



Notice of Work

3628 Hot Springs Rd, Agassiz, BC V0M 1A3

Tracking Number: 100207264

Application Information

If approved, will the authorization be issued to an Individual or Company/Organization? Company/Organization
What is your relationship to the company/organization? Representative

APPLICANT COMPANY/ORGANIZATION CONTACT INFORMATION

Applicant is an Individual or an Organization to whom this authorization Permit / Tenure / Licence will be issued, if approved.

Name: AM-2 VENTURES LTD., CT-2 HOLDINGS LTD., RT-2 HOLDINGS LTD.
Doing Business As: TC MERRITT VALLEY FARMS (A PARTNERSHIP)
Phone: 604-796-3851
Fax: 604-796-0554
Email: andres@timbroconstruction.com
BC Incorporation Number:
Extra Provincial Inc. No:
Society Number:
GST Registration Number:
Contact Name: Andres Murillo
Mailing Address: 7357 Pioneer Avenue
agassiz BC V0M 1A0

REPRESENTATIVE INFORMATION

Please enter the contact information of the Individual/Organization who is acting on behalf of the applicant.

Name: AM-2 VENTURES LTD., CT-2 HOLDINGS LTD., RT-2 HOLDINGS LTD.
Doing Business As:
Phone: 604-796-3851
Fax:
Email: andres@timbroconstruction.com
BC Incorporation Number:
Extra Provincial Inc. No:
Society Number:
GST Registration Number:
Contact Name: Guillermo Andres Murillo
Mailing Address: 7357 Pioneer Avenue Avenue
Agassiz BC V0M 1A0
Letter(s) Attached: Yes (letter of representative.pdf)

CORRESPONDENCE E-MAIL ADDRESS

If you would like to receive correspondence at a different email address than shown above, please provide the correspondence email address here. If left blank, all correspondence will be sent to the above given email address.

Email: andres@timbroconstruction.com
Contact Name: Guillermo Andres Murillo

TECHNICAL INFORMATION

APPLICATION INFORMATION

Type of Notice of Work: Quarry - Construction Aggregate
Is this a New Permit or an Amendment to an existing permit for this property? New Permit

MINE INFORMATION

Do you have an existing mine number?	No
Name of the property:	3628 Hot Springs Rd, Agassiz, BC V0M 1A3
Tenure Numbers:	
Crown Grant / District Lot Numbers:	
Directions to site from nearest municipality:	From DISTRICT OF KENT CITY HALL (6820 Pioneer Ave), Agassiz, BC V0M 1A3, Head east on Pioneer Ave (200m), Turn left to stay on Pioneer Ave (290m), Turn left at the 1st cross street onto Agassiz-Rosedale Hwy/Evergreen Dr/BC-9 N, Continue to follow Agassiz-Rosedale Hwy/BC-9 N (1.7km), Turn right onto Agassiz-Rosedale Hwy/Hot Springs Rd/BC-9 N Destination will be on the right (2.6km)
Geographic Coordinates of Mine:	Latitude: 49.26984 Longitude: -121.77562
Maximum Annual Tonnage Extracted:	120000 tonnes

INFORMATION ABOUT PROPOSED ACTIVITIES

Activities to be undertaken:	Blasting Sand & Gravel / Quarry Operations
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FIRST AID

Proposed First Aid equipment on site:	Level 2 first aid kit, includes stretcher and epinephrine auto injector, first aid room and Vehicle meeting the Worksafe requirements
Level of First Aid Certificate held by attendant:	Occupational First Aid Level 1 with Transportation Endorsement

DESCRIPTION OF WORK PROGRAM

If you prefer to upload a document, please enter "see attached document" and attach the document in the "Document Upload" step later in the application under "Other".

Sufficient details of your work program to enable a good understanding of the types and scope of the activities that will be conducted:
 Intermittent drilling and blasting combine with Crushing, sorting, Stockpiling of blasted materials, rip rap and construction aggregate as per customer demand. Intermittent truck loading and hauling as required.
 The hours of work will be from 7am to 5 pm, Monday to Friday only. number of days will vary upon customer demand, allow for 100 to 150 days.

TIME OF PROPOSED ACTIVITIES

Original Start Date:	Jul 1, 2017
Proposed start and end date:	Nov 1, 2017 to Dec 31, 2030

Please remember that you need to give 10 days notice to the Inspector of Mines of your intention to start work, and 7 days notice of your intention to stop work.

ACCESS

Access presently gated:	No
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PRESENT STATE OF LAND

Please identify what the present state of the land is where you would like to undertake your activities. If some of the questions do not apply to you please enter n/a in the space provided.

Present condition of the land:	This is a new application, the quarry requires minor clearing and grubbing works and about of 4" of topsoil removal in some areas to expose the rock.
Type of vegetation:	Some Vegetation at the quarry site consisting of cotton wood trees, black berries Bramble bushes,

Physiography: The quarry is located on a rock hill side, the Bottom of the hill has a creek crossing the property, with a swampy area at 16m elevation. at the bottom of the hill about 50m away from the toe there is a hydro ROW, then the grades rises fast ending at about 160m elevation 350m from the toe.

Current means of access: The Access road is through 3628 Harrison Hot spring entrance. there is a side access road the leads to the back of the lot where the hill is situated. a regular car can access this grave road. the length of the road is about 360m long

Old equipment: No old equipment of building are onsite.

Recreational trails / use: none. the Quarry is on private land and the areas are fence

ACCESS TO TENURE

Do you need to build a road, create stream crossings or other surface disturbance that will not be on your tenure? No

LAND OWNERSHIP

Application area in a community watershed: No
Proposed activities on private land: Yes

Please note that under Section 19 of the Mineral Tenure Act and Section 2.1 of the Mineral Tenure Act Regulation you must not begin any mining activities until 8 days after giving notice to every owner of the surface area on which the recorded holder intends to carry out that activity.

Please attach a copy of the letter of authorization signed by the landowner The document can be uploaded at the "Document Upload" step later in the application process.

Legal description of land: PID 013-160-583, Parcel "A" (reference plan 4345) South East Quarter Section 1 Township 4 Range 29 West of the Sixth Meridian New Westminster District

Proposed activities on Crown land: No

Activities in a park: No

CULTURAL HERITAGE RESOURCES

Cultural Heritage applies to a large spectrum of heritage resources that is defined as "an object, a site or the location of a traditional societal practice that is of historical, cultural or archaeological significance to British Columbia, a community or an aboriginal people."

The Archaeology Branch of the Ministry of Forests, Land and Natural Resource Operations is responsible for the administration of the Heritage Conservation Act as it applies to archaeological sites. The Archaeology Branch has developed guidelines for companies engaged in natural resource extraction to aid in planning for and avoiding or managing impacts to protected archaeological sites.

Are you aware of any protected archaeological sites that may be affected by the proposed project? No

FIRST NATIONS ENGAGEMENT

In making decisions on authorizations, the government will be fulfilling its responsibility to consult, and where appropriate, accommodate First Nations. The government takes this responsibility seriously and encourages the applicant to engage First Nations early and often as part of any planned development.

Establishing good relations with First Nations who might be affected by a proposed development is a key part of any successful mining operation. The Ministry of Energy and Mines encourages applicants to engage and information share with First Nations that might be affected by a proposed development prior to submitting an application. The earlier in the life of a proposed activity that the avenues of communication are established the greater the likelihood that the relationships formed will be constructive and beneficial to all parties. A lack of information sharing and engagement by the applicant may result in extended timeframes for decision.

Applicants should keep a detailed record of information sharing and engagement with First Nations on their project in the event the government needs to review it. Information on First Nations information sharing and engagement should include the following: a list of First Nations contacted, whether the activity was modified based on feedback from First Nations, and whether the applicant has entered into any informal or formal agreements with First Nations in connection with the project.

The Consultative Areas Database Public Map Service is an online, interactive mapping tool that allows you to identify First Nations who have treaty rights or asserted or proven rights or title on the land base. More information can be found at <http://maps.gov.bc.ca/ess/sv/cadb/>.

Have you shared information and engaged with First Nations in the area of the proposed activity? No

BLASTING

MAPS

Please mark the location(s) of the proposed magazine(s) on the map. Unless this is an area based application also mark the proposed locations of the blast site(s) on the map. The maps will be uploaded at the document upload step later in the application process.

ACTIVITIES WHERE BLASTING WILL TAKE PLACE

Please select the activities to which blasting is related: Sand & Gravel / Quarry Operations

ON SITE STORAGE OF EXPLOSIVES

Are you proposing to store explosives on site? No
Describe how you will get the explosives to the site: Orica (explosive supplier) will deliver the explosives required for each blast on the day of the blast or our qualified blasting subcontractor will bring the on the day of the blast. Any unused explosives will be taking back by our qualified blasting subcontractor

ADDITIONAL INFORMATION

Only a person with a valid certificate granted under Section 8.2.1 of the Code is permitted to conduct a blasting operation.

SAND & GRAVEL / QUARRY OPERATIONS

MAPS

All plans and sections must indicate the scale and orientation of the drawing and must include:

1) Plan View of Proposed Development illustrating:

- Property boundaries and set back of excavation from property boundary
- Watercourses and drainage (wet, dry or intermittent) on the property and within 150 metres of its boundaries
- All previous surface workings, the final boundaries of proposed excavation, and boundaries of excavation at the end of development described in the Notice of Work
- Access roads, including development roads within the pit and access to the public roads
- All proposed and existing stockpiles (topsoil, overburden, product etc.)
- All settling ponds (for both surface run off and process water) and source of process water
- Buildings and other facilities (fuel/lubricant storage, sanitary facilities, weigh scale, etc.)

- Sediment control structures and the location of any point discharges from the property
- Fencing, berms and/or vegetative buffers.

2) Cross and longitudinal sections of Proposed Development illustrating:

- The original land surface and, if applicable, the groundwater table elevation
- Typical configuration during mining, indicating angle of slope and, where applicable, bench locations
- Proposed configuration on completion of reclamation

3) A copy of the land title/crown land tenure map must be provided.

SOIL CONSERVATION

Average depth of overburden:	0.10 m
Average depth of topsoil:	0.20 m
Measures to stabilize soil overburden stockpiles and control noxious weeds:	The area is an exposed rocky face, with little overburden and topsoil, if any this topsoil will be stripped and stockpiled to the west of the Quarry, in an appropriate area clear of potential weeds and vegetation. This soil will be utilized for landscaping later on. any additional top soil will be utilized and the bottom of the lot which is been used for crops.

LAND USE

Is the site within the Agricultural Land Reserve?	No
Does the local government have a Soil Removal Bylaw?	Yes
Official Community Plan for the site:	Agricultural
Current land use zoning for the site:	agricultural land/ MR Resource
Proposed end land use is:	land development
Estimate total minable reserves over the life of the mine:	950,000 m ³
Estimate annual extraction from site:	120,000 tonnes/year

Application must be made to the Environmental Assessment Office if estimated extraction for sand/gravel production is 500,000 tonnes/year or 1,000,000 tonnes over 4 years; or if estimated extraction is 250,000 tonnes/year for quarried product.

ACTIVITIES

Click on the "Add Activity" button to add one or more activities. Select your activity out of the list and enter the tonnes, the total disturbed area and the total merchantable timber volume.

Please note that you must notify the Inspector at least two weeks before if you are planning to bring a crusher on site.

Activity	Total Disturbed Area (ha)	Merchantable timber volume (m³)
Crushing	0.50	45.00
Excavation of Pit Run	6.50	0.00
Total:	7.00	45.00

Is the work year round or only seasonal?	Year round
Brief description of operation, including proposed work schedule:	Blasting Crushing Excavation Mechanical screening

RECLAMATION PROGRAM

Describe the proposed reclamation and timing for this specific activity:	The property will be subdivided into the Agricultural land area and the MR area. The MR area is the quarry which it will not be reclaimed. the quarry will be converted into a subdivision with some green areas. the top soil will be utilized for these areas and for the agricultural lot.
If backfilling of pits or pit slopes is proposed in the	Mined pit will be sculpted and trimmed with gentle slopes of up to 1:2

final configuration for reclamation, details of materials to be used and placement procedures:
 Estimated cost of reclamation activities described above: \$15,000.00
 Will progressive reclamation be carried out? No

GROUNDWATER PROTECTION

Average depth to the high groundwater table at the proposed excavation: 95.0 m
 Elevation of the groundwater table was determined from: ☐ Existing area wells
☒ Test pits
☐ Test wells drilled for this purpose
☒ Other: The excavation is on the face of a hillside the proposed finish grade at the last bench is at elevation 95m. High groundwater table is at 16.25m
 Measures proposed to protect groundwater from potential impacts of the proposed mining activity: All equipment is daily inspected for potential leaks and spills. Spill kits are mandatory to be kept on site at all times.. Fuel will not be store onsite, nor explosives.
 Silt fencing will be installed as required to prevent migration material into existing creek. The silt fencing will be maintained and monitored as required on every time there is a large rain event.

IMPACT MINIMIZATION

Shortest distance between proposed excavation to nearest residence: 270 m
 Shortest distance between proposed excavation to nearest residential water source: 270 m
 Measures proposed to prevent inadvertent access of unauthorized persons to the mine site: The site is located on a marked private road, with no trespassing signs. The site is located 430m from the nearest public road. The quarry will be entirely fenced at the bottom of the hill to prevent unauthorized personnel from accessing it. Any trespassers will have to drive through the house of the land owner.
 The property will have trees planted on the front and the sides to avoid being too visible from the roadside.
 Measures proposed to minimize noise impacts of the operation: Hours and days of operation will follow the municipality noise bylaws hours. 7 to 7pm
 The site has not many homes around it since it is located on agricultural land surrounded by large parcels of land. There are not many dwellings surrounding the property. The site is a raised terrace well above the highway and housed to the east. Crushing equipment will not be heard from the highway, and blasting will be limited as per demand. Once or twice a week.
 Measures proposed to minimize the dust impacts of the operation: Area is located away from the public areas. the access road will have a layer of gravel which will be kept wet during summer time and any time it requires it. At the quarry there will be water hoses to ensure laydown area is kept moist.
 Measures proposed to minimize visual impacts of the operation: planting trees along the property line

TIMBER CUTTING

Total merchantable timber volume: 45.00 m3

Free Use PermitBased on the information provided you will require a Free Use Permit as the total volume of merchantable timber to be cut does not exceed 50 m3. This permit will be automatically applied for as part of this Notice of Work.

EQUIPMENT

Click on the "Add Equipment" button to add one type of equipment at a time. All equipment must comply with the requirements of the Health, Safety and Reclamation Code.

Quantity	Type	Size / Capacity
1	Bulldozer/Crawler Tractors	d6 cat
1	Crusher	terex pegson 1000
1	Crusher	Jaw Pegson
2	Excavator	300
1	Loader	Cat 980
1	Other: Screener	Warrior 1400
1	Other: Screener	Chieftain 1700

SUMMARY OF RECLAMATION

Based on the information you have provided on the previous screens the Summary of Reclamation is:

Activity	Total Affected area (ha)	Estimated cost of reclamation (\$)
Sand & Gravel / Quarry	7.00	15,000.00
Subtotal:	7.00	15,000.00
Unreclaimed disturbance from previous year:	0.00	
Disturbance planned for reclamation this year:	0.00	
Total:	7.00	15,000.00

OTHER CONTACTS

Please enter the contacts that are applicable to your application.

Contact Info	Type of Contact
Name: Justin Tegart Phone: 250-318-7813 Daytime Phone: 604-828-1946 Fax: 604-828-1948 Email: justintegart@rcmi.ca Mailing Address: 7357 Pioneer Avenue agassiz BC v0m 1a0	Mine manager

Contact Info	Type of Contact
Name: AM-2 VENTURES LTD., CT-2 HOLDINGS LTD., RT-2 HOLDINGS LTD. Doing Business As: Timbro Contracting (A Partnership) Phone: 604-796-3851 Fax: 604-796-0554 Email: andres@timbroconstruction.com BC Inc. Number: GST Registration Number: Contact Name: Andres@timbroconstruction.com Mailing Address: 7357 Pioneer Avenue Agassiz BC V0M 1A0	Site operator

Name:	AM-2 VENTURES LTD., CT-2 HOLDINGS LTD., RT-2 HOLDINGS LTD.	Permittee
Doing Business As:	TC MERRITT VALLEY FARMS (A PARTNERSHIP)	

Phone: 604-796-3851
Fax: 604-796-0554
Email: andres@timbroconstruction.com
BC Inc. Number:
GST Registration Number:
Contact Name: Andres Murillo
Mailing Address: 7357 Pioneer Avenue
 agassiz BC V0M 1A0

LOCATION INFORMATION

LAND DETAILS

Do you have the legal description of the land or the civic address then click on 'Add Land Information'.

Description

Private Land
 Parcel ID: 013-160-583
 Legal Description: PArceL "A" (Reference Plan 4345) South East Quarter Section 1 Township 4 Range 29 West of the Sixth Meridian New Westminster District 3628 Hot Springs Rd, Agassiz, BC V0M 1A3
 Civic Address: 3628 Hot Spring Road, Agassiz BC V0M 1A3

All applications must include the appropriate maps and applications received without maps will be returned. All maps must be in colour, computer generated, with a scale, north arrow and a detailed legend.

For Mineral, Coal and Placer applications you must provide a minimum of 3 maps:

- A Location Map which must show the location of the property in relation to the nearest community with the access route from the community to the work site clearly marked;
- A Tenure Map which must show the boundaries of the tenure(s) and tenure numbers, at a scale of 1:20,000 or less;
- A Map of Proposed Work which must show topography, water courses, existing access, existing disturbance, contour lines, known cultural heritage resources and/or protected heritage property, at a scale of 1:10,000 or 1:5,000. For site specific applications the location of all proposed exploration activities must be shown; for area-based applications the work area must be shown as a polygon, with the location of all proposed exploration activities for year 1 shown, and shape files provided of the area.

For Sand & Gravel/Quarry applications you must provide a Plan View, Cross and Longitudinal Sections and a Land Title/Crown Land Tenure Map. Details of these requirements are listed in the Sand & Gravel/Quarry Operations Activity sheet.

☒ I already have one or more GeoMark URLs

GEOMARKS

Do you already have the URL of a GeoMark? If you do please add it here. You can add one or more GeoMark URLs.

Geomark URL	Description
http://apps.gov.bc.ca/pub/geomark/geomarks/gm-03DAAB05540F411AB0C58F9E50D805BA	location of the quarry

ATTACHED DOCUMENTS

Document Type	Description	Filename
Blasting Procedure	Basting report1	Blasting revised 08 01 2017...
Landowner Authorization Letter	letter of representative	letter of representative.pdf
Mine Emergency Response Plan	Emergency response plan	Timbro's _emergency_respons...

Other	Geo technical report	GEO-JULY 10_17-GEO ASSESSME...
Other	Map Location quarry to nearest populated place	3628 Quarry -location.pdf
Other	Map with access points, property boundary ROW streams and riparian offsets	Streams and sets backs.pdf
Other	Mine site boundary and 5 m offset	3628 Hot Springs Road quarr...
Other	Proposed location of processing equipment in quarry	3628 Hot Springs quarry equ...
Other	Quarry cross sections	3628 Hot Springs Road Excav...
Other	Quarry plan view	3628 Hot Springs Road Excav...
Other	RAR Environmental report	3628 Hot Springs Rd RAR HCR...
Other	Storm management report	Hot Springs Road SWMP.pdf

PRIVACY DECLARATION

PRIVACY NOTE FOR THE COLLECTION, USE AND DISCLOSURE OF PERSONAL INFORMATION

Personal information is collected by FrontCounter BC under the legal authority of section 26 (c) and 27 (1)(a)(i) of the Freedom of Information and Protection of Privacy Act (the Act).

The collection, use, and disclosure of personal information is subject to the provisions of the Act. The personal information collected by FrontCounter BC will be used to process your inquiry or application(s). It may also be shared when strictly necessary with partner agencies that are also subject to the provisions of the Act. The personal information supplied in the application package may be used for referrals or notifications as required. Personal information may be used by FrontCounter BC for survey purposes. For more information regarding the collection, use, and/or disclosure of your personal information by FrontCounter BC, please contact FrontCounter BC at 1-877-855-3222 or at:

FrontCounter BC Program Director
FrontCounter BC, Provincial Operation
441 Columbia Street
Kamloops, BC V2C 2T3

☒ Check here to indicate that you have read and agree to the privacy declaration stated above.

REFERRAL INFORMATION

Some applications may also be passed on to other agencies, ministries or other affected parties for referral or consultation purposes. A referral or notification is necessary when the approval of your application might affect someone else's rights or resources or those of the citizens of BC. An example of someone who could receive your application for referral purposes is a habitat officer who looks after the fish and wildlife in the area of your application. This does not apply to all applications and is done only when required.

Please enter contact information below for the person who would best answer questions about your application that may arise from anyone who received a referral or notification.

Company / Organization: AM-2 VENTURES LTD., CT-2 HOLDINGS LTD., RT-2 HOLDINGS LTD.
Contact Name: Andres Murillo
Contact Address: 7357 Pioneer Avenue
agassiz BC V0M 1A0
Contact Phone: 604-796-3851

Contact Email: andres@timbroconstruction.com

☒ I hereby consent to the disclosure of the information contained in this application to other agencies, government ministries or other affected parties for referral or First Nation consultation purposes.

IMPORTANT NOTICES

- Once you click 'Next' the application will be locked down and you will NOT be able to edit it any more.

DECLARATION

☒ By submitting this application form, I, declare that the information contained on this form is complete and accurate.

APPLICATION AND ASSOCIATED FEES

Item	Amount	Taxes	Total	Outstanding Balance
Mines Notice of Work Application Fee	\$8,000.00		\$8,000.00	\$0.00

OFFICE

Office to submit application to: Surrey

PROJECT INFORMATION

Is this application for an activity or project which requires more than one natural resource authorization from the Province of BC? No

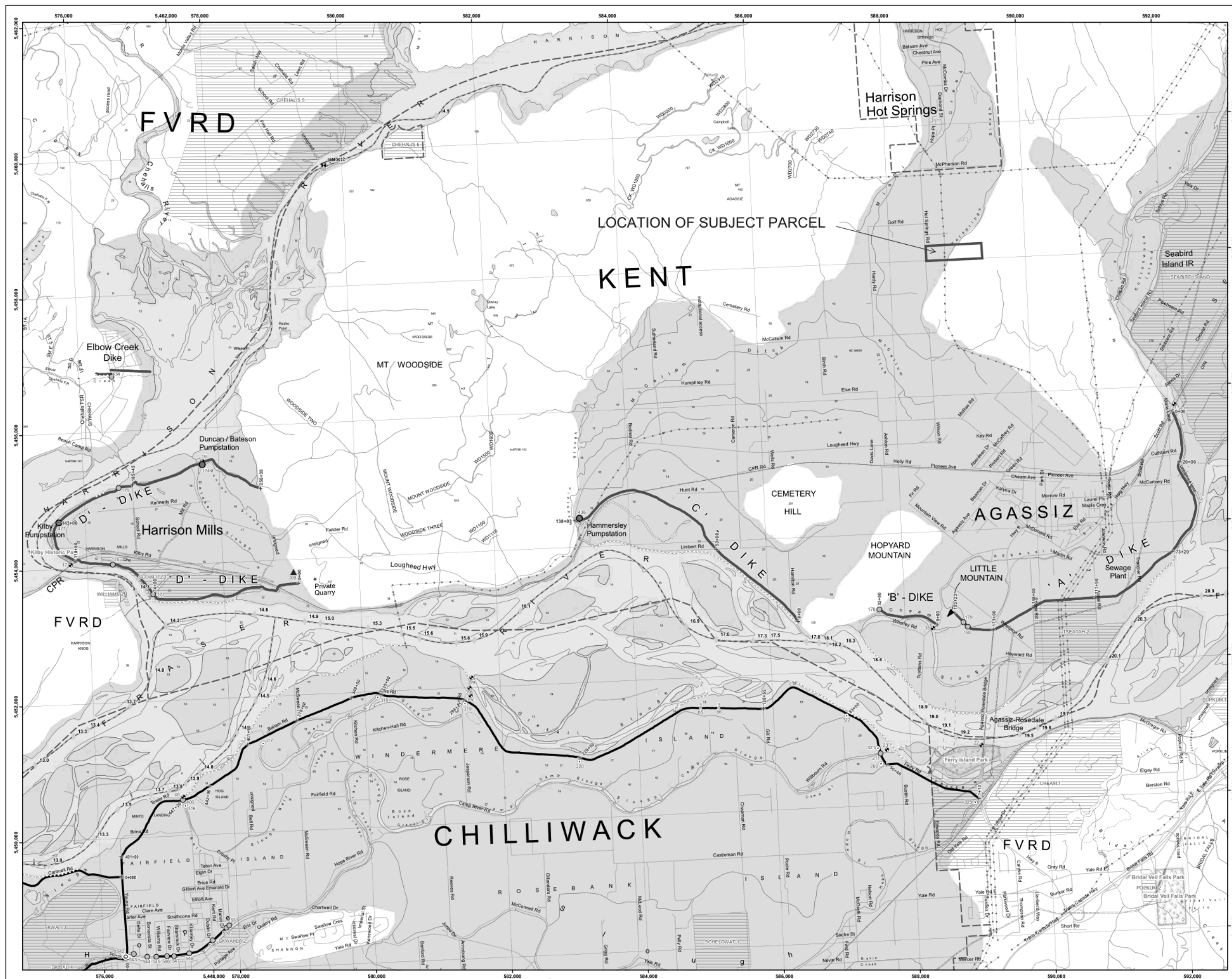
APPLICANT SIGNATURE

Applicant Signature

Date

OFFICE USE ONLY

Office Surrey	File Number	Project Number
	Disposition ID	Client Number



Kent

kent_28

Local Diking Authorities

District of Kent
Fraser Valley R.D. (Elbow Creek Dike)

Legend

- Pumpstation / Floodbox
- Pumpstation
- Floodbox
- Open Culvert
- ◆ Staff Gauge
- ◆ Dike Crest Gauge
- Water Survey Canada (WSC) Real Time Gauge
- Relief Well
- ▼ Low Dike
- ▲ Special Concern
- + Metric Stationing 0+000
- + Imperial Stationing 0+00
- ◆ Flood Profile Points Incl. Freeboard †
- Flood Profile Line
- RipRap
- Local Authority's Standard Dike §
- Local Authority's Non-Standard Dike §§
- Other Flood Control Works
- Fish and Wildlife Water Related Structure
- Dikes Outside Local Area (See Note 1)
- Floodplain
- Municipal Boundary
- Indian Reserves
- Provincial Park
- Regional District Park
- Water Pipeline
- Sewer Pipeline
- Gas Pipeline
- Energy Pipeline
- Oil
- Electrical transmission line
- Pipeline
- Railway

Note 1: Dikes are shown for reference purposes and are outside local diking authority areas.

Notes Specific to Local Diking Authorities

Index Map



Kent

kent_28

Maps produced for Ministry of Environment,
Lower Mainland Region.

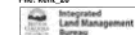
Printed from Digital Files by
the Integrated Land Management Bureau

Map Projection: Albers, NAD83

Grid Projection: UTM Zone 10N, NAD 83

Revised Date: October 26, 2009

File: kent_28



KENT

1:25,000

0 0.375 0.75 1.5 2.25 3 3.75 Kilometers

0 0.375 0.75 1.5 2.25 Miles

IMPORTANT NOTICE AND DISCLAIMER

The floodplain boundaries and related flood protection infrastructure shown are provided to support flood emergency preparedness, planning and response, broad-based floodplain management, planning and review, and other related activities. It is NOT intended to replace detailed floodplain maps designated under the 1987 Canada/EBC Floodplain Mapping Agreement.

FLOODING MAY OCCUR OUTSIDE OF THE FLOODPLAIN AREAS SHOWN.

The data was compiled from various sources; it is not warranted as to its accuracy or sufficiency by the Ministry of Environment, and is not intended for legal purposes.

§ Standard dike - a flood protection structure that meets, or has met, provincial dike standards that are regulated by the Inspector of Dikes under the Dike Maintenance Act. Due to morphological, hydrological, and other changes in or about river systems, such a dike shown on the map may not continue to meet current standards.

IMPORTANT: To verify a standard dike's current status, the Inspector of Dikes office should be contacted.

§§ Non-standard dike - a flood protection structure that has a lower level of protection than that provided by a standard dike. Flood protection works that conform to this classification often protect rural agricultural lands and are sometimes referred to as agricultural dikes.

† The Fraser River flood profile plus freeboard is derived from the Fraser River Hydraulic Model Update Report, March 2006, by Northwest Hydraulic Consultants.

"Standard dike" have not been evaluated against this new profile and may be lower than the elevation of this new profile plus freeboard.

Details of this study may be found on the Ministry of Environment, Water Stewardship Division web site.

The Flood Profile plus Freeboard denotes the standard dike crest elevations established by the Inspector of Dikes for the Fraser River dike. Floodproofing elevations for buildings and other development in the floodplain are established by and are the responsibility of local government and other development approval officials. These floodproofing elevations may vary from the flood profile plus freeboard elevations shown.

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Withheld pursuant to/removed as

Copyright



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Excav.

Harrison Hot Springs Road

Proposed Lot 1 Approx 21 Ac.

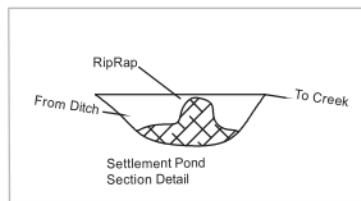
PCL "A"
38.966 Ac.

Concrete Slab
Tank

6m wide access road (+/- 350m length)

Weighscale

0 10 30 50
Metric



Pylon

Overburden
Stockpiles Not More Than 10000m3
Earth Berm 2mW x 1mH
Ditch
Top of Creek Embankment
Creek
Settlement Pond
Weiland
Power Pole

Proposed access road and creek crossing
1200mm Culvert

*Power Pole

980 Loader

Processing Equipment
(warrior, chieftain
crusher and jaw)

D6 /cat

Excavator 300

Ditch C/W Clear Crush Berms @ 10m Int

Property Line

Creek

All Bench and side slopes @ 4:1

DATE : 20th June 2017
SCALE : See Scale Bar
CHECKED BY: AM
DRAFTED BY: MD

REVISIONS	DATE	BY

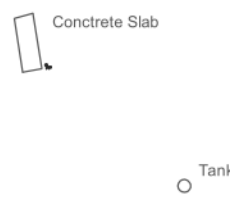
Excavation Proposal Plan
Operations and Environmental

PCL "A" Part 1 SE1 TP4 R29 W6M
3628 Hot Springs Road

REV



Harrison Hot Springs Road



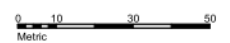
Proposed Lot 1 Approx 21 Ac.

PCL "A"
38.966 Ac.

BC Hydro R/W Plan 14099

BC Hydro R/W Plan 12807

7.6m wide easement for access road (+/- 350m length)



Top of Creek Embankment

Section A

Section B

Section C

Section D

All Bench and side slopes @ 4:1



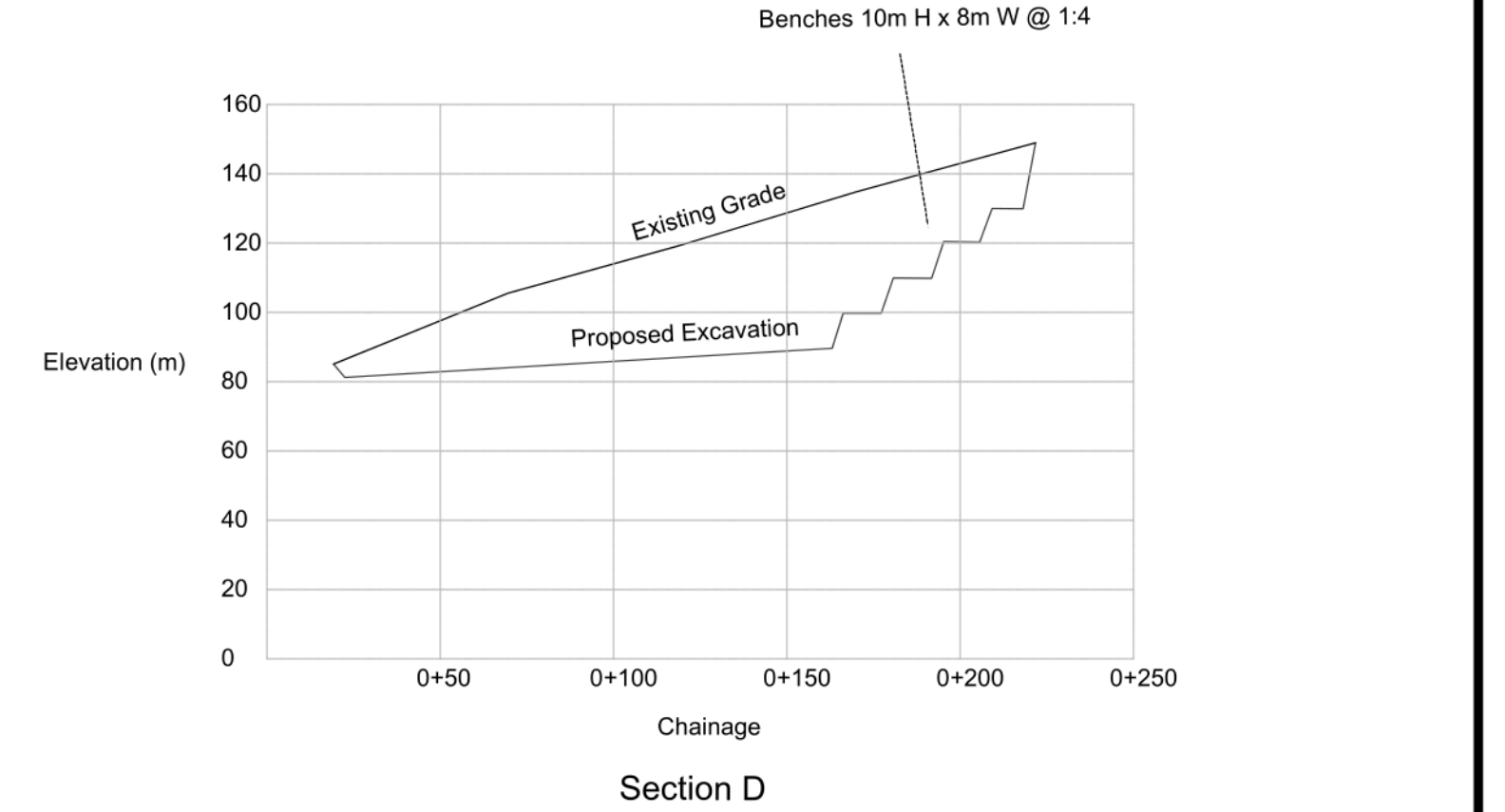
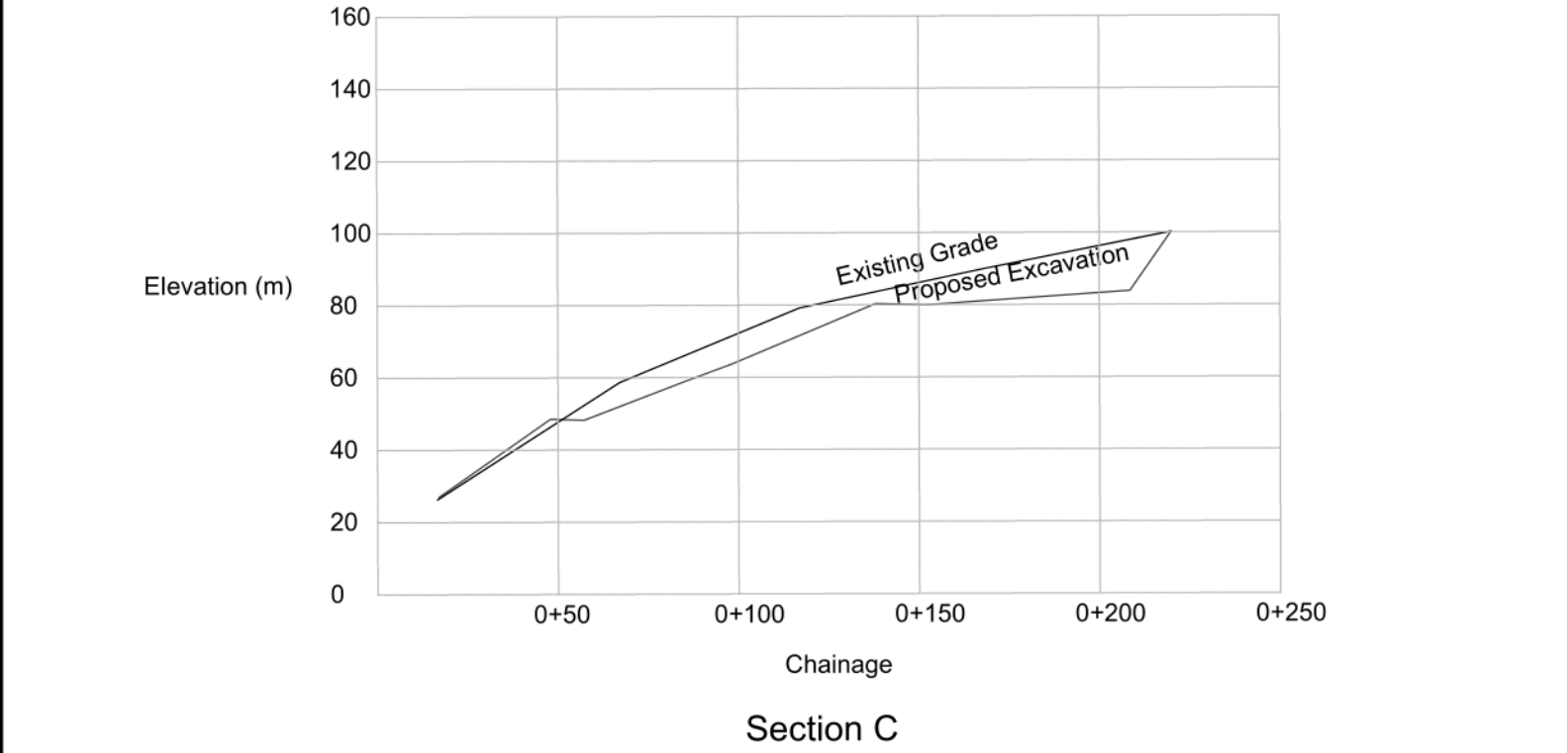
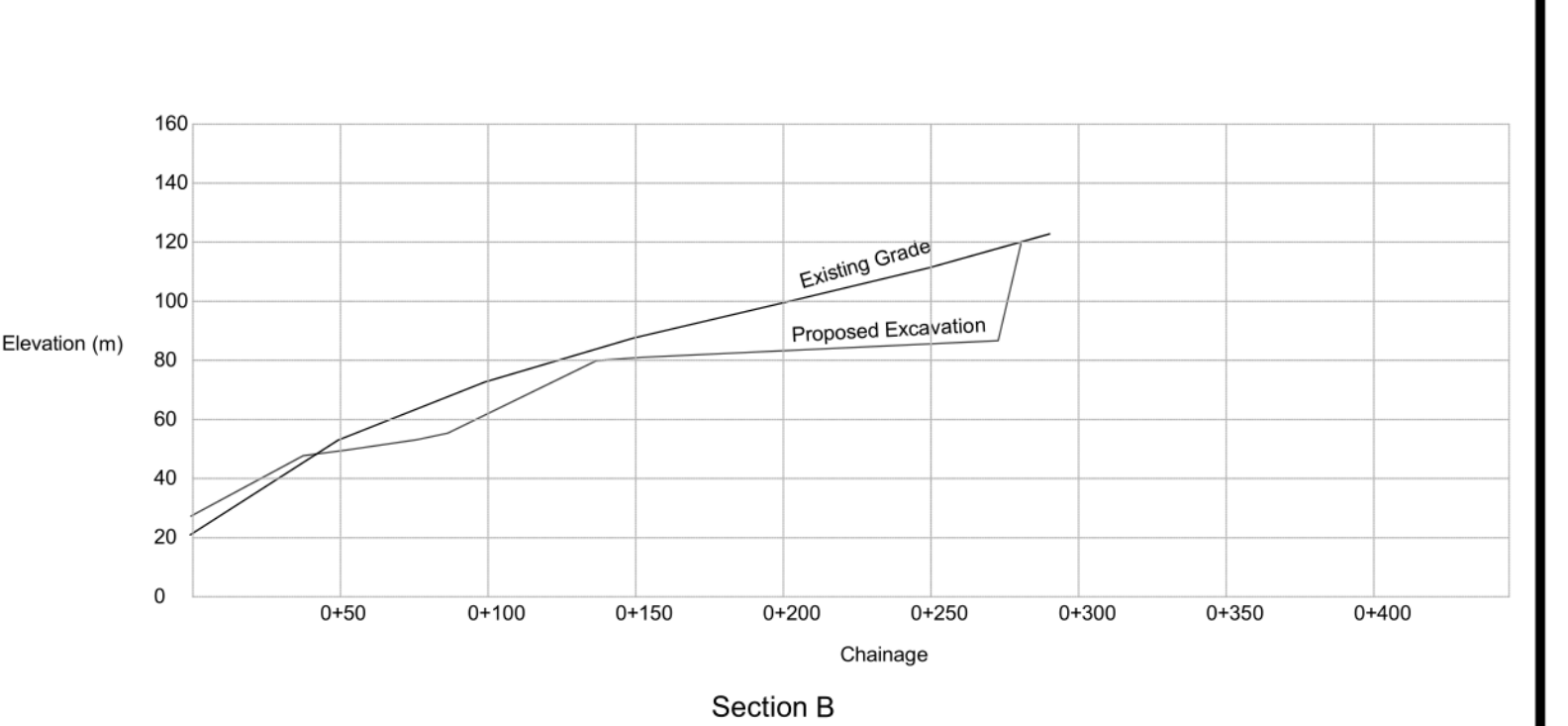
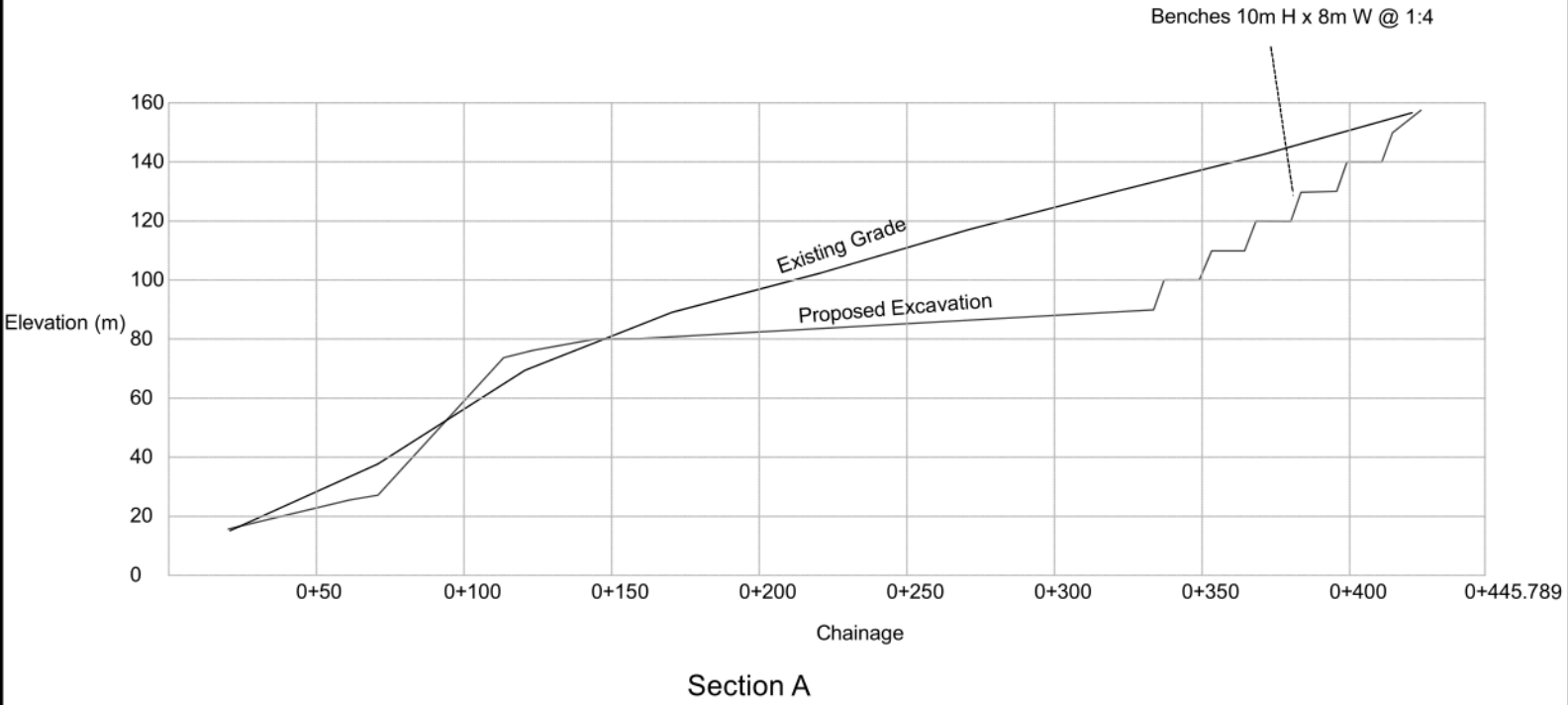
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B - WC5	25th Jan 2017	MD
A - Legal and Environmental	13th Dec 2016	MD

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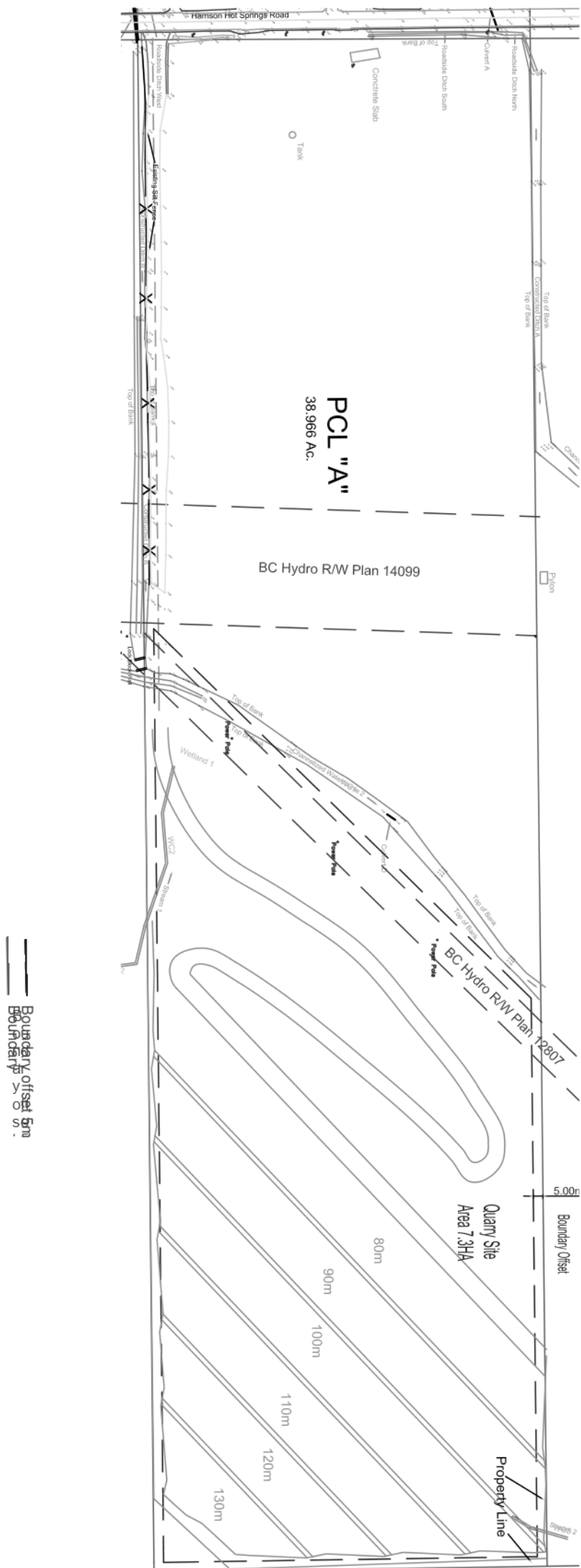
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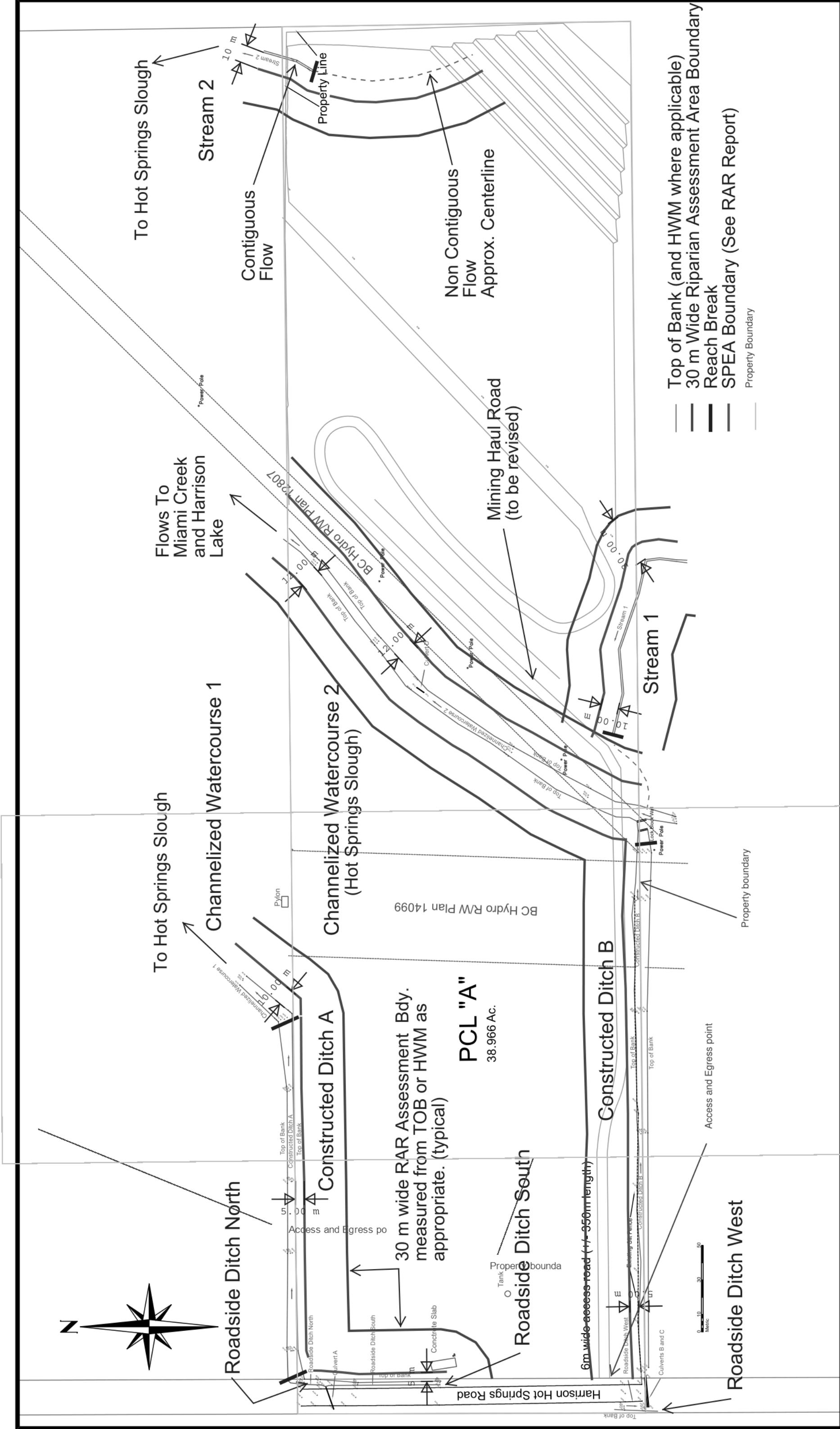
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Quarry Site Boundary





DATE : 6th July 2017 SCALE : See Scale Bar CHECKED BY: AM DRAFTED BY: MD	REVISIONS RAR W/C Annotations	DATE 17/07/07	BY HCR	Site Plan for RAR Report and Mine Approval	PCL "A" Part 1 SE1 TP4 R29 W6M 3628 Hot Springs Road	DWG. No. 3628 - E02 REV



Our File: 16-0669

July 10th, 2017

TIMBRO CONTRACTING LTD (PARTNERSHIP)
BOX 95, 7357 PIONEER AVENUE
Agassiz, BC V0M 1A0
Attn.: Mr. Andres Murillo, PEng.

Dear Mr. Murillo,

**Re: Geotechnical assessment – Proposed aggregate extraction facility and lot subdivision at
3628 Hot Springs Rd, Agassiz, BC**

Introduction

As requested, Fraser Valley Engineering Ltd. (FVEL) has conducted a preliminary geotechnical assessment for the proposed aggregate extraction facility as well as subdivision of adjacent lot, located at 3628 Hot Springs Rd in Agassiz, BC. This report was prepared following the the British Columbia Building Code BCBC 2012 and "*Guidelines for Legislated Landslide Assessments for Proposed Residential Developments in BC*", revised May 2010, by the Professional Engineers and Geoscientists of BC.

In order to obtain geotechnical information, and to understand the configuration of the site, FVEL conducted a preliminary geotechnical investigation at the above-referenced project site. The purposes of the geotechnical investigation were to identify subsurface conditions, to determine the suitability of the site for the proposed development, and to prepare preliminary geotechnical recommendations for design and construction of the project.

1.0 Project Information

The site is located on the east side of Hot Springs Road, in Agassiz, BC and is identified with legal description "PID 013-160-583 Roll number 524014588 3628 Hot Springs Rd". West part of the above referenced plot is flat land, presumably of former agricultural use, while the east part of the plot is a hillside (mountain slope). Based on the available project information, it is our understanding that the project consists of proposed aggregate quarry to be developed on the hillside area, as well as subdivision of the west side into several individual lots. A site plan showing the proposed quarry and subdivision is presented in Appendix 1.



3.0 Geotechnical investigation

FVEL have conducted a field geotechnical investigation on June 19th, 2017. The geotechnical field work comprised field reconnaissance and observation of the site, visual description of bedrock outcrops, as well as excavation of two test pits using a track mounted excavator in order to review the overburden subsurface conditions on site.

The approximate test pit locations are shown on the site plan, Appendix 2.

4.0 Geology and soil conditions

4.1 Surficial geology of the area

According to the Geological Survey of Canada map 41-1989 "Geology Hope BC" with a scale of 1:250,000, the bedrock of the hillside (east) part of study area comprise Mgd, Miocene Granodiorite (Mount Barr Batholith)

According to the Geological Survey of Canada map 1487A "Surficial Geology Chilliwack" with scale 1:50 000, subsurface conditions in the west part of the study area, although located slightly north from the map extent, based on the similar landscape facia, can be interpolated as Fh, Fraser river sediments – channel and overbank deposits, sandy loam, loamy sand and minor silt loam and silt.

4.2 Soil and Rock conditions

The ground conditions encountered during field investigation are consistent with the surficial geology outlined in section 4.1. above, and consist of:

- Hillside (east) area – Granodiorite, grey dotted, coarse grained, fresh to slightly weathered, very strong, widely spaced jointing. Joints are 1-3m long, separation 1-5mm, smooth, with hard infilling <5mm, unweathered. Based on the field observations and measurements of outcrops, RMR rating, as per Bieniawski(1976) for the granodiorite rock can be assumed to be equal to **77**, which is interpreted as **Rock Class II – Good Rock**. Granodiorite is overlain by overburden consisting of silty sand and silt, soft to firm, mostly dry. Overburden thickness varies from 0.3-1m at the lower half of the slope to 1-1.5m at the upper half, in the area of east property line.
- Plain (west) area – Sand and gravel, very dense, moist, overlain by approximately 3m of sandy silt, low plastic, soft to very soft. Random fill with silt and sand was encountered in Test Pit 1 to the depth of 0.9m.

No groundwater was observed, except for some minor pockets of perched groundwater in the sandy silt deposits.

Test pit logs showing encountered soil types and depths are presented in Table 1.



Table 1. Test pit logs

Test Pit No.	Depth (m)	Soil description
TP 1	0.00 - 0.90	FILL, silt and sand, with some organic debris
	0.90 – 1.50	SILT, greenish grey, low plastic, soft to firm
	1.50 – 2.70	SAND, greenish grey, medium, compact, moist to wet
	2.70 - 3.60	GRAVEL with sand, very dense, moist
TP 2	0.00 – 0.90	SILT clayey, greenish grey, low plastic, soft to firm
	0.90 – 3.00	SILT clayey, dark grey, low plastic, soft
	3.00 – 3.40	GRAVEL with sand, very dense, moist

4.3 Historic Air photo Review and Interpretation

As a part of the present study, the review of historic air photos of the project area was performed. Aerial photographs were obtained from the University Of British Columbia Geographic Information Centre. Aerial photographs from 2004, 1999, 1993, 1986, 1974, 1969, 1963, 1954, 1949 and 1939 were reviewed.

According to the reviewed imagery, general plot configuration remained the same throughout the entire period. Previous land use for agricultural purpose can be observed for west part of the land plot.

No visible signs of previous landslide or debris flow activity, such as scarps, tension cracks or debris fans could be observed within and in the immediate proximity to the subject land plot.

5.0 Slope stability

In order to verify the proposed excavation parameters of the rock slope (bench width, slope height and ratio), slope stability analyses were conducted for the proposed slope.

The slope stability analysis was carried out using Soilworks 2016 Version 1.1

Translational failure along the worst possible combination of joint sets was considered in the analysis as the most probable failure mode for given ground conditions and excavation geometry.

Static and seismic (pseudostatic) conditions were analysed. The seismic acceleration coefficient for the site used in the pseudostatic analyses is assumed equal to Peak Ground Acceleration (PGA) = 0.31g, which was obtained from the web-site <http://www.earthquakescanada.nrcan.gc.ca> of National Resources Canada.

Two joint sets corresponding to the observed greatest and smallest dip values, 32 and 81 degrees



respectively, were used in translational failure analysis. The joint dip direction was assumed to be parallel to the slope dip direction.

Rock mass and joint parameters (Mohr-Coulomb criterion) were assumed based on the field observation of bedrock in the outcrops. The parameters used are presented in Table 1.

Unit	Unit weight, kN/m ³	Cohesion, kPa	Friction angle, deg
Rock mass, granodiorite	25	370	42
Joint	-	10	25

The minimum Factors of Safety (FS) used for the global stability analyses are:

- Global Stability under Static conditions (FS GS/Static) = 1.5
- Global Stability under Dynamic conditions (FS GS/Dynamic) = 1.0

Slope stability was analyzed along Section A as per Timbro's Excavation Proposal Plan, dated 26 April 2017. The excavation benches are assumed to be 10m high, 8m wide, with slope 1H:4V.

The following safety factors were obtained as the result of the analysis:

Planar Wedge Failure (static) = 2.47
Planar Wedge failure (seismic, PGA) = 1.55

Since all the obtained safety factors satisfy the above mentioned stability criteria, the proposed excavated benches are feasible from a geotechnical standpoint.

6.0 Rock Cut Slopes

Rock blasting is expected to be used as a primary method of aggregate extraction. Rock cut slopes and benches will be created by blasting. Based on the preliminary project information, it is our understanding that, the proposed inclination of the rock cut slopes are 1H:4V, with the height and width of the benches are 10 m and 8 m respectively. From the slope stability analysis as described above, the cut slopes are considered to be stable. However, localised rockfall can be expected given the dip angles of the major joints in the bedrock. It is recommended that the geotechnical engineer be retained to review the actual cut slope conditions when the initial blasting is completed, to address site-specific geotechnical issues, and to modify the cut-bench configuration if needed at that time.

7.0 Onsite Roadway

For the purpose of access between Hot Springs Road and the aggregate mining area with heavy machinery, it is proposed to construct a haul road. The following input data was used for pavement



structure design:

Design vehicle maximum weight 60 tonnes

Number of axles – 7

Assuming the soft silt subgrade in the west flat area is properly treated with structural fill, the following roadway structure can be recommended for the haul road (assumed CBR=5):

- Surface course – 200mm (19mm minus road mulch or crushed rock)
- Base – 450 mm (100mm minus well graded gravel or crushed rock)

The materials should be compacted to a minimum of 95% Modified Proctor dry density with moisture content within 2% of optimum value. The subgrade density and field compaction of fill materials should be verified by FVEL during construction.

8.0 Subdivision

No detailed design information on the proposed subdivision is available at this stage of the project. FVEL provides the following preliminary geotechnical comments for the proposed subdivision.

It is likely that the design and construction of the proposed subdivision will not take place until mining operations are accomplished. Based on the anticipated subsurface conditions, the proposed subdivision is considered to be feasible from the geotechnical perspective. However, a detailed geotechnical assessment of the actual site conditions for the proposed subdivision site should be conducted at the mining closure stage.

9.0 Geotechnical Review during Construction

FVEL should review the final design to ensure that our recommendations have been incorporated. We recommend that FVEL be retained for the following purposes:

- Geotechnical review of excavated bedrock benches to verify the discontinuity parameters
- Review of the subgrade material compaction at the proposed haul road(s)

10.0 Conclusion

FVEL has performed a geotechnical assessment, confirming that the planned project is feasible from a geotechnical standpoint, provided our recommendations are followed. The land may be used safely for the use intended, aggregate extraction, as well as subdivided as planned.

11.0 Limitation and Closure

This report is based on the field geotechnical investigation, review of background information available at the time of our study, and our knowledge of the proposed project site. We have prepared this report in



FRASER VALLEY ENGINEERING LTD.

CIVIL / GEOTECHNICAL / STRUCTURAL

101 – 33465 Maclure Road,
Abbotsford, B.C. V2S 0C4
Tel: 604-850-0364 Fax: 604-557-0390

substantial accordance with generally accepted geotechnical engineering practice. No warranty is expressed or implied. This report may be used only by the client and only for the purposes stated, within a reasonable time from its issuance.

We trust that this report provides you the information required for the design and construction. If you have any questions, please do not hesitate to call.

Yours truly,

Fraser Valley Engineering Ltd.

George Sukhanov, M.Eng.
Geotechnical Engineer

Reviewed by,

Larry Deng, M.Sc, PEng.
Senior Geotechnical Engineer

July 10, 2017

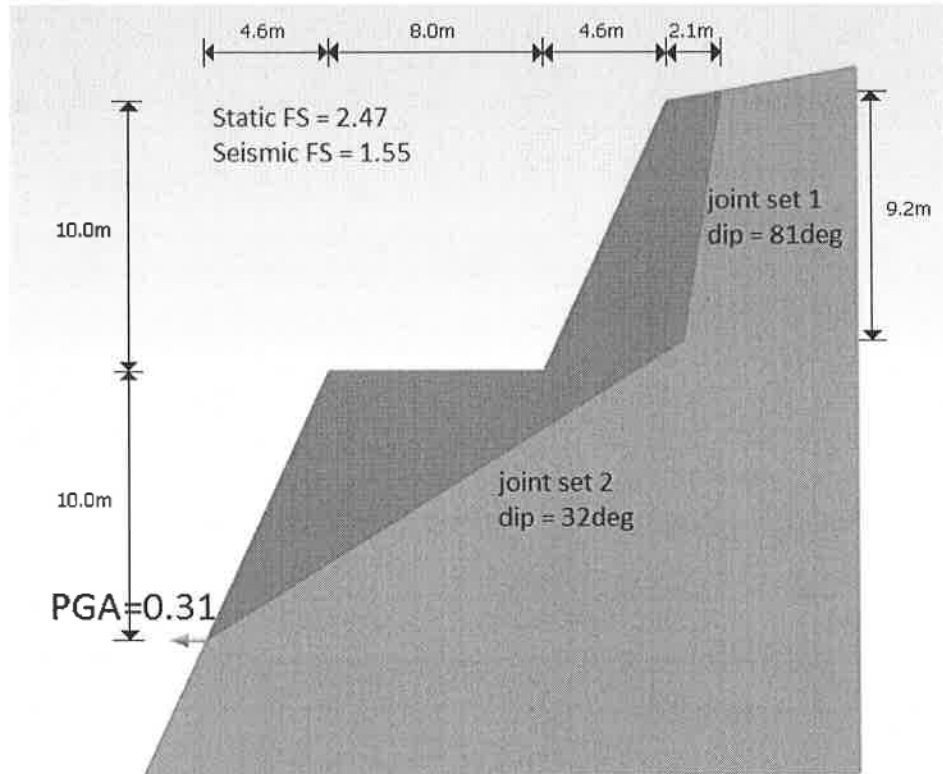
Attachments:

- Appendix 1 Excavation proposal plan by Timbro Contracting Ltd, dated April 26th 2017
- Appendix 2 Site plan with test pit locations
- Appendix 3 Slope stability analysis results
- Appendix D. Landslide Assurance Statement



Appendix 3. Slope Stability Analysis Results

1. Translational case



APPENDIX D: LANDSLIDE ASSESSMENT ASSURANCE STATEMENT

Note: This Statement is to be read and completed in conjunction with the "APEGBC Guidelines for Legislated Landslide Assessments for Proposed Residential Development in British Columbia", March 2006/Revised September 2008 ("APEGBC Guidelines") and the "2006 BC Building Code (BCBC 2006)" and is to be provided for *landslide assessments* (not floods or flood controls) for the purposes of the Land Title Act, Community Charter or the Local Government Act. Italicized words are defined in the APEGBC Guidelines.

To: The Approving Authority

Date: July 13, 2017

District of Kent

Box 70, 7170 Cheam Avenue, Agassiz, BC V0M 1A0

Jurisdiction and address

With reference to (check one):

- ☐ Land Title Act (Section 86) – Subdivision Approval
- ☒ Local Government Act (Sections 919.1 and 920) – Development Permit
- ☐ Community Charter (Section 56) – Building Permit
- ☐ Local Government Act (Section 910) – Flood Plain Bylaw Variance
- ☐ Local Government Act (Section 910) – Flood Plain Bylaw Exemption
- ☐ British Columbia Building Code 2006 sentences 4.1.8.16 (8) and 9.4 4.4.(2) (Refer to BC Building and Safety Policy Branch Information Bulletin B10-01 issued January 18, 2010)

For the Property: 3628 Hot Springs Road, Agassiz, BC
PID 013-160-583 Roll number 52401458

Legal description and civic address of the Property

The undersigned hereby gives assurance that he/she is a *Qualified Professional* and is a *Professional Engineer or Professional Geoscientist*.

I have signed, sealed and dated, and thereby certified, the attached *landslide assessment* report on the Property in accordance with the *APEGBC Guidelines*. That report must be read in conjunction with this Statement. In preparing that report I have:

Check to the left of applicable items

- x1. Collected and reviewed appropriate background information
- x2. Reviewed the proposed *residential development* on the Property
- x3. Conducted field work on and, if required, beyond the Property
- x4. Reported on the results of the field work on and, if required, beyond the Property
- x5. Considered any changed conditions on and, if required, beyond the Property
- 6. For a *landslide hazard analysis* or *landslide risk analysis* I have:
 - x 6.1 reviewed and characterized, if appropriate, any *landslide* that may affect the Property
 - x 6.2 estimated the *landslide hazard*
 - x 6.3 identified existing and anticipated future *elements at risk* on and, if required, beyond the Property
 - x 6.4 estimated the potential *consequences* to those *elements at risk*
- 7. Where the Approving Authority has adopted a *level of landslide safety* I have:
 - x 7.1 compared the *level of landslide safety* adopted by the Approving Authority with the findings of my investigation
 - x 7.2 made a finding on the *level of landslide safety* on the Property based on the comparison
 - x 7.3 made recommendations to reduce *landslide hazards* and/or *landslide risks*
- 8. Where the Approving Authority has **not** adopted a *level of landslide safety* I have:

- ☐ 8.1 described the method of *landslide hazard analysis* or *landslide risk analysis* used
☐ 8.2 referred to an appropriate and identified provincial, national or international guideline for *level of landslide safety*
☐ 8.3 compared this guideline with the findings of my investigation
☐ 8.4 made a finding on the *level of landslide safety* on the Property based on the comparison
☐ 8.5 made recommendations to reduce *landslide hazards* and/or *landslide risks*
☒ 9. Reported on the requirements for future inspections of the Property and recommended who should conduct those inspections.

Based on my comparison between

Check one

- ☒ the findings from the investigation and the adopted *level of landslide safety* (item 7.2 above)
☐ the appropriate and identified provincial, national or international guideline for *level of landslide safety* (item 8.4 above)

I hereby give my assurance that, based on the conditions^[1] contained in the attached *landslide assessment* report,

Check one

- ☐ for subdivision approval, as required by the Land Title Act (Section 86), "that the land may be used safely for the use intended"

Check one

- ☐ with one or more recommended registered covenants.
☐ without any registered covenant.

- ☒ for a development permit, as required by the Local Government Act (Sections 919.1 and 920), my report will "assist the local government in determining what conditions or requirements under [Section 920] subsection (7.1) it will impose in the permit".

- ☐ for a building permit, as required by the Community Charter (Section 56), "the land may be used safely for the use intended"

Check one

- ☐ with one or more recommended registered covenants.
☐ without any registered covenant.

- ☐ for flood plain bylaw variance, as required by the "Flood Hazard Area Land Use Management Guidelines" associated with the Local Government Act (Section 910), "the development may occur safely".

- ☐ for flood plain bylaw exemption, as required by the Local Government Act (Section 910), "the land may be used safely for the use intended".

Larry H Deng

Name (print)

Signature

July 13, 2017

Date

^[1] When seismic slope stability assessments are involved, *level of landslide safety* is considered to be a "life safety" criteria as described in the National Building Code of Canada (NBCC 2005), Commentary on Design for Seismic Effects in the User's Guide, Structural Commentaries, Part 4 of Division B. This states:

"The primary objective of seismic design is to provide an acceptable level of safety for building occupants and the general public as the building responds to strong ground motion; in other words, to minimize loss of life. This implies that, although there will likely be extensive structural and non-structural damage, during the DGM (design ground motion), there is a reasonable degree of confidence that the building will not collapse nor will its attachments break off and fall on people near the building. This performance level is termed 'extensive damage' because, although the structure may be heavily damaged and may have lost a substantial amount of its initial strength and stiffness, it retains some margin of resistance against collapse".

101-33465 Maclure Rd

Address

Abbotsford, BC V2S 0C4

604-850-0364

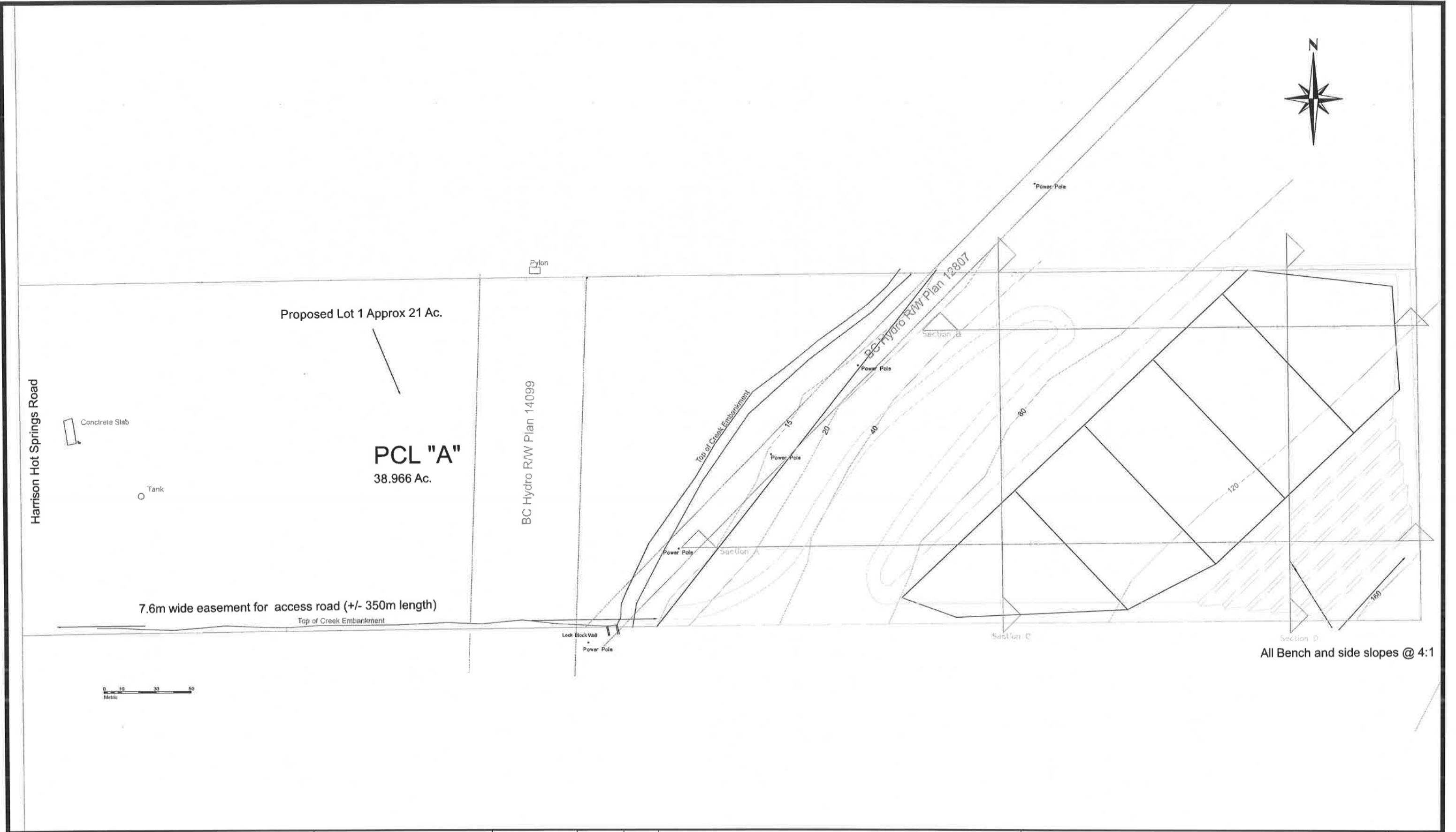
Telephone



(Affix Professional seal here)

If the *Qualified Professional* is a member of a firm, complete the following.

I am a member of the firm Fraser Valley Engineering Ltd
and I sign this letter on behalf of the firm. (Print name of firm)



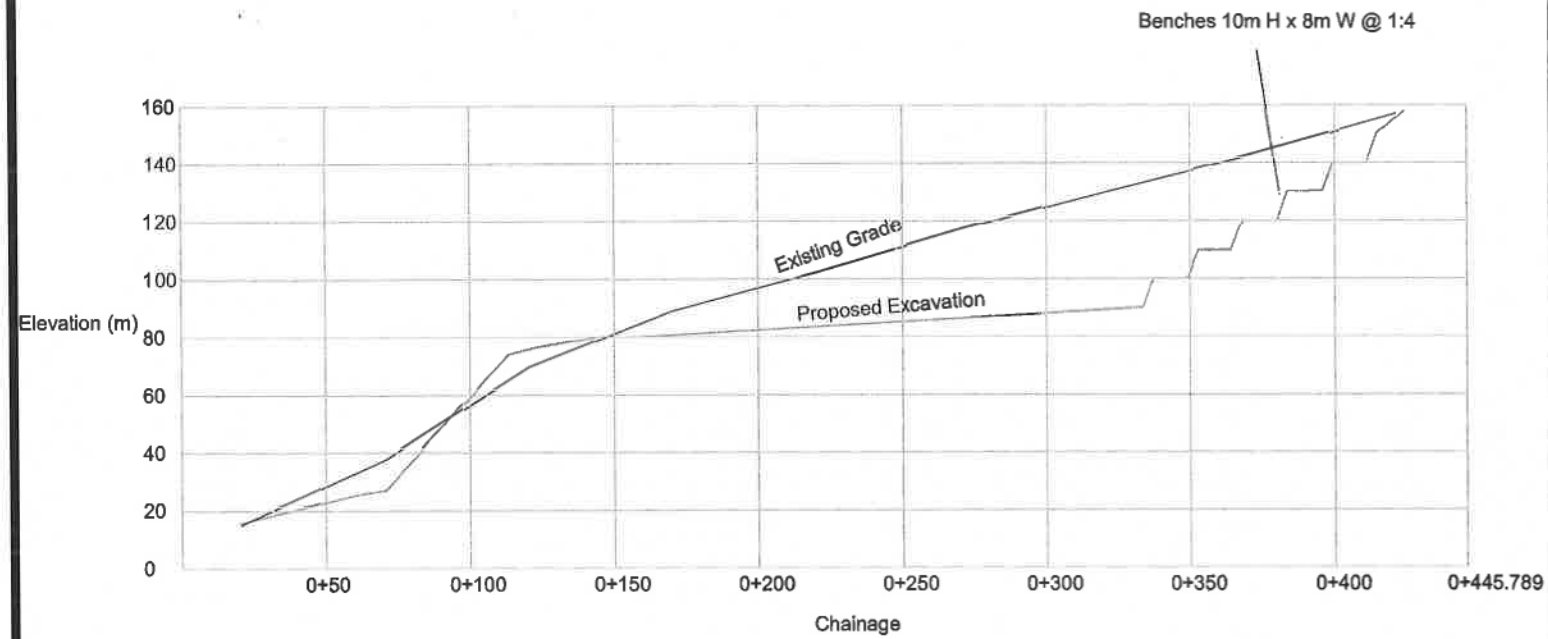
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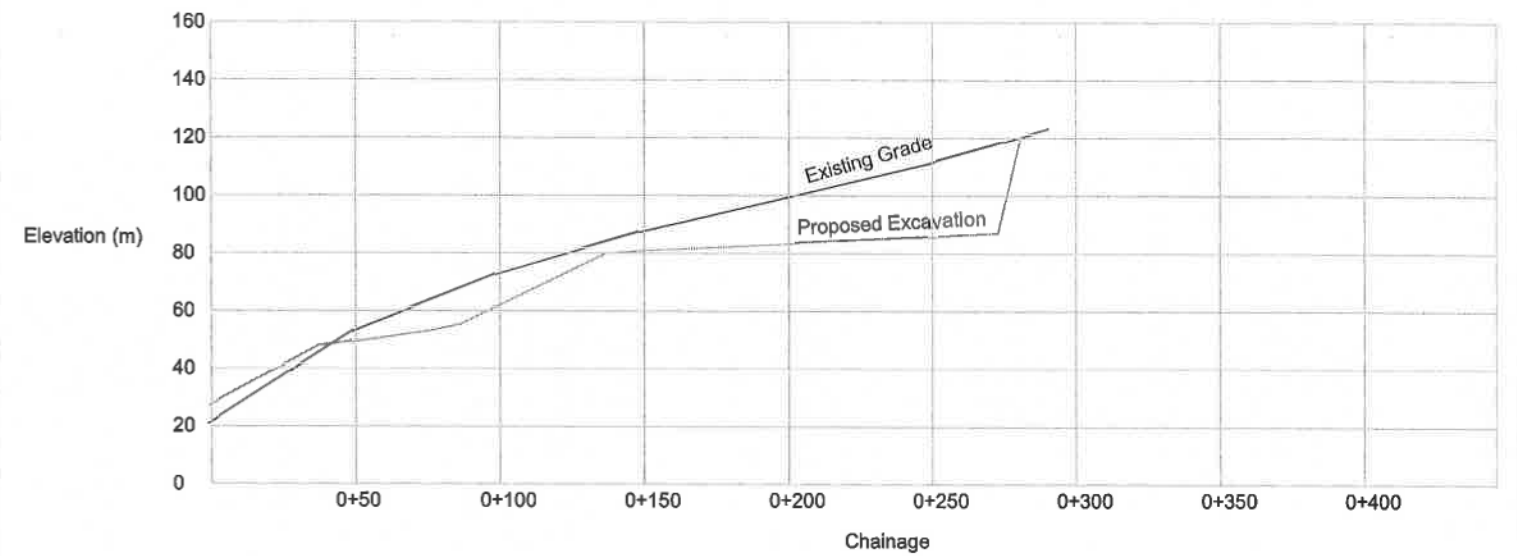
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PCL "A" Part 1 SE1 TP4 R29 W6M
 3628 Hot Springs Road

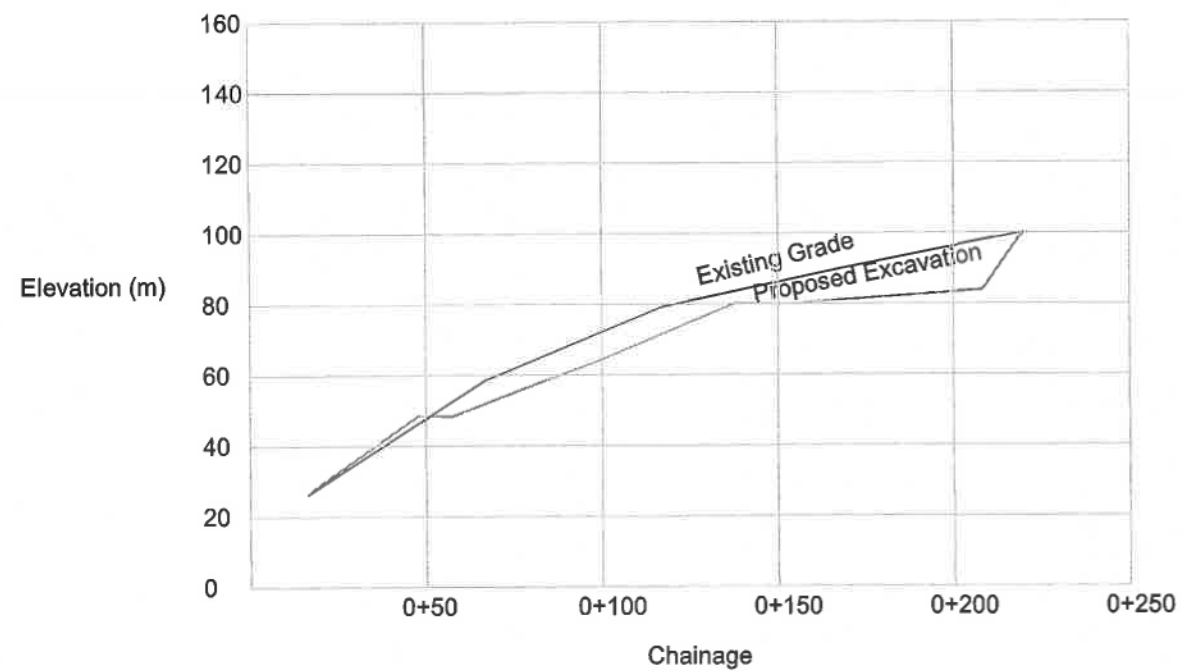
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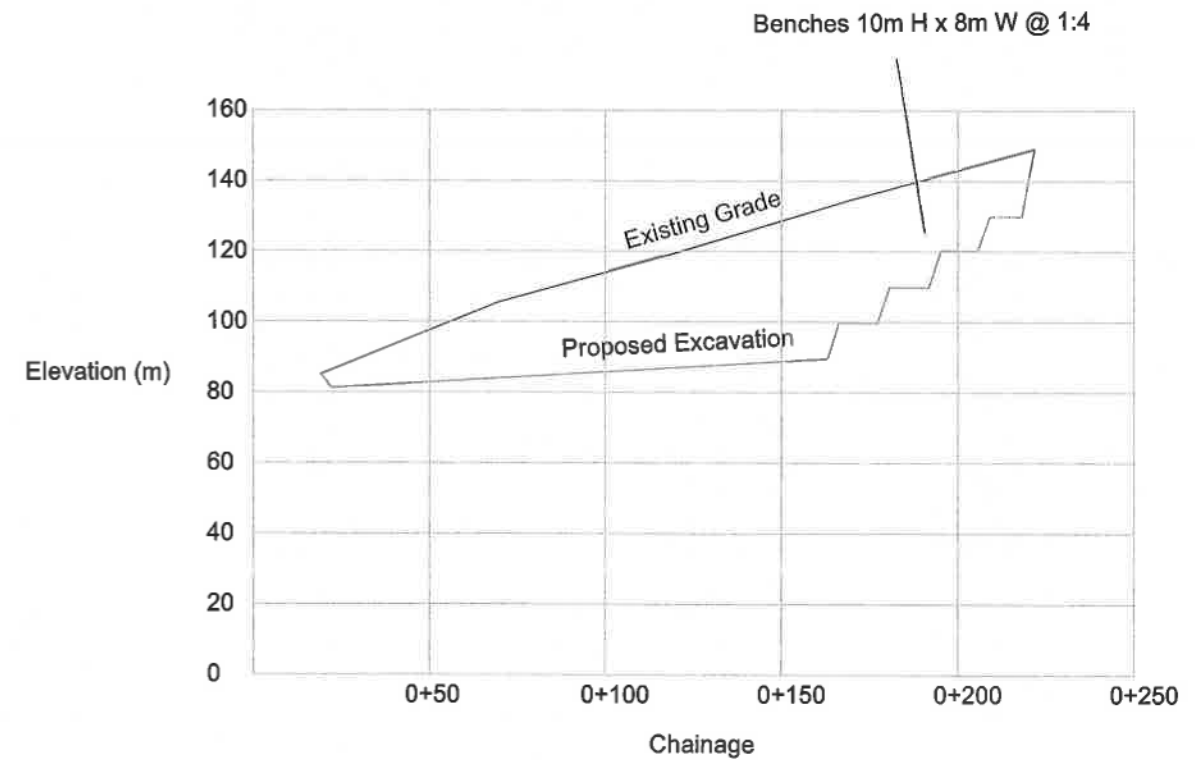
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Section C



Section D



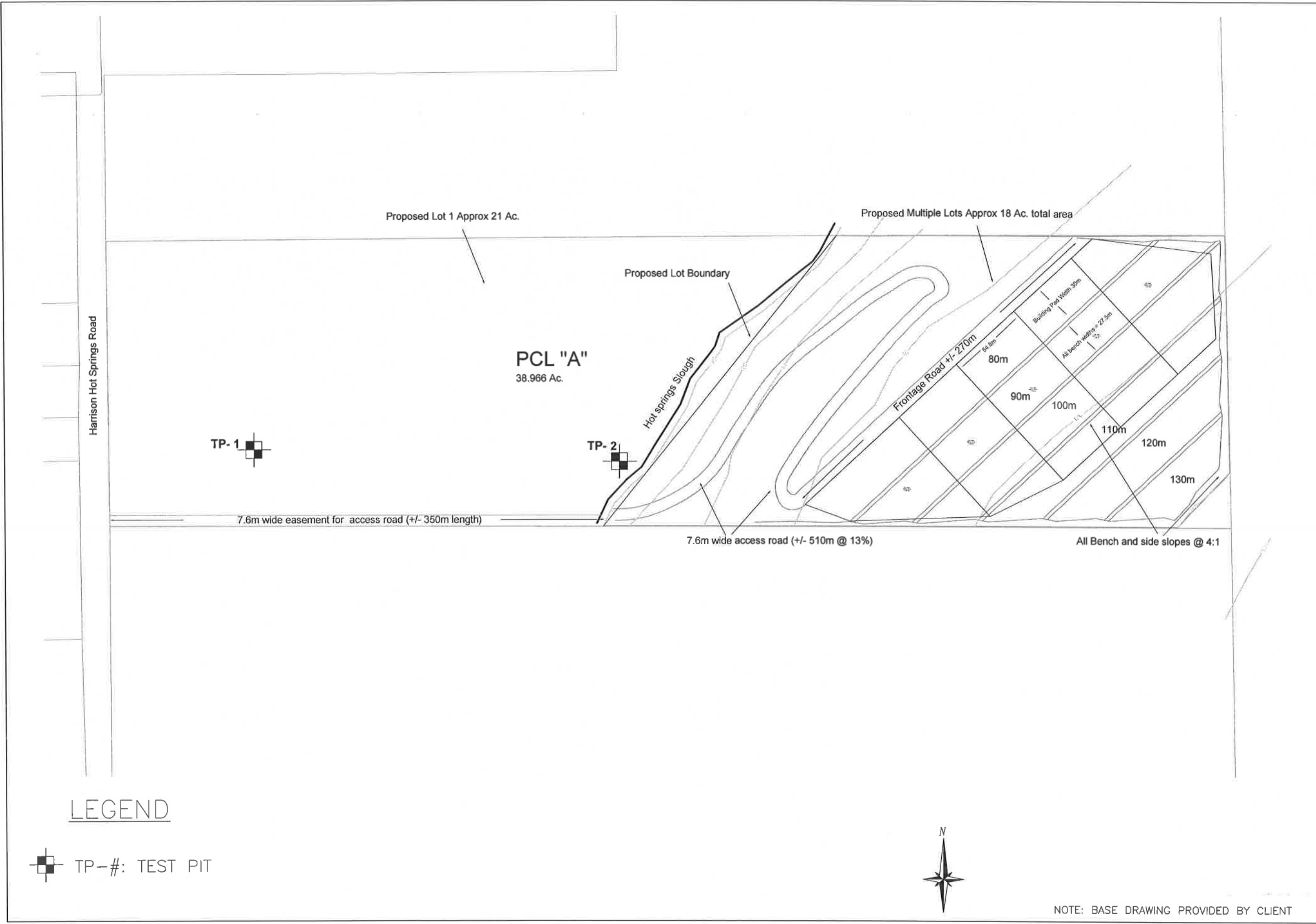
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Excavation Proposal Plan


PCL "A" Part 1 SE1 TP4 R29 W6M
 3628 Hot Springs Road

REV



LEGEND

TP-#: TEST PIT

SITE: 3628 HOT SPRINGS RD AGASSIZ BC		FILE:	 FRASER VALLEY ENGINEERING LTD. #101-33465 MACLURE RD., ABBOTSFORD, B.C., V2S 0C4 TEL: 604-850-0364 FAX: 604-557-0390	No.:	DATE:	REVISIONS:
REV 0	No.:	DRAWN: GS		0	24 JUN 17	ISSUED FOR B.P.
DRAWING: TEST PIT LOCATIONS		CHECKED: LD				
		DATE: 24 JUN 17				
		SCALE: NTS				

NOTE: BASE DRAWING PROVIDED BY CLIENT