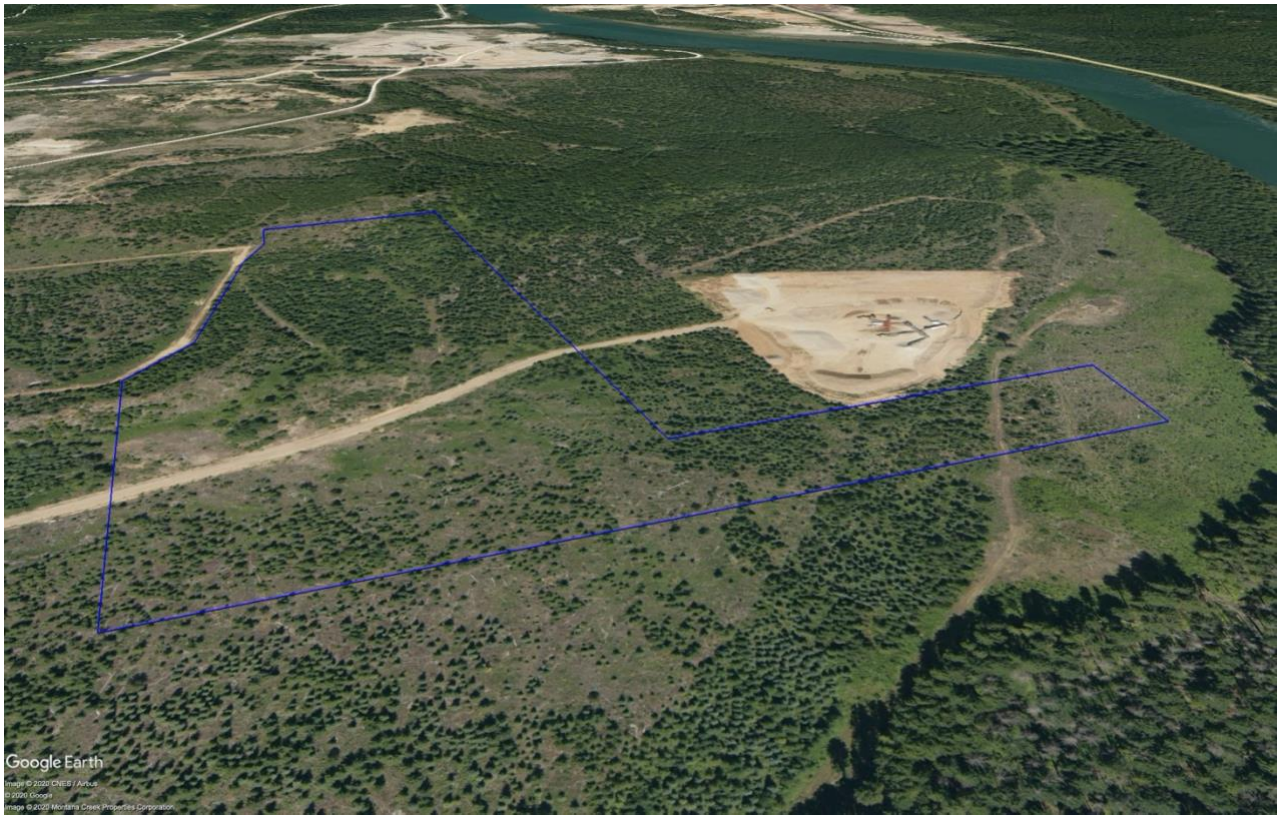
Terus Construction Ltd.
(dba Valley Blacktop)

Management Plan for the Westside Pit Expansion Application
Tracking Number 100331416



Tenure application area in blue adjacent to existing "Westside Pit"

November 12, 2020

HOLMES MINING CONSULTANTS
B.C. Aggregate and Mining Permits
Project Feasibility and Management

1.0 Introduction

This management plan is being submitted by Terus Construction Ltd. (Terus), (dba Valley Blacktop) as a requirement of the Ministry of Forests, Lands, Natural Resource Operations and Rural Development (FLNROD) and the Ministry of Energy, Mines and Petroleum Resources (MEMPR) for a land tenure and Mines Permit on Crown Lands.

2.0 Project Overview

The project involves expansion to an existing operational pit area and existing access road, both located on crown land and both operated by Terus. The existing operational (mining) area is covered under FLNRO File No. 4403844 and License of Occupation No. 404800, and the site access is covered under FLNRO File No. 4404142 and License of Occupation No. 404801, with both licenses being valid. It is expected that the existing mine plan for the Westside Pit can be amended with the MEMPR to cover the expansion area once tenure is granted. Proposed mining and phases are shown on the attached site plan.

This expansion application (tracking number 100331416) is adjacent to the existing mining area and accessed via the same road tenure. The lands being applied for are illustrated as a blue outline on the attached mapping.

The official community plan designation for the site is Urban Reserve, with a current land use zoning of RR60 – Rural Residential. In discussions with the City of Revelstoke, it is expected that the end land use will be a high tech industrial business park. The project is not within the ALR.

The proposed mine plan anticipates development to an ultimate (final) 2:1 pit wall above the 450m elevation on all boundaries of the tenure area. It is anticipated that the mining and development will comply with the requirements of the *Mines Act* and HSRC. The operational intent is to have equipment (loaders, trucks, crushing screening and washing plants) at the site during the work season (April to the end of November).

The development is not expected to have any environmental or socio-community impacts given its relatively small size, and with a sound Mine Emergency Response Plan – MERP the potential impacts should be limited. The company will have in-place; plans for archaeological chance find procedures, noise and dust control, MERP and ground/surface water protection (including fuel management & spill contingencies).

There will not be a requirement for an *Environmental Management Act* – Effluent Permit given that the project is not anticipated to have any effluent discharge. The control of TSS and turbidity of any contact surface waters will be achieved through use of standard BMP's for sediment and erosion control procedures for aggregate operations in BC, such as sediment ponds, silt fencing and straw (hay) bales. The TSS and turbidity criteria level values are expected to meet provincial and federal guidelines.

The project is expected to be developed in an environmentally sensitive manner, and Terus proposes to accomplish this by implementing plans, utilizing technology and using industry standard "best management practices" (BMP's), as a means to either eliminate or minimize the environment impacts associated with the project. The company will utilize the "Aggregate Operators Best Management Practices Handbook for BC, Volume II, April 2002" as a point of reference for its operation.
http://www.empr.gov.bc.ca/mining/mineralstatistics/mineralsectors/constructionaggregates/reportsandpublications/pages/aggregateoperators.aspx

3.0 Project Description

3.1 Description of Work

The tenure application area is generally covered with grass and thin topsoil/overburden layer. The area will require stripping prior to mining, and the soil(s) will be stockpiled along the western limits of the tenure to provide a visual buffer to the operations from Westside Road. This development plan consists of operations, decommissioning of components and associated activities that would be typical for any small sized aggregate (sand and gravel) operations in BC. Aggregate materials are excavated, screened and/or crushed on-site to obtain the preferred grain size and quality for asphalt and concrete production. In this case, the crushed products will be trucked off site to the Terus' asphalt and/or concrete plants in Revelstoke, or provided to local infrastructure projects.

The production from the project will be approximately 40,000 m3 from the site annually. With an approximate area of 8 ha the proposed project has a total aggregate reserves of 400,000 m3 for a lifespan of approximately 10 years depending on markets.

The operation will be in compliance with the HSRC, and will utilize the following equipment – loaders, excavators, dozers, tandem dump trucks for excavation of aggregate materials. The operation will use equipment similar to the Cat 960E - Front End Loader, Cat 330 – excavator, D8 Dozers and tandem dump trucks.

On completion of mining, all boundaries will be re-sloped to a consistent 2:1 slope angle. The slopes will then be covered with the stockpiled soils. It should be noted that no reclamation will be undertaken until completion of the Phase I and II development areas, as these areas are required to maintain an effective working and stockpile storage area. The maximum area of disturbance prior to reclamation will not exceed 5 ha for the project.

3.2 Mine Plan

The mine plan will be developed in 4 phases, each with an area of approximately 2ha for a total of approximately 8ha.

Once the mining depth (445m elevation) has been achieved over the areas of Phases I and II, then progressive reclamation of those portions will be carried out while Phase III and IV are mined out. Upon completion of those phases, the project will be complete..

The extraction (mining) faces will be at a maximum height of approximately seven (7) meters which are in compliance with **Part 6.23.4** of the HSRC. On completion of mining, the pit faces will be re-sloped to a 2:1 slope angle.

The mining and pit operations will be seasonal between April and the end of November, with activities driven by demand for the products. The pit will likely operate between 7:00 am to 7:00 pm during Monday to Friday of the work season, except for holidays as per the City of Revelstoke bylaw.

In regards to crushing activities, the site will operate 6 to 7 weeks each time crushing is required on-site, with the frequency of crushing depending on volumes of work but typically would not exceed one time per season.

3.3 Present State of Land

This particular site has been cleared in the past and is generally flat and void of significant vegetation except grass. There are no ephemeral creeks located within the development area.

There is one overlapping tenure (power/data line) that will be managed through setbacks, if required. An existing landfill is west of the site, and an active MOTI aggregate extraction operation is located on the north and northwest boundaries of the site. There is as well a 160m buffer comprising the Columbia River Greenbelt (40% which is treed) that runs along the eastern boundary of the site.

Based on experience from the adjacent site the average depth of overburden (material including topsoil, overlying sand, gravel and/or rock) is ~20 cm, with negligible topsoil (see photo). During mining all topsoil/mineral soils located on-site will continue to be stripped to rooting depth (see photos) and saved for final reclamation. The soil stockpiles located along the boundaries of the proposed development area will be seeded as required, to minimize the possibly of noxious weeds and blowing dust. Soil salvage is discussed later in this management plan.

3.4 Reclamation

3.4.1 General Reclamation Terms

The reclamation and closure of the Westside Expansion Pit operation will follow the general guidelines recommended by **Part 10.7.1** to **10.7.10** of the HSRC. It will be the intent of Terus, to prevent long-term environmental impacts at the site and eliminate potential health and safety issues, as required. It is expected that the end land use for this site will be industrial and/or rural residential. It is expected that in the end the reclamation plan will foster return to appropriate and functional values on the site.

The objectives of the reclamation plan will be to create a physically stable environment, and to ensure that there are no impacts to aquatic or terrestrial resources from the mining activities. These objectives are consistent with the requirements of the HSRC. It should be noted that Terus, reserves the right to have an opportunity for the reclamation plan to be refined during the

operational period of the project. After closure, the site will be left in a safe and secure manner for the long-term with no projected maintenance.

The goals of the reclamation plan will be to provide the necessary details of the reclamation objectives and to provide an opportunity for the plan to be refined during the operational period of the project. After closure work has been completed, the project will need to be left in a safe and secure manner for the long-term with little projected maintenance. Ongoing discussion with the City on future rezoning and end land use will be managed throughout the Project.

3.4.2 Soil Salvage

During operations, stripping and stockpiling of topsoil/sub-grade soil will be undertaken. The soil stockpiles have an application of erosion control grass seeding to reduce erosion and noxious weed invasion. Noxious weeds will be controlled by spraying with approved weed control products, which is acceptable for this area.

Due to operational constraints, progressive reclamation which is an appropriate procedure to follow cannot effectively be undertaken until near completion of all phases. Progressive reclamation will be initiated as soon as possible ensure not only limited reclamation requirements at the end of mine life, but to be most cost effective through use of the operational budget, and thus minimize requirements for a large reclamation security.

Soils will continue to be salvaged and handled so that both the topsoil and mineral soils are mixed together given the negligible amounts of topsoil on the property. Working of soils during wet conditions are avoided and/or minimized. Finished soil stockpiles are clearly delineated from adjacent areas in order to prevent equipment from driving over the stockpiles or mixing rock materials with soils throughout the operations. The soil stockpiles will be constructed with 1.5:1 slopes, average 3m in height and will not be moved or disturbed throughout the operations. The soil stockpiles will be seeded with an appropriate interior seed mixture, in order to prevent noxious weed invasion.

3.4.3 Revegetation and Erosion Control

To assist in revegetation and erosion control, a seed mix will be custom-made at a seed supplier (e.g. Dawson Seed, Vancouver BC). Reclaimed slopes will be completely seeded with the following grass/legume mix to control erosion and maintain or increase soil productivity. Some quick establishing agronomic species such as hard fescue, alsike clover, white clover and hairy wild rye will be used in revegetation of reclaimed areas, as they are usually successful in a variety of site/soil types and climates. A recommended grass/legume seed mix for this project is shown in Table 2. Seed mixes will be applied (hand cyclone seeder or truck-mounted spreader) at a rate of 40 kg/ha to account for seed mortality. Fertilizer/lime addition maybe required before or after seeding depending on soil fertility. However, if possible fertilizer use will be kept to a minimum in order to help favour encroachment by native vegetation species. If required the initial fertilizer application would be limited to nitrogen and sulphur, with addition later of potassium or phosphorus. A fertilizer formulation of 34-0-0-11 (NPKS) is suggested with an application at a rate of 50 to 100 kg/ha, in order to promote initial establishment, followed by a slow release (nitrogen) formulation of 25-4-10 at an application rate of 50 kg/ha.

Table 2 Westside Expansion Pit - Erosion Control Seed Mixture

Botanical Name	Common Name	% by Weight	% by Seed
Lolium multiforum	Italian Ryegrass	13.1	10
Festuca Ovina Duriuscula	Hard Fescue	4.8	10
Dactylis Glomerata	Orchardgrass	6.8	15
Phleum Pratense	Timothy	2.4	10
Deschampsia Beringensis	"Norcoast" Bering Hairgrass	1.2	5
Bromus Sitchensis	Alaska Brome	42.0	5
Elymus Hirsutus	Hairy Wildrye	6.6	10
Trifolium Hybridum	Alsike Clover	6.4	15
Trifolium Pratense	Single Cut Red Clover	10.8	10
Trifolium Repens	White clover	1.9	5
Lotus Corniculatus	Birdsfoot Trefoil	4.0	5

(Source: Elkhorn Ranch Project)

The erosion control species listed in Table 2 have a range of years of longevity after application. Most annuals die out after 2 to 3 years, at which time other native grasses and herbs will be established.

3.4.4 Long-term Stability

The long-term stability of the post-mine site will be an important consideration during reclamation planning for the project, given that the site will become either industrial and/or rural residence.

With no settling or tailings ponds, dams or waste dumps there will not be a requirement for additional maintenance to ensure long-term physical stability on the site. With all physical structures being removed from the property during final reclamation, it can be appropriately decommissioned and reclaimed for long-term stability as required under the *Mines Act.*

Section C – Additional Information

The development is not expected to have any environmental and/or socio-community impacts given its relatively small size and/or location. The company will have in-place; plans regarding archaeological chance find procedures (CFP) and fuel management & spill contingencies as well as Mine Emergency Response Plan (MERP). **Note**: These particular plans are part of the ***Mines Act*** Permit.
It is expected that the company, will operate and use "Best Management Practices" approach in the development and operation of the site.

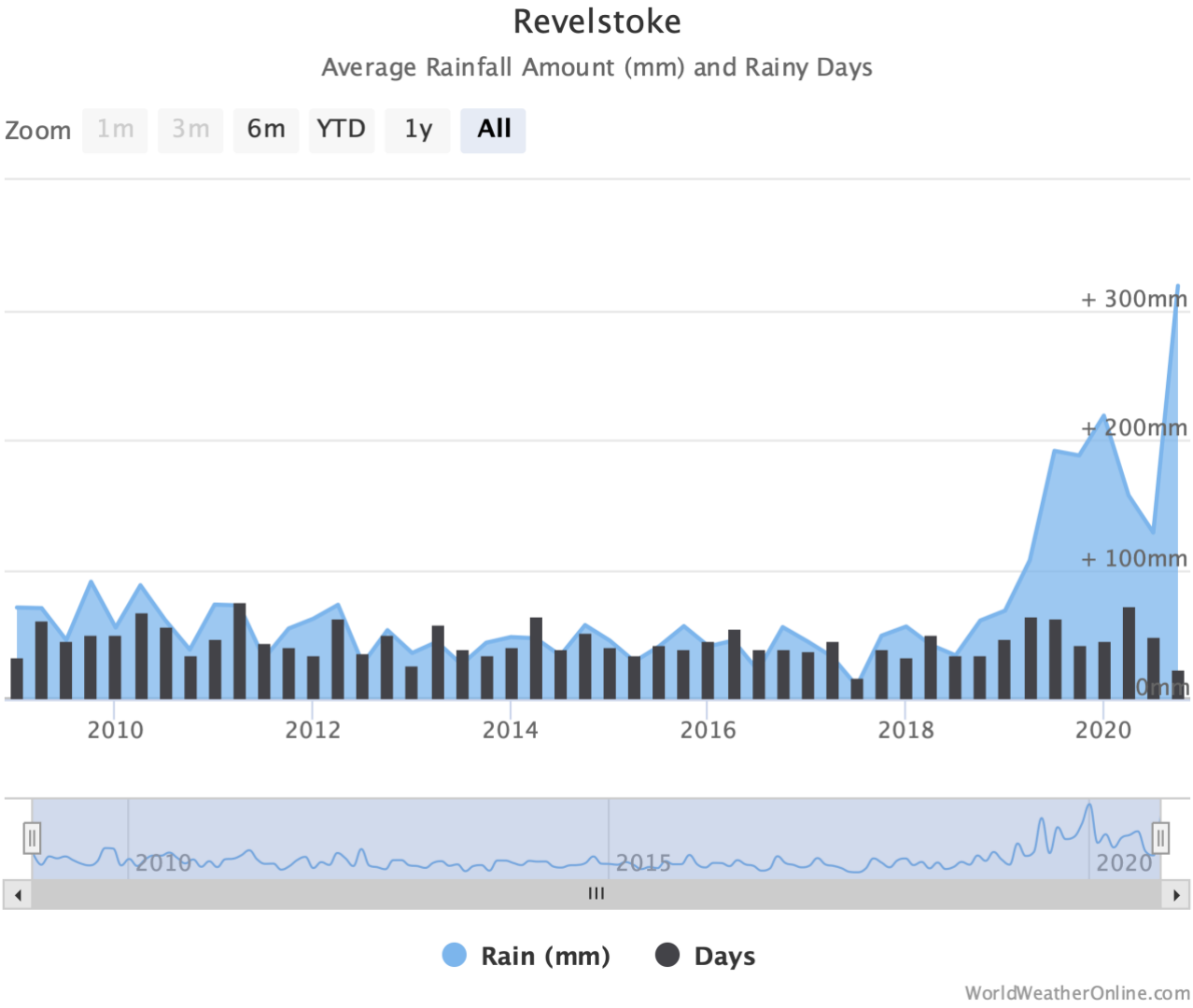
I. Environmental

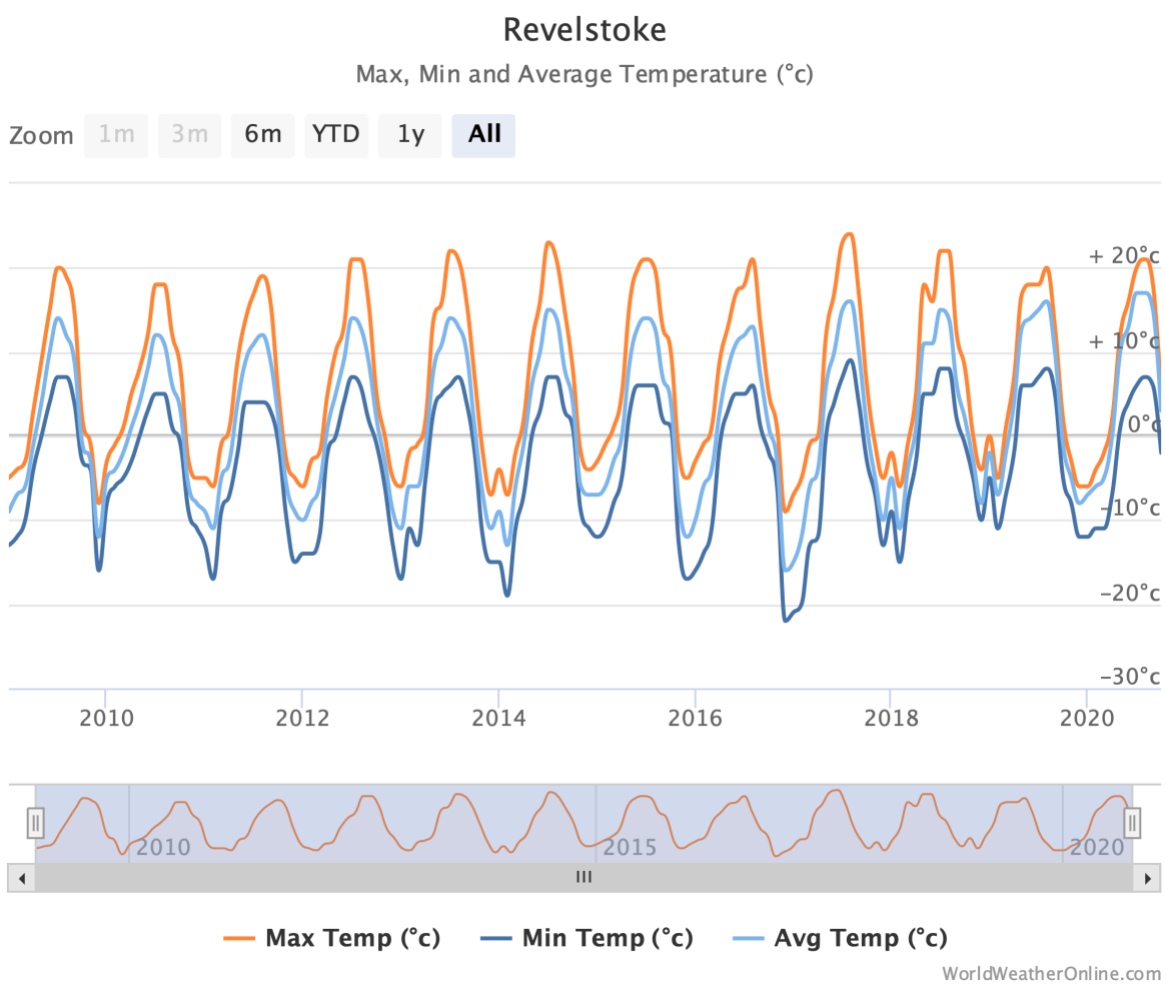
a. Land Impacts

This Management Plan highlights the proposed operational area and its potential impacts to the land base. The operation will be "stockpiled buffered" in order to reduce visual impacts to outside sources, as well as the soil and overburden berm that will be seeded to grass. There are no known or documented archaeological sites within the proposed development area.

b. Atmospheric Impacts

Climate





Revelstoke lies at 458m above sea level. The climate is cold and temperate with significant rainfall. The climate is classified as Dfb by the Köppen-Geiger system. The average annual temperature in Revelstoke is 6.6 °C and precipitation here is about 1030 mm per year. The warmest month of the year is July, with an average temperature of 18.7 °C and January is the coldest month, with temperatures averaging -6.3 °C. The difference in precipitation between the driest month and the wettest month is 94 mm and temperatures throughout year vary by 25.0 °C.

Atmospheric Effects

It is expected that potential atmospheric impacts will be minimal from equipment emissions and/or fugitive dust during mobilization, demobilization, land clearing, excavating, haulage and screening operations.

It is expected that there will be minimal (insignificant effects) impacts (such as deterioration or air quality and lower visibility due to diesel and fugitive dust emissions) on and from the site during construction and operations.

However, to assist with reducing atmospheric effects the company will undertake the following:

- Use modern construction (mining) equipment that meets latest applicable Canadian emission standards;
- Ensure proper inspection and maintenance of equipment;

- Operate equipment within specifications and capacity;
- Limit vehicle and construction equipment idling;
- Use low sulphur fuels for all diesel equipment;
- Revegetate any parts of the development that will not be disturbed in the future;
- Clear only the trees needed for mining in that particular area;
- Through a planned site layout (minimize creation), operational controls (control escape); air quality (dust removal) and cessation, the company can manage and mitigate any generated fugitive dust; and
- Maximize use and commit to Best Management Practices such as following the guidelines set forth by the "*Aggregate Operators Best Management Practices Handbook for British Columbia (April, 2002)".*

c. Aquatic Impacts

For the Westside Expansion Pit, it is expected that the development will have insignificant (minor) changes to surface water quality and quantity. It is expected; that given the project's location, lack of surface water flow and that it will not be operating continuously, any potential aquatic impacts would be negligible, if at all.

The company will utilize mitigation and monitoring as tools to minimize aquatic impacts, as necessary. The operation will use water management structures, and appropriate erosion and sediment control strategies such as managing sediment mobilization and erosion by installing sediment controls prior to land disturbance, limiting land disturbance to the minimum practicable extent, reducing water velocities across the ground, progressively rehabilitating disturbed land, ripping areas to promote infiltration, and restricting access to rehabilitated areas, and installing appropriate temporary erosion and sediment control measures or "Best Management Practices" prior to, and during activities.

In regards to groundwater protection, several test pits were dug and did not encounter any groundwater (table). However, to help protect groundwater quantity and quality from potential impacts of the proposed mining activity, no fuel storage will occur on-site during normal mining activities. If and when a large project is to be undertaken, than fuel storage will include double walled fuel tanks with appropriate additional protection As well, there will be adequate training for on-site personnel with the emergency response equipment and supplies (spill kits) that are available for use when and if required during fueling.

d. Fish and Wildlife Habitat

Given the location of the development, fish and wildlife habitats baseline studies were not undertaken as part of this application. Meaning there were no literature reviews of management plans specific to the region, no identification of species at risk and/or no field surveys. There will be no disturbance to fish and/or fish habitat during construction/operations of the development, given its location and proposed operating philosophy.

II. Socio-Community

a. Land Use

There are no known designated National Parks, National Historic Sites, National Marine Conservation Areas, National Wildlife Areas, Migratory Bird Sanctuaries or Marine Wildlife Areas within the development area.

There are currently no active forestry operations within the proposed LoO boundary.
Given that no baseline work was undertaken on the site, the recreation values cannot be substantiated but the values probably are around the low sensitivity and low significance values, given the sites proximity to the other higher areas and/or the limited access through the area.

b. Socio-Community Conditions

The project will not affect or influence any community services or infrastructure requirements due to it being a small operation that will operate intermittently. Typical nuisance concerns for aggregate pits such as noise, dust, water quality, traffic and safety concerns have not been a problem at the adjacent Westside Road Pit and are not anticipated to cause any concerns at this expansion to that pit.

c. Public Health

The project is not projected to affect public health, again due to it being a limited size operation.

d. First Nations

The project is located within the traditional territories of several First Nations, as indicated by the Consultative database.

If you have any questions, please contact the undersigned by email:
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Regards,

Terus Construction Ltd.

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