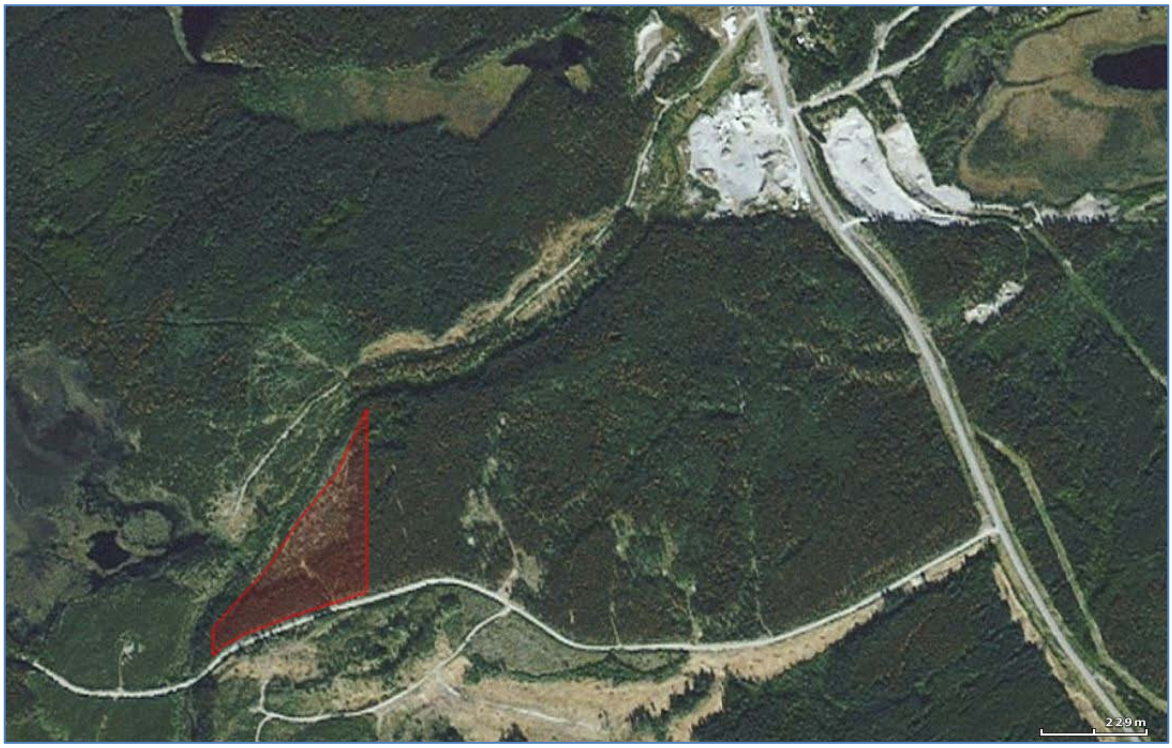
YCS Holdings Ltd. (dba Pittman Asphalt)

Mine Plan for the Dog Creek Aggregate Operation
Mine Development Period 2017 to 2026



Looking north across the proposed Dog Creek Aggregate Operation and existing MOTI operations

Map Sheet 093K.029 - UTM 10U: 416648E and 6014683N
Mine No. 1641360

GRAFF ENGINEERING INC.

August 2016

1.0 Introduction

This mine plan is being submitted by YCS Holdings Ltd. (dba Pittman Asphalt) (YCS), as a requirement of the ***Mines Act, RSBC 1996, Chapter 293*** *(Mines Act)* and the **Health, Safety and Reclamation Code for Mines in BC, 2008** (Code*)* for the proposed **Dog Creek Aggregate Operation** located near Ft. St. James, BC.

2.0 Project Overview

The project site is located on unsurveyed crown land in the vicinity of Dog Creek (Figure 1). The site is located ~19.9 km south of the center of Ft. St. James along Hwy 27 to Dog Creek FSR, and then ~1.5 km to the operating pit area.

This mine plan covers the mine development of the site between the years 2017 to 2026. It is expected that mining of the aggregate reserves over the next ten (10) years will be at a nominal mining rate of 25,000 m^3 or 50,000 tonnes per year, which will be used in production of asphalt and other construction by the company.

The mining area will be developed from a south to north direction, with widening to the west and east as required to allow for proper development. The northern (development) area of the mine permit area will be utilized for product stockpile development, while the area along the Dog Creek FSR will be used for topsoil/mineral soil stockpiles.

The proposed extraction (mining) faces will be three (3) to a maximum of seven (7) meters in height (Figure 4). These faces will be mined in accordance with **Part 6.23.4** of the Code. The mine development will result in ultimate pit walls along the limits of the development to be either at a 2:1 slope gradient and/or day lighted to contour.

It is anticipated that the mining and development will comply with the requirements of the *Mines Act* and Code. The operational intent for this proposal will be to locate equipment (mobile asphalt plant, loaders, trucks, crushing and screening plants) to the site during the work season (April to November).

The development is not expected to have any environmental and/or socio-community impacts given its relatively small size and comprehensive Mine Emergency Response Plan – MERP, where by the potential impacts should be limited. The company will have in-place; plans for archaeological chance find procedures and MERP (including fuel management & spill contingencies). Note: These particular plans are part of the attached.

The aggregate extraction project is expected to be developed in an environmentally sensitive manner, and YCS proposes to accomplish this by implementing plans, utilizing technology and using industry standard "best management practices" (BMP's) such as following the guidelines set forth by the "*Aggregate Operators Best Management Practices Handbook for British Columbia (April, 2002)"*

http://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/mineral-exploration-mining/documents/permitting/agg_bmp_hb_2002vol1.pdf

The company's objections will always be to either eliminate and/or minimize potential environment impacts associated with the project. It is expected that standard BMP's for sediment and erosion control procedures for aggregate operations in BC will be more than adequate for this particular site.

It should be noted that YCS is proposing during development, that a 5 meter buffer will remain between the LoO boundary and other portions of adjoining crown land, and will as well maintain a minimum forty (40) meter buffer between the operation and Dog Creek which is located north of the site, at all times.

Previous mining over the years by YCS on other properties in the northeast have not created any serious environmental impacts from their mining activities; therefore if this operation is developed following the "existing" mining operational philosophy, then there should be minimal if any potential impacts.

3.0 Project Description

3.1 Description of Work

The area of the proposed development is on un-surveyed crown land and is within the immediate vicinity of other aggregate extraction operations, which have been actively operated over the past several decades. The potential for aggregate materials from this particular site are based on a recent investigative test pit program and on other adjoining aggregate operations.

This mine (development) plan consists of operations, decommissioning of components and associated activities that would be typical for any small sized aggregate (sand and gravel) operation in BC.

As indicated previously, the operation will be in compliance with the Code, and will utilize the following equipment – loaders, excavators, tandem dump trucks, crushing and screening plants (when required) for excavation of aggregate products for the mobile asphalt plant and/or other construction requirements. The operation will use typical equipment similar to the Cat 966E - Front End Loaders, Cat 320C – excavator and tandem dump trucks.

3.2 Mine Plan

As previously stated the mining area will be developed from a south to north direction, with widening to the west and east as required to allow for proper development. The northern (development) area of the mine permit area will be utilized for product stockpile development, while the area along the Dog Creek FSR will be used for topsoil/mineral soil stockpiles.

The proposed extraction (mining) faces will be three (3) to a maximum of seven (7) meters in height (Figure 4). These faces will be mined in accordance with **Part 6.23.4** of the Code. The mine development will result in ultimate pit walls along the limits of the development to be either at a 2:1 slope gradient and/or day lighted to contour.

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 any TSS and turbidity of any contact surface waters (if required) will be achieved through use of erosion and sediment control measures, such as a sediment control ponds, silt fencing and straw (hay) bales. If there is any run-off developed from the operations which is not expected, than prior to release from the site, the TSS and turbidity criteria level values will meet provincial and federal guidelines.

3.3 Present State of Land

The project site is located within the Stuart Dry Warm Sub-Boreal Spruce (SBS) and subzone dw3 Biogeoclimatic unit. The climate of the SBSdw3 is warm relative to other Biogeoclimatic units in this region. Winter precipitation is relatively low for the subzone with snow packs generally accumulating up to about 2m in depth. Climatic growth-limiting factors are drought on drier sites and frost on frost-prone sites.

According to "*Ecosystems of British Columbia - BC Ministry of Forests*" and other sources, the following list of tree species are most commonly found in the SBSdw3 unit. Coniferous forests in this unit tend to be mixtures of Lodgepole pine, Douglas-fir, and hybrid white spruce with Lodgepole pine and/or Douglas-fir dominating on drier sties and hybrid white spruce dominating on wetter sites.

In an effort to achieve the above association, YCS will replant the site with Lodgepole pine and Douglas-fir. It is anticipated that some natural revegetation of shrubs and/or herbs such as Pinegrass, Cladonia, Feathermoss and Ricegrass will occur almost immediately following reclamation activities.

The vegetative cover for the site is currently "forested" consisting of a mixture of immature second growth forest plantation and older age trees typical of this Biogeoclimatic unit. The site is classified as upland landscape, which is treed (coniferous) but sparse. Figure 3 which is attached provides an excellent orthophoto view of the proposed aggregate operation, at this time.

There is no official community plan designation for the site and/or any land use zoning. It is expected that YCS will maintain an end land use of wildlife habitat and/or forestry for the site.

The topography of the site is gentle, and is dry with no watercourses that will be affected by the operations. Specifically, there are no ephemeral creeks and/or small wetland complexes within the land base.

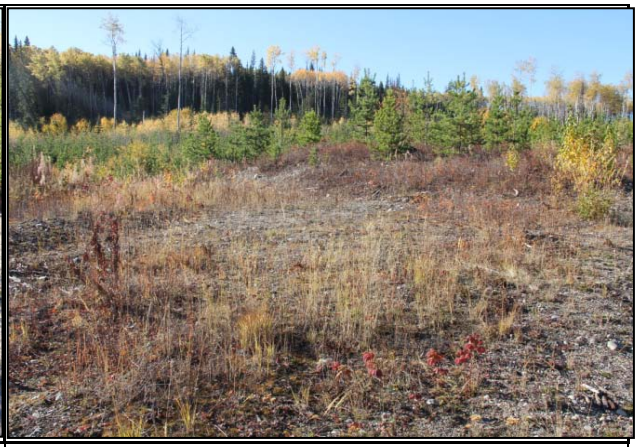
The development area is outside the ALR, but is within the Ft. St. James Timber Business Sales Area.

There are no known overlapping uses for the area, and the proposed aggregate operation should have minimal impacts given required compliance with the Code.

YCS will maintain a minimum forty (40) meter buffer between the operation and Dog Creek which is located north of the site, at all times.

The soils within proposed site are predominantly morainal materials. These deposits consist of gravelly clay loam and loam textures, associated with Gray Luvisolic soils, including Brunisolic Gray Luvisolics. Dystric Brunisols have formed on the coarser (gravelly sandy loam) morainal materials. Organic soils (Fibrisols) occur as a minor component of the morainal landscape. For this site, the soils tend to be very dry, and the retained nutrients are very poor to medium rich in quality. The thickness of the soil is limited; however YCS accepts the challenge to reclaim to the above preferred SBSdw3 species. It should be noted that every effort will be undertaken to achieve reclamation to these tree species.

Given the minimal soil depth, the salvage and stockpiling of these soils within a strategic location such as along the boundaries of the LoO and existing Dog Creek FSR, will be very important for YCS.

	
Typical present state of the area – August 2015	**Typical present state of the area – August 2015**

3.4 Reclamation

Reclamation Objectives

The reclamation of the Dog Creek Aggregate Project will follow the general guidelines recommended by Part **10.7.1** to **10.7.10** of the Code. It will be the intent of YCS, to prevent long-term environmental impacts at the site and to eliminate potential health and safety issues, as required. It is expected that the reclamation program will foster return to appropriate and functional values on the site.

The objective of the reclamation plan that follows is to create a physically stable environment, which is consistent with the requirements of the Code.

The end land use of the site will be a return to forestry values, which support wildlife habitat. To accomplish this, the following is proposed:

- Soil productivity and hydrologic function will be re-established to the extent possible. During development YCS will ensure all topsoil/sub-grade mineral soils have been salvaged, stockpiled and protected for use in reclamation of the site;
- The land surface and access roads will be left in a state that ensures long-term stability. As there is no surface drainages on site, they will not need to be restored; and
- The site will be re-vegetated to a self-sustaining state using suitable tree species as indicated previously.

It should be noted that YCS, 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.

Invasive Plant Management

In general terms, the invasive plant management for the site will include measures to prevent and control invasive plants and/or noxious weeds from becoming established on the site, including soil stockpiles, product stockpiles and site roads. In particular, invasive plant management on the site will emphasize stripping only the required amount of surface areas for short term mining, completion of rapid revegetation of cleared areas through growth of grasses, and undertake vigilant prevention and removal of problem plants during all phases of the project, in order to prevent the establishment and

spread of invasive and noxious plant species. Invasive plant management will be applied and be adaptively managed at the site.

The approach for the ensuring success with invasive plants will include:

- Prevention of invasive and noxious plant species establishment through use of best management practices (BMP's), such as minimizing soil disturbance, ensuring that at all equipment taken to the site has been thoroughly cleaned, and all soil & overburden stockpiles are covered (seeded) with a interior erosion control seed mixture;
- Proper identification and knowledge of invasive and noxious plant species gained through review of various publications provided by the Invasive Species Council of BC;
- All non-native invasive plant species, listed in the BC Weed Control regulations, as well as those priority invasive plant species listed by Invasive Species Council of BC, will be removed annually from the site prior to seed set. Native trees and shrubs that have establish naturally on the soil stockpiles and other stripped areas will be retained, as much as possible;
- Inventories, mapping, and monitoring of invasive and noxious plant species on the site, will be annually completed by the company;
- YCS will combine invasive plant management, with methods such as mechanical and biological controls; and
- YCS will periodically contract, if necessary, a qualified professional for invasive and noxious plant species management assessment of the site.

General Reclamation Concepts

In general, following finalization of mining operations, all equipment will be removed, the access road(s) will be decommissioned, and the site reclaimed to the noted above standard. The (final) reclamation activities will commence immediately once weather conditions are favorable for working the soil, and after all the product stockpiles have been removed from the site. Any final pit walls, which have not been resloped to 2:1 slope angle as part of operations will be recontoured, and any remaining pit floor and access roads that have not been scarified will be, then they will be capped with salvaged soils and revegetated (replanted) with the trees as indicated in Section 3.3 above.

Table 1 below provides a plan of reclamation activities for the project.

Table 1 Status of Area of Disturbance

Date	Undisturbed Area (ha)	Mining/Washing/SP Area (ha)	Reclamation Completed (ha)	Total Area (ha)
August 2016	6.1	0.0	0.0	6.1
August 2021	1.0	4.5	0.6	6.1
August 2026	1.0	0.0	5.1	6.1

It is expected that overall, the reclamation activities for the site will generally consist of the following:

- During operations, stripping and stockpiling of topsoil and sub-grade mineral soil will be undertaken, whereby both the topsoil and sub-grade mineral soils will be mixed together given the negligible amounts of soils. The topsoil/sub-grade mineral soils will continue to be stripped to rooting depth. Working of soils during wet conditions will continue to be avoided and/or minimized. The (salvaged) soil stockpiles will be clearly delineated from adjacent areas in order to prevent equipment from driving over the stockpiles and/or mixing aggregate materials with soils throughout the operational periods. This delineation will be developed by stockpiling (windrowed) soils along the LoO boundaries. The soil stockpiles will be constructed with 3:1 slopes, average 3m in height and will not be moved and/or disturbed during operations, expect when required for use in the reclamation of the site. The soil stockpiles will be seeded with an appropriate interior seed mixture, in order to prevent erosion and/or noxious weed invasion. Noxious weeds will be controlled by both mechanical and/or chemical (approved weed control products) means, as necessary;
- Utilization of soil salvage stockpiles for reclamation purposes will include soil replacement onto resloped pit faces, and placement of soils onto the scarified pit floor areas. The replaced soil materials will be left in a rough and loose mounded condition, in order to create micro sites to aid vegetation establishment, promote soil moisture infiltration and minimize the development of rills and channels for water erosion;
- Reclamation operations will establish final (ultimate) pit walls to a 2:1 slope angle;
- There will be re-contouring of any sediment basins constructed;
- The compaction of pit floors and access roads will be scarified by tilling with a winged sub-soiler to a minimum 50 cm depth;
- Decommissioning and removal of all mine site infrastructure will occur;
- If required, hydro seeding, fertilizing and application of a mulch application would be undertaken, to enhance revegetation and/or prevent erosion. The proposed hydro seeding mix might consist of 50 kg/ha of perennial native interior seed mix, 2,000 kg/ha of wood fibre mulch with 80 kg/ha non-asphaltic tackifier. Reclaimed areas would be completely seeded with the grass/legume mix to control erosion and/or maintain or increase soil productivity. Some quick establishing agronomic species such as hard fescue, alsike clover, white clover and hairy wild rye would be used in revegetation efforts of the reclaimed areas, since they are usually successful in a variety of site/soil types and climates. 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. The proposed interior (erosion control) seed mix would have a range of years of longevity after application. Most annuals will die out after 2 to 3 years, at which by this time other native grasses and herbs will have been established on the site;
- To promote structural and species diversity for the benefit of wildlife habitat and biodiversity, tree planting in clusters using the suggested trees species as noted in Part II, along with some deciduous tree species will be undertaken as part of the reclamation program. YCS will have

tree seedlings planted on site to achieve a target stocking rate of 900, well-spaced trees per hectare at the free growing stage. To achieve this target, approximately 1350 seedlings/ha (coniferous and deciduous combined) will be planted;

- There will be placement of appropriate signage and marker berms to indicate potential hazards;
- If necessary there will be a completion of a soil sampling and testing program that would delineate any contaminated areas as required by the *Contaminated Site Remediation, Environmental Management Act;* and
- There will be post-closure maintenance and monitoring programs carried out for two (2) years, as necessary.

It will always be the intent of YCS to achieve the following reclamation goals:

- Minimize or eliminate public safety hazards;
- Minimize potential effects to the environment, particularly water resources;
- Provide long-term stable landform configurations;
- Reclaim surface disturbances for beneficial use; and
- Minimize the requirements for post-closure monitoring and 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 be left in a safe and secure manner for the long-term with little projected maintenance.

YCS will deem the reclamation successful, if the following performance criteria and trends are observed:

- Soils are stable and no rill or gully erosion is occurring;
- Native plant species cover is increasing annually;
- Non-native invasive plant species are not present on the site; and
- A self sustaining, free-growing forest stand has been established that exceeds the minimum stocking standard suggested.

Long-term Stability

With no settling or tailings ponds, dams or waste dumps this means that 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*.

If you have any questions, please contact the undersigned by email Erwin.Spletzer@terusconstruction.ca or (604) 575-3689.

Regards

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