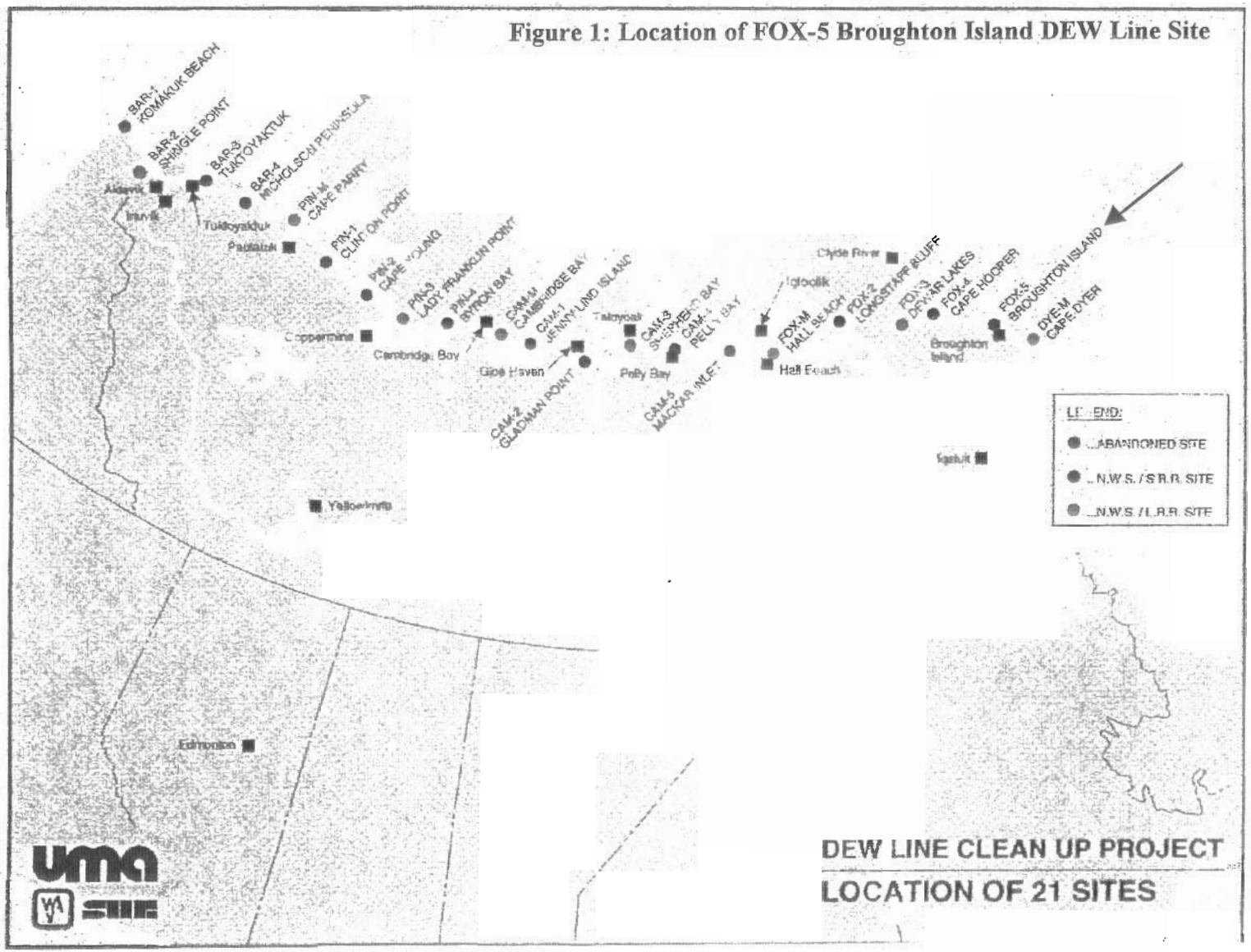
Figure 1: Location of FOX-5 Broughton Island DEW Line Site



3.2.2 TERRAIN UNITS

The distribution of surface materials is related to relative landscape position and closely tied with the regional glacial history. Ten terrain units, as shown on Figure 3.1, can be recognized within the three major types of surficial materials in the region based on surface expression, drainage pattern, and surface material. The facilities at FOX-5 occupy the five terrain units described in the following sections.

3.2.2.1 Terrain Unit 1

The main facilities at FOX-5 lie within Terrain Unit 1. The terrain, approximately 600 m a.s.l., consists of an area of felsenmeer/gruus untouched by glaciation and characterized by numerous boulders ranging from 0.3 to 0.7 m across with finer grained materials occupying interstices between the boulders. Samples of the material are typically light brown comprised of fine to medium-grained sands with variable silt and gravel contents. The surface expression is gently rolling and slopes are typically long and gentle, rarely exceeding 5 degrees. Slope directions are variable ranging from north through south. Drainage directions fashion a radial pattern throughout the terrain. The surface materials are typically pervious and areas of standing water or saturated soils are rare.

Subunit 1a comprises the disturbed land on which the main facilities are constructed. Extensive dozing and levelling has modified the landscape and sand and gravel pads have been constructed throughout. Drainage patterns remain essentially the same, radiating outward toward the surrounding landscape, however, local depressions within the landscape result in some ponding in the area. The surface materials throughout the terrain are generally pervious, although near the sewage outfall, ponding and saturation of the surface is common.

3.2.2.2 Terrain Unit 2

Terrain Unit 2 comprises the raised marine deposits along the coastal region. Two areas of raised marine sequences occur, one along the west coast the other along the north coast. The raised marine terrace along the west coast ranges from approximately 0.5 km to 2 km wide. Surficial sediments typically consist of marine silts, clays, and sands interbedded with diamicton and mass waste deposits. The terrain is nearly level to very gently undulating and slopes very gently toward the sea. Surface materials are typically pervious, however wet or saturated areas are common throughout the landscape. Drainage channels are poorly developed and generally trend westward, parallel to the regional slope.

A garage facility, POL storage area 3, and pallet area 5 are located in Terrain Unit 2.

The second raised marine succession, Subunit 2a located along the northern coast, is much narrower than Terrain Unit 2, ranging from several tens of metres to several hundred metres wide. It is bench-like in profile, bound along the seaward coast by relatively high cliffs and by still higher cliff walls along the landward side.

3.2.2.3 Terrain Unit 3

Terrain Unit 3 comprises tills within U-shaped valleys of the region consisting mostly of gravels and sands with variable amounts of fine materials. Regionally, prominent "striping" of the tills induced by frost melt and downslope movement are characteristic. The surface expression ranges from gently inclined along valley sides to very gently undulating along the valley floors The surface materials are typically highly to moderately pervious, although, areas of standing water occur within the landscape. Poorly developed streams and runways occupy the valley bottoms. Surface materials within these areas are typically saturated or wet but become increasingly less saturated upslope of the valley bottom.

3.2.2.4 Terrain Unit 4

Terrain Unit 4 includes steep terrain that is comprised of very coarse-textured, boulder-covered talus. Surface materials are typically pervious. Drainage channels, although poorly developed, are evident in the landscape and are typically straight, narrow, and parallel the regional slope direction.

Subunit 4a flanks the western perimeter of Terrain Unit 1 and Subunit 1a. Drainage from Subunit 1a, which includes the sewage outfall from Module Train A, ultimately moves toward the extreme southeast corner of Subunit 4a and follows a comparatively well developed runway that extends southwest to the water supply lake.

Subunit 4b flanks the northeastern perimeter of Terrain Unit 1. This terrain is moderately inclined toward the northwest and drains the eastern perimeter of Terrain Unit 1. A single well developed drainage path from the landfill area extends across the subunit and ultimately to the sea.

3.2.2.5 Terrain Unit 5

Terrain Unit 5 comprises very steeply inclined cliff faces that occur near the eastern part of the map area. The cliff faces are typically comprised of granite with variable amounts of talus along the rock slopes. The unconsolidated surface materials are coarse textured and pervious. Drainage channels are comparatively well defined and generally trend parallel the regional slope direction.

Subunit 5a flanks the eastern perimeter of Terrain Unit 1 and Subunit 1a. Slopes and drainage from the extreme southeast corner of Subunit 1a (which includes pallet storage area P-1) trend toward Subunit 5a.

Subunit 5b forms a narrow northwest-southeast trending belt adjacent to Subunit 4b. Drainage from the landfill flows through the unit toward the northeast.

3.2.2.6 Terrain Units 6 Through 10

The remaining terrain units recognized within the map area include the following:

Unit 6 - colluvial aprons.
Unit 7 - terrain characterized by a valley floor of extensively eroded and dissected till.
Unit 8 - terrain characterized by hummocky raised marine deposits.
Unit 9 - terrain characterized by till/bedrock.
Unit 10 - boulder covered bedrock knolls.