Centermount Coal Ltd.

Bingay Main Coal Project

Project Description

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Pursuant to: BC *Environmental Assessment Act*

and

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EXECUTIVE SUMMARY

Centermount Coal Ltd (Centermount) proposes to develop a 2 million tonnes per year (Mt/year) coal mine, the Bingay Main Coal project, in the Elk River valley, approximately 21 km north of Elkford, in the East Kootenay portion of the Rocky Mountain coal field of southeastern British Columbia. The project is located within the coal "Enhanced Resource Development Zone" (ERDZ) as defined in the Kootenay/Boundary Land Use Plan and Southern Rocky Mountain Land Use Plan, and would produce high quality metallurgical (coking) coal for the steel industry. The Rocky Mountain coalfield currently supports five large coal mines and is serviced by major infrastructure such as railroads, provincial highways, natural gas, water, numerous hydro-power lines, communications and four resource coal mining towns. Large-scale underground and open pit coal mining has been ongoing since 1911, and the area currently produces 23 Mt/year of coal, primarily coking coal for the steel industry. The centre of the coal deposit is located 193 road kilometres northeast of the City of Cranbrook, which is a major industrial centre for mining and forestry, and is also a railway centre for the Canadian Pacific and Union Pacific railways.

Centermount holds coal licenses ("Bingay Main") totalling 1,157 ha near the confluence of Bingay Creek and the Elk River. Coal within the licence area is concentrated in Bingay Hill, a small knoll rising 100 m above the surrounding terraces. The coal deposit is within the Bingay syncline, a steeply dipping bedrock fold which dips to the northeast beneath the Elk River. At least 32 coal beds are present, ranging in thickness from 0.3 to 16.2 metres. Of these coal beds, 24 are typically at least 1 metre thick, inclusive of contained bands of rock. Cumulative thickness of these coals is 62.6 metres, within an overall coal-bearing rock thickness of 460 metres.

Major components of the Project include an open pit and underground mine, coal processing facilities, temporary and permanent waste rock dumps, a 27 km rail line, and a rail loadout. The majority of the mine components will be located on Crown Land within coal licence areas held by Centermount, or by its majority shareholder, Centerpoint Resources, on the west side of the Elk River. The rail line will be located on Crown Land on the east side of the Elk River. Access to the mine is via the Elk River

Forest Service Road (FSR) along the west side of the Elk River. A FSR and transmission line also parallel the east side of the Elk River.

Three types of metallurgical coal similar to that produced in adjacent coal mines would be generated by the Project. Coal would be processed on site using a combination of heavy media cyclones, water only cyclones, spirals and classifying cyclones, and froth flotation depending on the size of the coal. Coal dewatering will be done mechanically using screenscroll centrifuges, screenbowl centrifuges and hyperbaric filters, rather than thermal dryers. Coal produced at the mine would be transported to shipping terminals near Vancouver via CP Rail.

Waste rock will be stored in several areas identified within the property. These areas are on gently sloping terrain, have limited surface water features, and most been previously logged. Waste rock will be sorted based on potential for metal/selenium leaching. Waste rock with a high risk of leaching would be stored separately and use to backfill the pit after mine closure. Water management will be an integral part of the mine plan. Diversion ditches will reduce surface water runoff on to the site, and drainage ditches will collect surface runoff from disturbed areas for treatment. Metal leaching and acid rock drainage studies are ongoing to assess impacts of the project on water quality.

Centermount is currently continuing mine planning, consultation, and engineering and environmental studies for the Project. These will continue through the pre-application phase of the Environmental Assessment process.

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LIST OF ABBREVIATIONS

AIR	Application Information Requirements
BC	British Columbia
BCM	bank cubic metre
CEAA	Canadian Environmental Assessment Office
CMT	clean metric tonne
CSR	Comprehensive Study Review
EA	Environmental Assessment
EAO	Environmental Assessment Office
ERDZ	Enhanced Resource Development Zone
ESSF	Engelmann spruce subalpine fir
FSR	forest service road
GHG	greenhouse gases
ha	hectare
kV	kilovolt
MPMO	Major Projects Management Office
MS	montane spruce
Mt	million tonnes
NOx	nitrogen oxides
OGMA	old growth management area
PM	particulate matter
ROM	run of mine
t	tonnes
TSP	total suspended particulate
UTM	universal transverse mercator
UWR	ungulate winter range

1 INTRODUCTION

Centermount Coal Ltd (Centermount) is proposing to develop a surface and underground coal mine at the Bingay Main property in the Elk River valley in southeastern British Columbia (BC). The purpose of this report is to provide a description of the project and the socio-economic and environmental setting of the area affected. The report has been prepared following guidance from the BC Environmental Assessment Office (EAO) (BC EAO 2008) and the Government of Canada's Major Projects Management Office (MPMO) (MPMO 2008), in anticipation of an environmental assessment by both the Province of British Columbia and the Government of Canada.

1.1 Proponent Information

The Bingay Main Coal project (the Project) is wholly owned by Centermount, a private, Canadian company with its head office located in Vancouver, BC. Centermount is 55% owned by Centerpoint Resources Inc., also a private Canadian company, with the remaining 45% owned by two Chinese private shareholders. Bingay Main is the only project owned by Centermount. Centermount has eight full-time, permanent employees and has engaged a group of consultants with specialized expertise to assist in the development of the Project.

Key members of the Centermount management team are identified below.

Honourable Jack Austin (Chairman)
Mr Austin has law degrees from the University of British Columbia and Harvard Law School and has specialised in trade and commercial law in Vancouver for over 20 years. Mr Austin is a former senator for the government (1975-2007), and has served for four years as the Deputy Minister of Energy, Mines and Resources, one and half year as Chief of Staff to Prime Minister Pierre Trudeau, and was a Cabinet Minister in both the Trudeau and Martin governments. From 1993 to 2000, Mr Austin served as the President of the Canada China Business Council.

Edward (Ted) Nunn (President)
Mr Nunn is a Professional Engineer with over 43 years of experience in the mining industry. Mr Nunn's career includes 22 years of coal and industrial minerals for Kaiser

Resources, An Tai Bao Surface Coal Mine (China), Greymouth Coal (New Zealand), and Crystal Graphite Corporation (Canada and China). His metal mining experience included Cominco (four operations), Lornex Mining Corp., Echo Bay Mines, and Granduc Operating Company. His experience includes exploration, geological engineering, civil/structural engineering, mine engineering, contract management, financial analyses, governmental affairs, and project/construction management in both open pit and underground mining environments.

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Centermount has engaged Masse Environmental Consultants to coordinate the Environmental Assessment process.

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Principal Contact: Sylvie Masse, M.Sc., R.P.Bio
Email: sylvie@masseenvironmental.com
Cell: (250) 505-3790

2 PROPERTY DESCRIPTION AND LOCATION

The Bingay Main property is situated in the Elk River valley in south-eastern British Columbia, Canada, approximately 21 km north of the community of Elkford (Figure 1), and comprises four coal licences totalling 1,157 hectares (ha) (Table 1, Figure 2). The licences are located within the area designated as a coal Enhanced Resource Development Zone as defined in the Kootenay/Boundary Land Use Plan (KIAMC 1997) and Southern Rocky Mountain Land Use Plan (MRSM 2003). The Project includes the proposed coal mine and related appurtenances, and a 27 km rail line connecting the project to an existing CP rail line near Teck Coal's Greenhills operation. The coordinates for the center of the mine pit are approximately latitude 50°12'03" N and longitude 114°58'49" W. The coordinates for the start and end of the rail line are approximately latitude 50°12'34" N and longitude 114°57'40" W and latitude 50°01'09" N and longitude 114°50'04" W respectively. Components of the project may also be located on land immediately to the south of Bingay Main. The major shareholder of Centermount, Centerpoint Resources, currently holds the coal licence for this property (Bingay B). The project components are all located on provincial Crown land. The nearest Federal lands are Banff National park, located ~ 80 km to the north, and the Dominion Coal Block, located 60 km to the south near Sparwood.

Table 1. Coal licenses held by Centermount for the Bingay Main property.

Tenure Number	Map Number	Area (Ha)	Description
374190	082J016	260	DL 9478 of Kootenay Land District
414014	082J026	64	NTS 082J 02 Block L Units 48,49 save and except those portions within DL 9478 of Kootenay Land District and Coal Lease 389312
415139	082J025	241	NTS 082J 02 Block L units 59, 60, 50 save and except that portion within DL 9478 of Kootenay Land District
417302	082J026	592	NTS 082J 02 Block L units 58, 68, 69, 78, 79, 88, 89, 98, 99 save and except that portion covered by coal lease 389312)

Table 2. Coal licenses held by Centerpoint Resources for the Bingay B property.

Tenure Number	Map Number	Area (Ha)	Description
417724	082J016	675	Portions of DL 9476 and DL 9477 of Kootenay Land District

The Bingay Main property is centered on Bingay Hill, a small hill that rises approximately 50 m above the surrounding terrace at the confluence of the Elk River and Bingay Creek. The Elk River valley is a north-south trending valley that lies at an elevation of 1350 m in the project area. Adjacent to the project, the Elk River is a wide, extensively braided, river with a floodplain approximately 300 to 600 m wide. Large terraces approximately 25 to 50 m above the floodplain are adjacent to the river on either side. The valley bottom itself is approximately 2.5 km wide, before rising steeply 600 to 800 m to the ridge tops. Photographs of the project area are provided in Appendix 1.

The majority of the mine components, including the pit, waste rock storage areas, coal processing plant, rail line and rail loadout, sedimentation ponds, water treatment facilities, and mine administration and maintenance buildings will be located on Crown Land on the west side of the Elk River (Figure 2). The project will not require the use of any federal land. The majority of the rail line would be located on the east side of the Elk River on Crown Land. Both sides of the valley are readily accessible on existing forest service roads (FSR). The Elk River FSR is located on the west side of the Elk River, while the Kananaskis Power Line FSR is located on the east side. A 138 kV transmission line is located on the east side of the valley and can be used to service the mine.

The Elk River watershed has a long history of coal mining beginning in the late 1800's. Five coal mines operated by Teck Coal are currently active in the region, and the infrastructure to support these operations, including rail lines and power lines, as well as support services are readily available in the valley. Two of these mines have proposed expansions and are currently in the provincial environmental assessment process. The Elk River valley has not been subject to a regional environmental study, although a large scale aquatic effects monitoring program has recently been implemented by Teck Coal to assess the effect of coal mining activities on aquatic resources.

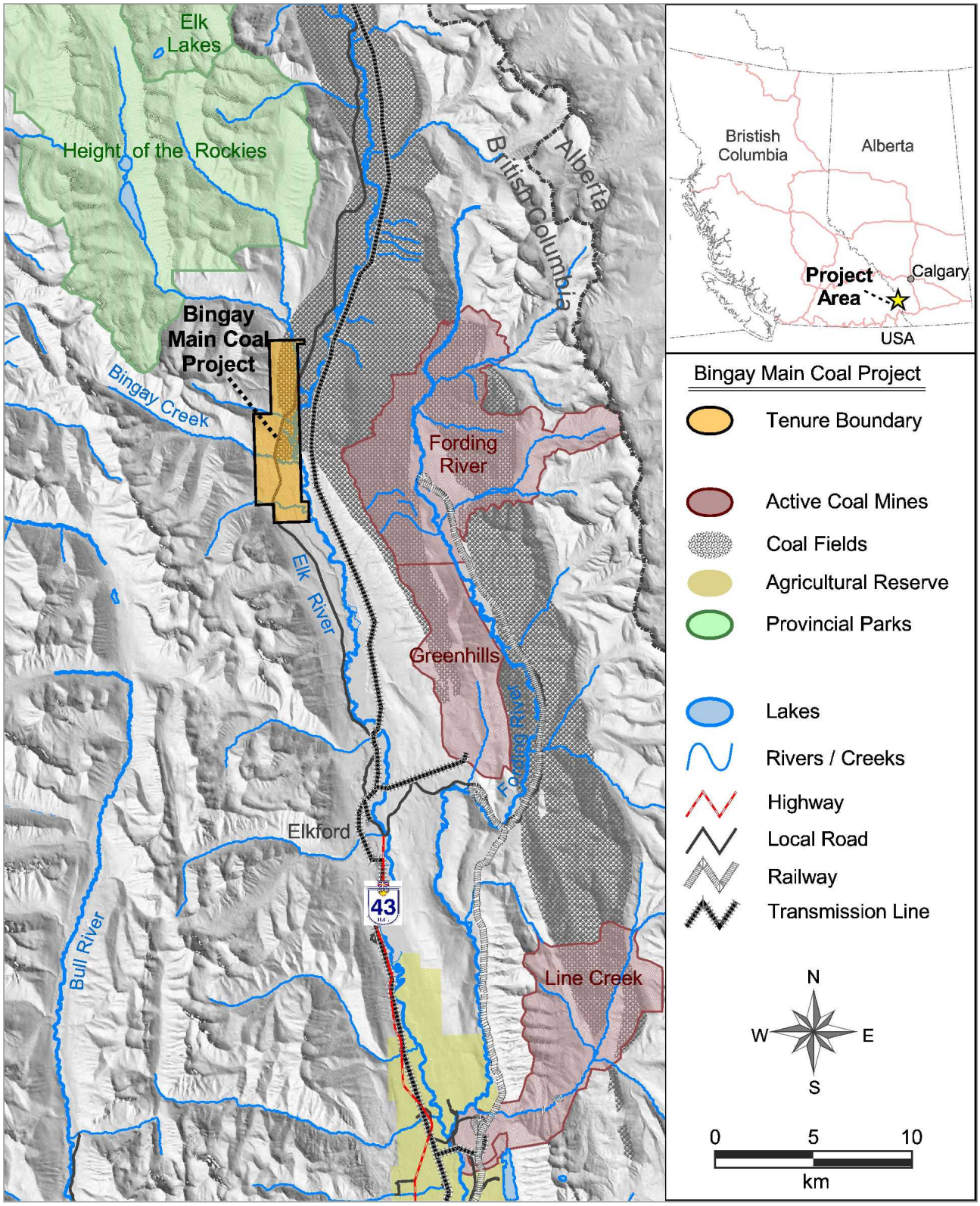

Figure 1.Project location map.

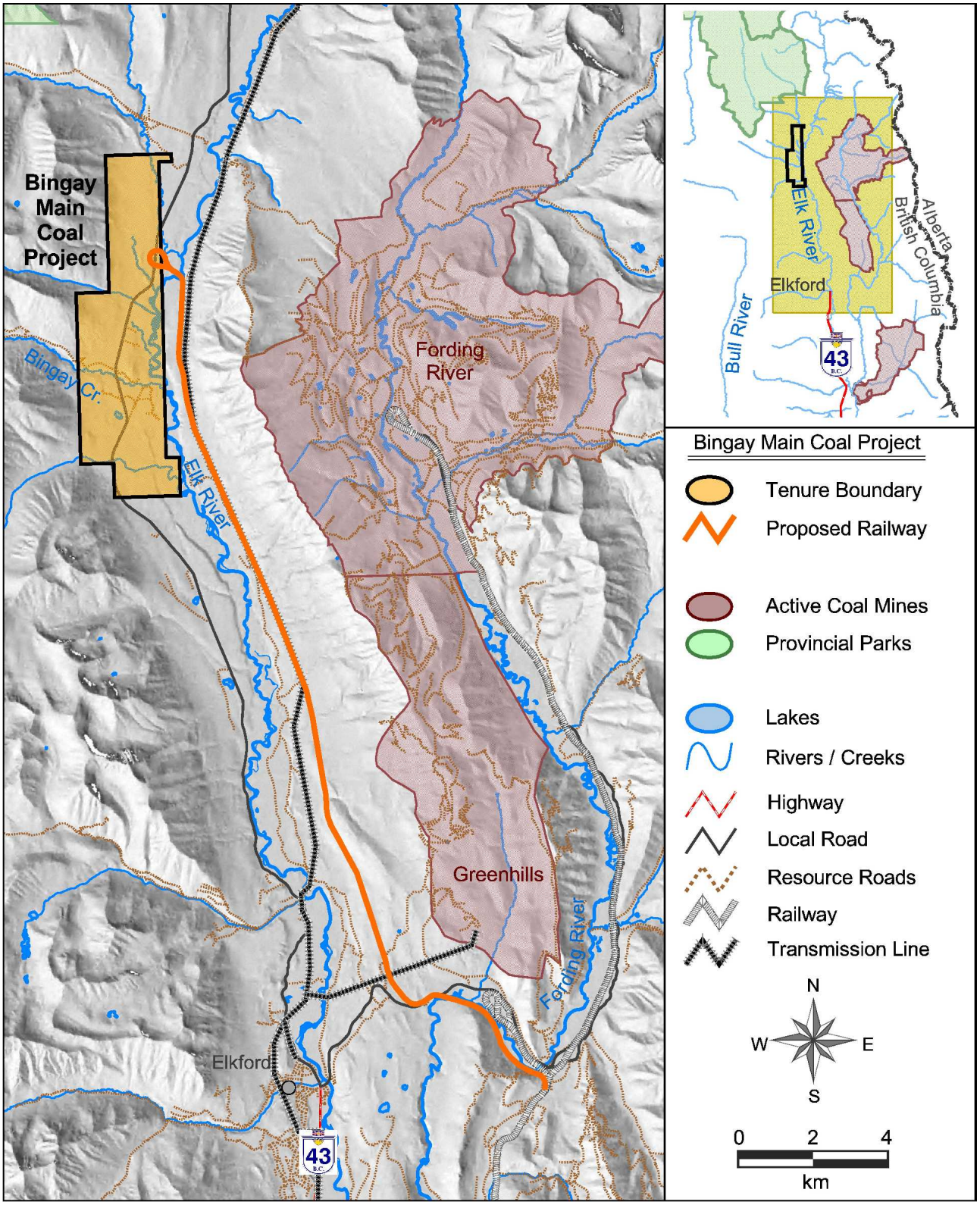

Figure 2. Local area.

2.1 Project History

Exploration and work on the Bingay Main property dates back as early as 1908 and a number of test pits and old workings still exist onsite. Between 1902 and 1981, coal licenses at Bingay Main have been held by the Elk Valley Coal and Coke Company, Cominco, and Specific Natural Resources, although details regarding exploration work on the site are limited. In 1982, Mr W. Shenfield and Mr S. Gardner staked the property, and subsequently sold the property to Utah Mines in 1983. Utah Mines conducted some exploration work on the property in the autumn of 1983, including 3 diamond drills and a geophysical survey on each hole. In 1986, Utah Mines abandoned their interests, and the property reverted back to Messrs. Shenfield and Gardner in May 1987. In 2004, Hillsborough Resources Ltd optioned the property and conducted an extensive exploration program, including 14 rotary drill holes. The coal licences were subsequently transferred to Hillsborough, who developed the property sufficiently to prepare and submit an application for a Small Mine Permit in 2007. Hillsborough withdrew this application in order to focus on other projects elsewhere in the province. In October 2009, Centermount acquired the coal licence from Hillsborough, and conducted further exploration work in 2010 and 2011. During 2010, 56 boreholes were drilled, utilizing both rotary and diamond drills, as well as 1.8 km of trenching. In 2011, 15 boreholes were drilled also using both rotary and diamond drills. Extensive coal quality analysis was done to assess the potential for Bingay coal to meet the international coking coal market requirements.

2.2 Type and Size of Project

The project is projected to produce metallurgical coal at an annual maximum production rate of 2 million clean tonnes (~5,500 t/day). The lifespan of the project is planned for 20 years of coal production at a constant rate. A preliminary mine design estimates 10-15 years of shovel and truck operation open pit mining, followed by underground mining for the remaining years, although the property has potential for additional resources. The size of the project means that the project is subject to review by both the BC EAO as well as the Canadian Environmental Assessment Agency (CEAA), as it exceeds the thresholds for review for new coal mines under both of these acts.

Under the Reviewable Projects Regulation (B.C. Reg 370/2002) of the BC Environmental Assessment Act, a new coal mine with an annual production of greater than 250,000 t/yr of clean coal or run of mill coal is considered a reviewable project.

Under the *Regulations Designation Physical Activities* (SOR/2012-147), Section 15(d) of the Canadian Environmental Assessment Act, an environmental assessment is required for a coal mine with a coal production capacity of 3 000 t/d or more.

2.3 Project Purpose and Rationale

Centermount is proposing to develop a coal mine that would extract 39 million tonnes (Mt) of clean metallurgical coal (coking), suitable for use in overseas steel mills. Global steel production has increased an average of 5.4% since 2000 (WSA 2011), with 1,490 Mt of steel produced in 2011. At present, 70% of world steel production uses coking coal, with the remainder produced by recycling scrap steel. Coking coal is an essential component of steel production. Each tonne of steel produced requires approximately 600 kg of coke, which is produced from 770 kg of coking coal.

The project would provide additional jobs and economic opportunities to the Elk Valley and surrounding region, as well as provide additional tax revenues for local, provincial and federal governments. Centermount is committed to developing the Bingay Main Coal project in a sustainable manner that respects natural, heritage and social values, while providing economic benefits for the local, regional, provincial and federal governments.

2.4 Capital Cost

A preliminary feasibility study estimated the capital costs for the project at $480 million. This includes the initial mining equipment, processing plant, conveyors, administrative and maintenance buildings, the rail line and load out, roads and bridges, engineering, and owners costs. The project will not require any financial support from the federal government.

2.5 Employment

The project is expected to generate 494 person years of direct employment during the 1.5-2 years of construction. During operation, the project is anticipated to require 331 full time employees, and generate 6,620 person years of employment over the twenty years of operation.

3 PROJECT DESCRIPTION

3.1 Project Components

The project includes the following components:

- Mine pit area
- Coal processing plant
- Waste rock storage facilities
- Materials handling systems for raw coal, refuse, and clean coal, including conveyors and storage containers
- 27 km new rail line to connect to existing rail lines
- Rail bridges over the Elk River, Fording River, and various smaller tributaries
- Rail load out facility
- Surface water management features, including ditches, sedimentation and storage ponds and water treatment facilities
- Administration, maintenance and storage buildings
- Mine haul roads and access roads. Including road crossings over Bingay Creek and smaller watercourses
- Water supply wells, storage, and distribution systems
- Sewage disposal facilities
- 1 km of new power line and on site 28 kV electrical distribution systems
- Natural gas supply
- Upgrades and relocations of existing FSRs

The majority of facilities associated with the mine and coal processing, including the pit, coal processing plant and administration, maintenance and storage facilities, and rail loadout, will be located within the Bingay Main licence area held by Centermount (figure 3). Several of the areas identified as potential waste rock dumps are located on

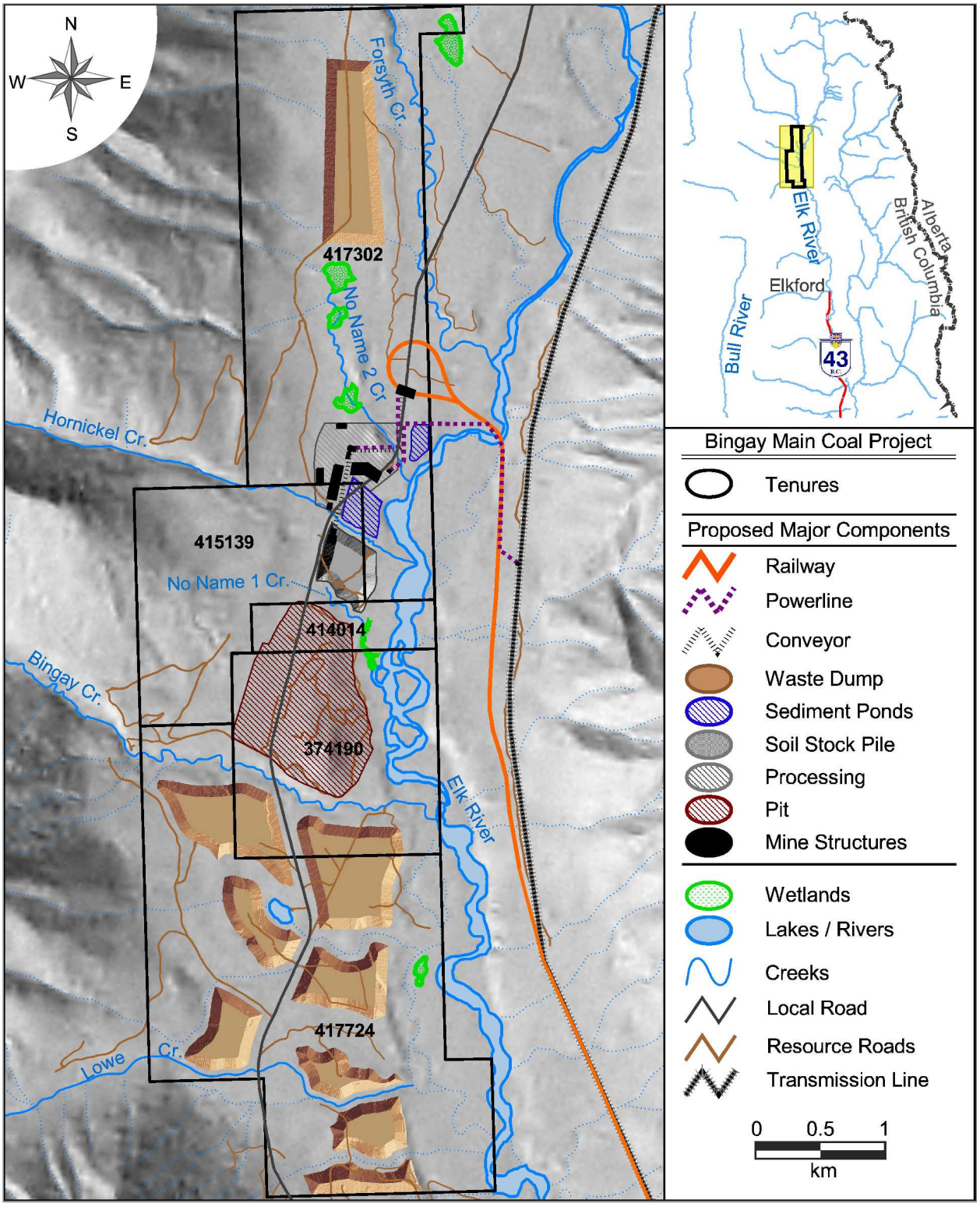

Figure 3. Bingay Main Coal Project mine area.

the Bingay B coal licence area held by Centerpoint Resources, the majority shareholder of Centermount. The majority of the rail line and the power line are located outside of these license areas on Crown Land. The estimated total disturbance area of the mine site, excluding the rail line and loadout, is estimated at 450 ha. This includes the open pit (93 ha), waste dumps (320 ha), sediment ponds (20 ha) and related infrastructure.

Several alternative options for the rail load out and waste dumps are currently under consideration. The layout proposed is currently considered the preferred option. Alternative options will be discussed in the text in the relevant section.

3.2 Mining

The project will produce metallurgical coal at an annual maximum production rate of 2 million clean tonnes. The lifespan of the project is planned for 20 years of coal production at a constant rate, using shovel and truck operation open pit mining method in the first 10-15 years, and then underground mining for the remaining years. The optimal ratio of surface to underground mining is currently being evaluated.

3.2.1 Open Pit Mining

The Bingay Main coal deposit is planned to be mined using the conventional bench-by-bench (15 metre) open-pit mining method, which includes excavation of overburden, drilling and blasting of rock, ripping and dozing coal, loading with a hydraulic shovel and a front-end loader, and hauling coal with 100 t capacity trucks and waste rock with 240 t capacity trucks. The strip ratio is variable but is expected to average 6.0 bank cubic meters (BCM) per clean tonne mined (CMT). The entire open pit mine is located in the measured/indicated resource portion of the coal deposit. Auxiliary equipment includes dozers, graders, front-end-loaders, service trucks and general equipment to support and conduct maintenance.

Based on the level of production and the strip ratio, the mining fleet planned for the operation consists of one P&H2800XP electric shovel (or equivalent), one hydraulic shovel, eight 240-tonne capacity haul trucks, four 100-tonne capacity trucks, two diesel electric rotary drills, two large front end loaders and two D10 dozers.

At completion the proposed open pit is expected to encompass approximately 93.4 ha and extend approximately 1300 m in the north-south direction, approximately 1000 m to the east and west, and 250-300 m below the current topographic surface.

3.2.2 Underground Mining

The underground operation would commence when the open pit operation is phasing out. The development would be approximately within the open pit area footprint and generally to the north and south at elevation levels between 250 m and 500 m below the surface. The structure of the deposit is suitable for underground hydraulic mining, which uses high pressure water jet to extract coal, a method that has been used in the Elk River valley coalfield for many years.

The entrance into the underground operation will be via portals of two stone drives, which would be located in the floor rock of the lowest coal seam on the axis of the syncline at the open pit floor. The inclination of the stone drives is planned to be 10% to maintain safe tire vehicle operation. Two road headers and four ram cars would be used to haul waste rocks to the surface. When the stone drive distance becomes too long to maintain the efficiency of the ram car operation, the waste rocks would be dumped at the underground transfer points, where front-end loaders will load the rocks onto underground dump trucks or conveyor to haul the waste rocks to the surface. A coal pump system, located at the bottom of the stone drives, would pump all extracted coal flumed down to the coal sump by gravity; a vertical coal slurry pipeline would be also installed.

The underground mining plan is currently in the preliminary stage satisfying the prefeasibility phase of the project. A complete underground study and design is planned to be conducted during open pit operation. The infrastructure required for underground operation would also be developed, including:

- mine ventilation system
- stone drive and coal entry development
- coal transportation system
- clean water supply system
- monitor feed pump system

- fluming water supply system
- compressor system

3.3 Coal Processing

The coal product is targeted at 8% moisture content and an average of 9.5% ash, and a conceptual coal processing circuit has been developed to achieve this quality (Figure 4). The coal processing plant is similar to that used in other mines in the area.

Run of mine (ROM) coal will be stockpiled and fed to a hopper with a 305 x 305 mm grizzly on top to define the maximum lump size going to the breaker. The breaker station would be designed for a maximum capacity of 800 t/hr and will include an interconnecting conveyor, scalping screen, rotary Bradford type breaker, breaker reject conveyor, and a dust collection system. Crushed -45 mm coal from the breaker will be conveyed to a raw coal silo. Oversized rejects will be conveyed to a reject stockpile for further disposal.

The preparation plant would employ three processing circuits: heavy media cyclones for coal in the size range 1.2 – 45 mm; water only cyclones, spirals and classifying cyclones for coal in the size range 0.25 – 1.2 mm; and froth flotation for coal < 0.25 mm.

Coal dewatering will be done mechanically to avoid the use of thermal dryers, to prevent coal from direct contact with flames, and to limit stack emissions of particulate matter and other pollutants. Centermount would employ screenscroll centrifuges, screenbowl centrifuges and hyperbaric filters to achieve the final moisture content.

The processing plant would be constructed north of the mine pit, and would employ a closed water system. All process plant water will be reused or recycled; and no discharge of used water or tailings material into the environment is anticipated. The fine tailings stream would be dewatered by pressure filters and the processed solids will be added to the course refuse material for disposal to the waste rock dumps.

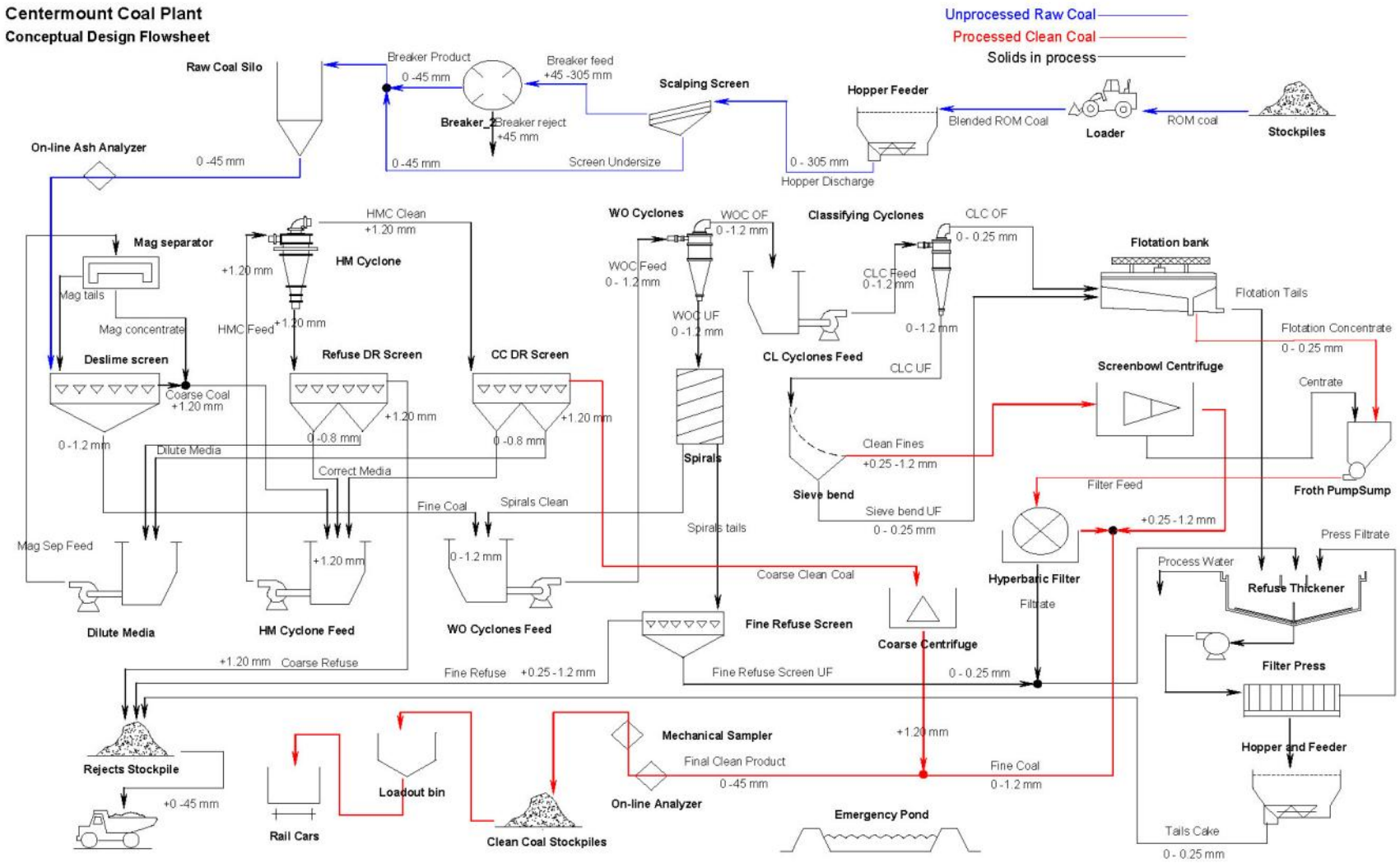

Figure 4. Conceptual design flowsheet

3.4 Waste Dumps

The current estimate of the volume of waste rock generated during the open pit phase of the project is 90,000,000 m^3. This would be generated in the first 10-15 years of operation as the pit is developed. Waste rock production in the first 6 years of operations is summarised in Table 3. Nine areas, totalling 320 ha, designated for waste dumps have been preliminary identified. These have sufficient storage for 100,000,000 m^3 of waste rock based on a 45 m total height and 2:1 (H:V) slopes.

Table 3. Estimated volume of waste rock in first 6 years of operation.

Year	2015	2016	2017	2018	2019	2020
Waste Rock (m^3)	215,000	5,387,900	9,024,000	9,024,000	9,024,000	9,024,000
Cumulative Volume (m^3)	215,000	5,602,900	14,626,900	23,650,900	32,674,900	41,698,900

The waste rock dumps are all located on gentle sloping terrain that contain limited surface water features, and many have been recently clearcut. These criteria for dump sites were selected in order to minimise additional environmental disturbance. The dumps will be built from the bottom up, in contrast to the top down approach which is more common in the region, and provides additional control in the design and development of dumps. Leaching of selenium and calcite from waste dumps is a particular concern in the region and elsewhere, and Centermount has considered this in the design of the dumps. To minimise the likelihood of these issues occurring at the Bingay Main project, the following features have been incorporated into dump design:

- dumps located on flat terrain away from existing watercourses minimises subsurface flow through the dumps,
- upslope diversion ditches will divert "clean" water away from the dump,
- downslope collection ditches will collect runoff from the dump and divert into sedimentation ponds,
- sedimentation ponds designed with a single point of discharge to allow water treatment if required,
- bottom up approach for dump construction allows drainage/impervious layers to be included in dump if required,
- dumps will be temporarily and/or permanently reclaimed as mining allows.

Centermount is currently implementing a geochemical characterization program for the project in order to assist in the development of waste rock management plans, and this program will be maintained during mine operations. This may include a small test trial waste rock dump to provide information on the ability to utilize dump construction methods (compacted lifts) to minimize water infiltration and associated metal leaching, and to test re-vegetation trials at a pilot scale. One of the dumps will be specifically used to store waste rock with a high potential for acid rock drainage or metal/selenium leaching, due to the risk of adverse environmental effects these cause. Following the end of surface mining, these materials would be used to backfill the pit and would be subsequently capped. The remaining dumps will be used to store waste rock with low potential for acid rock drainage or metal/selenium leaching. Waste rock in these dumps will either be stored permanently, or will be used to backfill the pit at the end of the mine life. In both cases, permanent or temporary reclamation of the dumps will be ongoing throughout the surface open pit mine life. The use of several smaller waste rock dumps, rather than one large one, will allow permanent or temporary reclamation to be initiated as each dump is completed.

3.5 Infrastructure

The long history of coal mining in the Elk River valley has supported development of infrastructure that can readily accommodate the Bingay Main operation. An energy-transport corridor occupied by a high-voltage (138 kV) above-ground power line is located along the eastern side of the Elk River, 1 km from Bingay Main site. All-weather roads extend along both east and west sides of the river; the forest service road on the west side of the river bisects the Bingay Main coal property. An existing railway services Teck Coal's Greenhills and Fording River operations, and has sufficient capacity to accommodate production from Bingay Main.

3.5.1 Onsite Infrastructure Development

Onsite infrastructure would be developed to support the operation, including administration, maintenance and storage buildings, sewage treatment facilities, power supply and distribution system, natural gas supply and distribution system, water supply and distribution system, mine road network, surface water management features. The location of the majority of these components facilities are provided in Figure 3. The final

location of these facilities will be determined once the detailed mine plan has been developed.

3.5.1.1 Buildings

The mine will require the following buildings:

- Administration building
- Gatehouse
- Services
- Mine dry and change room
- Repair shops
- Security and emergency services building
- Miscellaneous storage buildings

3.5.1.2 Water Management Infrastructure

Surface water management for the Project includes collecting and managing surface water from disturbed areas (brown water) on the mine site, and diverting surface water (clean water) from undisturbed and upslope areas around the Project into existing natural watercourses. Brown water drainage ditches would convey water from disturbed areas to sediment ponds for treatment. In addition to sediment settling, chemical or biological water treatment could be implemented prior to the release of water to the environment. Metal leaching and acid rock drainage studies are ongoing to provide estimates of water quality and treatment solutions.

The location of diversion ditches and collection ditches will be developed in detail once the locations of the major project components have been refined.

3.5.1.3 Utilities

Water

Fresh water for site services, including potable water, water for fire protection, process water make-up, and wash down and utility requirements, would come from wells located adjacent to the plant. Preliminary hydrogeological studies indicate an adequate source of groundwater at the north end of the property. Potable water will be treated

prior to distribution to facilities. Water for process, services, and fire protection supply would be directed to a plant site water storage tank of suitable capacity, of which the lower section would be a dedicated reserve for fire protection purposes. Site distribution would be as required to support the required facilities. More detailed information on average and maximum daily water demand at the plant will be developed during the detailed design stage, and used to determine whether the existing wells have sufficient capacity to supply the plant or if new wells will be required.

Electricity

An energy-transport corridor occupied by a high-voltage (138 kV) above-ground power line (transmission line IL274) is located along the eastern side of the Elk River, 1 km to the east of the Bingay Main site. Preliminary discussions with BC Hydro indicate that this line can accommodate the load required by the mine. A substation on the property will be required to reduce the voltage to meet mine requirements. The new power line connecting the mine to the existing transmission line would be ~ 1 km long, and would require crossing the Elk River floodplain, a span of ~ 500 m. Detailed design and location of the powerline have not been completed at this point, so specific impacts cannot be described. Vegetation management within the corridor will follow practises developed by BC Hydro (BC Hydro n.d.). Vegetation management requirements for a transmission corridor are based on the circuit's "limits of approach" (the distance a person, machine, or conductive material can safely approach energized conductors), which range from 3 m for a 60 kV line to 6 m for a 500 kV line. Vegetation which could potentially encroach within the "limits of approach" for the line will be actively managed. A riparian management zone will be established within the powerline corridor so that impacts to riparian vegetation and fish habitat are minimised.

Natural Gas

The closest existing gas supply line is located in Elkford, and is supplied by Terasen Gas Ltd. This line would need to be extended to the mine site; and would require the development of a 23 km utility corridor parallel to the Elk River FSR. Alternative supplies of natural gas are also being investigated. Further details on gas supply are not available at the time of writing.

3.5.1.4 Roads

Site roads to access the mine facilities include a haul road from the pit area to the raw coal dump, haul roads from the pit to the waste rock dumps, and access roads from the existing Elk River FSR to mine infrastructure. All roads with the exception of paved aprons adjacent to some structures would be compacted gravel suitable for heavy industrial use. Detailed alignments of haul and access roads will be completed during the detailed design phase. A portion of the existing Elk River FSR would need to be relocated to reduce conflicts with other road users. This would involve new road construction around the mine site, although portions of existing roads will be used as much as possible. Access to the mine site from the Elk River FSR would be gated.

Wherever possible, existing roads will be used and incorporated into the mine planning.

3.5.1.5 Bridges and other Stream Crossings

As part of the project, several stream crossings will be required. The rail line will involve crossings of the Fording River, Elk River and numerous first and second order tributaries to the Elk River. Road crossings will be required over Bingay Creek and Hornickel Creek. A variety of other stream crossings may be required depending on the final layout of the project. Major stream crossings expected are summarised in Table 4.

Table 4. Summary of major stream crossings anticipated.

Crossing	Span (m)	Width (m)	Comments
Elk River	570	7	Rail crossing. Width includes wide floodplain.
Fording River	40	7	Rail crossing.
Bingay Creek	20	7	Road crossing to accommodate Elk FSR.
Bingay Creek	20	20	Upgrade of existing crossing to accommodate haul trucks.

3.5.1.6 Hazardous Materials

Fuel and Oils

Diesel fuel for mining equipment and haul trucks will be transported to site via the Elk River FSR by a licensed third party vendor. Diesel fuel will be stored in above ground fuel storage tanks located near the maintenance shop. Two 95 m^3 double wall storage tanks in a secondary containment facility are anticipated.

Explosives

The primary explosive used during mine operation will be a combination of ammonium nitrate fuel oil (ANFO) and emulsion. The blasting operations will be contracted out to a third party company. All required explosives will be obtained through an explosives supply contractor and stored in areas close to the pit in a dedicated explosives magazine. The size and location of the magazine has yet to be determined. No explosives will be manufactured on site. The transportation of explosives to and from the mine site will comply with the *Transportation of Dangerous Goods Regulations*.
Licenses and permits for an explosives magazine will be required from Natural Resources Canada and the Ministry of Energy and Mines.

3.5.2 Offsite Infrastructure Development

3.5.2.1 Roads

The Elk River FSR will be used to access the mine site. This road is used for forestry, and is under radio control; however, recreational use of this road is high and 22 km of road between the mine and Elkford will need to be upgraded to two lanes to minimise conflict. To reduce traffic, employees will be bussed to the mine site from a parking facility in Elkford, as is done for other operations in the area. The parking area would be provided with lighting, block heater stations for cold weather, an emergency phone line to the plant, and a perimeter security fence.

3.5.2.2 Rail Line and Rail Loadout

Coal would be shipped by rail to coal terminals in Vancouver. The nearest rail line, operated by Canadian Pacific, is located 27 km south of the project below the Teck Coal's Greenhills Operation. A spur connecting this line to a rail loadout adjacent to the Bingay Mine property on the east side of the Elk River is proposed. The line will cross the Fording River, as well as numerous smaller watercourses draining the west side of Greenhills ridge. The preliminary rail line extension route to Bingay Main is shown in Figure 2. A detailed alignment of this spur and the required crossings will be completed during the detailed design phase. Centermount has had preliminary discussions with Canadian Pacific regarding the rail line and the capacity of the Canadian Pacific network to accommodate the additional shipping volume.

The rail loadout will include a small administration office, coal storage containers, and a dust control/suppression system. The loadout will service two 152-car trains/week. The preferred option for the rail loadout is to locate it at the north end of the Bingay Main property, which would require a train bridge crossing of the Elk River adjacent to the mine. A second option being considered is to locate the rail loadout on the east side of the Elk River adjacent to the mine area. This option would require a conveyor to deliver coal from the processing plant across the Elk River to the loadout, and a road bridge across the Elk River to provide access. In this case, direct loading of the trains from the conveyor is anticipated, although a small stockpile at the loadout will be required so that loading can begin as soon as a train is present.

An alternative method of transport involving trucking coal to an existing load out near Greenhills was considered but rejected. This would substantially increase traffic on the Elk River FSR (12 trucks/hr), create dust and noise issues in Elkford, increase the risk of road mortality to wildlife, as well as lead to higher coal transport costs.

3.6 Alternatives

A variety of alternatives for various components are currently under consideration (Table 5). These will be evaluated at the design stage once more detailed information is available, and will take into consideration socio-economic and environmental impacts.

Table 5. Summary of alternatives under consideration.

Component	Alternatives
Mining method	• Ratio of surface vs underground mining
Infrastructure	• Siting of project infrastructure components (waste dumps, rail load out etc)
Coal transport	• Location of rail line • Loadout location • Truck vs train transport • Use of conveyors
Roads	• Location of bridge crossings • Provision of public access

3.7 Emissions, Discharges and Waste

3.7.1 Airborne Emissions

Airborne emissions associated with the project may include:

- Contaminants and greenhouse gases (GHG) associated with the operation of vehicles and heavy machinery. This includes CO_2, NO_X, and particulates.
- Fugitive dust emissions associated with blasting and crushing activities and road use, including particulate matter (TSP, PM_{10}, $PM_{2.5}$).
- Methane gas associated with the coal deposit.

3.7.2 Liquid Wastes

Liquid waste associated with the project can be divided into three main classes. Waste water associated with sewage treatment facilities, process water, and site runoff and pit water.

- Ground disposal of wastewater using septic field(s) is anticipated. Septic field(s) will be designed and sized appropriately according to applicable legislation and regulations.
- Process water will be recycled or reused. The fine tailings stream would be dewatered by pressure filters and the water recycled. No discharge of process water or tailings material to the environment is anticipated.
- Site runoff and pit water will be diverted into several sedimentation ponds sized and designed appropriately. Water quality will be monitored at the point of discharge prior to release into the environment. If required, additional water treatment facilities (*i.e.*, nitrate and/or selenium reduction) will be added at the point of discharge to ensure water quality parameters are met. Space for additional treatment facilities are incorporated into the mine design, and geochemical characterisation of waste rock is underway to predict potential water quality and treatment requirements.

3.7.3 Solid Wastes

Solid waste streams will be segregated according to standard practices. Recyclable materials will be separated and collected on site and shipped to the nearest suitable facility for recycling. Industrial waste materials that can also be recycled, including lubricant, fuel, oils, batteries, will also be shipped to an appropriate facility for disposal. Solid waste that cannot be recycled will be shipped to an appropriate landfill.

Disposal of waste rock is discussed above in Section 3.4.

4 PROJECT SETTING

4.1 Geology

The Bingay Main property includes the western margin of the Elk Valley coalfield. The coalfield is an infaulted remnant of a substantially larger body of coal-measures, correlative with the Crowsnest Basin to the south and the Highwood Pass/Mount Allen/Canmore coalfields to the north. During deposition of the Mist Mountain coal-measures, the Fernie Sea (the local name for the Interior Seaway) lay to the east and northeast, and orogenically-elevated highlands lay to the southwest.

The Bingay property is situated within the geologic Bingay Syncline, a steeply dipping bedrock fold which dips to the northeast beneath the Elk River. The syncline's southern nose extends along the southern slope of Bingay Hill above the north bank of Bingay Creek. Because of the synclinal structure, the bedding in the proposed mining area ranges between generally sub-vertical (45 to 65 degrees) to vertical. The eastern syncline limb is known to be significantly less steep than the western limb. Numerous small faults have been observed in exploration rock core and geologic maps show the west-dipping Bourgeau Thrust Fault extending along the west part of the proposed mine area.

Coal-measures in the Bingay Main area are hosted by the Mist Mountain Formation of the Kootenay Group, of latest Jurassic to earliest Cretaceous age. The Mist Mountain Formation is underlain by Jurassic rocks of the Morrissey and Fernie formations. At the crest of the Greenhills Range, east of the Bingay Main property, the Mist Mountain Formation is overlain by the younger coal-measures of the Elk Formation, also of Cretaceous age. Although younger coals are known from the overlying Elk Formation in the Greenhills Range, the Elk coals appear to have been stripped away by erosion within the Bingay Main property. At least 32 coal beds, whose true thickness ranges from 0.3 to 16.2 metres are present. Of these coals, 24 typically are at least 1 metre thick, inclusive of contained bands of rock. Cumulative thickness of these coals is 62.6 metres, within an overall coal-bearing rock thickness of 460 metres; coal thus forms about 13.6% of the coal-bearing rocks at Bingay Main. Bedrock in the proposed mine area consists primarily of siltstone, mudstone and sandstone with interbedded coal seams, which are exposed in the central Bingay Hill and along the east side of the

proposed open pit adjacent to the Elk River. The mudstone, siltstone and coal layers appear relatively soft, however coal-bearing erosion resistant sandstone layers form prominent bedrock ridges in the southwestern part of the proposed mining area and along Bingay Creek. A stratigraphic column of the Bingay Main deposit is shown in Figure 5.

Overburden, generally consisting of coarse sand and gravel is present on the west and north sides of the proposed pit area, and thick silt and clay is located on the north side of the proposed pit area. Thin deposits of silty sand and gravel overlying bedrock are present on the proposed pit's south and east sides.

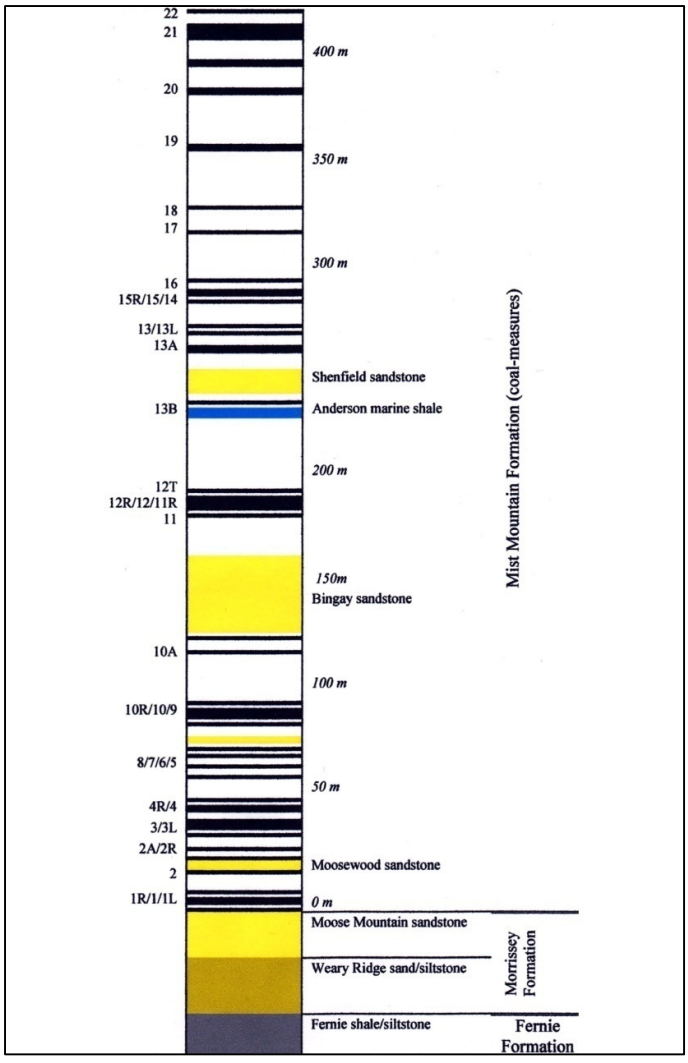

Figure 5. Stratigraphic column from the Bingay Main deposit

4.2 Geochemistry

Three primary waste rock types are present at the Bingay Main site: mudstone, siltstone and sandstone. A minor amount of ironstone and marine sediments associated with the Anderson Formation are also present at the site; however the amount of these materials expected to be excavated as a result of open pit mining represent significantly less than 1% of the total waste rock to be disturbed through mining. A metal leaching and acid generating potential study is underway to gain a full understanding of the potential and to develop a mitigation plan to prevent environmental pollution. Current studies have shown that the waste rock at Bingay Main has minimal acid generation potential, consistent with the observations at nearby mines; ongoing studies will provide confirmation. The focus on metal leaching studies is primarily related to the potential for selenium to be leached from waste rock at the site.

4.2.1 Acid Rock Drainage

The waste rock types at Bingay Main average less than 0.2% sulfur with only a few samples having total sulfur contents greater than 0.2%. Sulfate sulfur in the waste rocks was low in all samples, indicating that there has not been a great degree of weathering on the rocks post deposition and that sulfide sulfur is the dominant form of sulfide in the deposit. Given the sedimentary nature of the waste rocks at Bingay Main, the total inorganic carbon content of the rocks will be used to determine the carbonate neutralization potential (NP_{Carb}), rather than using Sobek NP (NP_{Sobek}). The acid potential (AP) of the waste rocks tends to be low due to the low sulfide sulfur content. Results to date indicate that the mudstone waste rock type has the highest likelihood of being classified as PAG materials, depending on the amount of unavailable NP. A kinetic testing program with 2 cells planned for each of the primary waste rock types will be established in 2012 to better understand the amount of unavailable NP.

4.2.2 Metal Leaching

Selenium is the primary element of concern from a metal leaching perspective, although other elements of potential concern are also being evaluated as part of the static geochemical characterization program. Shake flask extraction (SFE) testing on 87 samples of the primary geological materials present at the site (mudstone, siltstone,

sandstone and coal) show that all of the geologic materials at the site have the potential to leach selenium in excess of the British Columbia Water Quality Objective (BCWQO) of 2 μg/L (Figure 6). The results show that for the siltstone and sandstone units there is a slight increasing trend between selenium leaching and contained selenium. The mudstone unit appears to have a decreasing trend between selenium leaching and contained selenium.

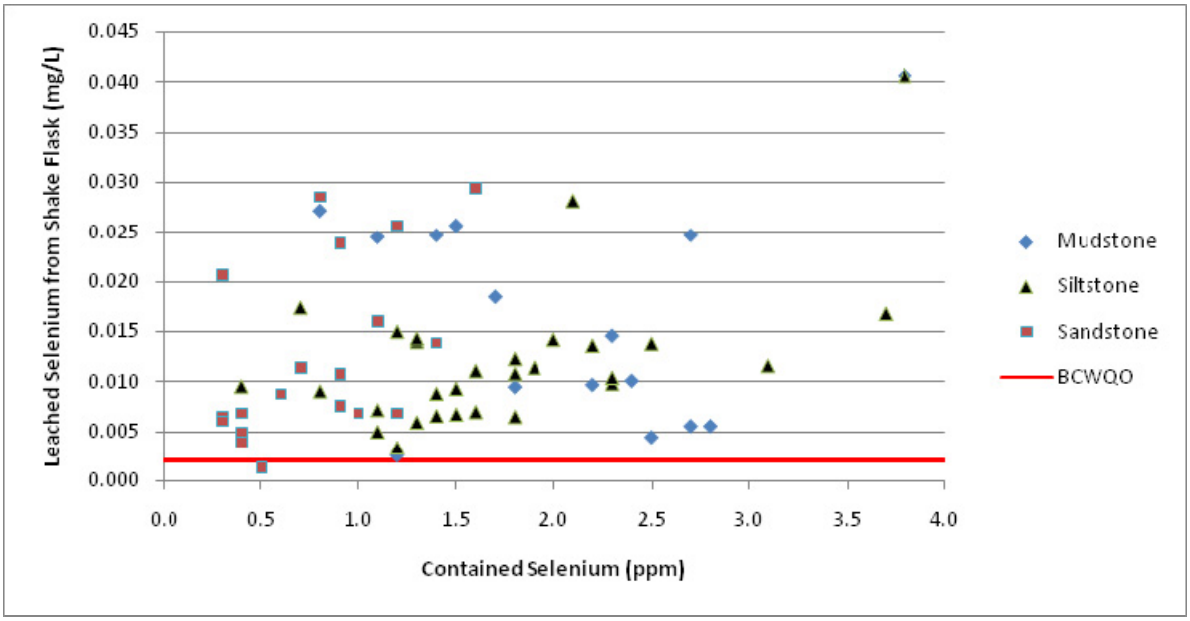

Figure 6. Comparison of shake flask selenium concentrations versus contained selenium in Bingay Main waste rock types.

4.3 Climate

The climate in the Bingay Main area and upper Elk River is characterised by long, cold winters and short, warm summers. Long term climatic data is also available for Elkford (1971-1993) and Sparwood (1980-2000) (EC 2011) (Figure 7), and this data can be used to infer longer term trends and conditions. Average daily temperatures measured at Elkford, 23 km to the south and ~ 120 m lower in elevation, range from -8.4°C in January to 14.7°C in July. Average yearly precipitation at Elkford is 610 mm, with approximately 60% falling as rain, and 40% falling as snow. The climate at the project site is expected to be somewhat colder and wetter than in Elkford.

An FTS 12S (Forest Technology Systems) datalogger was installed on the site in October 2010 near Bingay Hill (UTM 11U.643881.5562513) and monitors temperature, humidity, wind speed and direction, and precipitation. Data collected to date (Oct 2010 – Oct 2011) is summarised below (Figure 7, Table 6). Wind speed and direction information at Bingay Hill is summarized in Figure 8. Winds are generally from the SSE.

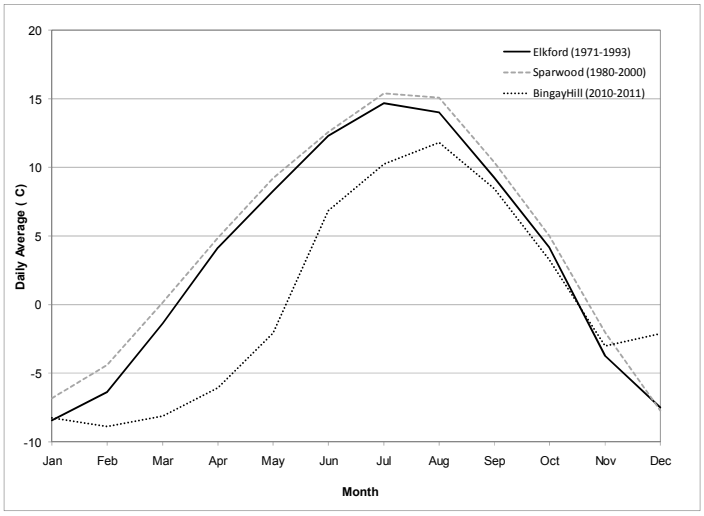

Figure 7. Monthly average temperatures at the Elkford (1971-1993) and Sparwood (1980 – 2000) and Bingay Hill (2010-2011) weather stations.

Table 6. Summary of climatic information at Bingay climate station (Oct 2010 - Oct 2011).

Bingay (Oct 2010-Oct 2011)	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
Temperature												
Daily Average (°C)	-3.0	-2.1	-8.2	-8.9	-8.1	-6.1	-2.1	6.9	10.2	11.8	8.4	4.2
Daily Maximum (°C)	6.1	0.2	2.1	0.2	1.5	3.7	10.9	16.9	20.7	21.0	18.1	11.4
Daily Minimum (°C)	-27.2	-18.0	-23.0	-26.2	-17.0	-7.1	-1.2	5.0	7.3	8.3	4.3	-1.8
Extreme Maximum (°C)	9.9	3.8	7.7	6.3	8.2	11	18.7	24.8	29.6	29	27.8	23.7
Extreme Minimum (°C)	-32.2	-22.6	-28.6	-35	-22.9	-14.9	-5.9	-3	1.8	-0.7	-2.8	-4.2
Precipitation												
Precipitation (mm)[1]	n/a	n/a	n/a	n/a	25.3	44.9	50.4	56.0	41.7	19.0	39.0	64.4

[1] no precipitation data collected from Nov 2010 - Feb 2011

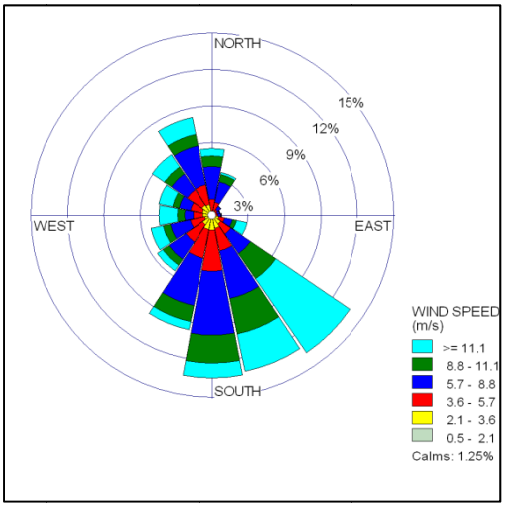

Figure 8. Wind rose for the Bingay Hill station, Oct 23, 2010- June 20, 2012

4.4 Aquatic Resources

4.4.1 Hydrology

The Bingay Main and Bingay B properties are transected by several watercourses including the Elk River, and several tributaries draining east into the Elk River including, from south to north, Lowe Creek, Bingay Creek, No Name Creek 1, Hornickel Creek, No Name Creek 2, and Forsyth Creek. In addition to these features, there are a number of wetlands within the project area (Figure 3). The proposed railway line is also transected by a number of streams draining west into the Elk River. The mine plan was developed with these surface water features in mind to minimise impacts to the aquatic environment. With the exception of several stream crossings, direct impacts to streams would be avoided.

Hydrometric stations have been established in Lowe Creek. Bingay Creek, No Name Creek 1, Hornickel creek, No Name Creek 2 and Forsyth Creek. Stream flows in all the creeks except No Name 1 are dominated by snowmelt, with peak flows occurring between May and July. No Name Creek 1 is groundwater fed, and the highest flows occur between May and July.

4.4.1.1 Elk River

The Elk River in the vicinity of the project has multiple channels and lies within a wide floodplain ranging from 300 to 600 m in width. Bull trout (*Salvelinus confluentus*), Westslope cutthroat trout (*Oncorhynchus clarki lewisi),* mountain whitefish (*Prosopium williamsoni*), Eastern brook trout (*S. fontinalis*) and longnose dace (*Rhinichthys cataractae*) have all been observed in the Elk River adjacent to the project.

4.4.1.2 Lowe Creek

Lowe Creek is a third order stream with a mainstem length of approximately 7.6 km and drains an area of 21 km^2. The lower 2 km are within the project area. Bull trout and eastern brook trout have been observed in Lowe Creek. The culvert crossing on the Elk River FSR is currently a barrier to upstream fish passage.

4.4.1.3 Bingay Creek

Bingay Creek is a fourth order stream with a mainstem length of approximately 14.3 km and drains an area of 52 km^2. The lower 2 km are within the project area. In this reach, Bingay Creek has an overall gradient of 3%, with riffle pool channel morphology. The average channel width varies between 9 and 13 m. The lower part of Reach 1 has low complexity due to channel instability and aggradation of substrate material. The upstream end of the reach has abundant cover in the form of deep pools, large woody debris and overhanging vegetation. Spawning gravels were scarce in the lower part of Bingay due to aggradation of the channel with mostly cobble material. Spawning gravels were more abundant further upstream. Bull trout, Westslope cutthroat trout, mountain whitefish and Eastern brook trout have all been observed in Bingay Creek, although in low numbers. During the winter, large parts of this reach of Bingay Creek freeze solid, which may affect fish use and recruitment in this tributary.

4.4.1.4 No Name Creek 1

No Name Creek 1 is a first order stream, 750 m long, drains an area of approximately 48 ha and originates from groundwater seeps below the Elk River FSR. The stream flows into an oxbow/wetland complex of the Elk River, and currently supplies most of the flow to this complex. No Name Creek 1 is non-fish bearing, based on surveys

conducted in 2005 and 2010. Steep gradients and frequent small steps at the downstream end of the stream present barriers to fish passage. Longnose dace and mountain whitefish have been observed in the lower part of the oxbow/wetland complex, where it is accessible from the Elk River.

4.4.1.5 Hornickel Creek

Hornickel Creek is a third order stream and approximately 6.1 km long and drains an area of 4.6 km^2. The lowermost 1 km is within the project area. This reach has an overall gradient of 3% and riffle pool channel morphology, with an average channel width of 1.9 m. Abundant Westslope cutthroat trout fry and juvenile were observed in Hornickel Creek in 2010. Bull trout have also been reported, although were not observed during field work in 2010.

4.4.1.6 No Name Creek 2

No Name Creek 2 is a third order stream, 4.1 km long, and drains an area of 3.9 km^2.The lowermost 1.5 km lies within the project area. The first reach has low gradients of 2% with 3 major wetlands near the upstream end. Westslope cutthroat trout have been reported within the first 0.9 km of stream below the first wetland.

4.4.1.7 Forsyth Creek

Forsyth Creek is a fourth order stream, 30 km long, and drains an area of 178 km^2. Within the project area, Forsyth Creek has an average gradient of 1%, with a meandering channel and a riffle pool morphology. The average channel widths vary from 11 to 17 m. Westlope cutthroat trout and bull trout were observed in Forsyth Creek, and Eastern brook trout have also been reported.

4.4.1.8 Streams on east side of the Elk River

The 27 km rail line will also cross numerous small streams on the east side of the Elk River. The majority of these streams are non-fish bearing, due to steep gradients and limited watershed area. Streams that are potentially fish bearing, and that have not been classified previously, will be assessed in order to design appropriate stream crossings.

4.4.2 Surface Water Quality

Water quality in Bingay Creek, the Elk River, the oxbow/wetland complex, No Name Creek 1 and Forsyth Creek has been monitored on a monthly or quarterly basis since 2010. Sample sites were selected on Bingay Creek and the Elk River upstream and downstream of the proposed project so that potential impacts due to project development could be assessed. No Name Creek 1 and the associated wetland complex originate from groundwater seeps within the project area and therefore no sites upstream of the project are available. Sites were chosen within this complex to monitor inputs from the mine area. Forsyth Creek was chosen as a potential reference site, since development that would affect this creek was considered unlikely.

The water in the Elk River, Bingay Creek and Forsyth Creek has an alkaline pH, moderate conductivity and hardness, and low sensitivity to acidic inputs, reflecting the predominance of limestone in the watershed.No Name Creek 1 and the associated wetland are characterized by an alkaline pH, high conductivity and hardness. The higher conductivity and hardness in No Name Creek 1 and the wetland compared to the Elk River and Bingay Creek reflects the groundwater source of No Name Creek 1, and the increased concentrations of ions, notably calcium, magnesium, bicarbonate and sulfate in this water.

Water quality parameters were compared to relevant provincial and federal guidelines for the protection of aquatic life. With the exception of rare instances, the parameters were within relevant guidelines, which is expected given the relatively undisturbed nature of the project area. Of particular note, selenium levels ranged from 0.4 – 1.4 μg/L, below the current guidelines of 2μg/L, but slightly higher than the results obtained in the upper Elk River valley in a 1996 study (McDonald and Strosher1998). Selenium levels appear to follow a seasonal trend, with the highest levels in late winter and spring when discharge (and dilution) is lowest. Sulfate is also high in No Name Creek 1, averaging 63 mg/L over the sampling period. During lower flow periods, sulfate concentrations of up to 90 mg/L have been recorded, which is higher than the proposed aquatic life guideline for sulfate (MoE 2011). Sulfate concentrations in the other monitored streams are typically in the range 15-30 mg/L.

The surface water monitoring was expanded in 2012 to include Lowe Creek, Hornickel Creek and No Name Creek 2, as these streams have the potential to receive runoff from proposed waste dumps.

4.4.3 Fish and Fish Habitat

Fish presence/absence studies have been completed on most of the watercourses within the project area. Fish habitat assessments have also been conducted on Bingay Creek, the Elk River and Hornickel Creek. As much as possible, the mine plan avoids direct impacts to streams. However, a variety of stream crossings will be required for the mine and plant:

- Bingay Creek – upgrade of the existing FSR bridge crossing, new bridge for haul roads,
- Hornickel Creek – upgrade of the existing FSR culvert crossing, additional crossing to accommodate mine infrastructure,
- No Name Creek 2 – new crossing to accommodate movement of the FSR, upgrade to the existing FSR crossing,
- Elk River – rail line and power line crossing.

Detailed habitat assessments for each proposed crossing will be conducted, and mitigation and/or compensation measures for any lost habitat will be developed.

4.4.4 Groundwater

Bingay Hill is a locally prominent resistant bedrock outcrop covered by thin silty sand and gravel overburden. Overburden north of the proposed pit area consists of thick and very low permeability clay/till sediment overlying a thick sand and gravel deposit, while thinner sand and gravel overburden is present on the proposed pit's southwest and west sides. Bedrock is located at or near the ground surface along the eastern and south sides of the proposed pit however depth to bedrock is more than 215 m bgs in the northern mining area.

Groundwater recharge generally occurs in the topographically elevated parts of the property with discharge downslope into sediments in topographically lower areas. Groundwater flow generally follows surface topographic slope with seasonal flow

radially downward from Bingay Hill towards lower areas. Groundwater on the western and northern mine areas flows to the east and northeast around Bingay Hill.

The overburden covering Bingay Hill contains groundwater seasonally during freshet, but is otherwise generally dry during the remainder of the year. Groundwater elevations in overburden in the remainder of the property ranged between 10.75 and 22.17 m bgs (below ground surface). Groundwater elevations in the bedrock varied widely, with elevations ranging from artesian conditions in one well and several exploration boreholes located on the north side of the proposed mine area, to over 135 m bgs in an exploration hole converted into a monitoring well on the southwest side of the mine area, adjacent to Bingay Creek.

Based on the aquifer test results, overburden hydraulic conductivity (K) values ranged between 4.8×10^{-8} and 1.5×10^{-4} m/sec, which are typical for glacially-derived silty sand and gravel deposits. In contrast, low to very low permeability bedrock with few fractures and little groundwater was encountered while drilling the vertical monitoring well and angled exploration angle holes. Based on aquifer test results, bedrock K values are very low, ranging between 6.1×10^{-10} and 6.5×10^{-8} m/sec. These conductivities are within commonly accepted values for poorly to unfractured sandstone, mudstone and siltstone rocks.

Groundwater from the wells were calcium-magnesium bicarbonate type, which indicates a relatively short residence time in the subsurface. Several metals, including total aluminum, total cadmium, and total iron, were present above British Columbia Water Quality Guidelines and/or Canadian Environmental Quality Guidelines, although these elevated concentrations may have resulted from high turbidity in the samples.

A key finding from the 2011 and 2012 hydrogeologic assessment work is confirmation of low-permeability and shallow bedrock along the southern and eastern sides of the proposed pit. Drilling and testing conducted to date indicates this rock as a very low capacity to transmit significant volumes of groundwater and thereby could prevent lateral water flows between the proposed pit and the Elk River, Bingay Creek and underlying water-bearing sediments during and after mining operations.

Additional investigations are planned for 2013 to better characterize geologic and groundwater conditions the area, so that potential effects of long-term mine dewatering on adjacent surface water bodies can be identified, and to predict operational and post-closure groundwater conditions. The hydrogeologic and geophysical exploration data and analyses will support a numerical model of current hydrogeological conditions in the proposed mine area. This model will be used to identify potential surface /groundwater interactions during and post-mining, and estimate potential effects from long-term pit dewatering and mine operation on surrounding surface water bodies, with specific focus on the Elk River.

4.5 Terrestrial Resources

Most of the property and surrounding areas, outside of the Elk River floodplain, have been logged and are currently in various stages of regrowth. Dense stands of lodgepole pine (*Pinus contorta*) dominate the forest cover in these areas. Mature forests are mainly associated with riparian areas along the Elk River, Bingay Creek and other streams in the vicinity.

Two biogeoclimatic units are present on the property: montane spruce, kootenay dry cool variant (MSdk2) and Engelmann spruce – subalpine fir dry cool variant (ESSFdk2). The majority of the property lies within the MSdk2 zone, which extends from the river bottom up to an elevation of ~ 1600 m along the mountain slopes to the west. The ESSFdk2 zone is limited to the higher elevations on the western edge of the property, and will not be directly affected by the project.

The MSdk2 is characterized by a cool, dry climate, with long, cold winters and short, warm summers. Climax stands are rare in this zone, due to stand destroying events (wildfire, beetle infestations) (Meidinger and Popar 1991). Mature stands are dominated by hybrid white spruce (*Picea glauca* x *engelmannii*) and subalpine fir (*Abies lasiocarpa*). Seral stands dominated by lodgepole pine are common due to wildfires or where logging has occurred. Common shrubs include Utah honeysuckle (*Lonicerautahensis*) and soopolallie (*Shepherdia canadensis*), grouseberry (*Vaccinium scoparium*), twinflower (*Linnaea borealis*), pinegrass (*Calamagrostis rubescens*) and heart leaved arnica (*Arnica cordifolia*) are common herbs. Mature climax stands in the

area are primarily found in riparian areas along the Elk River and tributaries. Due to the extensive logging that has occurred, young seral stands are common in the area, and are dominated by dense stands of lodgepole pine.

The ESSFdk2 zone is characterised by long, cold, snowy winters and short, cool summers. Climax stands are common in this zone and are dominated by Engelmann spruce, subalpine fir and lodgepole pine in mesic to moist sites, and lodgepole pine on drier southern aspects. The dominant shrub is false azalea (*Menziesia ferruginea*), with lesser amounts of black huckleberry (*Vaccinium membranaceum*) and gooseberry (*Ribes* sp.). Grouseberry, low bilberry (*Vaccinium myrtillus*), arnicas (*Arnica* sp.), western meadow rue (*Thalictrum occidentale*) and one leaved foam flower (*Tiarella trifoliata* var. *unifoliata*) are common herbs.

4.5.1 Riparian Ecosystems and Wetlands

The Elk River, Bingay Creek, Forsyth Creek, Hornickel Creek, No Name Creek 1, No Name Creek 2, and numerous seeps and draws create important riparian corridors throughout the project area. These areas provide mature and old growth stands (Figure 9) that are rare elsewhere in the MSdk, due to the frequent disturbance regime that is typical of the MSdk. The active floodplain of the Elk River valley, with numerous side channels and oxbows, has created an abundance of diverse and complex riparian ecosystems. Several wetlands are located in the project area, including an extensive braided wetland system in the oxbow/floodplain of the Elk River, a large wetland complex near the north end of the project associated with No Name Creek 2, and numerous small wetlands located throughout the landscape. The mine layout has been developed taking into account riparian corridors and wetlands to minimise direct impacts to these ecosystems.

4.5.2 Old Growth Management Areas

Designated old growth management areas (OGMA) are present within the project area and are primarily located along riparian corridors (Figure 9). OGMAs are legally established and spatially defined areas of old growth forest that are identified during landscape unit planning or operational planning processes. OGMAs are used in combination with other areas where forestry development is prevented or constrained,

are used to achieve biodiversity targets. Within the core mine area, OGMAs are located in along riparian corridors and the proposed project will minimise direct impacts to these areas (Section 4.5.1).

4.5.3 Wildlife

The Elk River valley is an important wildlife corridor. Moose (*Alces alces*), grizzly bear (*Ursus arcto horribilis),* black bear (*Ursus americanus*), deer (*Odocoileus* spp.), elk (*Cervus canadensis*), and grey wolf (*Canus lupus*) have all been observed in the area, with the highest use associated with the Elk River floodplain. The area also supports a wide range of bird, amphibian and invertebrate species.

4.5.3.1 Mammals - Ungulates

Moose, deer, and elk frequent this area of the Elk River valley. The upper valley is considered high value ungulate habitat (Poole and Stuart-Smith 2004). Most of the area within the proposed project is designated ungulate winter range (Figure 9), with the exception of the higher elevation portions along the western boundary and isolated patches (Order - U-4-006 Ungulate Winter Range). Ungulates were found using relatively open forest habitat and replanted clearcuts with sufficient cover and browse species throughout Bingay property, especially the Elk River floodplain.

4.5.3.2 Mammals – fur bearing

Cougar (*Puma concolor*), grey wolf, badger (*Taxidea taxus jeffersonii*), coyote (*Canis latrans*), beaver (*Castor canadensis*), black bear, grizzly bear, red squirrel (*Tamiasciurus hudsonicus*), Columbia ground squirrel (*Spermophilus columbianus*), yellow pine chipmunk (*Tamias amoenus*), have all been identified in or adjacent to the project area. Additional species such as American marten (*Martes americana*), bobcat (*Lynx rufus*) and lynx (*Lynx canadensis*) are also likely to use the area.

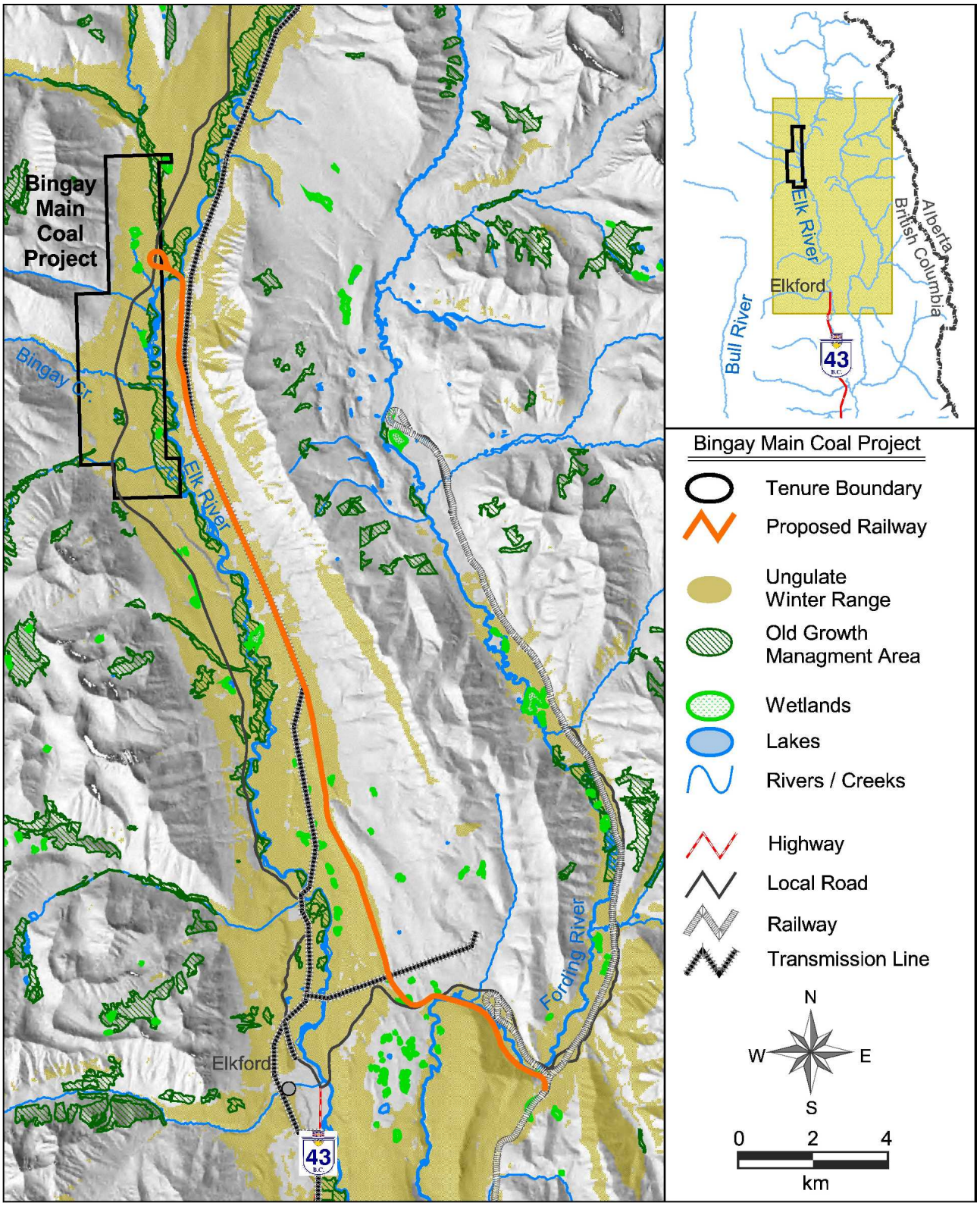

Figure 9. Managed ecosystems in the region

4.5.3.3 Birds

Fifty-eight bird species were confirmed as breeding on site or were suspected as local breeders in surveys conducted in 2005 and 2011. Dark-eyed juncos (*Junco hyemalis*), Swainson's thrushes (*Catharus ustulatus*), warbling vireos (*Vireo gilvus*) and yellow-rumped warblers (*Dendroica coronata*) were particularly abundant within the project area. Olive-sided flycatchers (*Contopus cooperi*) and barn swallows (*Hirundo rustica*) are species at risk identified using the Bingay properties. Spotted sandpipers (*Actitis macularius*) and redwinged blackbirds (*Agelaius phoeniceus*), which have been identified as a species for selenium monitoring in the area, have been observed in the area. Many of these species are protected federally under the Migratory Birds Convention Act (1984). In addition, the BC Wildlife Act provides protection for a variety of bird species, and specifically prohibits the destruction of an active nest.

4.5.3.4 Amphibians and Reptiles

Western toad (*Anaxyrus boreas*), Columbia spotted frogs (*Rana luteiventris*), and wood frog (*R. sylvatica*), and long-toed salamander (*Ambystoma macrodactylum*) have been observed in the project area.

4.6 Rare and Endangered Species

The following listed species have been confirmed within the project area or in the vicinity of the project area (Table 7), either during preliminary surveys of the area, or from literature reports. Additional studies focussing on rare plant and wildlife species to identify potential impacts to these species or critical habitat will be completed in 2012.

Table 7. Species at risk observed in the project area.

Species		BC	Federal	Global[1]
Badger	*Taxidea taxus jeffersonii*	Red	Endangered	G5
Grizzly bear	*Ursus arcto horribilis*	Blue	Not listed	G4
Bighorn Sheep	*Ovis canadensis*	Blue	Not listed	G4
Barn swallow	*Hirundo rustica*	Blue	Not listed	G5
Olive-sided flycatcher	*Contopus cooperi*	Blue	Threatened	G4
Western toad	*Anaxyrus boreas*	Blue	Special Concern	G4
Westslope cutthroat trout	*Oncorhynchus clarki lewisi*	Blue	Special Concern	G4T3
Bull trout	*Salvelinus confluentus*	Blue	Candidate	G3

[1] G3: vulnerable to extirpation or extinction; G4: apparently secure; G4T3: subspecies vulnerable to extirpation or extinction; G5 – widespread, abundant, secure

4.6.1 Badger

Badgers are red listed in British Columbia and endangered on Schedule 1 of the Federal Species at Risk Registry. One badger was sited on the property in June 2012. They have also been sighted near Elkford at the southern end of the project area (BC CDC 2012). Badgers are found in grasslands and dry open forests associated with suitable soils for digging burrows. In Canada, they are only found in the dry interior of southern British Columbia, and the population is estimated at less than 200. Suitable habitat in British Columbia is limited and fragmented, has significantly decreased in quality (including reduction in ground squirrel numbers) and quantity, and much of the remaining habitat is threatened by urbanization and intense agriculture. Badgers have recently expanded into logged areas at higher elevations, but this habitat is insecure (COSEWIC 2000). The Columbian ground squirrel (*Spermophilus columbianus*) and the golden-mantled ground squirrel (*Spermophilus lateralis*), both of which are typical badger prey, were identified within the project area, suggesting that badgers may be present (Patton et al., 2007). Low populations of prey species is a crucial limiting factor for badger recovery.

4.6.2 Grizzly Bear

Grizzly bears are blue listed in British Columbia. The grizzly bear is found in a variety of habitats including forested areas and open slopes, from alpine tundra to valley bottoms. Grizzly use of the project area was identified in 2005 near the Elk River (Patton et al. 2007) and in subsequent field surveys. Grizzly bears are omnivorous, eating a wide variety of foods, both plants and animals. They require large wilderness areas over a variety of elevations to meet their seasonal requirements and are well known to be sensitive to human disturbance and development and are currently a species at risk. A DNA study to assess Grizzly bear movement in the valley was initiated in 2012.

4.6.3 Bighorn Sheep

Bighorn sheep are blue listed in British Columbia. They spend summers on high elevation and alpine grasslands, 2000-2500 m with nearby escape terrain. Winter habitat includes south-facing slopes below 1800 m with little precipitation. They are gregarious animals, living in groups; however adult males live apart from the

females/young for most of the year. Bighorn sheep may pass through the project area moving from summer range to winter feeding areas (Patton, T. 2007).

4.6.4 Barn Swallow

Barn swallows are blue listed in British Columbia. They are mostly found in open habitat near water and less frequently in partly open habitats. They are found nesting in barns or other buildings, under bridges, in caves or cliff crevices, usually on vertical surfaces. They usually return to the same nesting area in successive year and even reusing old nests. Their presence within the project area was confirmed in June 2011 (MEC, 2011b).

4.6.5 Olive-sided Flycatcher

Olive-sided flycatcher is blue listed in British Columbia and listed as threatened on Schedule 1 of the Federal Species at Risk Registry. The Olive-sided Flycatcher is most often associated with open areas containing tall trees or snags for perching. Open areas may be forest openings, forest edges near natural openings (such as rivers, muskeg, bogs or swamps) or human-made openings (such as logged areas), burned forest or open to semi-open mature forest stands. There is evidence that birds nesting in harvested habitats experience significantly lower breeding success than those nesting in natural (e.g. burned) openings. Generally, forest habitat is either coniferous or mixed coniferous. In the boreal forest, suitable habitat is more likely to occur in or near wetland areas (COSEWIC 2007). Their presence within the project area was confirmed in June 2011 (MEC, 2011b).

4.6.6 Western Toad

The Western toad is blue listed in British Columbia and listed as special concern on Schedule 1 of the Federal Species at Risk Registry. This widespread species is primarily terrestrial, travelling far from open water and wetlands to terrestrial habitat. They are especially vulnerable to road mortality during seasonal migration, and breed in shallow, weedy, permanent shallow water.

4.6.7 Westslope Cutthroat Trout

Westslope cutthroat trout are blue listed in British Columbia and listed as special concern on Schedule 1 of the Federal Species at Risk Registry. The Elk River population is a genetically pure population, and their range extends from Elko at the southern end of the Elk River, to the headwaters of the Elk River at the Elk Lakes, as well as many of the tributaries. Westslope cutthroat trout have been observed in the Elk River adjacent to the property, as well as in several of the tributaries that transect the project area (see Section 4.4.1). Threats to the species include habitat loss due to expanding urbanization, agricultural activities and resource-based industries, increased exploitation, and competition and hybridization with introduced species, notably rainbow trout.

4.6.8 Bull Trout

Bull trout are blue listed in British Columbia. An adfluvial population is present in the Elk River, and their range extends from Elko at the southern end of the Elk River, to the headwaters of the Elk River as well as many of the tributaries. Loss of habitat and habitat degradation has contributed to the decrease in bull trout abundance within British Columbia.

4.7 Land Use

The Project is located within the traditional territory of the Ktunaxa Nation. The Ktunaxa are known to hunt, fish, trap, harvest plants and carry out cultural practices within their traditional territory.

The Bingay Main property is located within a Coal Enhanced Resource Development Zone (Coal ERDZ) as described in the Kootenay-Boundary Land Resource Management Plan (KIAMC 1997) and the Southern Rocky Mountain Management Plan (MSRM 2003). This designation indicates that the area is suitable for intensive resource development and provides long-term commitment to coal mining exploration and development. Under the SRMMP, the management and intent of other resource values (e.g. old growth, connectivity, ungulate winter range, riparian, visual landscapes, recreation), does not preclude application or approval of mining activities in the area.

Most of the project area is located on Crown Land, with a mineral claim situated in the southwest corner of license 415139. A cabin is located on the north side of Bingay Creek that is used on a seasonal basis. Centermount has been in contact with the cabin owners.

The proposed railway line on the east side of the Elk River valley is located on Crown land. Teck Coal holds coal licenses under some of the proposed route.

The dominant land use in the immediate area of the project is forestry, although previous coal, oil and gas exploration has occurred, and is ongoing. The area has been extensively logged over the years and the forests nearby are in different stages of regrowth. The area is currently designated as a beetle salvage area and Tembec is actively logging in the area.

The Elk River valley is a popular destination for many recreationists with access to the Elk Lakes Provincial Park and Height of the Rockies Wilderness Area (Figure 1). The valley provides world class fly fishing in the Elk River and abundant hunting opportunities. Other activities include hiking, horseback riding, camping, off-road vehicle use and snowmobiling. A commercial guide outfitter and two registered traplines are also present within the immediate area.

In addition to the Provincial Park and wilderness area mentioned above, there are a number of recreation sites within the Elk River watershed. Of note, the Blue Lake Recreation site is located south of Bingay Creek within the Bingay B area, and the Forsyth Creek Recreation Site is near Forsyth Creek just north of the property. The headwaters of Forsyth Creek are located within the Height of the Rockies Wilderness Area.

Centermount proposes to the develop the Project in a manner consistent with land use planning for the area, and in a way that is not unduly restrictive to other users.

A map showing land uses, other than forestry, in the area is provided in Figure 10.

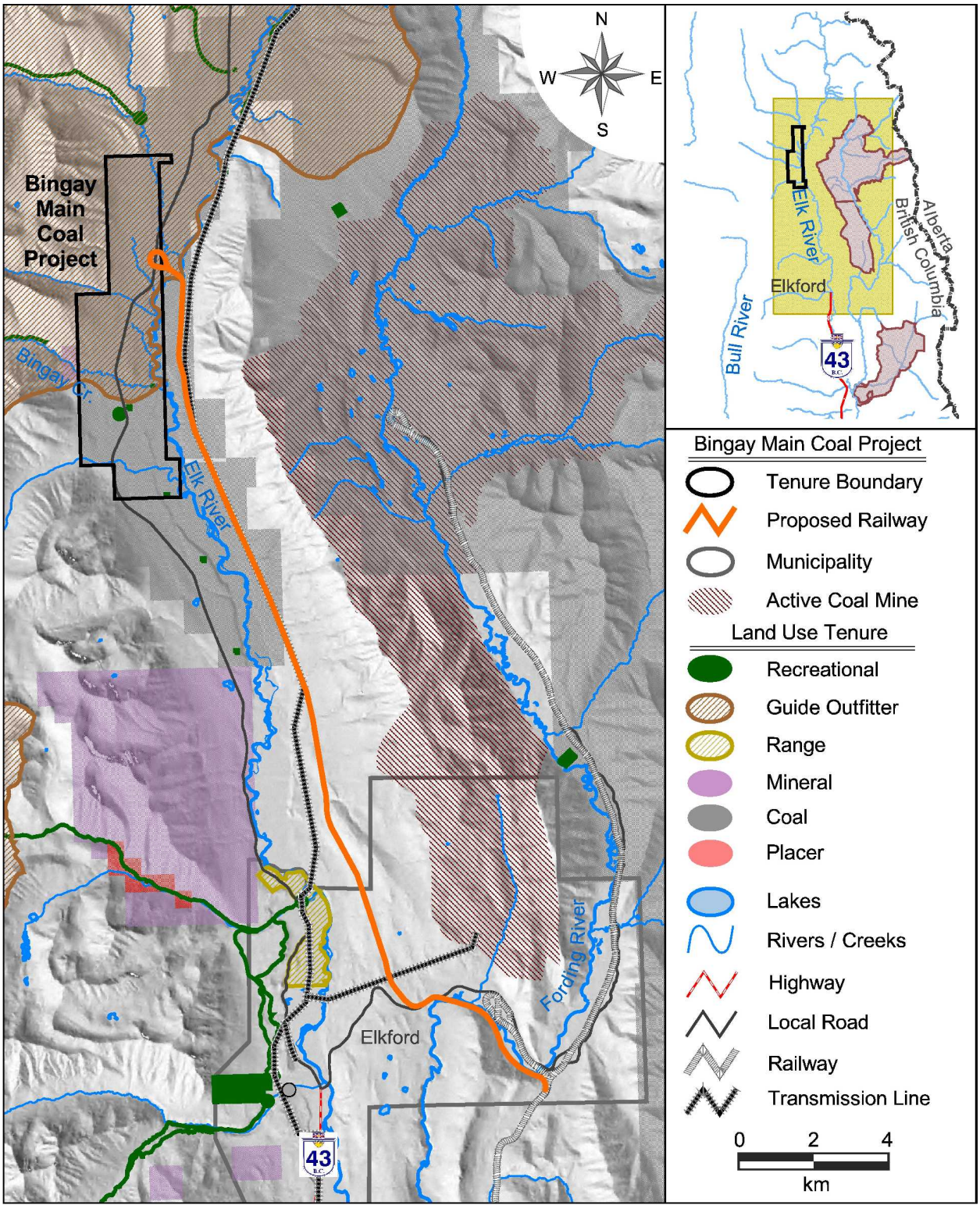

Figure 10. Existing land use in the area

4.8 First Nations and Heritage

The project is located with the traditional territory of the Ktunaxa Nation. An archaeological overview assessment was conducted in 2004 (Choquette 2004) to identify and assess archaeological resource potential or sensitivity in the area for Hillsborough. This study focussed on the area that is proposed for pit development. Terraces at the confluence of the Elk River and Bingay Creek, and along the north side of Bingay Creek were identified has having archaeological potential because of the archaeological significance of their settings (Choquette 2004). No pre-contact archaeological deposits or features were observed in subsurface exposures within the proposed project area. A more detailed archaeological impact assessment encompassing the entire project area will be conducted as part of the project development.

4.9 Socio-Economics

4.9.1 Local Community

The three main population centers in the Elk valley are Elkford, Sparwood and Fernie located approximately 23 km, 55 km, and 85 km south of the project. Crownest Pass, located in Alberta, is 73 km south of the project. All communities include a number of tourism and service facilities. Services within the communities of Fernie, Sparwood, and Elkford include: general and industrial contracting, excavating, construction, welding, electrical, irrigation, business services, catering, as well as a number of recreation facilities. Several specialized mining equipment suppliers are also located in these communities, including Finning (Sparwood), SMS (Elkford), and P & H MinePro (Sparwood). The local communities are generally well-positioned to support the Project and the needs of the employees.

4.9.2 Population and Housing

After a steady decline from 1991 to 2006, the populations of Elkford and Sparwood have been increasing since 2007 (BC Stats 2011). Elkford (population 2523 at last Census) experienced a population rate increase between 2006 and 2011 of 2.4% (Statistics Canada 2012); Sparwood (population 3667 at last Census) experienced a population rate increase of 1.4% between 2006 and 2011 (Statistics Canada 2012). The

populations of both communities are influenced by fluctuations in the local coal industry (Housing Strategies Inc. 2011). From 1996 to 2006, when the coal industry was depressed, Elkford and Sparwood registered decreases in children, youth, and working age adults, and increases in seniors and parents whose children have grown up and left home. The housing supply of these two towns is mainly single detached, mobile homes and apartment units. Most houses are owned and the availability of rental units is decreasing. Both towns have a lack of housing for marginalized populations including a lack of emergency and transitional shelters, group or senior and long-term care homes. The lack of housing and the transient nature of many mine employees have been identified as concerns by Elkford, and Centermount has engaged with the local council to identify employment strategies to address their concerns.

5 POTENTIAL EFFECTS

Baseline studies in the area were initiated in 2004 by Hillsborough. These were reestablished in 2010 when Centermount began more extensive exploration. To date, most of the studies have concentrated on the area surrounding the proposed pit, between Bingay Creek to the south and No Name Creek 1 to the north. These studies will be expanded to include the entire mine footprint and surrounding area to address project concerns. Studies include:

- Surficial geology, topography, soils and terrain.
- Geochemistry.
- Meteorology and climate.
- Noise and dust fall.
- Surface hydrology.
- Surface water hydrology.
- Hydrogeology and groundwater quality.
- Fisheries and aquatic habitat and biota.
- Terrestrial ecosystems, vegetation and wildlife.
- Socioeconomics.
- Land use, land status and land capability.
- Archaeological resources and traditional use / knowledge.

The following provides a summary of the potential effects of the project that have been identified to date.

5.1 Physical and Biological Environment

5.1.1 Air Quality

- Contaminant loading to terrestrial and aquatic resources from dust.
- Greenhouse gas emissions from vehicles/machinery required for the project.
- Fugitive dust from increased traffic use along the Elk River FSR.
- Increased dust loading for communities situated along the rail corridor.

5.1.2 Noise

- Noise issues related to worker health and safety.
- Noise impacts to wildlife.
- Noise issues related to the communities situated along the rail corridor.

5.1.3 Surface Water

- Potential water quality impacts to the Elk River, Lowe Creek, Bingay Creek, No Name Creek 1, Hornickel Creek, No Name Creek 2, and Forsyth Creek, and the effect of this on aquatic resources.
- Impacts to aquatic biota (periphyton, benthic invertebrates) due to changes in water quality.
- Changes to surface water hydrology.

5.1.4 Groundwater

- Potential impacts on groundwater quality.
- Changes in groundwater flows.
- Affected groundwater/surface water interactions, i.e. potential impacts from mine dewatering on adjacent surface water bodies.
- Impacts on surface water quality from groundwater discharge.

5.1.5 Fish and Fish Habitat

- Loss of habitat associated with stream crossings for roads, rail line, power lines, and conveyors,
- Impacts to fish due to changes in water quality.

5.1.6 Vegetation

- Permanent and temporary loss of terrestrial habitat due to the construction of the mine pit and associated infrastructure.

5.1.7 Wildlife

- Habitat loss due to the construction of the mine pit and associated infrastructure.
- Disturbance to migration movements due to mine location (noise, presence of humans etc).
- Increased mortality due to increased rail/vehicle use.
- Increased mortality due to construction (blasting, excavation of undisturbed terrain).
- Risk to wildlife from changes in water quality, contaminant loading from dust.

5.1.8 Acid Rock Drainage/Metal Leaching

- Ground and surface water quality impacts resulting from waste rock weathering (i.e. selenium, calcite).

5.1.9 Federal Requirements

The federal environmental assessment project process requires a specific description of anticipated effects of the project on the following aspects which fall under Federal jurisdiction.

5.1.9.1 Fish and Fish Habitat

The primary effect of the project on fish are anticipated to arise from the disturbance of habitat due to stream crossings, and to changes in water quality due to the increased area of disturbance (sediment) and the potential for leaching of chemicals (*e.g.*

selenium, nutrients) from the waste rock. With the exception of stream crossings, the projected is not expected to result in the direct loss of fish habitat.

5.1.9.2 Aquatic Species at Risk

Westslope cutthroat trout are the only aquatic species identified in the Species at Risk Act that occur in the project area and that therefore could be potentially affected by the project. Potential effects to westslope cutthroat trout include changes in habitat (primarily due to stream crossings) and changes in water quality.

5.1.9.3 Migratory Birds

Migratory birds are defined in Article I of the Migratory Birds Convention Act, and include migratory game birds, migratory insectivorous birds, and other migratory game birds. A variety of bird species that are considered migratory have been observed in the area. Potential effects to these species include habitat disturbance as a result of the clearing of land to accommodate project infrastructure, and changes in uptake of various chemicals (*e.g.* selenium) that may result from altered water quality.

5.2 Socio-Economic Environment

5.2.1 Land Use

- Permanent and temporary changes in land use capability due to the mine footprint and associated infrastructure.
- Impacts to other operations in the area (forestry, recreation, oil and gas) due to the presence of the project and increased road use.

5.2.2 Visual Impacts

- Changes to the natural landscape due to the development of the mine, including pit development, mine infrastructure, waste rock dumps, and road and rail line development,

5.2.3 Recreation

- Impacts to recreation use due to changes in the natural landscape.
- Loss of recreational areas due to mine activities in the project area.

- Changes in recreational accessibility to road upgrades, increased road use, and industrial activity (*i.e.*, blasting).
- Changes in wildlife use due to mine activities.

5.2.4 First Nations Use

- Loss of unknown historical and archaeological sites due to land disturbance associated with mine development.
- Loss of ability to carry out tradition use and resources harvesting activities in the project area.

5.2.5 Community and Health

- Effect of increased employment, housing demand, and public facility use, on nearby communities.
- Noise and dust effects on nearby communities due to increased train traffic.

5.2.6 Effects on Federal Lands, other Provinces, or outside of Canada

No changes to the environment as a result of the project are expected to occur on federal land or to provinces outside of British Columbia. As the project has the potential to increase selenium, specifically, and other contaminants of concern in the Elk River, the State of Montana is expected to have an interest in water quality aspects of the project. The Elk River flows into Lake Koocanusa, which is partially located in Montana, and the State of Montana is actively involved in the EA process for other proposed coal projects in the region.

6 CONSULTATION

Centermount recognises that it has a responsibility to engage and consult with aboriginal groups (First Nations and Métis), the public, regulatory agencies, and local, provincial and federal governments throughout the environmental assessment process. The Canadian Environmental Assessment Agency and the BC Environmental Assessment Office also have a legal duty to consult with Aboriginal groups during the review process.

Centermount has initiated consultation with the Ktunaxa Nation, the public and government agencies. Consultation has included meetings presentations, informal discussions, phone calls, emails and letters. During the course of these consultation activities, the parties have identified several issues of concern. These issues include potential impacts to water quality in the Elk River, the proximity of the mine pit to the river, and wildlife movement. Other issues identified by the parties include recreational access in the Elk River valley as well as the housing and employment challenges of the valley.

Centermount is committed to working with aboriginal groups, the public and government agencies to address their input, comments and concerns during project design.

6.1 First Nations

The project is located within the traditional territory of the Ktunaxa Nation. The two closest First Nations communities consist of two Ktunaxa Bands: the St Mary's Indian Band and the Tobacco Plains Band. The St. Mary's Indian Band is located on Kootenay Indian Reserve #1, at the confluence of the Kootenay River and St. Mary's River, near the City of Cranbrook, approximately 80 km southwest of project area. The Tobacco Plains Band is located adjacent to the US border along the East side of Lake Koocanusa, approximately 140 km south of project.

Centermount is committed to meaningful engagement of the Ktunaxa Nations during the environmental assessment process. Centermount Coal will take an "interest based" collaborative approach to working with the Ktunaxa Nation and will seek their input on

how they would like to be consulted during the EA and involved during the life of the project. Centermount will request regular meetings with the members of the Ktunaxa to identify interests, potential effects to these interests, and opportunities to negotiate agreements such as engagement protocols, employment and training agreements and impact benefits agreements. Consultation activities would include, but not be limited to, roundtable discussions, community meetings, workshops with the Ktunaxa Nation and open houses hosted by Centermount Coal in the different Ktunaxa communities, as well as meeting with the different departments within the Ktunaxa Nation Government. Consultation activities will meet or exceed the requirements specified by the Environmental Assessment Office and the Canadian Environmental Assessment Agency. Centermount has offered capacity funding to the Ktunaxa Nation to support their participation in the environmental assessment process and will do so again once the EAO and CEAA initiate the environmental assessment process.

The Ktunaxa Nation were first approached regarding the project prior to the most recent exploration activity and a meeting was held in March 2010. Two meetings with the Ktunaxa Nation regarding the project have taken place since then, in April 2010 and June 2011. These meetings were held at the Ktunaxa Nation offices in Cranbrook.

Since the submission of the project description version 1.0, another meeting was held in Cranbrook with Ray Warden, Director of the Ktunaxa Land and Resource Office in May 2012, with the objectives of providing an update on the project and discussing a consultation process. During general discussions the Ktunaxa have mentioned the ongoing selenium issues in the Elk River Valley and cumulative effects as being of concern. Unfortunately, due to time and staffing constraints, the Ktunaxa Nation is not in a position to initiate consultation until the acceptance of the project description by the EAO and the CEAA and issuance of a Section 10 order under the BC Environmental Assessment Act. As a result of these constraints, the Ktunaxa have not provided specific comments relative to the project.

In addition to the Ktunaxa Nation, other interests in this area have been expressed by the Shuswap Indian Band, which is part of the Secwepemc Nation. Meetings were held with Dean Martin of the Shuswap Indian Band in February and March of 2012 at the

Centermount offices in Vancouver. No issues were raised on potential impacts of this project on their traditional territory. Centermount will seek further meetings with the Shuswap Indian Band during the environmental assessment process to better understand their interests and opportunities to accommodate those interests.

Contact details for the Ktunaxa Nation and the Shuswap Indian Band are:

Ktunaxa Nation
Principal Contact: Dora Gunn
7648 Mission Road
Cranbrook BC V1C 7E5
Tel: (250) 489-2464

Shuswap Indian Band
Principal Contact: Dean Martin
680 West Athabasca Street
Kamloops BC V2H 1C4
Tel: (778) 471-8200

6.2 Public

Public consultation is an important part of both mine planning and regulatory review. A formal public consultation and notification process will be developed during the review process to meet the requirements of the provincial and federal environmental assessment processes. This will include the following:

- Provide and distribute information on the project in a timely manner throughout the review process.
- Provide the public with opportunities to participate and/or comment on the project.
- Incorporate public input into the mine planning process where appropriate, and provide rationale where public input cannot be incorporated.
- Track, document and resolve all issues that arise.

To date, public consultation has consisted of informal meetings with interested and potentially affected parties, including recreational groups and environmental groups, and one formal public meeting held in Elkford. The public meeting was held prior to the exploration program to discuss the project, the field program and local concerns. These discussions have helped identify a range of issues associated with the project, and have allowed Centermount to adjust the mine plan to address many of these concerns. Issued raised have included water quality impacts, wildlife impacts, recreational access, and employment and housing. Adjustments to mine planning to address some of these concerns include maintaining riparian setbacks and avoiding directly impacting streams, incorporating wildlife corridors, and considering options to ensure public access beyond the mine.

Stakeholders identified to date include:

- Phil and Barry Taylor (owners of cabin at mouth of Bingay Creek)
- Fontana's Guide Outfitting
- Elkford Snowmobile Association
- Elkford Chamber
- Elkford Rod and Gun Club
- Elkford 50+ Club
- Elkford Lions Club
- Sparwood & District Fish and Wildlife Association
- Sparwood Rod and Gun Club
- Sparwood Chamber
- Fernie Rod and Gun Club
- Fernie Chamber
- East Kootenay Conservation Program
- Elk Valley Stewardship Society
- Wildsight
- Elk River Alliance

6.3 Government Agencies

6.3.1 Regional Governments

Centermount has engaged with the District of Elkford since 2010, when the most recent exploration program was initiated. A formal presentation to the Elkford, Sparwood and Fernie Councils occurred on January 23/24, 2012 to introduce the proposed project and obtain feedback on various aspects of the project.

The following issues were identified during meetings with the District of Elkford Council:

- The Council identified the issue of not wanting coal being hauled by truck through their town. Centermount responded by identifying hauling options that include building a rail line on the East side of the Elk River, away from Elkford.
- The Council identified the concern of their water table being altered and Centermount responded with additional hydrological drilling to confirm the location and direction of fault lines.
- The Council identified the housing shortage issue and Centermount responded by participating in their Housing Strategy Sessions and identifying the option of a Private/Public housing development.
- The Council identified the issue of the current trend of transient workers not residing in the Elk Valley. Centermount responded by exploring options to encourage workers to reside in Elkford. These options include mortgage assistance and adjusting the work schedule to suit families living close by.

6.3.2 Provincial Government

A variety of provincial agencies have been notified of the project to date. Several agencies were involved in the exploration stages of the project, and additional meetings have been held to introduce the project and obtain input and advice on project issues and the assessment process. Agencies contacted to date include:

- BC Environmental Assessment Office
- Ministry of Forest, Lands & Natural Resources Operations,
- Ministry of Environment (Environmental Quality, Environmental Management),
- Ministry of Mines and Energy.

Other agencies that will be consulted include:

- Ministry of Transportation and Infrastructure,
- Ministry of Agriculture and Lands,
- Ministry of Jobs, Tourism and Innovation.

6.3.3 Federal Government

The Canadian Environmental Assessment Agency corresponded via email and telephone to provide direction on the requirements of the Project Description. Other federal agencies that will be involved in the assessment process include:

- Department of Fisheries and Oceans (DFO),
- Natural Resources Canada (NRC),
- Environment Canada,
- Transport Canada,
- Health Canada,
- Canadian Transport Authority,
- Major Projects Management Office (MPMO).

6.3.4 US Government Agencies

The State of Montana has expressed an interest, and provided comment on, the proposed expansions of Teck Coal's Line Creek Operations and Fording River Operations. This is largely due to water quality concerns with respect to the accumulation of selenium in the Koocanusa Reservoir, a transboundary waterbody. We anticipate that the State of Montana would also be involved in this project.

7 PERMITTING PROCESS

The project will require review under both the BC *Environmental Assessment Act* (BC EAA) and the *Canadian Environmental Assessment Act* (CEAA). The project meets the threshold of the Reviewable Projects Regulation for a new coal mine under the BC EAA, and the *Regulations Designation Physical Activities* of CEAA 2012 (see Section. 2.2). In addition, the project will require one or more federal permits (Table 9). For the purposes of the permitting process, a harmonised Federal and Provincial Environmental

Assessment review was assumed. A preliminary list of permits, approvals and authorisations required by the project is provided in Table 9.

7.1 Federal Triggers

7.1.1 Fisheries Act

Triggers under the Fisheries Act include Section 32, Section 35(2) and paragraphs 36(5)(a) to (e):

> Section 32: "*Authorization by the Minister of Fisheries and Oceans or under regulations made by the Governor in Council for the destruction of fish by any means other than by fishing*."
>
> Section 35(2): "*Authorization by the Minister of Fisheries and Oceans or under regulations made by the Governor in Council to cause the harmful alteration, disruption or destruction of fish habitat in the course of carrying out a work or undertaking*."
>
> Section 36(5): "*where the regulation made pursuant to those paragraphs contain a provision that limits the application of the regulation to a named site*" in relation to the deposit of deleterious substances.

Several streams are located within the project area, some of which are fish bearing (Section 4.4.1). The Elk River is also recognized as a stream with high fisheries value, as well as abundant recreational use. Direct impacts to fish and fish habitat have been minimized by siting the project infrastructure components, including the open pit area, the coal processing plant, the waste dumps and related infrastructure, away from any watercourses where this is possible. Provisions for riparian buffers along water courses have also been included. However, access to and within the project area will require the construction of new roads and the upgrade of existing roads and this will involve upgrading several road crossings on tributary streams. In addition, the rail line and connection to the power line on the east side of the river will require crossing the Elk River floodplain. These activities entail clearing of vegetation within the riparian areas of tributary streams and the Elk River, potentially affecting fish habitat.

Other activities that may indirectly affect fish include potential effects to water quality through discharge and surface runoff from the open pit and dump sites. Changes in water quantity through processing plant and domestic water use or through changes in surface water drainage have yet to be determined, but could potentially affect the downstream fish habitat.

7.1.2 Navigable Waters Protection Act

Triggers under the Navigable Waters Protection Act (R.S.C., 1985, c. N-22) include paragraph 5(1)(a) and 6(4):

> "*Approval by the Minister of Transport of the plans and site for any work to be built or placed on, over, under, through or across a navigable waterway*."

As per the Navigable Waters Protection Act, "navigable waters" comprise any body of water which is capable, in its natural state, of being navigated by floating vessels of any description for the purpose of transportation, recreation or commerce, including a canal and any other body of water created or altered for public use, as a result of the construction of any work.

The possible upgrade of existing bridges and construction of new bridges on tributary streams to the Elk River should not affect navigable waters as they will consist of clear span bridges without altering the stream bed or bank and will be sited above the ordinary high water mark and, as such, will not result in the loss of fish habitat or access to waterways. Detailed design for the proposed crossing of the Elk River has not been completed as the exact location of the proposed crossing has not been determined. Any crossing is not expected to significantly affect navigation on the Elk River.

Significant reduction in water flows in the tributary streams to the Elk River is not anticipated through water withdrawal requirements for the operation of the facility and related appurtenances. No water withdrawal from the Elk River will be required.

7.1.3 Explosive Act

Triggers under the Explosive Act (R.S.C., 1985, c. E-17) include Subsection 7(1):

License issued by the Minister of Natural Resources for an explosives factory (manufacture) and magazine (storage)."

An explosives user magazine licence (Type U) may be required as blasting explosives will be stored on site for commercial uses. Explosives will be used during mining development. Explosives may also be used during infrastructure development (*i.e.* road building) although this has not yet been determined.

7.1.4 Canadian Transportation Act / Canadian Rail Safety Act

Triggers under the Canadian Transportation Act (S.C. 1996, c.10) include the following sections:

98(2): Approval for the construction of a railway line.

99(3): Authorization for the construction of a railway line across another railway line, or for any work related to that construction.

101(3): Authorization for the construction of a road crossing or utility crossing for a railway line, or for work related to that construction, or specifying who shall maintain the crossing.

The proposed rail line may operate as a Provincial Rail Line, and therefore would be governed by the provincial Railway Safety Act (SBC 2004, c.8), under the BC Safety Authority. Centermount has had preliminary discussions with Canadian Pacific regarding the railway and train capacity on their network. At this stage, specific details regarding the proposed rail line are not available.

7.1.5 Species at Risk Act

Under the Species at Risk Act (S.C. 2002, c.29), Section 79(1), every person who is required by or under an Act of Parliament to ensure that an assessment of the environmental effects of a project is conducted must, without delay, notify the competent minister or ministers in writing of the project if it is likely to affect a listed wildlife species or its critical habitats.

Section 79(2) requires that, where a federal environmental assessment is being carried out in relation to a project that may affect a listed wildlife species or its critical habitat, the person responsible for ensuring the assessment is conducted must:

- identify potential adverse effects on the listed wildlife species and its critical habitat; and
- if the project is carried out: ensure that measures are taken to avoid or lessen those adverse effects and to monitor them, and
- ensure that such measures are consistent with any applicable recovery strategy and action plans.

The following species are listed on Schedule 1 of the Species at Risk registry and could be potentially impacted by the project. More detailed field studies are ongoing to determine if additional species at risk are present and critical habitats within the local study area. Impacts to species at risk and their habitat will be identified in more detail during completion of the environmental assessment. Appropriate best management practices will be implemented for each species at risk that is identified to minimize potential impacts. Where critical habitat for species at risk is identified, project components will be relocated to avoid unnecessary disturbance, or alternative mitigation or compensation implemented.

Table 8. Species at Risk Schedule 1 listed species identified in the project area.

Species	Federal
Badger	Endangered
Olive-sided flycatcher	Threatened
Western toad	Special Concern
Westslope cutthroat trout	Special Concern

Table 9. Preliminary list of permits required for the project.

Permit	Authority or Agency	Legislation	Comments
Environmental Assessment Certificate	BC Environmental Assessment Office	Environmental Assessment Act	Reviews major projects and provides for meaningful participation by First Nations, proponents, the public, local governments, and federal and provincial agencies.
Mine Permit Approving the Mine Plan and Reclamation program	Ministry of Energy and Mines and Responsible for Housing	Mines Act	Authorises construction, operation, closure and reclamation.
Coal Lease	Ministry of Energy and Mines and Responsible for Housing	Coal Act	Provides rights to explore develop and produce coal from Crown land.
Explosive Magazine Storage and Use permit	BC Ministry Energy and Mines	Explosives Act	Permits storage and use of explosives
Effluent Permit	Ministry of Environment	Environmental Management Act	Authorises the discharge of liquid effluent to the environment.
Air Permit	Ministry of Environment	Environmental Management Act	Authorises the discharge of airborne emissions to the environment.
Hazardous Waste Registration	Ministry of Environment	Environmental Management Act	Authorises the temporary storage of hazardous waste.
Water License	Ministry of Environment	Water Act	Approval to use or divert surface water.
Approval for works in and about a stream	Ministry of Environment	Water Act	Approval to work in and about a stream (*i.e.* stream crossings).
Heritage Permits	Ministry of Forests, Lands and Natural Resource Operations	Heritage Conservation Act	Authorizes a professional archaeologist to assess and define the extent and significance of archaeological sites at risk, to oversee site alteration management activities and to excavate and recover data/artefacts from an archaeological site.
Occupant License to Cut	Ministry of Forests, Lands and Natural Resource Operations	Forest Act	Allows for timber harvesting for site clearing.
Road Use Permit	Ministry of Forests, Lands and Natural Resource Operations	Forest Act	Authorization to use the forest service road
Decision	Canadian Environmental Assessment Agency	Canadian Environmental Assessment Act	Decision on if the project will cause significant adverse environmental affects
License of Occupation	Ministry of Forests, Lands and Natural Resource Operations	Land Act	Authority to occupy Crown Land (i.e. power line, rail line).
Section 35(2) Authorisation	Department of Fisheries and Oceans	Fisheries Act	Authorises the alteration, disturbance or destruction of fish habitat and specifies compensation for lost habitat.
Explosives User Magazine License	Natural Resources Canada	Explosives Act	Permits storage and use of explosives
Navigable Waters Protection Act Approval	Transport Canada	Navigable Waters Protection Act	Approval for bridges across the Elk River and Fording River

8 PROJECT SCHEDULE

Centermount is currently continuing an economic feasibility study, baseline environmental and socio-economic studies, undergoing stakeholder consultation. Centermount is proposing to develop the Bingay Main project to be in full production by 2017. A preliminary schedule for the permitting process is provided below:

Project Description accepted by BC EAO and CEAA	November 2012
Submit draft application information requirements (dAIR)	March 2013
Public Open House and AIR comment period	April 2013
Submit final AIR document	May 2013
Feasibility study complete	May 2013
Complete baseline assessments	September 2013
Submit EA application / CSR document	December 2013
EA application / CSR document evaluated for completeness	January 2014
EA application / CSR document review	January-April 2014
EA Certificate Decision	May 2014
Complete concurrent permitting	June 2014

8.1 Construction

Planning for construction will begin in early 2014, with construction beginning in June 2014 once all of the required permits have been obtained. Construction, commissioning and pre-mine development is projected to take 1.5 – 2 years. Major activities during the construction period include site clearing, building construction, road development, rail line construction, conveyor construction, bridge construction, and development of onsite utilities and services.

8.2 Operations

Commercial coal production is anticipated to begin in 2016 at a reduced level of output of 1 Mt. Full production at 2 Mt clean coal is anticipated to begin in 2017 and continue for the remaining 19 years of the projected mine life. In the early stages of operations, the pit and waste rock dumps will be developed. Waste rock dumps will be developed in stages to minimise as much as possible the total area of disturbance present at one time. Topsoils and other material suitable for reclamation or construction uses will be

stockpiled in designated areas. Coal processing, and the temporary stockpiling of raw coal prior to processing, and clean coal prior to shipping, will occur. Aquatic effects monitoring, wildlife studies, and reclamation studies will also be ongoing during the operations period in order to document project effects and develop or improve upon mitigation measures.

8.3 Decommissioning

The timing and duration of mine closure and mine reclamation activities will be determined in more detail when a reclamation plan is submitted in advance of projected mine closure. Post-closure reclamation activities are anticipated to require two to three years, with continued monitoring ongoing beyond this time frame to ensure successful reclamation.

8.3.1 Infrastructure

All buildings and other infrastructure on the mine site, including conveyors, power lines, pipelines, will be dismantled or demolished and removed from the site. Salvageable material will be reused or recycled. All material will be disposed of according to applicable legislation and regulations. Contaminated materials, such as soils or materials containing hydrocarbons, will be disposed of at a suitable hazardous waste facility. Once the buildings and infrastructure have been removed, the areas be shaped, and re-vegetated with appropriate plant species.

8.3.2 Waste Rock Dumps

Permanent waste dumps will be sloped and graded as required, covered with topsoil and re-vegetated using appropriate plant species. Some reclamation of permanent dumps is anticipated during the mine operation period once these areas no longer receive new waste rock material. Waste rock stored in temporary waste dumps will be returned to the pit. Once the waste rock has been removed, these sites will be graded as required, covered with topsoil, and re-vegetated using appropriate plant species.

Conceptual reclamation plans include roughening the surface and returning the area to seral stage lodgepole pine stands, similar to what currently dominates the area and

which should allow natural ecosystem process to occur. This may be contingent on water quality from the waste rock dumps meeting set criteria.

8.3.3 Pit

A combination of re-vegetation and end pit lake is being considered for the pit. Pit reclamation will include partial infilling of the pit, and over steepened pit walls will be graded or blasted to reduce slope angles. Slopes will be graded to allow the pit to fill from surface runoff from within the pit area, and a controlled outlet would be installed to allow overflow to leave the pit. Slopes above the control elevation will be covered in topsoil and re-vegetated with appropriate plant species. Prior to reclamation of the pit, a water balance will be developed and water quality in the pit will be modelled to define water treatment requirements. Water sampling of the pit as it fills would also be conducted to verify model accuracy and refine water treatment requirements.

8.3.4 Roads

Roads, culverts, and bridges on the mine site will all be reclaimed appropriately. This will include contour and establishing natural drainage patterns, removal of all stream crossings, and rehabilitation and re-vegetation of roads, stream banks and riparian areas.

8.3.5 Rail line

The rail line will be decommissioned and reclaimed, unless there is interest in retaining it.

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APPENDIX 1
PHOTOGRAPHS

Photo 1. Aerial view of property looking south, showing the Elk River, the Bingay Creek valley entering from top right, and Bingay Hill near the confluence.

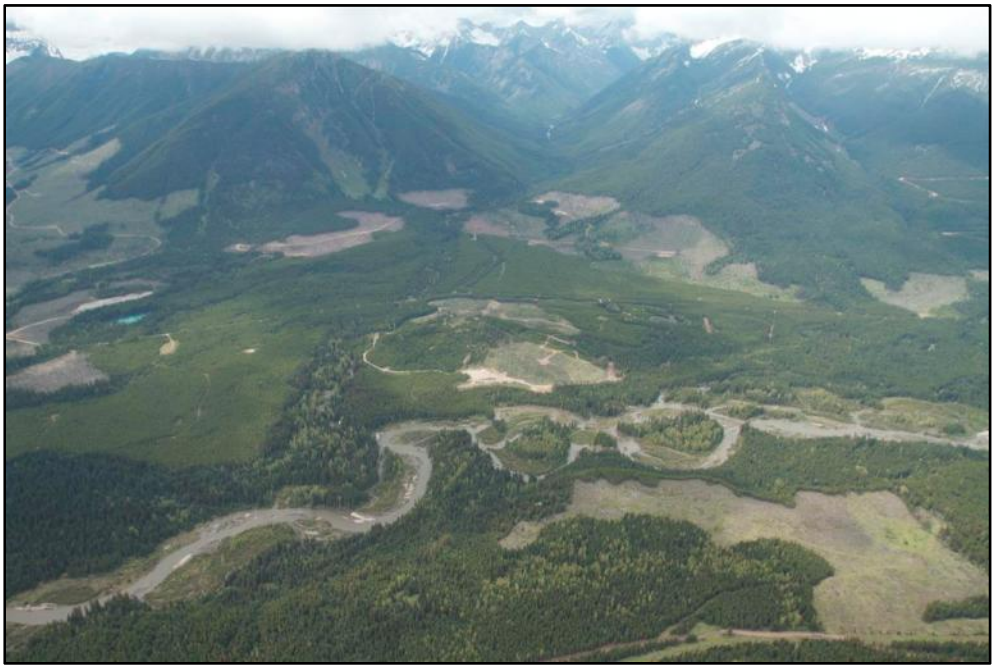

Photo 2. Aerial view of Bingay Hill (center) with Elk River in the foreground and the Bingay Creek valley top center.

Photo 3. East side of Bingay Hill from 2010 camp location

Photo 4. West side of Bingay Hill

Photo 5. Elk River

Photo 6. Bingay Creek at Elk River FSR crossing

Photo 7. Bingay Creek near confluence with Elk River

Photo 8. Hornickel Creek

Photo 9. No Name Creek 1