ENVIRONMENTAL ASSESSMENT
REGISTRATION DOCUMENT

CONTINENTAL STONE LIMITED
PROPOSED BELLEORAM CRUSHED ROCK EXPORT QUARRY
BELLEORAM, NL

Submitted by:

Continental Stone Limited
1309 Topsail Road
PO Box 8274 Stn A
St. John's, NL
A1B 3N4

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PREFACE

Continental Stone Limited (Continental Stone) proposes to develop a crushed rock export quarry in Belleoram on the south coast of Newfoundland. As required under the provincial *Environmental Assessment Regulations, 2003*, the project was registered with the Minister of Environment and Conservation in March 2006.

In response to the Registration, the Minister of Environment and Conservation required Continental Stone to submit an Environmental Preview Report (EPR). Guidelines for the EPR were released in June 2006 and the EPR was submitted in November 2006. In 2007, the project was released from the environmental assessment process with the acceptance and approval of the EPR (January 2007) and Environmental Protection Plan and Spill Contingency Plan (July 2007).

As per the *Environmental Assessment Regulations, 2003,* the release from the original Environmental Assessment process has expired and the project requires re-registration. As per communications with Canadian Environmental Assessment Agency (CEAA), the project was assessed as a comprehensive study under the former Canadian Environmental Assessment Act and does not require a federal EA. “We consider that section 128 (1)(c) of the *Canadian Environmental Assessment Act, 2012*, applies to this project” (Vanessa Rodrigues, Project Manager, CEAA, pers. comm.).

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1.0 NAME OF UNDERTAKING

Belleoram Crushed Rock Export Quarry

2.0 PROPONENT

2.1 Name of Corporate Body

Continental Stone Limited

2.2 Address

1309 Topsail Road
PO Box 8274
St. John's, NL
A1B 3N4

2.3 Chief Executive Officer

Mr. Ed Murphy

2.4 Principal Contact Person

Deidre Puddister
Environmental Manager
Tel: (709) 782-3404/5012
Fax: (709) 782-0129
Email: deidre.puddister@pennecon.com

3.0 THE UNDERTAKING

3.1 Description of the Undertaking

Continental Stone Limited (CSL) proposes to develop a granite aggregate export quarry in Belleoram, Newfoundland (Figure 1, Figure 2) to supply raw material to international markets. The project will be carried out in 3 stages: Development, Operations and Decommissioning, as described below.

Development. Excavation and removal of overburden material will be completed to facilitate the construction of a site access road. This stage will also include the excavation of an area for setup of the crusher and associated equipment and a suitable marine terminal for the project. All equipment will be established during this stage.

Operation. Operations will consist of drilling and blasting of the rock source, with the fractured rock being crushed into various sizes. The crushed rock will then be conveyed to the marine terminal for loading onto a bulk aggregate carrier and shipped to international markets.

Decommissioning. This will involve demobilizing all unsuitable structures at the site and the creation of an area friendly for the community and the environment.

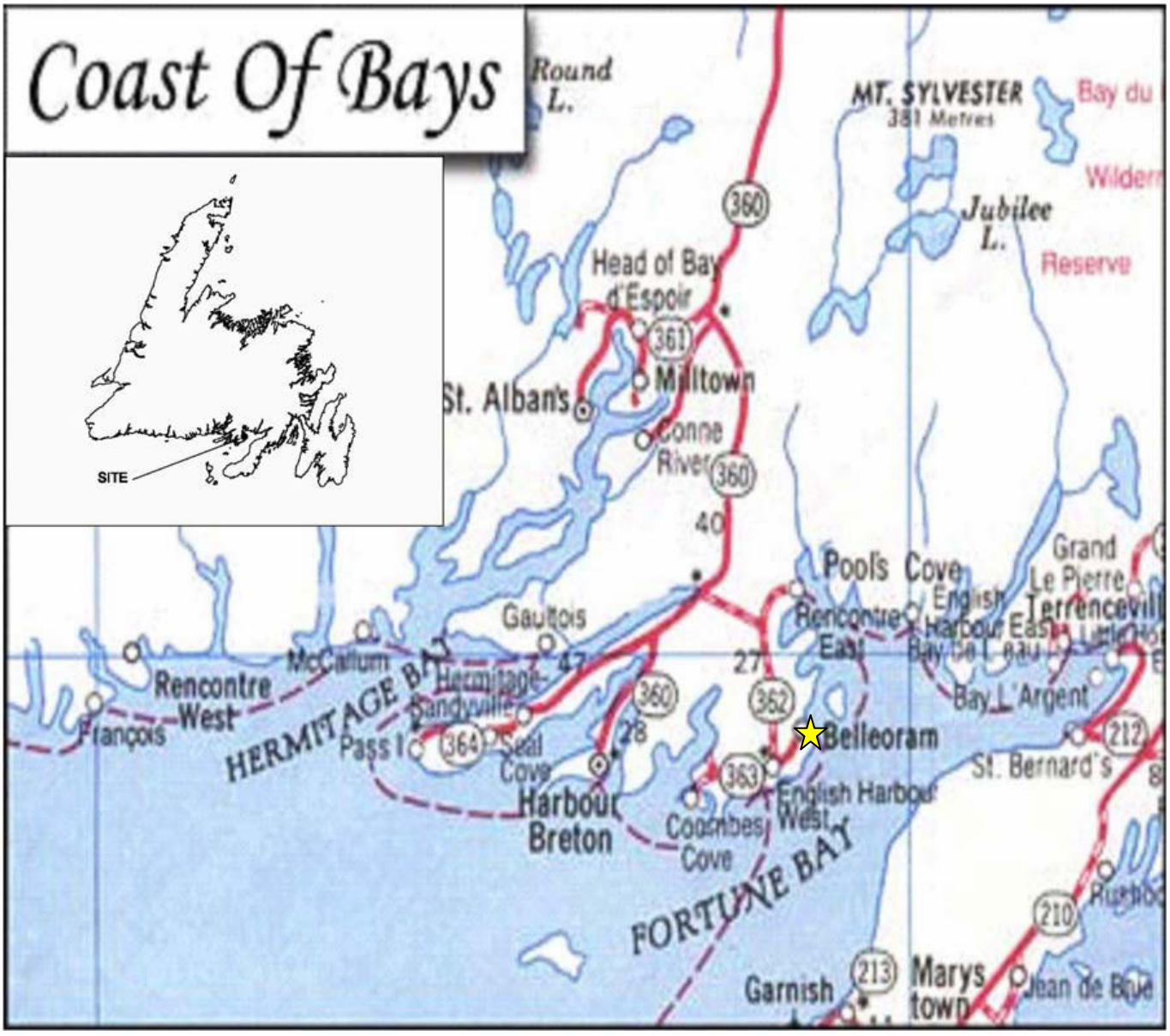

Figure 1. Belleoram, NL

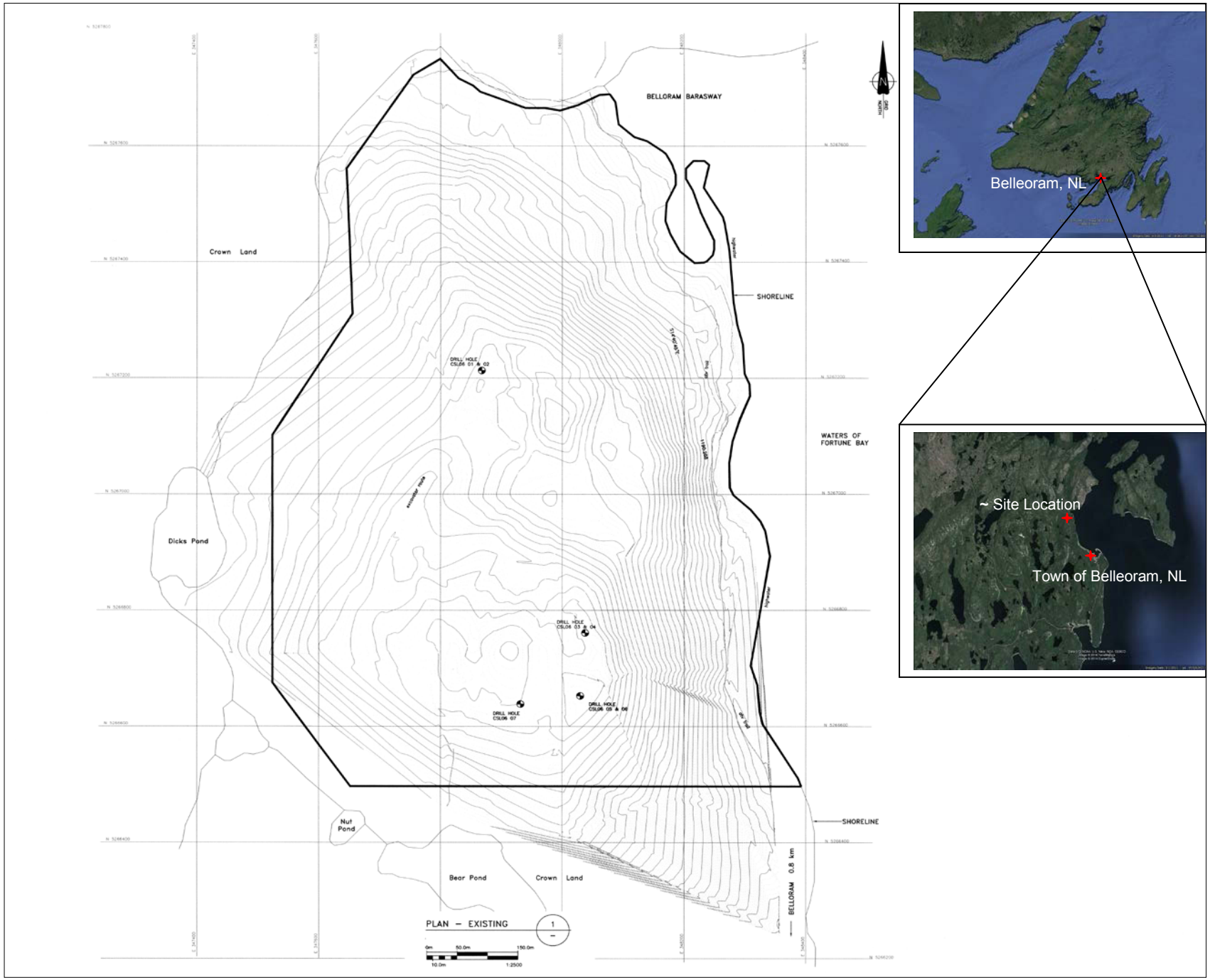

Figure 2. Location of the proposed rock quarry in Belleoram, NL and the development boundary.

As per the Quarry Development and Reclamation Plan (Appendix 1), there are 58 "Phases" to this project, with each Phase being approximately equivalent to an operating season. It is estimated that during Phase 1, which will focus predominantly on site development (Development Phase), there will be approximately 0.5 million tonnes of aggregate shipped to market, followed by 1 million tonnes in Phase 2 as site development continues, and 2 million tonnes by Phase 3, at which time the project site will be fully developed and at "normal" production capacity, i.e. the Operations Stage.

3.2 Purpose/Rationale/Need for the Undertaking

The purpose of the project is to gain a market share of the aggregate industry, with a view of enhancing the long term viability of Continental Stone and the economy of the Connaigre Peninsula through the creation of sustainable employment. The project is expected to bring 20 – 30 full time direct jobs with the potential for numerous indirect jobs for a project life of up to 58 years.

3.3 Alternative Means of Carrying Out the Project

Continental Stone has evaluated technically and economically feasible alternative means of carrying out the project, including different modes of transportation and alternative project locations.

In terms of transportation, consideration was given to the environmental and socio-economic implications of shipping the crushed aggregate versus moving it overland. Continental Stone has determined that the use of ocean going vessels along established and approved shipping lanes would be less intrusive to the surrounding communities and also less expensive. Furthermore, it was also determined that the use of ocean going vessels would require less construction and maintenance of infrastructure (eg. roads and highways capable of withstanding the repeated heavy loads of trucks). Adopting the shipping mode of transportation is deemed to have the additional benefit of restricting the spatial extent of potential effects on the terrestrial environment in the project area.

The Belleoram site was chosen due to its large deposit of granite, deep ice-free port, proximity to shipping lanes, minimal tidal action, and availability of suitable labour.

3.4 Project Physical Features

The primary physical features will include the quarry, a marine wharf (Appendix 2) and a new access road. Additional features will include a rock crusher, a conveyor system, stockpiles, etc. (see Figure 3).

The access road will be constructed from the community to the quarry site following an established trail along the shoreline. The road will be gated for security and safety. A conveyor system will transport crushed rock from the crushers and screeners to the transport vessel.

A detailed Site Plan is provided in Appendix 3.

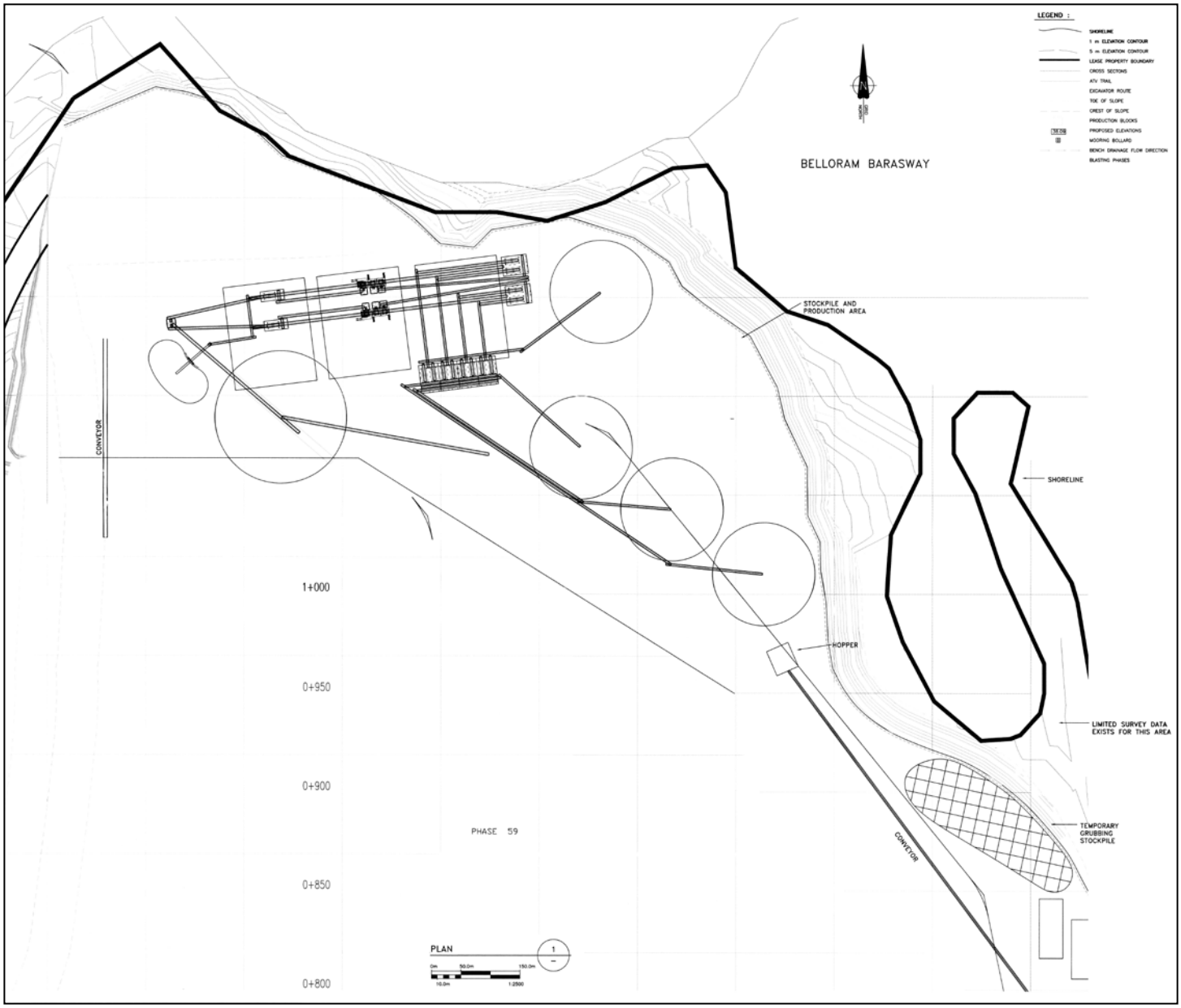

Figure 3. Approximate locations of the quarry's major features.

4.0 PROJECT LOCATION

4.1 Geographical Location

The site is located in the South Coast Barrens Sub-region of the Maritime Barrens Ecoregion of Newfoundland. The proposed site of the Continental Stone quarry is immediately north of the community of Belleoram, Fortune Bay Newfoundland (Figure 4). The town has a population of approximately 450 people. Fishing is currently the main industry in the area. Representative photographs of the site are presented in Appendix 4.

4.2 Existing Environment

The average daily temperature in the area ranges from 15.2 °C in August to -6.3 °C in February. Annual precipitation is 1829 mm with January and November being the months of highest precipitation. The terrain can be described as rugged with steep to gently rolling topography. Site elevation ranges from sea level to approximately 320 metres.

4.2.1 Terrestrial Environment

Vegetation

The site is located in the South Coast Barrens Sub-region of the Maritime Barrens Ecoregion of Newfoundland. This sub-region is characterized by extensive heathland interspersed with bogs, fens and forests. Forests dominated by balsam fir and to a lesser extent black spruce occur primarily in sheltered valleys and on leeward hillsides. Typical heathland shrub species include rhododendron, common juniper, Labrador tea, sheep laurel, blueberry, crowberry, partridge berry, bunch berry and bakeapple (Protected Areas Association 2000). Herbaceous plants are less common but include aster, sedges and minor amounts of grasses. The moss and lichen layer is usually dominated by reindeer lichen with minor amounts of moss that typically includes red-stemmed feathermoss.

Wildlife

Wildlife in the South Coast Barrens Sub-region includes many of the same species found throughout the rest of the island. Mammals such as caribou, moose, black bear, red fox, snowshoe hare and mink are common throughout, while red squirrel, meadow voles, and masked shrews are less abundant. Beaver and muskrat may be found around freshwater bodies. The project area falls within Moose and Black Bear Management Areas 25 and Caribou Management Area 64.

Figure 4. Project Location, Belleoram, NL.

The Connaigre Peninsula in general is subject to migratory shorebirds, waterfowl and seabirds. Birds in the area are also typical of the boreal ecosystem and likely include migratory species such as osprey and bald eagle, and migrant passerines including thrushes, warblers and fly catchers. Common year- round resident birds likely include common raven, boreal chickadee, willow ptarmigan, spruce grouse, dark-eyed junco and pine grosbeak. Common waterfowl such as the Canada goose, black ducks and green-winged teal may frequent the area.

Inland Fish

There are no freshwater bodies within the proposed development site.

4.2.2 Marine Environment

Belleoram is located on the south coast in Fortune Bay. The Fortune Bay area supports moderate lobster, scallop, and ground fish. The region also supports a number of aquaculture sites with the closest to the project being a distance of approximately 2 km. The physical environment in the area of the proposed wharf consists of grass, small trees and a marshy area with no previous construction. The bathymetry from the shore has a sloping drop to a depth of 15m at a distance of approximately 15m from the shore. The marine environment will be investigated by a marine biologist if required by the Department of Fisheries and Oceans. The investigation will include identification of benthic habitat and species and bottom composition. Consultation with locals indicates the area for the proposed wharfing facility is not fished for lobsters.

The shipping route from the loading dock to the mouth of Fortune Bay is not an area of concentrated fishing activities (pers. Comm. Stuart May and Barry Fiander 2006). Historically there has not been any conflict between commercial shipping and fishing vessels.

4.2.3 Air Quality

The region within 10 kilometres of the proposed site, and Newfoundland in general, experiences good air quality because there are few industrial sources of emissions. Climate conditions support good dispersion of air borne particles and the frequent rainfall help dilute those particles in the air. The air quality is also enhanced by the infusion of relatively clean, oceanic air masses from the North Atlantic Ocean. The climate is relatively wet with a winter season that typically lasts for 4 months. This snow cover results in the saturation of the surface and thus it is expected there is little background particulate matter.

5.0 CONSTRUCTION/DEVELOPMENT

Development of the quarry is tentatively scheduled to begin in Summer 2015 and will consist of:

- Access development;
- Timber salvage;
- Stripping of overburden; and
- Building and wharf construction.

5.1 Access

An access road will be constructed from the community to the quarry following an established trail along the shoreline. Construction of the access road is expected to take approximately 4 weeks. The access road will be used to transport employees and service vehicles to the site but will not be used on a regular basis for heavy equipment. A network of site roads will be constructed as needed within the quarry for safe and efficient movement of people and equipment.

5.2 Timber Salvage

Merchantable timber (greater than 10 cm diameter-at-breast-height) will be salvaged by local contractors with an expected start date in Summer 2015. Timber salvage will progress across the site as the aggregate is quarried.

5.3 Stripping of Overburden

Overburden will be removed to uncover bedrock during the development phase. Overburden thickness varies, with the starting pit targeting an area of minimal cover to minimize the volume to be removed and stored. Overburden will be stored in an area north of the settling ponds. The stored overburden and waste rock will be used for future rehabilitation of the quarry site.

5.4 Building and Wharf Construction

The establishment of the quarry operations will require the construction of some permanent structures. These include several crushers and screens which will be connected via an open conveyor belt system. Equipment size, type, and precise location may vary pending final project design approval.

A building will also be built at the main gate entrance to house offices, an aggregate laboratory, and maintenance operations.

Construction of the marine wharf is expected to begin in 2015 and will take a year to complete. The wharf will include the construction and placement of caissons, as well as a ship loader with a hopper and conveyors, the installation of a girder supported wharf section, and anchorage emplacement. The rock fill section will be constructed with clean armour stone from within the quarry site. These stones will be placed using dump trucks, loaders, and excavators. The exact location will be chosen pending the collection of geotechnical information at the site, as a 14 m depth is required for shipping purposes.

5.5 Potential Sources of Pollution during Construction

The development phase will consist of earth-moving activities. The potential sources of pollution are limited to site drainage (effluent from overburden storage areas/waste rock and wash water), solid waste, equipment exhaust, noise, and the unlikely event of an accidental release of fuel or lubricant.

5.5.1 Effluent

Site run-off water will be directed to vegetated areas within the site, or storm water ponds/sumps, which will filter suspended solids. All water releases will meet the regulatory requirements of the *Environmental Control (Water and Sewage) Regulations* and provincial permits.

Sewage will be handled by an approved portable facility during construction. The holding tanks will be emptied by a pump truck on a regular basis and disposed of in an appropriate manner.

All fuel handling and storage will comply with the *Storage and Handling of Gasoline and Associated Products Regulations*. All waste oil generated at the quarry will be disposed of by a licensed disposal agent. There will be no on-site bulk storage of fuel or oil.

5.5.2 Waste and Litter

Domestic garbage will be collected from the construction site and disposed of in the Regional landfill. Any food or organic garbage onsite will be held in animal-proof containers to prevent attracting wildlife.

5.5.3 Air Emissions

All equipment will have the appropriate emission-control features. Dust control measures (i.e., water application) will be applied as required for vehicle traffic on the access road.

5.6 Potential Resource Conflicts during Construction

Current resource use of the project area is likely minimal due to the rugged environment, limited access to the area and small local population. Resource conflicts, if any, during construction are likely restricted to big and small game hunting, berry harvesting and domestic wood cutting.

Informal consultations with local residents indicate that wood cutting is confined to an area closer to the town of Belleoram (Robert Rose pers. comm.).

A literature review found no reference to prehistoric sites in the area. If, however, during development or operation, historic resources are encountered, work in the area of the discovery will stop and appropriate measures will be taken, including, but not limited to contacting the Provincial Archaeology Office, Department of Tourism, Culture, and Recreation (709 729 2462).

6.0 OPERATION

The operational phase will include the following operations: 1) drilling and blasting; 2) primary, secondary, and tertiary crushing; 3) dry and wet screening; 4) stockpiling; 5) reclaiming of finished products; and 6) ship loading.

A Water Use License under the *Water Resources Act* is required for the use of water from any source for any purpose; therefore, approval from the DOEC, Water Resources Management Division, shall be obtained prior to any water use. Aggregate washwater will be obtained from Dick's Pond, or alternate source, upon approval from DOEC.

The grounds and facilities will be maintained according to environmental health and safety standards and regulations. Blasting operations will be conducted by contracted licensed blasters. The explosives will not be manufactured or stored on site, but will be ordered on a regular basis from reputable suppliers.

Quarrying operations are expected to run for approximately 40 weeks from March to December each year, having two shifts as required. The ship loading activities are expected to run year round in order to supply contract demands. The quarry is expected to operate for ~60years. As with the construction phase, the BMP Handbook will be adhered to during the operation phase of the quarry.

6.1 Blasting Protocol

Blasting operations will be conducted at the Belleoram Granite Quarry in accordance with:

- The Fisheries Act, DFO Canada
- The Newfoundland and Labrador Environment Act and Occupational Health and Safety Act
- The Explosives Act, Natural Resources Canada
- "Guidelines for the Use of Explosives in or Near Canadian Fisheries Waters", DFO Canada, Wright and Hopky (1998)
- Dyno Nobel Canadian Blast Site Safety Procedures.

Blasting during quarry start-up will be once per week during start up, moving to twice per week during full production, corresponding to a weekly production of 40,000 tonnes at startup and increasing to 80,000 tonnes during the life of the quarry. All blasts will be conducted between 0700 hours and 1900 hours. At the entrance to the quarry a 'Blast Notice Board' shall be erected detailing the time and date of any proposed blast as well as a description of the blast signaling system.

Continental Stone Limited will be employing the following blast parameters during production operations:

Bench Height	12.0 m
Hole Diameter	165 mm
Burden	4.87 m
Spacing	4.87 m
Subdrill	1.52 m
Collar	3.04 m

Each bore hole will be loaded with 290 kilograms of Dyno Gold 70-30 Bulk Emulsion Blend explosive pumped in to the bore hole using bulk explosives delivery systems. The bore holes will be double primed using 350 gram cast boosters used in conjunction with Nonel EZ detonators having a 25 millisecond surface delay and a 500 millisecond in-hole delay interval. The Nonel EZ detonators are to be used with Nonel EZ Trunkline Delays in such a fashion that each bore hole in the blast is fired independently and with a minimum of 8 milliseconds of delay interval. The collar of each blast hole will be filled with 20 mm clean crushed stone to contain the gasses within the bore hole and reduce unwanted air overpressure. Drilling will be

conducted using Down The Hole (DTH) drills equipped with either a vacuum dust collections system or a water injection dust suppression mechanism.

6.2 Potential Sources of Pollution During Operation

The potential sources of pollution during the operations phase may include pollution from blasting operations (ANFO), dust, site run-off, accidental fuel spills/releases, sewage, waste and litter, and air emissions.

6.2.1 ANFO (Ammonium Nitrate/Fuel Oil)

The use of ANFO explosives has the potential to produce ammonia blast residue in the pit water and waste rock drainage. Although elevated levels of ammonia are toxic to some aquatic life, the discharge to vegetated areas will encourage bio/chemical-degradation of ammonia. Water quality monitoring will be employed to ensure runoff to the marine environment complies with applicable regulations (i.e. *Environmental Control Water and Sewage Regulations, 2003)*.

6.2.2 Dust

Dust may be generated during blasting operations. To mitigate this, bore hole collars will be filled with 20 mm clean crushed stone to help suppress dust and gases during blasting. Should dust become a problem, water trucks will be used to moisten surfaces and keep dust down.

6.2.3 Site Runoff

If the aggregate requires washing, industry approved settling ponds will be constructed that will screen out the silt and other suspended solids. This treated water will be recycled back into the aggregate cleaning process. All water releases will meet the regulatory requirements of the *Environmental Control Water and Sewage Regulations, 2003* and provincial permits.

Site runoff will be directed to vegetated areas within the project boundaries, which will filter any potential suspended solids. Sedimentation ponds will be installed as required.

6.2.4 Accidental Fuel Spills and Hydrocarbon Fuel Storage

Machinery will be checked for leakage of lubricants or fuel and will be in good working order. Refueling will be done at least 30 m from any water body. An adequate supply of hydrocarbon spill clean-up equipment will be on-site at all times. All spills or leaks will be promptly contained, cleaned up, and reported to site environmental representatives for reporting to the 24-hour environmental emergencies report system (1-800-563-9089) as required. There will be no on-site bulk storage of fuel or oil, and all fuel handling is to comply with the Storage and Handling of Gasoline and Associated Products Regulations. Any waste oil generated will be handled, stored, and disposed of by a licensed disposal agent in accordance with the Used Oil Regulations.

6.2.5 Sewage

Sewage will be handled by an approved portable facility during operation. The holding tanks will be emptied by a pump truck on a regular basis and disposed of in an appropriate manner. All waters disposed of on the proposed site will comply with the Environmental Control Water and

Sewer Regulations, 2003.

6.2.6 Waste and Litter

During operation, domestic garbage will be collected and hauled to the Regional waste facility in accordance with the Waste Management Regulations, under the Environmental Protection Act. Any food or organic garbage onsite will be held in animal-proof containers to prevent attracting bear, fox, birds, or other wildlife.

6.2.7 Air Emissions

All construction equipment must be fitted with standard and well- maintained emission control and noise suppression devices. Dust control measures will be applied as appropriate and as described in the BMP Handbook. All activities will be carried out in accordance with the *Air Pollution Control Regulations, 2004*.

6.3 Potential Resource Conflicts During Operation

The potential resource conflicts associated with operation of the quarry are the same as those for construction, as the scope and nature of activities are quite similar. It has been noted that local residents occasionally use the area for hiking (by means of a small foot path that will be developed into a larger access road along the shoreline), hunting, and lumber harvesting. However, this represents a very small minority of the local population, with the area being very rugged and not ideal for game hunting or fishing. Lumber harvesting activities occur only on the outskirts of the project's boundaries. Access to the site will be restricted by means of a gated entry to ensure the safety of the general public, therefore restricting general usage of the area.

Interactions with respect to fisheries and shipping are discussed in detail in later sections and therefore will not be outlined here.

7.0 DECOMMISSIONING/REHABILITATION

As per the Quarry Development and Reclamation Plan, March 2008 (Appendix 1).

8.0 OCCUPATIONS

Contractors will be retained during the Development stage of the quarry (i.e. for blasting operations, materials shipping, etc.).

Site construction and operations for the proposed quarry will likely include the following occupations, classified as per *National Occupational Classification, 2006,* and equipment. All listed personnel are anticipated to be direct-hires, if available.

<u>Construction Phase</u>

2 Health, Safety and Environment Advisor (2263)
2 Security Attendant (6541)
2 Site Foreman/Supervisor (7217)
6 Heavy Equipment Operators (7421)

4 Truck Drivers (7411)
4 Heavy Equipment Mechanics (7312)
4 Labourer (7611)
24 Total

Operations
1 General Manager (0016)
2 Health, Safety and Environment Advisor (2263)
2 Security Attendant (6541)
3 Site Foreman/Supervisor (7217)
6 Heavy Equipment Operators (7421) – Loader, excavator, fork lift, crusher equipment
6 Truck Drivers (7411)
2 Heavy Equipment Mechanic (7312)
6 Labourer (7611)
28 Total

Continental Stone is committed to equity in employment and will encourage all qualified individuals to apply.

9.0 ENVIRONMENTAL EVALUATION

This section provides an overview of the evaluation of the potential adverse environmental effects of the project, as identified in the Environmental Preview Report (EPR) guidelines issued in 2007. Specifically, the guidelines identified the marine environment, and in particular the existing (and pending) aquaculture sites in the area, as the Valuable Ecosystem Components (VEC) in need of additional assessment. The following sections reiterate findings from the original 2007 EPR, with updates to reflect current conditions where required.

9.1 Evaluation Procedure

Evaluation of the potential effects of each phase of the undertaking involved a three-step process:

1. Identification of project and environment interactions (i.e. issue scoping);
2. Identification and evaluation of potential effects; and
3. Identification and description of mitigation measures, identification of residual impacts, and determination of significance.

9.1.1 Identification of Project and Environment Interactions

The 2007 EPR Guidelines identified the following project features as potentially adversely affecting the marine environment, and in particular aquaculture sites in the area (including those that are proposed/approved):

- Potential effects of vibrational and acoustic shock from blasting;
- Potential effects of shipping;
- Potential effects of dust fines;
- Potential effects of sedimentation; and
- Potential effects of explosive chemicals.

9.1.2 Identification and Evaluation of Potential Effects

The 2007 EPR provided additional information on the identified interactions and described their potential effects in terms of whether they are positive/negative, short/long term and direct/indirect. Effects predictions were explicitly stated and the theory or rationale upon which they are based was also presented. The results are summarized herein.

9.1.3 Description of Mitigation Measures and Residual Impacts

Residual impact analysis is conducted following the consideration of standard mitigation measures incorporated into the design of the project, as well as other mitigations to be implemented as per federal and provincial agencies through permit conditions or as protection procedures. All applicable mitigation procedures are described in the following sections. Residual impacts, those which remain after mitigative measures have been implemented, are defined in terms of significance, nature, magnitude, spatial extent, probability, duration, and frequency. Irreversible impacts have been clearly identified. In this manner, the residual environmental impacts of the undertaking can be determined.

9.2 Impact Definitions

The definitions outlined in this section have been applied to all impact predictions in this section unless otherwise noted. For any such exceptions, applicable definitions are presented within the text of that particular section.

9.2.1 Residual Impact Significance Criteria

The terminology used to describe a residual impact should be clear, objective, and easily understood. This section provides criteria for evaluating the significance of residual environmental impacts (negative or positive). Precise definitions for the ranking of residual impacts on populations (or in this case, caged aquaculture sites), where applicable, were used in the 2007 EPR, and reiterated herein, as follows:

A **Major (significant)** residual environmental impact is one affecting a whole stock or population of a VEC in an area in such a way as to cause a change in abundance and/or change in distribution beyond which natural recruitment (reproduction and immigration from unaffected areas) would not return that population, or any populations or species dependent upon it, to its former level within several generations. In this instance where aquaculture facilities are also considered a VEC, a major (significant) residual affect is one affecting a whole size class of penned fish in such a way as to cause a change in abundance beyond typical industry expected mortality and morbidity rates.

A **Moderate (significant)** residual environmental impact is one affecting a portion of a population in an area that results in a change in abundance and/or distribution over one or more generations of that portion of the population, or any populations or species dependent upon it, but does not change the integrity of any population as a whole; it may be localized. A change in habitat (including food sources) that produces the same result in populations would be moderate. In this instance where aquaculture facilities are also considered a VEC, a moderate (significant) residual affect is one affecting a portion of a size class of penned fish in such a way

as to cause a change in abundance beyond typical industry expected mortality and morbidity rates.

A **Minor (not significant)** residual environmental impact is one affecting the population or a specific group of individuals in a localized area and/or over a short period (one generation or less), but not affecting other trophic levels or the integrity of the population itself. In this instance where aquaculture facilities are also considered a VEC, a minor (not significant) residual effect is one affecting the behaviour of a portion of a size class of penned fish, but not causing any change in abundance beyond typical industry expected mortality and morbidity rates.

A **Negligible (not significant)** residual environmental impact is one affecting the population or a specific group of individuals in a localized area and/or over a short period in such a way as to be similar in effect to small random changes in the population due to natural irregularities, but having no measurable environmental effect on the population as a whole. In this instance where aquaculture facilities are also considered a VEC, a negligible (not significant) residual effect is one affecting the behavior of a portion of a size class of penned fish for short periods of time. A negligible residual effect would have no measurable effect on the penned group of fish and not cause a change in abundance beyond typical industry expected mortality and morbidity rates.

9.3 Vibrational and Acoustic Shock from Blasting

9.3.1 Project and Environment Interaction

Detonation of explosives during quarrying operations will produce vibrational and acoustic noise in the surrounding environment. The extent to which these factors can cause negative impacts is directly related to the distance from the blast, the magnitude of the blast, and the sensitivity of the organism to vibrations or sound (NRC 2003).

Fish react to sound and vibrations in the water, although there is relatively little knowledge on how they make use of acoustic information. Some species of fish use it for communication and courtship (Popper & Fay 1993; Fay & Popper 2000; Popper *et al*. 2003), aggression (Hawkins and Rasmussen 1978; Hawkins 1993) and some fish may even use sound as a primitive form of echo location (Tavolga 1971). With respect to how fish receive and can be affected by sounds or vibrations, there are two main variables of interest; 1) shock pressure, represented and measured in Peak Particle Velocity (PPV), and 2) compressional seismic waves, measured as a pressure force (kPa). These phenomena can lead to disturbance or damage to fish by affecting their sensory organs (Hawkins and Johnstone 1978; Whalberg and Westererberg 2005). Sound/vibrations are perceived in two ways; 1) through the lateral line or 2) through the buoyancy-regulating air-filled sac, known as the swim bladder. The lateral line system consists of sensory cells called neuromasts located in fluid-filled canals on the side of the fish. These cells do not measure acoustic waves directly, but they detect local low frequency (below 150 Hz) water flow relative to the fish (Sand 1984; Enger *et al*. 1989). Thus, they detect an acoustic field very close to the source and are susceptible to mechanical damage from intense pressures (McCauley *et al*. 2003). The swim bladder is an air-filled sac that is also sensitive to sound/pressure waves depending on how much air it contains; with a greater volume of air making it more sensitive to sound waves. If a fish receives sound pressures above a threshold value (varies depending on species, environmental conditions, wave parameters, etc.), the swim bladder can rupture (along with other organs) causing decreased fitness, disease

resistance, growth rate or even death (McCauley *et al*. 2003; Whalberg and Westererberg 2005). The farmed species near the proposed Belleoram Quarry (Atlantic salmon and northern cod) have both lateral line systems and swim bladders and therefore excessive noise and vibration has the potential to impact them.

Past studies of the effects of high intensity sound waves on fish have been conducted with varying results. Fish exposed to short pulses of high intensity sounds in the range of 170-180 dB showed both transitory effects as well as damage to fish sensory cells. A brief alarm response was noted in Chapman and Hawkins (1969), Schwartz and Greer (1984), and Pearson *et al*. (1992) with no detected effect on fish health. McClauley *et al*. (2003) was not able to identify what level of sound is required to cause damage to fish, however the report does state that repeated sound levels of 180 dB from 500 m away did in fact damage fish sensory cells. It should be noted that 180dB from 500m away is a very intense sound pulse and would be considered extreme (eg. a jet engine typically generates 140dB).

9.3.2 Mitigation Measures

Continental Stone recognizes the potential sensitivity of farmed fish and has incorporated this into their designed blasting regime and operational procedures to minimize negative effects while maximizing safety and efficiency. The following standard mitigation measures will be implemented:

- Utilization of the guidelines set out by Wright and Hopky's Technical Report for the use of explosive near Canadian fisheries waters (1998);
- Utilization of the Dyno Nobel North America "Canadian Blast Site Safety Manual" guidelines to ensure for safe, environmentally conscious, blasting procedures;
- No blasting underwater or within a waterbody;
- Use of explosives in compliance with all applicable laws and regulations;
- Restricting explosives handling and detonation to persons properly trained and qualified to use them in accordance with the manufacturer's instructions and government laws and regulations;
- Obtaining Blasters Certificates and a Temporary Magazine License (from Natural Resources Canada) prior to drilling and blasting to ensure that the proper procedures are known and followed; and
- Making a blasting plan available to the local interest committee.

While the above standard mitigation measures will be incorporated into the facilities Environmental Protection Plan (EPP), further design of the blasting program is outlined below.

Blast patterns and procedures to minimize shock or instantaneous peak noise levels to ensure that the magnitude of explosions is limited to only what is necessary will be incorporated into any final blast design. Briefly, design considerations include:

- plugging the 12 m bore holes with a 3 m collar of 20 mm, clean, crushed stone to trap gases and dust during blasting;
- optimizing drill hole patterns;
- using explosives in a manner that will minimize scatter of blasted material beyond the limits of the activity;

- employing the proper working on time-delayed blasting cycles (500 millisecond in-hole delay and a 25 millisecond surface delay); and
- using reliable material such as Nonel EZ Dets, or similar blast initiation system, which allow accurate firing of the explosives.

While the above steps will be taken to reduce vibrations resulting from blasting, it will be impossible to eliminate all unwanted seismic noise from the operation. Therefore, the blast design will be such that interaction with the identified VEC will be minimized to the extent possible. In that regard, this subsection provides estimates of the likelihood that cage-reared Atlantic salmon in Fortune Bay will be affected by the vibrational or acoustic effects as a result of the proposed blast design.

Peak Particle Velocity

DFO guidelines state that: "*no explosive is to be detonated that produces, or is likely to produce a PPV greater than 13mm/second in a spawning bed during the period of egg incubation*" (Wright and Hopky 1998). An estimate of PPV can be calculated using the following equation (Oriard 2002):

$$PPV = 150(SD/W^{0.5})^{-1.6}$$

Where:

PPV: inches per second
SD: distance from the blast in feet
W: weight in pounds per delay

By altering the blast configuration and estimated weight of each charge for the proposed Belleoram Quarry (294kg), the PPV experienced by any nearby aquaculture facilities can be estimated. The current blast design produces the following predicted PPV at various distances:

50 m	187mm/sec
200 m	20 mm/sec
300m	13.0 mm/sec
500 m	4.87 mm/sec
1500 m	0.75 mm/sec
2000 m	0.37 mm/sec

By observing this DFO guideline, blasting would need to be approximately 300m from any area of fish egg incubation. As shown, the particle velocity values for distances between the proposed quarry and the aquaculture facilities (estimated conservatively at 2500m; Figure 6) are not likely detectable using currently available blast monitoring seismographs (Pers. Com., Keith Phelan: Hard Rock Newfoundland, 2006). Further, since spawning is a fish's most sensitive life stage, these values would be considered more conservative for adult rearing operations. In addition, the PPV value at 2000 m is over seventeen times less than that required for egg incubation.

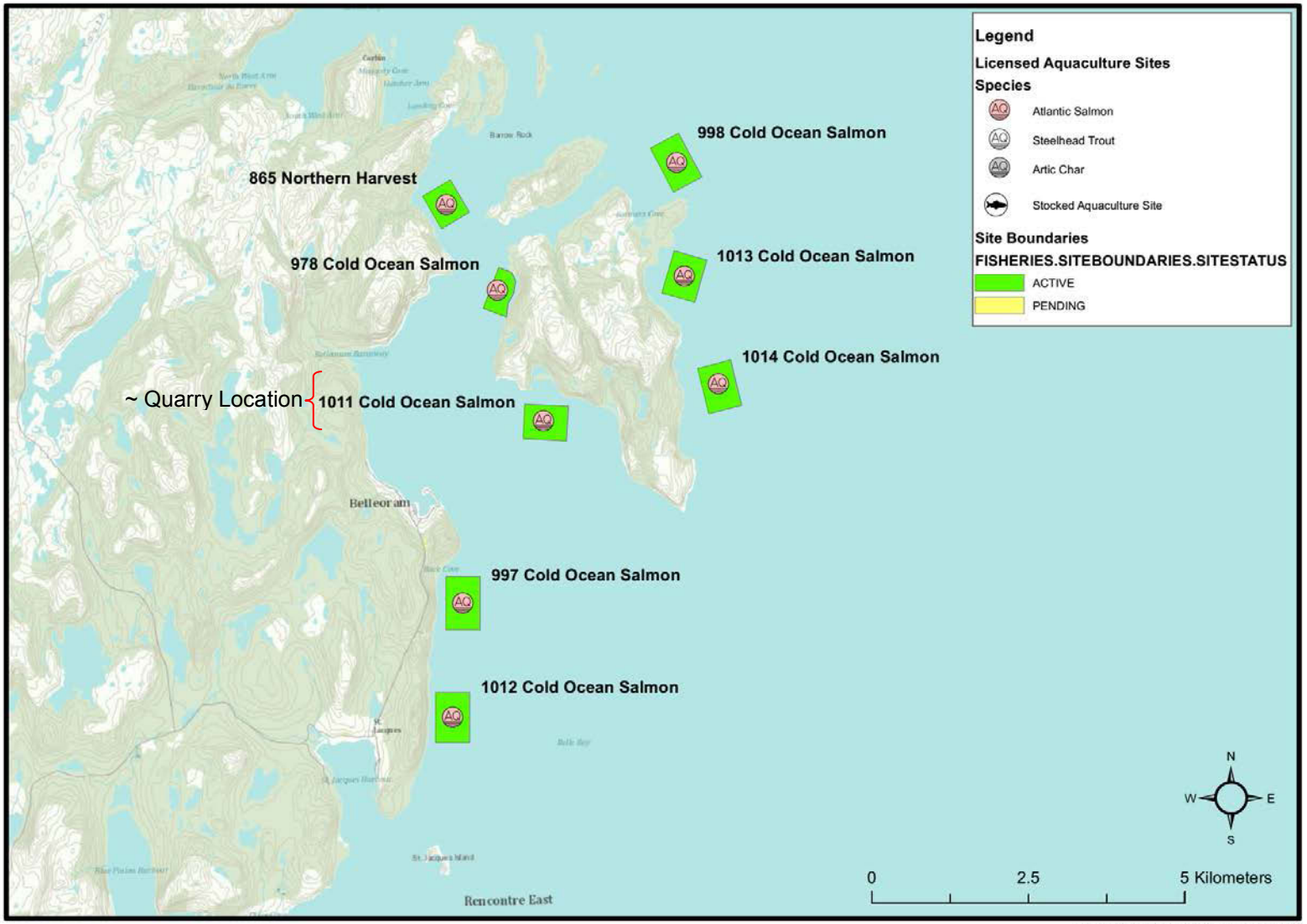

Figure 6. Locations of local fish farms in relation to proposed activities (in fallow as of September 2014).

Compressional Seismic Waves

DFO guidelines further state that: "*no explosive is to be detonated in or near fish habitat that produces, or is likely to produce, an instantaneous pressure change greater than 100kPa (14.5 psi) in the swimbladder of the fish*" (Wright and Hopky 1998). To calculate the minimum distance that an onshore blast could occur from fish habitat, the following equation can be used:

$$SD = 5.03(W)^{0.5}$$

Where:

SD: distance from the blast in meters
W: charge weight per delay (pers. com., Keith Phelan, Hard Rock Newfoundland, 2006).

Using this formula and based on the predetermined charge weight of 294 kg, the distance that the blast must be from fish habitat is estimated at 86 meters.

Propagation of Sound from Air to Water

Although sound may propagate in air over several kilometers as a result of blast detonations, its effect relative to submerged marine fishes is considered to be minimal. This statement is supported by Rayles Equation which describes the reflective abilities as sound passes from one medium to another. Salt water is a far more dense substance than air (1,027 kg/m^3 and 1.2 kg/m^3, respectively). Using the Rayles Equation, the following results are obtained.

$$R = \frac{z_2 - z_1}{z_2 + z_1}$$

Where:

z_1 (acoustic impedance of air) = density (1.2 kg/m^3) x the speed of sound in air (343 m/s) = 411.6

z_2 (acoustic impedance of salt water) = density (1027 kg/m^3) x the speed of sound in salt water (1500 m/s) = 1540500

Solving for R, we get a value of 0.99. An R-value of <1 indicates a rigid boundary where most of the sound energy will be reflected off the surface with little transmission. Due to the distance between the aquaculture sites and the proposed quarry operation, the sound pressure in air would not likely be enough to penetrate the water's surface.

Additional Blast Monitoring Commitment

Since real-world data has not been obtained to support the above calculations, additional monitoring is being considered within Fortune Bay. During the initial stages of blasting, sound/vibration measuring equipment (i.e. hydrophones) will be deployed to measure the effects at various points within Fortune Bay to validate the above calculations/predictions.

9.3.3 Residual Impact

Blasting will occur at the proposed quarry to allow efficient processing of granite aggregate. At normal production, blasting, and any associated residual impact on the VEC, will happen at a maximum of 1-2 times per week. As the above calculations demonstrate, the probability that fish will be exposed to levels of sound/vibration intense enough to cause damage or any reaction outside mild, transitory, avoidance behavior, are highly remote. Due to the physical distance between the aquaculture facilities and the proposed quarry, the mitigations outlined above and the design of the proposed blast operations, it was determined the impact will be Minor (not significant).

9.4 Shipping

9.4.1 Project and Environment Interaction

The economic transport of crushed granite aggregate from the proposed quarry site to market will be via marine bulk carriers. With an anticipated aggregate production level between 40,000 and 80,000 tonnes weekly, carriers will be required to enter Fortune Bay and dock at the proposed marine terminal on an estimated weekly basis and will have an anticipated 60,000 tonne capacity. Due to their large size and the need for these vessels to turn one-hundred-eighty degrees once they reach the dock for loading, speeds within Fortune Bay are anticipated to be less than two knots. Potential interactions between the bulk carriers and aquaculture sites in the area are related to sounds/vibrational disturbance, wake, water quality and the possible amplification of the risks involved with superchill events.

Shipping activities will be contracted out to a third party, who will be responsible for the vessels and shipping, as well as its operation and maintenance. All ships will be double- hulled and will be required to adhere to all Environmental Protection Plans (EPP) and Contingency Plans committed and implemented by Continental Stone Limited. All ships will also adhere to, and be responsible for, all environmental compliance, permits and certificates, and meet all regulatory standards pursuant to the *Canadian Shipping Act*. It should be noted that no “tanker” traffic will occur as part of the Project and that there will be no bulk oil/fuel transport, no oil/fuel refueling of ships and no bilge water discharge at the Project site.

Studies on the potential effect of vessel noise on caged fish have been conducted. When simulated vessel noise was played back to caged schools of cod and herring (species that are more sensitive to sound than salmon), a moderate avoidance reaction was observed at sound levels of 120 to 130 dB (Engås *et al*. 1995). No alarm responses were observed, suggesting that even if the fish does perceive a ship’s sound, there is little adverse reaction.

9.4.2 Mitigation Measures

While shipping by bulk carrier was determined to be the most economical method of transporting the material to market, the potential interaction between this option and the marine environment, particularly the local aquaculture operations, has been recognized. Standard mitigations with respect to vessel traffic have been outlined below and will also be included in Continental Stone’s EPP and Contingency Plan.

Mitigations to reduce any potential effects include:

- All bulk carriers will be required to travel within a predetermined pathway that will allow for both adequate passage into the bay as well as maximizing the distance the ship will be from the farms at any one time. As can be seen on Figure 7, the green lines indicate the path that is a maximum possible distance for the nearest farm (Cold Ocean Salmon Inc., approximately 620 m at the nearest point);
- All bulk carrier speeds will be such that they do not create an excessive wake or vibrations at the farm sites;
- All bulk carriers will turn off engines (except for any generators required for power) when ships are docked at the marine terminal for loading to minimize exposure to mechanical noise;
- All bulk carriers will carry oil spill clean-up equipment (eg. absorbants, inflatable dykes) with trained crew members in spill prevention and clean up techniques;
- No bulk carrier will be refueled at the marine terminal;
- No dumping of bilge or ballast water outside the allowable restrictions of the Canadian Shipping Act (i.e. not within the Fortune Bay area); and
- All bulk carriers will be double hulled.

9.4.3 Residual Impact

Shipping will occur approximately once per week using a 60,000 tonne bulk carrier inside a designated shipping corridor. This corridor is located ~ 620m away from the nearest aquaculture site. Due to the slow movement of the vessels, low frequency of visits relative to other traffic (i.e. boats associated with the operation of the aquaculture facilities and local fishermen), the probability is very low that fish will be exposed to any of the following:

- levels of sound/vibration intense enough to cause damage or any reaction outside a mild, transitory, avoidance behavior;
- wake action to cause any damage to fish or facilities;
- degraded water quality due to fuel spills or bilge water discharge.

Due to the physical distance between the aquaculture facilities and the proposed bulk carrier travel corridor and the mitigations outlined above, it is determined that shipping will have a **Negligible (not significant)** impact on the wild and farmed fish within Fortune Bay.

It should be noted that superchill and the potential interaction with the Project are addressed in the section below.

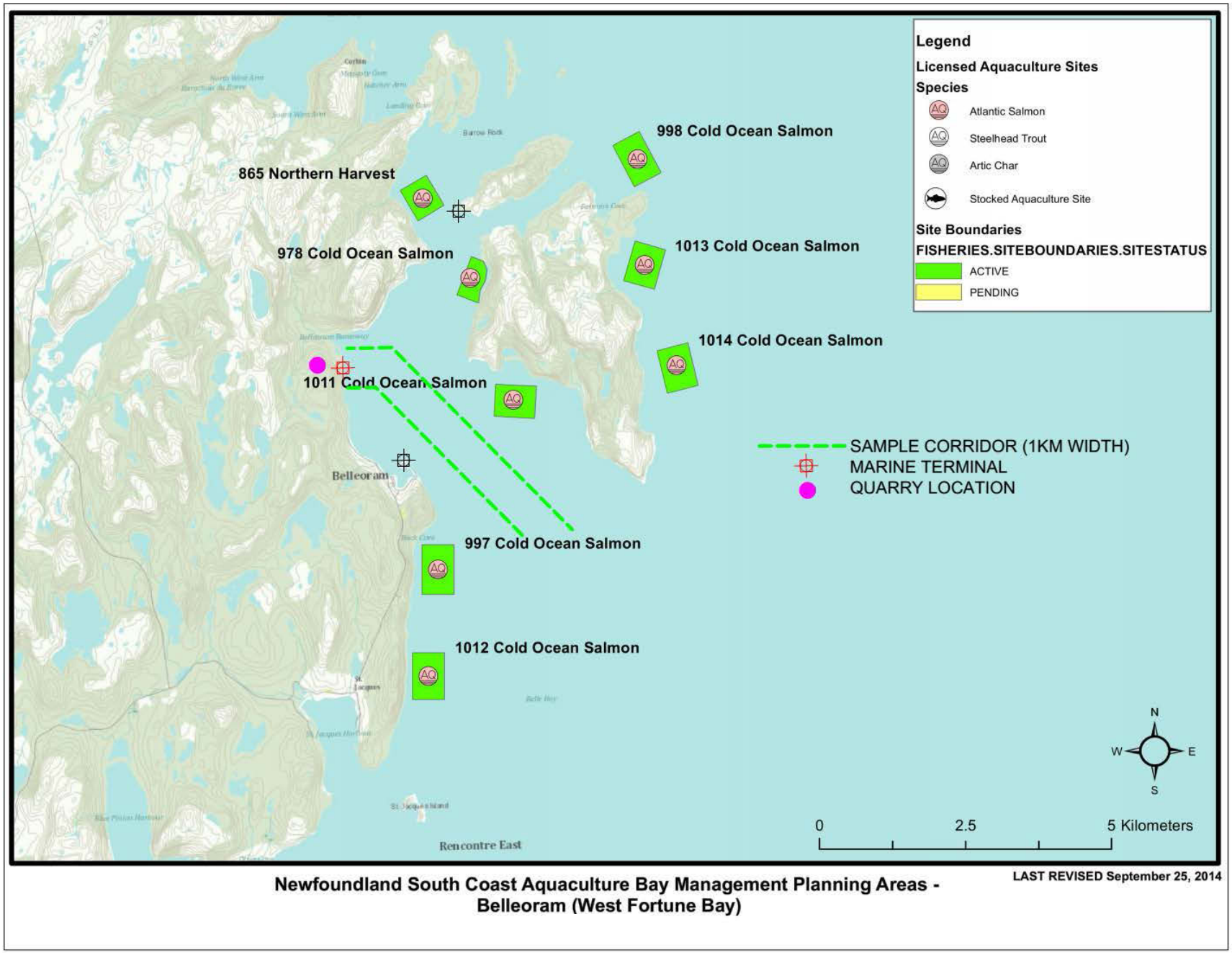

Figure 7. Proposed bulk carrier shipping route into the Fortune Bay area in relation to the local fish farms.

9.5 Superchill

9.5.1 Project and Environment Interaction

Superchilling occurs when the ambient water temperature reaches -0.7° C, or lower (Hew *et al*. 1991). This temperature is usually only attained in the top few meters of the water column when there is no ice formation and generally when it is windy, lasting anywhere from a few hours to a couple days (Jeff Perry, personal communication). Such an environment is lethal to most teleost fish, such as commercially important salmonids (Fletcher *et al*. 2004). At the superchill point, if these fish come into contact with an ice crystal, its tissues freeze solid (a process known as nucleation) causing instantaneous death or, in some cases, sublethal destruction of their gills which permanently impairs their function (Hew *et al*., 1991). Therefore, aquaculture operations are physically restricted to a relatively small area in the most southerly part of the region where the waters freeze infrequently (Hew *et al*. 1995; Aiken 1986). Although these events are rare, they have the potential to cause serious financial damage to an aquaculture operation. During the winter of 2003, losses were estimated at CAN$12 million (Raynor and Campbell 2003) due to superchill.

Figure 8 shows historical data (1986-1987) for specific monitoring stations in the vicinity of Fortune Bay. The stations are at depths similar to the near shore cages (1-22 m), and show that subzero temperatures have been possible in the past. However, the waters within Fortune Bay had not been observed at a temperature less than 0.7°C for several years (Cooke Aquaculture, personal communication, 2006). It is possible that fresh water inputs may have influenced temperature readings, artificially lowering readings in the vicinity of these monitoring stations, which were located near the mouths of much larger watersheds than that which drains into Belleoram Barasway. This, coupled with the moderating effects of the on-shore prevailing winds, allows Fortune Bay to stay mostly ice free, making the chance of a superchill event very rare.

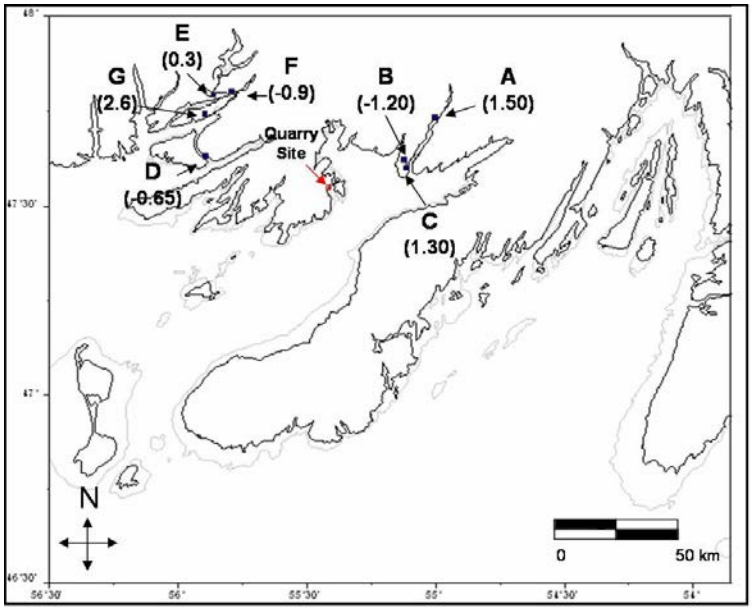

Figure 8. Selected local water monitoring station's (depth ranges from 1-20 m) showing a temperature profile that can be expected in the area.

Note: Temperatures given are the lowest recorded (in ^{o}C). Information obtained from the DFO database.

Under normal aquaculture operations, fish will naturally avoid superchill by remaining on the bottom of the cages where it is slightly warmer and the water less turbulent than at the immediate surface. If, however, they move into the upper superchill layer, damage can occur. Aquaculture operations monitor water temperatures near cages and have Contingency Plans for when temperatures reach near superchill, which include such measures as reducing vessel movement around the cages and restricting feeding, as these may bring fish to the surface and potentially expose them to superchilled water. With this in mind, both blasting and bulk carrier traffic have the potential to interact with aquaculture operations by causing a behavioral avoidance reaction which may bring them to the surface into superchill.

9.5.2 Mitigation Measures

Despite the remote chance of superchill in Fortune Bay, the following mitigations are included: communication and scheduling. These mitigations will be on-going, and increased diligence if it is suspected that a superchill event may occur (due to observed weather and ice conditions) will ensure these mitigations are effective.

The single-most important mitigation is the constant communication between the aquaculture operators and the Project, as both blasting and shipping may be re-scheduled to some degree to avoid times when superchill is identified. As stated in previous sections, both blasting and shipping will occur on a weekly basis, therefore any superchill event lasting hours or a couple of days may be avoided to suit the needs of the local residents and business owners.

9.5.3 Residual Impact

As noted above, superchill would be considered an extremely rare event in Fortune Bay and mitigations such as scheduling and communication can reduce any interaction between the Project and aquaculture operations during such events. Due to the physical distance between the aquaculture facilities, the extreme low frequency of superchill, and the mitigations outlined above, it is determined that blasting and shipping will have a **Negligible (not significant)** impact on the wild and farmed fish within Fortune Bay.

9.6 Dust Fines

9.6.1 Project and Environment Interaction

Dust fines can become airborne as a result of a blasting event or from the operation of equipment and vehicles during quarrying operations (i.e. crushing, screening, and conveying the aggregate granite). The potential effects dust may have on the marine environment include increased siltation, decreased water clarity and visibility, and the disruption of fish gill function (in extremely high amounts).

Natural factors of the area will assist in minimizing any interactions between dust and the surrounding environment. The impact of fugitive dust sources depends on the quantity and drift potential of the dust particles injected into the atmosphere. Since the ground material in the area is predominately granite, with very little overburden (<5 m; which will be cleared prior to blasting), the amount of dust escaping after a blast would be small and localized. Further, due to

granite's high density, particles ejected by a blast would be restricted to the vicinity of the quarry site, with very little blow-over to the neighboring land or water.

Climate conditions in the area supports good dispersion of air borne particles and the frequent rainfall will help dilute those particles in the air. This wet climate has a winter season that typically lasts for 4 months, with snow cover resulting in surface saturation, thus little background particulate matter is expected. Air quality is also enhanced by the infusion of relatively clean, oceanic air masses from the North Atlantic Ocean. Winds on the south coast of Newfoundland blow predominantly from the south–west, however, local conditions at Belleoram have a great effect on their direction. The topography of the area will act to shelter the quarry site, slowing winds in the area (Bowyer and Gray 1995), thereby reducing the distance that any dust released from the quarry will travel. Also, there is a channeling effect between Belleoram and Chapel Island, causing winds to be forced up to the north, to north-west. Therefore, the majority of airborne dust would be directed away from the nearest aquaculture sites.

9.6.2 Mitigation Measures

Continental Stone Limited will have, as part of its EPP and Contingency Planning, mitigation measures to control quarry-related dust, both from an environmental as well as occupational health and safety perspective. Outlined mitigations include:

- Wright Hopky's 'Guidelines for the Use of Explosives in or Near Canadian Fisheries Waters" (1998) will be incorporated into the blasting operations and the EPP;
- the Aggregate Operators Best Management Practices Handbook for British Columbia, volume 2 (2002) will be incorporated into the blasting operations and EPP;
- Dust suppression and/or collection equipment during drilling will be used as well as using drills equipped with either a vacuum dust collection system or a water injection dust suppression mechanism;
- All blast bore holes will be plugged with 3m collars of 20 mm, clean, crushed stone to trap gases and dust during blasting;
- Wash water will be directed to settling ponds which will remove accumulated silt (wash water will be recycled back into production rather than allowing it to runoff into the streams or marine environment); and
- Equipment will be sprayed with water to suppress airborne particles if high dust levels occur as a result of crushing, screening, or conveying.

9.6.3 Residual Impact

Blasting will take place twice a week, on average, and crushing and screening operations will be ongoing throughout the quarry's lifespan. Due to the rocktype and overburden levels, the frequency of blasting is not expected to release sizable amounts of dust, in comparison to vehicular traffic on a dirt road for instance. Also, through the adherence to the above mitigations, and the design of the proposed blast operations, is determined to be a **Negligible (not significant) impact.**

9.7 Sedimentation

9.7.1 Project and Environment Interaction

Phase 1 of the quarry project is located adjacent to the ocean shore and also contains the lower end of a small stream/pond system which flows into the Belleoram Barasway. The quarry site naturally has a shallow overburden layer (<5 m) and stripping of this material has the potential to increase runoff into the surrounding terrestrial, freshwater, and marine environments. Further, the nature of the quarrying activities leads to the potential for the runoff to carry silt, hydrocarbons, and ammonia from explosives.

9.7.2 Mitigation Measures

The possibility of detrimental effects from runoff is a recognized part of operating a quarry and is addressed by adequate planning and operating practices. The mitigations outlined below will be incorporated into the Project's construction and operation EPP and Contingency Plans:

- A 50 m buffer zone of undisturbed natural vegetation between construction areas and all waterbodies will be maintained, where possible (fish habitat protection guidelines recommend a buffer width of 12 m + 1.5 x % slope, Scruton *et al*. 1997);
- Siltation control structures (i.e. silt curtains, cofferdams, sediment fences, etc.) will be constructed prior to commencing activities that involve the disturbance of the site and work along the shoreline;
- Soil disturbance will be minimized by limiting the area exposed at any one time, stabilizing exposed soil with anti-erosion devices (i.e. rip rap, filter fabrics, gravel or wood chips), and revegetation of disturbed areas;
- To facilitate filtering of suspended solids, water will be directed from the site to vegetated areas (natural or man- made) within the project boundaries;
- Wash water will be collected and piped through an enclosed steel pipeline to industry approved settling ponds to allow suspended solids to settle out;
- Wash water will be recycled from the settling ponds back into the operations for reuse in aggregate washing, dust suppression, etc;
- Sewage will be collected and temporarily stored in approved portable facilities which will be emptied by a pump truck on a regular basis and disposed of in an approved, off-site, waste disposal facility;
- Machinery will be in good working order and thoroughly checked for leakage of lubricants or fuel;
- Fuels and other hazardous substances will be handled only by persons who are trained and qualified in handling these materials in accordance with the manufacturer's instructions and governmental laws and regulations;
- Operators will be present for the duration of refueling;
- Vehicle refueling will occur at least 30 m from any water body;
- Hydrocarbon spill clean-up equipment will be on-site, with adsorbents being used to recover any hydrocarbon sheen in pit water;
- All spills or leaks on land or in the water will be promptly contained, cleaned up, and reported to the 24-hour environmental emergencies report system (1-800-563- 9089) as required by the *Fisheries Act*;
- No on-site bulk storage of fuel or oil (used or new) will be conducted; and

- Water testing as per criteria listed in Schedule A of the Environmental Control Water and Sewage Regulations (2003) under the *Water Resources Act* will be performed before it is discharged to a water body.

9.7.3 Residual Impact

Taking in to consideration the rock type and overburden levels, adherence to the above mitigations, and the design of the proposed blast operations, it is determined that the residual impact is **Negligible (not significant)**.

9.8 Explosive Chemicals

9.8.1 Project and Environment Interaction

The quarry will use a Dyno Gold bulk emulsion explosive, containing ANFO (Ammonium Nitrate/Fuel Oil). This type of explosive, like all explosives, contains ammonia (ammonium) that has the potential to be released into the water from contaminated shot rock, through spillage, incomplete detonation, and through pit drainage/runoff. The toxicity of ammonia varies with pH and temperature, with lower temperature and pH causing an increase in the toxicity of free ammonia (Wiber, *et al.*, 1991). In aqueous solutions, ammonia exists in two forms: free ammonia which carries no ionic charge (NH_3), and ammonium which carries a positive charge (NH_4). The free ammonia is the more toxic of the two, and converts hemoglobin to methaemoglobin which impairs oxygen transport.

9.8.2 Mitigation Measures

In light of the hazards involved with ammonia release, the following measures will be put into place, including:

- using a bulk emulsion explosive that is proven to reduce ammonia's release rate, which will allow any wastage to assimilate into the environment at a more sustainable rate;
- using suppression and/or collection equipment during drilling, *ie.* using DTH drills equipped with either a vacuum dust collection system or a water injection dust suppression mechanism;
- discharging pit water to vegetated areas to encourage bio/chemical-degradation of ammonia;
- monitoring water quality to ensure runoff to the marine environment complies with provincial and federal regulations. Non-compliant water will be treated by alternate means;
- ensuring that the handling, transportation, storage and use of explosives will be conducted in compliance with all applicable laws, regulations, and orders of the Department of Environment and Conservation (DOEC) and the Department of Natural Resources;
- only allowing persons properly trained and qualified to handle explosives in accordance with the manufacturer's instructions and governmental laws and regulations;
- maintaining the integrity of all storage containers, tanks, and loading equipment to prevent explosives spills, and following the manufacturer's spill clean-up recommendations;

- using explosives in a manner that will minimize scatter of blasted material beyond the limits of the activity;
- developing blasting patterns and procedures that minimize shock or instantaneous peak noise levels and ensures that the magnitude of explosions are limited to only that which is necessary, such as:
    - plugging the 12 m bore holes with a 3 m collar of 20 mm, clean, crushed stone to trap gases and dust during blasting
    - optimizing drill hole patterns
    - using explosives in a manner that will minimize scatter of blasted material beyond the limits of the activity
    - employing the proper working on time-delayed blasting cycles (500 ms in-hole delay and a 25 ms surface delay using a Nonel EZ Dets or similar blast initiation system which allows accurate firing of the explosives);
    - making a blasting plan available to the local committee; and
    - not blasting underwater or within a waterbody.

9.8.3 Residual Impact

Continental Stone Ltd. acknowledges that ammonia loses are most effectively prevented prior to the explosion ever occurring. Poor handling, storage, and loading practices can lead to significant material losses, particularly when bulk explosives are used. Further, improper drilling can cause incomplete detonation and incorrect timing increases the chance of misfires, which can increase waste ammonia runoff. It is for these reasons that the blasting protocol has been adjusted (reflected herein) to maximize efficiency and minimize losses. This has been achieved through the optimization of drill patterns, collar length, explosive type, priming, and timing delays as well as having only properly trained personnel handle and set the explosives. Therefore, with this thorough evaluation of its blasting procedures and the mitigations stated above, the impacts of ammonia release is determined to be a **Negligible (not significant)** impact.

9.9 Local Special Interest Committee

In keeping with Continental Stone's commitment to ensuring a minimum impact on the local environment and its residents, it will invite all interested parties to take part in a committee which will allow them to voice their concerns and offer any comments they have. This committee could include residents of Belleoram, property owners in the area, local business owners, owners/operators of aquaculture sites within Fortune Bay, and recreational users of the area. It is also recommended that a scientific advisor be a member, such as a veterinarian specializing in fish aquaculture or an aquatic scientist. Continental Stone will openly accept and consider all comments and concerns expressed by these interested parties and strive to provide any information requested by them. The ultimate goal of this committee will be to provide an avenue for efficient communication between stakeholders and to prevent conflicts from escalating to situations that may negatively affect any of the parties involved, whether the issues are social, environmental, or quality of life. Thus, this preventative, hands-on, approach should ensure the prosperity, stability and long term viability of the region through the elimination of potential conflicts and the minimization of the quarry's effects.

9.10 Monitoring

Continental Stone Ltd. will be responsible for both environmental compliance and effects monitoring at appropriate stages of the quarry's operation. The environmental compliance monitoring will include activities that require monitoring to ensure compliance with regulatory and self-imposed environmental requirements. These will be conducted as per permit requirements and regulatory frameworks. For example, runoff will be periodically tested, as needed, to ensure it conforms to all regulatory requirements. All permit requirements will be identified in the EPP and Contingency Plan to ensure adherence to schedule.

The EPP and a field- usable Contingency Plan shall:

- Reflect, at a minimum, the mitigation measured outlined in this Registration document;
- Include additional measures that may be included as permits conditions; and
- Outline contingency procedures for possible unforeseen events.

Environmental effects monitoring is conducted to validate impact predictions and to evaluate the effectiveness of and identify the need for altering or improving mitigative measures. The impact predictions outlined above which are based on past research and calculations will be part of an environmental effects monitoring program as outlined below.

The marine environment will be monitored for temperatures in the waters adjacent to the quarry. Blast vibrations will be measured for the first ten firings at locations throughout the Fortune Bay area, with particular attention being paid to seismic readings near aquaculture sites. The local committee's observations and recommendations will also be considered, and any concerns they may have will be addressed by Continental Stone Ltd.

10.0 Project Related Documents

The project has been submitted to CEAA for review and assessment. CEAA has determined because the project was assessed as a comprehensive study under the former Canadian Environmental Assessment Act, it does not require a federal EA. "We consider that section 128 (1)(c) of the *Canadian Environmental Assessment Act, 2012*, applies to this project" (Vanessa Rodrigues, Project Manager, CEAA, pers.comm.).

The project was previously submitted to Department of Fisheries and Ocean Canada for review and assessment, but that assessment has expired; the project will be submitted for review under current legislation.

Applications have been submitted to Crown Lands for the Laydown Area/Wharf and the Access Road (Application No. 128756, File Reference No. 2024088)

The Town of Belleoram had previously provided a "Municipal Recommendation Form for Crown Land Applications within Municipal and Planning Area Boundaries", which they consider still valid (Appendix 4), and the area has been successfully rezoned.

11.0 APPROVAL OF THE UNDERTAKING

The following is a list of the likely permits, licences and approvals required for this project, some of which are already in progress, as previously noted.

Table 1. Potential Project Permits.

APPROVALS/CERTIFICATE/PERMITS	REGULATORY AUTHORITY
NL Environmental Assessment Registration	NL Department of Environment and Conservation, Environmental Assessment Division
Serious Harm to Fish, Fisheries Act Review	Fisheries and Oceans Canada, Habitat Protection Division
Application to Alter a Body of Water	NL Department of Environment and Conservation, Water Resources Division
Navigable Waters Protection Approval	Transport Canada
Lease / Permit to Occupy Crown Lands	NL Department of Environment and Conservation, Crown Lands Division

12.0 SCHEDULE

Registration Document Submission	October 2014
Government Review and Decision	December 2014
Road Construction	April 2015
Wharf Construction	May 2015
Operations	September 2015

13.0 FUNDING

The approximate cost of the project will be approximately 69 million CAD. The funding for this project will be sourced by Pennecon Limited.

14.0 SUBMISSION

Oct 6 /14

Date

Name: Mr. Jerry White
Position: CFO, Pennecon Limited

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APPENDIX 1

Quarry Development and Rehabilitation Plan

Continental Stone Limited
Belleoram Quarry
FILE # 711:7545

FOR

COMPLIANCE WITH THE MINING ACT
AND QUARRY MATERIALS ACT OF THE
GOVERNMENT OF NEWFOUNDLAND AND LABRADOR
(revised March13, 2008 submission)

Prepared For:

Continental Stone Limited
1309 Topsail Road
P.O. Box 8274, Stn A
St. John's, NL
A1B 3N4

Prepared By:

AMEC Earth & Environmental Limited
133 Crosbie Rd
P. O. Box 13216
St. John's, NL
A1B 4A5

March, 2008

AMEC Project # TF7352206

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1.0 INTRODUCTION

This project is the development of a granite aggregate export quarry on the south coast of Newfoundland. Continental Stone Limited (CSL) will produce aggregate products to supply markets in the US. It is the intent of CSL to create an efficient, safe and environmentally sound development plan for the Belleoram quarry operation.

The development, operational , reclamation and closure plans will be in compliance with the Quarry Materials Act and the Mining Act of the province of Newfoundland and Labrador.

2.0 SITE LOCATION AND DESCRIPTION

Located approximately 1 km north of the community of Belleoram on the south coast of Newfoundland, the proposed lease area is 79 hectares in size and is located on NTS map sheet 1M/11 and is shown on Figure 1. A detailed legal survey of the site is attached in Appendix C.

3.0 GEOLOGY

The proposed lease area has been extensively explored by CSL. The exploration programs completed at this site to date consist of: reconnaissance prospecting; sampling and testing; geological mapping; surface sampling and testing; diamond drilling; and chemical and physical testing. The lease area covers the Middle Paleozoic to Devonian Belleoram Granite. The Belleoram Granite consists of grey to pink, medium to fine grained, equigranular granite containing many small dark grey to green to black inclusions. Figure 2 shows the geology of the Belleoram quarry and surrounding area.

The field studies confirmed the continuous nature of the Belleoram Granite in the area between the community of Belleoram, north approximately 2.5 km to the Belleoram Barasway and west approximately 3 km toward Route 362.The general joint strike pattern of the Belleoram Granite trends east and north with near vertical dip. Additional sub-horizontal joints create the appearance of sheeting in exposed bedrock. These joint orientations give rise to rectangular and cubic shaped talus particles.

A diamond drill program showed the rock is consistant in quality. The first 5 metres of the core in all the drill holes was fractured with joint spacing 5 to 10 cm apart. The fracturing near surface is interpreted to be the result of surface weathering. The joint spacing increased at depth to 50 to 100 cm apart with consistent, dominant jointing planes generally 90^0 to the core axis in the vertically drilled holes and 45^0 or less to the core axis in the inclined holes. The frequency of occurrence of xenoliths varied throughout the core from 5 to 20% by volume. Also the size of xenoliths varied from 2 to 5 cm to over 20 cm. However the presence of the xenoliths did not affect the quality of the rock as a source of aggregate as shown by the index testing completed. Secondary mineralization in the core was limited mainly to the occurrence of occasional quartz and calcite veins. In all cases these occurrences were of sub-millimeter to centimeter sized veins and made up 1% or less of the total core collected.

Only two minute occurrences of sulphide minerals were noted in the core as blebs in quartz veins. A 30 element ICP analysis of representative core samples confirmed that only background levels of any potential sulphide minerals occur in the core.

4.0 EXISTING SITE

In accordance with the requirements for quarry development under the Quarry Materials Act, attached in Appendix A, Drawing CSL-07-01 shows the existing features and the boundary of the proposed lease. The site is currently undeveloped.

5.0 SITE DEVELOPMENT

Upon the required approvals from all appropriate agencies, CSL will begin construction of the quarry access and haul roads, production areas, stockpile areas, dock and load-out facilities. A list of the required permits and the status of each is tabled below. The construction phase is expected to take 12 to 24 months to complete with most of the infrastructure such as the dock, roads and ship-loader being put in place within 12 months and the creation of the ultimate production and stockpile areas taking 24 months to finish.

Table 5.1 Permits and Approvals Required for the Project

Permit/Approval	Agency	Status
Provincial		
Quarry Lease	Department of Natural Resources	Pending
Environmental Assessment	Department of Environment	Released
Approval to alter a water body	Department of Environment	Received
Certificate of Approval for Construction (site drainage)	Department of Environment	Pending
Cutting Permit	Department of Natural Resources	Received
Permit to Burn	Department of Natural Resources	Pending
Municipal		
Development Permit	Town of Belleoram	Received
Approval for Waste Disposal	Town of Belleoram	Received
Federal		
Environmental Assessment	Fisheries and Oceans	Released
Authorization to alter fish habitat	Fisheries and Oceans	Received
Permit to construct in Navigable waters	Transport Canada	Received
Permit to transport Dangerous goods	Transport Canada	Received

Access and Haul Roads

The southern boundary of the CSL quarry is located at the end the paved community road in Belleoram. Figure 1 shows this access. The main haul road through CSL quarry will require the upgrading of an existing trail from the community road. The main haul road, shown on Drawing CSL-07-02, will go directly to the dock and production area and to the quarry face of phase 3 to the south. The maximum grade of the haul roads will be 8%. Drawing CSL-07-02 also shows the access and haul roads.

Dock and Load-Out Facility

Drawing CSL-07-02 shows the location of the dock and ship-loader. The Dock is a typical concrete caisson structure as shown in Figure 3. All the aggregate required the construct the dock will be produced on site.

The ship-loader will have a boom capable of luffing +15 degrees to -10 degrees supported by a carriage structure that can travel on rails mounted to the wharf. The shiploader will be mounted on a pivot on a slew so as to be capable of rotating horizontally through an operational range of 210 degrees. The shuttle will give a variable outreach from 27 metres to 46 metres.

The ship-loader consists of:

a. the rail mounted shuttle structure
b. luffing and slewing boom
c. slewing pivot
d. traversing carriage structure
e. tripper on associated feed conveyor, C3A, to raise material onto boom belt
f. mechanisms for slewing, luffing and shuttling the boom.
g. operator's cab mounted on the top end of the tripper structure.(optional)
h. electrical equipment room in the tripper structure.
i. cable reel mounted on the tripper for power supply to the shiploader.

Production and Stockpile Areas

Shown on Drawing CSL-07-02, the ultimate production and stockpile area will require the excavation of approximately 775,000 cubic metres of material of which only 83,000 cubic metres will be required as fill. The construction of this area will create the first aggregate production for the quarry; approximately 691,000 cubic metres of rock will be processed. Some as construction aggregate to be used on-site during the construction of the dock and roads and rest as saleable aggregate. As shown on Drawing CSL-07-02 a 20 metre buffer will be maintained between the production and stockpile area and the ocean to the east and the stream to the north, grubbing from the site will be stored as shown and the entire site will be graded away from the ocean and the stream and all run-off will be directed into a collection ditch also shown on Drawing CSL-07-02. Once in the ditch, the site water will past through a series of rock-check dams to bring any suspended solids to within acceptable limits before being discharged.

Pit Water Run-off Control

Once the normal aggregate production commences at Phase 3 (projected to start in year 3 of the operation), all run-off from each production bench will be directed into vegetated areas within the lease which will naturally filter the pit water. The location of the collection ditches are shown on each bench.

Project costs

The cost of the project is presented as three seperate phases. The Construction Year or Phase, which will also include aggregate production; the Phase I Aggregate Production which will be the switch from mobile to permanent crushing equipment and finally, Phase II Aggregate Production with ultimate expansion of the crusher set-up to maximize production. Tabled below is a break down of estimated cost of the major capital expenditures for each of the project phases. Noted in yellow are the estimated costs to bring Hydro power to the site and to construct permanent buildings at the site. Both these items are currently in the planning stage.

Table 5.2 Capital Expenditures for the Project

Construction Year 2008	
Marine Dock and Associated Construction	$15,000,000.00
Locotrack and Other Mobile Crushers	$3,500,000.00
Shiploader (Installed and Commissioned)	$6,000,000.00
Generator System for Mobile Crushers	$800,000.00
Overland Conveyors to Shiploader	$3,401,247.00
Material Handling Equipment (Loaders, Trucks,etc)	$6,000,000.00
Total Expenditures Construction Year	**$35,901,247.00**
Phase 1 Crushing Production	
Phase 1 Crusher and Stockpile System	$8,607,946.00
Phase 1 Electrical/Mechanical/Concrete	$5,500,000.00
Overland Conveyors from Quarry to Crushers	$3,401,247.00
NL Hydro Customer Cost to Construct	$1,000,000.00
Office/Garage/Laboratory	$1,200,000.00
Total Expenditures Production Year 1	**$18,509,193.00**
Phase 2 Crushing and Production	
Phase 2 Crusher and Stockpile System	$6,432,618.00
Phase 2 Electrical/Mechanical/Concrete	$8,300,000.00
Total Expenditures Phase 2 Crushing	**$14,732,618.00**
Total Cost	**$69,143,058.00**

Project Employment

The Belleoram Project is expected to create 56 jobs ranging from labours to managers. Table 5.3 lists the employee requirements for the project.

Table 5.3 Employment Requirements

POSITION	NUMBER OF EMPLOYEES
General Manager	1
Marketing Rep	1
Secretary	1
Foreman	3
Security	4
Store Clerk	1
Lab Supervisor	1
Crusher Operators	2
Control Trailer Operator	2
Equipment Operators	4
Welders	4
Mechanics	2
Lab Tech	2
Ship Loaders	4
Drillers	6
Labours	18
TOTAL	**56**

6.0 QUARRY DEVELOPMENT

The projected normal production rate for the CSL quarry is 2,000,000 tonnes annually with an expansion capacity up to 6,000,000 tonnes annually. However, during the start-up period, which will coincide with the construction period, the production rate will be varied. In general, the excess rock mined from the cut required to create the production area (approximately 691,000 cubic metres) will be processed using mobile crushing equipment and sold. The quantity of salable production is difficult to estimate because a portion of this rock will be required during site construction and the possibility of excess amounts of oversized materials produced during construction blasting. After the start-up period, the quarry will be mined in a series of phases with an 11 metre bench height starting at an elevation of 150 metres to the final quarry floor of 18 metres above sea level. Each phase will be mined on a block by block basis where each block represents approximately 70,000 tonnes of blast rock and each phase represents approximately 2,000,000 tonnes of blast rock production. Each bench is labeled in accordance with its proposed pit floor elevation. The blocks and phases are sized based on the projected estimate of annual production and are shown on the Development Drawings.

The required annual update of the quarry development plan will plot the mining progress of the production blocks and phases.

7.0 AGGREGATE RESOURCE ESTIMATE

To date, exploration programs completed at this site consisted of: reconnaissance prospecting; surface sampling, diamond drilling, chemical and physical testing.

Geological mapping was completed and representative surface samples were collected in May 2006, confirming the continuous nature of the Belleoram Granite in the area between the community of Belleoram, north approximately 2.5 km to the Belleoram Barasway and west approximately 3 km toward Route 362. The general joint strike pattern of the Belleoram Granite trends east and north with near vertical dip. Additional sub-horizontal joints create the appearance of sheeting in exposed bedrock. These joint orientations give rise to rectangular and cubic shaped talus particles. A barite occurrence noted by previous mapping could not be located and no other secondary mineralization was noted while mapping the surface rocks. Fourteen samples of in-situ rock were collected and sent to the AMEC Laboratory in St. John's for index testing. the sample description data is tabled below. Figure 2 shows the geology of the site and the location of the samples collected.

Table 7.1 Surface Sample Data

Sample ID	Easting (UTM)	Northing (UTM)	Description
CSL-06-01	618726.00	5265392.00	Fine grained pink granite
CSL-06-02	618679.00	5265543.00	Fine grained pink granite
CSL-06-03	618721.00	5265600.00	Fine grained pink granite
CSL-06-04	618623.00	5265960.00	Fine grained pink granite
CSL-06-05	618615.00	5265993.00	Fine grained pink granite taken in shear zone 4.5 m wide, near vertical, trending 206^0
CSL-06-06	618600.00	5266506.00	Fine grained pink granite
CSL-06-07	618670.00	5265700.00	Fine grained pink granite
CSL-06-08	618361.00	5265762.00	Fine grained pink granite
CSL-06-09	618409.00	5265789.00	Fine grained pink granite, minor slickensides present on sample
CSL-06-10	618455.00	5265942.00	Fine grained pink granite
CSL-06-11	618400.00	5266034.00	Fine grained pink granite
CSL-06-12	618336.00	5266155.00	Fine grained pink granite
CSL-06-13	618510.00	5266277.00	Fine grained pink granite
CSL-06-14	618491.00	5266400.00	Fine grained pink granite

The mapping and surface sampling was followed up by a diamond drilling program designed to test the insitu consistency of the rock and to provide representative samples to test the physical and chemical properties of the rock throughout the deposit. Seven diamond drill holes were collared at four setup locations to test the consistency and rock quality along a topographic high between Belleoram Barasway and Bear Pond. Three of these setups were positioned along an approximate north west-south south-east line and were between 450 and 150 metres apart defined by accessibility for the drilling equipment. A fourth setup was positioned inland to the west of the others. Continuous core in NQ size (47.6 mm diameter) was recovered from all boreholes.

At the first setup location, at the northern limit of the test area, two drilling holes were collared at an elevation of 117.69 metres above sea level. Hole DDH-06-01 was drilled vertically to a depth

of 95 metres and hole DDH-06-02 was drilled at a 45^0 dip on a bearing of 097^0 to a depth of 103 metres.

Due to the rough terrain, the second setup was located approximately 485 metres south of the first. At this site two drill holes were collared at an elevation of 146.50 metres above sea level. Hole DDH-06-03 was drilled at a 60^0 dip on a bearing of 85^0 to a depth of 120 metres and hole DDH-06-04 was drilled vertically to a depth of 95 metres.

The third setup site, representing the southern limit of the test area, was located approximately 110 metres from the second setup site. Here two drill holes were collared at 153.47 metres above sea. Hole DDH-06-05 was drilled vertically to a depth of 115 metres. Hole DDH-06-06 was drilled at 60^0 dip on a bearing of 085^0 to a depth of 126 metres.

The fourth setup site was located approximately 100 metres to the west of the alignment of the other three setup sites and was meant to confirm the consistency of the rock quality in the westerly direction. Here one drill was collared at an elevation of 149.77 metres above sea level. Hole DDH06-07 was drilled vertically to a depth of 121.2 metres.

The diamond drill setup and hole data is tabled below, and the drill hole locations and cross sections are shown on Figures 4 and 5, respectively.

Table 7.2 Diamond Drill Hole Data

DDH #	EASTING (UTM)	NORTHING (UTM) EASTING (UTM)	COLLAR ELEVATION	DIP AT COLLAR	AZIMUTH	DEPTH OF HOLE	SAMPLED
DDH-06-01	347866.25	5267216.42	117.69 m	90^0	na	95m	YES
DDH-06-02	347866.25	5267216.42	117.69 m	45.3^0	097^0	103m	NO
DDH-06-03	348036.17	5266764.08	146.50 m	60.1^0	105.4^0	120m	NO
DDH-06-04	348036.17	5266764.08	146.50 m	90^0	na	95m	YES
DDH-06-05	348027.64	5266655.90	153.47 m	90^0	na	120m	YES
DDH-06-06	348027.64	5266655.90	153.47 m	59.1^0	095.6^0	110m	NO
DDH-06-07	347930.30	5266641.50	149.77 m	90^0	na	121.2m	YES

The drill core confirmed the consistence in quality of the aggregate. The first 5 metres of the core in all the drill holes was fractured with joint spacing 5 to 10 cm apart. The fracturing near surface is interpreted to be the result of surface weathering. The joint spacing increased at depth to 50 to 100 cm apart with consistent, dominant jointing planes generally 90^0 to the core axis in the vertically drilled holes and 45^0 or less to the core axis in the inclined holes. The frequency of occurrence of xenoliths varied throughout the core from 5 to 20% by volume. Also the size of xenoliths varied from 2 to 5 cm to over 20 cm. However the presence of the xenoliths did not affect the quality of the rock as a source of aggregate as shown by the index testing completed. Secondary mineralization in the core was limited mainly to the occurrence of occasional quartz and calcite veins. In all cases these occurrences were of sub-millimeter to centimeter sized veins and made up 1% or less of the total core collected.
Only two minute occurrences of sulphide minerals were noted in the core as blebs in quartz veins. A 30 element ICP analysis of representative core samples confirmed that only background levels any potential sulphide minerals occur in the core.

7.1 SAMPLING METHOD AND APPROACH

For the initial round of surface sampling completed in May of 2006, the approach was to collect representative surface samples in order to determine, in a general way, the quality of the rock as a construction aggregate. The sampling method was standard and involved locating suitable sample sites, identifying the sites using a hand held GPS, collecting approximately 10 kg of insitu rock, labeling and sealing the sample bags in the field and shipping the samples directly to the AMEC laboratory in St. John's for testing.

For the diamond drill core collected in August 2006, the sampling approach was to collect composite samples of the rock through the deposit roughly corresponding to typical bench heights of a potential quarry at the site. The sampling method consisted of collecting core from the vertical diamond drill holes at specific depth intervals and submitting these composite samples for a suite of index testing as directed by the client. The sample data is tabled below.

Table 7.3 Drill Core Sample Data

DDH #	EASTING (UTM)	EASTING (UTM)	SAMPLING INTERVAL
DDH-06-01	347866.25	5267216.42	10-30 m
			50-70 m
DDH-06-04	348036.17	5266764.08	10-30 m
			50-70 m
DDH-06-05	348027.64	5266655.90	10-30 m
			50-70 m
			100-120 m
DDH-06-07	347930.30	5266641.50	10-30 m
			50-70 m

Sample Security is assured through the AMEC Quality Management System (QMS). The QMS procedures define the mechanism for controlling documents and ensure the quality requirements of the project are achieved. The objectives are to meet the quality requirements and to complete the work on schedule. To this end it provides the client established details of the quality requirements as well as reporting and documentation procedures.

All product certifications, materials testing, and inspection records are considered Quality Records. Testing equipment used on the project meet the requirements of the applicable specifications. Traceability was provided by the Lab Number assigned upon delivery. In order to satisfy the traceability element, the following was included:

- Lab Number
- Job Number
- Date Taken/Received
- Contract Number (if applicable)
- Unique customer number (if applicable)

Once clearly identified, the sample is moved to a designated "To Be Tested Location" upon which all information is recorded in a Laboratory Log book and includes:

- Lab Number, contract and customer contract number

- Client name
- Date sampled
- Date received
- Testing required
- Date tested/technician
- Date Completed

All test results are recorded on Standard AMEC laboratory worksheets in ink and all corrections are initialed.

The sample analysis included a complete suite of index testing required to certify the quality of the rock as a suitable product for the potential target markets. The following is a list of analysis completed on the Belleoram samples:

Abrasion Loss (%)	(CSA Test Method A23.2-17A)
Soundness by $MGS0_4$ (%)	(CSA Test Method A23.2-9A)
Relative Density kg/m^3	(CSA Test Method A23.2-12A)
Absorption (%)	(CSA Test Method A23.2-12A)
Loss by Micro Deval (%) Fine Aggregate	(CSA Test Method A23.2-23A)
Unconfined Freeze Thaw (%)	(CSA Test Method A23.2-24A)
Accelerated Mortar Bar Expansion	(CSA Test Method A23.2-25A)
Concrete Prism Expansion	(CSA Test Method A 23.2-14A)
Micro-Deval Abrasion Loss, Coarse Aggregate	(CSA Test Method A23.2-29A)
Unconfined Freeze – Thaw Loss	(CSA Test Method A23.2-24A)
Petrographic Examination	(ASTM C295-90)
ICP 30 Geochemical Analysis	

Below, Table 7.4 shows a summary of the physical testing completed for the Belleoram core samples compared to various aggregate quality specifications for the target markets. The results of the above testing and analysis confirmed the Belleoram granite is a source a quality aggregate.

Table 7.4 Coarse Aggregate Physical Properties Summary

DDH-06-01						
Depth	**Laboratory Test**	**Sample Results**	**Standard Requirements/Acceptance Limits**			
			CSA A23-00	**ASTM**	**PWGSC***	**Provincial TW****
10 m - 30 m	Abrasion Loss (%)	17.1	50% maximum	35% maximum	35% maximum	35% maximum
	Soundness by MGS0 $_4$ (%)	3.04	12% maximum	18% maximum	12% maximum	12% maximum
	Relative Density kg/m ^{3}	2628	N/A	N/A	2650 kg/m ^{3} Minimum	2650 kg/m ^{3} Minimum
	Absorption (%)	0.94	N/A	N/A	2.0% Maximum	1.75% Maximum
	Loss by Micro Deval (%)	2.8	14% Maximum	14% Maximum	N/A	20% Maximum
	Unconfined Freeze Thaw (%)	1.6	6% Maximum	6% Maximum	N/A	8% Maximum
50 m - 70 m	Abrasion Loss (%)	21.1	50% maximum	35% maximum	35% maximum	35% maximum
	Soundness by MGS0 $_4$ (%)	2.51	12% maximum	18% maximum	12% maximum	12% maximum
	Relative Density kg/m ^{3}	2582	N/A	N/A	2650 kg/m ^{3} Minimum	2650 kg/m ^{3} Minimum
	Absorption (%)	1.18	N/A	N/A	2.0% Maximum	1.75% Maximum
	Loss by Micro Deval (%)	3.7	14% Maximum	14% Maximum	N/A	20% Maximum
	Unconfined Freeze Thaw (%)	1.8	6% Maximum	6% Maximum	N/A	8% Maximum
DDH-06-04						
Depth	**Laboratory Test**	**Sample Results**	**Standard Requirements/Acceptance Limits**			
			CSA A23-00	**ASTM**	**PWGSC***	**Provincial TW****
10 m - 30 m	Abrasion Loss (%)	16.6	50% maximum	35% maximum	35% maximum	35% maximum
	Soundness by MGS0 $_4$ (%)	2.9	12% maximum	18% maximum	12% maximum	12% maximum
	Relative Density kg/m ^{3}	2642	N/A	N/A	2650 kg/m ^{3} Minimum	2650 kg/m ^{3} Minimum
	Absorption (%)	0.84	N/A	N/A	2.0% Maximum	1.75% Maximum
	Loss by Micro Deval (%)	ongoing	14% Maximum	14% Maximum	N/A	20% Maximum
	Unconfined Freeze Thaw (%)	ongoing	6% Maximum	6% Maximum	N/A	8% Maximum
50 - 70 m	Abrasion Loss (%)	16.9	50% maximum	35% maximum	35% maximum	35% maximum
	Soundness by MGS0 $_4$ (%)	1.92	12% maximum	18% maximum	12% maximum	12% maximum
	Relative Density kg/m ^{3}	2632	N/A	N/A	2650 kg/m ^{3} Minimum	2650 kg/m ^{3} Minimum
	Absorption (%)	0.84	N/A	N/A	2.0% Maximum	1.75% Maximum
	Loss by Micro Deval (%)	ongoing	14% Maximum	14% Maximum	N/A	20% Maximum
	Unconfined Freeze Thaw (%)	ongoing	6% Maximum	6% Maximum	N/A	8% Maximum

DDH-06-05						
Depth	**Laboratory Test**	**Sample Results**	**Standard Requirements/Acceptance Limits**			
			CSA A23-00	**ASTM**	**PWGSC***	**Provincial TW****
10 - 30 m	Abrasion Loss (%)	17.2	50% maximum	35% maximum	35% maximum	35% maximum
	Soundness by $MGS0_4$ (%)	2.3	12% maximum	18% maximum	12% maximum	12% maximum
	Relative Density kg/m^3	2623	N/A	N/A	2650 kg/m^3 Minimum	2650 kg/m^3 Minimum
	Absorption (%)	1.01	N/A	N/A	2.0% Maximum	1.75% Maximum
	Loss by Micro Deval (%)	ongoing	14% Maximum	14% Maximum	N/A	20% Maximum
	Unconfined Freeze Thaw (%)	ongoing	6% Maximum	6% Maximum	N/A	8% Maximum
50 - 70 m	Abrasion Loss (%)	15.2	50% maximum	35% maximum	35% maximum	35% maximum
	Soundness by $MGS0_4$ (%)	2.11	12% maximum	18% maximum	12% maximum	12% maximum
	Relative Density kg/m^3	2637	N/A	N/A	2650 kg/m^3 Minimum	2650 kg/m^3 Minimum
	Absorption (%)	0.76	N/A	N/A	2.0% Maximum	1.75% Maximum
	Loss by Micro Deval (%)	2.8	14% Maximum	14% Maximum	N/A	20% Maximum
	Unconfined Freeze Thaw (%)	ongoing	6% Maximum	6% Maximum	N/A	8% Maximum
100 - 120 m	Abrasion Loss (%)	16.1	50% maximum	35% maximum	35% maximum	35% maximum
	Soundness by $MGS0_4$ (%)	2.23	12% maximum	18% maximum	12% maximum	12% maximum
	Relative Density kg/m^3	2506	N/A	N/A	2650 kg/m^3 Minimum	2650 kg/m^3 Minimum
	Absorption (%)	0.45	N/A	N/A	2.0% Maximum	1.75% Maximum
	Loss by Micro Deval (%)	2.6	14% Maximum	14% Maximum	N/A	20% Maximum
	Unconfined Freeze Thaw (%)	1.5	6% Maximum	6% Maximum	N/A	8% Maximum

DDH-06-07						
Depth	**Laboratory Test**	**Sample Results**	**Standard Requirements/Acceptance Limits**			
			CSA A23-00	**ASTM**	**PWGSC***	**Provincial TW****
10 - 30 m	Abrasion Loss (%)	18.2	50% maximum	35% maximum	35% maximum	35% maximum
	Soundness by $MGS0_4$ (%)	3.01	12% maximum	18% maximum	12% maximum	12% maximum
	Relative Density kg/m^3	2629	N/A	N/A	2650 kg/m^3 Minimum	2650 kg/m^3 Minimum
	Absorption (%)	1.06	N/A	N/A	2.0% Maximum	1.75% Maximum
	Loss by Micro Deval (%)	2.6	14% Maximum	14% Maximum	N/A	20% Maximum
	Unconfined Freeze Thaw (%)	0.7	6% Maximum	6% Maximum	N/A	8% Maximum
50 - 70 m	Abrasion Loss (%)	17.0	50% maximum	35% maximum	35% maximum	35% maximum
	Soundness by $MGS0_4$ (%)	2.49	12% maximum	18% maximum	12% maximum	12% maximum
	Relative Density kg/m^3	2628	N/A	N/A	2650 kg/m^3 Minimum	2650 kg/m^3 Minimum
	Absorption (%)	0.11	N/A	N/A	2.0% Maximum	1.75% Maximum
	Loss by Micro Deval (%)	ongoing	14% Maximum	14% Maximum	N/A	20% Maximum
	Unconfined Freeze Thaw (%)	ongoing	6% Maximum	6% Maximum	N/A	8% Maximum

Remarks:

CSA A23-00 Standard requirements extracted most stringent exposure classes.

*PWGSC - Public Works Government Services Canada Federal Specifications (various sections, most stringent specifications)

** Provincial TW - Government of Newfoundland and Labrador Transportation and Works Highway Design Specifications (various sections, most stringent specifications)

Based on the consistency of the rock quality as determined by the geological mapping, surface sampling, diamond drilling and laboratory testing the northern section of the Belleoram deposit can be classified as an indicated aggregate resource and the southern half of the deposit can be classified as a measured resource.

The sub-division and boundary of the resource area is shown on Figure 4 and in cross section on Figure 5, the resource classification presented are based on the several reasonable assumptions about the geology of the Belleoram Granite Pluton and the area of influence of the diamond drill hole data as follows:

- The geological mapping indicates that the Belleoram granite is very consistent in nature across the detailed assessment area shown on drawing figure 4. There is virtually no change in the description of the surface expression of the rock across this area.
- Only a few minor structural features were mapped in the detailed assessment area.
- The physical testing of the surface samples collected across the detailed assessment area show the similar and consistent results.
- The results of the physical and geochemical testing completed on core from diamond drills DDH-06-01 and 02 and the core from the more closely spaced holes DDH-06-03, 4, 5, 6 and 7 were very similar and a showed the rock was of very good aggregate quality.

Therefore, based on the above-mentioned assumptions, the radius of influence assigned to the diamond drill hole data is 200 metres.

Based on the assigned radius of influence for the diamond drill data, a specific gravity for the granite at 2600 kg/m^3 and an ultimate pit floor elevation of 18 metres above sea level, the resource area has been divided into an indicated aggregate resource in the northern section of approximately 61,000,000 tonnes and a measured aggregate resource in the southern section of approximately 80,000,000 tonnes. Please note that these resource estimates do not allow for dilution as a result of mining and processing and the preservation of sloping buffers required under terms and conditions of a quarry or mining lease or the sterilization of resources in the processing area. Considering these, the total measured and indicated aggregate resource is approximately 122,336,500 tonnes. For the purposes of this quarry development plan the above-noted resource classifications are treated has minable except the volume of rock required to slope the southern quarry wall to a 30 degree slope. Any adjustments to the aggregate resource estimate will be made in the annual update to the quarry plans required in accordance with the Mining Act. Table 7.1.3 below details the aggregate resource estimate on a phase and bench basis.

Table 7.5 Estimated Aggregate Resource per Phase

Phase	Bench	Phase Tonnage	Phase	Bench	Phase Tonnage
1&2	N/A	1,796,600.00			
3	150, 139	2,002,000.00	34	62	2,002,000.00
4	139, 128	2,002,000.00	35	62	2,002,000.00
5	128	2,002,000.00	36	62	2,002,000.00
6	128	2,002,000.00	37	62	2,002,000.00
7	117	2,002,000.00	38	62, 51	2,002,000.00
8	117	2,002,000.00	39	51	2,002,000.00
9	117	2,002,000.00	40	51	2,002,000.00
10	117, 106	2,002,000.00	41	51	2,002,000.00
11	106	2,002,000.00	42	51	2,002,000.00
12	106	2,002,000.00	43	51	2,002,000.00
13	106	2,002,000.00	44	51	2,002,000.00
14	106	2,002,000.00	45	51, 40	2,002,000.00
15	95	2,002,000.00	46	40	2,002,000.00
16	95	2,002,000.00	47	40	2,002,000.00
17	95	2,002,000.00	48	40	2,002,000.00
18	95	2,002,000.00	49	40	2,002,000.00
19	95	2,002,000.00	50	40	2,002,000.00
20	95, 84	2,002,000.00	51	40	2,002,000.00
21	84	2,002,000.00	52	29	2,002,000.00
22	84	2,002,000.00	53	29	2,002,000.00
23	84	2,002,000.00	54	29	2,002,000.00
24	84	2,002,000.00	55	29	2,002,000.00
25	84	2,002,000.00	56	29	2,002,000.00
26	84, 73	2,002,000.00	57	29	2,002,000.00
27	73	2,002,000.00	58	29, 18	2,002,000.00
28	73	2,002,000.00	59	18	2,002,000.00
29	73	2,002,000.00	60	18	2,002,000.00
30	73	2,002,000.00	61	18	2,002,000.00
31	73	2,002,000.00	62	18	2,002,000.00
32	73, 62	2,002,000.00	63	18	419,900.00
33	62	2,002,000.00	total		122,336,500.00

8.0 GRUBBING MANAGEMENT

In advance of development, all trees will be cut and salvaged and all overburden and grubbing will be cleared and stored at one of two sites for the first five years of the operation. A third, long term storage area is proposed to be developed north of the quarry lease. CSL has started the planning for this third site and once approved it will be incorporated into the development plans.

1. Firstly the grubbing at the production area that is less than one metre thick and located within the 'fill' area of the site will be left in place and buried during construction of the site. All grubbing in excess of a metre thick will be removed as will all grubbing from the 'cut' area and will be temporarily stored as shown on Drawing CSL-07-02 This grubbing storage site will be bermed and the grubbing will seeded in order to stabilize it and reduce run-off. Any run-off that does occur will be directed to the collection ditch created for the production area.

2. The second temporary storage site will be an area approximately 170 metres by 70 metres located in the centre of the quarry lease. This site will receive grubbing from Phase 3 up to Phase 6 on the 128 metre bench. This area is shown on the Development drawings.

3. The third, long-term, grubbing storage area is proposed to be developed to the north of the quarry lease. Grubbing from the temporary sites and all grubbing removed from Production Phase 7 onward that is not used in progressive reclamation will be stored at this site. Details of this proposed waste dumping area shown on Figure 6. This site will also be bermed and the grubbing will be seeded and any run-off will be directed to undisturbed vegetated areas to be absorbed.

When the mining of Phase 9 is completed on the 117 metre bench level, the stored grubbing will be used to reclaim the sloped southern wall of the quarry. Reclamation of the southern quarry will continue from that bench to the ultimate pit floor at the 18 metre level and the stored grubbing will be used for that purpose according.

9.0 MINING METHOD

As stated above, the start-up mining phases will employ mobile crushing equipment and will produce aggregate from the excess rock cut required to create the production area of the quarry. Once this start-up is complete development in the quarry will proceed as follows:

Shown on Drawing CSL-07-03, the first 71,500 tonne production block will be blasted at the end of the haul road where the mobile primary crusher will be placed. The primary crusher will be fed using a tracked excavator and conveyers will carry the primary crushed aggregate to the secondary crushing and production area at the 18 metre level. The finished aggregate will be stockpiled and loaded onto vessels via the 3,000 tonne per hour ship-loader. Two loaders will feed aggregate from the stockpiles to the hoppers of the ship-loader. The first phase will require quarrying to the 139 metre level bench. Subsequent phases will be quarried in a similar manner with the mobile primary crushing equipment and the conveyors being relocated to service the current quarry face. At the 117 metre level bench the southern wall of the quarry will, for the first time, be quarried below the southern horizon. Quarry operations will continue in a similar manner as described above with the addition of progressive reclamation of the southern wall of the quarry. The western wall of the quarry will be benched to allow access for future expansion of the quarry. However, as part of the CSL overall reclamation plan, the western wall will be benched containing a sufficient volume of rock to allow sloping of each bench to a 30 degree slope.

The quarry operation will continue in the manner described above until mining is complete. The detailed quarry plans show the progression of the quarry production and progressive reclamation envisioned for the Belleoram quarry.

10.0 PIT WATER MANAGEMENT

There are no permanent ponds or streams identified in the proposed quarry area. Currently, the natural drainage within the proposed lease boundaries is by overland flow towards the north. The hydrogeological characteristics of the lease area have not been fully defined but groundwater inflow is not expected to be an issued during the first five years of the development plan. CSL intends to initiate a groundwater monitoring program during year one of the pit development. Information from this monitoring program will determine any adjustments to pit water management plan described below.

Pit water will be managed and collected on each production bench in collection ditches. From these ditches, water will be directed to vegetated areas within the lease which will serve as a natural filter. Testing for contaminants will be carried out at the collection ditches on each bench on a weekly basis to confirm compliance with all standards before the water is released.

11.0 OVER-SIZED ROCK AND WASTE MANAGEMENT

All efforts will be made to reduce the amount of over-sized muck produced during the blasting operations. However, it is realized that muck too large to be crushed by the primary crusher will be produced, especially at the start of the operation, above the 117 metre bench where the perimeter production blocks will not have a back wall. It is estimated that between 2% and 5% of the quarry production will be over-sized rock. CSL will seek markets for this material as well.

Additionally, a yet undetermined, volume of waste (rock dust) will be collected in run-off pond from the mining benches and crushing area on the 18 metre level. In the long term this waste will be stored in the proposed silt dumping area shown on Figure 6, off the quarry lease and later re-used to reclaim the quarry. This site has an approximate holding capacity of 530,000 cubic metres. All the grubbing and waste produced annually will be dumped and vegetated. After Mining Phase 9, some this material will be used to reclaim the southern wall of the quarry at the 117 metre bench and this practice will continue to until mining is complete. Section 13 below details the company's reclamation plans.

In the short term, this waste will be either temporarily stored at the production area in a bermed impoundment area or trucked to the local landfill site.

12.0 AGGREGATE CRUSHING FACILITY

The initial start-up phases of the Belleoram operation will be completed employing portable crushing equipment consisting of a jaw-crusher and two cone-crushers that will produce aggregate from the rock cut required to create the production area for the ultimate crusher setup. The ultimate crusher setup will consist of permanent crusher installations at the production area and a mobile crusher unit at the quarry face. The

mobile jaw at the production face will crush the blast rock to 15cm minus material. The discharge belt of the primary crusher will feed the hopper of a mobile conveyor system. The conveyor will transport aggregate from the production bench to the secondary and tertiary crushers located in the production area. This setup, shown on the development drawings will produce and stockpile the various aggregate products ready for loading. Stockpiles of up to 250,000 tonnes of these various products will be maintained to insure supplies at all times. When the quarry operations on the 18 metre bench level are complete, the crushing and washing operation will be re-located adjacent to the loading facility to allow for more efficient loading.

The Belleoram operation will have various mobile and portable equipment requirements as tabled below.

Table 12.1 Mobile Equipment

Equipment	Units Required	Personnel Required
Jaw Crusher	1	1
Cone Crusher	2	2
Excavator	3	3
Loader	2	2
Rock Trucks	4	4

All equipment will be refueled on a daily basis via tanker truck. Refueling will take place at the working area of the particular equipment. All equipment will be outfitted with split kits.

13.0 SHIP LOADING FACILITY

The loaders will feed the ship-loader located south of the stockpile by a conveyor system. The ship-loader with a design load rate of 3,000 tonnes per hour will have a boom capable of luffing +15 degrees to -10 degrees supported by a carriage structure that will travel on rails mounted to the wharf. The ship-loader will be mounted on a pivot on a slew to enable horizontal rotation through an operational range of 210 degrees. The shuttle will give a variable outreach from 27 metres to 46 metres. The ship-loader shall consist essentially of:

- the rail mounted shuttle structure
- luffing and slewing boom
- slewing pivot
- traversing carriage structure
- tripper on associated feed conveyor, C3A, to raise material onto boom belt
- mechanisms for slewing, luffing and shuttling the boom
- operator's cab mounted on the top end of the tripper structure
- electrical equipment room in the tripper structure
- cable reel mounted on the tripper for power supply to the ship-loader.

14.0 RECLAMATION PLAN

Because of the nature of the topography at the Belleoram quarry and the quarry method to be employed, no sloping will be required on a per bench basis until the quarry has progressed to the 117 metre bench. At which point, progressive reclamation of the

southern wall of the quarry will begin and continue to the final pit floor at the 18 metre level. Reclamation of the southern wall will consist of sloping to 30 degrees, covering the slope with a mixture of silt from the washing operation and stockpiled grubbing. The progressive sloping of the southern pit wall is depicted in Drawings CSL-07-05 to CSL-07-14.

Also when the re-location of the crushing and washing operation is complete the progressive reclamation of the 18 metre bench will begin and will consist of spreading a silt and grubbing mixture over areas not slated for other quarry or production uses in future operations.

The western wall of the quarry will not be sloped as this will be the direction of future quarry development at the site. As shown on the pit development drawings, a sufficient volume of rock will be left in place along the western wall to allow sloping to a 30 degree slope with retreat blasting. The geotechnical characteristics of these vertical benches will be assessed as the pit development advances to insure the stability of the western wall and any required pit wall configuration changes will be made if changing geotechnical conditions are encountered. These slope specifications are in accordance with the Mining Act and the Quarry Act of Newfoundland and Labrador.

15.0 SITE CLOSURE PLAN

CSL will create and maintain a quarry reclamation fund that will financially support the reclamation and closure plans for the Belleoram Quarry. This fund will be created by a per tonne deduction from aggregate sales and will be available and sufficient to cover the complete reclamation of the site at any point in the operation. The amount of slope required to conform with the Quarry Materials and Mining Act has been calculated on a per phase basis in the event of the closure of the quarry. Table 15.1 below is the financial assurance for the Belleoram Quarry.

Table 15.1 Required Financial Assurance for Quarry Lease 711: 7545

Pit After End of Development Phase	Average Pit Wall Height (m)	Total Pit Wall Length (m)	Volume Required to Slope (m3)	Drill/Blast & Dress Cost ($/m3)	Required Security ($)	Pit Wall Reclaimed	Value of Progressive Reclamation ($)	Net Annual Cost ($)
Existing Pit	0	0	0	3			0	0
1	11	328.63	34,341.84	3	103,025.51		0	103,025.51
2	11	425.51	44,465.80	3	133,397.39		0	133,394.39
3	11	468.185	48,925.33	3	146,776.00		0	146,776.00
4	11	0		3	146,776.00		0	146,776.00
5	11	596.46	62,330.07	3	186,990.21		0	186,990.21
6	11	510.2504	53,321.17	3	159,963.50		0	159,963.50
7	11	460.4541	48,117.45	3	144,352.36	448.62	46,881	97,471.57
8	11	445.3314	46,537.13	3	139,611.39		0	139,611.39
9	11	742.88	77,630.96	3	232,892.88		0	232,892.88
10	11	822.66	85,967.97	3	257,903.91		0	257,903.91
11	11	448.66	46,884.97	3	140,654.91		0	140,654.91
12	11	0		3	140,654.91	224.04	23,412	117,242.73
13	11	461.6	48,237.20	3	144,711.60		0	144,711.60
14	11	650.718	68,000.03	3	204,000.09		0	204,000.09
15	11	630.1798	65,853.79	3	197,561.37		0	197,561.97
16	11	663.0632	69,290.10	3	207,870.31		0	207,870.31
17	11	551.9042	57,673.99	3	173,021.97		0	173,021.97
18	11	976.4903	102,043.24	3	306,129.71	353.62	36,953	269,176.58
19	11	1215.189	126,987.21	3	380,961.63		0	380,961.63
20	11	1215.79	127,050.02	3	381,150.07		0	381,150.07
21	11	1200.853	125,489.14	3	376,467.42		0	376,467.42
22	11	1214.786	126,945.13	3	380,835.38		0	380,835.38
23	11	1196.447	125,028.71	3	375,086.13		0	375,086.13
24	11	1119.025	116,938.08	3	350,814.24	513.38	53,648	297,165.87
25	11	1326.563	138,834.84	3	416,504.53		0	416,504.53
26	11	1379.442	144,151.64	3	432,454.91		0	432,454.91
27	11	1367.863	142,941.64	3	428,824.93		0	428,824.93
28	11	1313.147	137,223.87	3	411,671.62		0	411,671.62
29	11	1373.652	143,546.61	3	430,639.84		0	430,639.84
30	11	1633.346	170,684.65	3	512,053.94	560.63	58,686	453,468.59
31	11	1781.838	186,202.05	3	558,606.15		0	558,606.15
32	11	1798.784	187,659.43	3	562,978.28		0	562,978.28
33	11	1795.334	187,612.43	3	562,837.30		0	562,837.30
34	11	1807.174	188,849.67	3	566,549.02		0	566,549.02
35	11	1813.437	189,504.14	3	568,512.41		0	568,512.41
36	11	2336.925	244,208.69	3	732,625.08	597.42	62,430	670,195.90
37	11	2632.591	275,105.74	3	825,317.22		0	825,317.22
38	11	2697.789	281,918.92	3	845,756.76		0	845,756.76
39	11	2750.046	287,379.80	3	862,139.39		0	862,139.39
40	11	2757.696	288,179.24	3	864,537.73		0	864,537.73
41	11	2750.438	287,420.77	3	862,262.31		0	862,262.31
42	11	2698.203	281,753.16	3	845,259.48		0	845,259.48
43	11	3455.52	361,101.87	3	1,083,305.61	633.54	66,205	1,017,101.08
44	11	3662.817	382,764.41	3	1,148,293.22		0	1,148,293.22
45	11	3778.827	394,887.39	3	1,184,662.17		0	1,184,662.17
46	11	3779.148	394,920.95	3	1,184,762.84		0	1,184,762.84
47	11	3788.381	395,885.79	3	1,187,657.38		0	1,187,657.38
48	11	3751.867	392,070.07	3	1,176,210.21		0	1,176,210.21
49	11	3467.765	362,381.48	3	1,087,144.45		0	1,087,144.45
50	11	4466.756	466,775.97	3	1,400,237.91	662.11	69,191	1,331,137.03

51	**11**	**4640.932**	**484,977.39**	**3**	**1,454,932.18**		**0**	**1,454,932.18**
52	**11**	**4706.222**	**491,800.21**	**3**	**1,475,400.63**		**0**	**1,475,400.63**
53	**11**	**4704.212**	**491,590.14**	**3**	**1,474,770.43**		**0**	**1,474,770.43**
54	**11**	**4663.466**	**487,332.19**	**3**	**1,461,996.56**		**0**	**1,461,996.56**
55	**11**	**4729.315**	**494,213.46**	**3**	**1,482,640.38**		**0**	**1,482,640.38**
56	**11**	**5276.131**	**551,355.65**	**3**	**1,654,066.94**	**704.91**	**73,663**	**1,580,403.60**
57	**11**	**5553.301**	**580,319.95**	**3**	**1,740,959.86**		**0**	**1,740,959.86**
59	**11**	**5677.036**	**593,250.25**	**3**	**1,779,750.75**		**0**	**1,779,750.75**
60	**11**	**5700.298**	**595,681.17**	**3**	**1,787,043.52**		**0**	**1,787,043.52**
61	**11**	**5723.778**	**598,134.81**	**3**	**1,794,404.43**		**0**	**1,794,404.43**
62	**11**	**5740.15**	**599,845.63**	**3**	**1,799,536.90**	**743.95**	**77,743**	**1,721,793.97**

16.0 POSSIBLE CHANGES TO THE DEVELOPMENT PLANS

The sections above details the development plan for the Belleoram quarry for the first five years and shows in a more general way the long term development plan. One change to the development plan will be treatment of grubbing and waste. CSL intends to acquire crown land to the north of the quarry lease to serve as a long term dump site. The site is shown on Figure 6 and preparation of this submission is underway. Once approved, the use of the site will be incorporated into annual update to the development plans.

A second possible change could be the addition of aggregate washing circuit into to production sequence. This also will be incorporated into an annual update required in the Mining Regulations.

17.0 CLOSURE

This proposed Quarry Development Plan was prepared for the exclusive use of CSL for specific application to the site. The design was made in accordance with the work plans developed for this site and verbal requests from the client. The work was performed using generally accepted practices and procedures commonly used in the industry. The limitations of this report are stated in Appendix D.

Respectfully Submitted,

AMEC Earth & Environmental
A division of AMEC Americas Limited

Reviewed By

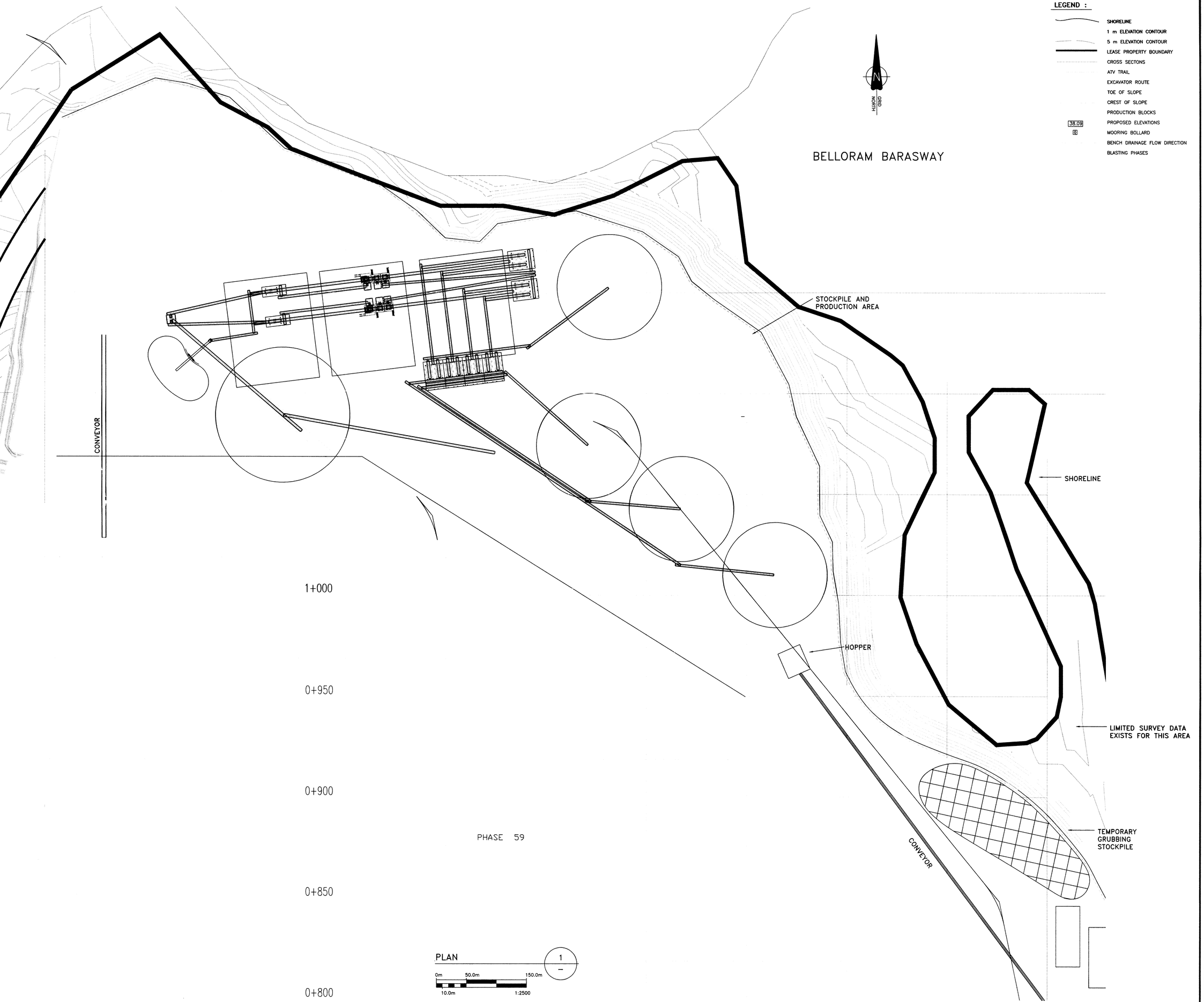
Roderick Mercer, P. Geo.
Senior Geologist

Calvin Miles, P. Geo.
Senior Associate

APPENDIX A

DRAWINGS

B1 673 x 952



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No.	Date	Description	Drawn	Chk'd	Ap
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A	08/03/12	ISSUED WITH REPORT		RM	C

REVISIONS

A detail no.
B location drawing no.
C drawing no. where detailed

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Fax: (709) 722-7353
www.amec.com

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CONTINENTAL STONE LIMITED
1309 TOPSAIL ROAD
P.O. BOX 8274, STN A
ST. JOHN'S, NL
A1B 3N4

PROJECT

BELLEORAM QUARRY DEVELOPMENT

DRAWING TITLE

PRODUCTION AREA

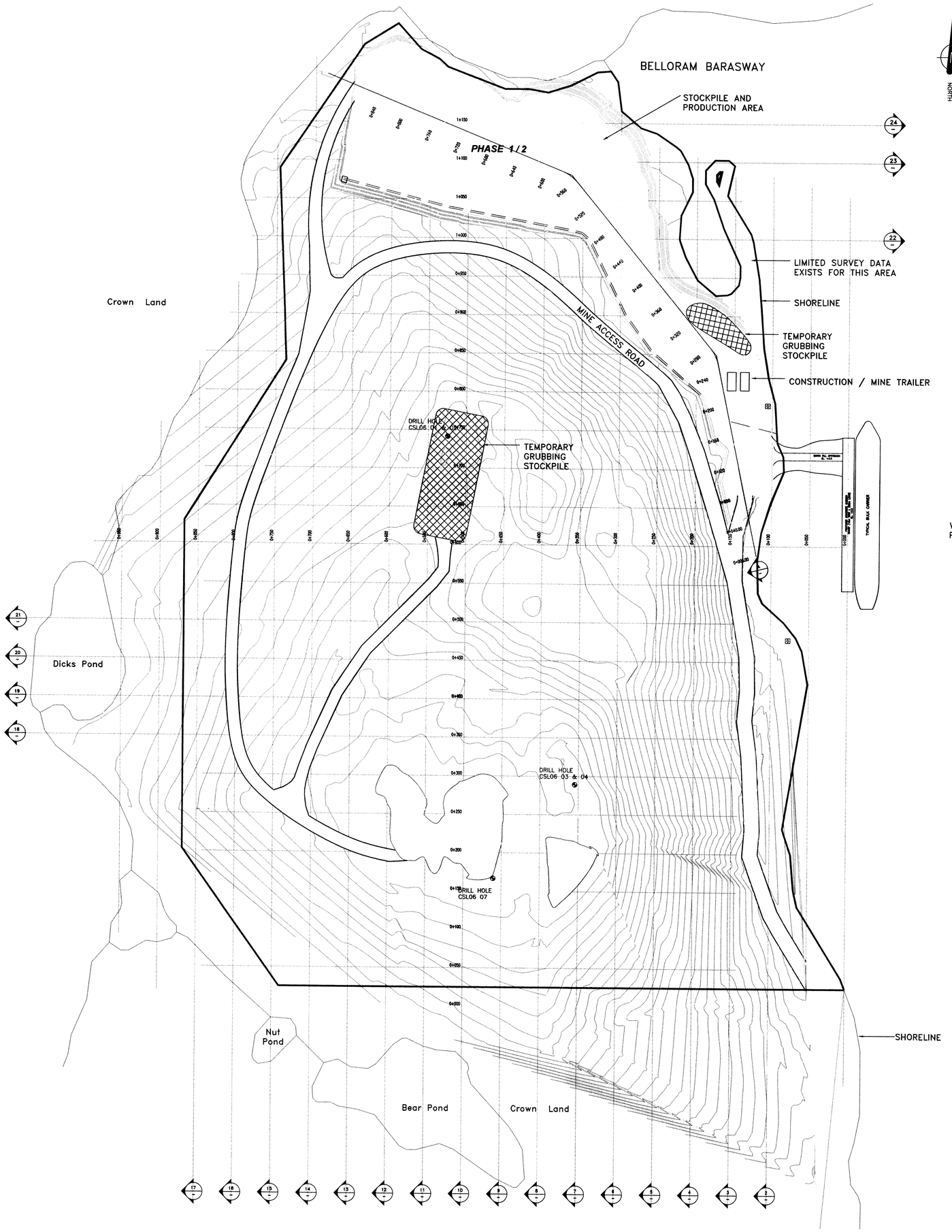
SCALE	PROJECT NUMBER
1 : 750	TF 7352206

DRAWING FILE NAME
DWTF7352206CSL0715.dwg

DRAWING NO.	REV
CSL-07-16	B

B1 707 x 1000

B1 673 x 952



PLAN 1 — 1:2500

LEGEND :

- SHORELINE
- 1 m ELEVATION CONTOUR
- 5 m ELEVATION CONTOUR
- LEASE PROPERTY BOUNDARY
- DRILL HOLE LOCATION
- CROSS-SECTIONS
- ATV TRAIL
- EXCAVATOR ROUTE
- TOE OF SLOPE
- CREST OF SLOPE
- ACCESS ROAD
- PRODUCTION BLOCKS
- 38.09 PROPOSED ELEVATIONS
- MOORING BOLLARD

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A	08/03/12	ISSUED WITH REPORT		RM

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A1B 3N4

PROJECT

BELLEORAM QUARRY DEVELOPMENT

DRAWING TITLE

PLAN
ROCK EXCAVATION
PRODUCTION AREA

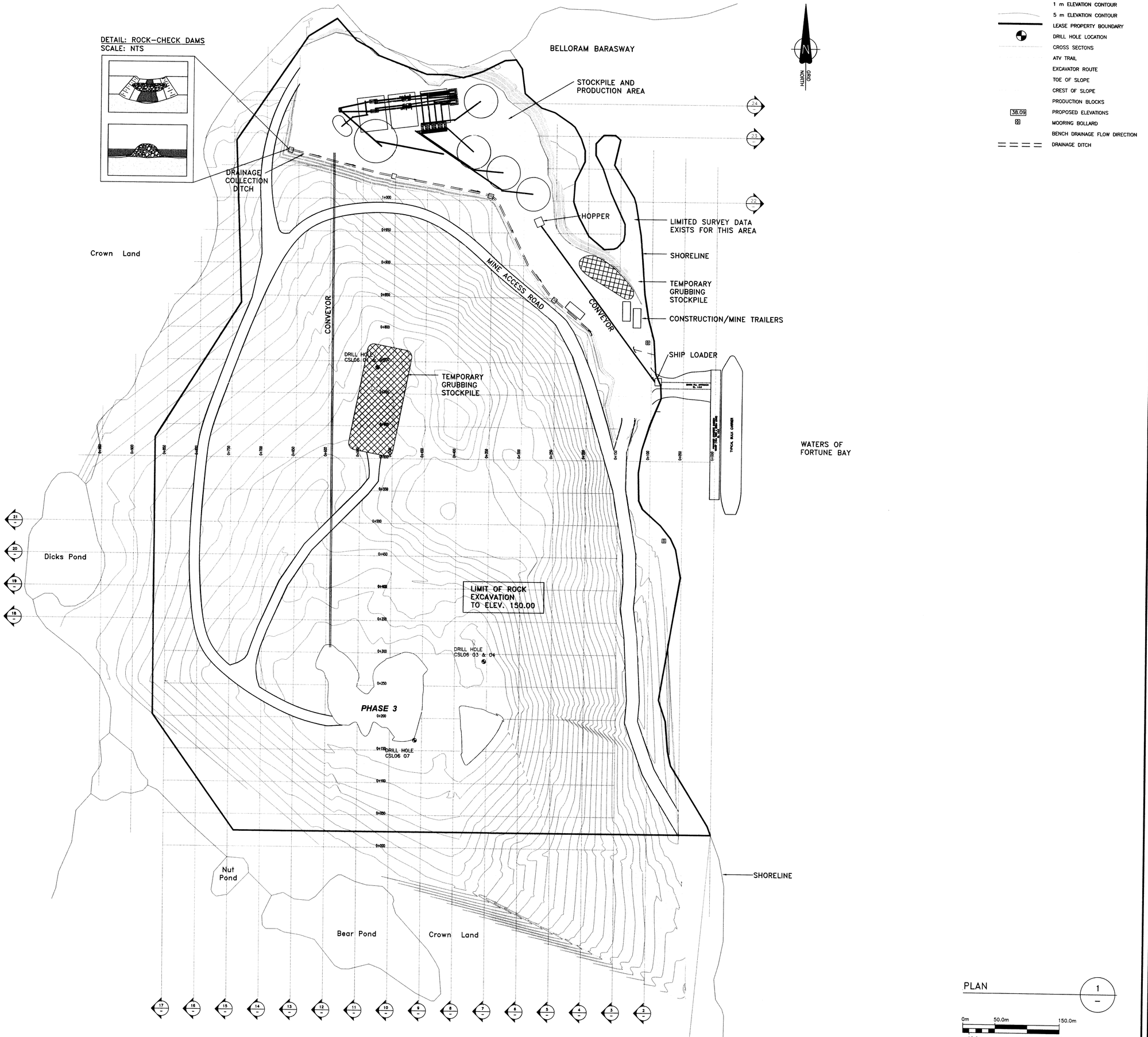
SCALE	PROJECT NUMBER
1 : 2500	TF 7352206

DRAWING FILE NAME: DWTF7352206CSL0702.dwg

DRAWING NO.	RE
CSL-07-02	B

B1 707 x 1000

B1 673 x 952



LEGEND :

- SHORELINE
- 1 m ELEVATION CONTOUR
- 5 m ELEVATION CONTOUR
- LEASE PROPERTY BOUNDARY
- DRILL HOLE LOCATION
- CROSS SECTONS
- ATV TRAIL
- EXCAVATOR ROUTE
- TOE OF SLOPE
- CREST OF SLOPE
- PRODUCTION BLOCKS
- 38.09 PROPOSED ELEVATIONS
- MOORING BOLLARD
- BENCH DRAINAGE FLOW DIRECTION
- DRAINAGE DITCH

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ST. JOHN'S, NL
A1B 3N4

PROJECT

BELLEORAM QUARRY DEVELOPMENT

DRAWING TITLE

PLAN
ROCK EXCAVATION TO ELEVATION 150

SCALE	PROJECT NUMBER
1 : 2500	TF 7352206

DRAWING FILE NAME
DWTF7352206CSL0703.dwg

DRAWING NO.	REV
CSL-07-03	B

PLAN 1

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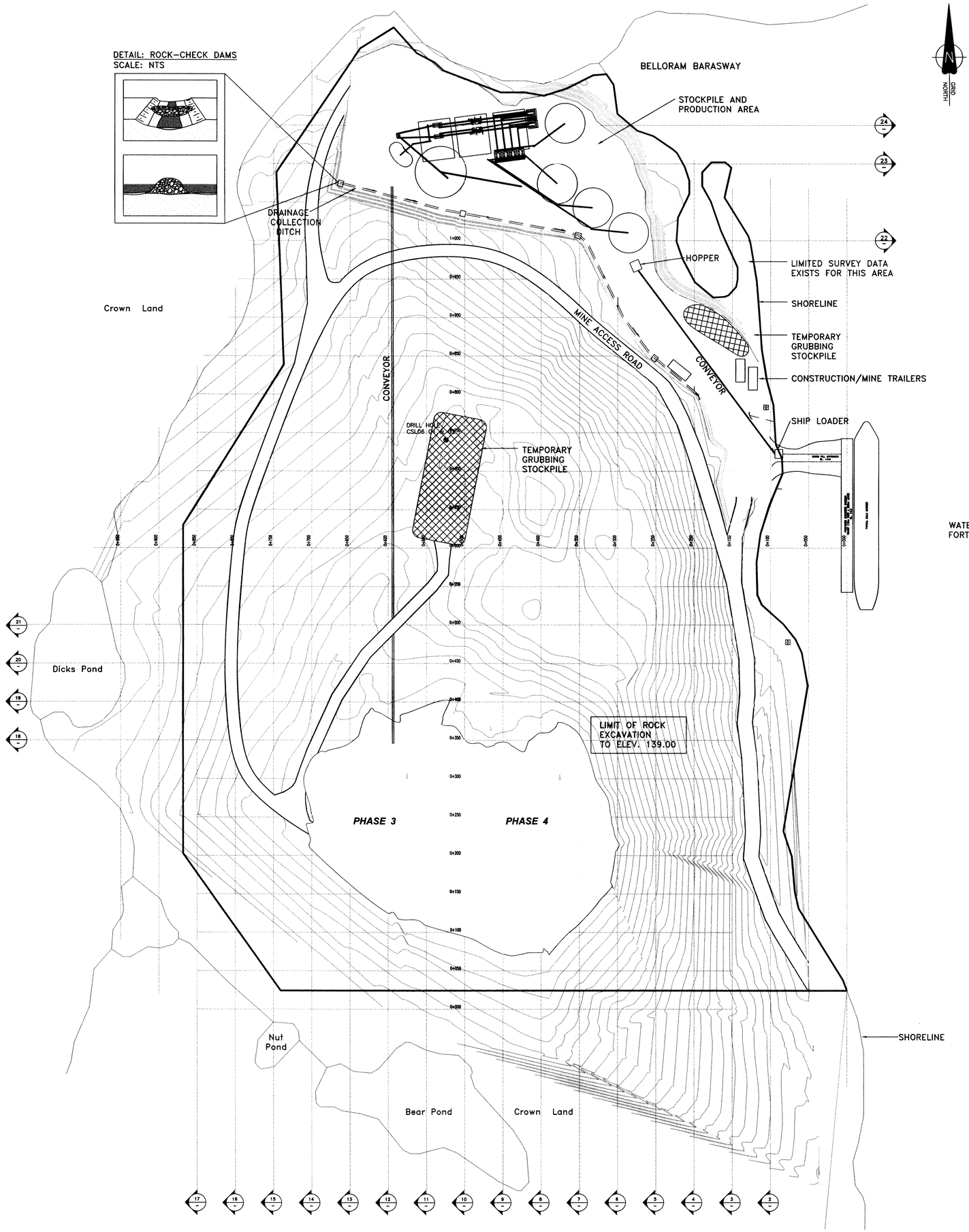
10.0m 1:2500

B1 707 x 1000

B1 673 x 952



LEGEND :

- SHORELINE
- 1 m ELEVATION CONTOUR
- 5 m ELEVATION CONTOUR
- LEASE PROPERTY BOUNDARY
- DRILL HOLE LOCATION
- CROSS SECTONS
- ATV TRAIL
- EXCAVATOR ROUTE
- TOE OF SLOPE
- CREST OF SLOPE
- PRODUCTION BLOCKS
- 38.09 PROPOSED ELEVATIONS
- MOORING BOLLARD
- BENCH DRAINAGE FLOW DIRECTION
- BLASTING PHASES
- DRAINAGE DITCH

PLAN 1 – 1

0m 50.0m 150.0m
10.0m 1:2500

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PROJECT

BELLEORAM QUARRY DEVELOPMENT

DRAWING TITLE

PLAN
ROCK EXCAVATION TO ELEVATION 139

SCALE	PROJECT NUMBER
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DRAWING FILE NAME
DWTF7352206CSL0704.dwg

DRAWING NO.
CSL-07-04

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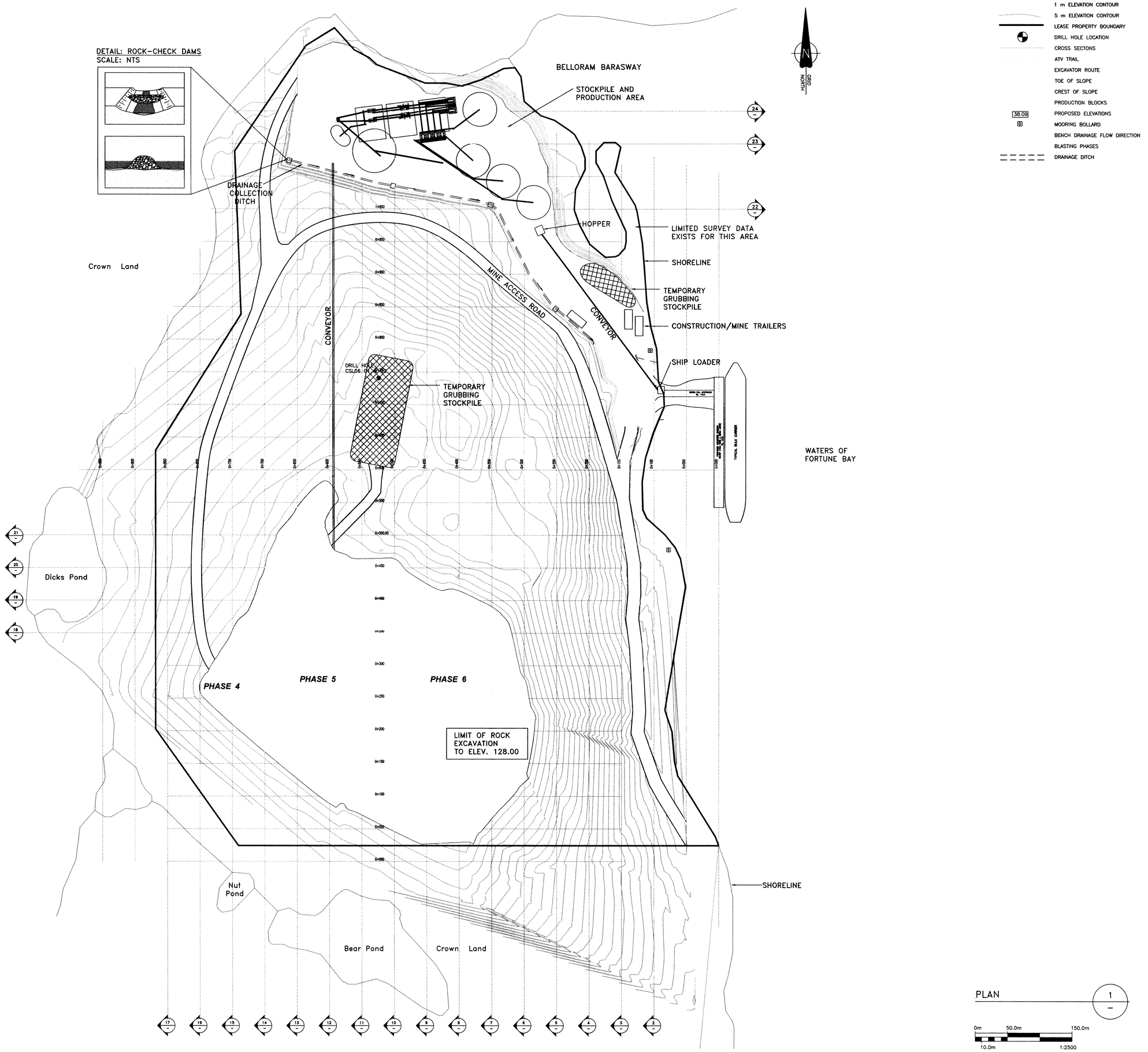
B1 673 x 952



LEGEND :

- SHORELINE
- 1 m ELEVATION CONTOUR
- 5 m ELEVATION CONTOUR
- LEASE PROPERTY BOUNDARY
- DRILL HOLE LOCATION
- CROSS SECTONS
- ATV TRAIL
- EXCAVATOR ROUTE
- TOE OF SLOPE
- CREST OF SLOPE
- PRODUCTION BLOCKS
- 38.09 PROPOSED ELEVATIONS
- MOORING BOLLARD
- BENCH DRAINAGE FLOW DIRECTION
- BLASTING PHASES
- DRAINAGE DITCH

PLAN 1 – 1

0m 50.0m 150.0m
10.0m 1:2500

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PROJECT

BELLEORAM QUARRY DEVELOPMENT

DRAWING TITLE

PLAN
ROCK EXCAVATION TO ELEVATION 128

SCALE	PROJECT NUMBER
1 : 2500	TF 7352206

DRAWING FILE NAME
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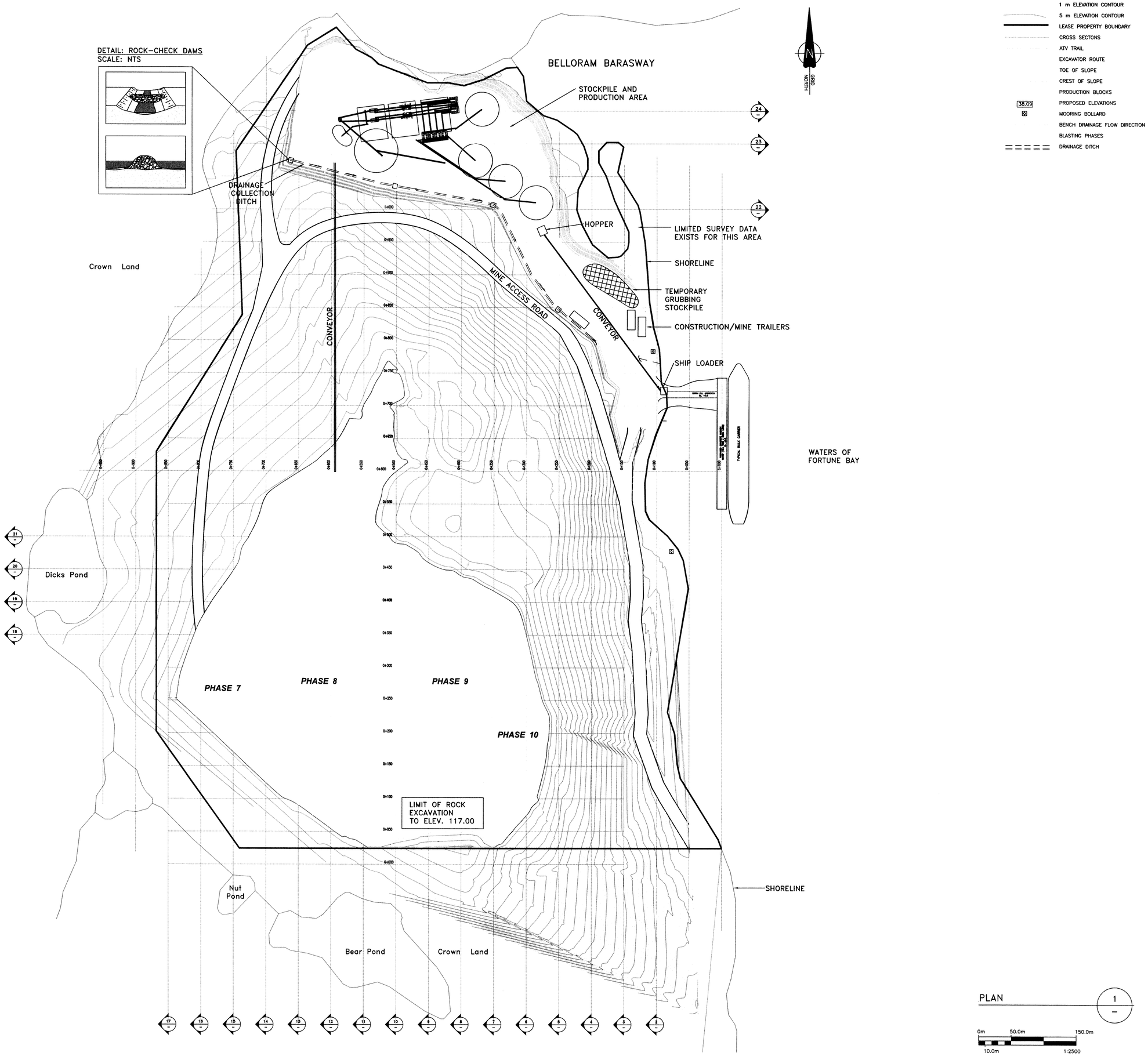
DRAWING NO.	REV
CSL-07-05	B

B1 707 x 1000

B1 673 x 952



PLAN 1/–

0m 50.0m 150.0m
10.0m 1:2500

LEGEND :

- SHORELINE
- 1 m ELEVATION CONTOUR
- 5 m ELEVATION CONTOUR
- LEASE PROPERTY BOUNDARY
- CROSS SECTONS
- ATV TRAIL
- EXCAVATOR ROUTE
- TOE OF SLOPE
- CREST OF SLOPE
- PRODUCTION BLOCKS
- 38.09 PROPOSED ELEVATIONS
- MOORING BOLLARD
- BENCH DRAINAGE FLOW DIRECTION
- BLASTING PHASES
- DRAINAGE DITCH

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A	08/03/12	ISSUED WITH REPORT		RM

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C drawing no. where detail

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A1B 3N4

PROJECT

BELLEORAM QUARRY DEVELOPMENT

DRAWING TITLE

PLAN
ROCK EXCAVATION TO ELEVATION 117

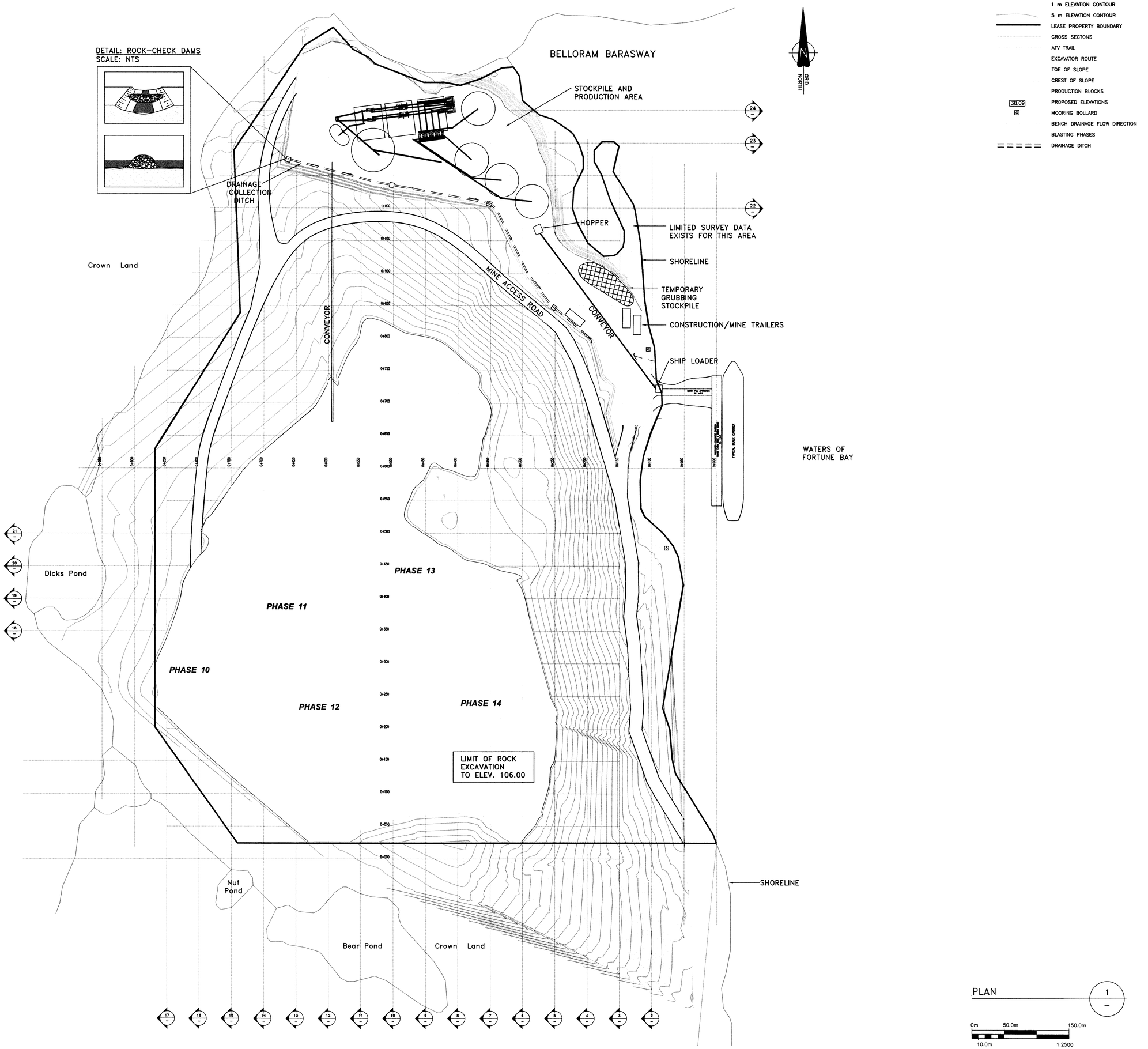
SCALE	PROJECT NUMBER
1 : 2500	TF 7352206

DRAWING FILE NAME
DWTF7352206CSL0706.dwg

DRAWING NO.	R
CSL-07-06	

B1 707 x 1000

B1 673 x 952



LEGEND :

- SHORELINE
- 1 m ELEVATION CONTOUR
- 5 m ELEVATION CONTOUR
- LEASE PROPERTY BOUNDARY
- CROSS SECTONS
- ATV TRAIL
- EXCAVATOR ROUTE
- TOE OF SLOPE
- CREST OF SLOPE
- PRODUCTION BLOCKS
- 38.09 PROPOSED ELEVATIONS
- MOORING BOLLARD
- BENCH DRAINAGE FLOW DIRECTION
- BLASTING PHASES
- DRAINAGE DITCH

PLAN 1 – 1:2500

0m 50.0m 150.0m
10.0m

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B location drawing no.
C drawing no. where detailed

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P.O. BOX 8274, STN A
ST. JOHN'S, NL
A1B 3N4

PROJECT

BELLEORAM QUARRY DEVELOPMENT

DRAWING TITLE

PLAN
ROCK EXCAVATION TO ELEVATION 106

SCALE	PROJECT NUMBER
1 : 2500	TF 7352206

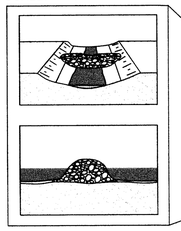
DRAWING FILE NAME
DWTF7352206CSL0707.dwg

DRAWING NO.
CSL-07-07

B1 707 x 1000

B1 673 x 952

DETAIL: ROCK-CHECK DAMS
SCALE: NTS



BELLORAM BARASWAY

STOCKPILE AND PRODUCTION AREA

DRAINAGE COLLECTION DITCH

HOPPER

LIMITED SURVEY DATA EXISTS FOR THIS AREA

SHORELINE

TEMPORARY GRUBBING STOCKPILE

CONSTRUCTION/MINE TRAILERS

SHIP LOADER

CONVEYOR

MINE ACCESS ROAD

CONVEYOR

Crown Land

PHASE 15

PHASE 16

PHASE 17

PHASE 18

PHASE 19

PHASE 20

LIMIT OF ROCK EXCAVATION TO ELEV. 95.00

Dicks Pond

Nut Pond

Bear Pond

Crown Land

SHORELINE

WATERS OF FORTUNE BAY

GRID NORTH

LEGEND :

- SHORELINE
- 1 m ELEVATION CONTOUR
- 5 m ELEVATION CONTOUR
- LEASE PROPERTY BOUNDARY
- CROSS SECTONS
- ATV TRAIL
- EXCAVATOR ROUTE
- TOE OF SLOPE
- CREST OF SLOPE
- PRODUCTION BLOCKS
- 38.09 PROPOSED ELEVATIONS
- MOORING BOLLARD
- BENCH DRAINAGE FLOW DIRECTION
- BLASTING PHASES
- DRAINAGE DITCH

PLAN 1 – 1:2500

0m 50.0m 150.0m
10.0m

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A	08/03/12	ISSUED WITH REPORT		RM

REVISIONS

A detail no.
B location drawing no.
C drawing no. where detailed

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P.O. Box 13216 Fax: (709) 722-735
St. John's, NL, A1B 4A5 www.amec.com

CLIENT

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1309 TOPSAIL ROAD
P.O. BOX 8274, STN A
ST. JOHN'S, NL
A1B 3N4

PROJECT

BELLEORAM QUARRY DEVELOPMENT

DRAWING TITLE

PLAN
ROCK EXCAVATION TO ELEVATION 95

SCALE 1 : 2500

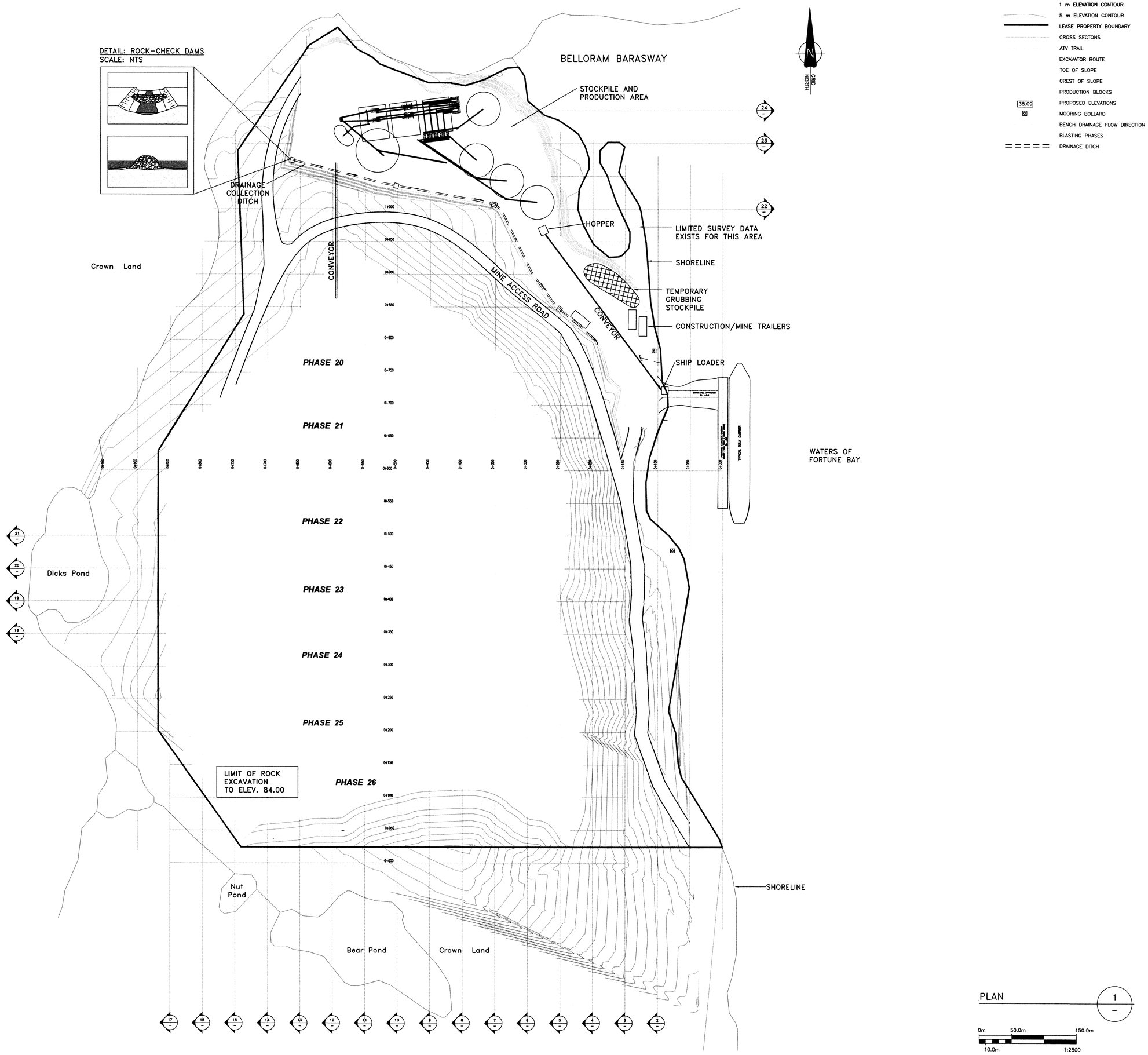
PROJECT N TF -

DRAWING FILE NAME DWTF735?

DRAWING NO. CSL-07-

B1 707 x 1000

B1 673 x 952



LEGEND :

- SHORELINE
- 1 m ELEVATION CONTOUR
- 5 m ELEVATION CONTOUR
- LEASE PROPERTY BOUNDARY
- CROSS SECTONS
- ATV TRAIL
- EXCAVATOR ROUTE
- TOE OF SLOPE
- CREST OF SLOPE
- PRODUCTION BLOCKS
- 38.09 PROPOSED ELEVATIONS
- MOORING BOLLARD
- BENCH DRAINAGE FLOW DIRECTION
- BLASTING PHASES
- DRAINAGE DITCH

PLAN 1 – 1

0m 50.0m 150.0m
10.0m 1:2500

NOTES

1. ALL DIMENSIONS ARE IN METRES.
2. DO NOT SCALE FROM DRAWING.
3. ALL LOCATIONS, DIMENSIONS AND ORIENTATIONS ARE IN ACCORDANCE WITH MTM GRID, NAD 83.
4. THIS DRAWING SHOULD NOT BE USED FOR PURPOSES OTHER THAN THOSE OUTLINED ABOVE.
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7. IN MANY LOCATIONS THE SHORELINE AND CONTOURS DO NOT MATCH DUE TO SMOOTHING ACTION IN THE COMPUTER WHERE INFORMATION WAS LIMITED.

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B	08/06/06	CORRECTIONS AND REVISIONS		RM
A	08/03/12	ISSUED WITH REPORT		RM

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C drawing no. where detailed

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PROJECT

BELLEORAM QUARRY DEVELOPMENT

DRAWING TITLE

PLAN
ROCK EXCAVATION TO ELEVATION 84

SCALE	PROJECT NUMBER
1 : 2500	TF 7352206

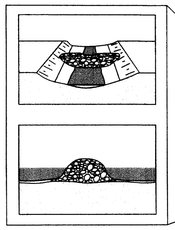
DRAWING FILE NAME
DWTF7352206CSL0709.dwg

DRAWING NO.
CSL-07-09

B1 707 x 1000

B1 673 x 952

DETAIL: ROCK–CHECK DAMS
SCALE: NTS



LEGEND :

- SHORELINE
- 1 m ELEVATION CONTOUR
- 5 m ELEVATION CONTOUR
- LEASE PROPERTY BOUNDARY
- CROSS SECTONS
- ATV TRAIL
- EXCAVATOR ROUTE
- TOE OF SLOPE
- CREST OF SLOPE
- 38.09 PRODUCTION BLOCKS
- PROPOSED ELEVATIONS
- MOORING BOLLARD
- BENCH DRAINAGE FLOW DIRECTION
- BLASTING PHASES
- DRAINAGE DITCH

PLAN 1

0m 50.0m 150.0m
10.0m 1:2500

NOTES

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No.	Date	Description	Drawn	Ch
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A	08/03/12	ISSUED WITH REPORT		R

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A detail no.
B location drawing no.
C drawing no. where deta

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Fax: (709) 722
www.amec.co

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A1B 3N4

PROJECT

BELLEORAM QUARRY DEVELOPMENT

DRAWING TITLE

PLAN
ROCK EXCAVATION TO ELEVATION 73

SCALE	PROJECT NUMBER
1 : 2500	TF 7352206

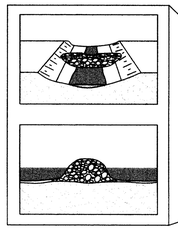
DRAWING FILE NAME
DWTF7352206CSL0710.dwg

DRAWING NO.
CSL–07–10

B1 707 x 1000

B1 673 x 952

DETAIL: ROCK-CHECK DAMS
SCALE: NTS



BELLORAM BARASWAY

STOCKPILE AND PRODUCTION AREA

DRAINAGE COLLECTION DITCH

CONVEYOR

HOPPER

LIMITED SURVEY DATA EXISTS FOR THIS AREA

SHORELINE

TEMPORARY GRUBBING STOCKPILE

CONSTRUCTION/MINE TRAILERS

SHIP LOADER

MINE ACCESS ROAD

CONVEYOR

Crown Land

PHASE 32

PHASE 33

PHASE 34

PHASE 35

PHASE 36

PHASE 37

PHASE 38

PHASE 39

LIMIT OF ROCK EXCAVATION TO ELEV. 62.00

Dicks Pond

Nut Pond

Bear Pond

Crown Land

SHORELINE

WATERS OF FORTUNE BAY

GRID NORTH

LEGEND :

- SHORELINE
- 1 m ELEVATION CONTOUR
- 5 m ELEVATION CONTOUR
- LEASE PROPERTY BOUNDARY
- CROSS SECTONS
- ATV TRAIL
- EXCAVATOR ROUTE
- TOE OF SLOPE
- CREST OF SLOPE
- PRODUCTION BLOCKS
- 38.09 PROPOSED ELEVATIONS
- MOORING BOLLARD
- BENCH DRAINAGE FLOW DIRECTION
- BLASTING PHASES
- DRAINAGE DITCH

PLAN 1 – 1

0m 50.0m 150.0m
10.0m 1:2500

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PROJECT

BELLEORAM QUARRY DEVELOPMENT

DRAWING TITLE

PLAN
ROCK EXCAVATION TO ELEVATION 62

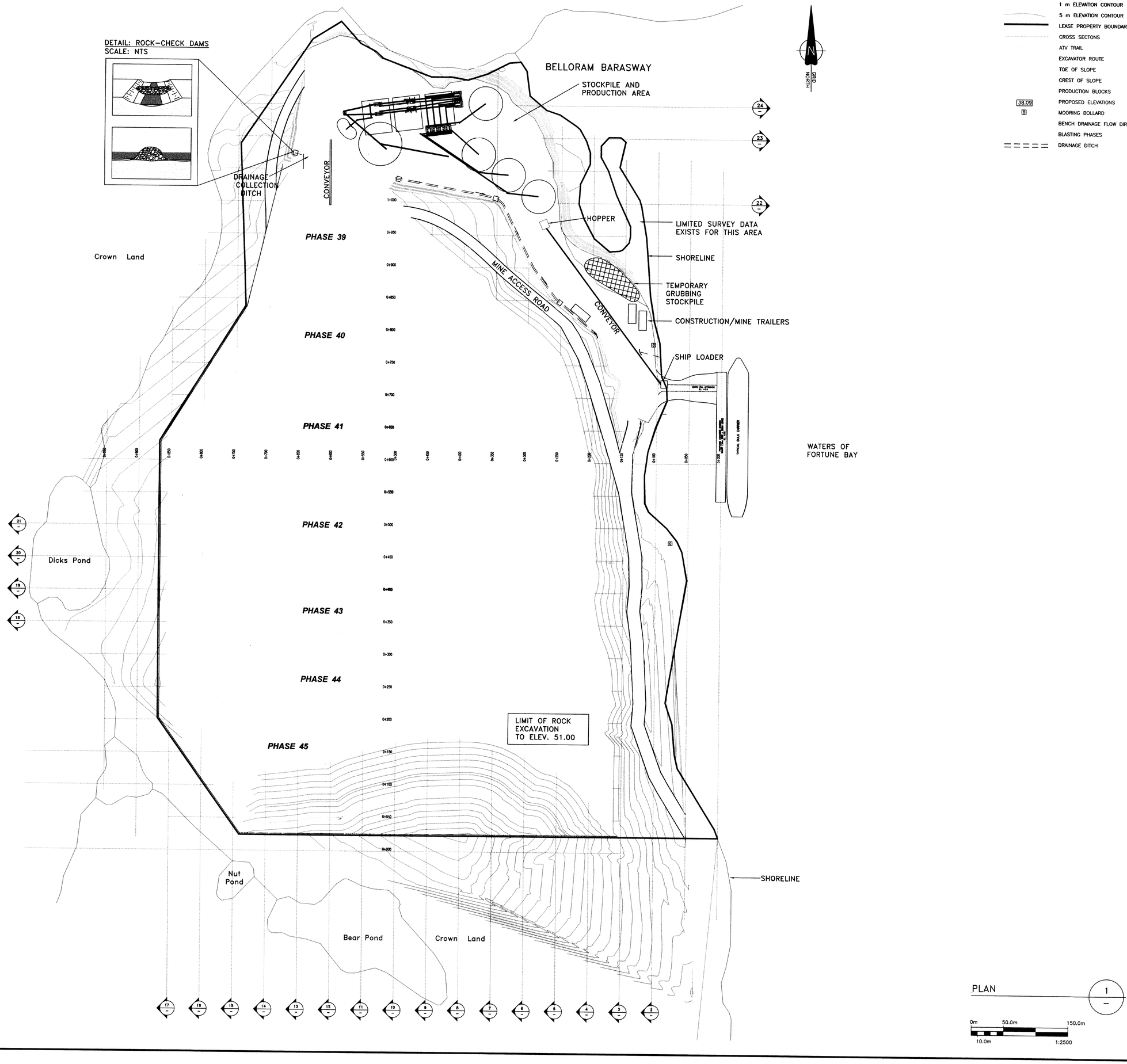
SCALE	PROJECT NUMBER
1 : 2500	TF 7352206

DRAWING FILE NAME
DWTF7352206CSL0711.dwg

DRAWING NO.	REV
CSL-07-11	B

B1 707 x 1000

B1 673 x 952



LEGEND :

- SHORELINE
- 1 m ELEVATION CONTOUR
- 5 m ELEVATION CONTOUR
- LEASE PROPERTY BOUNDARY
- CROSS SECTONS
- ATV TRAIL
- EXCAVATOR ROUTE
- TOE OF SLOPE
- CREST OF SLOPE
- PRODUCTION BLOCKS
- 38.09 PROPOSED ELEVATIONS
- MOORING BOLLARD
- BENCH DRAINAGE FLOW DIRECTION
- BLASTING PHASES
- DRAINAGE DITCH

PLAN 1 –

0m 50.0m 150.0m
10.0m 1:2500

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B location drawing no.
C drawing no. where detailed

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PROJECT

BELLEORAM QUARRY DEVELOPMENT

DRAWING TITLE

PLAN
ROCK EXCAVATION TO ELEVATION 51

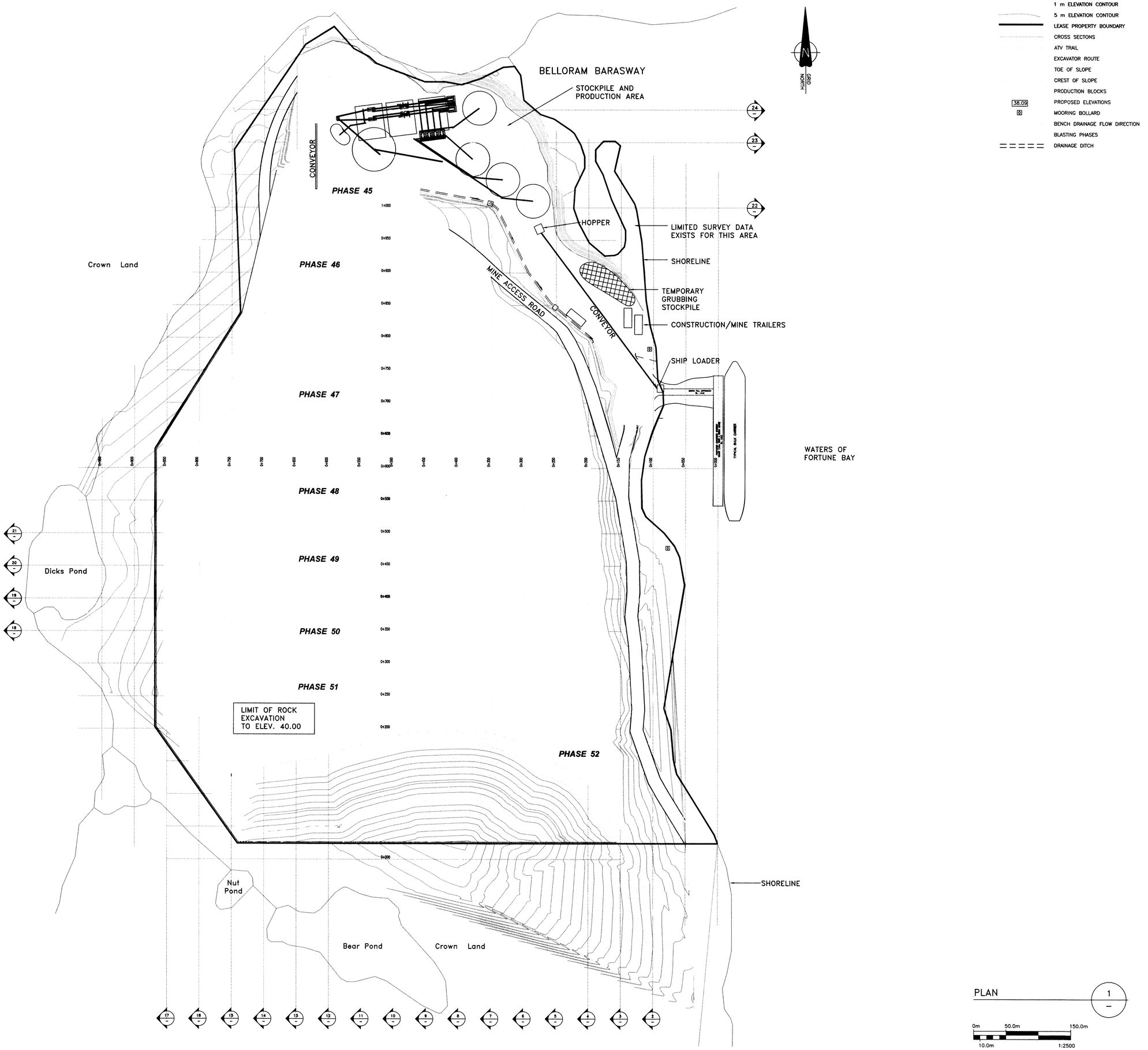
SCALE	PROJECT NUMBER
1 : 2500	TF 7352206

DRAWING FILE NAME
DWTF7352206CSL0712.dwg

DRAWING NO.	REV
CSL-07-12	B

B1 707 x 1000

B1 673 x 952



LEGEND :

- SHORELINE
- 1 m ELEVATION CONTOUR
- 5 m ELEVATION CONTOUR
- LEASE PROPERTY BOUNDARY
- CROSS SECTONS
- ATV TRAIL
- EXCAVATOR ROUTE
- TOE OF SLOPE
- CREST OF SLOPE
- PRODUCTION BLOCKS
- 38.09 PROPOSED ELEVATIONS
- MOORING BOLLARD
- BENCH DRAINAGE FLOW DIRECTION
- BLASTING PHASES
- DRAINAGE DITCH

PLAN 1

0m 50.0m 150.0m
10.0m 1:2500

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A	08/03/12	ISSUED WITH REPORT		RM

REVISIONS

A detail no.
B location drawing no.
C drawing no. where detaile

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PROJECT

BELLEORAM QUARRY DEVELOPMENT

DRAWING TITLE

PLAN
ROCK EXCAVATION TO ELEVATION 40

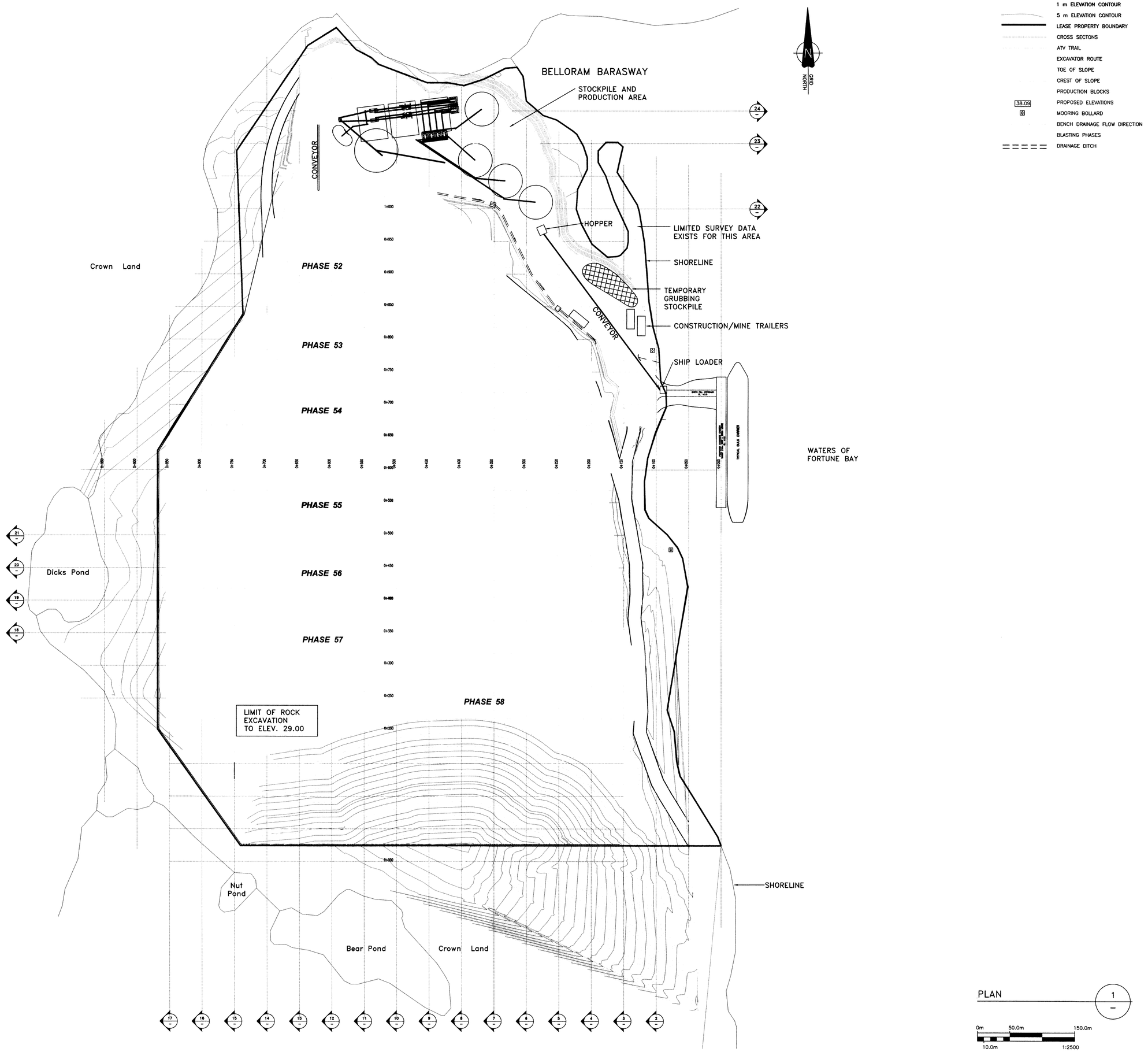
SCALE	PROJECT NUMBER
1 : 2500	TF 7352206

DRAWING FILE NAME
DWTF7352206CSL0713.dwg

DRAWING NO.
CSL-07-13

B1 707 x 1000

B1 673 x 952



LEGEND :

- SHORELINE
- 1 m ELEVATION CONTOUR
- 5 m ELEVATION CONTOUR
- LEASE PROPERTY BOUNDARY
- CROSS SECTONS
- ATV TRAIL
- EXCAVATOR ROUTE
- TOE OF SLOPE
- CREST OF SLOPE
- 38.09 PROPOSED ELEVATIONS
- MOORING BOLLARD
- BENCH DRAINAGE FLOW DIRECTION
- BLASTING PHASES
- DRAINAGE DITCH

PLAN 1 – 1

0m 50.0m 150.0m
10.0m 1:2500

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C drawing no. where detailed

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A1B 3N4

PROJECT

BELLEORAM QUARRY DEVELOPMENT

DRAWING TITLE

PLAN
ROCK EXCAVATION TO ELEVATION 29

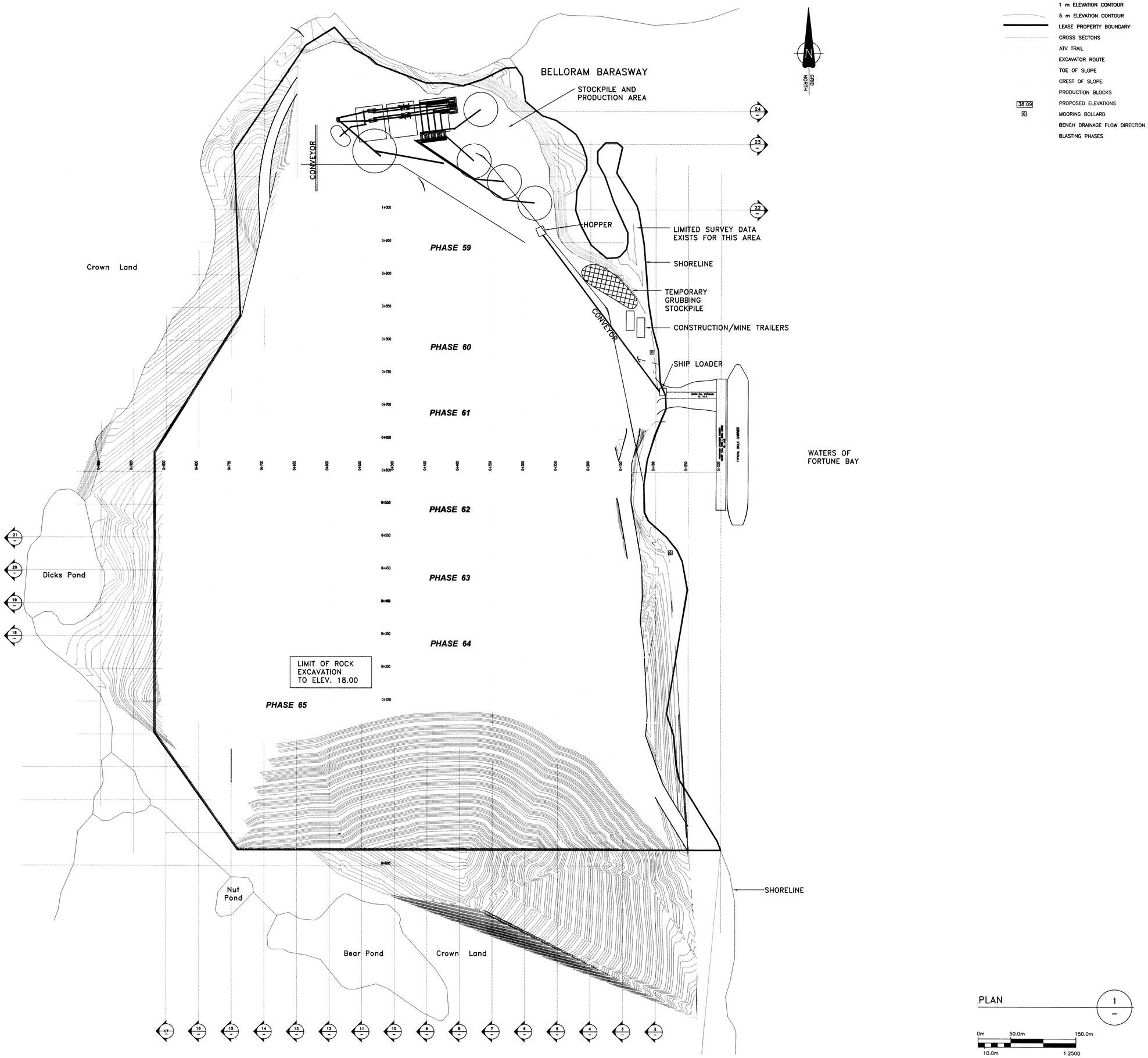
SCALE	PROJECT NUMBER
1 : 2500	TF 7352206

DRAWING FILE NAME
DWTF7352206CSL0714.dwg

DRAWING NO.	REV
CSL–07–14	B

B1 707 x 1000

B1 673 x 952



LEGEND :

- SHORELINE
- 1 m ELEVATION CONTOUR
- 5 m ELEVATION CONTOUR
- LEASE PROPERTY BOUNDARY
- CROSS SECTONS
- ATV TRAIL
- EXCAVATOR ROUTE
- TOE OF SLOPE
- CREST OF SLOPE
- PRODUCTION BLOCKS
- 38.09 PROPOSED ELEVATIONS
- MOORING BOLLARD
- BENCH DRAINAGE FLOW DIRECTION
- BLASTING PHASES

PLAN 1 / –

0m 50.0m 150.0m
10.0m 1:2500

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A1B 3N4

PROJECT

BELLEORAM QUARRY DEVELOPMENT

DRAWING TITLE

PLAN
ROCK EXCAVATION TO ELEVATION 18

SCALE	PROJECT NUMBER
1 : 2500	TF 7352206

DRAWING FILE NAME
DWTF7352206CSL0715.dwg

DRAWING NO.	REV
CSL–07–15	B

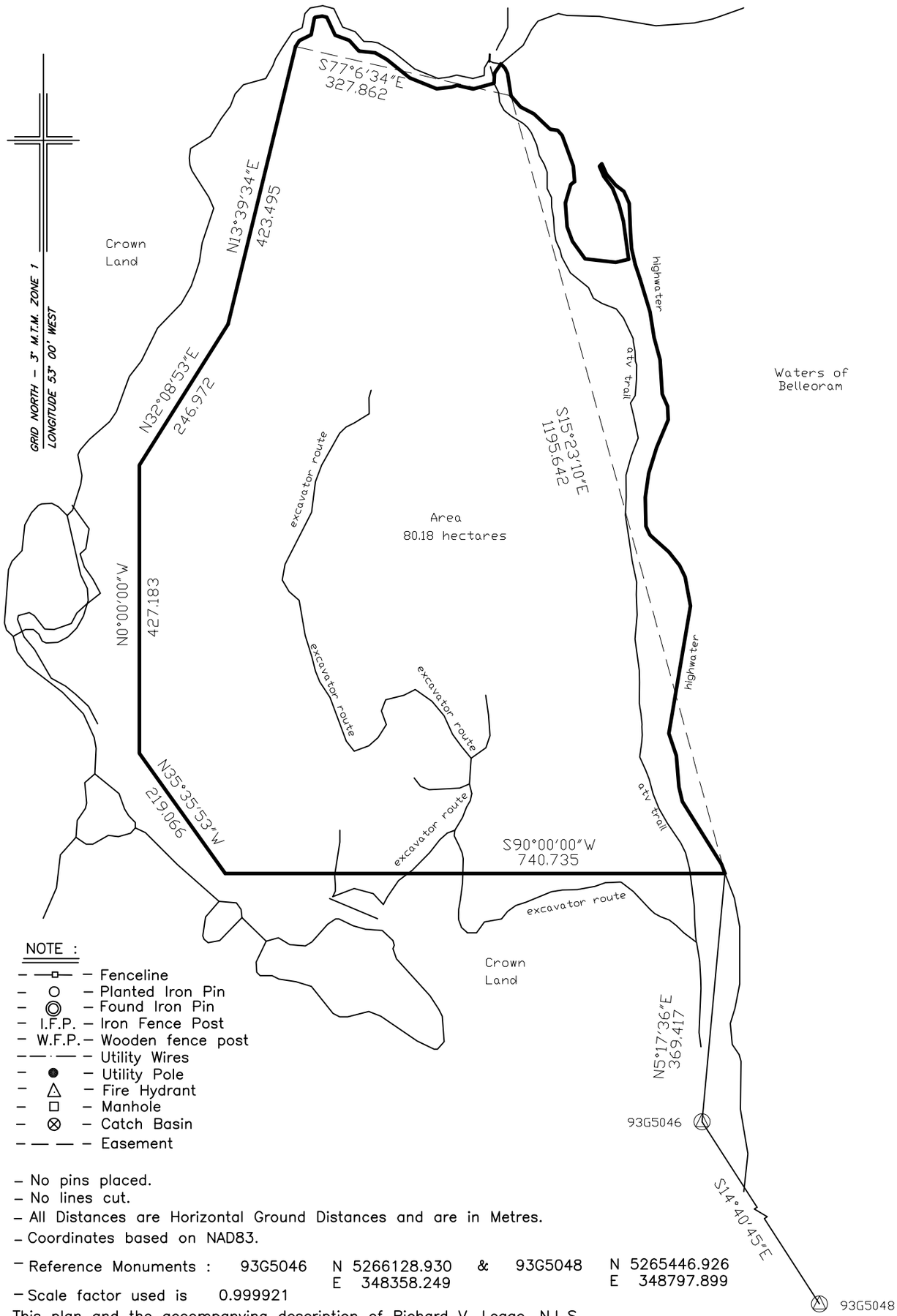
B1 707 x 1000

APPENDIX B

QUARRY LEASE QUESTIONNAIRE

APPENDIX C

LEGAL SURVEY



NOTE :

- Fenceline
- Planted Iron Pin
- Found Iron Pin
- I.F.P. – Iron Fence Post
- W.F.P. – Wooden fence post
- Utility Wires
- Utility Pole
- Fire Hydrant
- Manhole
- Catch Basin
- Easement

- No pins placed.
- No lines cut.
- All Distances are Horizontal Ground Distances and are in Metres.
- Coordinates based on NAD83.
- Reference Monuments : 93G5046 N 5266128.930 E 348358.249 & 93G5048 N 5265446.926 E 348797.899
- Scale factor used is 0.999921

This plan and the accompanying description of Richard V. Legge, N.L.S., form an intregal part of the whole and are not separable.

LEGGE SURVEYS LIMITED
P.O. BOX 8274, STATION "A", ST. JOHNS, NL, A1B 3N4
Tel: 709-364-5008 Fax: 709-364-4833

REVISED SURVEY FOR CONTINENTIAL STONE LIMITED
BELLEORAM, NL

SCALE : 1 : 7500	**JOB No. :** 2007-677A
DATE : MAY 5, 2008	**SURVEY :** G.C. / L.D.

APPENDIX D

LIMITATIONS

AGGRETATE RESOURCE DEVELOPMENT PROJECT LIMITATIONS

The information contained herein in no way reflects on the over all viability of the project, unless otherwise stated and determined by a feasibility study. Resource quantity was estimated based on the size of the permit area and the mining method. This quantity may differ from the amount of material that will actually be extracted during quarry development, and could not be detected or anticipated at the time of the site investigation. Except as otherwise specified, AMEC disclaims any obligation to update this report for events taking place, or with respect to information that becomes available to AMEC after the time during which AMEC conducted the assessment.

In evaluating the property, AMEC has relied in good faith on information provided by other individuals noted in this report. AMEC has assumed that the information provided is factual and accurate. In addition, the findings in this report are based, to a large degree, upon information provided by the current owner/occupant. AMEC accepts no responsibility for any deficiency, misstatement or inaccuracy contained in this report as a result of omissions, misinterpretations or fraudulent acts of persons interviewed or contacted.

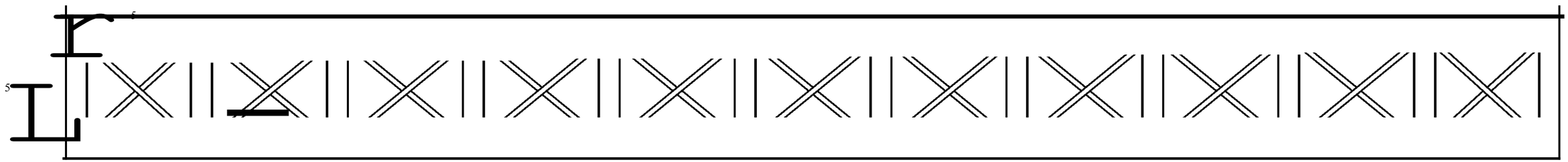
The recommendations given in this report are applicable only to the project described in the text, and the comments made in this report relating to development of the site(s) are intended only for the guidance for the final feasibility study. This work has been undertaken in accordance with normally accepted geoscientific practices. No other warranty is expressed or implied.

Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. AMEC accepts no responsibility for losses of any kind whatsoever, including direct or consequential financial effects on transactions or property values, or requirements for follow-up actions and costs, or for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

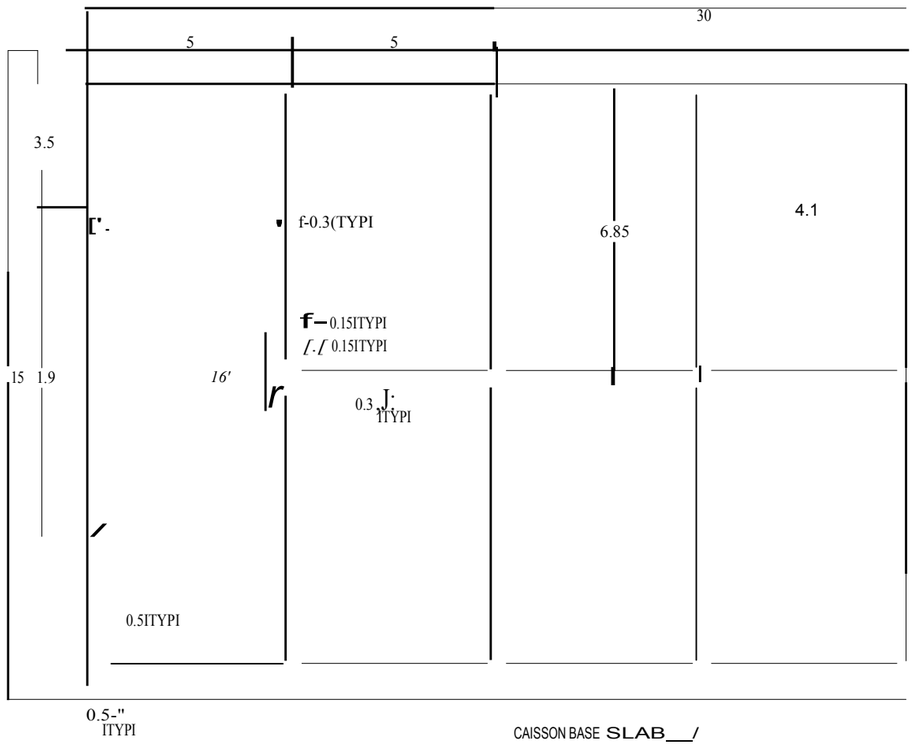
AMEC makes no other representations whatsoever, including those concerning the legal significance of its findings, or as to other legal matters touched on in this report, including, but not limited to, ownership of any property, or the application of any law to the facts set forth herein. With respect to regulatory compliance issues, regulatory statutes are subject to interpretation and change. Such interpretations and regulatory changes should be reviewed with legal counsel.

APPENDIX 2

Marine Wharf Design



TYPICAL GIRDER SECTION



TYPICAL CAISSON LAYOUT

NOTES
Northland Contracting Inc. 1309 Topsail Rd. **St. John's, NL, canada** AIB 3N4
CLIENT Continentia/ Stone
PROJECT TITLE *Load* out *Facility Belleoram*
DRAWING TITLE ~~Caisson &~~ ~~*Girder Layout*~~
Date: February 9, 2006
~~Drawin~~ ~~Review~~ / ~~Drawn b~~ *L. PUDDISTER* / *J.O'Brien*
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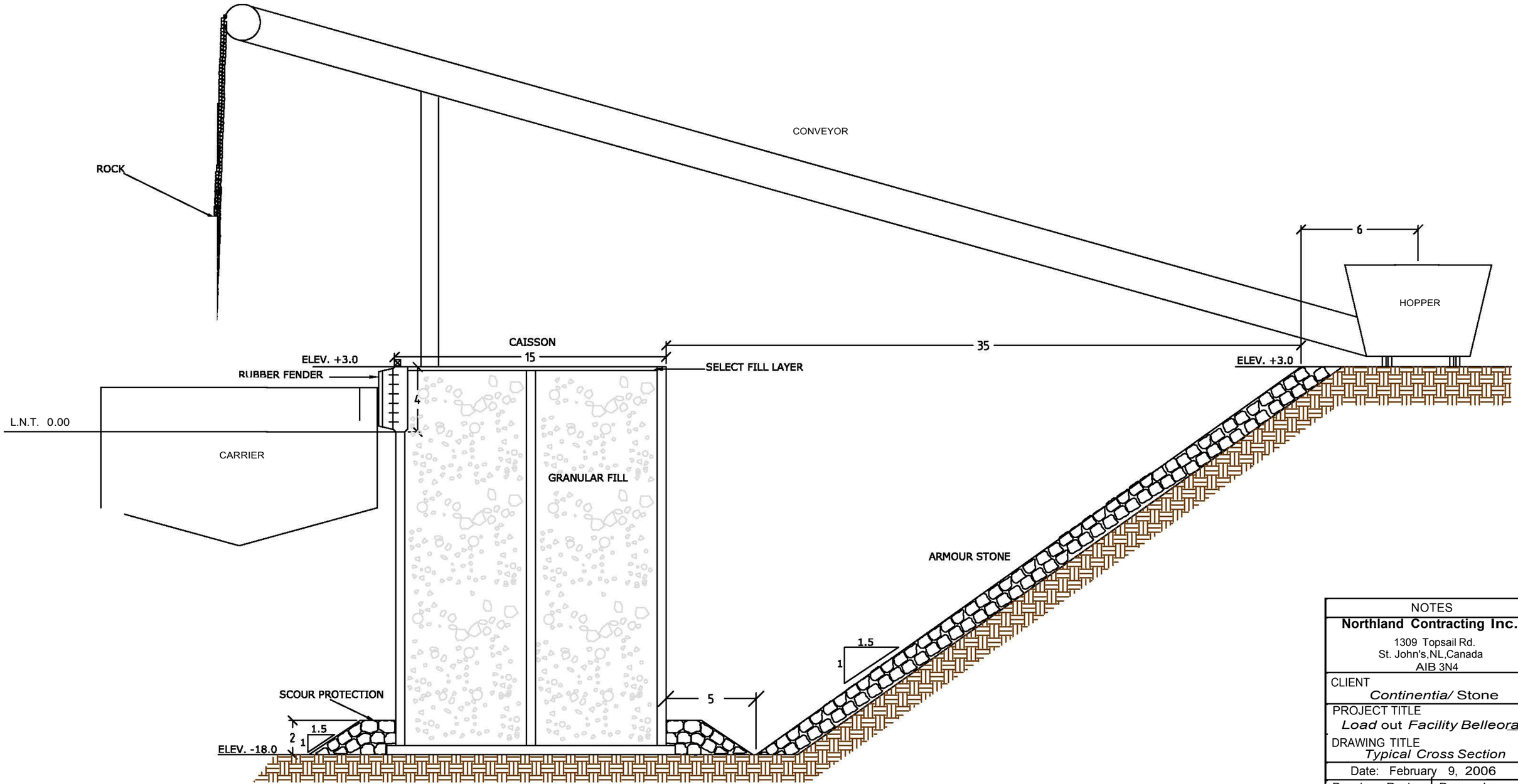
Sheet REV. B-03



TYPICAL SECTION A-A

NOTES		
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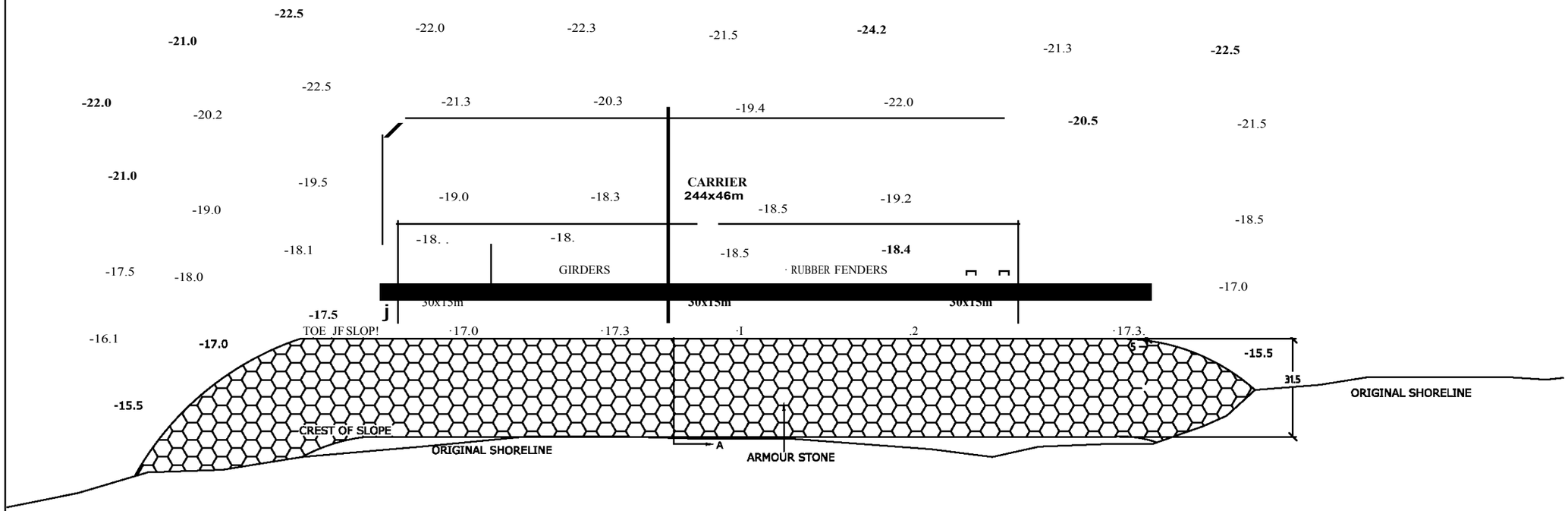
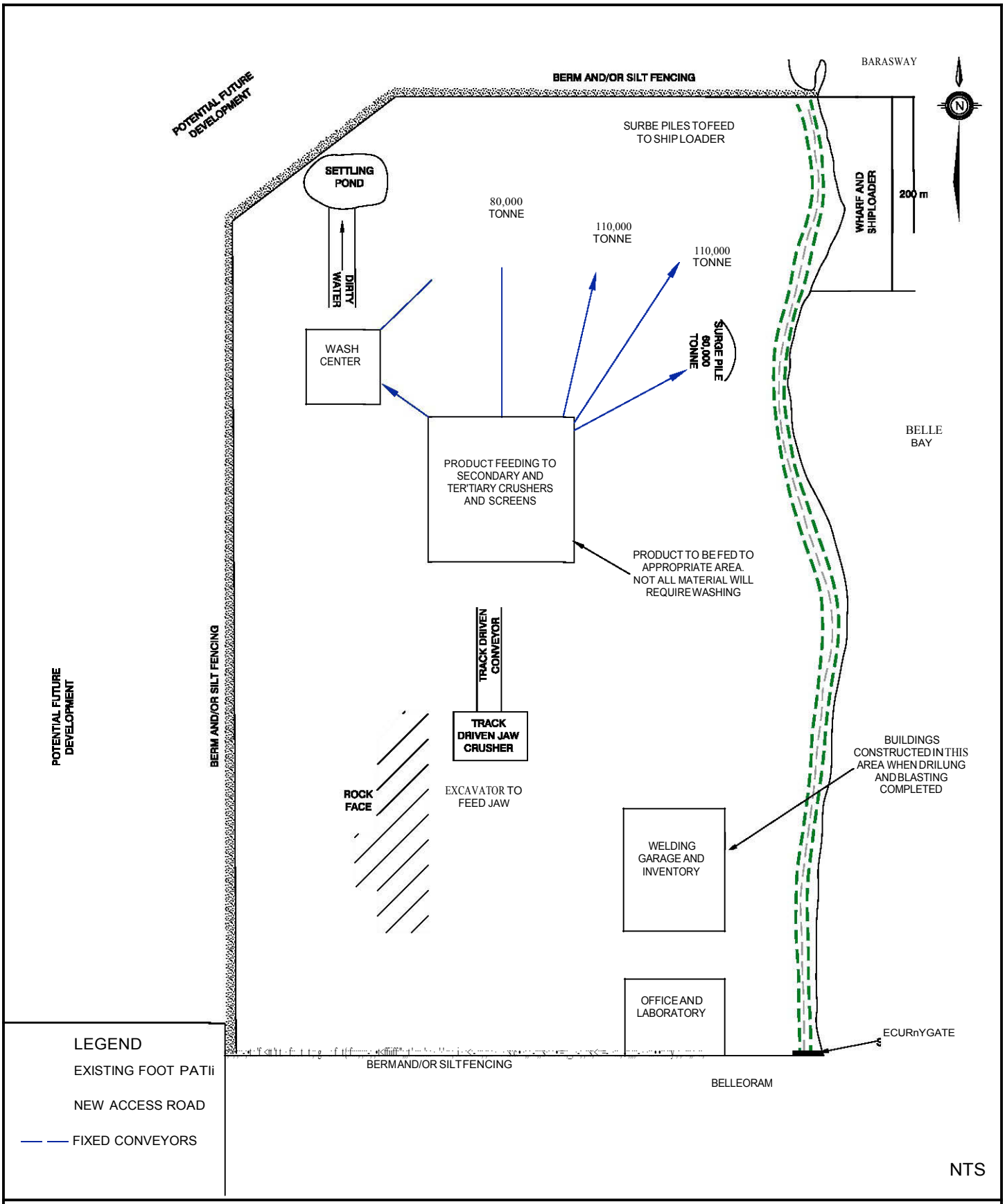
CLIENT *Continentia/* Stone		
PROJECT TITLE *Load out Facility Belleoram*		
DRAWING TITLE *Typical Cross Section*		
Date: February 9, 2006		
Drawin Review *L. PUDDISTER*	Drawn by *J.O'Brien*	
Scale: NTS	Sheet #	REV. #
UNITS: METRIC	*B-02*	



NOTES
>Topsail Rd. [1] **Inc.**
St. JohB [4] Canada
CUENT*ContInential* Stone
LC
DRAWING TIT}lite *Plan*
Date: 9, 2006
L.Pu *.In-R·*
Scale: NTS Sheet // ı REV.
UNITS: METRIC *B-01*

APPENDIX 3

Site Plan



SITE PLAN

100743&-FIBURE 1B.DWO

27APR06 8:45AM

APPENDIX 4

Site Photos

APPENDIX 5

Municipal Recommendation Form

Newfoundland Labrador

NEWFOUNDLAND AND LABRADOR
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
LANDS BRANCH

Municipal Recommendation Form for Crown Land Applications Within Municipal and Planning Area Boundaries

A. **TO BE COMPLETED BY APPLICANT**

Name of Applicant: Continental Holdings Ltd — Date of Application:

Mailing Address: 1309 Topsail Road St. John's A1B 3N4

Telephone No.: Home: _____ Bus: 782 3404 Fax: _____

Land to be used for: Quarry

Location of Land: Belleoram — Dimensions of Land

B. **TO BE COMPLETED BY MUNICIPAL COUNCIL**

1. Does your community have: An approved Municipal Plan? ✓ Concept Plan? ___ Neither? ___
2. The area applied for is zoned Mixed by the Development Regulations.
3. Is the proposed use (a) Permitted Use? ✓ (b) Discretionary Use? ___ or (c) A use not included in the Development Regulations? ___ (Attach copy of zoning map showing location of site)
4. Does the proposed use conform to the standards and conditions set out in the Development Regulations? Yes ✓ No ___
5. Describe the land use in the surrounding area:
   Residential ___ Commercial ___ Agriculture ___ Unused ✓ Other ___
   North side ___ East Side ___
   South side ___ West Side ___
6. If the proposed use will conflict with existing land use in the general area, please explain: n/a.
7. Indicate which of the following Municipal services are available at the site:
   ___ Water and Sewer ___ Water Only ___ Sewer Only ✓ No Services
8. i) Describe type and condition of the road to the site rough
   ii) Is the road presently maintained year round? Yes ___ No ✓
   By Whom? Council ___ Transportation ___ Applicant ___
   iii) Will road extension or improvements be needed if the application is approved? Yes ✓ No ___
9. In the opinion of the Council, the land applied for is:
   A) Crown ✓ B) Private ___ C) Ownership Unclear ___
10. If site is presently occupied, please give details ___

THE COUNCIL OF Belleoram TELEPHONE NO. 709-881-6161

✓ Approved — ___ Refused (give reason)

___ Approved subject to the following conditions — ___ Deferred (give reason)

COMMENTS: ___

Edward May — Mayor — Feb 11/2013

SIGNED — TITLE — DATE

SEE REVERSE OF FORM FOR FURTHER INSTRUCTIONS