

Pit Development Plan – Del Rio Pit

Site C Clean Energy Project

Revision 1: June 5, 2015

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1.0 Background

1.1 The Site C Clean Energy Project

The Site C Clean Energy Project (the Project) will be the third dam and generating station on the Peace River in northeast B.C. The Project will provide 1,100 megawatts of capacity and about 5,100 gigawatt hours of energy each year to the province's integrated electricity system. The Project will be a source of clean, reliable and cost-effective electricity for BC Hydro's customers for more than 100 years.

The key components of the Project are:

- an earthfill dam, approximately 1,050 metres long and 60 metres high above the riverbed;
- an 83 kilometre long reservoir that will be, on average, two to three times the width of the current river;
- a generating station with six 183 MW generating units;
- two new 500 kilovolt AC transmission lines that will connect the Project facilities to the Peace Canyon Substation, along an existing right-of-way;
- realignment of six segments of Highway 29 over a total distance of approximately 30 kilometers; and
- construction of a berm at Hudson's Hope.

The Project will also include the construction of temporary access roads, a temporary bridge across the Peace River, and worker accommodation at the dam site.

1.2 Del Rio Pit

Del Rio Pit is an existing gravel reserve operated by the British Columbia Ministry of Transportation and Infrastructure (MOTI) and is located approximately 40 km from the proposed location of the Site C dam. The pit is located 50 kilometres north of Chetwynd, BC (Figure 1). The License of Occupation on Crown Lands for the gravel reserve spans approximately 142 hectares and is traversed by the BC Hydro Transmission Right of Way (Figure 1).

The portion of Del Rio Pit to be utilized for the Project is a small borrow area on the South East side of Del Rio road near the East end of the gravel reserve.

Portions of the gravel reserve northwest of Del Rio Pit Road have been previously logged and some logging has occurred on the South side of the BC Hydro right-of-way. However, the area identified for the pit will require logging.

The terrain in this area rises from the east to its highest point at the Del Rio Pit reserve, at an elevation of approximately 830 metres, and then gently slopes west until reaching the Moberly River three kilometres to the west. The lands contained within the reserve and extending southwest and northeast indicate the presence of granular materials of varying quality and composition. Geotechnical field investigation and laboratory testing results were completed in the Fall of 2012 to confirm quantity and quality of materials.

Del Rio Pit Road enters the reserve from the north, continues southwest within the boundaries of the reserve, crosses the BC Hydro Transmission Line Right of Way, and

continues southwest, allowing access to other Crown Land and private parcels to the south. A small area of approximately 2 hectares within the reserve has been utilized for granular materials, while the remaining lands are generally undisturbed. Conifer and deciduous trees and ground vegetation cover most of the remaining reserve.

An agreement in principle has been reached with MOTI that allows BC Hydro to obtain material from Del Rio Pit. The Project requires approximately 130,000 cubic metres of road fill and borrow, which is unprocessed material removed directly from the deposit, and processed granular aggregates required from Del Rio Pit. This volume of granular material is produced within the existing boundaries of the reserve and the mining can be done by stripping overburden first and subsequently mining the material in one or two benches.

2.0 Purpose and Scope

The purposes of this plan are to support permitting requirements; and to guide use of the pit during construction. This plan has been prepared and submitted in accordance with condition 71 of the Environmental Assessment Certificate.

The scope of this plan is pit use throughout the life of the Project.

The plan has been developed in accordance condition 71 of the Environmental Assessment Certificate.

The EAC Holder must manage environmental protection and management by implementing measures in the following Development Plans:

- Del Rio Pit Development Plan;
- Impervious Core Materials Source Development Plan;
- Portage Mountain Quarry Development Plan; and
- Wuthrich Quarry Development Plan.

Each Development Plan will include the following:

- Plan purpose;
- Plan scope;
- Plan details;
- Summary of safety and environmental management; and
- Site reclamation strategy.

The EAC Holder must provide the draft Development Plans to regulatory agencies, Peace River Regional District, City of Fort St. John, District of Hudson's Hope and Aboriginal Groups for review a minimum of 90 days prior to the commencement of construction activities that require an applicable Development Plan.

The EAC Holder must file the Final Development Plans with EAO, regulatory agencies, Peace River Regional District, City of Fort St. John, District of Hudson's Hope and Aboriginal Groups 30 days prior to the commencement of construction activities that require an applicable Plan.

The EAC Holder must develop, implement and adhere to the Final Development Plans, and any amendments, to the satisfaction of EAO.

3.0 Development Plan Basis

The development plan for the pit is based on the information described in Tables 1 and 2, and as follows:

- The area will require logging, clearing and grubbing before any development can commence.
- The granular embankment materials for the Project will be hauled from the pit as it is produced.
- The granular aggregates will be produced, stockpiled and hauled when required for the Project.
- The final pit floor base will be at an approximate elevation of 820 metres, 10 metres below original ground.
- The quarry development design will include a final wall slope of 2H:1V. Temporary slopes and stockpiles will be trimmed to a 1.5H:1V slope.
- Overburden and surplus storage embankments will have a maximum slope of 2H:1V and will be adjacent to the pit face and to the west to be used for redressing of the excavation slopes once final gravel extraction has been completed.
- Overburden depths will be an average of 0.3 metres.
- Geotechnical investigation revealed that test pits depth varied from 3.5 to 5.8 meters. The depth of excavation will provide the volume of material required for this pit development, however, there may be more suitable material available at depth, which will be mined, if required.
- Overburden materials may vary in depth and are assumed that the required stripping will be an average of 0.3 m in depth. The overburden material will be used to redress the slopes in depleted pit areas.

Table 1: Parameters Used in the Del Rio Gravel Pit Design

Parameter	Parameter provided	Input into design
Pit slope overall angle	2H:1V 1.5H:1V (Mines Act, 2008)	Max 30° slopes from horizontal
Bench face angle	Not provided	If benches are needed then 30°
Bench height	Not provided	5 m
Bench width	Not provided	8 m - Mines Act, 2008, Section
Haul road width single lane traffic	Not provided	7 m
Haul road width two land traffic	Not provided	10 m
Mining width	Not provided	25 m

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Mined volume	Construction products required 120,000 LCM ¹	130,000 BCM ² design for three years
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Notes

1 – LCM: Loose Cubic Meters

2 – BCM: Bank Cubic Meters – swell factor estimated at 10%

Table 2: Production Quantities for Del Rio Gravel Pit

	Material required (LCM)	Product (BCM)	Overburden (BCM)	Total Material Mined (BCM)
Year 1	100,000	106,906	7,834	114,740
Year 2	10,000	10,942	930	11,872
Year 3	10,000	15,687	1,622	17,309
Total Site C	120,000	133,535	10,386	143,921
Additional capacity within the gravel pit	Depends on additional Site C requirements and material yields	130,344 (partially below test pit depths)	No additional overburden stripping required	130,344

4.0 Del Rio Pit - Operations

4.1 Production and Scheduling Estimates

The proposed development of Del Rio Pit and the boundaries of the property are shown in Figure 2. To produce the amount of granular material that will be necessary for road construction, areas for storage of overburden would need to be created within the site. Trees will be cleared as the pit site is developed. Grubbing and overburden will be removed from areas of extraction and stockpiled for eventual pit site reclamation.

Pit operations will include activities such as excavating, sorting, crushing, and screening of materials. Heavy equipment and vehicles will be used to transport materials within the pit area and from the pit to road construction locations. The equipment required for operations would be as follows with the number of equipment pieces to be determined at a later stage:

- Screening and/or crushing plants
- Loaders (to loosen and remove material and process material at the screening and crushing plants, and stock pile)
- Bulldozers (to push material for grubbing and stripping of site and stockpiles and loosen in situ materials)
- Highway legal haul trucks (to transport the material to the road construction sites)
- Water Trucks (to control dust as required)
- Grader (for haul road surface maintenance)
- Personnel Site Pick-ups (for onsite mobility)
- Service vehicle (mechanic, fuel trucks)

4.2 Pit Operations

The material will be excavated using a “free digging” method and blasting would not be required for production of the material. An excavator, loader or bulldozer will be used to extract the materials. Extraction will commence with the removal of overburden and topsoil, and then stockpiling the material onsite. Once gravel is exposed, this mined aggregate will either be used in construction as pit run material (i.e. not processed) or screened and crushed to improve the quality of the aggregate. During the mine development the slopes of the gravel pit will be evaluated on an ongoing basis with respect to the stability and safety of the operation, based on the actual ground conditions encountered.

Surplus unsuitable material will be any oversize or fine material that is not suitable for construction. Depending on the need for aggregate versus borrow or road fill material, the gravels from the pit may require screening and/or potentially crushing. The quantity of the surplus unsuitable material is not expected to be excessive. This material will be stockpiled at the screening and crushing area (see Figure 2) and will be stockpiled and subsequently contoured or placed into the pit during reclamation.

Mobile crushing and screening will initially be undertaken in an area to the west of the gravel pit (see Figure 2); once the pit has been further developed, crushing and screening will subsequently be undertaken within the gravel pit on the main bench.

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Assessments of groundwater condition will be carried out during the early stages of the gravel pit development. Appropriate water management, controlling sediment and a sediment and drainage management plan will be in place by the contractor if ground water is encountered requiring control.

The pit is an existing source managed by MOTI and will be operated in a consistent manner. The Province's Aggregate Management Principles have been established to ensure that aggregate activities are undertaken in compliance with health and safety standards and environmental protection requirements. The reference documents are:

Aggregate Operators Best Management Practices Handbook for British Columbia, 2002, Ministry of Energy and Mines (MOEM 2002)

Health and Safety: A Practical Guide for Aggregate Operations, 2007, Ministry of Energy, Mines and Petroleum Resources, Mining and Minerals Division (MOEM 2007)

Following completion of the proposed Project work, the pit will remain active under the control of MOTI. Therefore, complete reclamation may be postponed until after MOTI is finished with mining operations.

Following is a summary of pit operation considerations:

- The main area for excavation will continue northwest from the pit face with any stockpiling in the northwestern portion of the site near Del Rio Pit Road, as shown in Figure 2.
- The maximum volumes to be extracted will be based on the suitability and quality of the materials as they were processed. The materials unsuitable for use for road embankment construction or gravels will remain within the site.
- The site may contain a trailer office, maintenance and storage area and will contain sediment/erosion control measures.
- Potable water for the office and service area and water for dust control will be brought to the site from an offsite location.
- The material will be delivered to the road construction sections using highway-legal haul trucks.
- Haul trucks or loaders will move material between the areas within the pit, as required.
- The equipment required for operations may be as follows with the number of equipment pieces to be determined depending on each operation and its requirements:
 - Screening and/or crushing plants
 - Hydraulic excavators or wheeled loaders (to loosen and remove material and process material at the screening and crushing plants, and stock pile)
 - Bulldozers (to push material for grubbing and stripping of site and stockpiles and loosen in situ materials)
 - Highway legal haul trucks (to transport the material to the road construction sites)
 - Water trucks (to control dust as required)
 - Grader (for haul road surface maintenance)

- Personnel Site Pick-ups (for onsite mobility)
- Service vehicle (mechanic, fuel trucks)

4.3 Access and Facilities

Access to Del Rio Pit is by the Del Rio Pit Road. The road is not currently gated. Access control during pit operations will be achieved by the placement of berms and gated access into the pit extraction area. The location will be near the Del Rio Pit Road south of the Transmission Line corridor. This location provides excellent site distance for access and egress in and out of the pit site.

Del Rio Pit Road is a public road and will remain open to the public but controlled during extraction operations to allow access to lands beyond. Haul operations on this road will be traffic controlled and haul vehicles will be in radio communication.

Access will be closed to the public and controlled during the duration of the mining operations. Gates and signs will be erected to notify the public. Portable toilets will be utilized with all sewerage transported offsite for disposal.

The facilities which will be located on site include:

- A small mobile office with lunch room, if required.
- Potable water storage, if required.
- Mobile fines screening plant (100 tonnes per hour).
- Mobile jaw crusher.
- Weigh bridge with small mobile office or shelter for electronic equipment.
- Security gate.
- Truck washing area (north of power lines).
- Settling pond/s for truck washing water.

4.4 Safety and Environmental Management

The contractor will be expected to adhere to the environment and safety requirements described in the Construction Environmental Management Plan (CEMP) and the Construction Safety Management Plan (CSMP).

Management measures to be implemented during pit operation will include:

- Gate access will be installed to control pit operation access.
- Berms will be constructed at the top edges of excavations to control unauthorized access to the pit along the existing Del Rio Pit Road or where access can be achieved along the treed edges.
- Portable toilet facilities will be used within the quarry area and near the project site offices. These facilities will be maintained as required.
- The planning and installation of a lighting system, if required for the safe operation of the site, will follow guidelines in the Aggregate Operators Best Management Practices Handbook (MOEM 2002). Other site management features will include:

- Sediment control, and oil control separation
- Control of noxious weeds through vegetation cover or seeding where required
- Maintenance of road surfaces to reduce vibration
- Control of air emissions and wind generated dust

4.5 Site Reclamation and Future Use

Del Rio Pit will continue as a gravel pit operation under the jurisdiction of the MOTI upon completion of the Project. Slopes will be stabilized and drainage features established to control drainage. Seeding to control noxious weeds will be done on soil slopes and overburden stockpiles as required.

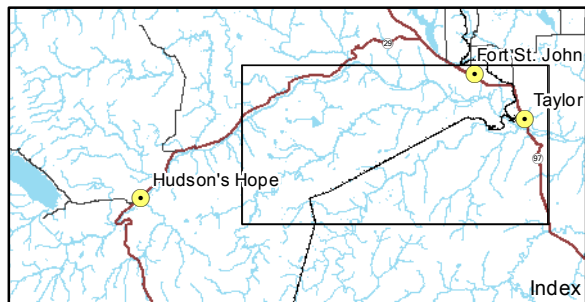
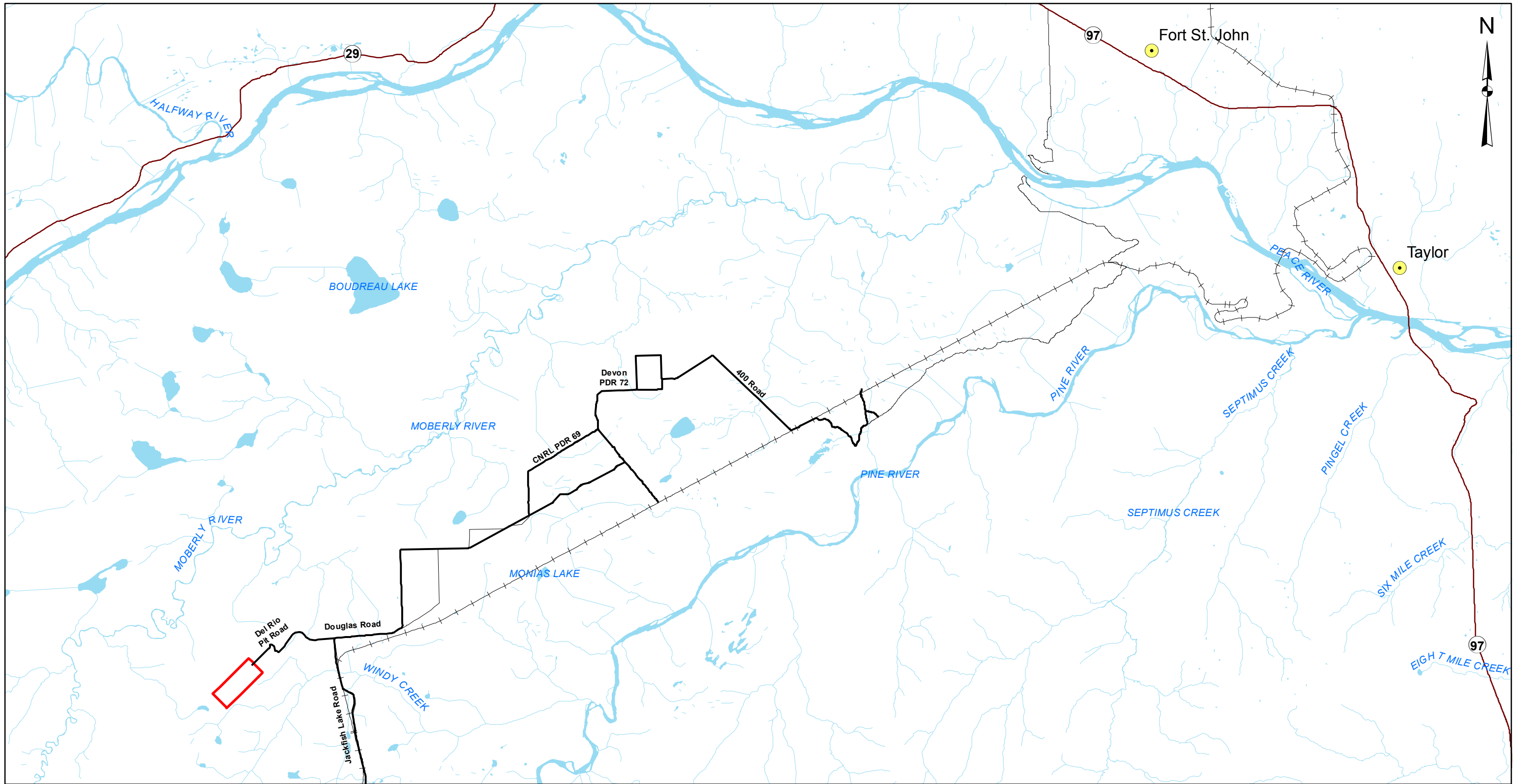
5.0 References

- Front Counter BC - *Notice of Work* – Tracking number 100111634 (Form)
- Ministry of Transportation and Infrastructure (July 30, 2014) – *Letter of Approval –MOTI Quarries: West Pine, Wuthrich and Del Rio* (file:36835-3ProjMan) (Letter)
- British Columbia Agricultural and Land Commission (1990, October). RE: *Application #21-W- 24300* (Letter)
- Gravel Manager’s Handbook (January 2008) - Ministry of Transportation and Infrastructure
- Ministry of Energy, Mines and Petroleum Resources, *Mining and Minerals Division (MOEM)*. 2009. November 2009. Aggregate Management Principles, <http://www.empr.gov.bc.ca/Mining/Aggregate/BMP/Pages/default.aspx>
- Ministry of Energy, Mines and Petroleum Resources (MOEM), Mining and Minerals Division, 2007. *Health and Safety: A Practical Guide for Aggregate Operations*
- Ministry of Energy and Mines (MOEM), April 2002. Aggregate Operators Best Management Practices Handbook for British Columbia. Volumes 1 (Introduction and Planning) and Volume 2 Best Management Practices, <http://www.empr.gov.bc.ca/Mining/Aggregate/BMP/Pages/default.aspx>

Figures

Figure 1: Key Plan – Location of Del Rio Pit

Figure 2: Development Plan – Del Rio Pit



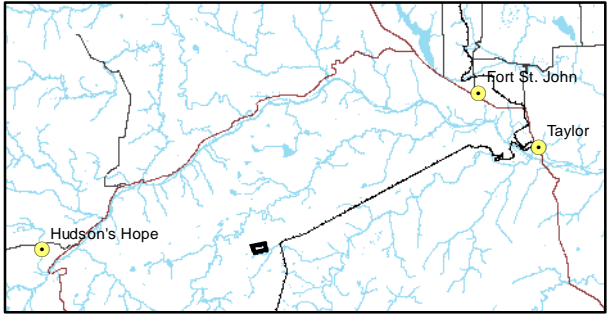
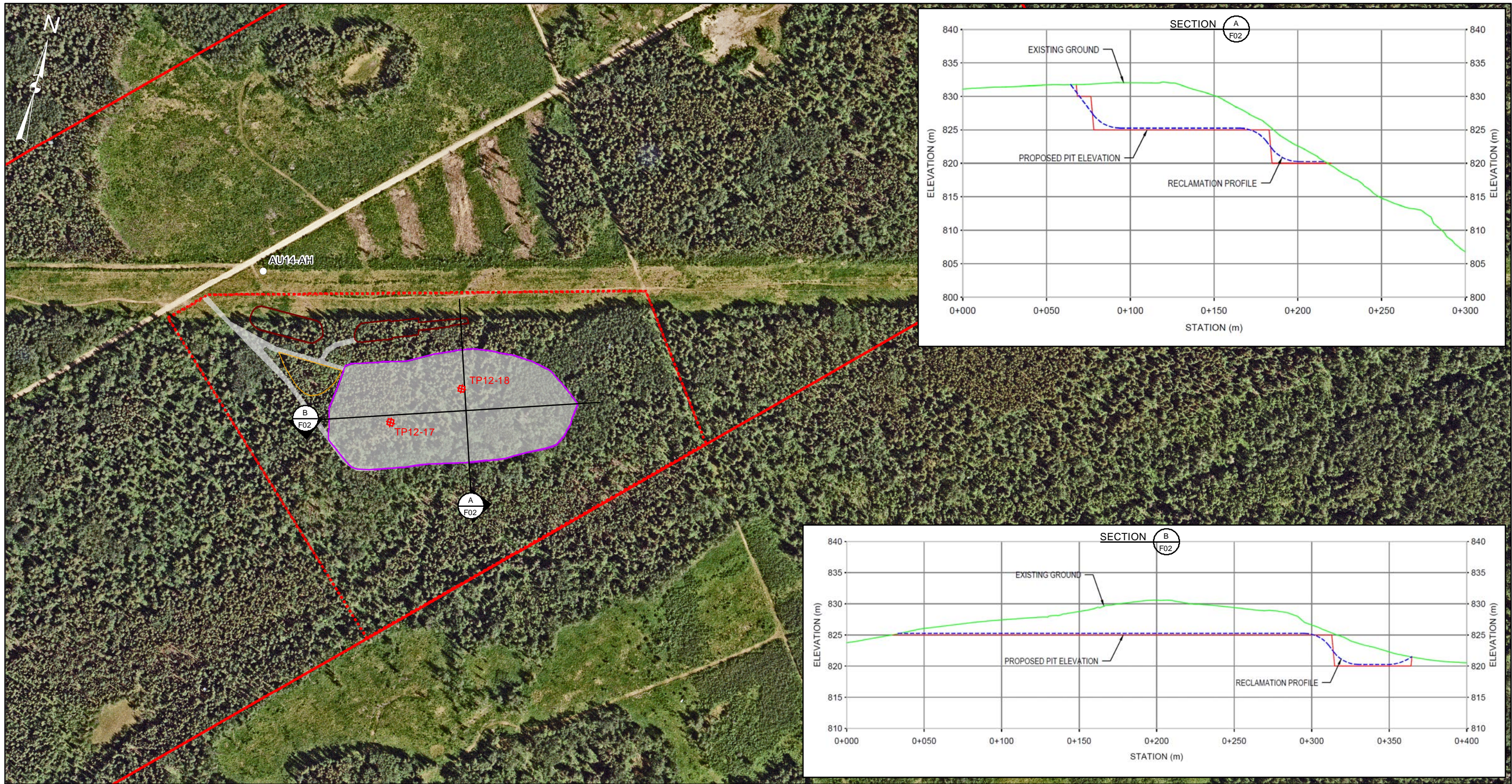
Map Notes:
 1. Datum: NAD83
 2. Projection: UTM Zone 10N
 3. Orthophotos created from 1:40,000 photos taken Sept. 10th 2007; TRIM

Legend

- Del Rio Pit
- Existing Road
- Highway
- Railway

1:150,000 0 7.5 km

<p>Figure 1 Key Plan - Location of Del Rio Pit</p>				
Date	November 6, 2014	DWG NO	1016-C14-B7767-1	R 0



Map Notes:
 1. Datum: NAD83
 2. Projection: UTM Zone 10N
 3. Base Data: Province of B.C.
 4. Development plan design based on Crown Land Registry (TANTALIS) data for BC Hydro RoW (#802177) and MoTI Mineral Tenure (#84819). Intent is for development to be exclusive of the BC Hydro TL RoW.

- Legend**
- Historical Geotechnical Investigation
 - 2014 Geotechnical Investigation
 - Del Rio Pit
 - Site Preparation Activity Area
 - Main Excavation Area
 - Road
 - Sorting and Stockpile Area
 - Work Area
 - Existing Access Roads

1:5,000 0 250m

BC Hydro

Figure 2
Development Plan - Del Rio Pit

Date	November 14, 2014	DWG NO	1016-C14-B7767-2	R 0
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Construction of the Site C Clean Energy Project is subject to required regulatory approvals including environmental certification

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Pit Development Plan – Del Rio Pit
Site C Clean Energy Project

Appendix A. *Mines Act* Notice of Work



Notice of Work

Tracking Number: 100115063

APPLICANT INFORMATION

Name: British Columbia Hydro and Power Authority
Doing Business As: Site C Clean Energy Project
Phone: 604-699-7208
Fax: 604-695-5290
Email: bettina.sander@bchydro.com
BC Incorporation Number:
Extra Provincial Inc. No:
Society Number:
GST Registration Number: R1214541
Contact Name: Seth Oldham
Mailing Address: 600 Bentall IV-1055 Dunsmuir Street
Vancouver BC V7X 1V5

SETUP QUESTIONS

Please enter some preliminary information for your application.

Are you an individual or an organization? Organization
Are you applying on behalf of the applicant? No

TECHNICAL INFORMATION

APPLICATION INFORMATION

Type of Notice of Work: Sand & Gravel
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: Del Rio Pit
Tenure Numbers:
Crown Grant / District Lot Numbers:
Directions to site from nearest municipality: The site is located 45 km southwest of Fort St. John and 37 km north-northeast of Chetwynd. Access to Del Rio Pit is from Del Rio Pit Road, off of Jackfish Lake Road. See attached figures.
Geographic Coordinates of Mine: **Latitude:** 56.0180220 **Longitude:** -121.4345613

INFORMATION ABOUT PROPOSED ACTIVITIES

Activities to be undertaken: Camps, Bldgs, Staging Areas and/or Fuel / Lubricants Storage
Sand & Gravel / Quarry Operations

FIRST AID

Proposed First Aid equipment on site: To be determined by contractor - based on WorksafeBC First Aid assessment tool and any additional requirements by Min of Mines.

Level of First Aid Certificate held by attendant: Occupational First Aid Level 2

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:

See Section 2.0 of the attached document titled "Component Application Package - Del Rio Pit", dated June 13, 2014.

The Del Rio Pit Component Application Package and associated permit applications is currently under screening review with FrontCounter BC, along with other Site C Clean Energy Project permit application packages. This NoW application is to be appended to the Del Rio Pit application package currently before FrontCounter BC.

TIME OF PROPOSED ACTIVITIES

Proposed start and end date: Jan 1, 2015 to Nov 1, 2017
Is the work year round or only seasonal? Intermittent

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

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: The Del Rio Pit is an existing gravel source operated by the BC Ministry of Transportation and Infrastructure (MOTI), has been identified as a preferred source of granular embankment and granular road base for the Project Access Road, Jackfish Lake Road and other south bank roads.

Del Rio Pit is a small borrow area on the South East side of Del Rio road near the East end of the gravel reserve. Portions of the gravel reserve northwest of Del Rio road has been previously logged and some logging has occurred on the South side of the BC Hydro right-of-way.

Type of vegetation: The Del Rio Pit lies within the Peace Lowland Ecosection, which is shaped by the Peace River and its tributaries that cut throughout the large lowland (Demarchi 1996). The Peace Lowland Ecosection is part of the Peace River Basin Ecoregion, which is in turn part of the larger Boreal Plains Ecoprovince.

The Del Rio Pit is situated within the moist, warm subzone of the Boreal White and Black Spruce Biogeoclimatic Zone (BWBSmw). The regional climate is relatively moist and warm with a longer growing season than other BWBS subzones (Meidinger and Pojar 1991). The following forested ecosystems were mapped within the Del Rio Pit:

White-spruce-Trembling Aspen-Step moss, Lodgepole Pine-Lingonberry-Velvet-leaved blueberry, White Spruce-Wildrye-Peavine, Black Spruce-Lingonberry-Coltsfoot, White Spruce-Currant-Bluebells and White Spruce-Currant Horsetail. Forests ranged in age between young forests (less than 20 years old) to mature forests (80-140 years old). Two wetlands, Black Spruce-Labrador tea-Sphagnum and Sedge wetland were mapped within the pit.

Rare plant surveys were conducted within the proposed pit area. No rare plants were found.

Physiography: The terrain in this area rises from the east to its highest point at the Del Rio Pit reserve, at an elevation of approximately 830 metres, then gently slopes west until reaching the Moberly River three kilometres to the west. The lands contained within the reserve and extending southwest and northeast indicate the presence of granular materials of varying quality and composition.

Current means of access: Access to Del Rio Pit is by Del Rio Pit Road. The road is not currently gated.

Old equipment: n/a

Recreational trails / use: n/a

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: No

Proposed activities on Crown land: Yes

Licence of Occupation: No

Have you applied for a Licence of Occupation? Yes

File number of application: Currently under screening review by FrontCounter, no file number assigned.

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? Yes

Please enter a description into the field below or attach a copy of the plan describing how you propose to protect the protected archaeological site by uploading it at the "Document Upload" step later in the application process. If you are attaching a plan later please enter in the text box "See plan attached"

Plan to protect the archaeological site: Heritage resources are discussed in Section 3.4 of the attached document titled "Component Application Package - Del Rio Pit", dated June 13, 2014.

The Del Rio Pit Component Application Package and associated permit applications are currently under screening review with FrontCounter

BC, along with other Site C Clean Energy Project permit application packages. This NoW application is to be appended to the Del Rio Pit application package.

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://www.empr.gov.bc.ca/TITLES/MINERALTITLES/FIRSTNATION/Pages/CAD.aspx>.

Have you shared information and engaged with First Nations in the area of the proposed activity? Yes

Please tell us about your engagements in the field below or attach a your record of engagement by uploading it at the "Document Upload" step later in the application process. If you are attaching your record later, please enter in the text box "See record attached". Please ensure your record does not contain an individual's personal information such as contact information.

Describe your First Nations engagement activities: First Nations engagement activities are described in Section 5.2 of the document titled "Component Application Package - Del Rio Pit", dated June 13, 2014.

The Del Rio Pit Component Application Package and associated permit applications are currently under screening review with FrontCounter BC, along with other Site C Clean Energy Project permit application packages. This NoW application is to be appended to the Del Rio Pit application package.

As a result of the engagement, are you aware of any cultural heritage resources in the area where the work is proposed? No

CAMPS, BUILDINGS, STAGING AREAS AND FUEL / LUBRICANTS STORAGE

This section covers the construction of new camps and/or buildings as well as the storage of fuel/lubricants on the exploration/mine site.

The construction and operation of industrial camps (where more than five people will be accommodated) are regulated under the Health Act and its supporting regulations. Permits may be required for different aspects of camp operation. Contact the nearest Regional Health Authority to determine which requirements will apply to your camp.

You must also contact the BC Safety Authority and WorkSafe BC. For more information regarding Industrial Camp Regulation please see <http://www.health.gov.bc.ca/protect/industrial-camps.html>.

If water for camp operation is taken from any surface source other than a well, a licence or an approval maybe required under the Water Act. For further information please contact FrontCounter BC.

MAPS

If known, mark the locations of camps, buildings and fuel storage on the maps, show the distance of activity from known streams, wetlands or lakes on the map.

You will upload the maps at the document upload step later in the application process.

If locations are not determined you must provide a location map with your start up notification at least 10 days prior to start-up. Camps, buildings and fuel storage must comply with riparian setbacks as set out in Section 9 of the Code and the guidance provided in the Handbook for Mineral & Coal Exploration.

CAMPS

Click on the "Add Camp" button to add a camp. If you have multiple camps please give each camp a distinctive name like Camp 1 which you can reference on the maps you submit with your application.

BUILDINGS

Click on the "Add Building" button to add a building. If you have multiple building please give each building a distinctive and descriptive name like "Shop" or "Storage 1" which you can reference on the maps and drawings you submit with your application. Please note that all buildings must adhere to the following Codes, BC Building Code, BC Fire Code and CSA Standard M421-00 "Use of Electricity in Mines in conjunction with the Canadian Electrical Code. All plans must be submitted at least 60 days prior to the proposed start of construction to the Inspector. The Inspector will advise if additional documents are required.

Name	Disturbed Area (ha)	Merchantable timber volume (m³)
Mobile Washing Facility Purpose of the building: To prevent the spread of invasive vegetation species into disturbed areas. Structure and dimensions: Standard dimenstions	0.00	0.00
Weighbridge Purpose of the building: Weighing trucks coming in and out of the pit Structure and dimensions: Standard	0.00	0.00
Work Area Purpose of the building: Offices and sanitation, mobile screen, mobile jaw crusher. Structure and dimensions: To be determined	0.50	100.00
Total:	0.50	100.00

STAGING AREA

Click on the "Add Staging Area" button to add a staging area. If you have multiple staging areas please give each staging area a distinctive and descriptive name like "Area 1" or "Area 2" which you can reference on the maps and drawings you submit with your application.

Name	Disturbed Area (ha)	Merchantable timber volume (m³)
Stockpile Areas	0.50	100.00
Total:	0.50	100.00

FUEL / LUBRICANT STORAGE

If you are planning to handle, transport or store fuel and/or lubricants you must adhere to B.C. Environmental standards as detailed in "Summary of Environmental Standards and Guidelines for Fuel Handling, Transportation and Storage".

Do you propose to store fuel / lubricants on site? No

RECLAMATION PROGRAM

Describe the proposed reclamation and timing for this specific activity:

Del Rio Pit will remain a Ministry of Transportation and Infrastructure (MOTI) pit after Site C construction needs are met. MOTI has provided a letter (attached to the Del Rio Component Application Package as Appendix C) indicating this, and will be responsible for the reclamation of the pit as per the requirements of their tenure and governing legislation. BC Hydro use of West Pine Quarry is with the written permission of the tenure holder, BC Ministry of

Transportation and Infrastructure. BC Hydro has indicated that no remediation works will be undertaken as MOTI will continue to use the quarry in perpetuity.

Estimated cost of reclamation activities described above:

\$0.00

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: 2.50 m

Average depth of topsoil:

Measures to stabilize soil overburden stockpiles and control noxious weeds: Slopes will be stabilized and noxious weeds controlled by means of hydro seeding slopes with MOTI acceptable seed mix.

LAND USE

Is the site within the Agricultural Land Reserve? No

Does the local government have a Soil Removal Bylaw? No

Official Community Plan for the site: Peace River Regional District OCP

Current land use zoning for the site: Existing MOTI pit

Proposed end land use is: Del Rio Pit will continue as a gravel pit operation under jurisdiction of the MOTI upon completion of the BC Hydro pit operations.

Estimate total minable reserves over the life of the mine:

Estimate annual extraction from site: 45,000 m³/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 (m ³)
Crushing	0.00	0.00
Excavation of Pit Run	4.50	900.00
Mechanical Screening	0.00	0.00
Washing	0.00	0.00
Total:	4.50	900.00

Brief description of operation, including proposed work schedule:

- Following is a summary of pit operation considerations:
- ☑ The main area for excavation would continue southeast from the existing pit face with any stockpiling in the northern half of the site, as shown in Figure 4.1.
 - ☑ The maximum volumes proposed for extraction would be based on the suitability and quality of the materials as they were processed. The materials unsuitable for use for road embankment construction or gravels would remain within the site.
 - ☑ The site would contain a trailer office, maintenance and storage area and sediment/erosion control measures.
 - ☑ Potable water for the office and service area and water for dust control would be brought to the site from an offsite location.
 - ☑ The material would be delivered to the road construction sections using highway-legal haul trucks.
 - ☑ Haul trucks or loaders would move material between the areas within the pit, as required.
 - ☑ The equipment required for operations would be as follows with the number of equipment pieces to be determined at a later stage:
 - o Screening and/or crushing plants
 - o Loaders (to loosen and remove material and process material at the screening and crushing plants, and stock pile)
 - o Bulldozers (to push material for grubbing and stripping of site and stockpiles and loosen in situ materials)
 - o Highway legal haul trucks (to transport the material to the road construction sites)
 - o Water Trucks (to control dust as required)
 - o Grader (for haul road surface maintenance)
 - o Personnel Site Pick-ups (for onsite mobility)
 - o Service vehicle (mechanic, fuel trucks)

Pit operations will take place during weekdays from 7am to 7pm.

NB: Crushing and screening will occur in the Work Area for which the disturbance is already captured in the "Buildings" field. Washing will occur in a previously cleared area, and therefore no additional disturbance will occur.

EQUIPMENT

Click on the "Add Equipment" button to add one or more equipment.

Type	Quantity	Size / Capacity
Excavator	1	CAT 330 (or equivalent)
Loader	1	CAT 988 (or equivalent)
Bulldozer/Crawler Tractors	1	CAT D9 (or equivalent)
Truck	1	highway legal haul trucks
Other: Water trucks	1	highway legal
Other: Grader	1	CAT or equivalent
Other: Screening and/or crushing plants	1	portable

Will progressive reclamation be carried out? No

RECLAMATION PROGRAM

Describe the proposed reclamation and timing for this specific activity:

Del Rio Pit will remain a Ministry of Transportation and Infrastructure (MOTI) pit after Site C construction needs are met. MOTI has provided a letter (attached to the Del Rio Component Application Package as Appendix C) indicating this, and will be responsible for the reclamation of the pit as per the requirements of their tenure and governing legislation.

If backfilling of pits or pit slopes is proposed in the final configuration for reclamation, details of materials to be used and placement procedures:

Estimated cost of reclamation activities described above: \$0.00

GROUNDWATER PROTECTION

Average depth to the high groundwater table at the proposed excavation:

Elevation of the groundwater table was determined from: Existing area wells
 Test pits
 Test wells drilled for this purpose
 Other:

Measures proposed to protect groundwater from potential impacts of the proposed mining activity:

Test pits went to a depth of 6m with no groundwater or seepage encountered. Depth of groundwater is therefore greater than 6m.

Water is not required for material removal or processing. Minor amounts may be required for dust control, and potable water for the office will be obtained from commercial sources and trucked to the site. Treatment of waste water will be conducted in accordance with the Construction Environmental Management Plan (CEMP), provided to FrontCounter BC as an attachment to the Dam Site Component Application Package for the Site C Clean Energy Project.

IMPACT MINIMIZATION

Shortest distance between proposed excavation to nearest residence: 2,500 m

Shortest distance between proposed excavation to nearest residential water source: 2,500 m

Measures proposed to prevent inadvertent access of unauthorized persons to the mine site: Installation of an access gate per MOTI standards.

Measures proposed to minimize noise impacts of the operation: The location is isolated. Operations will be restricted to 7am to 7pm, Monday to Friday

Measures proposed to minimize the dust impacts of the operation: Dust suppression using trucked in water, as required.

Measures proposed to minimize visual impacts of the operation: The location is isolated, and is an existing MOTI pit.

TIMBER CUTTING

Total merchantable timber volume: 1,100.00 m3

Occupant Licence to CutBased on the information that you provided, you will require an Occupant Licence to Cut as the total volume of merchantable timber exceeds 50 m3. This will require a separate application package from your Notice of Work. The services of a forest professional will be necessary in order to submit the required appraisal information.

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 (\$)
Camps, Buildings, etc.	1.00	0.00
Sand & Gravel / Quarry	4.50	0.00
Subtotal:	5.50	0.00
Unreclaimed disturbance from previous year:	0.00	
Disturbance planned for reclamation this year:	0.00	
Total:	5.50	0.00

OTHER CONTACTS

Please enter the contacts that are applicable to your application.

Contact Info	Type of Contact
Name: Ministry of Transportation and Infrastructure Doing Business As: Phone: 250-565-4202 Fax: Email: BC Inc. Number: GST Registration Number: Contact Name: Tony Bennett, Senior Project Manager Mailing Address: 203-2011 4th Avenue Prince George BC V2L 3H9	Tenure Holder

OTHER INFORMATION

Is there any other information you would like us to know?

BC Hydro use of Del Rio Pit is with the written permission of the tenure holder, BC Ministry of Transportation and Infrastructure (MOTI). BC Hydro has indicated that no remediation works will be undertaken as MOTI will continue to use the pit in perpetuity.

This application is part of the Del Rio Component Application Package, submitted along with other permit applications and supporting documentation to FrontCounter BC starting on April 28, 2014. The application packages are currently under screening review with FrontCounter BC.

The Environmental Impact Statement for the Site C Clean Energy Project is available for download at http://a100.gov.bc.ca/appsdata/epic/html/deploy/epic_project_doc_list_371_r_app.html

Detailed information on the Del Rio Pit can be found within the EIS (Volume 1, Appendix C5 [Del Rio Pit Development Plan] on the BC Environmental Assessment Office website at the following link: http://a100.gov.bc.ca/appsdata/epic/documents/p371/d35993/1377112599515_3f6

LOCATION INFORMATION

You are required to complete at least one of the following options for spatial information.

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) 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.

We have prepopulated some of the fields for your convenience but you can change in the information at any time. Please note that the information might become available to the public if required.

Company / Organization: British Columbia Hydro and Power Authority - Site C Clean Energy Project
Contact Name: Bettina Sander, Regulatory Manager
Contact Address: Suite 600, Four Bentall Centre
1055 Dunsmuir St.
Vancouver BC V7X 1V5
Contact Phone: 604-695-7208
Contact Email: bettina.sander@bchydro.com

I hereby grant permission for the public release of the information provided above. This information will be used to fulfill, if required, the referral and advertising requirements of my application.

OFFICE

Office to submit application to:

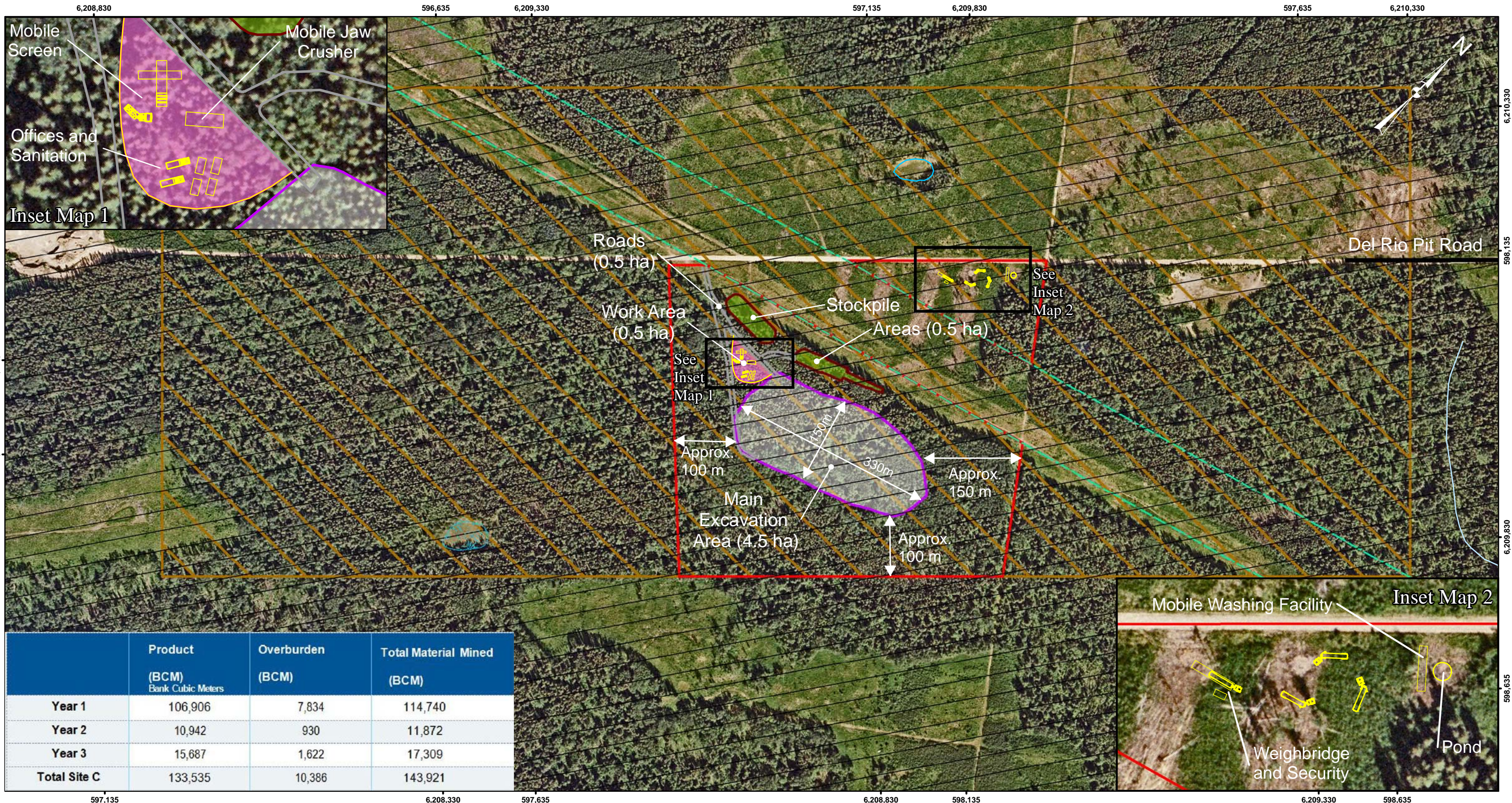
PROJECT INFORMATION

Is this application related to another application(s) or authorization(s) you have previously submitted? No

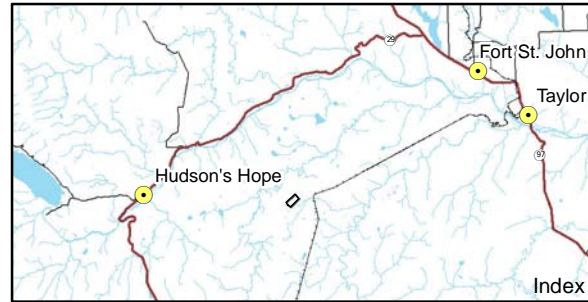
OFFICE USE ONLY

Office	File Number	Project Number

	Disposition ID	Client Number
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	Product (BCM) Bank Cubic Meters	Overburden (BCM)	Total Material Mined (BCM)
Year 1	106,906	7,834	114,740
Year 2	10,942	930	11,872
Year 3	15,687	1,622	17,309
Total Site C	133,535	10,386	143,921



Map Notes:
 1. Datum: NAD83
 2. Projection: UTM Zone 10N
 3. Orthophotos: TRIM.

Legend

- Del Rio Pit LOC Application Area (24 ha)
- Main Excavation Area
- Stockpile Areas
- Work Area
- Access Roads
- Buildings & Equipment
- BC MoTI Map Reserve
- BC Hydro Right-of-Way
- Existing Road
- Crown Land (Surveyed and Unsurveyed)
- TRIM - River (Definite)
- TRIM - Lake
- TRIM - Marsh



Proposed Development of Del Rio Pit

Date	July 31, 2014	DWG NO	1016-C14-B7683
			R 0

Path: X:\ArcGIS\Projects\Permitting\Construction\Batch_1\Del Rio Pit\App_D_MinesAct_NOW\ProposedDevelopmentPlan\DelRio_NOW_1016_C14_B7683.mxd

Appendix B. Agreement between MOTI and BC Hydro



July 30, 2014

Sent via email

Don Wharf,
Program Manager, Roads Infrastructure
Site C Clean Energy Project
BC Hydro, Vancouver BC

Your File: 36835-3ProjMan

Dear Don:

Re: MOTI Quarries/Pits: West Pine, Wuthrich and Del Rio

The Ministry of Transportation and Infrastructure (MOTI) approves the use of West Pine Quarry, Wuthrich Quarry and Del Rio Pit by BC Hydro for the Site C Clean Energy Project. These quarries and pit may also be utilized by MOTI for operational purposes during the time of BC Hydro's use.

MOTI confirms that these quarries and pit will be used by MOTI as quarries and pit following BC Hydro's use and after the construction of BC Hydro's Site C Clean Energy Project, should the project receive environmental certification, regulatory approvals and proceed to construction.

MOTI will be responsible for the reclamation of the quarries and pit as per the requirements of their tenure and governing legislation.

Regards,

A (Tony) N. Bennett
Senior Project Manager
Northern Region
Ministry of Transportation and Infrastructure

Cc: Don Shaw, Project Director MOTI
John Bodnarchuk, Project Manager BC Hydro