



February 2, 2005

Project No.: PIN-4 (3.6)

VIA E-MAIL (LICENSING@NWB.NUNAVUT.CA)

Ms. Phyllis Beaulieu
Licensing Administrator
Nunavut Water Board
P.O. Box 119
Gjoa Haven, NU X0A 1J0

Dear Ms. Beaulieu:

RE: Final Report for Water Use License #NWB5BYR0308

UMA Engineering Ltd. is submitting the following final report as per the requirements of Part B.1 of the above noted water use license. The report is being submitted on behalf of Defence Construction Canada and the Department of National Defence.

The former PIN-4, Byron Bay DEW Line site was closed in the early 1990's and is scheduled for clean up starting in 2007. Prior to all DEW Line Clean Up (DLCU) activities, a detailed site investigation is undertaken. The results are used to prepare a remedial action plan for the clean up of the site. This plan is then used in the Project Description, which is submitted to the Nunavut Impact Review Board for approval and to the Nunavut Water Board to obtain a water use license.

Prior to the site investigation in 2003, a due diligence investigation was conducted in 2002 in response to Environment Canada inspections at other DEW Line sites. The due diligence investigation identified hydrocarbon-impacted soils with total petroleum hydrocarbon concentrations in excess of the assessment criteria of 2500 parts per million at the beach petroleum, oils, and lubricants (POL) storage area, in close proximity to the marine shoreline. It was determined that the hydrocarbon-impacted soils in this area should be excavated as soon as possible and stored for treatment during the overall site clean up. Because of the urgency of this work, it was conducted at the completion of the site investigation, rather than during the overall site clean up in 2007.

The site investigation at PIN-4 occurred in July and August 2003, and the clean up of the beach POL area was completed in the first week of September 2003. The existing airstrip was used to access the site and the existing roads were utilized for vehicular traffic on-site. A temporary camp was set up by Nunavut Expediting Services on the west side of the hangar to facilitate the site activities. Major equipment used on-site included ATVs and trailers, mini-excavators, satellite phones, radios and laboratory equipment.

During the site investigation, soil, water and structural material samples were collected to characterize and delineate chemical contaminants associated with the operation of the former DEW Line site. Principal areas of investigation included the beach area, the station area, the communications area, the POL storage areas, landfill areas, and debris areas. Test pits used to collect soil samples or investigate borrow sources were excavated by hand or by mini-excavator, and were backfilled prior to site departure. Monitoring wells for collecting groundwater samples were installed in some of the test pits. Inventories were taken of the buildings and facilities on site. Geophysical, topographic and location surveys were performed. Potential sources of granular material required for the clean up activities were identified, as were potential locations for site disposal facilities, storage areas, construction camp, etc. required for clean up activities.

The results of the site investigation identified six existing landfills and several debris areas. Hydrocarbon contaminants were identified in several areas, most notably in the POL storage area at the beach, and around the station buildings including the module train and garage. Other soil contaminants identified include inorganic elements (i.e., metals) and PCBs. The proposed landfill and landfarm areas were assessed to determine their suitability for construction. Paint, insulation and concrete samples collected from the building infrastructure showed that PCBs, asbestos and lead were present in some areas and would have to be dealt with accordingly in the clean up plan.

Water samples collected from the existing water supply lake indicated the presence of E. coli and elevated concentrations of sodium and calcium, and therefore the water was not suitable for human consumption. Commercially bottled water was brought in for drinking water purposes during the site investigation and beach POL clean up. Additional water samples will need to be collected prior to consideration of the water supply lake for drinking water during the overall site clean up.

Following the site investigation, a work program was developed to address the hydrocarbon-impacted soil at the beach POL storage area, near the shoreline. This included the requirement to construct a bermed area to be used for the storage of the hydrocarbon-impacted soils once they were excavated. The following work was completed in 2003:

- Construction of perimeter berms at the beach POL tank area to complete a secure storage area for Type B hydrocarbon impacted soils.
- Remediation of the beach POL including the excavation and disposal of Type B hydrocarbon impacted soil. The work included:
 - Excavation and transport of approximately 3,000 cubic metres of Type B hydrocarbon impacted soil from the beach POL area to the bermed POL tank area.
 - Provision of erosion and sediment control will be required during the excavation activities. Excavation, transport, placement and compaction of approximately



3,000 cubic metres (in-place volume) of clean, granular backfill material from an adjacent source for the beach excavation.

Upon completion of the site investigation and beach POL clean up, all equipment was removed from the site. Laboratory wastes were containerized and stored in the hangar for disposal during the site clean up. Plywood and other heavy/bulky materials were also stored in the hangar for disposal during clean up. All excavated test pits were backfilled. Greywater from the camp was discharged to a pit and backfilled at the end of the site investigation.

No spills or releases occurred at PIN-4 during the 2002/2003 seasons.

A topographic map segment and an overall site plan are included to show the locations of the various work areas described in this report.

We trust the information provided is consistent with the requirements of Water Use Licence #NWB5BYR0308. Please feel free to contact the undersigned if you have any questions or comments.

Sincerely,

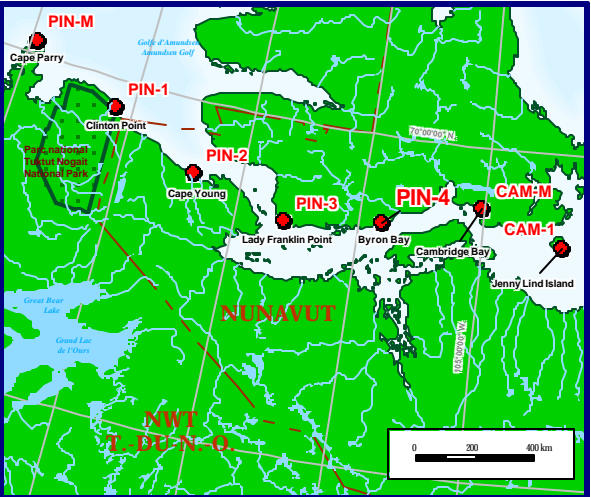
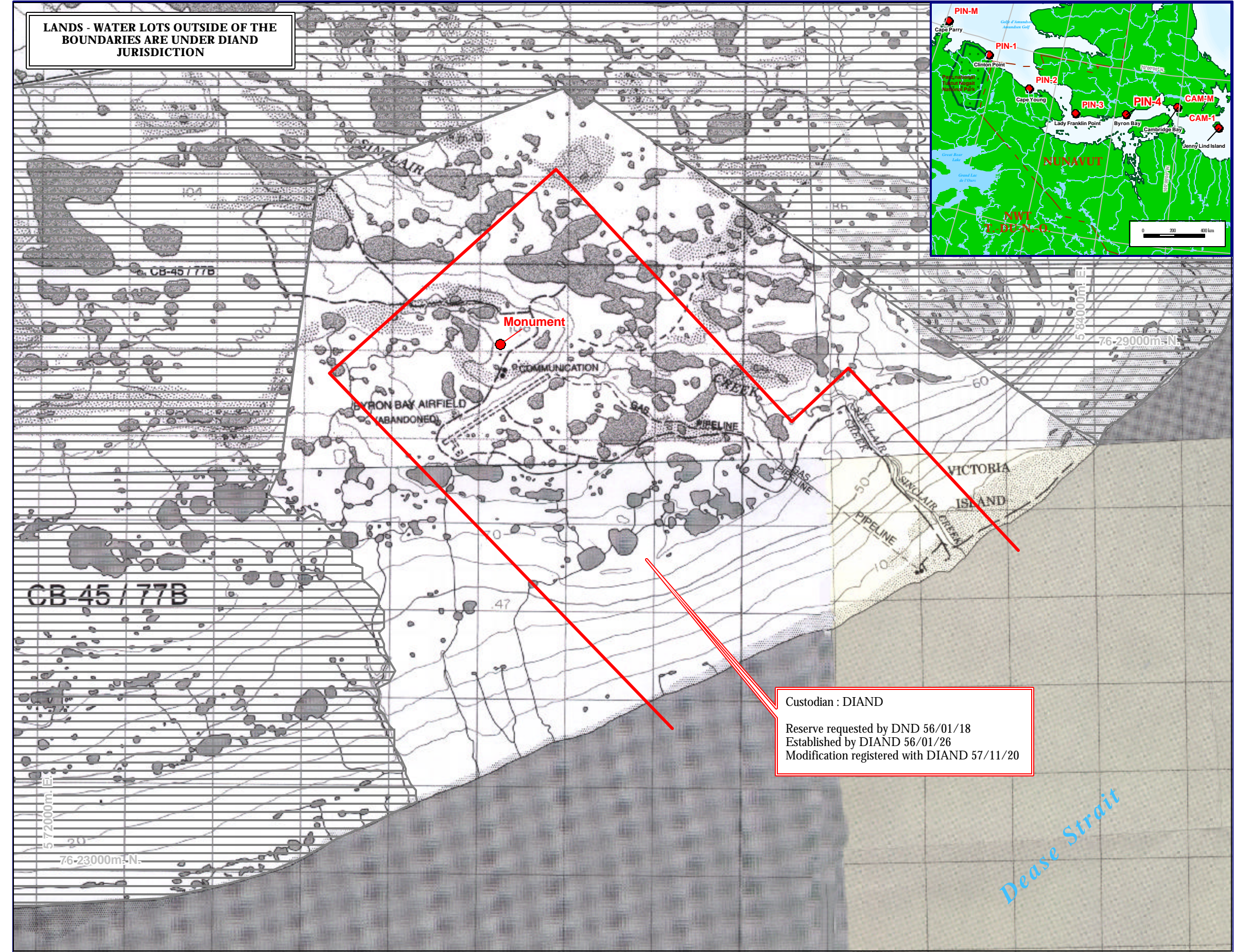
UMA ENGINEERING LTD.

A handwritten signature in black ink, appearing to read 'Eva Schulz', is positioned above the printed name.

Eva Schulz, P.Ag.
Environmental Scientist
eschulz@umagroup.com

Encl. Topographic Map Segment
Overall Site Plan
Site Photos

cc: Jim Wall, NWB
Phil Warren, DCC



Version 2.0

PIN-4

BYRON BAY

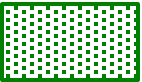
FINAL



Reserved for DND /
Réservé pour le MDN



Inuit Owned Lands/
Terres en propriété Inuit



National Park /
Parc national

The original reserve boundary was created using the USAF metes and bounds description. This description has inherent limitations (as demonstrated where it extends into the water). The anomalies have been left on the map as the metes and bounds description was used to originally reserve the land for DND.

La limite de la réserve originale a été créée à partir de la description technique provenant de USAF. Cette description présente des anomalies évidentes comme le démontre les les parties se prolongeant au-delà de la côte. Ces anomalies ont été laissées sur la carte puisqu'elles proviennent de la description utilisée par le MDN afin d'établir l'emplacement réservé.

The UTM Grid does not line up due to a datum shift between the Topographic Maps.

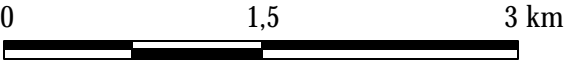
Le cadrillage UTM n'est pas parfaitement aligné dû au changement de cadre de référence entre les cartes topographiques utilisées.

Carte de base : cartes topographiques 77 B/9 (NAD27) et 77 B/10, 77 B/15, 77 B/16 (NAD83) (Échelle 1 : 50 000). Zone UTM 12.
Publié par le Ministère des Ressources naturelles Canada, 1987, 1994, 2000, 2001.

Background information : Topographic maps 77 B/9 (NAD27) and 77 B/10, 77 B/15, 77 B/16 (NAD83) (Scale: 1: 50 000). UTM Zone 12.
Produced by the Department of Natural Resources Canada, 1987, 1994, 2000, 2001.

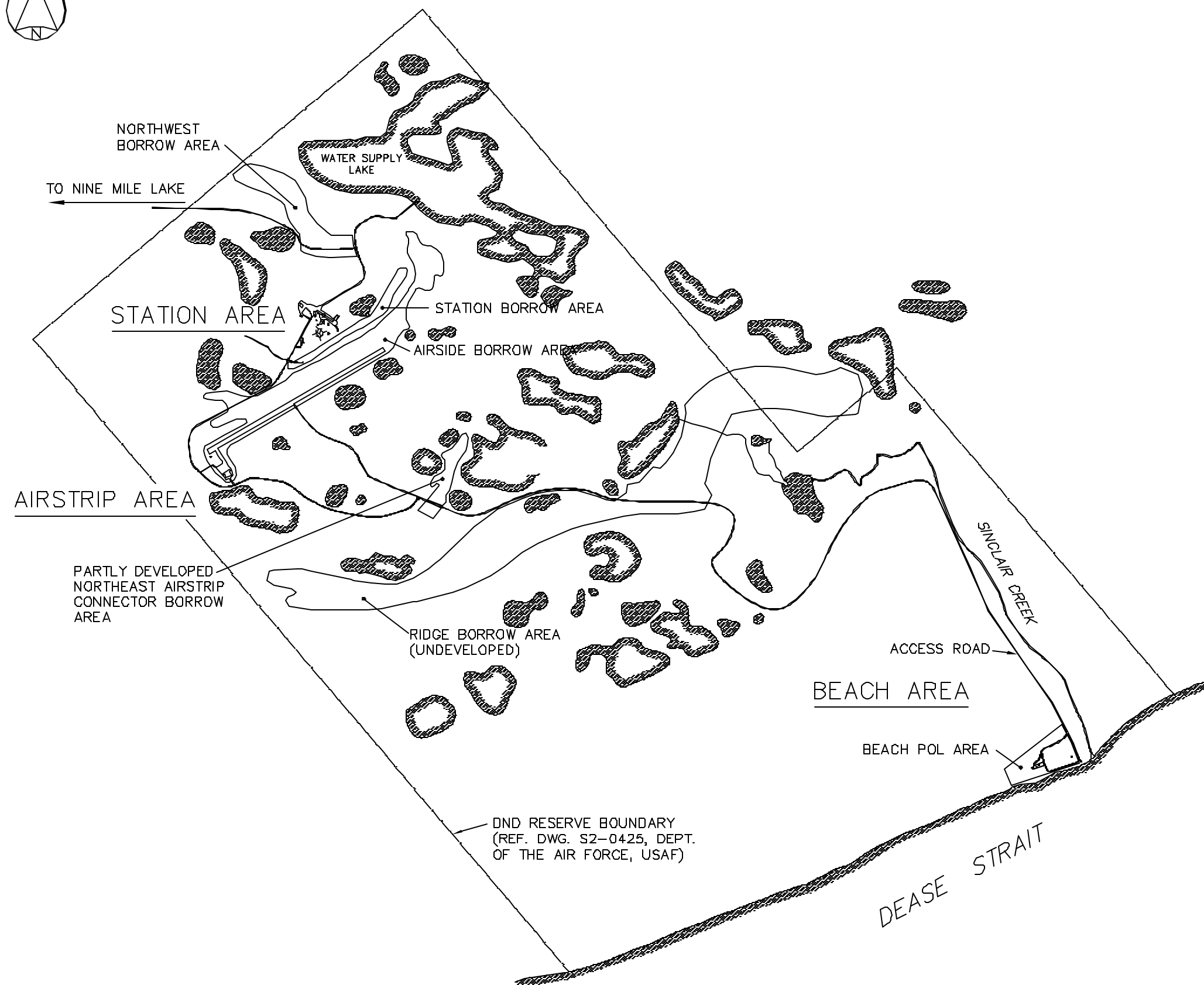



Scale / Échelle : 1 : 43 000



This map is to be used for presentation purposes only.
This map is not a legal survey document.

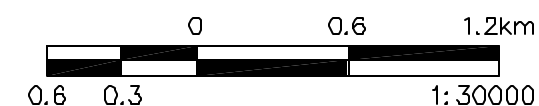
Cette carte devrait être utilisée à des fins de présentation seulement.
Cette carte n'est pas un document d'arpentage légal.



 **National Défense**
Defence nationale
DEW LINE CLEAN UP

PIN-4 BYRON BAY
DUE DILIGENCE CLEAN UP
MARCH, 2003

OVERALL SITE PLAN
SKETCH 101



PHOTOGRAPHIC RECORDS



Photo 1: Aerial view of camp at the hangar.



Photo 2: Site investigation camp.