

PROJECT DESCRIPTION
WHITES POINT QUARRY & MARINE TERMINAL
DIGBY COUNTY, NOVA SCOTIA

submitted by
Bilcon of Nova Scotia Corporation
August 2004

Whites Point Quarry & Marine Terminal

1. Project Description

General

The project is a proposed basalt quarry with a marine terminal located on Digby Neck in Digby County, Nova Scotia. The name of the project is the Whites Point Quarry and Marine Terminal and is located on Map 1.

Background

Consultations have been ongoing with representatives of the Nova Scotia Department of Environment and Labour including an initial meeting on June 14, 2002. A meeting with representatives of Fisheries and Oceans Canada – Habitat Management Division and Navigable Waters Protection was held on July 25, 2002. A meeting with various federal representatives including the Canadian Environmental Assessment Agency, Environment Canada, Navigable Waters Protection, Fisheries and Oceans Canada, and the Nova Scotia Department of Environment and Labour was held on January 6, 2003. A presentation to the Digby Municipal Council, the formation of a Community Liaison Committee, and the preparation of a newsletter for distribution to households in the local area has been accomplished to date. Contacts with aboriginal groups are pending.

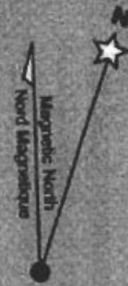
An environmental assessment/impact statement is presently underway.

Contacts

The name of the proponent is Bilcon of Nova Scotia Corporation. No federal government departments or agencies are involved with the project as co-proponents. The contact person for Bilcon of Nova Scotia Corporation is:

Paul G. Buxton, P. Eng.
P.O. Box 98
Annapolis Royal, Nova Scotia B0S 1A0

Phone (902) 638-8108



Bay of Fundy

Whites Point Quarry
Digby Neck
Digby
Weymouth
Meteghan
Long Is.
Brier Is.

DIGBY COUNTY

Annapolis Royal

ANNAPOLIS COUNTY

Whites Point Quarry
Little River, Digby County
Nova Scotia

**Environmental Assessment/
Impact Statement**

Produced for: Bilcon of Nova Scotia Corporation

Location Map Map 1

Graphic Design by Mark Pease, Bear River, N.S.

Federal Involvement

No federal government department or agency is providing financial support to the Whites Point Quarry and marine terminal project. The land to be used for the project is in private ownership and no federal land is involved with the project.

Authorizations Required

A federal permit under the Navigable Waters Protection Act will be required for the Marine Terminal. No storage or manufacture of hazardous materials is proposed on-site. Permits from the Nova Scotia Department of Environment and Labour and a water lot lease from the Nova Scotia Department of Natural Resources will be required. Municipal zoning is presently not in place for Digby County.

2. Project Information

Project Components/Structures

The main components of the project include the physical plant for construction aggregate processing and a marine terminal for ship loading of the aggregate.

Land based permanent structures would include rock crushers, screens, closed circuit wash facilities, conveyors, load out tunnel, support structures (shop, office, fuel tanks) and environmental control structures.

Marine facilities would include a conveyor, ship loader, berthing dolphins, and mooring buoys.

Associated construction processes would include erection of on land aggregate processing equipment, conveyors, and wash water pumping systems.

Environmental control processes would include drainage channels, sediment retention ponds, and land reclamation.

Construction processes for the marine terminal infrastructure would include the anchoring of pile support structures to the basalt rock extending off shore and the construction of concrete caps as dolphins.

Conceptual layouts of the land and water based infrastructure is shown on Figure 1.










Conceptual plan and elevation of the marine terminal is shown on Figures 2 and 3.

Concrete and steel fabrication would be typical construction materials used.

Whites Point Quarry
 Little River, Digby County
 Nova Scotia

**Environmental Assessment/
 Impact Statement**

Legend

-  Environmental Preservation Zone
-  Existing Contour Lines
-  Permanent Drainage Channel
-  Temporary Drainage Channel
-  Constructed Wetland
-  Reforestation - Wildlife Plantings
-  Grass - Legumes
-  Existing 4 Hectare Quarry
-  Private Land

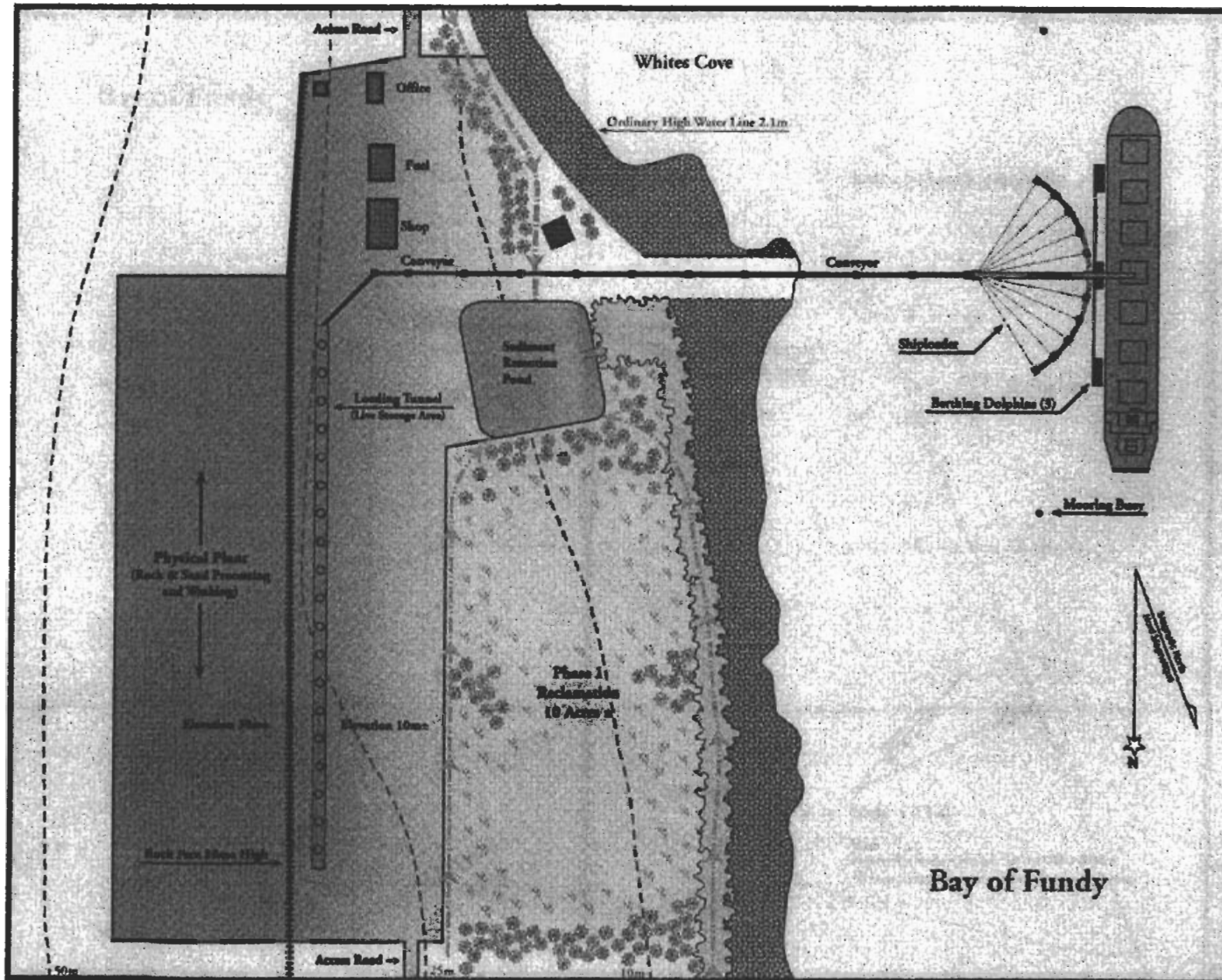
Produced for: BIcon of Nova Scotia Corporation

**Quarry Infrastructure
 Plan**

Figure 1

Graphic Design by Mark Peers, BPE/ENR, N.S.

Buxton & Kern



Bay of Fundy

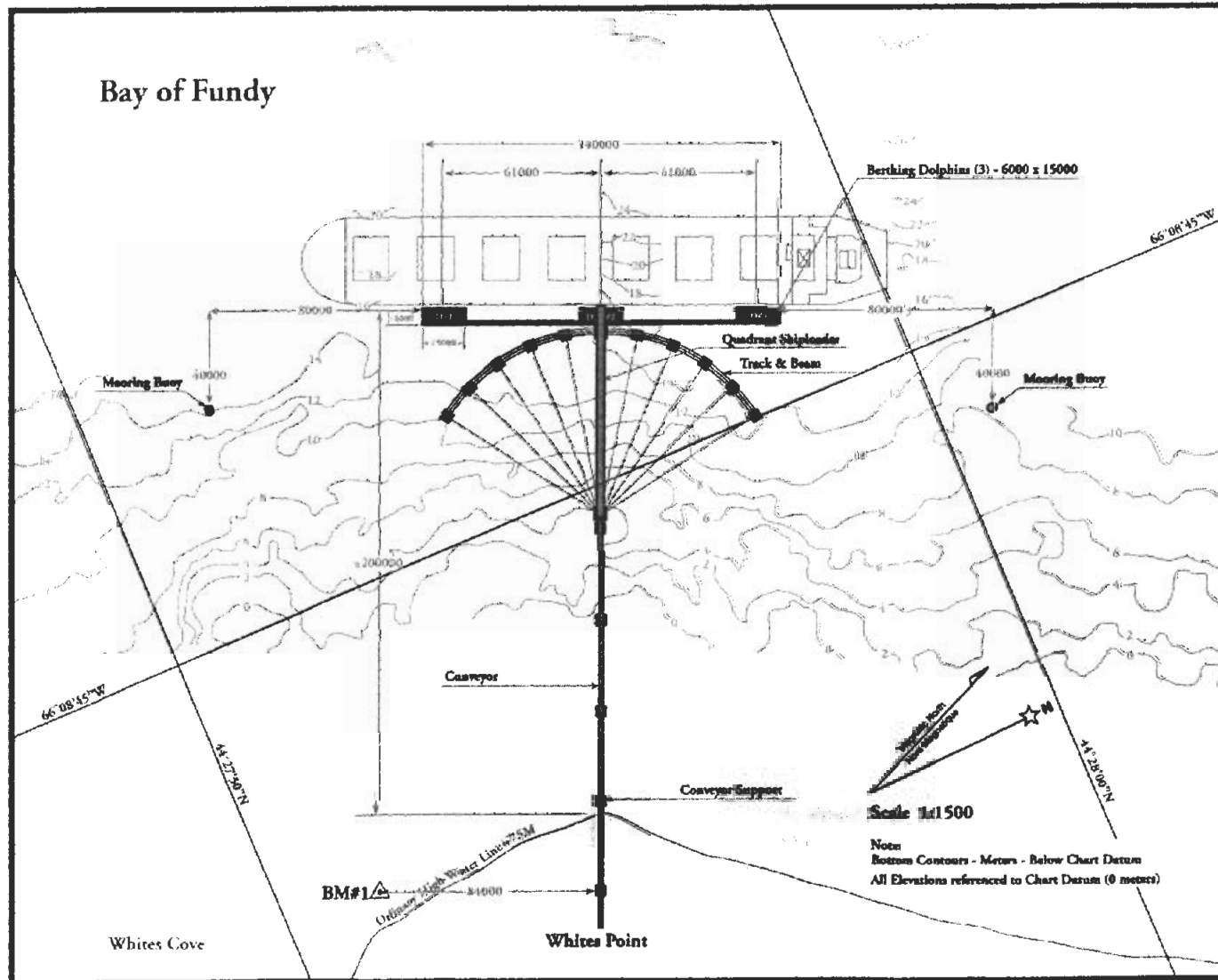
Whites Point Quarry
Little River, Digby County
Nova Scotia

**Environmental Assessment/
Impact Statement**

Legend

△ BenchMark # 1, Elevation 9.5M
44°27'05"N 66°08'66"W

D#1, D#2, D#3, - Berthing Dolphins



Scale 1:1500
Note:
Bottom Contours - Meters - Below Chart Datum
All Elevations referenced to Chart Datum (0 meters)

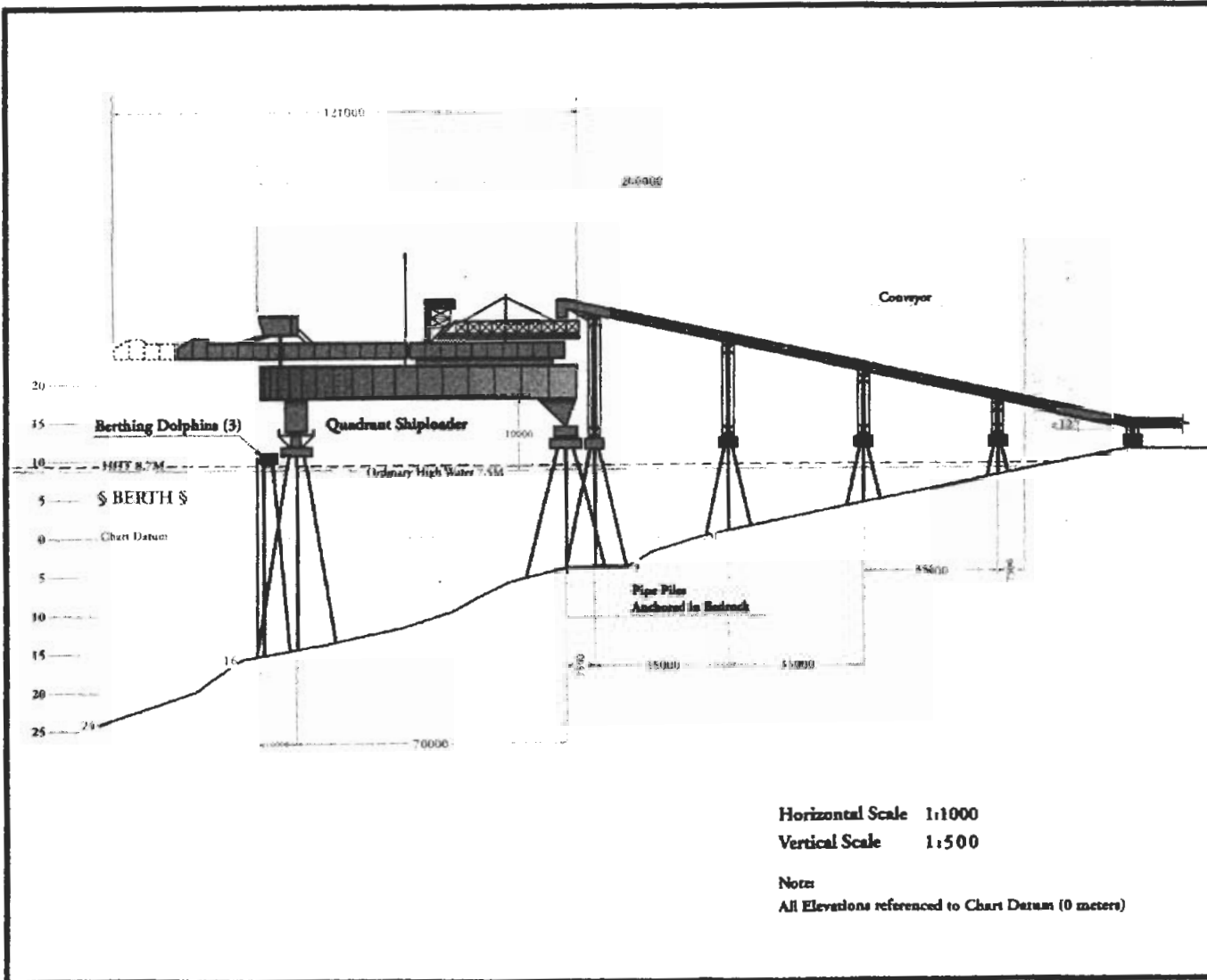
Produced for: Bilcon of Nova Scotia Corporation

**Marine Terminal
Plan**

Figure 2

**Whites Point Quarry
Little River, Digby County
Nova Scotia**

**Environmental Assessment/
Impact Statement**



Produced for: Bilcon of Nova Scotia Corporation

Graphs Drawn by Mark Tison, Bill Rivers, B.S.

Buzton & Kern

Quarry equipment would include heavy mobile gear such as loaders, trucks, bulldozers, excavators, etc. and permanent rock processing equipment such as crushers, screens, and conveyor systems.

The quarry property comprises approximately 380 acres. Land based infrastructure would occupy approximately 27 acres while marine based infrastructure would occupy approximately 10 acres. Quarrying could potentially take place on 300 acres. Quarry production would be approximately 2 million tons of processed aggregate per year. Approximately 10 acres of new quarry would be opened each year with reclamation of previously quarried areas every five years.

The life of the quarry is projected to be 50 years.

Project Activities

Land based and marine based construction is expected to take one year and take place simultaneously. Quarry operation is expected to extend over 50 years and decommissioning to take one year. Site reclamation will be continuous throughout the 50 year life of the project.

The land based quarry operations are expected to be year round with aggregate stockpiled for ship loading once per week. Approximately 40,000 tons of aggregate would be produced for loading each week. Ship loading is expected to take 10 hours into ships similar to the CSL Spirit with a length of approximately 625 feet.

The conceptual plan of the land based and water based infrastructure is shown on Figure 1.

Conceptual engineering for the marine terminal is shown on Figures 2 and 3.

As indicated on Figure 1, a 20 meter high working quarry face is envisioned.

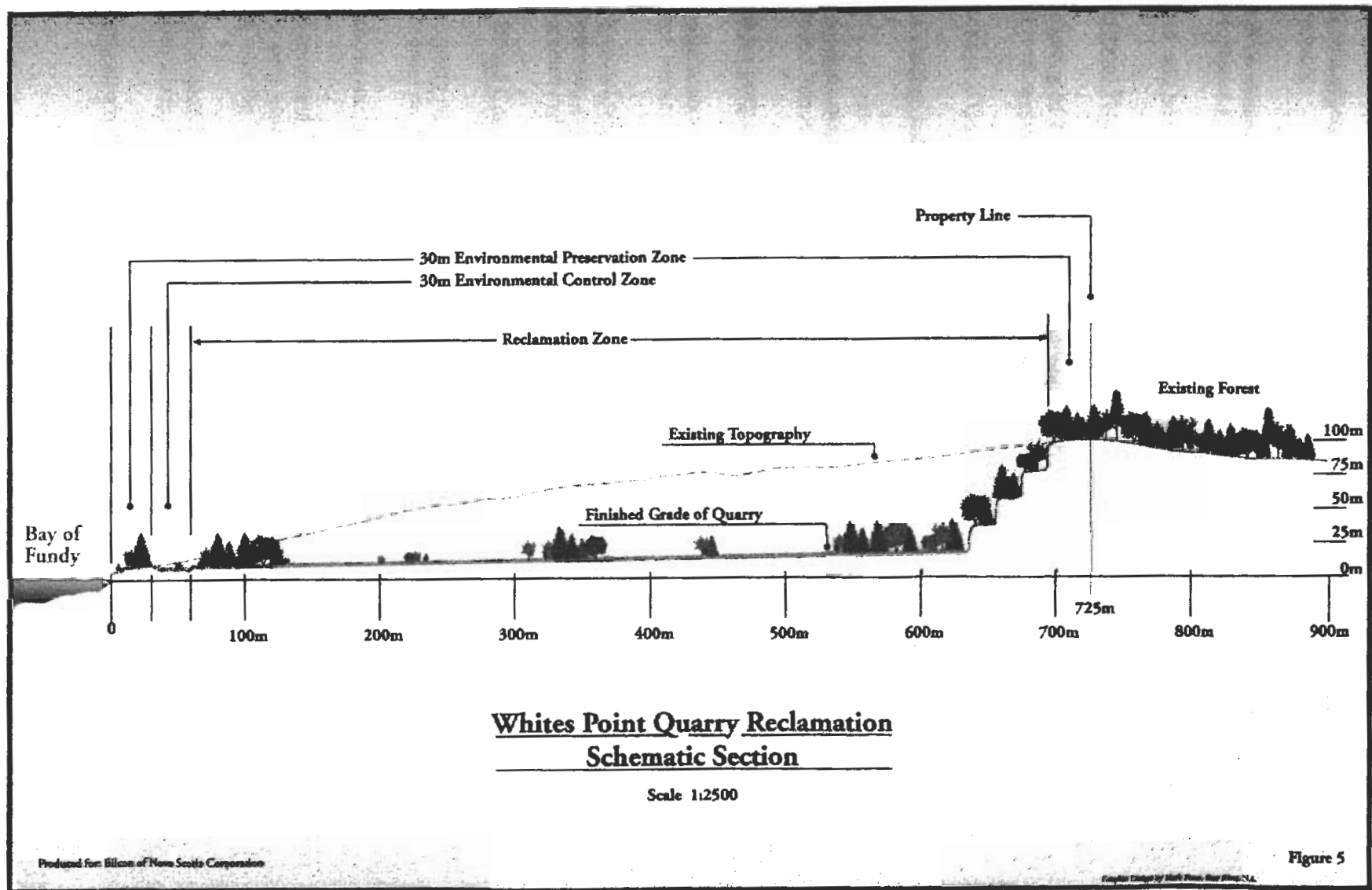
A section of the final land configuration is shown on Figure 5.

The drainage channels and sediment retention pond structures shown on Figure 1 are typical of the environmental controls to be employed for subsequent phases of quarrying over the life of the project.

No requirements for off-site land or water use are proposed at this time.

No blasting will be conducted in the marine environment.

On land blasting will be conducted as part of the land based quarry operation. Threshold criteria and separation distances between blast sites and the marine environment will be maintained in accordance with the Department of Fisheries and Oceans – “Guidelines for the Use of Explosives in or Near Canadian Fisheries Waters”.



All blasts will be designed by a qualified blaster to ensure “fly rock” will not enter the marine environment.

Explosives will be consumed during blasting, however, all surface water runoff from the site will be monitored for any possible residual products from the blasting.

All blasted rock will be recovered for further processing.

Resource/Material Requirements

Drilling and blasting of basalt rock, loading, hauling, crushing, screening, washing, and stockpiling of rock aggregate will be done on-site.

No on-site storage of explosive materials are proposed.

All explosives loading, hauling and blasting will be contracted to a certified third party.

Stockpiled aggregate materials will then be transported by conveyor systems to the ship loader and loaded into the holds of the vessel.

Raw materials for project operations would include electrical energy, fuel, and water.

All water requirements would be derived from on-site sources and primarily from recycled surface waters.

Fuel, primarily diesel, would be stored on-site in above ground, double walled tanks with safety alarm systems. All tanks would be constructed according to the latest ULC-S601 or UL-142 standards with ISO 9001 Quality Controls.

Nova Scotia Power Corporation would be the provider of electrical power.

Access to the quarry site is via Whites Cove Road, an unimproved public road, from Highway 217 to the property.

No pipelines to the site are proposed.

As mentioned previously, on-site excavation will involve approximately 2 million tons of basalt rock per year which will then be transported by water to markets. The quantity of “fill” removed over the life of the project could reach 100 million tons.

Explosives will be used during quarry operations with blasting approximately once every two weeks when the quarry is in full production.

Processed aggregates will be washed before shipment using a closed wash water circuit.

No radio transmission stations or significant antenna structures are proposed on the quarry site.

Waste Disposal

Solid and liquid wastes will be disposed of according to Nova Scotia Department of Environment and Labour Guidelines.

All fuel consuming machinery will meet the latest emission control standards.

No toxic/hazardous materials will remain and require disposal.

The proposed marine terminal is located on exposed basalt bedrock. No dredging or filling in the marine environment is anticipated during the construction process.

The proposed construction method for the marine terminal is to drill sockets and anchor pipe piles to the bedrock. No pushing of material to one side (e.g. side casting or trenching) or relocating rocks or debris is anticipated during the construction process.

3. Project Site Information

Project Location

The regional location of the project is shown on Map 1.

PID number of the property is 30161160.

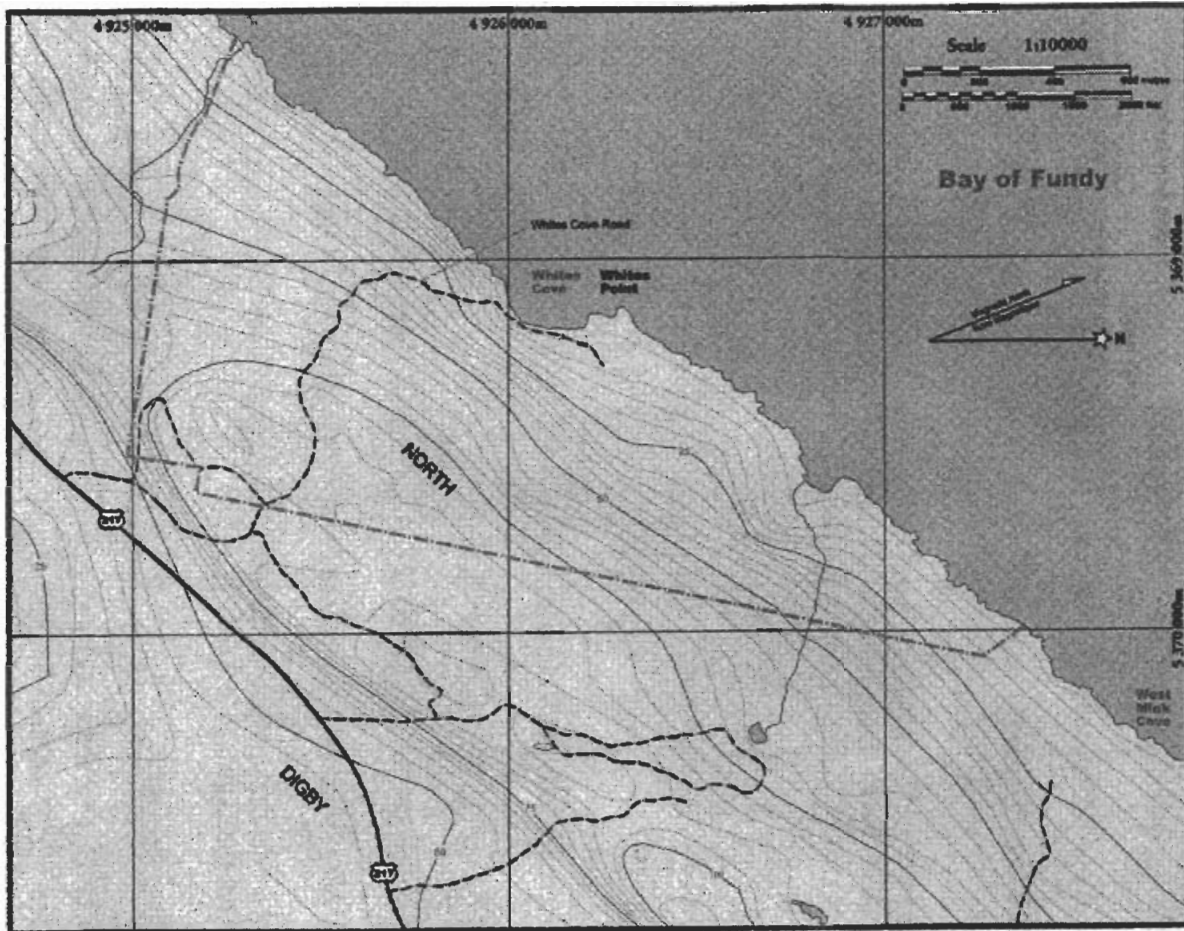
The location of the project is 44 degrees 27' 47" N, 66 degrees 08' 31" W.

A topographic Map 2A and aerial photo – Map 2B of the property follow.

The site layout of the main quarry components including quarry infrastructure and marine terminal is shown on Figure 1.

Environmental Features

The Whites Point Quarry site is composed of the Jurassic North Mountain Basalt. These basalts are typical of the onshore geology and continue seaward into the Bay of Fundy. North Mountain Basalt is present along the Bay of Fundy from Brier Island to Cape Blomidon, a distance of over 200 km. The North Mountain Basalt is a groundwater aquifer in the Digby Neck area. The Quaternary aged glacial deposit overburden along



Whites Point Quarry
 Little River, Digby County
 Nova Scotia

**Environmental Assessment/
 Impact Statement**

- Legend**
- Highway 217
 - - - Gravel Road
 - Property Line

Produced for: **Bisque of Nova Scotia Corporation**

Topographic

Map 24

Copyright © 1994 by Map Form, Bear River N.S.

**Whites Point Quarry
Little River, Digby County
Nova Scotia**

**Environmental Assessment/
Impact Statement**

Produced for: Bilcon of Nova Scotia Corporation

**Aerial Photo with
Property Line**

Graphic Design by Mark Pease, Bear River, N.S.

Map 2B

S.W. CORNER 01306 71 L-21 01-07-29 21B/8 1: 10 000

Buxton & Kern

Digby Neck is mapped as the Basalt Till Facies of the Beaver River Till Unit. This till is generally thin and mantled over the bedrock and may overlies older till deposits in some areas. Rossway soils cover the entire quarry site and are generally stoney and well drained. In Digby County, these soils are chiefly forested.

The existing topography of the proposed quarry site is steeply sloping toward the Bay of Fundy. Relief at the highest point is over 90 meters. Extreme gradients range up to 50% slope with more common slopes in the range of 10 % to 20%. Several areas such as those along the shoreline, the abandoned pit, and the southeast ridge of the site are relatively flat.

Surface water runoff from the majority of the site flows toward the Bay of Fundy except for an approximate 10 hectare area at the southeast corner which drains toward Saint Mary's Bay.

Ground water flows generally follow the same pattern as surface waters.

Several, small, intermittent, irregularly defined water courses, typical of the North Mountain, are evident flowing down the mountain side and dispersing into the Bay.

Forests and the habitats they provide are typical of the area and of coastal forests of the North Mountain Basalt Ridge Natural Landscape extending from Cape Blomidon to Brier Island. The property is almost entirely forested, dominated by coniferous species, with the exception of two coastal barrens south of Whites Cove and a coastal bog north of the Cove.

A significant proportion of the coniferous species, (particularly white spruce), is diseased, dead or dying. Approximately sixty acres of forest on the site was recently clear cut, primarily on top of the ridge along the east property line. Infestation of spruce, primarily white spruce, by the spruce bark beetle has prompted clear cutting of significant acreage of softwoods on nearby areas of Digby Neck.

Wildlife consists of common bird species and animals such as deer, coyote, mink, rabbits, etc. No significant wetlands or other sensitive wildlife habitats are known to exist on the property.

A few intermittent water courses flow down the mountain side into the Bay of Fundy.

A coastal bog exists where one of the watercourses enters the Bay. This watercourse, due to its intermittent flow, is not suitable as fish habitat.

The inter-tidal zone is comprised mainly of bedrock outcrops with a cobble zone at Whites Cove. Most of the mid and lower inter-tidal zone bedrock is covered with a thick mat of rockweed. Periwinkles, blue mussels, hermit crabs, dog welks and green crabs inhabit the areas of the inter-tidal zone. The bottom composition of the sub-tidal and

near-shore waters is primarily bedrock and supports lobster, starfish, sea urchins, sea cucumbers, and various fish including herring.

The near-shore fish habitat in the area of the proposed marine terminal consists of exposed basalt bedrock in the bottom area below chart datum. The bottom habitat above chart datum in the lower tidal zone is also basalt bedrock with a thick mat of rockweed. Water depths below chart datum, the average high water mark, and highest high water marks are shown on Figures 2 and 3.

Marine mammals such as whales, porpoises, dolphins, and seals frequent the Bay of Fundy in the vicinity of the quarry.

Seabirds such as Northern Gannets, Greater Shearwaters, and Storm Petrels also frequent the near-shore waters.

Common migratory waterfowl such as Black Duck, Common Eider, Bufflehead, and Common Goldeneye and other waterbirds frequent the near-shore waters along the coastline of the proposed quarry.

The overall dimensions of the marine terminal are shown on Figures 2 and 3. Pending more detailed engineering design, 36 inch diameter steel pipe piles are proposed in the water depths shown on the Figures. Assuming 3 – 36 inch diameter pipe piles per support structure, 133 square feet of bottom will be affected. However, vertical surface habitat area in the under water column will be created. The total vertical water column surface area available for marine organisms will be greater than the bottom habitat directly affected. Thus, no net loss of marine habitat is anticipated.

The duration of construction for the marine terminal is expected to be one year, depending on weather conditions. Construction materials will consist of steel pipe piles drilled and anchored to the basalt bedrock, and concrete pile caps for the berthing dolphins. The ship loader will be constructed of steel with a similar pipe pile and concrete foundation system. The conveyor system from shore will also be supported in a similar manner. Floating construction platforms are proposed to avoid disturbance to the near-shore and inter-tidal habitats.

Existing tidal and near-shore currents will experience negligible flow alteration as a result of the proposed pipe pile construction technique within the water column.

Surface water runoff from the quarry operations will be channeled into sediment retention pond/ponds. Discharges at the sediment retention pond overflow will be monitored on a weekly basis for pH and Total Suspended Solids and on a monthly basis for general chemistry. Discharges will be maintained in accordance with the Nova Scotia Department of Environment and Labour criteria with monthly summary reports furnished to the department. Surface water runoff collected in the sediment retention ponds will be clarified and recycled in a closed system for aggregate washing. The quality of quarry

site surface water being discharged into the receiving waters of the Bay is expected to remain the same as presently discharged.

Water quality in the inter-tidal and near-shore areas during construction will experience negligible alteration since no appreciable bottom sediments are present in the marine terminal construction area. Socket drilling for the pipe piles will be in bedrock. This drilling process will produce basalt aggregate sized material with little or no fines. Anchor drilling for the pipe piles will be done within the pipe casing and any fines resulting will be confined within the casing and removed with no discharge into the marine environment.

Land Use

Presently the property is partially forested as a result of some recent clear cutting. This type of land use is typical of the surrounding lands as well. Historic land use has included farming, a haul-up/skidway at Whites Cove, fish shacks/camps, and an abandoned gravel pit. No significant development exists in the watershed of the property and it is unlikely contamination from present or past land uses would have occurred.

Traditional aboriginal use is not apparent on or adjacent to the property. The closest Indian reserve is in Bear River about 60 km away.

No national parks, designated heritage sites, historic canals, sensitive or protected areas, are located adjacent to the property.

The property is in the vicinity of the community of Little River and is primarily rural, residential.

The quarry property is within 800 meters of some residential structures.

Use of Waterway

This near-shore portion of the Bay of Fundy is used primarily by lobster, herring, and sea cucumber fishers. During the six month lobster fishing season, lobster boats can frequent the near-shore waters on a daily basis. Other fishing vessels, whale watching vessels and bulk container vessels use the offshore waters. No obstructions are known to occur in this area of the Bay. Several local lobster and herring fishers use the near-shore waters. Also, herring seiners fish the near-shore waters. Local onshore harvesting of periwinkles is also done.

No recreational or aboriginal/substance fisheries are known to exist in the water area proposed for the marine terminal.