



Chilliwack River
Watershed Strategy

DRAFT Issues & Alternatives Document

MINING

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Chilliwack River Watershed Strategy Issues & Alternatives:

MINING

1.0 General Description of the Issue

Mineral products remain in high demand in BC as well as in other markets worldwide. The local geology, the access to relatively low-cost power and abundant surface water, local and international development pressures, and a Provincial government that has actively promoted mining activity in BC has combined to create a substantial mining sector in British Columbia worth approximately \$4.9 billion.¹

In the Chilliwack River Watershed, mining has occurred for over 100 years, with the Red Mountain Mine operating from 1899 to 1942. Gold ore from this mine was packed out by horse from the mine site south of Slesse Creek to a base camp and homestead located in the current Bell Acres area.² Today, numerous metal mineral tenures exist within the watershed, but the primary mineral products extracted include construction and industrial products such as sand and gravel aggregates.

Although current mining practices and regulatory requirements help to avoid the degree of environmental impacts associated with the poorly designed legacy mines such as Britannia Mine or the non-reclaimed pits and quarries, environmental impacts from mining are seldom completely mitigated or avoided. Cumulative impacts are of particular concern.

There are a number of environmental impacts, or potential impacts, associated with mining activity, including:

- Increased access to back-country areas
- Visual impacts (creation of an unnatural viewscape)
- Noise/vibrations and dust (from equipment operations, loading and transportation, blasting, etc.)
- Habitat disturbance (removing existing ground cover, soil exposure, potential alterations to surface or subsurface ecosystems, introduction and spread of invasive species, etc.)
- Water quality impacts (increased suspended sediment, turbidity, acid rock drainage, potential for contamination from fuel products, potential for ground water contamination, overflow from tailing ponds, etc.)
- Hydrological impacts (including sediment deposition, disturbances to groundwater recharge rates, lowering groundwater table, etc.)

In addition to the physical disturbance caused to biota resulting from vegetation and soil removal, mining impacts on water quality and sedimentation, both locally and

¹ Value based on 2005 marketed mineral production, from: BC Ministry of Energy, Mines, and Petroleum Resources Website. Available: <http://www.em.gov.bc.ca/Mining/MiningStats/08pdn&valuehistory.htm> (Feb 23, 2007). (Note: reported value excludes the value associated with oil and gas products.)

² FVRD, 1983

downstream, can have significant negative consequences to fish and wildlife. Table 1 describes some of the key water quality concerns associated with land-based aggregate operations. While water contamination and toxicity is more often associated with metal mines and open pit mines, added sediment and turbidity are the primary concerns from aggregate operations. Aggregate operations can also result in chemical contamination of surface or ground water however, from the accidental spillage or leakage of onsite chemicals such as fuel, oil, pesticides, etc.

The primary downstream concerns associated with aggregate extraction, namely elevated suspended and deposited sediment, can be very detrimental to aquatic organisms via a number of mechanisms:

- Reducing light penetration and aquatic plant photosynthesis (less primary and secondary productivity)
- Abrasive injury to sensitive tissues or species (e.g., fish gills, aquatic plants)
- Clogging fish gills
- Filling the interstitial spaces between instream gravel, resulting in loss of effective spawning habitat, suffocation of spawned eggs, and reduced habitat for many aquatic invertebrates
- Increasing sedimentation and downstream deposition may alter normal stream hydrology and flow patterns, or lead to the partial or complete loss of semi-closed or protected environments such as side channels or wetlands

Table 1 Water quality impacts from aggregate operations (from BC Ministry of Energy and Mines, 2002)

Water Quality Factor	Description	Sources	Issues
pH	Relative acidity of the water	<ul style="list-style-type: none"> • Acid rock drainage • Limestone • Metal leaching 	<ul style="list-style-type: none"> • Sand and gravel deposits will generally NOT have acid rock drainage, but quarry rock (particularly limestone) could • pH changes influence water chemistry and substances' solubilities and bio-availabilities.
TSS (total suspended solids)	Small sediment (sand, silt, clay) that remains in suspension	<ul style="list-style-type: none"> • Stormwater/runoff • Seepage • Processing • Dust suppression 	<ul style="list-style-type: none"> • Excess TSS can be very detrimental to fish health and reproductive success
TDS (total dissolved solids)	Soluble solid particles in water	<ul style="list-style-type: none"> • Metal leaching and calcite veins 	<ul style="list-style-type: none"> • Excessive TDS could increase water toxicity
Turbidity	Measure of water clarity	<ul style="list-style-type: none"> • Stormwater/runoff • Seepage & Washing • Dust suppression 	<ul style="list-style-type: none"> • Reduces visibility by predators (or prey) • Reduces amount of light available for aquatic plants (therefore less food for fish)
Hydrocarbons	Petroleum products	<ul style="list-style-type: none"> • Spills and leakage • Fueling • storage 	<ul style="list-style-type: none"> • Direct toxicity impacts • Oil may adhere to fish gills, reducing survival • May reduce productivity of algae
Temperature	Water temp (particularly temperature increases)	<ul style="list-style-type: none"> • Stormwater/runoff • Riparian veg removal • Settling pond discharge 	<ul style="list-style-type: none"> • Largely results from decreased shade to water • Retaining riparian vegetation should help alleviate temperature increases
Nitrogen	Nitrogen compounds	<ul style="list-style-type: none"> • Residue from blasting; • over fertilization 	<ul style="list-style-type: none"> • eutrophication • toxicity

2.0 Specific Location/Examples

Minerals and other products mined from within the Chilliwack River Watershed have included gold, ore, limestone, dimension stone, copper, silver, lead, zinc, and aggregate (sand and gravel). According to the Mineral Titles Online website³, as of January 2007 there were 36 mineral tenures, with 14 different mineral tenure holders, staked within the Chilliwack River Watershed (Figure 1, Table 2). These mineral tenures, which do not include sand and gravel quarries, cover 100.7 square kilometers, or approximately 15% of the watershed area north of the Canada-US border. There are no active metal mines in operation within the Chilliwack River Watershed at this time.⁴

Sand and gravel resources mostly occur along the banks, streambed, and zones of accretion within the floodplain of the Chilliwack River. Based on provincial databases, the Province currently has five aggregate tenures within the watershed: three by the Ministry of Transportation, and two by the Ministry of Energy, Mines, and Petroleum Resources (Figure 1, Table 2). Of these quarries, one is known to be active at this point (MOT's Slesse Quarry, near the Slesse Bridge), and another (MOT pit near Ford Mt Correctional Centre) may be periodically active. The active status of this latter quarry has yet to be verified however.

In addition to the Crown aggregate sites, there are also a couple of privately operated sites (Figure 1):

1. The Soowahlie First Nation operates a quarry site within their Reserve lands.
2. A private proponent, under a License of Occupation issued by the Province in 2006, operates an active gravel quarry along Borden Creek, approximately 2 km west of Slesse Creek, along the south side of Chilliwack Lake Road. At the time of application, it was expected that extraction from the site could involve as much as 100,000 cubic metres per year over a ten-year (or longer) period, with an average of 20 truck loads hauled out per day.

In-stream gravel removals are not discussed in this report due to the unique issues pertaining to in-stream operations (see: River Hazards Issues and Alternatives Report).

Due to mining legislation in BC, very few land designations can prohibit mining activities. Two notable exceptions include parks and Mineral Reserves (also known as "No Registration Reserves" or "No Staking Zones"). Within the Chilliwack River Watershed, there are two Provincial Parks (Chilliwack Lake Provincial Park and Chilliwack River Provincial Park), and two FVRD Parks (Thompson Park and Cheam Ridge), and nine current Mineral Reserves⁵ (Figure 2). Five of these Mineral Reserves are protected for forest value, one for a federal fish hatchery, one for military use, one for a commemorative site, and one for a potential ski development. It is worth noting

³ Mineral Titles Online Website. Available: www.mtonline.gov.bc.ca (Jan 24, 2007).

⁴ Steven Wuschke, Personal Communication. Ministry of Energy, Mines, and Petroleum Resources. Mar 2, 2007.

⁵ Integrated Land and Resource Registry (ILRR) Website. Available: <http://ilmbwww.gov.bc.ca/ilrr/ILRR.htm> (Feb 20, 2007).

however that Mineral Reserves prohibit mineral exploration and extraction, but do not prohibit aggregate activity.

Community concerns related to mining that were raised during the Chilliwack River Watershed Strategy public outreach activities in December 2005 were largely focused on potential impacts on water quality. These water quality concerns pertained to both environmental impacts and the potential for drinking water contamination as a result of mining activities within the watershed.

In addition to the concerns raised by the community, there have also been concerns raised by the CRWS project team regarding the potential impact of mining activities on karst formations in the area, particularly in the vicinity of Chipmunk Caves (near the confluence of the Chilliwack River with Foley Creek/Chipmunk Creek – see Figure 2). Karst formations, particularly caves, have a unique ecosystem, with flora and fauna that have adapted to a particular light, temperature, and humidity range associated with the caves. Quarrying activities occurring in proximity to these habitats can endanger the unique conditions, and the biota dependent on these conditions, within these formations.⁶

⁶ Langer, 2001.

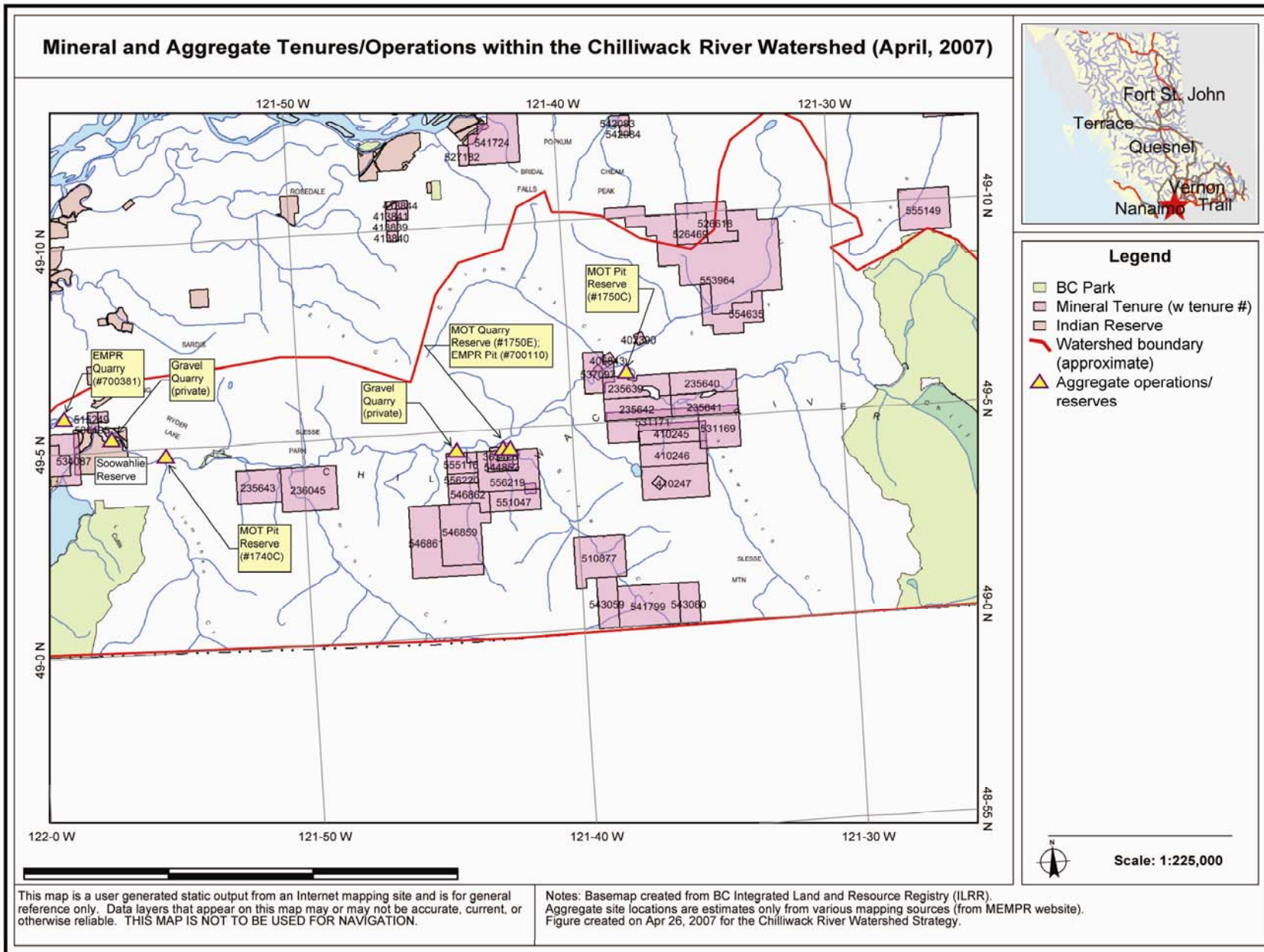


Figure 1 Mineral tenures and aggregate sites within the Chilliwack River Watershed (as of April, 2007 – from BC Integrated Land and Resource Registry).

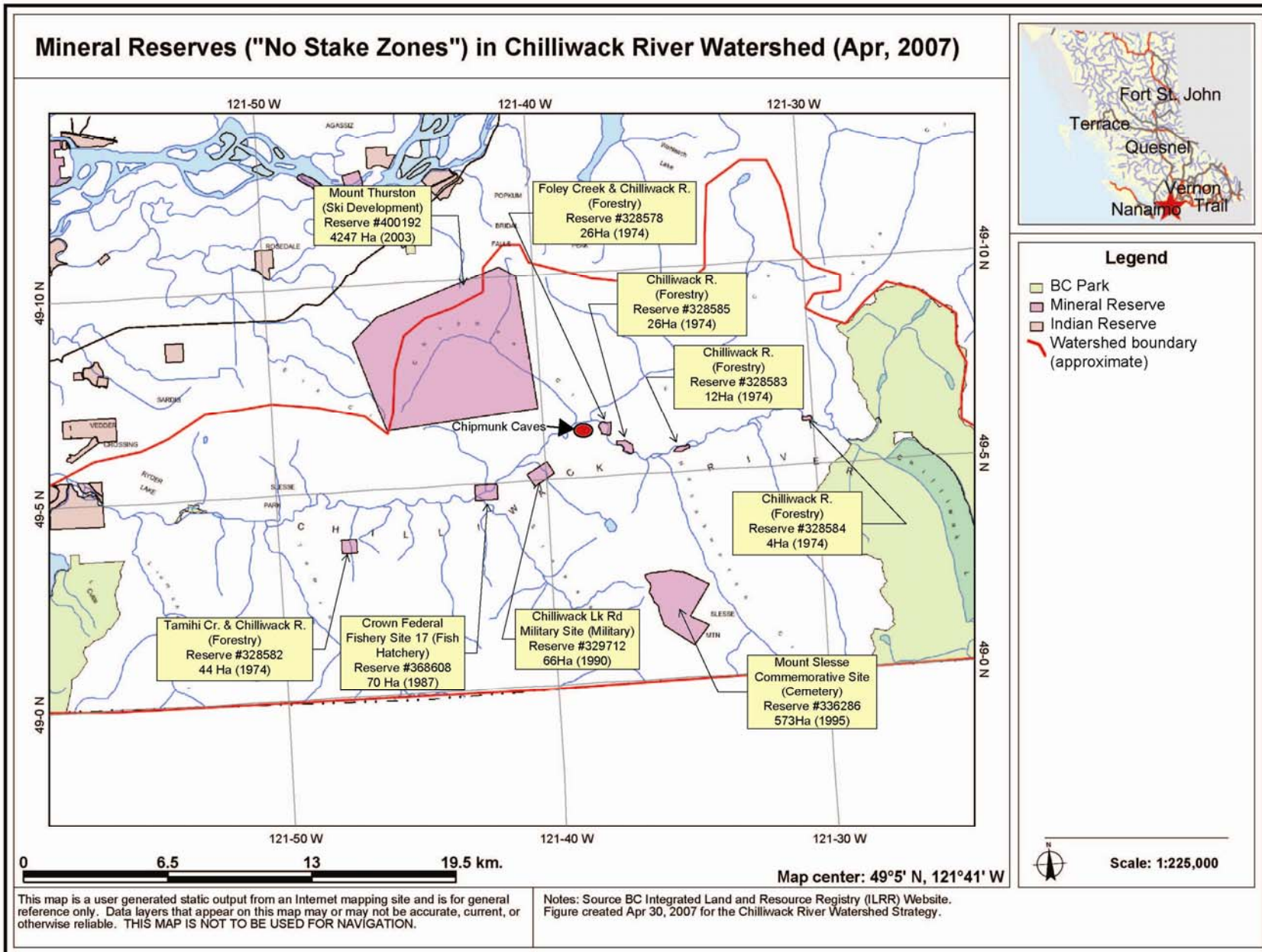


Figure 2 Mineral Reserves ("No Stake Zones") within the Chilliwack River Watershed (as identified from BC Integrated Land and Resource Registry).

Table 2 Existing mineral and Crown aggregate tenures within Chilliwack River Watershed (as of Jan, 2007).^{1 2}

Tenure No.	Tenure Type	Claim Name	Owner/Client Name	Good To Date	Area (Ha)
235397	Mineral	MINT 1	G.S.M.Y. DEVELOPMENTS LTD.	2015/mar/29	25
235639	Mineral	LIL BRAT 51	SAVEGE, JOHN HENRY	2007/dec/04	300
235640	Mineral	LIL BRAT 52	SAVEGE, JOHN HENRY	2007/dec/04	300
235641	Mineral	LIL BRAT 53	SAVEGE, JOHN HENRY	2007/dec/04	300
235642	Mineral	LIL BRAT 54	SAVEGE, JOHN HENRY	2007/dec/04	300
235643	Mineral	LIL BRAT 20	SAVEGE, JOHN HENRY	2007/dec/04	300
236045	Mineral	LILBRAT 21	SAVEGE, JOHN HENRY	2007/nov/28	500
402390	Mineral	KC 3	JONES, ROY KENNETH	2008/may/03	25
402473	Mineral	LEVI	VANDER KOOI, DARIN	2007/may/20	25
406843	Mineral	KC 1	JONES, ROY KENNETH	2007/nov/30	25
409495	Mineral	BODE	MORGAN, ROBERT ALAN	2007/apr/12	25
410245	Mineral	OPHIRA #1	G.S.M.Y. DEVELOPMENTS LTD.	2015/may/07	300
410246	Mineral	OPHIRA #2	G.S.M.Y. DEVELOPMENTS LTD.	2015/may/07	300
410247	Mineral	OPHIRA #3	G.S.M.Y. DEVELOPMENTS LTD.	2015/may/07	450
510877	Mineral	(not provided)	MOORE, DEREK NEWELL	2007/oct/01	445
526469	Mineral	LUCKY FOUR	DOUBLE CROWN VENTURES LTD.	2007/jan/27	190
526618	Mineral	LUCKY FOUR EAST	DOUBLE CROWN VENTURES LTD.	2007/jan/29	254
529741	Mineral	DC 1	DOUBLE CROWN VENTURES LTD.	2007/mar/08	528
529743	Mineral	DC 2	DOUBLE CROWN VENTURES LTD.	2007/mar/08	528
529744	Mineral	DC 3	DOUBLE CROWN VENTURES LTD.	2007/mar/08	528
529745	Mineral	THE HANDLE	DOUBLE CROWN VENTURES LTD.	2007/mar/08	169
530148	Mineral	TROOPER	DOUBLE CROWN VENTURES LTD.	2007/mar/17	254
530371	Mineral	SLESSE GOLD	KARAFKA, MIKE	2007/mar/21	85
531169	Mineral	JOY22	WADE, JUDITH	2007/apr/04	339
531171	Mineral	JOY23	WADE, JUDITH	2007/apr/04	444
531772	Mineral	SLESSE 4	SHEARER, JOHAN THOM	2007/apr/11	360
537097	Mineral	SLESSE NOR	SHEARER, JOHAN THOM	2007/jul/13	211
541799	Mineral	SILESIA	SAUER, BRIAN ROBERT	2007/sep/21	509
543059	Mineral	WEST SLESSE	MOORE, DEREK NEWELL	2007/oct/12	212
543060	Mineral	EAST HOL SLESSE	HOLMES, GRAHAM HENRY	2007/oct/12	170
544852	Mineral	SLESSE FRACTION	SHEARER, JOHAN THOM	2007/nov/03	106
544894	Mineral	IRON	NORWEST ENTERPRISES INC.	2007/nov/04	191
546283	Mineral	ORE	NORWEST ENTERPRISES INC.	2007/dec/01	148
546859	Mineral	BORDEN 1	DEERING, DAVID ROBERT	2007/dec/08	529
546861	Mineral	BORDEN 2	DEERING, DAVID ROBERT	2007/dec/08	529
546862	Mineral	BORDEN 3	DEERING, DAVID ROBERT	2007/dec/08	169
1740C	Crown Aggregate	LIUMCHIN PIT (reserve)	MINISTRY OF TRANSPORTATION		
1750C	Crown Aggregate	PIERCE PIT (reserve)	MINISTRY OF TRANSPORTATION		
1750E	Crown Aggregate	SLESSE QUARRY (res)	MINISTRY OF TRANSPORTATION		
700110	Crown Aggregate (pit)	S. SLESSE QUARRY	MINISTRY OF EMRR		
700381	Crown Aggregate (quarry)	VEDDER MT QUARRY	MINISTRY OF EMRR		

¹ Mineral Titles Online Website. Available: www.mtonline.gov.bc.ca (Jan 24, 2007).

² Thurber Engineering Ltd. and Chartwell Consultants Ltd. 2005. Map: Fraser Valley Regional District Inventory of Aggregate in Identified Areas (Map Numbers 92H.001, 92H.002).

3.0 Contributing Factors/Causes

The following factors are noted as contributing to, or potentially contributing to, mining-related concerns within the Chilliwack River Watershed:

- Increasing awareness of potential cumulative impacts associated with mining (particularly from high exposure legacy sites including Britannia Beach)
- Increasing concern over environmental issues
- Increasing non-mining interests within the watershed (e.g., recreation, fisheries)
- Lack of comprehensive land-use planning for the watershed
- Lack of public involvement or input into siting decisions for mining activities
- Increasing number of mineral tenures/exploration activities within the watershed due to:
 - higher demand for mining products (particularly aggregates)
 - active promotion of the industry by the Provincial government through reduced taxes, streamlined regulatory environment, and web-based tools such as Mineral Titles Online
- Lack of long-term water quality monitoring studies (baseline data)
- Lack of required downstream water quality monitoring by mining proponents
- Lack of information regarding the mining history and reclamation efforts on historical mine sites (e.g., Red Mountain Mine)
- Lack of enforcement capabilities within EMPR – the limited number of mine inspectors results in prioritized enforcement efforts leading to cumulative effects and reactive measures (i.e., the impact is already made).

4.0 Overall Level of Community Concern

Although some comments pertaining to the potential effects of mining activities on drinking water and water quality were expressed by members of the public during outreach activities, the overall level of concern regarding mining in the Chilliwack River Watershed appears to be relatively low at this time. Increased awareness of the issue and increased mining activity could raise this level of concern in the future however.

5.0 Past and Current Policies or Actions to Address the Issue

5.1 *Regulatory Permitting Framework*

A number of government agencies play a role, to varying degrees of authority and mandate, in permitting requirements for mining and quarry operations. While Mineral Tenures are issued by the Ministry of Energy, Mines, and Petroleum Resources, Crown land tenures for aggregate removal are issued by the BC Integrated Land Management Bureau. A number of other certificates, permits, and authorizations are also required, including a Free Miner Certificate (from any BC government office), a Notice of Work exploration permit (from ILMB and/or EMPR), a License of Occupation (from ILMB), and a Mines Act Permit (from EMPR). Aggregate operators on private land require a

Mines Act Permit, but permits associated with ownership or occupation rights are not required since surface materials are considered property of the landowner.

Environmental conditions and standards are often attached to many of these permits; for example, exploration permits or Mines Act Permits often have provisions that prohibit any onsite fuel storage in order to avoid any accidental spills or leaks on sensitive sites.³ Mine permits, and the conditions attached to them, only pertain to the specific site in question however – they do not have provisions for impacts on the receiving environment, and do not adequately address cumulative impacts.

Besides EMPR and ILMB, other government agencies with jurisdiction over certain aspects or potential impacts from mining activities include: Fisheries and Oceans Canada (DFO), Environment Canada, BC Ministry of Environment (MOE), BC Ministry of Forests and Range (MOFR), and local governments. Roles and requirements of various government agencies pertaining to mining activities are provided in Table 3.

Table 3 BC mining regulatory and permitting framework (adapted from BC Ministry of Energy and Mines, 2002).

Agency	Authority	Mandate	Permits/ Approvals	Role
DFO	<i>Fisheries Act</i>	Prevent harmful alteration, disruption, or destruction of fish habitat, or the deposition of substances deleterious to fish	HADD authorization, referrals	Case-by-case evaluations; legal requirements for mitigation or compensation
Environment Canada	<i>Fisheries Act, CEAA, CEPA, Migratory Birds Convention Act, Species-at-Risk Act</i>	To provide protection of migratory birds and SARA species on federal lands; sets out CEAA and metal mining requirements	EEM and CEAA authorizations (when applicable), permits required to alter or disturb migratory bird site	Regulates Environmental Effects Monitoring (EEM); however, most mining activity does not trigger either EEM or CEAA studies
EMPR	<i>Mines Act, Mineral Tenures Act</i>	Regulates mining activity in BC (including health of public and minimizing environmental impacts)	Mines Act Permit, Notice of Work application, Mineral Tenures	Conditions or provisions on permits to mitigate environmental impacts; regular inspections to assess compliance
ILMB (and Ministry of Agriculture and Lands)	<i>Land Act, Water Act, Agriculture Land Reserve Act</i>	To provide long-term and sustainable management	Exploratory licenses, License of Occupation, Water Act	Conditions and requirements may accompany permit approvals; Park

³ Steven Wuschke, Personal Communication. Ministry of Energy, Mines, and Petroleum Resources. Mar 2, 2007.

Agency	Authority	Mandate	Permits/ Approvals	Role
		direction of BC land, water, and resources	authorization (to use, divert, or store water); Soil removal permit (if on ALR land).	creation
MOE	<i>Environmental Management Act, Wildlife Act, Water Act, Environmental Assessment Act</i>	To protect, manage, and conserve water, land, air, and biota	No specific permits are required; referrals occur only minimally	Minimal role - will potentially have greater authority regarding species at-risk under expected <i>Wildlife Act</i> amendments.
MOFR	<i>Forest Act, Forest Practices Code of BC Act</i>	To regulate timber harvesting and forest management	May be required: Special Use Permit, Road Permit, Free Use Permit, Burning Permit, License to Cut	Permits required when site requires tree removal or use of MOFR roads
Local government	<i>Local Government Act</i>	To represent the interests and needs of the community	Permits may be required under soil removal bylaws or on-site processing bylaws	Local governments cannot prohibit mining, but they can require conditions under which it may occur

In addition to the above regulatory requirements and standard referral processes, a Ministry may apply for a Notation of Interest for a particular area to ensure that their Ministry is sent a referral. This allows an agency to require specific conditions or mitigative measures to be attached to a tenure application to ensure that any land use on the area proceeds in a manner that protects the interests of the referred Ministry. Notations of Interest can be held for a maximum of five years, with possibilities for renewal.

5.2 Mineral Act Reserves

Mineral Reserves (previously called “No Staking Reserves”), can be established by regulation under Section 22 of the BC *Mineral Tenures Act* to prohibit prospectors from establishing a mineral claim and from conducting mining activities. These have been established for areas where mining activity could threaten either present or potential uses of the land (e.g., hydro or pipeline rights-of-way, archaeological sites, cemeteries, or a proposed protected area), or to protect environmental value of the land (e.g., wildlife, forests, and fisheries values). Mineral reserves can either restrict mining activities absolutely (No Registration Reserves, which prohibit free miners from registering a mineral claim over a parcel of land), or can require certain conditions be met

(Conditional Reserves) to ensure the mining activities do not negatively impact specified surface uses or values of the land.⁴ These reserves do not apply to aggregate operations.

Applications for requesting a reserve can be submitted by any government agency or member of the public to EMPR. Applications require information pertaining to the reason for requesting a reserve, geographic area and legal description of the parcel, and any unique terms or conditions required (for Conditional Reserves). Applications are reviewed by staff in the Mineral Titles Branch and by land planners for the region, who approve or deny the request on such grounds as the completeness of the application, mineral potential of the area in question, other pre-existing uses of the land, etc. If approved, a Regulation is prepared establishing the reserve. This regulation first goes through legal review by Legislative Counsel, and then to the Chief Gold Commissioner for review and authorization. Reserves are then revisited periodically (depending on the duration given in the Regulation) by EMPR, where the reserve status can be rescinded, amended, or renewed.

5.3 *Industry Guidelines and Best Management Practices*

As part of the ‘shared stewardship model’ that puts a greater reliance on stakeholders, professionals, and proponents for ensuring environmental protection, the Province has shifted in recent years from a highly regulatory and referral-based management of mining to one that utilizes best management practices and guidelines that help to address environmental issues.⁵ The newly drafted Mineral Exploration (MX) Code and the Aggregate Operators BMP Handbook provide two examples of these strategies.

The Mineral Exploration Code⁶, which was originally prepared through collaborations between Ministry of Forests and Range, Ministry of Environment, and EMPR, was prepared to “develop a code that would contain standards for mineral and coal exploration activities and would revise and streamline the process for permitting these activities” (p1). One of the purposes of the MX Code is to minimize or manage impacts of mineral exploration activities on other resources, such as timber, fish and wildlife, water quality, and cultural heritage resources.

As part of these standards, the MX Code includes a number of guidelines for riparian management. Included in these provisions for riparian habitat protection are establishing riparian setbacks. Setback widths of between 5 and 70 metres are described, depending on the width of the stream or size of the wetland, and for either drilling or exploration access. These setbacks can be reduced however “when no other practical option exists” (p20). In these cases, a management plan shall be required to show how environmental impacts will be minimized or avoided due to their mining activities.

Other riparian management provisions include the preservation of wildlife trees (“Wildlife trees located within riparian setbacks should not be removed unless

⁴ Ministry of Energy, Mines, and Petroleum Resources Website. Available: <http://www.em.gov.bc.ca/mining/titles/infoupdate/infoUpdate10.htm> (Feb 28, 2007).

⁵ Mike Willcox, Personal Communication. BC Ministry of Environment. Mar 6, 2007.

⁶ Ministry of Energy, Mines and Petroleum Resources and Ministry of Environment, 2006.

recommended by a wildlife tree hazard assessment”, p24), and the protection for species at risk (“Explorationists should consider the potential presence of species at risk in their areas of work and particularly in riparian areas where many species at risk or critical habitats may be found”, p24).

A number of best management practices are outlined in the Aggregate Operators BMP Handbook⁷ to help reduce environmental impacts associated with mining operations, including practices for stormwater and erosion control. Some of these practices include engineered solutions (settling ponds, retention basins, hydroseeding, etc.), keeping existing vegetation intact, limiting slope steepness and length, and providing regular maintenance and operational inspections. These BMPs are designed to help the aggregate operator “to prevent, reduce or mitigate various undesired impacts that an operation may cause.” (p2). Although BMPs are voluntary in nature, their use can be required under permit conditions as established by the appropriate agency.

5.4 Environmental Effects Monitoring (Environment Canada)

Environmental Effects Monitoring (EEM) is required of metal mines regulated by the Metal Mining Effluent Regulations (MMER) under the *Fisheries Act*. EEM studies involve extensive on-site and effluent sampling and monitoring, including fish surveys, fish health, water quality, lethal and sub-lethal toxicity testing, sediment sampling, and benthic invertebrate community monitoring. EEM applies to metal mines that exceed a minimum effluent flow rate and that deposit deleterious substances subject to Section 36(3) of the *Fisheries Act*.⁸ There are approximately 90 metal mines across the country subject to the MMER; however, there are no metal mines that require EEM studies within the Chilliwack River Watershed.⁹ Gravel pits or rock quarries are not subject to MMER.

5.5 Environmental Impact Assessment Criteria

The *BC Environmental Assessment Act* (2002) establishes requirements for environmental impact assessments to be completed for mines that reach a minimum production threshold. These thresholds include:¹⁰

- New Facility Thresholds:
 - 75,000 tonnes of mineral ore production per year (for mineral mines)
 - 500,000 tonnes of sand and/or gravel production per year, or 1,000,000 tonnes over four years (for sand and gravel pits)
- Facility Modification Thresholds:
 - Mine with either 50% or more increase in area of mining disturbance, or 750 ha or more new disturbance (mineral mines)
 - 35% or more increase in area of mining disturbance (sand and gravel pits).

⁷ BC Ministry of Energy and Mines, 2002.

⁸ Environment Canada Metal Mining EEM Website. Available: <http://www.ec.gc.ca/eem/english/MetalMining/default.cfm> (Feb 27, 2007).

⁹ Mike Hagen, Personal Communication. Environment Canada. January 24, 2007.

¹⁰ BC Ministry of Energy, Mines, and Petroleum Resources' Programs and Services Website. Available: http://www.em.gov.bc.ca/subwebs/mining/Project_Approvals/permreq/default.htm (Feb 22, 2007).

These thresholds have not triggered EAA requirements for any existing mining operation within the Chilliwack River Watershed.

The *Canadian Environmental Assessment Act* (CEAA), which came into effect in 1995, does not contain the same minimum thresholds for projects as seen with the BCEAA. It is triggered whenever a federal permit is required, such as a Fisheries Act permit, but it is discretionary in nature¹¹ and is subject to federal-provincial EA harmonization agreements. Excluding in-stream gravel removal, the Canadian Environmental Assessment Registry does not include any mining-related environmental assessments that have been initiated for the Chilliwack River Watershed under CEAA.

5.6 Local Government Bylaws

Although local governments cannot prohibit mining operations, they do have the authority to create bylaws influencing how mining can occur. The following FVRD Bylaws have a direct affect on mining activities within the Chilliwack River Valley (Electoral Area “E”).

1. Soil Removal and Deposit Bylaw¹²: This bylaw establishes lands where a permit is required by the FVRD before the landowner removes or deposits more than 200 cubic metres of soil in a five year period. Permit applications are required to include detailed descriptions about methodologies to prevent negative environmental impacts and professional assurances that the provisions are going to be implemented. The Soil Removal and Deposit Regulation Area, within which this Bylaw applies, includes most of the areas along the Chilliwack River mainstem and the area around the north end of Chilliwack Lake (see Appendix A).
2. Rehabilitation requirements: The FVRD Official Settlement Plan for the Chilliwack River Valley¹³ recommends that all resource extraction sites should be redeveloped and rehabilitated so that it returns to “as natural a state as possible” following abandonment or termination of resource extraction operations (Section 8).
3. Zoning Bylaw: As outlined in the FVRD Official Settlement Plan for Electoral Area “E” (Bylaw No. 400, 1983), “Except where specifically prohibited, forestry, mining and reclamation will be permitted in LIMITED USE areas” (Part III, Limited Use Policies). Over 87% of the Chilliwack River Valley (Electoral Area “E”) is zoned LIMITED USE. Although it is permitted, the zoning bylaws do regulate crushing and processing of mineral resources.

¹¹ Boyd, 2003.

¹² Fraser Valley Regional District, 2006

¹³ Fraser Valley Regional District, 1983.

6.0 Relevant Jurisdictions and Legislation

The following is a brief synopsis of legislation and regulations that apply to mining and aggregate operations in British Columbia. Appendix A provides additional details from the key pieces of legislation.

6.1 Federal

Fisheries Act (1985)¹⁴

- Section 35 (1) No person shall carry on any work or undertaking that results in the harmful alteration, disruption or destruction of fish habitat.
- Section 36 (3) ... no person shall deposit or permit the deposit of a deleterious substance of any type in water frequented by fish...

Fisheries Act, Metal Mining Effluent Regulations (2002)¹⁵

- Does not include sand or gravel removal in their definition of “mine”
- Establishes conditional authority by a mine operator to deposit a deleterious substance under specified criteria.
- Requires Environmental Effects Monitoring and toxicity testing for metal mines

Canadian Environmental Assessment Act (1992, c.37)¹⁶

- CEAA is triggered whenever a federal permit (i.e., Fisheries Act permit by DFO) is required, and does not contain minimum thresholds as seen with BCEAA.
- Does not apply to government policies, plans, and programs
- Includes requirements for public participation and incorporation of Aboriginal traditional knowledge.

6.2 Provincial

BC Mines Act (1996)¹⁷

- Defines mining activity as “the exploration and development of a mineral, a placer mineral, coal, sand, gravel, or rock...”
- Establishes requirements for mining permits (Section 10: “Before starting any work in, on or about a mine, the owner, agent, manager or any other person must hold a permit issued by the chief inspector...”)

BC Mineral Tenure Act (1996)¹⁸

- Section 1: Definition of mineral does not include sand or gravel or “rock or a natural substance on private land that is used for construction”
- Sections 8, 11: Conditions for a Free Miner Certificate

¹⁴ Available at: <http://laws.justice.gc.ca/en/F-14/index.html> (Jan 4, 2007)

¹⁵ Available at: <http://laws.justice.gc.ca/en/F-14/SOR-2002-222/index.html> (Jan 4, 2007).

¹⁶ Available at: <http://laws.justice.gc.ca/en/C-15.2/> (April 4, 2007)

¹⁷ Available: http://www.qp.gov.bc.ca/statreg/stat/M/96293_01.htm (Jan 4, 2007)

¹⁸ Available: http://www.qp.gov.bc.ca/statreg/stat/M/96292_01.htm (Jan 4, 2007)

- Section 14: Surface Rights and where mineral tenures can be located
- Section 22: Mineral Reserves

BC Land Act (1996)¹⁹

- Establishes mining as a high priority for land use (Sections 19, 50)
- Section 15: Reserves
- Section 19: Quarrying land

BC Environmental Management Act (2003)²⁰

- Section 6(4): Subject to subsection (5), a person must not introduce waste into the environment in such a manner or quantity as to cause pollution.
- Sections 65-68: Remediation and Mineral Exploration Sites and Mines and Producing or Past Producing Mine Sites (persons responsible, provisions for security, etc.)

BC Environmental Assessment Act, Reviewable Projects Regulation (2006)²¹

- Sections 7 and 8: Establish criteria thresholds for EAA triggers

6.3 Fraser Valley Regional District

FVRD Soil Removal Bylaw (2006)

- Prohibits the removal or depositing of soil (defined as “sand, gravel, rock, and other substances of which land is composed”) within Soil Removal and Deposit Regulation Areas within the FVRD, without a permit.

FVRD Official Settlement Plan Electoral Area “E” Bylaw No. 400 (1983)²²

- Part III, Section 8: Establishes requirements for rehabilitation of resource extraction sites

FVRD Consolidated Bylaw No. 66 Zoning Bylaw for Electoral Area “E” (1976)²³

- Section 3.1.8 (Extraction and Industrial Uses): Establishes permitted conditions relating to the exploration or production of minerals, sand, gravel, etc.

¹⁹ Available: http://www.qp.gov.bc.ca/statreg/stat/L/96245_01.htm#section12 (Feb 22, 2007)

²⁰ Available: http://www.qp.gov.bc.ca/statreg/stat/E/03053_00.htm (Jan 4, 2007)

²¹ Available: http://www.qp.gov.bc.ca/statreg/reg/E/EnvAssess/370_2002.htm#part3 (Mar 2, 2007).

²² Available: <http://www.fvrd.bc.ca/NR/rdonlyres/AC380330-DAE6-4D76-971C-3D0319AC9E6D/748/Bylaw400ConsolidatedOSPAreaE.pdf> (Jan 4, 2006).

²³ Available: <http://www.fvrd.bc.ca/NR/rdonlyres/AC380330-DAE6-4D76-971C-3D0319AC9E6D/758/AreaEZoningBylaw66.pdf> (Feb 21, 2007).

7.0 Vision & Goals

7.1 VISION:

Mining resources within the Chilliwack River Watershed are exploited in a sustainable manner that is respectful of other watershed users, the local community, and the environment.

7.2 GOALS:

1. Environmental impacts associated with mining activities are minimized or avoided, particularly in sensitive habitats or in locations of drinking water intakes.
2. The threat of mining-related impacts on sensitive or valued habitats or locations is lessened through knowledge and appropriate mining restrictions or conditions.
3. Adequate community consultation is conducted prior to land-use decisions within the watershed, including the permitting of mining operations.
4. Sufficient baseline data is collected for the watershed through a biophysical assessment to identify any issues of concern, locations of concern, cumulative impacts, and trends.

7.3 MEASURES:

1. Complaints or observations of mining-related environmental impacts
2. Baseline data collection and relevant indicators of environmental or habitat quality, including from areas of historical mining operations.

8.0 Options and Analysis

Concerns expressed by the public about mining in the Chilliwack River Watershed have not been specific complaints or observations about particular mine sites. Rather, they were in regards to general concerns and potential impacts. Therefore, strategies to address these concerns should focus on potential impacts and watershed-scale issues.

Although sand and gravel are relatively inexpensive commodities compared to precious metals, aggregate comprises a critical component for infrastructure and urban development. Because transportation costs are a substantial component of aggregate pricing structure, and because of the social and environmental issues associated with aggregate transportation (including vehicle noise, dust, road maintenance, safety, vehicle emissions, etc.), local sources of aggregate are of high value.²⁴ There is a challenge therefore to balance this requirement for local supply with a community's desire to remain isolated from the aesthetic and environmental impacts associated with aggregate operations. "Herein lies the paradox of this industry: a constant, predictable need for

²⁴ Rosenau, M. and Angelo, M., 2000.

products and the community's desire that mining operations be conducted far from its boundaries” (p21).²⁵

The Chilliwack River Watershed Strategy recognizes the importance of mineral products, particularly sand and gravel, for development and maintenance needs of the community and the Province. However, based on community concerns, investigating ways to ensure that mining activity occurs in a responsible manner with only minimal impacts on the environment and surrounding communities is one of the goals of the Watershed Strategy.

A number of potential options were discussed during the preparation of this document relating to environmental impacts associated with mining. These options are described below, and are classified as addressing regional or general mining issues or concerns specific to the Chilliwack River Watershed.

Options for addressing regional/general mining concerns

1. Improved regulatory coordination and authority: Coordination between government agencies is integral to efficient and effective management of all land-use activities, including mining. Formalizing the referral process, or the expectations of each agency, may help to ensure that important information does not slip through the cracks.
2. Demand reduction: Reducing mining activities by reducing demand for the product is a difficult task given our current reliance on aggregate materials. There are ways to potentially reduce the use of aggregates however. For example, recycling and reusing aggregate from temporary forest roads has been shown to be cost-effective compared to the purchase and transport of new aggregate materials.²⁶
3. Environmental levy or surcharge: Proponents of mining activities could be charged an environmental levee to help fund initiatives proposed to monitor or mitigate environmental impacts associated with mining. As local governments do not have the capability to install such a levy, it would be up to the Province to do so. Given the current promotion of mining activity by the Province, and the expected additional promotion of this industry to help replace some of the future forestry revenue lost due to the Mountain Pine Beetle outbreak in the province, there does not appear to be an appetite within the Provincial government currently to consider this option.
4. Public input: The public currently has limited input into mining-relating decisions. In addition to specific terms and conditions on permits rarely being read by the public, this lack of public input leads to frustration, alienation, and concerns over potential mining activities and impacts that could impact their community and surroundings. Increased opportunities for public comments and

²⁵ Poulin, R., Pakalnis, R.C., Sinding, K., 1994.

²⁶ Session and Boston, 2006.

input should be considered by EMPR to increase community buy-in and to lessen possibly unjustified fears locals may have about proposed mining activities.

5. Public education: According to some, public perceptions about mining are at least partially shaped through the highly visible and well publicized environmental impacts resulting from the legacy mines of past regulatory frameworks. Additionally, there is also a public perception that with appropriate permits, miners are given permission to pollute.²⁷ Addressing these public perceptions of the mining industry should be a priority for the Ministry of Energy, Mines, and Petroleum Resources. It is worth noting that Mining Permits issued by EMPR do not give miners a free license to pollute – they still need to abide by existing environmental laws of the land, such as the *Fisheries Act* (Section 35, 36) and the *BC Environmental Management Act* (Section 6.4).

Options for addressing local concerns (for Chilliwack River Watershed)

6. Identification of sensitive areas: Some areas or habitats may be sensitive to disturbance that may occur with mining activity. These areas, such as sensitive fish and wildlife habitat, locations of drinking water intake, locations of species-at-risk, culturally significant sites, or special and unique locations, need to be identified by government agencies and members of the community. This information can then be used to aid the decision-making process involving siting locations or conditions to be attached to mining permits.
7. Protecting sites of known ecological or cultural value: Areas already known to be of significant value and are potentially at-risk from mining activities can be designated as a reserve under the *Mineral Titles Act* or can require specific Ministry referrals with a Notation of Interest applied to the area. Acquiring these designations or requirements for sensitive or valued sites may help to limit the type of land-use that occurs on these sites, or to avoid or mitigate potential impacts land-use may cause.
8. Data collection/environmental monitoring: Environmental indicators can be used to monitor relative health of the ecosystem, to track trends over time, or to document site-specific impacts associated with a land use change or impact.
9. Revisiting old/historic mine sites: Historical mine sites can have long-lasting environmental impacts, particularly if the mines were not properly rehabilitated following their closure. The locations of these sites, the current reclamation status of these sites, and any residual environmental impacts resulting from these sites, should be understood by local agencies and communities.

²⁷ Steven Wuschke, Personal Communication. Ministry of Energy, Mines, and Petroleum Resources. Mar 2, 2007.

9.0 Recommendations

Because mining is a highly regulated industry largely under provincial jurisdiction, and the first five options that apply to general mining-related impacts and perceptions fall mostly under this provincial jurisdiction, they are mostly beyond the scope of the Chilliwack River Watershed Strategy. Alternatively, the latter four options are pursuable under the Strategy, and will hopefully help achieve the vision and goals identified earlier in this report. As a result, the latter four options are recommended as part of the Chilliwack River Watershed Strategy.

1. ***Identification of sensitive areas:*** Information should be collected from community members, users, and relevant agencies, regarding locations that are highly valued and are sensitive to potential mining activities. These sites could include culturally significant areas, environmentally sensitive habitats, locations of drinking water intakes, known habitats of endangered species, areas of high recreational value, unique or special areas (e.g., Chipmunk Caves), etc. This information could then be used by interested agencies or stakeholders for:

- referrals by government agencies
- intergovernmental pressuring or lobbying to protect certain sites
- the application of Mineral Reserve designation to prohibit mining activity on these sites
- application of Notations of Interest to Integrated Land Management Bureau
- motivating and prioritizing public input and participation during the permitting process.

Advantages:

- Relatively easy and affordable
- Multiple benefits of data collection (information can be used for other project referrals or appropriate land-use decisions, including OCP amendments)
- Information can be used to provide rationale for local decisions or actions.
- Shared knowledge of important areas could lead to enhanced community stewardship and understandings.

Challenges/Considerations:

- Need to determine criteria for “important” or “sensitive” areas or habitats
- Need to determine appropriate champion or lead (FVRD?)
- Issue of identification and confidentiality for culturally-significant areas
- Collected information may not actually influence future mine siting decisions

2. ***Protecting sites of known ecological or cultural value:*** Some sensitive and valued sites are already known about and identified (e.g., Chipmunk Caves). Protection for these sites can be pursued immediately. Although current designations of the land would need to be researched, a Mineral Reserve designation would prohibit mining activity in the area, and a Notation of Interest would require a referral to the specified Provincial Ministry for any tenure application received by ILMB. For example, for a karst formation, a Notation of Interest can be applied for by MOE (for unique and sensitive ecosystems) or by the Ministry of Tourism, Sport and the Arts (for recreation and tourism value). Applications, which are free to make, need to be made

by a Ministry representative to FrontCounter BC (at Suite 200, 10428 153rd Street, Surrey BC).

Advantages:

- Free and easy to apply
- Indicates to others about the value and sensitivity of the land, which may help to influence other land-use decisions

Challenges/Considerations:

- Referrals under Notations of Interest go to Ministry staff that already have heavy work loads and limited time to spend on referrals
- May not prohibit aggregate extraction from occurring

3. ***Data collection/environmental monitoring:*** A community environmental monitoring program for various sites within the Chilliwack River Watershed, including sites downstream of mining operations and in sites of past or historical mining activity should be supported, promoted, and pursued. The results of this program could be used to provide a long-term baseline dataset of conditions within the watershed, and to be able to monitor trends or changes over time due to various landuse changes that occur within the watershed, including mining, forestry, residential development, etc. Data collected for water quality, ground water conditions, terrestrial impacts, biological indicators, etc, will assist the community to monitor impacts both pre-and post-mining operations and downstream versus upstream conditions, and to allow the community to serve as a watchdog for future mining operations.

Advantages:

- Relatively easy to collect data, with minor expense²⁸ and training required
- Can fit into existing operations/mandate of existing operations
- Collected data can be used for multiple purposes and to gauge impacts from multiple land-uses
- Data collected by community members helps empower local stewardship of the resource and environmental conditions
- Plenty of resources/guides available (Streamkeepers, Provincial water quality guides, organizations from other watersheds, etc.)

Challenges/Considerations:

- Need to identify a suitable champion, with appropriate equipment and facilities
- Need to ensure consistency of data methodology and equipment (for geographic and temporal comparisons)
- Data management, storage, and access
- Need long-term commitment to provide sufficient baseline and trend data

²⁸ Municipalities collect volumetric fees for gravel removal under their soil removal bylaws with the money currently going towards road maintenance needs resulting from the gravel industry. These fees however can potentially be allocated to address environmental concerns emanating from gravel removal, such as environmental monitoring. The application of these fees for such functions and the ability of the FVRD to collect these fees requires further attention regarding legality and feasibility, but volumetric fees do provide a potential funding source for a water quality monitoring program.

- Basic sampling and analysis fails to pick up many possible contaminants in the environment, such as metals, pesticides, hydrocarbons, fecal coliforms, etc.) that often require expensive analytical laboratory testing
 - Collected information may not actually influence future mine siting decisions.
4. ***Revisiting old/historic mine sites:*** Historical mines within the Chilliwack River Watershed, such as the Red Mountain Mine south of Slesse Creek near the US border, may still be resulting in negative residual environmental impacts both on-site and downstream. Including these sites in environmental monitoring is important (recommendation #2), but so is learning more about where these sites were located, what was done regarding reclamation of these sites, if residual impacts from these sites still contributes to the receiving environment, and if future reclamation activities should be pursued.

Advantages:

- Some data should be readily available either online or with the Ministry of Energy, Mines, and Petroleum Resources
- Helps understand current conditions
- May help to identify priority sites for reclamation opportunities

Challenges/Considerations:

- Access to some sites may be limited
- (same as those mentioned under Recommendation #2)

10.0 References

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Appendix A: Excerpts from Relevant Legislation

Federal Legislation

Fisheries Act (R.S., 1985, c. F-14)³⁵

35. (1) No person shall carry on any work or undertaking that results in the harmful alteration, disruption or destruction of fish habitat.

36. (3) Subject to subsection (4), no person shall deposit or permit the deposit of a deleterious substance of any type in water frequented by fish or in any place under any conditions where the deleterious substance or any other deleterious substance that results from the deposit of the deleterious substance may enter any such water.

Fisheries Act, Metal Mining Effluent Regulations (P.C. 2002-987, 2002)³⁶

Definitions (Section 1)

"mine" means mining or milling facilities that are designed or used to produce a metal, a metal concentrate or an ore from which a metal or metal concentrate may be produced or any facilities, including smelters, pelletizing plants, sintering plants, refineries and acid plants, where any effluent from the facility is combined with the effluent from mining or milling.

Authority to Deposit (Section 4)

(1) Subject to subsection (2), the owner or operator of a mine may deposit, or permit the deposit of, an effluent that contains a deleterious substance in any water or place referred to in subsection 36(3) of the Act if a transitional authorization permits the deposit or if

- (a) the concentration of the deleterious substance in the effluent does not exceed the authorized limits set out in Schedule 4;
- (b) the pH of the effluent is equal to or greater than 6.0 but is not greater than 9.5; and
- (c) the deleterious substance is not an acutely lethal effluent.

(2) The authority in subsection (1) is conditional

- (a) in the case of a transitional authorization that permits the deposit, on the owner or operator complying with section 36; and
- (b) in the other case, on the owner or operator complying with sections 6 to 27.

Environmental Effects Monitoring (Section 7)

(1) The owner or operator of a mine shall conduct environmental effects monitoring studies of the potential effects of effluent on the fish population, on fish tissue and on the

³⁵ Available: <http://laws.justice.gc.ca/en/F-14/index.html> (Jan 4, 2007)

³⁶ Available: <http://laws.justice.gc.ca/en/F-14/SOR-2002-222/index.html> (Jan 4, 2007).

benthic invertebrate community in accordance with the requirements and within the periods set out in Schedule 5.

(2) The owner or operator shall record the results of the studies and submit the reports and required information to the authorization officer as set out in Schedule 5.

(3) The studies shall be performed and their results interpreted and reported on in accordance with generally accepted standards of good scientific practice at the time that the studies are performed.

Deleterious Substance and pH Testing (Section 12)

(1) Subject to subsection (3), the owner or operator of a mine shall, not less than once per week and not less than four days apart, collect from each final discharge point a grab sample or composite sample of effluent and, without delay, record the pH and concentrations of the deleterious substances set out in column 1 of Schedule 4.

(2) Testing conducted under subsection (1) shall comply with the analytical requirements set out in Schedule 3.

(3) The owner or operator is not required to collect samples for the purpose of recording the concentrations of cyanide set out as item 3 of Schedule 4 if that substance is not used as a process reagent within the operations area.

13. (1) Despite section 12 and subject to subsection (3), the owner or operator of a mine may reduce the frequency of testing for a deleterious substance that is set out in any of items 1 to 6 of Schedule 4 to not less than once in each calendar quarter if that substance's monthly mean concentration in the effluent is less than 10% of the value set out in column 2 of that Schedule for the 12 months immediately preceding the most recent test.

(2) Despite section 12 and subject to subsection (3), the owner or operator of a mine, other than an uranium mine, may reduce the frequency of testing for Radium 226 set out as item 8 of Schedule 4 to not less than once in each calendar quarter if that substance's concentration in the effluent is less than 0.037 Bq/L in 10 consecutive tests conducted under section 12.

(3) The owner or operator shall increase the frequency of testing to that prescribed in section 12 for a deleterious substance that is set out in any of items 1 to 6 or 8 of Schedule 4 if the substance's monthly mean concentration is equal to or greater than 10% of the value set out in column 2 of these items.

Acute Lethality Testing (Section 14)

(1) Subject to section 15, the owner or operator of a mine shall collect from each final discharge point a grab sample and conduct an acute lethality test, in accordance with the requirements and procedures specified in Reference Method EPS 1/RM/13,

(a) once a month, in accordance with the procedure set out in section 5 or 6 of that document; and

(b) without delay, in accordance with the procedure set out in section 6 of that document, if a deposit occurs that is out of the normal course of events.

(2) For the purpose of paragraph (1)(a), the owner or operator shall

(a) select and record the sampling date not less than 3 days in advance of collecting the grab sample; and

- (b) collect the grab samples not less than 15 days apart.
- (3) When collecting a grab sample of effluent for the purpose of subsection (1), the owner or operator shall collect a sufficient volume of effluent to enable the owner or operator to comply with paragraph 15(1)(a).

Increased Frequency of Acute Lethality Testing (Section 15)

- (1) If a sample of effluent is determined to be acutely lethal when tested under paragraph 14 (1) (a), the owner or operator of a mine shall
 - (a) without delay, conduct the effluent characterization set out in subsection 4(1) of Schedule 5 on the aliquot of each grab sample collected under paragraph 14(1)(a);
 - (b) collect from each final discharge point a grab sample twice a month and conduct an acute lethality test on each grab sample without delay in accordance with the procedure set out in section 6 of Reference Method EPS 1/RM/13; and
 - (c) collect the grab samples not less than seven days apart.
- (2) The owner or operator may resume sampling and testing at the frequency prescribed in section 14 if the effluent is determined not to be acutely lethal in three consecutive tests conducted under paragraph (1)(b).

Provincial Legislation

BC Mines Act (RSBC 1996, Chapter 293)³⁷

Definitions (Section 1)

"mine" includes

- (a) a place where mechanical disturbance of the ground or any excavation is made to explore for or to produce coal, mineral bearing substances, placer minerals, rock, limestone, earth, clay, sand or gravel,
- (b) all cleared areas, machinery and equipment for use in servicing a mine or for use in connection with a mine and buildings other than bunkhouses, cook houses and related residential facilities,
- (c) all activities including exploratory drilling, excavation, processing, concentrating, waste disposal and site reclamation,
- (d) closed and abandoned mines, and
- (e) a place designated by the chief inspector as a mine;

"mining activity" means any activity related to

- (a) the exploration and development of a mineral, a placer mineral, coal, sand, gravel or rock, or
- (b) the production of a mineral, a placer mineral, coal, sand, gravel or rock, and includes the reclamation of a mine;

Permits (Section 10-11)

10. (1) Before starting any work in, on or about a mine, the owner, agent, manager or any other person must hold a permit issued by the chief inspector and, as part of the application for the permit, there must be filed with an inspector a plan outlining the details of the proposed work and a program for the conservation of cultural heritage resources and for the protection and reclamation of the land, watercourses and cultural heritage resources affected by the mine, including the information, particulars and maps established by the regulations or the code.

(2) Despite subsection (1), if the chief inspector is satisfied that, because of the nature of the proposed work, it is not necessary to obtain a permit, the chief inspector may exempt in writing the owner, agent or manager from the requirement to comply with this section with respect to the proposed work.

(3) If the chief inspector considers the application for a permit is satisfactory the chief inspector may issue the permit, and the permit may contain conditions that the chief inspector considers necessary.

11. If the minister considers it to be necessary in the public interest, the minister, in respect of the issuing of permits, has and may exercise all the powers that the chief inspector may exercise under this Act.

³⁷ Available: http://www.qp.gov.bc.ca/statreg/stat/M/96293_01.htm (Jan 4, 2007)

11.1. If a person acquires a mine, before the person engages in mining activity the person must apply to the chief inspector to (a) obtain a permit, or (b) amend an existing permit for the mine to identify the applicant as the holder of the permit.

BC Land Act (RSBC 1996, Ch 245)³⁸

15 (1) In this section and section 16, "government body" means the Provincial government, a government corporation as defined in paragraphs (b) and (c) of the definition of "government corporation" in the Financial Administration Act, the federal government or a prescribed organization.

(2) The Lieutenant Governor in Council may, by order, reserve Crown land from disposition under this Act for any purpose that the Lieutenant Governor in Council considers advisable in the public interest, including for the use of a government body.

(3) An order under subsection (2) may authorize a government body to place, construct, maintain or operate any works, structures or other improvements on the reserved land.

(4) An order under subsection (2) may be subject to any terms and conditions the Lieutenant Governor in Council considers necessary or advisable.

(5) The Lieutenant Governor in Council may amend or cancel all or part of a reserve established under this or a former Act.

(6) An order under subsection (2) does not affect the minister's powers under section 14.

19 Except by order of the minister, on the terms the minister may specify, Crown land must not be disposed of by Crown grant under this Act if the minister believes it is suitable for mining, quarrying, digging or removal of building or construction materials, including, without limitation, (a) earth, soil, peat, marl, sand and gravel, (b) rock and natural substances that are used for a construction purpose on land that is not within a mineral title or group of mineral titles from which the rock or natural substance is mined, and (c) rock or a natural substance prescribed under section 2 (2) of the Mineral Tenure Act.

50 (1) A disposition of Crown land under this or another Act... (b) conveys no right, title or interest to (i) geothermal resources as defined in the Geothermal Resources Act, (ii) minerals and placer minerals as defined in the Mineral Tenure Act, (iii) coal, (iv) petroleum as defined in the Petroleum and Natural Gas Act, or (v) gas, that may be found in or under the land...

BC Mineral Tenure Act (RSBC 1996, Chapter 292)³⁹

1. "mineral" means an ore of metal, or a natural substance that can be mined, that is in the place or position in which it was originally formed or deposited or is in talus rock, and includes

³⁸ Available: http://www.qp.gov.bc.ca/statreg/stat/L/96245_01.htm#section12 (Feb 22, 2007)

³⁹ Available: http://www.qp.gov.bc.ca/statreg/stat/M/96292_01.htm (Jan 4, 2007)

- (a) rock and other materials from mine tailings, dumps and previously mined deposits of minerals,
- (b) dimension stone, and
- (c) rock or a natural substance prescribed under section 2 (1), but does not include
- (d) coal, petroleum, natural gas, marl, earth, soil, peat, sand or gravel,
- (e) rock or a natural substance that is used for a construction purpose on land that is not within a mineral title or group of mineral titles from which the rock or natural substance is mined,
- (f) rock or a natural substance on private land that is used for a construction purpose, or
- (g) rock or a natural substance prescribed under section 2 (2);

8. (2) On application in the prescribed form and on payment of the prescribed fee, a free miner certificate must be issued to an applicant who is (a) a person age 18 or over and ordinarily a resident of Canada for at least 183 days in each calendar year or authorized to work in Canada, (b) a Canadian corporation, or (c) a partnership consisting of partners who are persons that qualify under paragraph (a) or (b).

11. (1) Subject to this Act, only a free miner or an agent of a free miner may enter mineral lands to explore for minerals or placer minerals.

(2) The right of entry under subsection (1) does not extend to (a) land occupied by a building, (b) the curtilage of a dwelling house, (c) orchard land, (d) land under cultivation, (e) land lawfully occupied for mining purposes, except for the purposes of exploring and locating for minerals or placer minerals as permitted by this Act, (f) protected heritage property, except as authorized by the local government or minister responsible for the protection of the protected heritage property, or (g) land in a park, except as permitted by section 21.⁴⁰

11.1. (1) In this section, "mining exploration" does not include the collection of a bulk sample of more than 1 000 tonnes of ore.

(2) A recorded holder of a mineral title or an owner of a Crown granted 2 post claim must be issued a special use permit under the Forest Practices Code of British Columbia Act, subject to any terms and conditions set by the issuing authority, for the construction of appropriate access to the area of that mineral title or Crown granted 2 post claim for mining exploration, if the recorded holder or owner

- (a) is the holder of a permit under the Mines Act for the mining exploration,
- (b) applies for and receives the written approval of the Chief Inspector of Mines to the issuance under the Forest Practices Code of British Columbia Act of the special use permit, and
- (c) applies under the Forest Practices Code of British Columbia Act for the special use permit.

Surface Rights (Section 14)

⁴⁰ Note: Does not specifically mention Mineral Reserves or lands designated/identified as valuable for cultural or environmental reasons (other than Parks).

(1) Subject to this Act, a recorded holder may use, enter and occupy the surface of a claim or lease for the exploration and development or production of minerals or placer minerals, including the treatment of ore and concentrates, and all operations related to the exploration and development or production of minerals or placer minerals and the business of mining.

(2) Despite subsection (1), no mining activity may be done by the recorded holder until the recorded holder receives the permit, if any, required under section 10 of the Mines Act.

(3) Subject to the terms and conditions set by the issuing authority under the Forest Act, a recorded holder of a mineral title that is not in production must on request be issued either a free use permit or an occupant licence to cut under that Act at the option of the government.

(4) The recorded holder of a mineral title that is in production or being prepared for production must on request be issued an occupant licence to cut under the Forest Act, subject to terms and conditions set by the issuing authority.

(5) Unless the location is one of the following, a land use designation or objective does not preclude application by a recorded holder for any form of permission, or approval of that permission, required in relation to mining activity by the recorded holder:

(a) an area in which mining is prohibited under the Environment and Land Use Act;

(b) a park under the Park Act or a regional park under the Local Government Act;

(c) a park or ecological reserve under the Protected Areas of British Columbia Act;

(d) an ecological reserve under the Ecological Reserve Act;

(d.1) an area of Crown land if

(i) the area is designated under section 93.1 of the Land Act, for a purpose under that section, and

(ii) the order under that section making the designation, or an amendment to the order, precludes the application by the recorded holder;

(e) a protected heritage property.

Restrictions (Section 17)

(1) Despite this or any other Act, the minister may, by order, restrict the use of surface rights, or restrict the right to or interest in minerals or placer minerals, comprised in all or part of a mineral title if the minister considers that all or part of the surface area is or contains a cultural heritage resource or that the surface area, or the right to or interest in the minerals or placer minerals, should be used for purposes other than a mining activity.

(2) No compensation is payable as a result of an order under subsection (1).

No exploration in parks without consent (Section 21)

Despite any Act, agreement, free miner certificate or mineral title, a person must not locate a mineral title, carry out exploration and development or produce minerals or placer minerals in a park created by or under an Act of British Columbia or of Canada or in an area of land established as a Provincial heritage property under section 23 of the Heritage Conservation Act unless authorized by the Lieutenant Governor in Council on the recommendation of the person, corporation or government that is responsible for the park or the area of land.

Mineral Reserves (Section 22)

- (1) Despite any other provision of this Act, the chief gold commissioner may, by regulation, establish a mineral reserve on land specified in the regulation.
- (2) A regulation made under subsection (1) may do any of the following:
 - (a) prohibit a free miner from registering a mineral title on land covered by the mineral reserve;
 - (b) permit the locating and recording of a mineral title under circumstances and subject to the limitations contained in it, despite any provision of this Act;
 - (c) prohibit a mining activity located within and included in the mineral reserve, either absolutely or under circumstances specified in the mineral reserve, and may prescribe
 - i. specific maintenance requirements that differ from those required by section 29, and
 - ii. the term of a claim and the conditions of forfeiture of a claim;
 - (d) prohibit a free miner or recorded holder from obstructing, endangering or interfering with or allowing any other person to obstruct, endanger or interfere with the construction, operation or maintenance of a transmission line, pipeline or other work, structure or activity on all or part of the land in the mineral reserve;
 - (e) be made applicable to all minerals and placer minerals or to the mineral or placer mineral specified in it;
 - (f) provide that obligations imposed by this Act or the regulations on the recorded holder of a mineral title in the mineral reserve, are relieved for the period and on the conditions specified in it;
 - (g) provide that a refund of all or part of a sum of money paid under this Act or the regulations may be made to a recorded holder of a mineral title in the mineral reserve respecting a period either before or after the making of it.

BC Environmental Management Act (SBC 2003, Chapter 53)⁴¹

Part 5 — Remediation of Mineral Exploration Sites and Mines

Definitions and interpretation (Section 65)

"advanced exploration site" means

- (a) an area described by a valid and subsisting mineral title as defined under the Mineral Tenure Act where mineral exploration activities have been undertaken,
 - (b) an area described by a valid and subsisting Crown granted claim under the Land Act where mineral exploration activities have been undertaken, or
 - (c) a valid and subsisting location as defined under the Coal Act where coal exploration activities have been undertaken,
- if

⁴¹ Available: http://www.qp.gov.bc.ca/statreg/stat/E/03053_00.htm (Jan 4, 2007)

- (d) bedrock has been excavated for the purpose of underground development, removed as bulk samples, or removed for trial cargos or test shipments, in an amount less than or equal to 1 000 tonnes, or
- (e) coal has been mined, removed as bulk samples, or removed for trial cargos or test shipments, in an amount less than or equal to
 - i. 50 000 tonnes of coal, or
 - ii. 200 000 tonnes of total material disturbed, including coal;

"core area" means any of the following areas at an advanced exploration site or at a producing or past producing mine site:

- (a) an area where waste rock or mine tailings are placed;
- (b) an area where there is disturbance of the ground by mechanical means including, without limitation, trenches, open pits and underground workings;
- (c) an area where there has been construction, modification, deactivation or reclamation of an access road;
- (d) an area where prescribed activities take place or that is used for a prescribed use;

"dispute resolution process" means a process to resolve disputes established in an agreement between the deputy ministers of the Ministry of Energy and Mines and the Ministry of Water, Land and Air Protection concerning the administration of mines under the Mines Act and this Act;

"exploration site" means

- (a) an area described by a valid and subsisting mineral title as defined under the Mineral Tenure Act where mineral exploration activities have been undertaken,
 - (b) an area described by a valid and subsisting Crown granted claim under the Land Act where mineral exploration activities have been undertaken, or
 - (c) a valid and subsisting location as defined under the Coal Act where coal exploration activities have been undertaken,
- if
- (d) bulk samples, trial cargos or test shipments have not been taken, and
 - (e) bedrock has not been excavated for the purpose of underground development;

"historic mine site" means an area

- (a) where mechanical disturbance of the ground or any excavation has been made to produce coal or mineral bearing substances, including a site used for processing, concentrating or waste disposal, and
- (b) for which a Mines Act permit does not exist and no identifiable owner or operator is taking responsibility for contamination at the site;

"non-core area" means an area at an advanced exploration site or producing or past producing mine site that is not a core area including, without limitation, areas where facilities and operations such as maintenance shops, storage facilities, accommodation

complexes, mineral crushing and processing mills and mineral treatment operations are located;

"producing or past producing mine site" means a mine

- (a) defined by the area of
 - i. a mineral title as defined under the Mineral Tenure Act,
 - ii. a Crown granted claim under the Land Act, or
 - iii. a location as defined under the Coal Act,
- (b) in respect of which there is a valid and subsisting permit under the Mines Act, and
- (c) that is currently producing or has produced minerals or coal, if
- (d) bedrock has been excavated for the purpose of underground development, removed as bulk samples or removed for trial cargos or test shipments, in an amount greater than 1 000 tonnes, or
- (e) coal has been mined, removed as bulk samples or removed for trial cargos or test shipments, in an amount greater than
 - i. 50 000 tonnes of coal, or,
 - ii. 200 000 tonnes of total material disturbed, including coal;

"transfer agreement" means a written agreement between the Chief Inspector of Mines under the Mines Act and a director under this Act regarding the transfer of a Mines Act permit.

(2) This Part does not restrict the powers of a director to issue and enforce a permit or approval for a discharge to air, land or water associated with an advanced exploration site or producing or past producing mine site.

(3) This Part does not apply to exploration, mine development or the production of placer minerals, marl, earth, soil, peat, sand, gravel, dimension stone, rock or any natural substance that is used for a construction purpose on land.

(4) If there is a conflict between anything in Part 4 [Contaminated Site Remediation] or sections 81 [pollution prevention orders] and 83 [pollution abatement orders] that are otherwise provided for in this Part, the provisions of this Part prevail.

(5) Despite sections 66 (5) [exploration sites], 67 (4) [advanced exploration sites] and 68 (4) [producing or past producing mine sites], a person who requests a director to issue an approval in principle or a certificate of compliance under section 53 [approvals in principle and certificates of compliance] or to provide any other services in relation to a contaminated site must pay the fees prescribed in the regulations for those services.

Exploration sites (Section 66)

(1) Despite section 45 [persons responsible for remediation of contaminated sites], the following persons who carried out mineral or coal exploration activities at an exploration site are not responsible for remediation of the site:

- (a) a previous owner or operator;
- (b) a current owner or operator who holds a valid and subsisting bond for the exploration site under the Mines Act.

(2) A director may not issue a remediation order under section 48 [remediation orders] to a current or previous owner or operator of an exploration site.

(3) A director may not issue a pollution prevention order under section 81 [pollution prevention orders] or a pollution abatement order under section 83 [pollution abatement orders] to a previous owner or operator of an exploration site in respect of the exploration site.

(4) A director may not require or accept security under this Act for remediation of an exploration site.

(5) Fees prescribed under this Act for the purposes of Part 4 [Contaminated Site Remediation] in relation to an exploration site are payable only with respect to the remediation of spills of substances.

Advanced exploration sites (Section 67)

(1) Despite section 45 [persons responsible for remediation of contaminated sites], a previous owner or operator of an advanced exploration site is not responsible for remediation of the site if

- (a) the owner or operator obtains a transfer agreement that excludes the owner or operator from liability for the contaminated site, or
- (b) indemnification has been provided to the owner or operator for that site under the Financial Administration Act.

(2) A director may not issue a remediation order under section 48 [remediation orders] to a current or previous owner or operator of a core area within an advanced exploration site.

(3) A director may not require or accept security under this Act for remediation of an advanced exploration site.

(4) Fees prescribed under this Act for the purposes of Part 4 [Contaminated Site Remediation] in relation to an advanced exploration site are payable only with respect to

- (a) the remediation of spills of substances, or
- (b) an order issued under section 48 [remediation orders] for remediation of a non-core area.

Producing or past producing mine sites (Section 68)

(1) Despite section 45 [persons responsible for remediation of contaminated sites], a previous owner or operator of a producing or past producing mine site is not responsible for remediation of the site if

- (a) the owner or operator obtains a transfer agreement that excludes the owner or operator from liability for the contaminated site, or
- (b) indemnification has been provided to the owner or operator for that site under the Financial Administration Act.

- (2) The director may not issue a remediation order under section 48 [remediation orders] in relation to the remediation of a core area of a producing or past producing mine unless
- (a) requested to do so by the Chief Inspector of Mines under the Mines Act,
 - (b) this was agreed to in the resolution of a dispute under the dispute resolution process, or
 - (c) the land and water use at the producing or past producing mine site is formally changed from those approved in the applicable Mines Act permit.
- (3) Subject to subsection (2), the director must not require or accept security under this Act for remediation of a producing or past producing mine site.
- (4) Fees prescribed under this Act for the purposes of Part 4 [Contaminated Site Remediation] in relation to a producing or past producing mine site are payable only with respect to
- (a) the remediation of spills of substances,
 - (b) a transfer agreement involving a core area,
 - (c) an order issued under section 48 [remediation orders] for remediation of a non-core area, or
 - (d) a formal change in land or water use from those uses approved in the applicable Mines Act permit.

BC Environmental Assessment Act, Reviewable Projects Regulation (B.C. Reg. 370/2002, amended 2006)⁴²

Part 3: Mine Projects

Section 7: Definitions

"mine" has the same meaning as in the Mines Act;

"mineral mine" means a mine where a mineral, as defined in the Mineral Tenure Act, is or could be mined, but does not include a mine where industrial minerals are or could be mined;

"quarry" means a quarry or other operation where construction stone, an industrial mineral or another substance is or could be mined, but does not include a mineral mine, placer mineral mine or coal mine or a sand or gravel pit;

Section 8: Criteria for proposed modifications of mine impacts

- 8** (1) In this Part, threshold E is met for a proposed modification of an existing facility if
- (a) the existing facility, were it a new facility in the same category as the existing facility as described in Column 1 of the applicable table, would meet the criteria set out opposite in Column 2, and
 - (b) the modification will result in the disturbance of
 - (i) at least 750 hectares of land that was not previously permitted for disturbance, or

⁴² Available: http://www.qp.gov.bc.ca/statreg/reg/E/EnvAssess/370_2002.htm#part3 (Mar 2, 2007).

- (ii) an area of land that was not previously permitted for disturbance and that is at least 50% of the area of land that was previously permitted for disturbance at the existing facility.
- (2) In this Part, threshold F is met for a proposed modification of an existing facility if
 - (a) the existing facility, were it a new facility in the same category as the existing facility as described in Column 1 of the applicable table, would meet the criteria set out opposite in Column 2, and
 - (b) the modification will result in the disturbance of an area of land that was not previously permitted for disturbance and that is at least 35% of the area of land that was previously permitted for disturbance at the existing facility.
- (3) In this Part, threshold G is met for a proposed modification of an existing facility if
 - (a) the existing facility, were it a new facility in the same category as the existing facility as described in Column 1 of the applicable table, would meet the criteria set out opposite in Column 2, and
 - (b) the executive director has determined under subsection (4) that the modification has the potential to result in a significant adverse environmental, economic, social, heritage or health effect.
- (4) For the purposes of a modification of an existing facility in the off-shore mine project category, the executive director must determine whether the modification has the potential to result in a significant adverse environmental, economic, social, heritage or health effect.

Table 6 — Mine Projects

<i>Project Category</i>	<i>New Project</i>	<i>Modification of Existing Project</i>
Mineral Mines	Criteria: A new mine facility that, during operations, will have a production capacity of > 75 000 tonnes/year of mineral ore. Criteria: A new pit facility that will have a production capacity of	Criteria: Modification of an existing mine facility that meets Threshold E.
Sand and Gravel Pits	(a) ≥ 500 000 tonnes/year of excavated sand or gravel or both sand and gravel during at least one year of its operation, or (b) over a period of ≤ 4 years of operation, ≥ 1 000 000 tonnes of excavated sand or gravel or both sand and gravel.	Criteria: Modification of an existing pit facility that meets Threshold F.
Placer Mineral Mines	Criteria: A new mine facility that, during operations, will have a production capacity of ≥ 500 000 tonnes/year of pay-dirt. Criteria: A new quarry facility or other operation that:	Criteria: Modification of an existing pit facility that meets Threshold F.
Construction Stone and Industrial Mineral Quarries	(a) involves the removal of construction stone or industrial minerals or both, (b) is regulated as a mine under the <i>Mines Act</i> , and (c) during operations, will have a production capacity of ≥ 250 000 tonnes/year of quarried product.	Criteria: Modification of an existing mine facility that meets Threshold E.

Fraser Valley Regional District Bylaws

Note: the following are excerpts from FVRD bylaws as of April, 2007. As they are subject to amendments, please refer to FVRD website for most recent bylaws.

FVRD Official Settlement Plan Electoral Area “E” Bylaw No. 400, 1983⁴³

Part III. A. – Land Area Designations: Natural Resource Areas

Natural Resource Policies:

- It is the Regional Board's policy that:
 - Forestry, fishing, mining and other natural resource development issues will be a primary consideration in the formulation of all Regional District land use policies for Electoral Area "E".
 - The processing of Electoral Area E's extracted natural resources should occur close to their point of origin wherever possible.
 - Depleted resource extraction sites should be reclaimed and rehabilitated.

Use Policies:

- NATURAL RESOURCE areas may be used only for resource extraction, fishing, forestry, and for institutional, recreation and conservation uses.

Part III. A. – Land Area Designations: Hamlet Residential Areas

Use Policies:

- Notwithstanding the above, resource extraction and resource industrial use related to mining and forestry will be permitted provided that the area zoned for the use intended and has been the subject of a plan amendment supported by studies which demonstrate that:
 - such uses will not adversely affect surrounding lands
 - such uses will not adversely affect the geological stability of adjoining lands
 - such uses are in keeping with the development objectives and policies of this plan.

Part III. A. – Land Area Designations: Limited Use Policies

General Policies:

- It is the Regional Board's policy that:
 - Except where specifically prohibited, forestry, mining and recreation will be permitted in LIMITED USE areas.

Part III. A. – Rehabilitation of Resource Extraction Sites

8.1 Upon abandonment or termination of resource extraction operations, redevelopment and reclamation of the site should begin immediately and should be carried out in

⁴³ FVRD Official Settlement Plan Electoral Area “E” Bylaw No. 400, 1983; amended 2000. Available: <http://www.fvrd.bc.ca/NR/rdonlyres/AC380330-DAE6-4D76-971C-3D0319AC9E6D/748/Bylaw400ConsolidatedOSPAreaE.pdf> (Jan 4, 2006).

cooperation with the Ministry of Mines. These areas should revert back to as natural a state as possible through slope leveling, landscaping and reforestation.

FVRD Consolidated Zoning Bylaw No. 66, Area “E”, 1976 ⁴⁴

Division 3 General Regulations - 3.1.8 Extraction and Industrial Uses

[Notwithstanding any regulation in this bylaw, any mineral or mining management activity relating to the exploration or production of minerals, sand, gravel, coal or quarries that is classified a "mineral" under the Mineral Tenure Act or a "mine" under the Mines Act shall not be restricted by any terms or conditions of this bylaw so long as the Ministry of Energy, Mines and Petroleum Resources manages the activities and land for that purpose.]

a) extraction of raw materials

The extraction of raw materials use shall be permitted subject to the following conditions:

- i. the extraction of gravel, sand and stone from a stream bed or stream bank within any zone shall not be permitted without the written approval of Water Management, BC Environment, Lower Mainland Region;
- ii. [extraction uses shall setback from property boundaries as required by the Health, Safety and Reclamation Code for Mines in British Columbia, as administered by the Ministry of Energy, Mines and Petroleum Resources.];
- iii. such extraction shall not render permanent damage to the natural environment of the site and to the general area in which the said extraction is to be conducted; and
- iv. [extraction sites shall be reclaimed to the standards and under the restoration procedures required by the Inspector of Mines, and the Ministry of Energy Mines and Petroleum Resources.]
- v. where the land is in the Provincial Agricultural Land Reserve, the extraction of gravel, sand and stone shall be permitted only where a Soil Removal Permit, issued pursuant to the Soil Conservation Act, R.S.B.C., 1979, Ch. 391, and amendments thereto, has been obtained; and, permission for such non-farm use has been granted by the Provincial Agricultural Land Commission; and, permission to extract subsurface materials has been granted by the Ministry of Energy, Mines and Petroleum Resources. (pp 11-12 (36-37)).

Division 3 General Regulations - 3.4 Effluent Discharge

All effluent generated on any parcel of land by any use of said parcel shall be disposed of on the site, or to the satisfaction of the Medical Health Officer, and the Regional Manager, Environmental Protection, BC Environment, Lower Mainland Region. (pp 11-18 (42-43)).

Fraser Valley Regional District Soil Removal Bylaw (2006) ⁴⁵

⁴⁴ Available: <http://www.fvrd.bc.ca/NR/rdonlyres/AC380330-DAE6-4D76-971C-3D0319AC9E6D/758/AreaEZoningBylaw66.pdf> (Jan 4, 2006).

⁴⁵ Fraser Valley Regional District Soil Removal Bylaw (2006) BYLAW NO. 0729: A Bylaw to Regulate the Removal and Deposit of Soil from Land in the Electoral Areas of the Regional District

"Soil" includes sand, gravel, rock, and other substances of which land is composed

3. This Bylaw applies to all land located within the Soil Removal and Deposit Regulation Area.

6. No person shall remove or deposit Soil within the Soil Removal and Deposit Regulation Area ⁴⁶without the owner of the land upon which such Soil removal or deposit is to be undertaken first obtaining from the Regional District a permit under this Bylaw.

7. Despite S. 6 of this Bylaw, no permit for the removal or deposit of Soil within the Soil Removal and Deposit Regulation Area is required where:

- (a) the volume of Soil to be removed or deposited on a parcel does not exceed 200 cubic metres in a five year period;
- (b) the Soil removal or deposit is undertaken on land located within the Agricultural Land Reserve and is exempted from the requirement of a permit under the Agricultural Land Commission Act, .S.B.C. 2002, c. 36;
- (c) the Soil removal or deposit is undertaken for the sole purpose of providing for the erection of a building or structure where a valid building permit has been issued by the Regional District for the erection of the building or structure;
- (d) the Soil removal or deposit is undertaken for the sole purpose of creating or maintaining a utility service, driveway, or parking area required to permit a lawful use on the land, which use does not require a building or development permit from the Regional District;
- (e) the Soil removal or deposit is undertaken for the sole purpose of completing a floodplain management activity which is licensed by the Ministry of Environment, excludes stockpiling and commercial sales; or,
- (f) the Soil removal or deposit is undertaken for the sole purpose of constructing or maintaining a forest service road, or a private logging road, contained in an approved five year forest development plan.

9. All applications for a permit to remove or deposit Soil within the Soil Removal and Deposit Regulation Area shall generally be in the form attached as Schedule "B" to this Bylaw and shall include... (a) detailed descriptions, plans, and specifications prepared by a Registered Professional in accordance with good engineering practices in relation to the land on which the Soil removal or deposit is to be undertaken regarding...

- (iv) the location of all watercourses located within 500 metres of the land;
- (v) water table, elevations and aquifer characteristics, including water quality;
- (xv) the proposed methods of dust, noise, ground vibration, and visual impact control on the land while Soil removal or deposit is being undertaken;
- (xxiii) the proposed reclamation measures to stabilize, landscape, and restore the land...

(b) a report prepared by a Registered Professional which certifies that, if carried out in conformance with the application, the proposed Soil removal or deposit on the land will

⁴⁶ See accompanying figure for Soil Removal and Deposit Regulation Areas within the Chilliwack River Watershed

not create a danger from flooding, erosion, landslide, or avalanche, and will not foul, obstruct, or impede the flow of any stream, creek, spring, waterway, watercourse, waterworks, ditch, drain, sewer, or other source of ground water, whether or not they are situated on private property,

41. The Soil removal or deposit authorized by permit under this Bylaw shall not encroach upon, undermine, or physically damage any other property and no permit issued under this Bylaw authorizes any action that encroaches upon, undermines, or damages any adjacent public or private property, or any improvement thereon, including but not limited to a water supply system, a well, a road, a lane, and underground sewer, septic, water, or electrical services adjacent to, or in the vicinity of, the Soil removal or deposit area.

42. All drainage facilities and natural watercourses contiguous to the location on the land on which Soil removal or deposit is to be undertaken shall be kept free of silt, clay, sand, rubble, debris, gravel, and any other matter or thing originating from the Soil removal or deposit on the land.

45. No natural watercourse shall be altered or diverted except with the written permission of the appropriate provincial and federal authorities, and any such permitted alteration or diversion shall be previously identified on a plan submitted by the applicant at the time of the permit application.

58. Every person who commits an offense under this Bylaw is liable on summary conviction to a penalty of not more than \$50,000.00 or imprisonment for up to six months in addition to the costs of prosecution.

59. Each day that a violation of this Bylaw is permitted to exist constitutes a separate offense.

