below the field surface. To allow for the drains to flow freely the *base flow* in the channel should remain 1.2m below the field elevation between storm events.

Because regional drainage systems service on-farm drainage systems of farms with a variety of crops, a water level indicated by the 1.2m freeboard between storm events is the level used to determine if this criteria is met. By providing a 1.2m freeboard where it currently does not exist the agriculture community has the opportunity to convert to higher value crops.

However, in some situations where the crops grown are uniform and do not have deep roots determining when inadequate drainage begins can vary depending on the crop type.

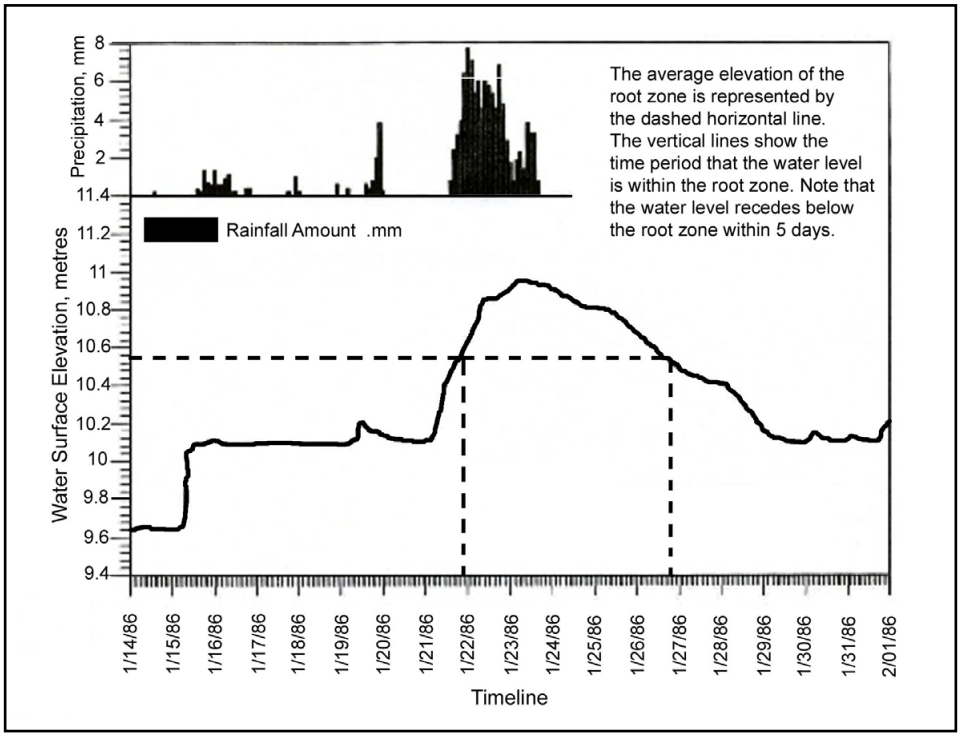

Figure 2 Sample Hydrograph

For perennial crops that have a deep established root system the roots of the crop should not be saturated for more than five days. The water level may rise higher but it must be below the root zone by the end of five days.

For **shallow rooted crops and grasses** the crop roots may not be affected until the water level has risen within 0.9m of the land surface. In these cases the inadequate drainage is considered to begin when it rises above this level and end when it falls below this level.

For **some vegetable crops** flooding during the winter is acceptable and even desirable. For drainage areas that only service areas where these crops exists inadequate drainage would be considered to begin the water reached the field elevation.

Figure 2 shows a hydrograph produced for a 5-day storm. Many factors affect the shape of the hydrograph including the land use in the area and the pattern of the storm. Notice the precipitation bars at the top of Fig. 2 indicates high rainfall the last day of the event and less the previous days. This may be a typical pattern for the area producing a certain volume of rain. This same amount of rainfall could fall in equal amounts each day and this would produce a different hydrograph.

The example hydrograph shows the rise and fall of the water table due to the storm. For this situation the water level recedes below the root zone within 5 days.

To remove the runoff from the 10 year, 2 day storm, within 2 days in the growing period (summer).

The analysis for this criterion is similar to the analysis described for the 5-day 10-year storm to be removed in 5 days in the dormant season.

For this criteria the 2-day 10-year storm in the growing season is analyzed to determine the amount of water to be removed by the drainage system.

During the growing season the water has to be removed quickly, within 2 days, to prevent damage to the crop's development. Since plants breath through their roots it is important that there is air in the soils and the soil is not saturated for long periods of time.

Between storm events and in periods when drainage is required, the base flow in channels must be maintained at a 1.2 m below field elevation.

In many situations the banks of the watercourse may have been built up over the years. This creates a berm along the watercourse, see fig. 3. Although the bank may be at an elevation of 1.2 m above the water the actual low point in the field may be 0.5 m below the bank (berm) level. This would leave only a 0.7 m free board. It is important to have a topographical survey of the area showing all low spots, ditch bottoms and water levels in the channel.

The freeboard is critical in the spring and fall when equipment needs to access the fields. The water level may be maintained higher in the summer if field and crop conditions are conducive to subirrigation.

Subirrigation is an option that should be left up to the individual farmer.

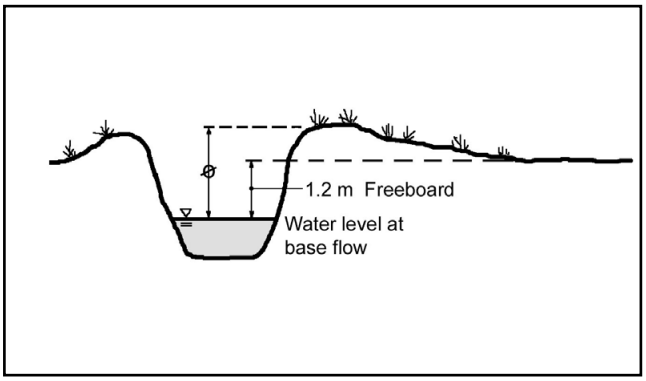

Figure 3 Determining Freeboard

The conveyance system must be sized appropriately for both base and design storm flows.

This criterion is to assure that all ditches and culverts are sized appropriately. In a number of regional drainage areas where the drainage is inadequate the problem is usually a culvert or channel that is too small to pass storm flows efficiently or a culvert installed too high.

Drainage Improvement Assessment for Agriculture

To conduct a proper drainage improvement assessment the following information should be provided for areas that do not meet the Agricultural Drainage Criteria.

- Delineate on a map the field areas that are capable of achieving 1.2m freeboard during non-storm situations.
- Delineate on a map the field areas that are capable of achieving only 0.9m freeboard during non-storm situations.
- If the 1.2m freeboard cannot be met within the time period stated after a storm, what water level in the ditches is achievable within the stated time period?
- If the 1.2m freeboard cannot be met within the time period stated after a storm, how long will it take to meet the 1.2m freeboard?
- If the 1.2 m freeboard cannot be met within a maximum of 12 hours in the summer or 24 hours in the winter after the cessation of flooding, create a map delineating the areas that meet 1.2m and 0.9 m of freeboard within the time period stated in the criteria. See fig. 4.

By providing this information in a report it is possible to assess the impact that the poorly drained areas will have on agriculture.

This information can help answer some of the most commonly asked questions and provides farmers with a clear picture of the drainage situation in their area.

The information indicates the severity of the impact.

Can the poorly drained areas support crops that are less sensitive to drainage conditions?

Is the land unfarmable?

The maps show the areas that are affected and how these areas relate to parcels of land that are farmed.

Does the poorly drained area negatively affect the entire parcel?

Does it make the parcel of land unproductive or too difficult to farm?

When planning drainage improvements this information gives an indication of which areas may benefit from drainage improvements and which areas may be too difficult to drain.

What is the cost / benefit ratio of improving drainage?

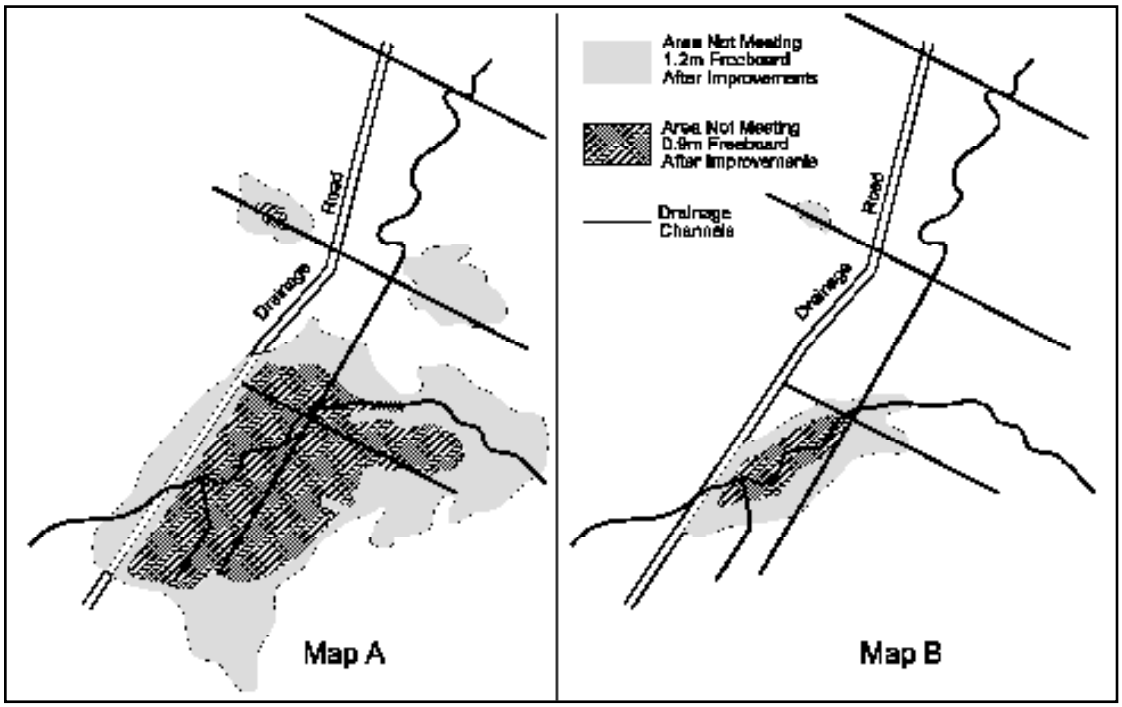

Figure 4 Regional Drainage Assessment Maps

Assessment Summary

Summarizing the affects of changes in the drainage system or drainage improvements in tabular and map form is a convenient method of displaying all the options. The table should include the changes that could be expected in flows, duration or saturation and the land area affected during the storm stage due to proposed changes in the watershed.

Regional overview of agricultural drainage

Figures 4 and 5 are examples of mapping the results of the drainage assessment. Figure 4, Map A and Map B, give an overall regional view of the areas that will still be affected after the proposed drainage improvements have been implemented. A map like this may also include lot boundaries. This map may then be used to show stakeholders which lands can reasonably be expected to be drained and which cannot.

Table 1 gives an example of summary information that may accompany these figures. The table may also contain other relevant information.

It is then possible to easily compare the options. The drainage improvements in Option B meet the agricultural drainage criteria in 95% of the drainage area. The areas not meeting the criteria only experience an extra day of flooding and have a 0.7m to 0.75m freeboard, which is acceptable for some crops. For Option A there will be some areas that do not meet the drainage criteria. However, the cost for Option A is quite a bit less than Option B.

The farmers and other stakeholders in the area can use this information to decide if the extra costs of the drainage improvements are justified.

Table 1 SUMMARY OF DRAINAGE IMPROVEMENTS AND COSTS

	Option A	Option B
Description of work	Clean channels. Install small pump station	Clean and Improve channels. Install large pump stations.
For winter storm events		
Area not meeting 1.2 freeboard	92 ha	20ha
Area not meeting 0.9m freeboard	82 ha	11ha
% of area meeting drainage criteria	74%	95%
Freeboard achieved within criteria time period (within zone not meeting 0.9m freeboard)	0.4m	0.7m
Time required to meet the 1.2m freeboard*	9 days	6 days
For summer storm events (maps not shown)		
Area not meeting 1.2 freeboard*	85 ha	5 ha
Area not meeting 0.9m freeboard	75 ha	5 ha
% of area meeting drainage criteria	76%	98%
Freeboard achieved within criteria time period (within zone not meeting 0.9m freeboard)	0.7m	0.75
Time required to meet the 1.2m freeboard*	3 days	3 days
Economics		
Costs of Improvement	$250,000	$600,000
Benefits to Agriculture**	$225,000	$500,000

* This is assuming that the 1.2 m freeboard criteria is met when there are no storm events.
** Analysis by professional agriculture consultant. This includes improvements in crop yield, higher value crops, improved growing season, crop quality, management implications and any increases in production costs

How drainage affects individual properties

Figure 5 shows how poor drainage may affect a single property. It is important to consider not only the overall area within a region, but also how individual lots will affected by drainage. Lot 1 in Figure 5 experiences poor drainage on over 75% the property, half of the property does not meet the 0.9m freeboard and possibly a third would not meet a 0.6m freeboard.

This property owner of Lot 1 may not able to productively farm a large portion of their land under this drainage scenario. Lot 2 also experiences poor drainage while Lot 3 is not affected.

This information would be used to determine the agricultural productivity of an area. Lot 1 may not be farmed because it is not worth the management effort to put a small portion of land into production. In that case the entire area of Lot 1 would not be included in the area receiving benefits in the summary information.

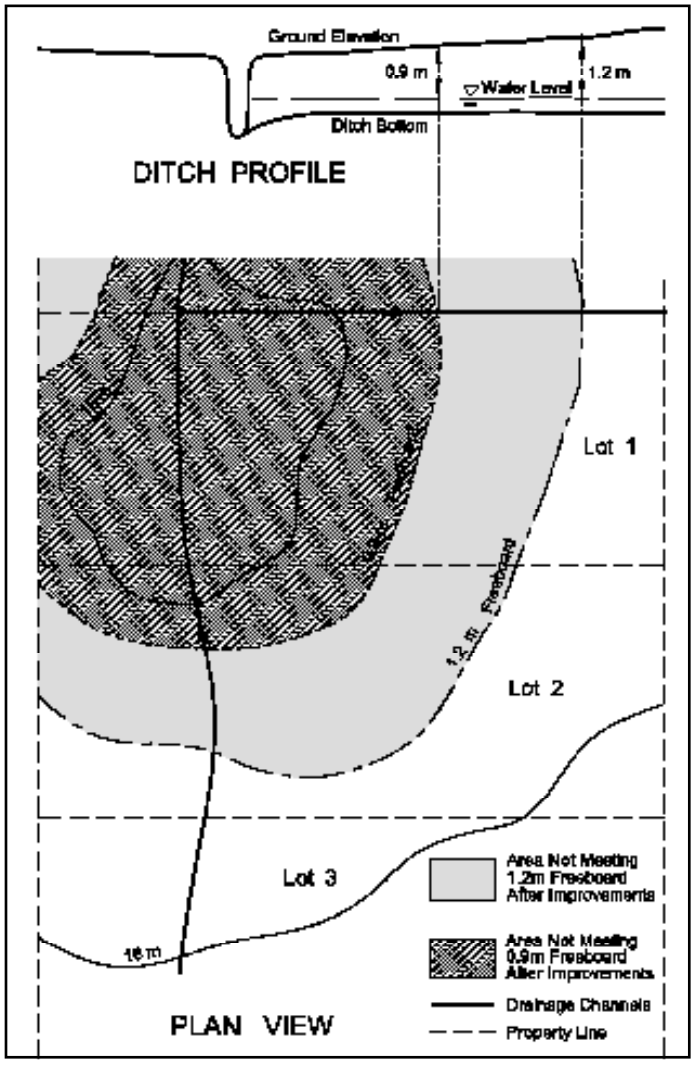

Figure 5 – Regional Drainage Affecting Individual Property

References

Lalonde, Vincent and Hughes-Games, Geoff. 1997. ***B.C. Agricultural Drainage Manual***. B.C. Ministry of Agriculture, Food and Fisheries , Resource Management Branch, Victoria, B.C.

Wilson, Ken. 1980. ***Design Criteria for the Farm Drainage Outlet Assistance in the Lower Fraser Valley***. B.C. Ministry of Environment, Lands and Parks.

FOR FURTHER INFORMATION CONTACT
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Abbotsford Office
Phone: (604) 556-3001

MINISTRY OF AGRICULTURE
1767 Angus Campbell Road
Abbotsford, B.C.
V3G 2M3

January 23, 2018

Jodi McLean
Rural Planner
Comox Valley Regional District
600 Comox Road
Courtenay, BC V9N 3P6

Dear Jodi McLean:

Re: Forest Lakewood Non-Farm Use application, File: 3110-20 / ALR 2B & 3B 17

Thank you for organizing the site visit on January 17, 2018. Below are comments on the application based on the criteria from ALC Policy L-23 "Placement of fill for soil bound agricultural activities, October 2017". The reason to use ALC L-23 is while this is a non-farm use application the applicant's justification for the fill placement is for agricultural improvements.

a) Fill placement will aid the farm/farming activity;
   - There may be some benefit to improving the farm roads to make them more trafficable earlier and later into the season. However the reason for placing fill for road construction on top of a productive portion of the field instead directly onto the road starting at the farthest point and working towards the main building seems counter intuitive. The gravel fill will have to be removed and placed on the road surface most likely be mixing with the topsoil, which was left in place, possibly compromising the productivity of both the field and the road surface.

b) Fill placement will not reduce the agricultural capability of the land, degrade soils, or limit the range of crops that can be grown on the subject property compared to the current crop suitability of the land;
   - The Agricultural capability of the existing soils on site 1 and 2 was not provided as part of the submission. According to the Canada Land Inventory site 1 is rated as improvable to 50% 3A and 50% 2A to 2A and site 2 is the top portion of the field is 50% 3A and 50% 2A the lower portion closer to the marsh is O2W, both these sites would be considered improved by agricultural standards. The fill deposited is described in the Knappett Industries "Permission to Dump Fill "document as: site 1 - mainly consisting of sand and gravels and site 2 - predominantly clay and till. In both sites the fill deposited is inferior for crop production than the existing soils. The top soil which was proposed to cap site 2 is no longer available.

c) Applicants are able to demonstrate that fill placement is the only means available to address implementation of standard agricultural best practices;
   - The owners indicated the use of swales was tried to improve drainage. The farm at one time was tile drained. A previous owner removed some of the tile. The current owners did not indicate if re-instating the tile was considered. Ditch

maintenance is also an option that was not addressed. The consideration of other drainage methods does not seem to have been adequately explored.

- This area resides is a complex drainage system. In the past the Queens Ditch had a weir in place to keep the winter water table high to manage the land for potato production. This method is still being utilized by the downstream farm which had more standing water than the subject property at the time of the site visit. The application is not reflective of the complexity of this watershed. It does not appear that the owners fully considered other options for improving drainage.

d) Fill placement will aid in the rehabilitation of agricultural lands severely impacted by past fill activities or other activities that have degraded agricultural land whether permitted or not permitted;
    - The degradation of the land base is primarily due to it not being used as intensively as it has been in the past. Reed Canary grass and other weedy species have become established the use of fill is unlikely improve this situation and may make it worse in the future.

e) Fill placement will not foul, obstruct, or impede the flow of any waterway;
    - Site 1 is close to the farm ditches however the nature of the substrate, gravel and sand appears to be stable. Lazo Marsh is adjacent to site 2. Unfortunately due to the wet weather it was determined that access to the marsh would not have been possible. This needs to be looked at to see if any of the fill is flowing into the marsh.

f) If fill is required for drainage improvements, the proposed fill height does not exceed more than 0.5 metres above the maximum height of the water table (as confirmed by a Qualified Registered Professional) which is equivalent to a Class 1 excess water limitation.
    - Not enough information was provided to adequately evaluate the situation. Additionally site 2, according to the information in the CVRD referral documents has the height of fill at 1.5 metres over 4 hectares. While the applicants indicated that the fill was 0.5 metres over 2 hectares in their ALC Applicant Submission There was no report confirming the fill depth or area of coverage from a Qualified Registered Professional.

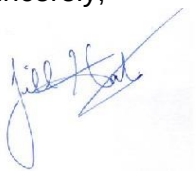
g) The final finished grade of the subject property compliments adjacent landforms and provides for a smooth transition between the land contours and drainage channels on adjacent lands and the reclaimed area.
    - The placement of fill on site 1 impedes the cultivation of this area. On site 2 the fill has a larger impact on cultivation and changes the natural contours of the land towards the Queens Ditch and Lazo Marsh.

Historically this property was capable of supporting a range of annual agricultural crops under good management practices. Furthermore, during the site visit it was evidenced the property is currently supporting agricultural production annual field crops, peas and oats which are suitable crops for this area. The property owner's agent was unclear as to what types of production were being considered in the future that required the need for re-contouring the property using fill.

The fill from both site 1 and 2 should be removed, the fields should be reinstated to their original state. If this fill from site 2 can be used to develop a road bed this might be a suitable use, site 1

fill is more suitable material for this use. The width of the roads created should be in keeping with farm roads. I recommend this remediation activity be supervised by a Qualified Professional Agrologist.

Sincerely,



Jill Hatfield P.Ag.
Regional Agrologist
BC Ministry of Agriculture