



**Point Rousse Port Facility, Project
Description, Pursuant to the
Canadian Environmental Assessment Act,
2012**

Baie Verte, Newfoundland and Labrador
November 2016

Anaconda Mining Inc.

**CEAA Project Description
Point Rouse Port Facility
Anaconda Mining Inc.**

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List of Abbreviations

ACCDC	Atlantic Canada Conservation Data Centre
ACOA	Atlantic Canada Opportunities Agency
ARD	Acid Rock Drainage
CAC	Criteria Air Contaminants
CEAA 2012	<i>Canadian Environmental Assessment Act</i>
CEA Agency, the Agency	Canadian Environmental Assessment Agency
CH ₄	Methane
CO	Carbon monoxide
CO ₂	Carbon dioxide
CPAWS	Canadian Parks and Wilderness Society
CWS	Canadian Wildlife Service
DFO	Fisheries and Oceans Canada
DWT	Dead weight tonnage
EA	Environmental assessment
ECCC	Environment and Climate Change Canada
EEM	Environmental Effects Monitoring
EEZ	Exclusive Economic Zone
EPP	Environmental Protection Plan
FPP	Fisheries Protection Program
GHD	GHD Limited
GHG	Greenhouse Gases
GHGRP	Greenhouse Gas Emissions Reporting Program
GPS	Global positioning system
GWPs	Global Warming Potentials
IPCC	Intergovernmental Panel on Climate Change
ML	Mineral lease
MMER	Metal Mining Effluent Regulations
NAFO	Northwest Atlantic Fisheries Organization
NH ₃	Ammonia
NL	Newfoundland and Labrador
NLDLAA	Newfoundland and Labrador Department of Labrador and Aboriginal Affairs
NLDEC	Newfoundland and Labrador Department of Environment and Climate Change
NLDNR	Newfoundland and Labrador Department of Natural Resources
nm	Nautical miles
NO _x	Nitrogen oxide
NO ₂	Nitrogen dioxide
N ₂ O	Nitrous oxide
NPP	Navigation Protection Program
NPWD	North Pit Waste Dump
O ₃	Ozone
PAA	Protected Areas Association
PM	Particulate matter

List of Abbreviations (continued)

PM 2.5	Particulate matter less than or equal to 2.5 microns
PWGSC	Public Works and Government Services Canada
RISS	Regulatory Information Submission System
SARA	<i>Species at Risk Act</i>
SO _x	Sulphur oxide
TC	Transport Canada
TCR	The Climate Registry
t/d	Tonnes per day
TMF	Tailings Management Facility
TSS	Total suspended solids
ULSD	Ultra-low sulphur diesel
USA	United States of America
VOC	Volatile organic compounds

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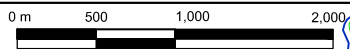
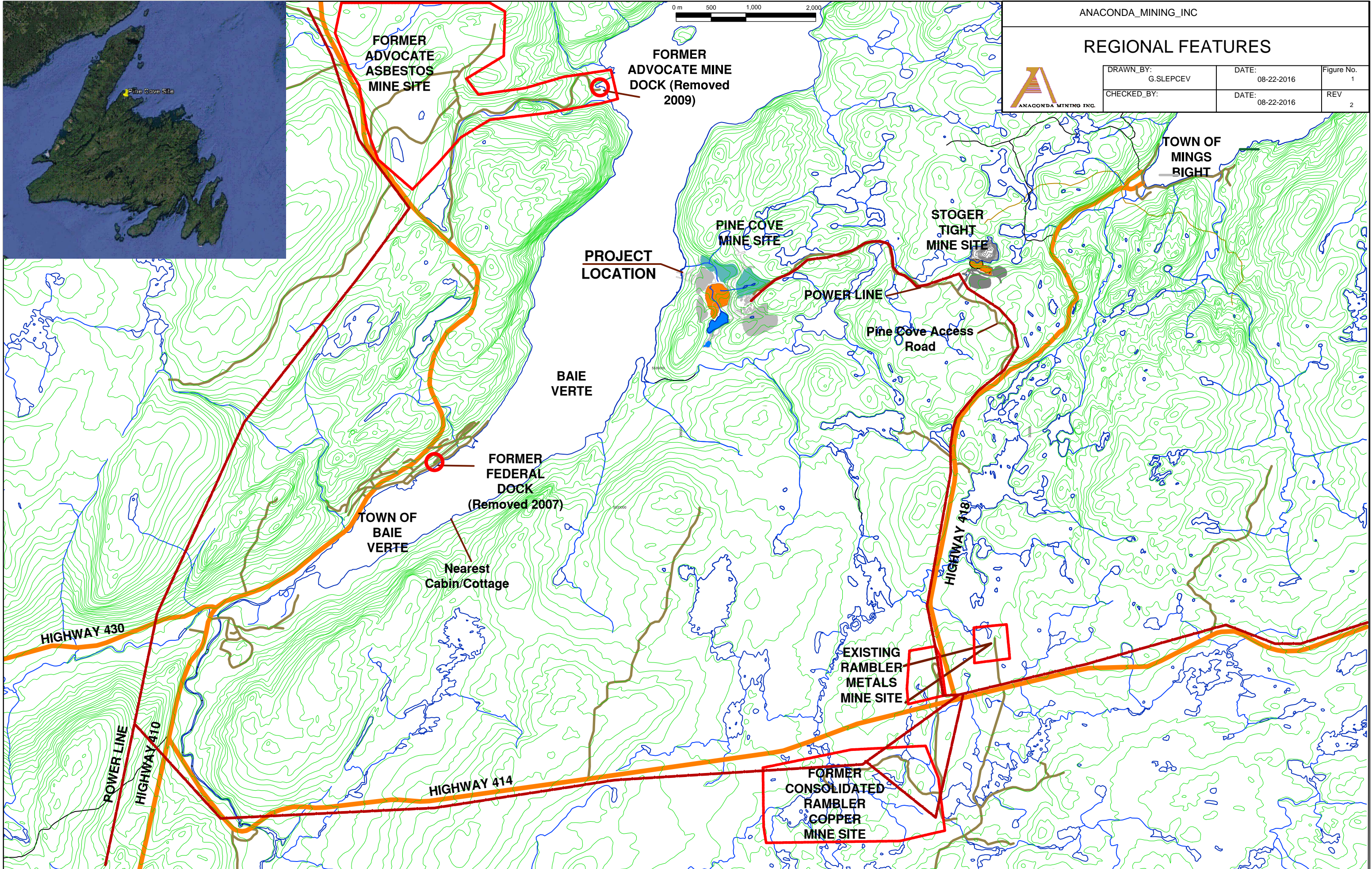
1.0 General Information and Contacts

Anaconda Mining Inc. (Anaconda) has constructed and is operating a new marine dock and loading facility, the Point Rouse Port Facility (“the Project”), at the existing Anaconda Pine Cove Gold Mine (“the mine”). The Project is located on the Point Rouse Peninsula, in the northern portion of the Baie Verte Peninsula, located approximately three kilometres (km) northeast of the Town of Baie Verte in north central Newfoundland and Labrador (NL) (Figure 1).

The Project consists of a new access road, crusher, conveyor loading system, crusher and crushed rock stockpile laydown area, shoreline and cribbed mooring bollards, rockfill approaches, and a temporary barge to convey the crushed waste rock to vessels for transport. The purpose of the Project is to provide a means for loading crushed mine waste rock from the existing mine operation onto marine vessels for shipment to Charleston, South Carolina in the United States of America (USA). In Charleston, the rock is being used as a compressive weight for the construction of a port facility foundation. Shoreline Aggregates Ltd. (Shoreline Aggregates) has purchased the aggregate from Anaconda, has retained the shipping company Phoenix Bulk Carriers (Phoenix), and has the agreement in place with the purchaser in South Carolina.

Anaconda’s consultation with provincial and federal regulators is detailed throughout this document and is specifically addressed in Section 7. Anaconda proceeded to construct the Project with the understanding that all required authorizations were obtained, based on the following consultation with provincial and federal regulators and receipt of corresponding authorizations and approvals:

- The NL Department of Environment and Climate Change (NLDEC) reviewed Project information and determined that Registration pursuant to the NL Environmental Assessment (EA) process was not required;
- The NL Department of Natural Resources (NLDNR) reviewed and approved an amendment to Anaconda’s Development and Rehabilitation and Closure Plans. NLDNR accepted the rehabilitation and closure proposal and cost estimate for the Project. Anaconda posted the Financial Assurance for the rehabilitation and closure costs to NLDNR prior to construction (the Financial Assurance ensures that money is available to complete the rehabilitation of the dock facility were Anaconda to default on the Project);
- A Marine Security Plan was prepared and submitted to Transport Canada (TC);
- Fisheries and Oceans Canada (DFO) Fisheries Protection Program (FPP) was consulted and was provided with Project information for review. DFO provided a letter of advice, which included recommended mitigation measures to be implemented during the Project;



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REGIONAL FEATURES



DRAWN_BY: G.SLEPCEV	DATE: 08-22-2016	Figure No. 1
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- Anaconda had originally determined that the proposed facility was not a designated activity under the *Canadian Environmental Assessment Act 2012* (CEAA 2012). The dock structure is designed to handle ships no larger than 5,000 dead weight tonnage (DWT), which is well below the 25,000 DWT threshold specified in CEAA 2012. Although the barge accommodates ships that exceed the 25,000 DWT threshold, Anaconda believed CEAA 2012 would not apply given the temporary nature of the barge. Anaconda obtained a legal opinion, which supported this rationale.

This Project Description would typically have been submitted and reviewed by the Canadian Environmental Assessment Agency (“CEA Agency” or “the Agency”) prior to obtaining permits and subsequent construction of the Project. However, in this case the Agency was only made aware of the Project when federal funding was sought by Anaconda’s partner via royalty agreement, Shoreline Aggregates. Based on Project information provided to the Agency by Anaconda, the Agency determined that this Project is a designated project under CEAA 2012. At the time of this determination, Anaconda had substantially completed Project construction. Some minor work was completed after this determination, but solely for the purpose of protecting the work completed to date.

Anaconda has completed the work to date on this Project in an environmentally responsible manner, following regulator-approved environmental protection protocols and specific regulator recommendations regarding this work, and in a manner consistent with Anaconda’s commitment to responsible development at this site and in this region. NLDNR and DFO personnel conducted site visits of the proposed site of the dock facility prior to and during construction.

Anaconda’s detailed environmental protection and management plans, used for all aspects of planning, design, construction, and operation at its properties and facilities, will be employed throughout all Project phases. Anaconda has successfully developed and operated a fully permitted/approved 1,000 tonnes per day (t/d) (nominal) open pit gold mine and milling process since 2008 and has maintained an excellent relationship with provincial and federal regulators.

Table 1-1 Project Name and Contact Information

Name of the designated project:	Point Rousse Port Facility
Name of the proponent:	Anaconda Mining Inc.
Address of the proponent:	P.O. Box 238 Baie Verte, NL A0K 1B0
Chief Executive Officer:	Dustin Angelo President, CEO and Director 150 York Street, Suite 410 Toronto, Ontario M5H 3S5 Telephone: 416-604-6622 Email: dangelo@anacondamining.com

Table 1-1 (continued) Project Name and Contact Information

Principal Contact Person:	Jordan Cramm Project Development Coordinator P.O Box 238 Baie Verte, NL A0K1B0 Telephone: 709-800-7332 Email: jcramm@anacondamining.com
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Anaconda consulted with the following federal and provincial government agencies during the preparation of this Project Description.

Table 1-2 Project Name and Contact Information

Federal Government Agencies:	Canadian Environmental Assessment Agency (the Agency)
	Fisheries and Oceans Canada (DFO)
	Transport Canada (TC)
Provincial Government Agencies:	NL Department of Environment and Climate Change (NLDEC)
	NL Department of Natural Resources (NLDNR)
Municipal Government Agencies:	Town of Baie Verte

Anaconda has not identified any Aboriginal groups that may be interested in, or potentially affected by, the Project. Since the Project is a relatively small addition to the existing and permitted mine operation, Anaconda did not conduct a Project-specific public consultation. Consultation details are provided in Sections 6 and 7 of this document.

NLDEC confirmed that the Project is not a designated undertaking under Part III of the *NL Environmental Assessment Regulations*, made under the authority of the *NL Environmental Protection Act*, and is therefore not subject to the NL EA process (Cleary, pers. comm.). The Project is considered an addition to the previously-approved Pine Cove Property (the Property). The current mine footprint, components (including the waste rock dump), production levels, infrastructure and activities on the Property were already registered with and released from the NL EA process in 1992, 1997 and 2005.

The Project is subject to the *NL Mining Act* and, pursuant to section 6 of the *Act*, required filing of an amended Development Plan. On May 24, 2016, Anaconda submitted to the NLDNR an addendum to the Pine Cove Property Development Plan and Rehabilitation and Closure Plan to address the Project, to which the mine Environmental Protection Plan (EPP) was appended. NLDNR approved the amendment on June 2, 2016 and the Financial Assurance requirements for rehabilitation activities have been posted by Anaconda.

A regional study, as described in sections 73 through 77 of CEEA 2012, is not being nor has been conducted in the Project area. The existing environment surrounding the Project and the potential environmental effects of Anaconda's mining operations are well understood, and various environmental baseline studies have been conducting on and surrounding the Property. Environmental studies have been completed in support of various applications and approvals, including several fish and fish habitat studies (JWL 1993, JWL 2007a); a raptor/moose aerial survey (JWL 1992); a raptor survey (with incidental wildlife observations) (1993); fish habitat compensation plan and monitoring (JWL 2007b, Gary and Gautreau 2012, Stantec 2012, Strakes 2012); and a fish relocation program (SEM 2015).

2.0 Project Information

Key aspects of this Project are summarized as follows:

- The dock and loading facility is a relatively small addition to an existing, fully permitted mining operation which has been in production since 2008. Extensive environmental studies, permitting, and monitoring have been conducted in the Project area;
- The Project schedule is 18.5 months in duration (from construction to decommissioning), and will ship 3 million tonnes of waste rock over a 14-month period. Anaconda has no plans nor contracts to extend the Project beyond this timeframe or scope;
- The Project will allow waste rock that would otherwise be permanently stored in waste rock dumps to be reused, thereby reducing the overall environmental footprint of the mine;
- Anaconda carefully considered various designs and alternatives to construct a temporary dock and loading structure at the site. Using a temporary floating barge to support the ship-loading conveyors eliminates the need for a large, permanent wharf structure, thereby greatly reducing the marine footprint of the Project.

Waste rock is a by-product of mining and is typically disposed of in waste dumps at the mine site. Ten million tonnes of waste rock will be produced over the life of the mine. The Project is repurposing 3 million tonnes of the waste rock rather than storing it permanently in waste dumps. The Project involves shipping 3 million tonnes as per the arrangement with the purchaser of the aggregate, and Anaconda does not plan to ship more than 3 million tonnes. Mining rates are not being increased to support the shipment of waste rock; the amount and rate of waste rock production would be the same with or without this Project. Currently, Anaconda does not plan to use the facility beyond the 14-month operational period. Anaconda has no plans to ship aggregate from locations other than Pine Cove, nor does it plan use the facility to handle and ship other, non-aggregate product from Pine Cove or elsewhere. Should future opportunities be identified, Anaconda will consult with the applicable regulatory agencies regarding any change in scope.

Anaconda evaluated the technically and economically feasible alternative means of carrying out the Project, including different dock facility construction methods and various facility locations. Consideration was given to the complete infilling between the dock face and shoreline. Anaconda deemed this option to be unsuitable as it would have resulted in a substantially larger footprint, constituting a greater loss of marine habitat. The temporary barge and conveyor system design option selected for this Project reduces the marine footprint while enabling efficient ship-loading.

While sheet pile construction was considered, it was eliminated from further consideration due to unsuitability of the marine substrate (i.e., shallow bedrock) for this type of installation. Sheet piles are also costlier, as the expertise for this type of construction is not available locally. Constructing the dock with wooden cribs on rock mattresses, as selected for this Project, minimizes the marine footprint and is the most practical and lowest cost option.

Anaconda assessed four potential Project locations within Pine Cove. The Project location was selected based on its proximity to the waste rock sources, water depth, and wave and wind patterns. Upon consideration of alternatives, Anaconda concluded that the current Project location is the most technically, economically and environmentally viable means of carrying out the Project.

2.1 Designated Activity Provisions

Under CEAA 2012, a federal EA may be required for designated projects. As per subsection 8(1) of CEAA 2012, the proponent of a designated project is required to submit a description of the designated project to the Agency to inform a decision as to whether an EA is required.

Anaconda submitted Project information to the Agency to determine applicability of CEAA 2012 to the Project. Based on correspondence dated August 26, 2016, the Agency considers the Project to be a designated activity pursuant to paragraph 24 (c) of the Schedule to the *Regulations Designating Physical Activities* (the Regulations), which lists as the designated project: “the construction, operation, decommissioning and abandonment of a new marine terminal designed to handle ships larger than 25,000 DWT unless the terminal is located on lands that are routinely and have been historically used as a marine terminal or that are designated for such use in a land-use plan that has been the subject of public consultation.”

A “marine terminal” is defined under section 1 of the Regulations as “an area normally used for berthing ships and includes wharves, bulkheads, quays, piers, docks, submerged lands and areas, structures and equipment that are connected with the movement of goods between ships and shore and their associated storage areas.” Further, the Agency noted, based on information provided by Anaconda, that the Project is not located on lands that are routinely and have been historically used as a marine terminal or that are designated for such use in a land-use plan that has been the subject of public consultation.

The Agency has stated that the Project is a designated activity based on the following factors:

- The Project involves the construction, operation, decommissioning, and abandonment of an area normally used for berthing ships;
- The loading barge is used as a structure or piece of equipment connected with the movement of goods between ships and shore;
- The loading barge is a component of the marine terminal, and is designed to handle ships up to approximately 50,000 DWT in size, which exceeds the 25,000 DWT threshold in paragraph 24 (c) of the Schedule to the Regulations.

Sections 16 (g) and 17 (g) of the Regulations do not apply to the Project, as it does not involve a new stone quarry, nor an increase in footprint or production capacity of an existing quarry (as

described in Section 1.1 of this Project Description). The Project is not a component of a larger project that is not listed the Regulations.

This Project Description has been prepared in accordance with the *Prescribed Information for the Description of a Designated Project Regulations*, and the *Guide to Preparing a Description of a Designated Project under the Canadian Environmental Assessment Act, 2012* (CEA Agency 2015).

As per section 5 (1) of CEAA 2012, environmental effects that are to be considered in relation to a designated project are:

- A change that may be caused to the following components of the environment that are within federal authority:
 - fish and fish habitat as defined in subsection 2(1) of the *Fisheries Act*;
 - aquatic species as defined in subsection 2(1) of the *Species at Risk Act*;
 - migratory birds as defined in subsection 2(1) of the *Migratory Birds Convention Act, 1994*;
 - any other component of the environment that is set out in Schedule 2.
- A change that may be caused to the environment that would occur:
 - on federal lands;
 - in a province other than the one in which the activity is being carried out; or,
 - outside of Canada.
- With respect to Aboriginal peoples, an effect occurring in Canada of any change that may be caused to the environment on:
 - health and socio-economic conditions;
 - physical and cultural heritage;
 - the current use of lands and resources for traditional purposes; or,
 - any structure, site or thing that is of historical, archaeological, paleontological or architectural significance.

Section 5 (2) of CEAA 2012 specifies additional environmental effects to be considered, if carrying out the designated project requires a federal authority to exercise a power or perform duty under another federal *Act*. The potential Project-related environmental effects are described in Section 5 of this Project Description.

2.2 Project Components and Activities

The Project components are illustrated in Figures 2, 3 and 4, and in the design drawings (Appendix A). The Project components and activities are further described in this subsection.

The process by which the waste rock is transported from the mine site to the ships is as follows:

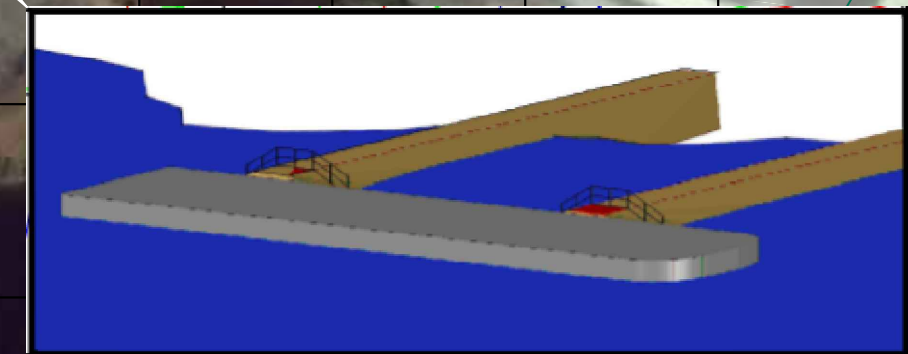
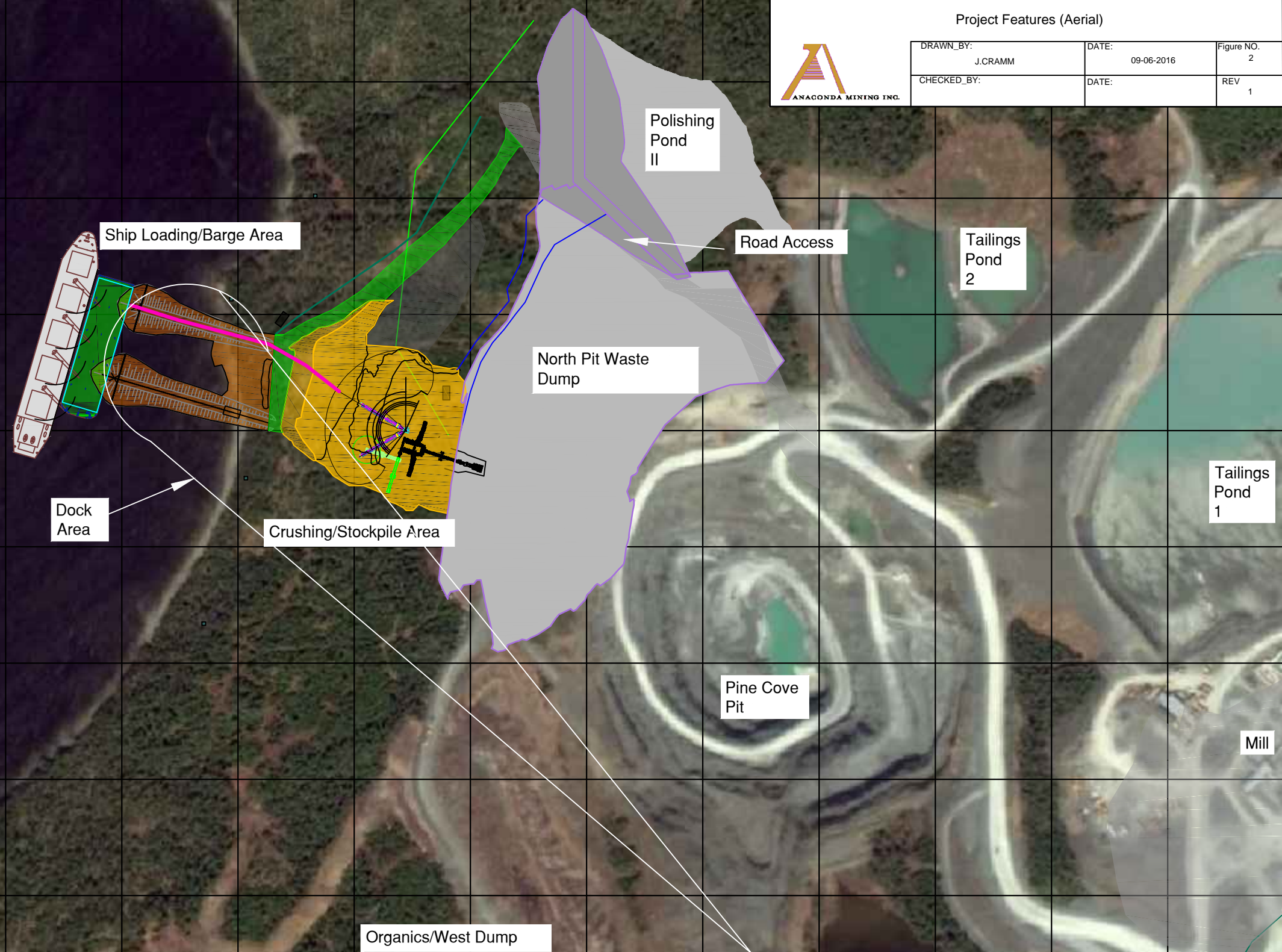
- Waste rock is transported to the rock crusher via truck or loader, either from the existing North Pit Waste Dump (NPWD) or directly from the mine;
- The crusher reduces the rock particle size to the desired gradation (32 mm minus) and stockpiles the material via conveyor in the designated crushed rock stockpile area;

- From the crushed rock stockpile, the material is loaded onto a covered conveyor system using a wheeled loader. An overland conveyor system transports the material from the stockpile across the rockfill approach and onto the barge;
- The overland conveyor deposits the rock material directly onto a ship-loading conveyor system, located on the barge, which delivers the material to the ship's load holds.

Project Features (Aerial)



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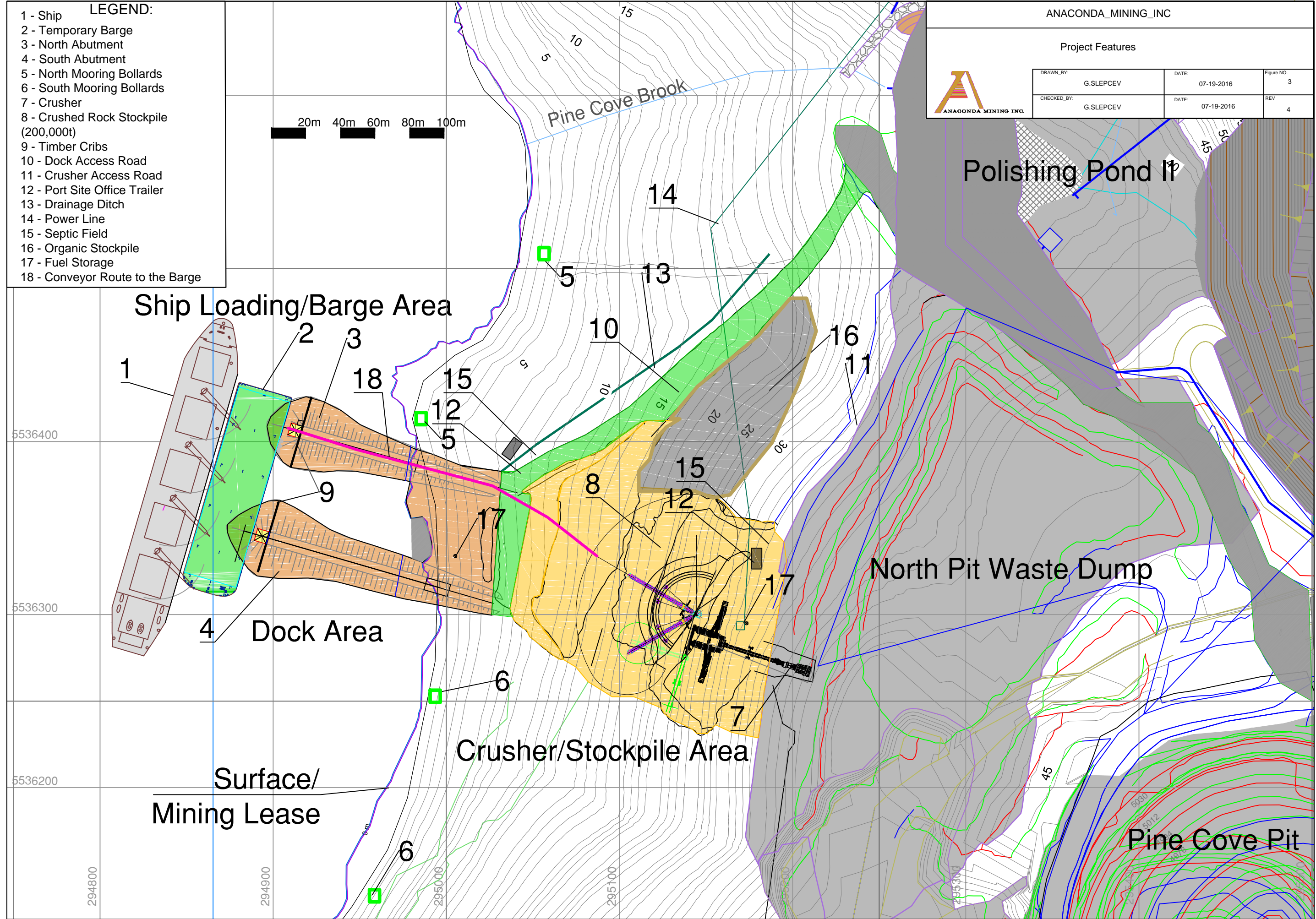
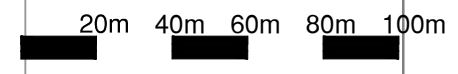


- LEGEND:**
- 1 - Ship
 - 2 - Temporary Barge
 - 3 - North Abutment
 - 4 - South Abutment
 - 5 - North Mooring Bollards
 - 6 - South Mooring Bollards
 - 7 - Crusher
 - 8 - Crushed Rock Stockpile (200,000t)
 - 9 - Timber Crib
 - 10 - Dock Access Road
 - 11 - Crusher Access Road
 - 12 - Port Site Office Trailer
 - 13 - Drainage Ditch
 - 14 - Power Line
 - 15 - Septic Field
 - 16 - Organic Stockpile
 - 17 - Fuel Storage
 - 18 - Conveyor Route to the Barge

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Project Features

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Ship Loading/Barge Area

Dock Area

Crusher/Stockpile Area

North Pit Waste Dump

Polishing Pond II

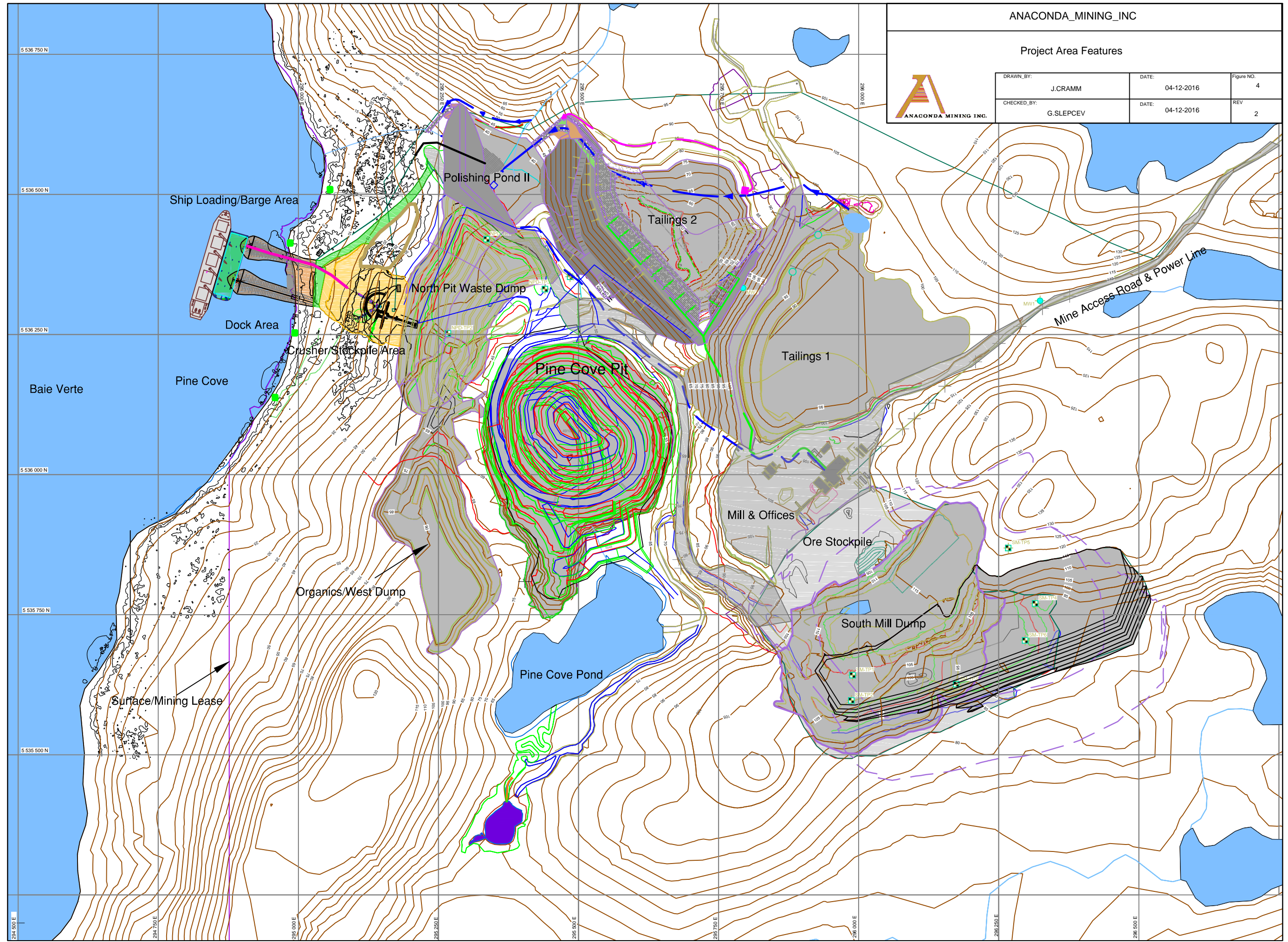
Pine Cove Pit

Surface/
Mining Lease

Project Area Features



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2.2.1 Waste Rock Sources

The 3 million tonnes of waste rock are sourced either from the existing NPWD at the mine site or directly from the existing open pit mine. The NPWD was approved by NLDNR as part of ongoing reviews of Anaconda's Development Plan and Rehabilitation and Closure Plan updates (Anaconda Mining Inc. 2016).

2.2.2 Access Road

Road access to the Project was partially constructed in 2014 as part of development of the NPWD. Approximately 400 metres (m) of new access road was constructed to create access from the NPWD to the crusher, crushed rock stockpile, and dock/loading facility. The maximum width of the access road is 15 m. Approximately 5 m of additional right-of-way was required on each side of the road allowance to accommodate a powerline. No culverts or bridges were required to accommodate the access road.

2.2.3 Crusher, Conveyer and Crushed Rock Stockpile Laydown Area

The crusher and conveyor systems are mobile equipment situated on a wheeled chassis, to be removed from the site once all waste rock is delivered to the customer. Concrete pads were not required for the placement or operation of this equipment. The crushing, conveying, and heavy equipment has been supplied by Shoreline Aggregates, who is operating the equipment for the duration of the Project.

The crushed rock stockpile area is approximately 0.6 ha and can accommodate a maximum of 200,000 tonnes of crushed material at any given time. The crushed rock stockpile is located approximately 70 m from the high water mark and the slope from the stockpile to the shore is approximately 10%. The location of the crusher and crushed rock stockpile (i.e., the crushing laydown area) is illustrated in Figures 2 and 3.

2.2.4 Dock Structure

The dock structure is designed to handle ships no larger than 5,000 DWT and consists of:

- Two timber cribs (each measuring 8 m by 8 m) on the end of two rockfill approaches:
 - northern rockfill approach (footprint of approximately 70 m by 30 m);
 - southern rockfill approach (footprint of approximately 100 m by 30 m);
- Four shore-based concrete mooring bollards (each measuring approximately 3 m by 3 m), to be constructed on bedrock.

2.2.5 Barge

The barge is a dual purpose 12,000 tonne docking flat deck barge, the Nunavut Spirit, which Phoenix has rented from McKeil Marine, a Canadian marine services provider. The barge is 32 m by 122 m and is designed to accommodate marine vessels up to approximately 50,000 DWT in size.

2.2.6 Vessels

The Project requires four marine vessels, each of modern Ultramax design with a 50,000 DWT capacity. The vessels are hired on an as-required basis. Shipping activities are being undertaken by Phoenix, a division of the publicly-traded Pangaea Logistics Solutions Ltd., which is headquartered out of Newport, Rhode Island. The contractual relationship is between the Phoenix and Shoreline Aggregates. The shipping schedule is provided in Section 2.4 of this Project Description.

2.2.7 Site Facilities and Utilities

A temporary mobile trailer houses office space, lunch room, and washroom facilities. Power to operate the crusher and conveyors and other site infrastructure will be supplied by generator until the second quarter of 2017, at which time connection to the Newfoundland Hydro (NL Hydro) power grid is anticipated. Anaconda had anticipated that power would be supplied to the Project prior to commencing operations, however NL Hydro currently has limited surplus power to supply to the two primary consumers on the Baie Verte Peninsula. As a result of the limited available surplus power, NL Hydro is completing a local area systems upgrade and Anaconda is installing capacitors on larger equipment to ensure safe start-ups for larger equipment at the mine site. These upgrades have delayed the provision of power to the Project. The power line connecting the Project infrastructure to the existing facilities on the Property will generally follow the access road to the dock site for ease of access and maintenance.

2.3 Emissions, Discharges and Waste

2.3.1 Atmospheric Emissions

Project-related activities will generate atmospheric emissions. Criteria Air Contaminants (CAC) and greenhouse gases (GHGs) are created from engine combustion. CAC include sulphur oxide (SO_x), nitrogen oxide (NO_x), particulate matter (PM), volatile organic compounds (VOC), carbon monoxide (CO), ammonia (NH₃), ground-level ozone (O₃) and secondary PM (Environment and Climate Change Canada [ECCC] 2013). GHGs include carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O). The primary source of construction-related emissions was combustion engines of vehicles and heavy equipment (i.e., rock trucks, dozers and excavators). During the operations phase, emissions are generated by vehicles and heavy equipment (e.g., loaders, excavators, etc.), as well as by the vessels transporting the waste rock. Vehicles and heavy equipment will also be the primary source of emissions during the decommissioning phase.

GHD Limited (GHD) completed an assessment of GHG emissions attributable to Project construction (three months) and operation (14 months) and commented on results relative to applicable regulations (GHD 2016). Power to operate the Project will be supplied by generator until the second quarter of 2017, at which time connection to the Newfoundland Hydro power grid is anticipated. In the event connection to the grid does not occur as scheduled, calculations for GHG emissions were based on anticipated equipment fuel usages, fuel consumption rates and emissions factors, assuming generator use for the 14 months of operation.

GHD applied emission factors from two different reporting programs in the emissions calculations: The Climate Registry (TCR) 2015 Default Emission Factors and 2006 Intergovernmental Panel on Climate Change (IPCC) Guidelines for National Greenhouse Gas Inventories. As NL does not currently prescribe specific GHG calculation methodologies for reporting purposes, GHD applied industry best practices and calculation methodologies that are consistent with ECCC's GHG Emissions Reporting Program (GHGRP). In accordance with the GHGRP, calculation methodologies to be used in assessing GHG emissions must be consistent with the guidelines prescribed by the IPCC. For comparison, emission factors from both TCR and IPCC were used in this assessment.

The GHG emissions generated are from diesel fuel combustion in stationary and mobile equipment, for the construction phase (three months) and the operation phase (assuming generator use for 14 months). The GHG emissions generated from these sources are CO₂, CH₄, and N₂O. GHD calculated the emissions for each type of GHG and the total carbon dioxide equivalent (CO₂e). The CO₂e was calculated based on the Global Warming Potentials (GWPs) for CH₄ and N₂O of 25 and 298, respectively. For the emissions calculations, the most conservative emission factors (i.e., emission factors that would yield the highest emissions) were applied in the calculations to ensure that the GHG emissions calculated are not underestimated.

A summary of GHG emissions attributable to the Project is provided in Table 2-1.

Table 2-1 GHG Emissions Summary for the Project (GHD 2016)

GHG Emissions Summary	GHG Emissions based on TCR Emission Factors (kg)			GHG Emissions based on IPCC Emission Factors (kg)		
	CO ₂	CH ₄	N ₂ O	CO ₂	CH ₄	N ₂ O
Emissions	10,990,184	442	449	10,649,773	447	193
Total CO ₂ e (metric tonnes)	11,135			10,718		

Based on an assessment of the Project's GHG emissions, the following conclusions were made:

- NL *Air Pollution Control Regulations*, 2004 and NL *Environmental Assessment Regulations*, 2003 do not have specific requirements for GHG emissions;
- Under the GHGRP, facilities are not required to include emissions generated from vehicles or mobile sources. Under the Act, vehicles are required to be included. The GHG emissions calculated for the Project are therefore conservative;
- The emissions attributable to the Project are below the reporting thresholds prescribed by the GHGRP and the NL *Management of Greenhouse Act* (the Act), which are 50,000 and 15,000 metric tonnes, respectively.

Fugitive dust is generated by heavy equipment travelling on unpaved roads throughout all Project phases. It is important to note that the entire drivable surface of the Project is 700 m. During the

construction phase, clearing and grading of the access road and installation of the dock produced dust, as does crushing, conveying and loading of the waste rock during operation.

Anaconda has measures in place to control atmospheric emissions, which are also detailed in the EPP. All vehicles and heavy machinery have the required emission control equipment, which is regularly inspected and maintained in good working order. All vehicles and heavy equipment being used for the Project comply with the NL *Air Pollution Control Regulations*. Phoenix assures that vessels are in compliance with the regulations for the North American Environmental Control Area. This legislation, applicable in Canada and the USA, restricts fuel consumption to 0.1% sulphur content marine gas oil. No fuels are supplied at the Project site. Refuelling occurs at Charleston where the fuel suppliers only offer Ultra Low Sulphur Diesel (ULSD) with a maximum sulphur content of 0.01%, which is substantially lower than the legislated requirement. The crushing, conveying and loading components are covered to minimize dust production. Dust resulting from Project activities is controlled by water trucks that spray water on surfaces.

2.3.2 Discharges

There are no planned liquid discharges associated with construction or operation. Diesel fuel, engine oil, and hydraulic fluids are stored onsite – one 18,000 litre (L) fuel tank located near the loading equipment and one 22, 000 L fuel tank located at the crusher. Fuel is stored according to NL's *Storage and Handling of Gasoline and Associated Products Regulations* and the corresponding permit was acquired from Service NL. Anaconda's EPP and Contingency (Spill Response) Plan include measures to prevent and respond to accidental liquid discharges, including ensuring emergency spill kits are placed strategically around the site and that all workers are trained in spill response. A drainage collection system is in place on the site, which collects surface runoff in a settling basin to facilitate a passive filtration process. Conveyors are covered to prevent sediment runoff into Pine Cove in the event of rainfall during ship loading. A series of sediment traps have been placed around the perimeter of the barge to trap any sediment before any water enters the marine environment. A small powered sweeper has been positioned on the barge to clean-up coarser material.

Ship refuelling occurs in Charleston and ship fuel is not stored at the Project site. Phoenix assures that ships adhere to all relevant laws, regulations and permits, and meet all regulatory standards pursuant to the *Canada Shipping Act*, including *Oil Pollution Prevention Regulations* and *Ballast Water Control and Management Regulations*. It should be noted that there is no "tanker" traffic associated with the Project; there is no bulk oil/fuel transport, nor oil/fuel transfer to or from ships while at the dock facility. As per the regulations, neither bilge water nor ballast water is being discharged at the Project site.

2.3.3 Waste

Sewage effluent from washroom facilities was handled during construction via an approved portable facility. Holding tanks were emptied by a pump truck on a regular basis and disposed of at an approved off-site facility. For Project operation, an approved septic system has been installed according to NL's *Environmental Control Water and Sewage Regulations* and the corresponding permit was acquired from Service NL. Waste from the construction and operation of the Project is anticipated to consist of domestic garbage, waste construction materials, waste

oil, grease and other materials. These materials will be disposed of at an approved facility, in accordance with Anaconda's approved EPP and Waste Management Plan (WMP), and the NL *Waste Material Disposal Act*.

Hazardous materials, such as fuel, are in use on the Project site. As per the EPP, all hazardous waste materials are stored in appropriate containers at a designated location, which is covered and dyked for spill containment, and held until these materials can be effectively removed from site. Waste will not be disposed of on site. Disposal of hazardous waste is carried out by a qualified contractor based on volume, at an approved site for the waste type. A WMP is in place for the mine and is being applied to this Project. The WMP addresses all forms of waste, including mine and mill waste, construction waste, recyclable and non-recyclable waste, metals, domestic waste as well as hydrocarbon and hazardous waste. The WMP ensures that all waste is properly separated, handled, and stored or removed from site based on best practice and available methods.

2.3.4 Acid Rock Drainage

Several phases of ARD studies have been completed on all of the rock types to be excavated from the open pit mine, including the waste rock materials that are being crushed and shipped as part of this Project. The initial phases of ARD test work conducted in 2006 and 2007 included 'static' laboratory test work on samples of exploration drill core. The test work and resulting analysis showed that the waste rock materials from the mine open pit would be non-acid generating. Further 'kinetic' work was completed in 2008 and 2009, which included humidity test cells on two representative samples of waste rock material. The results of these long-term tests confirmed that the waste rock materials would be non-acid generating (Anaconda Mining Inc. 2010).

The phased ARD study work was reported to NLDNR over the development and operations phase of the mine open pit as part of the *Mining Act* requirements for development and closure planning of the mine. The results were accepted, allowing waste rock storage at surface without the requirement for ARD mitigation during operations or at closure.

Table 2-3 Dates of Project Phases and Activities

Activity	Start Date	End Date	Duration
Construction	June 6, 2016	September 16, 2016	3.5 months
Clearing/Grubbing	June 6, 2016	June 20, 2016	2 weeks
Access Road	June 7, 2016	June 28, 2016	3 weeks
Crushed Rock Stockpile Laydown Area	June 23, 2016	June 28, 2016	1 week
Dock Approaches	July 26, 2016	August 30, 2016	1 week
Crusher/Conveyor Setup	August 8, 2016	September 9, 2016	1 month
Mooring Bollards	August 10, 2016	August 30, 2016	3 weeks
Dock Cribs	August 15, 2016	September 15, 2016	1 month
Barge Setup	September 14, 2016	September 16, 2016	2 days
Operations	September 20, 2016	November 20, 2017	14 months
Crushing	September 20, 2016	November 20, 2017	14 months
Loading and Shipping ¹	September 20, 2016	November 20, 2017	14 months
Decommissioning²	November 2017	December 2017	1 month

Notes:

1. At this time, it is assumed ships will not be operating in January and February due to ice conditions.
2. Rehabilitation and closure of the Project will be carried out as part of the overall Pine Cove Property Rehabilitation and Closure Plan.

2.4.1 Construction

Access Road

Approximately 400 m of new, unpaved access road was required to access the dock facility and crusher. The road was constructed using rockfill sourced from the waste rock storage areas and crushed stone produced at the mine site was used for road topping. The approximately 0.5 ha area used for access road development was cleared and grubbed prior to placement of rockfill. All grubbing and organic material was stockpiled separately to be used in the rehabilitation phase

of the Project. Approximately 30,000 tonnes of waste rock from the mine was used for construction of the road structure. Drainage ditches were placed beyond the shoulders of the road to manage surface water runoff. The road was constructed in approximately three weeks. No culverts or bridges were required to accommodate the access road. No blasting was required for access road construction.

Crusher/Crushed Rock Stockpile Laydown Area

Preparation of the crushed rock stockpile area was completed in one week and required clearing, grubbing and the placement of a rockfill pad over an approximately 0.6 ha area. All grubbing and organic material has been stockpiled separately to be used in the rehabilitation phase of the Project. Waste rock from the mine was used for rockfill construction of the stockpile pad. The drainage ditch previously located at the toe of the NPWD embankment was relocated to the toe of the crushed material stockpile area for surface water runoff management. The set-up of the crusher and conveyor system occurred over a one-month period.

Organic Material Stockpile

As per the requirements of NLDNR and NLDEC, all grubbed organic material has been stockpiled and utilized for progressive and/or final rehabilitation. An existing organic material stockpile is adjacent to the NPWD and north of the crushed rock stockpile and has a footprint of 10,800 m². Prior to this Project, the organic material stockpile contained approximately 20,000 m³ of material from stripping of the expanded mine Tailing Management Facility (TMF). This Project added approximately 5,000 m³ of material to the stockpile, which will be used for rehabilitation and closure of the Project.

Dock

The dock infrastructure includes two rockfill approaches, two crib structures, and four mooring bollards. The rockfill approaches were constructed by placing clean rockfill in the water with an excavator, thereby minimizing water disturbance. A floating silt fence was installed to minimize dispersion of suspended solids beyond the immediate area. The cribs were constructed of 0.25 m by 0.25 m by 12.2 m timbers on a sloped rockfill launch pad, to a height of approximately 3 m. The constructed cribs were launched and sunk into position with ballast rock on a prepared rockfill mattress at the end of the rockfill approach areas. Once the cribs were firmly seated on the bottom, they were built-up to the final elevation, leveled, and filled with ballast rock, ranging in size from 0.25 m – 0.50 m, placed by an excavator from a barge. The overall dock footprint is 6,000m². A design profile drawing of the dock is provided in Appendix A.

The mooring bollards were constructed on, and anchored to exposed bedrock along the shoreline adjacent to the dock structure. The approximately 3 m by 3 m concrete foundations for the steel mooring bollards were poured directly on the bedrock surface. A design drawing of a mooring bollard is provided in Appendix A.

The construction of the dock (i.e., rockfill approaches, timber cribs, mooring bollards and placement of the barge) occurred over a six-week period. No blasting (either in-water or on-land) or dredging was required for dock construction.

Construction Equipment

In addition to equipment already in use for the overall mining operation, the following heavy equipment was required during construction:

- Three 460d rock trucks;
- One 470 excavator;
- One 700j dozer; and,
- One 270 LC long reach excavator.

2.4.2 Operations

The duration of the operations phase, from start of rock crushing to shipping of the last load, is approximately 14 months. Operations are currently underway and during normal daytime mining operations, haul trucks (44 tonne capacity) dump waste rock directly from the mine to the crusher. The distance that these trucks travel from the open pit mine to the crusher is the same distance that would otherwise be travelled to dump waste rock to the NPWD; therefore, the Project does not increase this trucking activity.

The number of truck trips per day to the crusher is variable and dictated by the open pit mining requirements (mining in ore versus mining in waste). Generally, it is anticipated that trucks traveling from the mine open pit directly to the crusher will deliver approximately 1.5 million tonnes of waste rock over the course of the Project, with an average of 95 truck trips per day to a maximum of 135 trips per day during peak aggregate production, if sufficient waste rock is available from the mine open pit.

Loaders are used to load waste rock from the NPWD to the crusher during night and weekend shifts when haul trucks are not operating. This activity is directly attributable to the Project as it is not already being carried out as part of the mining operation. It is anticipated that 1.5 million tonnes of waste rock will be transported from the NPWD to the crusher. The loader capacity is approximately 10 tonnes. The average number of loader trips is 415 per day, to a maximum of 1,000 trips per day during peak production. The travel distance for the loader from the NPWD to the crusher is approximately 30 m.

Once material enters the crushing circuit, it is processed at an average rate of 500 tonnes per hour and stored in the crushed rock stockpile area. The crusher will be operated as required to stockpile sufficient crushed rock to match the shipping schedule as outlined below. Stockpiled crushed rock is then be loaded onto an overland conveyor system which moves the rock across the north approach of the dock and onto the barge. The overland conveyor loads the rock material directly onto a ship-loading conveyor system on the temporary barge, which delivers the rock directly to a docked ship's cargo hold.

The loading process takes approximately 3 to 4 days per vessel. Figures 2 and 3 illustrate the conveyor layout and arrangement along the northern approach and the temporary barge, and the conveyor connection route from the crushed rock stockpile to the ship.

In addition to equipment already in use for the overall mining operation, the following equipment was required during operations:

- Three 844 John Deer loaders;
- One 470 excavator;
- One C130 Jaw Plant w/ 90 Ton Live Truck Box;
- One Surge Bin Hopper;
- One 1 m by 18 m (36' by 60') Portable transfer conveyor (Dual Hopper);
- Two HP300IOC Cone Plants;
- Two Screen Plants with rear feed conveyor;
- One 1.5 m by 31 m (54' by 100') Pit Portable Radial Stacker;
- One 1 m by 31 m (36' by 100') Pit Portable Radial Stacker;
- One portable hydraulic Grizzly feeder;
- One 1.3 m by 46 m (42' by 150') portable conveyor;
- Two 1.3 m by 31 m (42' by 100') portable conveyor; and,
- Two 1.3 m by 52 m (42' by 170') Magnum Stackers.

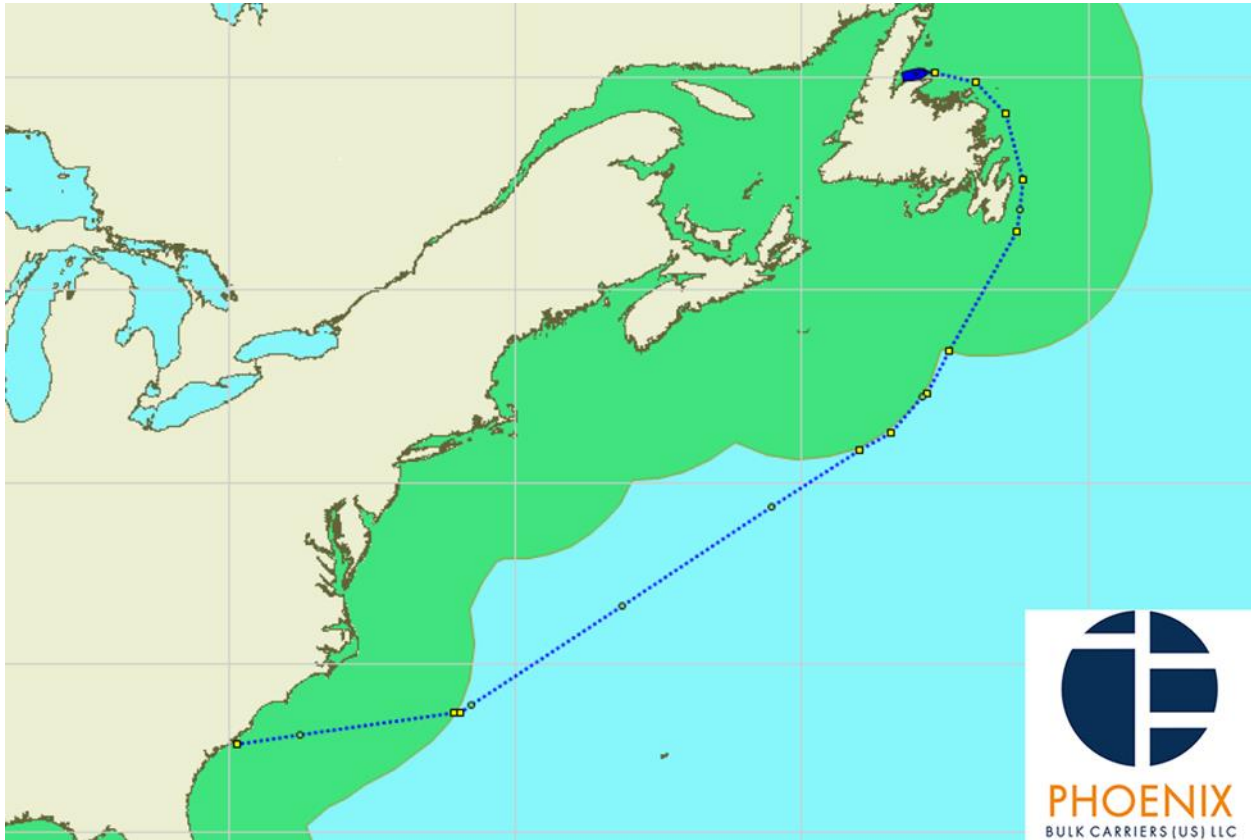
One vessel per week is planned, for an average monthly shipping rate of 290,000 tonnes for per month, with the remaining 100,000 tonnes shipped in the final month. At this time, it is assumed shipping will not occur in January and February due to ice conditions.

The navigational route has been approved by TC (Figure 5) and will follow established shipping lanes. It has been planned by a professional sea captain to account for the conditions specific to the region, including depth and presence of hazards.

The navigational route follows established shipping lanes from Port Rouse to Charleston. The shipping lane in Baie Verte was established through transporting asbestos to Europe and the USA via large marine vessels. Along the eastern coast of Newfoundland, vessels will follow the route currently used by ships transporting concentrate between Voisey's Bay, Labrador and Long Harbour, NL. The navigational route from southeastern Newfoundland to Charleston follows the Great Circle shipping lanes used by vessels travelling between Europe and the USA.

The route has been determined to be the safest route for the ships to traverse to service the dock facility. Phoenix will employ pilots licensed in Canada for navigation of the vessels. Phoenix assures that all vessels are equipped with a variety of modern navigational aids, such as radar and GPS, to ensure their safe operation. Additionally, vessel operators abide by *Navigation Safety Regulations*, *Merchant Shipping (Safety of Navigation) Regulations*, and the *Ship Station (Radio) Regulations* to minimize potential conflict with other vessels along the route.

Figure 5 Navigational route from Charleston, South Carolina, USA to Port Rouse, Baie Verte, NL



2.4.3 Decommissioning

The barge, crusher and conveyors will be removed once the final shipment of crushed rock has been loaded and shipped. The office, lunch room and washroom facilities are mobile and can be used elsewhere upon closure. These facilities will be relocated to another project or sold depending on Anaconda's plans and requirements in the area. The wooden power poles and electrical lines supplying power to the crusher will be removed upon completion of operations as part of the overall decommissioning of the Project. It is understood that NL Hydro will be able to reuse these materials for other Anaconda projects or for other users in the area. Decommissioning of the dock approaches, cribs, and mooring bollards, as well as the road and crushed rock stockpile areas, will be incorporated into the Rehabilitation and Closure Plan for the overall Property as described below.

2.4.4 Rehabilitation and Closure

Anaconda has included the requirement to rehabilitate the Project-related disturbed areas in a recent update to their Pine Cove Property Rehabilitation and Closure Plan (Anaconda Mining Inc. 2016), approved by NLDNR. Financial Assurance has also been posted to cover these rehabilitation and closure costs, as is required by NLDNR. The plan sets out the measures to be taken to restore the Property as close as reasonably possible to its former condition or to an

alternate use or condition that is considered appropriate and acceptable by the applicable regulators. The plan addresses physical and chemical stability, natural aesthetic requirements, revegetation, wildlife, water management, air quality, noise levels, and long term land use.

The current schedule is to start mine rehabilitation in 2018, with a 2022 closure date. The Project features and infrastructure will be rehabilitated as part of Anaconda's ongoing progressive rehabilitation activities. The general rehabilitation activities associated with the Project are as follows:

- The timber cribs will be removed and either demolished for disposal at an approved/permitted location or disassembled for reuse in another aspect of the project (e.g., pipeline sleepers);
- Rockfill approaches will be removed using a long reach excavator from a barge and/or from the approach or shoreline. Floating silt curtains will be used to minimize dispersion of suspended sediments beyond the immediate area. DFO will be consulted to determine any specific requirements at the sea floor, including potentially leaving some rockfill material in place as structure for marine habitat;
- Mooring bollards and their concrete foundations will be demolished and disposed of at an approved facility;
- Rockfill above the high tide mark, including further upland along the laydown areas, access roads and stockpile areas, will be removed and/or contoured to match the natural topography, and organics/overburden will be placed over disturbed areas and scarified to promote natural revegetation. Seeding will be undertaken to minimize surface erosion and assist in bank stabilization.

Materials will be reclaimed for salvage wherever possible, and any materials deemed unsalvageable will be disposed of in accordance with the NL *Waste Material Disposal Act*.

3.0 Project Location

Exploration activity on the Pine Cove Property began in 1985 and there have since been several transfers of ownership. The Pine Cove mill and mine have been in production since 2008 and Anaconda assumed complete ownership in 2011. The 160 ha Property, located at 49°57'40.54"N, 56°7'51.64"W, includes the open pit mine, tailings and waste rock management areas, a mill building, temporary office and washroom trailers, conveyors, a road network and other associated infrastructure (Figure 4). The Project required the development of approximately 4 ha on the western side of the Property. There is marginal beach between the tidemark and the abruptly-rising back slope. Photos of the Project site are provided in Appendix B.

Substantial marine industrial traffic and activity has been undertaken in Baie Verte. The Project is located approximately 1 km southeast of the former Baie Verte (Advocate) Asbestos Mine Dock (active 1963 to 2009) and approximately 1 km northeast from the former federal dock, the TC Transit Wharf (active 1963 to 2007) (Figure 1). The TC Transit Wharf was also used by tankers to offload oil to the Irving Oil and Golden Eagle (Ultramar) tank facilities located in Baie Verte.

Access to the Pine Cove Property is via Route 410, a paved highway that extends northeast approximately 65 km from the Trans-Canada Highway to the Town of Baie Verte, then via the La

Scie Highway (Route 414) extends eastward from Route 410 for approximately 17 km to its junction with the Ming's Bight Highway (418). Approximately 8 km north of the junction, the Pine Cove Forest Access Road (an all-weather gravel road) heads roughly westward for 5.5 km to the mine site.

The Baie Verte area is serviced by the Deer Lake airport, located approximately 160 km southwest of Baie Verte. The mine is connected to the provincial power grid (Newfoundland Hydro) via a 4 km 25 kV distribution line located along the access road. The mine has backup power generation for some essential services. Connection of the Project to the provincial power grid is anticipated to occur in the second quarter of 2017. Until then, power for the Project will be supplied by generator.

Proximity of the Project to various features is provided in Table 3-1.

Table 3-1 Proximity of the Project to Various Environmental Features

Nearest Feature	Name	Distance from Project
Residence	Town of Baie Verte	3 km
Seasonal residence	Private cabin	4 km
Federal water	Atlantic Ocean	3 nautical miles (nm)
Private campground	Flatwater Pond	25 km
Provincial Park	Waterway Provincial Park	60 km
Important Bird Area	Bell Island South Coast	90 km
Migratory Bird Sanctuary	Shepherd Island	92 km
National Park	Gros Morne National Park	110 km
Marine Protected Area	Wadham Islands	170 km
Aboriginal community	Qalipu Mi'kmaq First Nation*	60 km
Federal Reserve Land	Samia Jij Miawpukek Reserve	232 km
Nearest province	Quebec	200 km
Provincial Wilderness Reserve	Middle Ridge Wilderness Reserve	200 km
Country	USA (state of Maine)	924 km
Federal Wildlife Reserve	No federal wildlife reserves in NL	N/A

Note: Qalipu First Nation is comprised of communities and wards across NL and the closest community is Sop's Arm in White Bay, approximately 60 km from the Project.

3.1 Land and Water Use

The land-based portion of the Project is located on Anaconda's existing mining lease (granted by NLDNR Mineral Lands Division) and existing surface lease (granted by NL Department of Municipal Affairs – Crown Lands Division). These leases extend to the shoreline (Figure 3). The Project lies outside of the Baie Verte and Ming's Bight municipal planning boundaries and does not occur within a regional planning area (e.g., regional resource management plan, conservation plan, etc.). The Pine Cove area was harvested for marketable timber in the 1990s. Hunting and inland fishing activities are fairly limited in the Project area. While trapping was historically carried out along the Baie Verte coastline, it is no longer common practice in the area (JWL 1993).

The Project is located in provincial waters and only the vessels traverse waters under federal jurisdiction. Provincial jurisdiction of waters generally ends at the low water mark under Canada's *Constitution Act* (1867), however, in NL provincial jurisdiction extends to the 3 nautical mile (nm) Territorial Sea limit (Supreme Court of Canada, 1984). The waters of Baie Verte are not administered by a Canada Port Authority under the *Canada Marine Act* and its regulations. An authorization relating to a water lot or use of the marine/coastal area is not required. A disposal at sea permit is not required.

It is Anaconda's understanding that the Project does not require access to, use or occupation of, or the exploration, development and production of lands and resources currently used for traditional purposes by Aboriginal peoples.

4.0 Federal Involvement

Shoreline Aggregates has applied for federal funding support of this Project. No federal lands have been used for the purpose of carrying out the Project, nor any granting of interest in federal land. The vessels traverse waters under federal jurisdiction, however the vessels are not under the care and control of Anaconda.

Anaconda consulted with the CEA Agency, TC, and DFO regarding potential authorizations. The DFO FPP issued a letter of advice indicating that the Project will not contravene subsection 35(1) of the *Fisheries Act* or sections 32, 33, or 58 of the *Species at Risk Act*, provided their recommended mitigation measures were followed. Anaconda applied the recommended mitigation measures during construction. The consultation details are provided in Section 7 of this document. Anticipated federal authorizations and approvals for the Project are listed in Table 4-1.

Table 4-1 Anticipated federal authorizations and approvals for the Project

Agency	Authorization/Approval	Notes
CEA Agency	Need for federal EA as per subsection 8(1) of CEEA 2012.	Will be determined based on this project description.
TC – Marine Security	Approval of a Marine Security Plan under the <i>Marine Transportation Security Regulations</i> .	Plan has been approved.

5.0 Environmental Effects

The Project site is immediately adjacent to Anaconda's Pine Cove Mine, which has been in production since 2008. The existing environment and potential effects of the Project on the surrounding environment are well understood, given the extensive environmental studies, permitting and monitoring which have been conducted in the Project area.

In accordance with ECCC's *Metal Mining Effluent Regulations* (MMER), NL *Environmental Control (Water and Sewage) Regulations* and Anaconda's provincial Certificate of Approval, Anaconda has implemented an environmental monitoring program for the mine. The program

includes deleterious substance monitoring, acute lethality testing, environmental effects monitoring, and sub-lethal toxicity testing. Sampling is conducted at regular intervals from mine site-wide monitoring stations and samples are analyzed externally at accredited laboratories. The data is routinely uploaded to ECCC's Regulatory Information Submission System (RISS), which monitors for potential environmental impacts that could be linked to the mining operation. Detailed monthly reports are also submitted to the NLDEC. Biological monitoring is also carried out as part of the environmental monitoring program. Anaconda has completed two Environmental Effects Monitoring (EEM) studies (2010 and 2013), with the third study design currently being reviewed by ECCC (Dillon 2016). To date, results have been in compliance with MMER and provincial regulations.

The Baie Verte Peninsula coastline is rugged and highly irregular with cliffs and steep slopes prevailing. On the mine site, moderate to steep slopes above Baie Verte rise to a maximum elevation of 120 m, averaging 60 to 70 m above sea level. The terrain on the Property is generally rolling, with gradients over portions of the site ranging up to 22%. The surrounding terrain is typical of the Newfoundland upland areas, with relatively dense vegetation and tree cover, interspersed with small ponds and bogs. The grey volcanic bedrock in the area is overlaid with a thin layer (0-2.5 m) of unconsolidated material comprised of peat, loose brown sand and gravel. No hydrogeological studies have been conducted on the Property. The open pit has been developed down to 30 m below sea level and no significant ground water inflows have been observed to date. There are two groundwater monitoring wells located on the Property - one upstream of tailings pond (installed in 2011) and one downstream of the new polishing pond (installed in 2015). Groundwater samples are collected on a quarterly basis as part of the EEM program as per MMER requirements for the mine. To date, all samples are in compliance with MMER guidelines.

The Project occurs within the North Shore Forest subregion of the Central Newfoundland Forest ecoregion. Black spruce and balsam fir are widespread, with primarily mountain alder swamps (PAA 2008). Vegetation around the Property consists of mature spruce and fir, largely cutover, with re-growth of alder, birch and willow (JWL 2007). The timber was largely harvested in the 1990s, and much of the remaining mature timber has been blown down due to exposure to wind (JWL 1992). The Atlantic Canada Conservation Data Centre (ACCDC) indicates that there are no records of terrestrial or aquatic vegetation species of conservation concern within 5 km of the Project site. Expert Opinion Maps suggest that Mountain Holly Fern is possible, and Boreal Felt Lichen is possible but unlikely, within 5 km of the Project site (ACCDC 2016). A list of potentially-occurring species of conservation concern is available in Appendix C.

The primary large mammal species in the area is moose (*Alces alces*). The Project is located within Moose Management Area 14 - Baie Verte, though moose densities are reported to be low and harvesting has at times been reported as quite heavy (JWL 1992). Black bear, furbearers (e.g., snowshoe hare and mink) and other small mammals (e.g., meadow vole and little brown bat) occur in the general Baie Verte area, but are typically not observed on the Property given the mining activity (PAA 2008, JWL 1994). Caribou (*Rangifer tarandus*) are not currently hunted on the Baie Verte Peninsula. The nearest caribou management area is the Hampden Downs Newfoundland Caribou Management Area 78, approximately 50 km southwest of Baie Verte (JWL 1992). A single gull (likely *Larus argentatus*) and four common ravens (*Corvus corax*) were sighted in Pine Cove, while a single male moose was observed 3 km south of the mine site (JWL 1993).

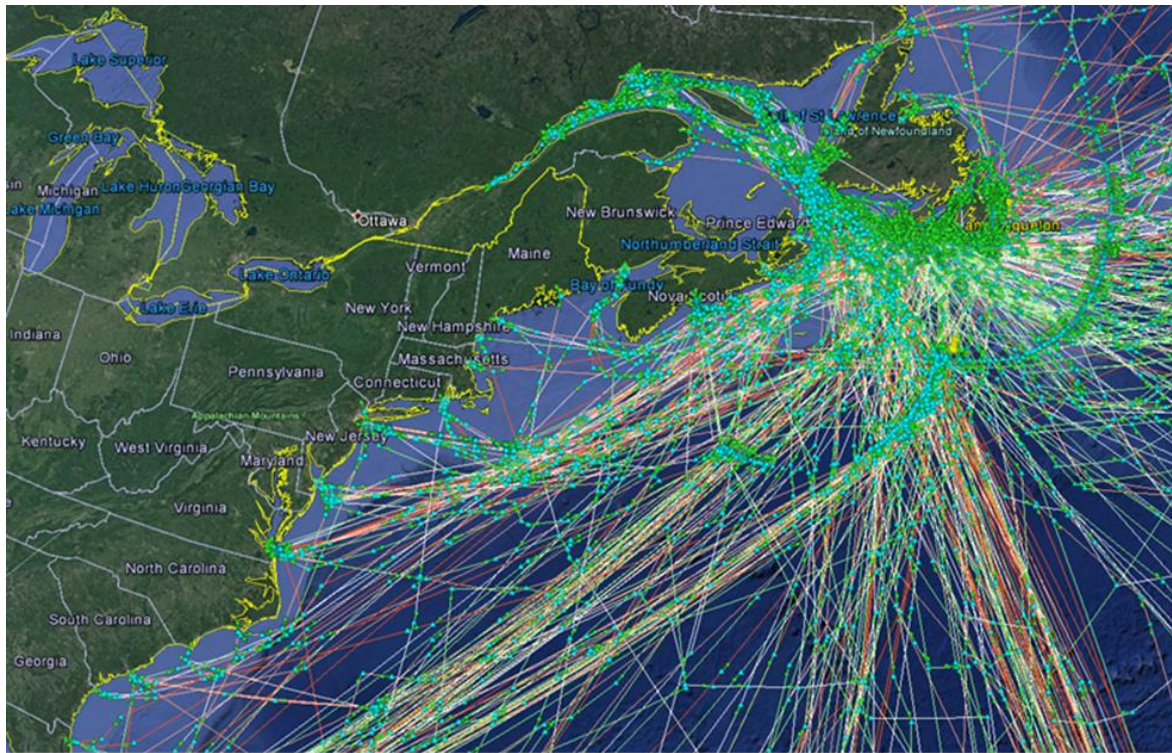
Though a beaver (*Castor canadensis*) pond was investigated in 2007, no beavers were observed (JWL 2007). The ACDCD indicates that there are no records of terrestrial species of conservation concern within 5 km of the Project site. Expert Opinion Maps suggest polar bear (spring and summer) and Newfoundland Marten are possible but unlikely within 5 km of the Project site. A list of potentially-occurring species of conservation concern is available in Appendix C.

Unlike many of the surrounding communities, Baie Verte is not a fisheries-based community. Only 35 of its residents hold a fishing license (7 full-time and 28 part-time). Thirteen of these people are members of a fishing union. A total of 26 registered fishing vessels, ranging in size from below 19 feet up to 64 feet, are owned by different people. There are no boat-building facilities, processing plants, community stages, or marine service centres in Baie Verte. Any fishing activity carried out by the fishers usually takes place in other communities. There are 8 to 10 private wharves and stages around the community (Town of Baie Verte, 2002). There are no aquaculture facilities in the Project area, including along the shipping route (NL Department of Fisheries, Forestry and Agrifoods, 2015). Commercial fishing activity was not observed during bathymetry surveys conducted in Pine Cove in May 2016 (Walsh, pers. comm.)

Commercial fishing occurs along the shipping route. From South Carolina to Baie Verte, the route traverses Northwest Atlantic Fisheries Organization (NAFO) Divisions 6, 4 and 3. Division 6 is under USA jurisdiction. The Government of Canada has jurisdiction over commercial fisheries for sedentary and non-sedentary species within its 200 nm Exclusive Economic Zone (EEZ), and for sedentary commercial fisheries to the extent of the defined continental shelf. Beyond the EEZ, NAFO has jurisdiction over the management of non-sedentary species (NAFO, n.d). The shipping route moves outside the USA EEZ northeast of South Carolina and enters Canada's EEZ south of the island of Newfoundland. Within Canadian waters, the shipping route traverses NAFO Divisions 4V and 3KLOP (NAFO, n.d). Key commercial fisheries in these areas include snow crab, northern shrimp, surf clam, Greenland halibut (turbot), yellowtail flounder and redfish (AMEC 2014). Seal fishing also occurs along the shipping route. From South Carolina to Baie Verte, the route traverses Newfoundland's Seal Fishing Areas (SFAs) 33, 8, 7 and 6. The SFAs are designated within Canada's EEZ and are regulated through DFO. Commercially-harvested species consist of harp, grey and hooded seals (DFO 2011). In 2016, the NL recreational groundfish fishery was open for a total of 46 days and occurred in NAFO Divisions 2GHJ, 3KL, 3Ps, 3Pn and 4R. The shipping route traverses the very southern end of Division 3Ps.

Marine traffic around, to and from the island of Newfoundland is extensive (Figure 6). In addition to the commercial fishing activity that occurs in the region, there is also marine traffic associated with domestic and international shipping, as well as with the offshore oil and gas sector. The marine transportation sector includes cargo vessels, ferries, recreational boating and cruise ship traffic. Several smaller ferries connect numerous other coastal towns and offshore island communities around the island of Newfoundland and up the Labrador coast. Tug and barge activities and recreational boating are also common and tend to be restricted to coastal, inland and harbour waters (Cruise Ship Authority of Newfoundland and Labrador 2013).

Figure 6 – Established Shipping Lanes



5.1 Atmospheric Environment

The Project is located in the north central area of the Baie Verte Peninsula. The peninsula is sparsely populated with small towns, the largest of which is the Town of Baie Verte located 3 km from the Project, with a population approximately 1,400. The predominant industries on the Baie Verte Peninsula include small logging and saw mill operations and mining, including Anaconda's Pine Cove Gold Mine and Rambler Metals and Mining's Ming Copper Mine operation. Other businesses on the peninsula generally include light commercial businesses. The nearest commercial/industrial centres are the Town of Grand Falls-Windsor (approximately 120 km from the Project) and the City of Corner Brook (approximately 170 km from the Project).

Based on the lack of industry in the Project area, the existing atmospheric environment in the area is considered typical of rural, non-industrialized areas. While there is no air quality monitoring in the Project area, air quality monitoring stations operated by the NLDEC in Grand Falls-Windsor and Corner Brook show low to very low levels for all measured contaminants including particulate matter less than or equal to 2.5 microns (PM 2.5), O₃, NO, Nitrogen dioxide (NO₂), NO_x, CO, and SO₂. Potential local sources of air emissions include the former Advocate Asbestos Mine, approximately 4 km west of the Project, which is characterized by exposed asbestos-bearing mine waste rock and tailings, and the former Consolidated Rambler Copper Mine, approximately 8 km southeast of the Project, which is characterized by exposed acidic and metals laden mine waste rock and tailings. Rambler Metals and Mining operates an underground mine site approximately 7 km southeast of the Project site, with their copper and gold processing facilities located at the Nugget Pond Mill, approximately 30 km southeast. As noted, the Project is located directly adjacent to the Pine Cove Gold Mine. The mine is not currently subject to air

quality monitoring or reporting under provincial or federal regulations. Air quality and noise concerns were not expressed in the previous provincial EA processes.

Similarly, the lack of industry in the general Project area results in very low baseline noise levels in the general Project area. The nearest contributor to noise is the immediately adjacent Pine Cove Gold Mine. The mine is not currently subject to noise monitoring or reporting under provincial or federal regulations. It is believed that noise does not affect local residents, as Anaconda has not received a noise complaint since it assumed full ownership of the mine in 2011. The Project area and surrounding region is generally characterized by relatively variable topography and mixed terrain including bogs (wetlands) and forest, which attenuate noise propagation.

Noise is generated by the vehicles and heavy equipment during all Project phases. The crushing and conveying process generates noise during operation. Blasting is not required for the Project. The number of vehicles and equipment required for the Project (identified in Section 2.4, above) is a fraction of those already in use for the overall mine operation. Noise generated by the Project is relatively minimal compared to noise from the overall Property. Noise is also attenuated by the topography, as the site is situated in a forested area. All noise suppression equipment is regularly inspected and maintained in good working order. Given the distance of the Project from the nearest receptor, the operations at the existing mine, the natural attenuation given the topography and surrounding forested terrain, and Anaconda's commitment to use, inspect and maintain noise-suppression equipment, the Project is not expected to contribute to ambient noise levels in the area during any Project phase.

As described in Section 2.3, GHG emissions attributable to the Project are below the reporting thresholds prescribed by the GHGRP and the *NL Management of Greenhouse Act*, at 50,000 and 15,000 metric tonnes, respectively. Given that Project-related GHG emissions do not exceed applicable regulations, the Project is not expected to result in residual adverse environmental effects to the atmospheric environment.

5.2 Freshwater Species and Habitat

The total Pine Cove watershed is approximately 1.6 km², though it has been substantially altered over the course of mining and development operations (Figure 7). Prior to mining, there were two ponds at the centre of the Property. The remaining larger pond, Pine Cove Pond, is up to 10 m deep and has an area of approximately 4.5 ha. The original outflow from this pond flowed north approximately 400 m to Pasture Pond. Pasture Pond, now removed, was much shallower (less than 1.5 m deep) and was approximately 1.0 ha in area. Pine Cove Brook drained from Pasture Pond to the northwest and continued approximately 460 m to Pine Cove. In consultation with DFO, sections of Pine Cove Brook and Pasture Pond were altered as part of mine construction and a new habitat was constructed to compensate for fish habitat loss. The portion of Pine Cove Brook which flowed from Pine Cove Pond to Pasture Pond was relocated to flow south of Pine Cove Pond, with the water eventually reaching South Brook. Habitat monitoring of the compensated area ceased with the introduction of the new *Fisheries Act* in 2012.

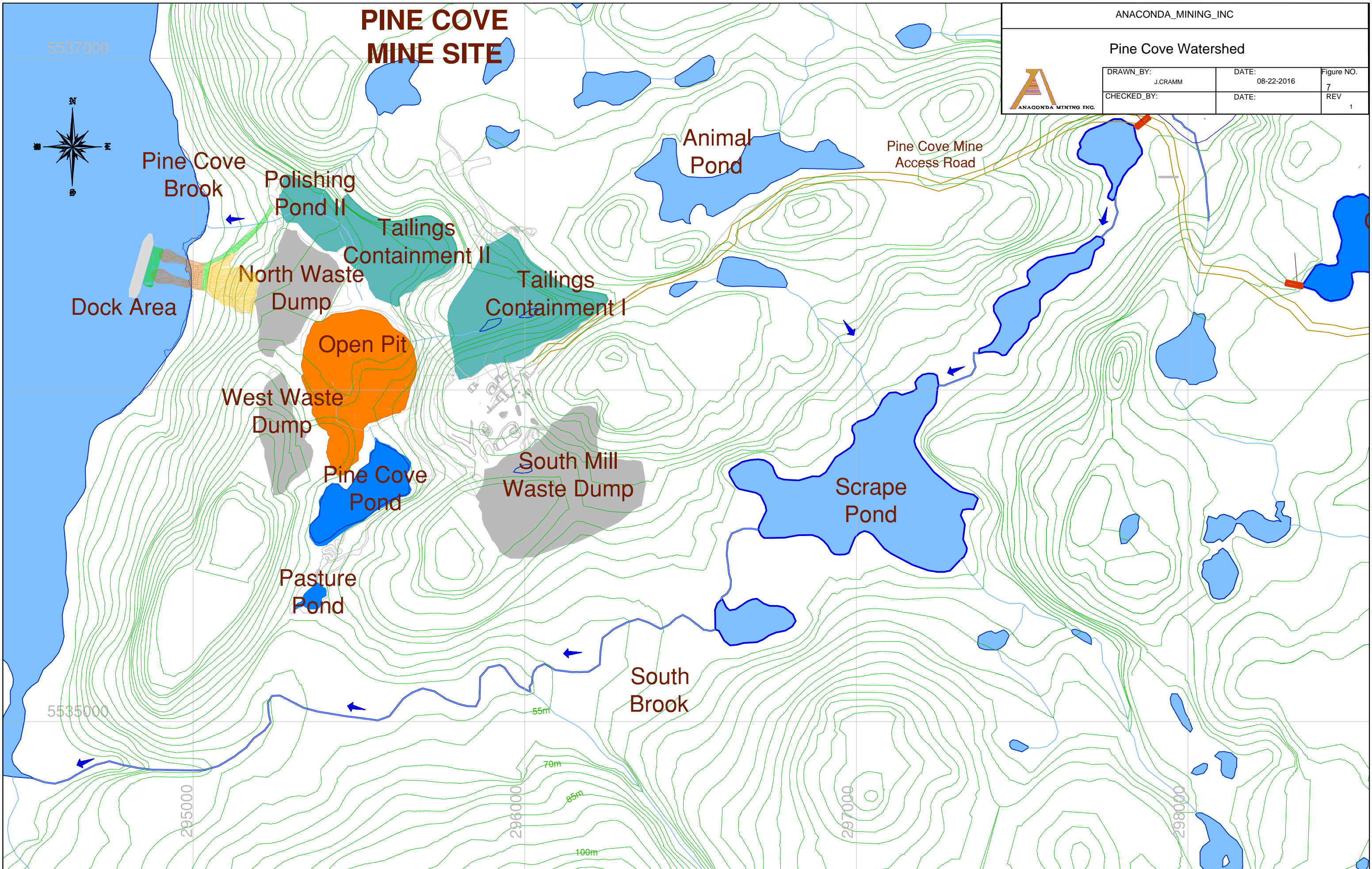
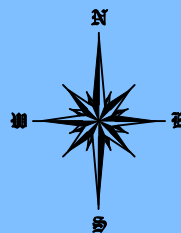
PINE COVE MINE SITE

ANACONDA_MINING_INC

Pine Cove Watershed



DRAWN_BY: J.CRAMM	DATE: 08-22-2016	Figure NO. 7
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Two other small ponds drain into Pine Cove Brook (downstream from the former Pasture Pond) from north of the site. As a part of the development of a new polishing pond in the fall of 2015, a tributary was diverted approximately 100 m north before its inflow into Pine Cove Brook and around the newly-built polishing pond. This diversion keeps the water supply flowing to the western section of Pine Cove Brook.

The mine has undergone two cycles of MMER EEM studies: the first in 2010 (Stantec 2011) and the second in 2013 (Dillon 2013). Surface water quality results from the 2010 and 2013 studies are summarized in Table 5-1.

Table 5-1 Surface Water Quality Results Summary from 2010 and 2013 EEM Studies (Dillon 2016)

Study and Measurement Parameter	Results – Effects ¹		Evidence that an effect is linked to Pine Cove Mine effluent (Y/N)	
	2010 ²	2013 ³		
Trace elements	Apparent increased levels of cyanide, copper, and molybdenum in Exposure Area	Apparent increased levels of cyanide, copper, and molybdenum in Exposure Area.	Y	Y
	Elevated lead and zinc in the Reference Area	Mercury, arsenic, beryllium, bismuth, boron, nickel phosphorus, silver, tin and vanadium were consistently below detection limits at all sites.	N	N
Supporting variables	Apparent increased pH, alkalinity, nitrate, and hardness, and ammonia in Exposure Area	Apparent increased pH, alkalinity, nitrate, and hardness, and conductivity in Exposure Area.	Y	Y

Notes:

¹ An effect as defined in EEM is a statistically significant difference in a measured parameter between exposure and reference stations. It does not constitute a judgment with respect to the biological or environmental importance of the difference.

² Exposure Area = Pine Cove Brook; Reference Area = Apsey Cove Brook

³ Exposure Area = Pine Cove Brook; Reference Area 1 = Apsey Cove Brook; Reference Area 2 = Middle Cove Brook

Freshwater habitat studies of the Pine Cove watershed were conducted in 1992, 2005, 2006 and 2007 (JWL 2007). The only fish species reported in the Pine Cove watershed during those studies was brook trout (*Salvelinus fontinalis*). Little spawning habitat was observed (JWL 1993). The cobble beach and steep gradient of Pine Cove precluded any sea run capability (JWL 1993; JWL 2007). A beaver pond was investigated in 2007 and determined to be fishless (JWL 2007).

Monitoring of the habitat compensation area, immediately south of Pine Cove Pond, indicated presence of brook trout (Gray and Gautreau 2012).

The ACCDC indicates that there are no records for freshwater species of conservation concern within 5 km of the Project site. Expert Opinion Maps suggest occurrence of Banded killifish is possible (Special Concern under the *Species At Risk Act [SARA]*; Vulnerable under NL *Endangered Species Act*) (ECCC 2016a, NLDEC 2016, ACCDC 2016); however, brook trout is the only species that has been observed during field surveys.

The Project area has been impacted by mine construction and operation, and does not provide high suitability habitat for aquatic species. The access road did not require construction of culverts or bridges. Project activities are not expected to interact with freshwater species or habitat. Operation activities have the potential to increase sedimentation in the waterbodies, due to sediment runoff from land, and from conveyors and the barge. A drainage collection system is in place on the site, which collects surface runoff in a settling basin to facilitate a passive filtration process. Potential environmental effects of and mitigation measures related to accidental events and malfunctions are described in Section 5.3.

5.3 Marine Habitat and Species

The Pine Cove watershed is located on the western shoreline of the Baie Verte Peninsula. It flows in a westerly direction and empties into Pine Cove in Baie Verte, which is a large bay of the Atlantic Ocean. Water levels and currents in Baie Verte are strongly influenced by local tides and wind conditions. The tides at this location are mixed semi-diurnal tides (two peaks and two lows each day). The tide range is typically 1.2-1.4 m during the spring tide, and 0.3-0.6 m during the neap tide (Dillion Consulting 2016).

Baie Verte receives discharges from several watersheds, the largest being the South West Brook which flows through the Town of Baie Verte. There are minor inputs from the municipal waste water system, local surface drainage (e.g., storm drains), drainage from the former Baie Verte (Advocate) Asbestos Mine and small-scale discharges from marine boats. Asbestos particles are known to occur in the waters of Baie Verte as a result of the historical mining activities at the Baie Verte (Advocate) Asbestos Mine. In addition, the discharge from the former Consolidated Rambler Copper Mine into the bay via South Brook over several decades may have elevated background metal concentrations in Baie Verte (JWL 1993).

The EEM studies for the Pine Cove Mine to date have not included testing of marine water quality. The Cycle 3 EEM study design is currently with ECCC for review and proposes the EEM program be moved to the marine nearshore receiving environment (Dillon 2016). In support of Cycle 3 EEM study design, a site reconnaissance was conducted on July 14 and 15, 2016 and included collection of marine water quality data. The concentration of metals measured in the marine water samples were 15 ug/l for Aluminum, 35 ug/L for Copper, and 35 ug/l for Iron during the time of survey and are assumed to be representative of ambient conditions (Dillon 2016).

A qualified marine biologist provided a high level characterization of marine habitat and species at the dock location based on underwater footage recorded in May 2016. Select frames of that

footage are provided in Appendix B. The habitat observations can be summarized as follows (Walsh, pers. comm.):

- Seabed/habitat features throughout the surveyed area are generally uniform and the dock area does not represent a unique or limited habitat type within the area;
- Measures of abundance are not possible with the available data, however the distributions of flora and fauna appear to be consistently associated with depth and substrate type. The observed organisms are typical;
- Attachment surfaces for algal growth were limited within the area; algae were typically associated with cobbles and boulders on the seabed;
- There was little structural complexity or variability within the area – there was little protection from wave exposure along the shoreline and little cover on the seabed observed for juvenile fauna.

Algal cover was not observed in large aggregations but was regularly observed in small patches, somewhat more frequently as depth increased. Filamentous brown algae (*Agarum* sp.) and occasional small *Laminaria* sp. were observed. Encrusting coralline algae *Lithoamnion* sp. were frequently observed. Algae was typically associated with larger substrate (cobble to boulder size) which provided a stable attachment surface (Walsh, pers. comm.).

Faunal observations were limited due, in part, to the distribution of the video coverage over a large area. However, the following observations were made (Walsh, pers. comm.):

- Sea stars were frequently and consistently observed throughout the area;
- Brittle stars were abundant and were frequently associated with algal patches;
- Sea urchins were regularly observed in association with algal cover;
- Sea scallop (*Placopecten magellanicus*) were regularly observed throughout the surveyed area;
- Horse mussels (*Modiolus modiolus*) were observed;
- A single sculpin and single toad crab were observed.

The Baie Verte peninsula separates Notre Dame Bay on the east side of the peninsula from White Bay on the west side. Studies in these waters indicate potential for a variety of marine wildlife (CPAWS 2009, PWGSC 2010). Marine plants with potential to occur in the area include eelgrass, seaweeds and kelp. Invertebrates include jellyfish, American lobster, and several crab, shrimp and mussel species. Basking shark, blue shark, and porbeagle shark are known to occur in the area, as are ground fish species including Atlantic cod, halibut, flounder and turbot. Atlantic wolffish, Northern wolffish and Spotted wolffish have the potential to occur in the area. Marine mammals observed in the area include pilot, minke, and blue whales, as well as harbour porpoise and Atlantic white-sided dolphins. Leatherback sea turtles have also been documented. A list of potentially-occurring species of conservation concern is available in Appendix C.

Marine species reported in Baie Verte (Dowdring, pers. comm. as in Dillion 2016) include:

- Groundfish – cod (*Gadus morhua*), winter flounder (*Pseudopleuronectes americanus*), lumpfish (*Cyclopterus lumpus*) and turbot (*Scophthalmus maximus*);

- Pelagic Fish – capelin (*Mallotus villosus*), American eel (*Anquilla rostra*), Atlantic herring (*Clupea harengus*), Atlantic mackerel (*Scomber scombrus*) and sea trout (*Salmo trutta*);
- Shellfish – soft-shelled clams (*Mya arenaria*), blue mussels (*Mytilus edulis*), scallops (*Placopecten sp.*), whelks (*Buccinum sp.*) and periwinkles (*Littorina littorea*);
- Crustaceans – lobster (*Homarus americanus*), rock crab (*Cancer irrorates*), snow crab (*Chionoecetes opilio*) and toad crab (*Hyas spp.*);
- Seaweeds – Rockweed, kelp (various species) and eelgrass;
- Other – Squid and sea urchin.

Construction

Potential adverse effects to fish and fish habitat and marine plants during Project construction included direct loss of marine habitat, decrease in water quality due to sedimentation and a resulting temporary avoidance of the area by fish, and introduction of alien/invasive species. The rockfill approaches and timber cribs resulted in a loss of fish habitat and direct impact to marine plants of approximately 6,000 m². The majority of the marine habitat is bedrock with gravelly sand, and the Project area would contribute only marginally to the region's fisheries productivity, as evidenced through DFO's letter of advice.

The approaches extend to about the 10 m depth contour and cover an area of seabed which previously exhibited little complexity or variability. The placement of the dock material adds the following habitat features to this immediate area (Walsh, pers. comm.):

- Creation of vertical relief within the area and the creation of several areas along the shoreline with newly increased exposure protection;
- Creation of significant void space (within the reef material), which can provide protection for juvenile fauna;
- Significant attachment surfaces for algal growth and the development and attachment of sessile fauna in both horizontal and vertical planes;
- Potential for increased productivity at the perimeter of the dock approaches. The "edge effect" typically associated with artificial reefs may extend up to 15 m from the toe of the approaches. It is a commonly referenced attribute of artificial reefs constructed to increase habitat productivity;
- The area contained between the north and south approaches is very well protected and should provide abundant attachment surface and good conditions for algal growth. It would be expected that algal growth in this area and on the dock surfaces generally will eventually provide protective cover and foraging areas for juvenile and adult fish species.

Construction activities had the potential to decrease water quality in the watershed and bay due to sediment runoff from land, shoreline erosion, and suspension of sediment in the water column, and to introduce alien/invasive species. However, specific mitigation measures were implemented to minimize the potential for these adverse effects. Marine infrastructure was constructed during low tide to the extent possible, infill was placed in location with an excavator rather than end dumped, and there was no in-water blasting, pile-driving or dredging. A floating silt curtain was installed around the in-water works to restrict suspended sediment to the immediate area, as

recommended by DFO. Visual monitoring of turbidity and total suspended solids (TSS) was conducted on an ongoing basis to ensure the silt curtain is effective and remains securely installed. Shoreline erosion was minimal as the substrate is predominantly bedrock. The potential for surface runoff was mitigated through the use of sediment and erosion control structures, and the site was secured and construction activities suspended during inclement weather.

While construction equipment and vehicles used at previous worksites had the potential to introduce alien and invasive species to the watershed and marine environments, construction equipment was operated from above the water, and any equipment with potential to become immersed was inspected and properly cleaned.

The following mitigation measures, as recommended by DFO (as per their letter of advice dated July 21, 2016), were implemented during construction to minimize potential adverse effects to fish and fish habitat:

- Project construction was carried out such that sediment and other Project-related materials were not permitted to enter Baie Verte or adjacent waterbodies;
- Rock material was clean, free of fine materials and of sufficient size to resist displacement during peak storm and/or flood events;
- Rock material was not end dumped, but was dumped on land and placed on station using an excavator;
- To the extent possible, the work was carried out during low tide and low wind/wave conditions to minimize turbidity and to minimize the area affected by turbidity;
- Floating sediment curtains were employed throughout construction of the approaches to contain any sediment/turbid water within the Project area;
- Shoreline disturbance was restricted to the immediate work area. Shoreline areas disturbed by Project activities were stabilized as soon as possible to prevent erosion.

As per their letter of advice, the FPP of DFO determined that, with adherence to the above-noted mitigation measures, the Project would not result in serious harm to fish, nor contravene section 35(1) of the *Fisheries Act* or sections 32, 33 or 58 of the *Species at Risk Act*. DFO conducted site visits on July 12, 2016 and August 4, 2016 and observed that mitigation measures were being applied. Given the adherence with all recommended mitigation measures proposed by DFO, Project construction did not result in residual adverse environmental effects to the marine environment.

Operation

Operational activities have the potential to decrease marine water quality due to sediment runoff from land, and from the conveyors and barge. A drainage collection system is in place on the site, which collects surface runoff in a settling basin to facilitate a passive filtration process. A series of sediment traps have been placed around the perimeter of the barge to trap any sediment before any water enters the marine environment. Conveyors are covered to prevent sediment runoff into Pine Cove in the event of rainfall during ship loading.

Vessel traffic and ship loading associated with Project operations have the potential to adversely affect marine mammals and sea turtles. An increase in underwater noise during ship loading

activities may adversely affect marine mammals, and vessels may collide with sea turtles and marine mammals while in transit. Operational activities are not anticipated to affect fish and fish habitat. It should be noted that introduction of alien/invasive species from ballast water discharge at the Project site will not occur, as ballast water will not be discharged at the Project site as per Canadian regulations.

Increased underwater noise from marine vessels and ship loading may affect marine mammals by masking sounds, disrupting communication and echolocation, and resulting in navigational and behavioural (feeding and socializing) changes. Marine mammals may be displaced from the area, however this would decrease the likelihood of vessel collisions and would likely be temporary, given the short Project duration.

Vessel collisions with marine mammals and sea turtles are possible given the increase in marine traffic. The Canadian Coast Guard's Notice to Mariners requires that all vessels adhere to the following mitigation measures, which minimize the likelihood of vessel collisions:

- Hunting, chasing, following, dispersing, driving, herding or encircling any marine mammal is prohibited;
- If a marine mammal is observed, vessels must either stop or travel parallel to the observed marine mammal;
- Speed cannot be resumed until the marine mammal is at least 400 m away;
- High density fishing areas are to be avoided (marine mammals are often located in areas of high fish concentrations).

Speeds within Baie Verte are anticipated to be less than 2 knots, as the vessels must turn 180 degrees once they reach the dock for loading. Outside of Baie Verte, ships will generally travel at a speed of approximately 14 knots.

Given the low frequency of Project-related marine traffic (one vessel per week), the short duration of Project operations (14 months), and adherence to the above-noted mitigation measures, Project operations are not expected to result in residual adverse environmental effects to the marine environment.

Decommissioning

Potential adverse effects to marine flora and fauna during Project decommissioning include a decrease in water quality due to sedimentation, and introduction of alien/invasive species. These effects would be temporary and localized, and Anaconda will employ the relevant mitigation measures described above, including site stabilization, silt curtains and proper equipment cleaning. In consultation with DFO, some rockfill may be left in place, should this be considered to have a positive effect and/or minimize adverse effects to fish and fish habitat and marine plants. Given that Anaconda will employ all recommended mitigation measures proposed by DFO, Project decommissioning is not expected to result in residual adverse environmental effects to the marine environment.

Accidental Events

Spills or releases of hazardous substances (e.g., fuels, oils and lubricants) from accidents or malfunctions of vehicles, equipment and vessels are possible during all Project phases. Such

accidental events have the potential to result in adverse environmental effects to soil, sediment and water, including decreasing the quality of terrestrial and marine habitat through contamination, resulting in lethal and sub-lethal effects to marine biota. An accidental spill or deposition of waste rock into the marine environment, most likely from a vessel collision, could result in a localized loss of fish habitat and direct mortality of marine biota.

The likelihood of occurrence of an accidental spill or release of hazardous substances, and extent of resulting environmental effects, is minimized through adherence to applicable mitigation measures throughout all Project phases. Fuel and other hazardous materials are securely stored, vehicles and equipment are refueled at a designated area away from the shoreline, and marine vessels are not refueled at the site. Equipment and vehicles are inspected and maintained in good working order, and any leaks are addressed immediately. Emergency spill kits are onsite at all times. Mitigation measures to avoid collisions, such as adhering to posted speed limits and reducing steaming and approach speeds in inclement weather, will reduce the likelihood of an accidental spill or release, including accidental deposition of waste rock to the marine environment, from a vessel.

5.4 Avifauna

A wide range of land, shore and marine birds occur in the Baie Verte area, including migratory bird species as defined in the *Migratory Birds Convention Act* (PAA 2008, Cornell Lab of Ornithology 2016, CPAWS 2009). The abundance of high profile raptor species such as bald eagle (*Haliaeetus leucocephalus*) and osprey (*Pandion haliaetus*) is likely low in the area due to absence of suitable cliff-nesting habitat. The local forest was observed to be unsuitable for raptor nests due to stunted forest growth (JWL 1993). The ACCDC indicates that there are no records of bird species of conservation concern within 5 km of the Project site. Expert Opinion Maps suggest occurrence of Ivory Gull, Red Crossbill and Rusty Blackbird are possible. The maps also suggest Short-eared Owl are possible but unlikely to occur within 5 km of the Project site. The Project site is located within Barrow's Goldeneye range (ACCDC 2016). A list of potentially-occurring species of conservation concern is available in Appendix C.

Construction

Potential effects to migratory birds during Project-related construction activities included behavioural changes, and accidental mortality and destruction of active nests. While the presence of heavy equipment and associated noise and disturbance during construction activities had the potential to result in short-term, temporary displacement and interference with feeding, migration and breeding, construction-related noise was reduced by minimizing equipment and vehicle idling, using appropriately-sized equipment for the task, employing mufflers/silencers/enclosures as applicable, and conducting preventative maintenance on equipment and vehicles.

Approximately 4 ha of vegetation was cleared for the development of the access road and the laydown area for the crusher and crushed rock stockpile, which had the potential to result in direct mortality through accidental destruction of active nests. Due to the Project schedule, it was necessary to conduct clearing and infilling activities during the bird breeding season (April 15 to August 15) (ECCC 2016b). As per Anaconda's EPP, clearing activities were conducted using

handheld equipment (e.g., chainsaws) to allow the operator better visibility to observe vegetation and to take the necessary action in the event an active nest was observed (e.g., stop clearing). Additionally, Anaconda employees walked the area to be cleared multiple times before and during clearing activities and no active nests were observed. Land grubbing, clearing and grading in the Project footprint and any temporary work areas (e.g., staging and storage areas for construction-related equipment and materials) were reduced to the extent possible and restricted to those areas absolutely necessary to carry out the Project. Given that no active nests were encountered during construction and that the above-noted mitigation measures were employed, Project construction did not result in residual adverse environmental effects to avifauna.

Operation

Operational activities such as vessel traffic and ship loading may increase noise-related disturbance to birds that forage in the surrounding coastal environment, however given the existing mining operation, Project-related operational activities are not anticipated to noticeably increase the noise levels in the Project area.

Increased shipping activity associated with operational activities may disrupt marine birds in the waters off the Project site and along shipping routes. Possible effects of marine vessel traffic on birds in the offshore environment include behavioural changes (e.g., avoidance, stress response) that may have energetic consequences (Schummer and Eddleman 2003), and loss of suitable foraging habitat as vessel traffic can reduce bird use of vessel disturbed areas (Bramford et al. 1990). Project-related vessel activity will be intermittent (one vessel per week) and of short duration (14 months), and will only incrementally increase vessel traffic in Baie Verte and along shipping routes. The likelihood of marine bird displacement due to Project-related vessel traffic is minimized by maintaining decreased navigational speeds (i.e., 2 knots) when entering Baie Verte, avoiding concentrations of marine birds, and using existing shipping lanes. For seabirds it is possible that the vessels' lights may attract nocturnal species, particularly in poor weather. However, the remoteness of the area of operation from major seabird breeding colonies combined with standard mitigation protocols would also suggest that any effect would be highly unlikely to have any measurable population level impact (Thompson 2013).

For worker safety, portions of the Project area must be well-lit with high intensity lighting at night. Although the lighting is directed as narrowly as possible by shielding, these lights may have disorienting effects on migrating birds, particularly on foggy and overcast nights, causing potentially fatal collisions (Rich and Longcore 2006). To reduce the risk to migrant birds, the minimum amount of pilot warning and obstruction avoidance lighting is used on tall structures. High intensity lights, including floodlights, are turned off at night outside of working hours, whenever possible.

Given the operations at the existing mine, the short Project duration, and adherence to the above-noted mitigation measures, Project operations are not expected to result in residual adverse environmental effects to avifauna.

Decommissioning

Potential effects during Project decommissioning will be temporary and localized, and are anticipated to be similar to those during construction activities, including behavioural changes (altered foraging, displacement) resulting from increased noise and disturbance. Applicable mitigation measures for construction activities, such as heavy equipment and vehicle noise reduction, will also be applied during decommissioning activities. With adherence to the above-noted mitigation measures and given the short duration, Project decommissioning is not expected to result in residual adverse environmental effects to avifauna.

Accidental events

Accidental spills or releases of fuels, oils or lubricants from vehicles or equipment or from marine vessels, most likely resulting from a vessel collision, could result in the direct physical exposure of birds to hazardous substances within the affected area, with possible lethal and sub-lethal effects. The likelihood of an accidental spill or release of hazardous substances occurring and the extent of resulting environmental effects are minimized through adherence to applicable mitigation measures throughout all Project phases (e.g., securely storing fuel and other hazardous materials, refuelling vehicles and equipment at a designated area, maintaining equipment and vehicles in good working order, immediately addressing any leaks). Marine vessels are not refuelled at site, and emergency spill kits are onsite at all times. Mitigation measures to avoid collisions, such as adhering to posted speed limits and reducing steaming and approach speeds in inclement weather, will reduce the likelihood of an accidental spill or release during transit and docking.

5.5 Federal lands and other Provinces and Countries

The Project site is not in close proximity to any federal lands (92 km), another province (200 km) or country (924 km).

While GHG emissions have the potential to impact federal lands, another province or country, the GHG emissions attributable to the Project are below the reporting thresholds prescribed by the GHGRP and the *NL Management of Greenhouse Act*, at 50,000 and 15,000 metric tonnes, respectively. Given that Project-related GHG emissions do not exceed applicable regulations, the Project is not expected to result in residual adverse environmental effects to federal lands, another province or country.

Project vessels will traverse waters under federal jurisdiction (3 nm from the Project site). The shipping route follows established shipping lanes and has been determined to be the safest possible, planned by a professional sea captain to account for the conditions specific to the region, including depth and presence of hazards.

Given the low frequency of Project-related marine traffic (one vessel per week), the short Project operation duration (14 months), and adherence to the mitigation measures described in Section 5.3 and 5.4, the Project is not expected to result in environmental effects on federal lands (including federal waters), in a province other than Newfoundland and Labrador, or outside of Canada during any Project phase.

5.6 Aboriginal Peoples

The Property was registered with and released from the NL EA process in 1992, 1997 and 2005. It is Anaconda's understanding that NL Department of Labrador and Aboriginal Affairs (NLDLAA) participated in review of the applications. NLDLAA did not indicate any conflicts with Aboriginal resource use or land claims, and did not issue any conditions or requirements regarding consultation with Aboriginal communities.

The existing and available information does not indicate that Aboriginal communities and groups currently undertake traditional land and resource use activities within or near the Project area. Anaconda is not aware of any traditional Aboriginal fishing or hunting occurring near the Project area.

The Qalipu First Nation has no reserve land; it is made up of 66 traditional Mi'kmaq communities, spread out over 9 Electoral Wards. The closest Qalipu community to the Project is Sop's Arm, located approximately 60 km southwest in White Bay. The Miawpukek Band Reserve is located in Conne River (south coast of Newfoundland), 232 km from the Project site. Approximately 860 people live on the 36 km² reserve. The Miawpukek Band does not currently have established traditional rights outside of the reserve boundaries. Several Aboriginal groups hold communal commercial fishing licenses for areas along the shipping route, as summarized in Table 5-2.

Table 5-2 Aboriginal communal commercial fishing licenses along the shipping route

Aboriginal group	License details
Labrador Inuit (Nunatsiavut Government)	<ul style="list-style-type: none"> • Three inshore groundfish enterprises that are licenced to operate in 3KL. • Two seal licences that permit access in SFAs 4-33 (Atlantic-wide).
Labrador Innu (Innu Nation)	<ul style="list-style-type: none"> • Mid-shore enterprise (65 to 100 ft) with a groundfish licence permitting access to a variety of areas (Atlantic-wide) including 3KLMN. • An Area 6 (3K) shrimp licence attached to this enterprise. • Inshore enterprise with a mobile gear and fixed gear groundfish licence that can operate in 3KL.
NunatuKavut Community Council	<ul style="list-style-type: none"> • Nine inshore enterprises with access to 3KL groundfish. • Two of the nine enterprises also have an Area 6 (3K) shrimp licence. • Two seal licences permitting access in SFAs 4-33 (Atlantic-wide).
Conne River Mi'kmaq (Miawpukek First Nation)	<ul style="list-style-type: none"> • Nine enterprises that permit access to 3KL. • Three tuna licences that permit access to 3LN. • One seal licence that permits access in SFAs 4-33 (Atlantic-wide).

Table 5-2 (continued) Aboriginal communal commercial fishing licenses along the shipping route

Aboriginal group	License details
Qalipu Mi'kmaq First Nation Band	<ul style="list-style-type: none"> • One inshore enterprise with groundfish licence permitting access to 3K and a shrimp licence for Area 6 (3K), as well as pelagic fishery access (herring, mackerel, and capelin) which occurs close to shore in 3KL.
Mi'kmaq Alsumk Mowimsikik Koqoey Association	<ul style="list-style-type: none"> • One enterprise with a groundfish licence permitting access to 3KL.

Source: AMEC 2014.

While these groups hold communal commercial fishing licenses for areas that include the shipping route, Anaconda is not aware that these (or any other) Aboriginal groups hold, claim or otherwise assert Aboriginal or Treaty rights within or near the Project area or shipping route, pursuant to Section 35 of the *Canadian Constitution Act*, 1982. Rather, it is Anaconda's understanding that these organizations undertake fishing activity off Eastern Newfoundland through communal commercial licences issued by the federal government under the *Fisheries Act* and its associated *Aboriginal Communal Fisheries Licencing Regulations* and other federal policies and strategies that are designed to involve Aboriginal people and communities in commercial fisheries in Canada.

6.0 Engagement and Consultation with Aboriginal Groups

As previously noted, Anaconda is not aware of any traditional Aboriginal hunting or fishing occurring near the Project area and despite conducting development and operational activities in the area for nearly 8 years, no concerns about the activities have been raised to date.

Anaconda has engaged with the Qalipu First Nation with respect to business and educational opportunities related to mine waste repurposing. Anaconda is working with Qalipu youth to review opportunities to repurpose waste from the operation, including waste rock (from mining) and fine sand (from processing). Students were hired as part of the Youth Employment Program (Green Program) supported by National Research Council Canada's Industrial Research Assistance Program.

Anaconda has made a presentation to Qalipu members via the Mawio'mi 2016 (March) Aboriginal Business Forum regarding Anaconda's overall project, including the dock facility and waste rock repurposing plans (the Project) which resulted in the hiring of youth noted above, and is continuing to engage Qalipu members regarding this and other opportunities related to Anaconda's short and long term plans in the region. No concerns regarding Anaconda's current activities or future plans have been raised by the Qalipu First Nation.

7.0 Consultation with the Public and Other Parties

As the Project is a small addition to the existing Pine Cove Property, Anaconda had not previously engaged in a Project-specific public consultation process and to date no concerns about the Project have been raised. However, Anaconda will host a public information session in Baie Verte in November, to provide a forum for two-way communication about the Project, both to inform the local community about the Project and to solicit any comments or concerns from the public and stakeholders. Comments, questions and concerns will be recorded and made available to regulators for review.

Anaconda has consulted with federal and provincial government agencies regarding the Project, as summarized in Table 7-1.

Table 7-1 Summary of Consultation with Regulatory Agencies

Regulatory Agency	Consultation Details
Federal	
CEA Agency	On July 28, 2016, Anaconda provided the Agency with Project information to seek guidance with respect to whether the Agency considered the Project to be a designated activity. By written correspondence dated August 26, 2016 the Agency stated it was of the view that the Project comprised a designated activity and directed Anaconda to submit a project description.
DFO - FPP	In May to July 2016, Anaconda submitted Project information, drawings and underwater video and photos to DFO. DFO and Anaconda also met on-site on July 12, 2016 and August 4, 2016. By written correspondence dated May 30, 2016 and July 21, 2016, DFO stated that the Project would not result in serious harm to fish and would not adversely impact listed aquatic species provide its recommended mitigation measures are implemented. The Project does not contravene section 35 (1) of the <i>Fisheries Act</i> , or sections 32, 33 or 58 of the <i>Species at Risk Act</i> .
TC – Marine Transportation	In accordance with the <i>Marine Transportation Security Regulations</i> , Anaconda submitted a Marine Security Plan to TC for review and approval. TC has approved the plan.
TC – Navigation Protection Program (NPP)	Through self-assessment, Anaconda determined the Project was not subject to NPP review or approval under the <i>Navigation Protection Act</i> .
Provincial	
NLDEC	Anaconda submitted Project information to NLDEC on April 18 and 19, 2016 to confirm that the Project was not subject to the NL EA process. NLDEC replied on August 19, 2016 and confirmed NL EA process does not apply.
NLDNR	On May 24, 2016, Anaconda submitted an addendum to the Pine Cove Property Development Plan and Rehabilitation and Closure Plan to NLDNR to address the addition of this Project. NLDNR approved the amendment on June 2, 2016 following a site visit. NLDNR visited again on August 25, 2016, during construction.

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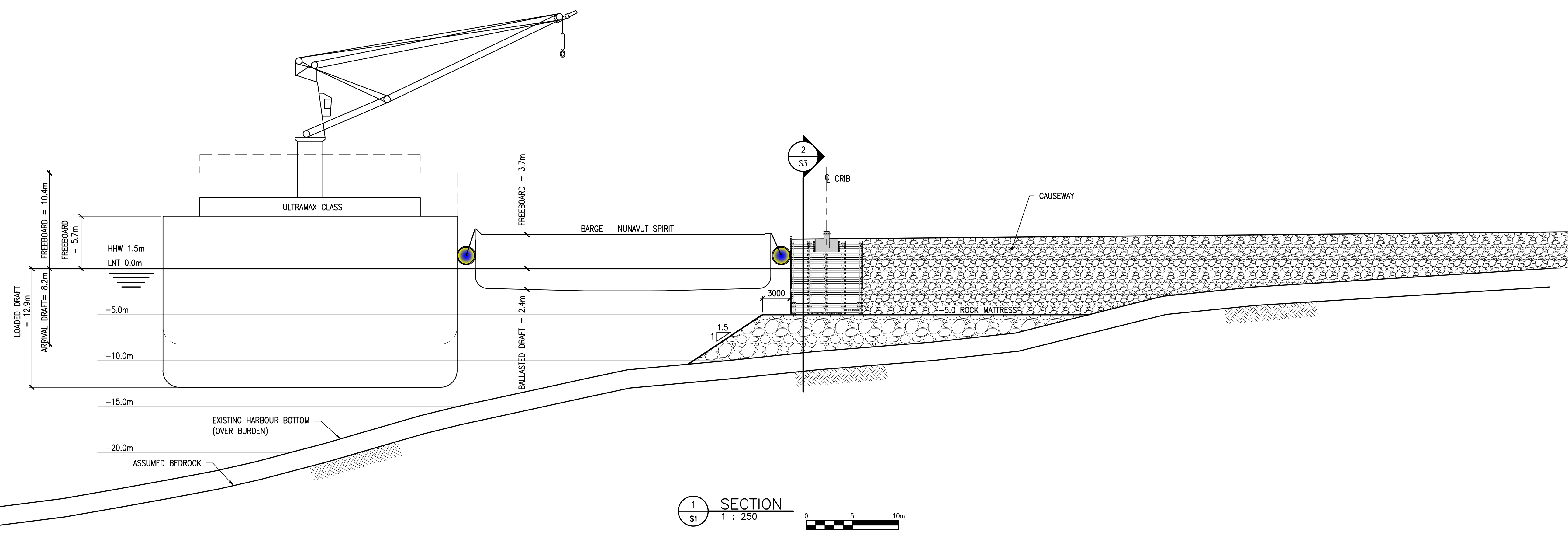
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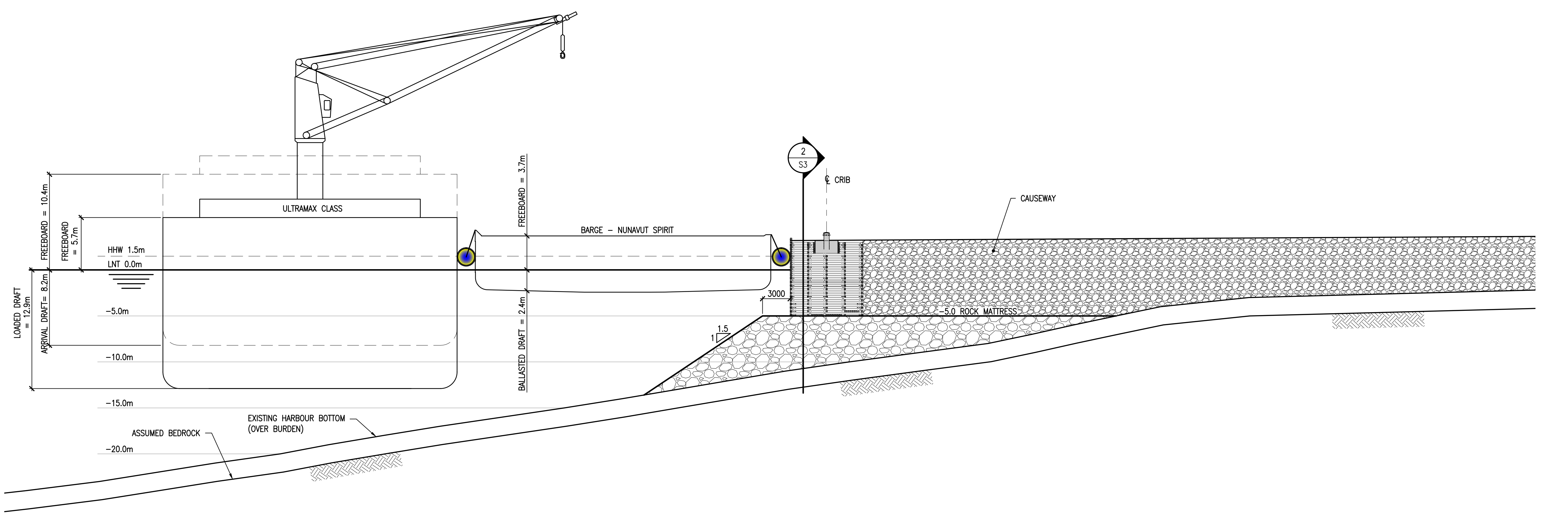
Appendix A

Design Drawings

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1 SECTION
1 : 250



2 SECTION
1 : 250

DRAWING NOTES

1. DO NOT SCALE FROM DRAWINGS.
2. CONTRACTOR MUST VERIFY ALL DIMENSIONS AND CONDITIONS ON SITE BEFORE PROCEEDING WITH ANY PORTION OF THIS WORK.
3. THIS DRAWING IS NOT TO BE USED FOR CONSTRUCTION UNLESS IT IS ISSUED FOR CONSTRUCTION AND STAMPED AND SIGNED BY THE ENGINEER OF RECORD.
4. DESIGN VESSEL (ULTRAMAX)
LOA = 200m
BEAM = 32.2m
DRAFT = 12.7m
MD = 18.6m
5. BARGE PARTICULARS
LOA = 122m
BEAM = 32.3m
LOADED DRAFT = 4.34m
LIGHT SHIP DRAFT = 1.06m
MOULDED DEPTH = 6.1m

NOT FOR CONSTRUCTION

NO.	DESCRIPTION	Y/M/D	BY
A	ISSUED FOR REVIEW	2016.06.08	RB

REVISIONS

A	A - PLAN, SECTION, ELEVATION, OR DETAIL NO.
B	B - NO. OF DRAWING WHERE ABOVE IS DRAWN

STAMP

PERMIT
PROVINCE OF NEWFOUNDLAND AND LABRADOR

PEG
and Labrador
ENGINEERS AND ARCHITECTS

PERMIT HOLDER
This Permit Allows
JEWEL BAILEY CONSULTANTS LTD.

To practice Professional Engineering in Newfoundland and Labrador, Permit No. as issued by PEG N0540 which is valid for the year 2016.

CLIENT

ANACONDA MINING INC.

CONSULTANT

JBC
JEWEL BAILEY CONSULTANTS

STRUCTURAL - MECHANICAL - ELECTRICAL
75 Tiffany Court, St. John's, NL A1A 0L1
TEL: (709) 579-4255 FAX: (709) 579-3423

PROJECT

**AGGREGATE EXPORT STUDY
PORT ROUSSE**

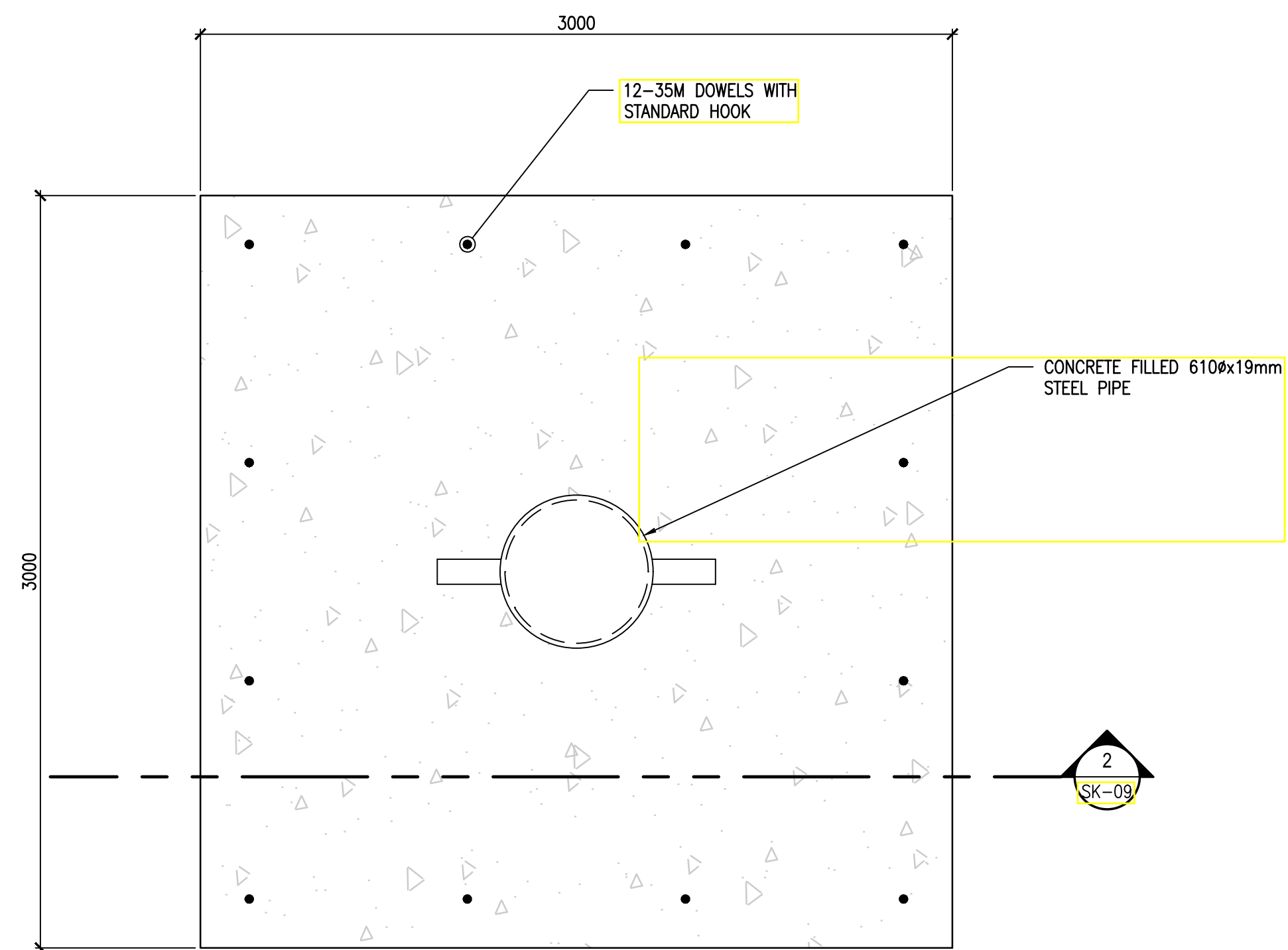
BAIE VERTE, NL

DRAWING

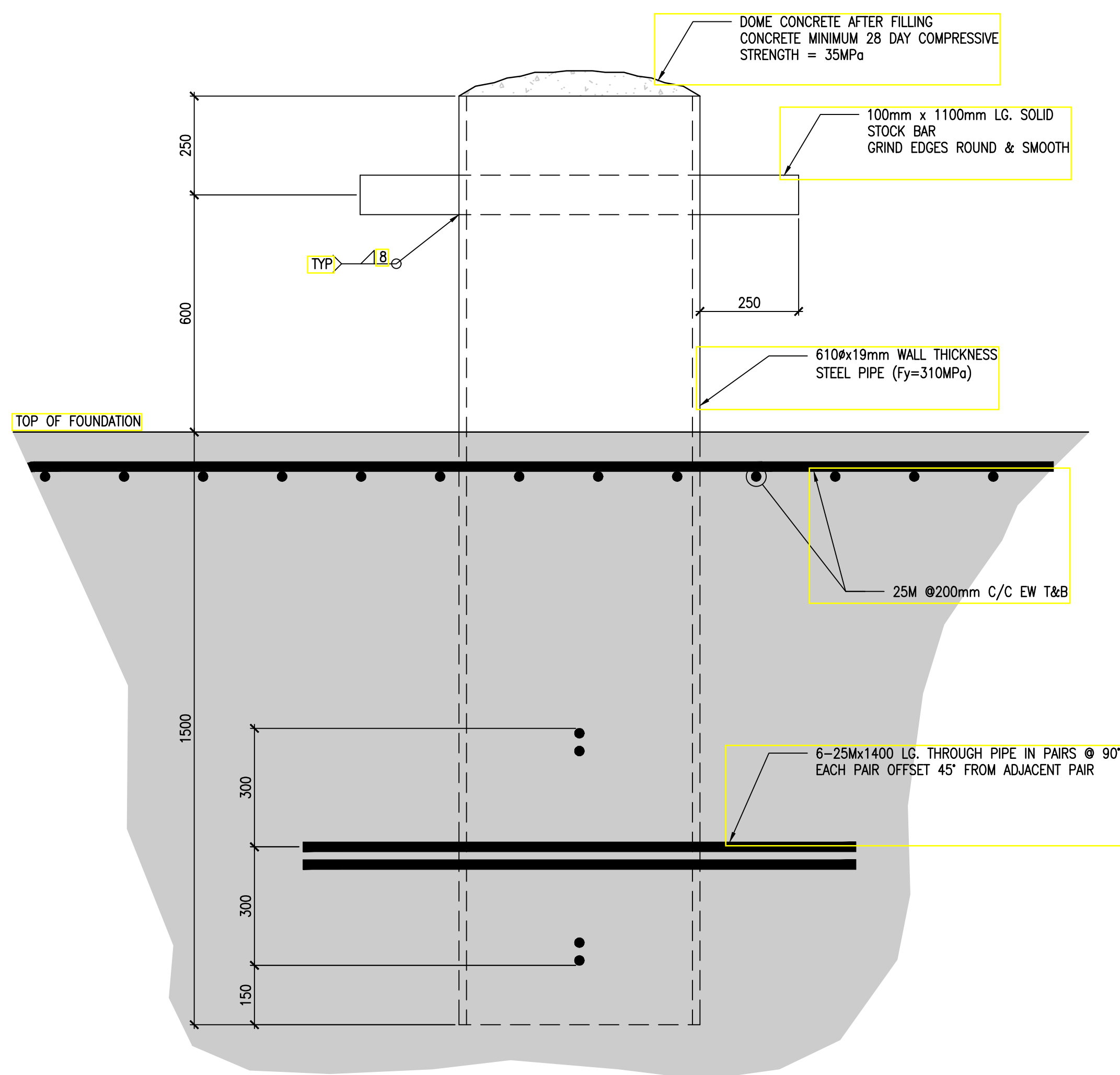
PROFILES

DRAWN BY C. MARSH C. COURAGE	CHECKED BY R. BAILEY	APPROVED BY R. BAILEY
PROJECT NO. JBC-16-C-027	DWG. FILE NO.	FILE NO.
DATE JAN 2016	SCALE AS SHOWN	DRAWING NO. SK-4
		REV. A

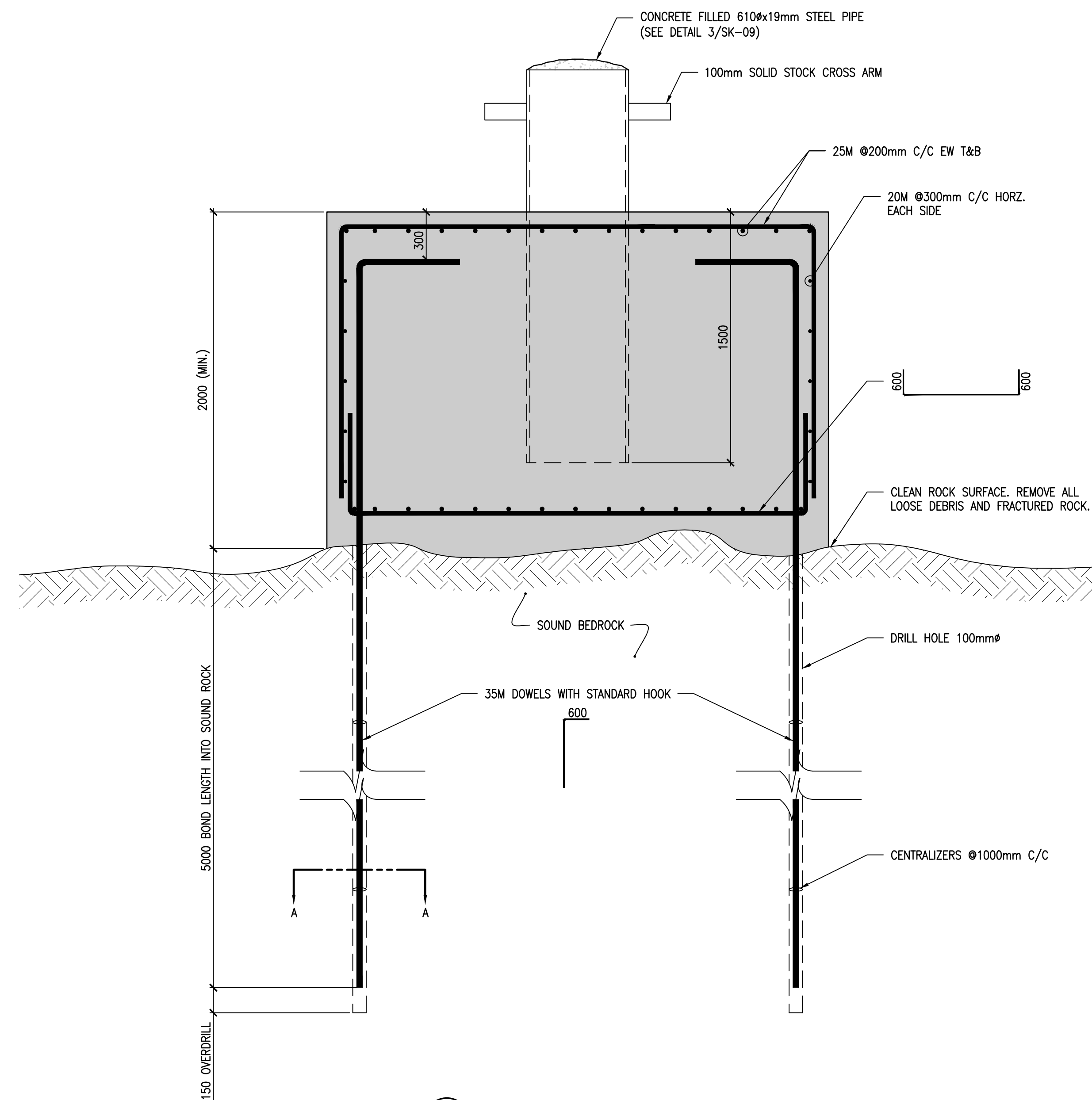
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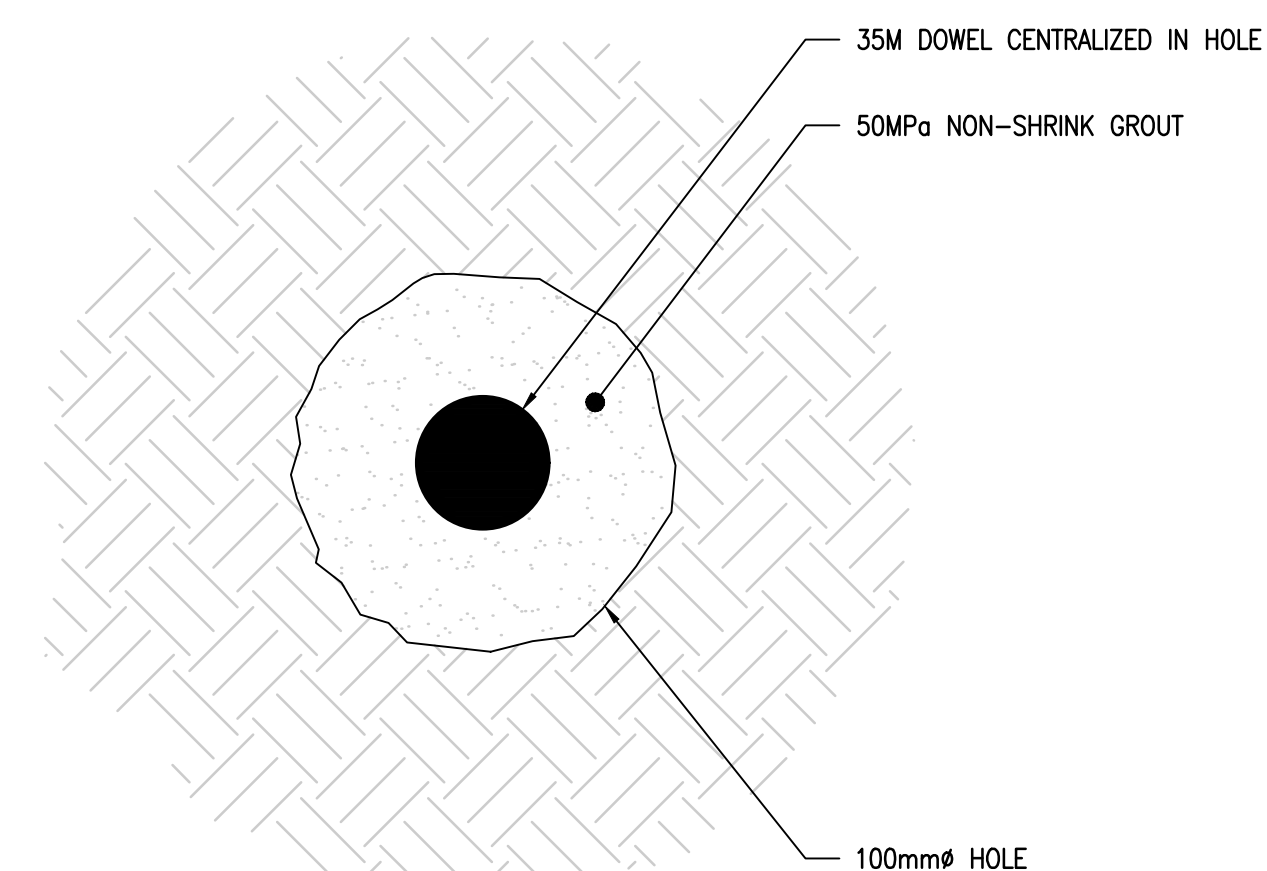
1 PLAN
1 : 20



3 DETAIL
1 : 10



2 SECTION
1 : 20



SECTION A-A
1 : 2

DRAWING NOTES

- DO NOT SCALE FROM DRAWINGS.
- CONTRACTOR MUST VERIFY ALL DIMENSIONS AND CONDITIONS ON SITE BEFORE PROCEEDING WITH ANY PORTION OF THIS WORK.
- THIS DRAWING IS NOT TO BE USED FOR CONSTRUCTION UNLESS IT IS ISSUED FOR CONSTRUCTION AND STAMPED AND SIGNED BY THE ENGINEER OF RECORD.
- CONCRETE STRENGTH TO BE 35MPa @ 28 DAYS C-1 EXPOSURE CLASS

NOT FOR CONSTRUCTION

NO.	DESCRIPTION	Y/M/D	BY
A	ISSUED FOR REVIEW	2016.08.08	RB

REVISIONS

A	A - PLAN, SECTION, ELEVATION, OR DETAIL NO.
B	B - NO. OF DRAWING WHERE ABOVE IS DRAWN

STAMP

PERMIT
PROVINCE OF NEWFOUNDLAND AND LABRADOR
PERMIT HOLDER
This Permit Allows
JEWEL BAILEY CONSULTANTS LTD.
To practice Professional Engineering in Newfoundland and Labrador.
Permit No. as issued by PEG N0540 which is valid for the year 2016.

CLIENT
ANACONDA MINING INC.

CONSULTANT

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TEL: (709) 579-4255 FAX: (709) 579-3423

PROJECT
**AGGREGATE EXPORT STUDY
PORT ROUSSE**
BAIE VERTE, NL

DRAWING
**SHORE BOLLARD
DETAILS**

DRAWN BY G. MARSH	CHECKED BY R. BAILEY	APPROVED BY R. BAILEY
PROJECT NO. JBC-16-C-027	DWG. FILE NO.	FILE NO.
DATE JAN 2016	SCALE AS SHOWN	DRAWING NO. SK-09
		REV. A

Appendix B

Site Photos



Photo 1: Project site (to the right) pre-construction



Photo 2: Dock configuration as constructed

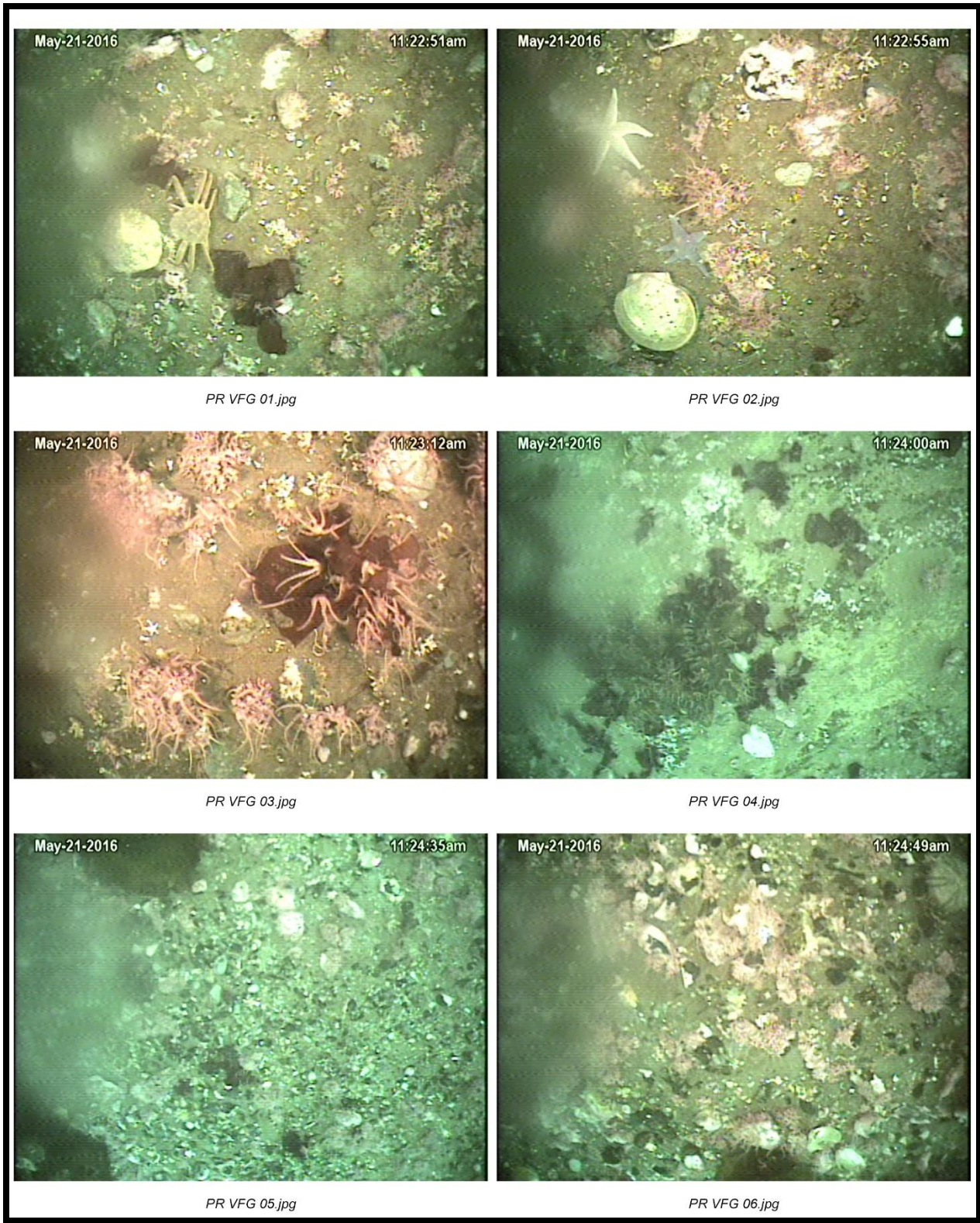


Photo 3: Select video frame grabs from footage at dock area

Appendix C

Species of Conservation Concern

Table C-1: Species of Conservation Concern with Potential to Occur in the Project Area

Common Name	Scientific Name	Committee on the Status of Endangered Wildlife in Canada (COSEWIC) Listed Status	Federal Listed Status (<i>Species at Risk Act</i>)	Provincial Listed Status (<i>Endangered Species Act</i>)	Habitat
Vegetation					
Mountain Holly Fern	<i>Polystichum scopulinum</i>	Threatened	Threatened, Schedule 1	Not listed	Grows on montane ultramafic (serpentine) rock outcrops, a type of rock formation that is relatively rare at the landscape scale. However, since the species is uncommon and geographically restricted, it is not thought to be threatened by human activities because it is located in an area that is difficult to access
Boreal Felt Lichen (Boreal population)	<i>Erioderma pedicellatum</i>	Special Concern	Special Concern, Schedule 1	Vulnerable	Concentrated in two areas - the central Avalon Peninsula and Bay D'Espoir. Its distribution appears to be limited by climatic factors as it is found in cool, moist, and often foggy nature forests. It is frequently found near the edges of wetlands.
Fish					
Banded Killifish (Newfoundland populations)	<i>Fundulus diaphanus</i>	Special Concern	Special Concern, Schedule 1	Vulnerable	Only known from several locations on the west coast, northeast coast, and Burin Peninsula of Newfoundland. These locations represent the easternmost extent of this species' range and a unique Canadian population. Banded killifish are most often seen in the shallow areas of clear ponds with a muddy/sandy substrate, high detrital content, and submerged aquatic vegetation.
Atlantic Wolffish	<i>Anarhichas lupus</i>	Special Concern	Special Concern, Schedule 1	Not listed	Commonly distributed in both inshore (nearshore and bays) and offshore areas.

Table C-1: Species of Conservation Concern with Potential to Occur in the Project Area (continued)

Common Name	Scientific Name	Committee on the Status of Endangered Wildlife in Canada (COSEWIC) Listed Status	Federal Listed Status (<i>Species at Risk Act</i>)	Provincial Listed Status (<i>Endangered Species Act</i>)	Habitat
Spotted Wolffish	<i>Anarhichas minor</i>	Threatened	Threatened, Schedule 1	Not listed	The central part of its range is located on the Labrador Shelf and off northeastern Newfoundland.
Atlantic Cod (Newfoundland and Labrador population)	<i>Gadus morhua</i>	Endangered	No Status, No schedule	Not listed	Inhabits the inshore and offshore waters from the northern tip of Labrador to eastern Newfoundland, including the Grand Banks.
American Eel	<i>Anguilla rostrata</i>	Threatened	No Status, No schedule	Vulnerable	Spawn in the Sargasso Sea, in the southern North Atlantic Ocean, but grow and mature in our freshwater rivers, lakes, and estuaries. They have been found in many coastal rivers in Newfoundland and as far north as the English River in Labrador
Avifauna					
Ivory Gull	<i>Pagophila eburnea</i>	Endangered	Endangered, Schedule 1	Endangered	Breed in the High Arctic and winter in the Arctic seas and along the Atlantic coast, including the coast of Newfoundland and Labrador. They are more rarely seen on the coast of the Great Northern Peninsula of Newfoundland and ashore.
Red Crossbill, <i>percna</i> subspecies	<i>Loxia curvirostra percna</i>	Threatened	Endangered, Schedule 1	Endangered	Associated with conifer forests, with the highest numbers of observations occurring in the older, mature forests of western Newfoundland.
Rusty Blackbird	<i>Euphagus carolinus</i>	Special Concern	Special Concern, Schedule 1	Vulnerable	Associated with forest wetlands, including slow-moving streams, peat bogs, sedge meadows, and ponds, dominated by conifer forest and scrub edges. In the winter, they occur in damp woodlands and cultivated fields.

Table C-1: Species of Conservation Concern with Potential to Occur in the Project Area (continued)

Common Name	Scientific Name	Committee on the Status of Endangered Wildlife in Canada (COSEWIC) Listed Status	Federal Listed Status (<i>Species at Risk Act</i>)	Provincial Listed Status (<i>Endangered Species Act</i>)	Habitat
Short-eared Owl	<i>Asio flammeus</i>	Special Concern	Special Concern, Schedule 1	Vulnerable	Reported in tundra, coastal barrens, sand dune, field, and bog habitats. These habitats are particularly abundant on the west coast and Great Northern Peninsula of Newfoundland, and on the coastal barrens and above the treeline in Labrador, although virtually all coastal areas and nearshore islands are suitable habitat.
Barrow's Goldeneye (Eastern population)	<i>Bucephala islandica</i>	Special Concern	Special Concern, Schedule 1	Vulnerable	Newfoundland and Labrador is used by the Barrow's Goldeneye as a molting and wintering area.
Mammals					
Polar Bear	<i>Ursus maritimus</i>	Special Concern	Special Concern, Schedule 1	Vulnerable	Occasionally visit the island of Newfoundland on spring ice, but will move north again.
American Marten (Newfoundland population)	<i>Martes americana atrata</i>	Threatened	Threatened, Schedule 1	Threatened	Preference for old growth forests, specifically mature balsam fir. Have evolved in Newfoundland to be habitat generalists, aided in part by a release from predation, which allows them to occupy a naturally fragmented landscape.
Blue Whale (Atlantic population)	<i>Balaenoptera musculus</i>	Endangered	Endangered, Schedule 1	Not listed	Generally found in waters off eastern Canada: in the northern Gulf of St. Lawrence, off the coasts of Nova Scotia and Newfoundland, and in the Davis Strait.

Table C-1: Species of Conservation Concern with Potential to Occur in the Project Area (continued)

Common Name	Scientific Name	Committee on the Status of Endangered Wildlife in Canada (COSEWIC) Listed Status	Federal Listed Status (<i>Species at Risk Act</i>)	Provincial Listed Status (<i>Endangered Species Act</i>)	Habitat
Harbour Porpoise (Northwest Atlantic population)	<i>Phocoena phocoena</i>	Special Concern	Threatened, Schedule 2	Not listed	Spread out over the northern hemisphere's continental shelves (the shallower coastal areas of the ocean, generally within 250 km of shore). Often sighted close to shore, seeking out harbours and bays -- especially in summer months. In Canada, ranges from the Bay of Fundy north to northern Labrador.
North Atlantic Right Whale	<i>Eubalaena glacialis</i>	Endangered	Endangered, Schedule 1	Not listed	Inhabit the temperate and sub-polar waters of the Atlantic. Migrate between their winter calving and feeding grounds in U.S. waters to rich feeding grounds in Atlantic Canada in the summer and fall.
Reptiles					
Leatherback Sea Turtle (Atlantic population)	<i>Dermochelys coriacea</i>	Endangered	No Status, No schedule	Not listed	Most abundant in Atlantic Canada from July through to the end of October, with the highest densities of turtles occurring on the Scotian Shelf and Slope, southern Gulf of St. Lawrence, and south coast of Newfoundland.

Sources: ACCDC 2016, ECCC 2016a, NLDEC 2016.