ANNEX H

DYE-MAIN

CAPE DYER, N.W.T.

ANNEX H

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PART 1

INTRODUCTION

1.1 The Cape Dyer station (DYE-Main) is an original DEW Line station built about 30 years ago. Cape Dyer is located on the most easterly point of land on Baffin Island and is the most easterly Canadian station on the DEW Line. It is the most easterly DEW site to be converted to a LRR; the three other east coast sites are new. Renovations to DYE-Main will be completed in 1988.

PART 2

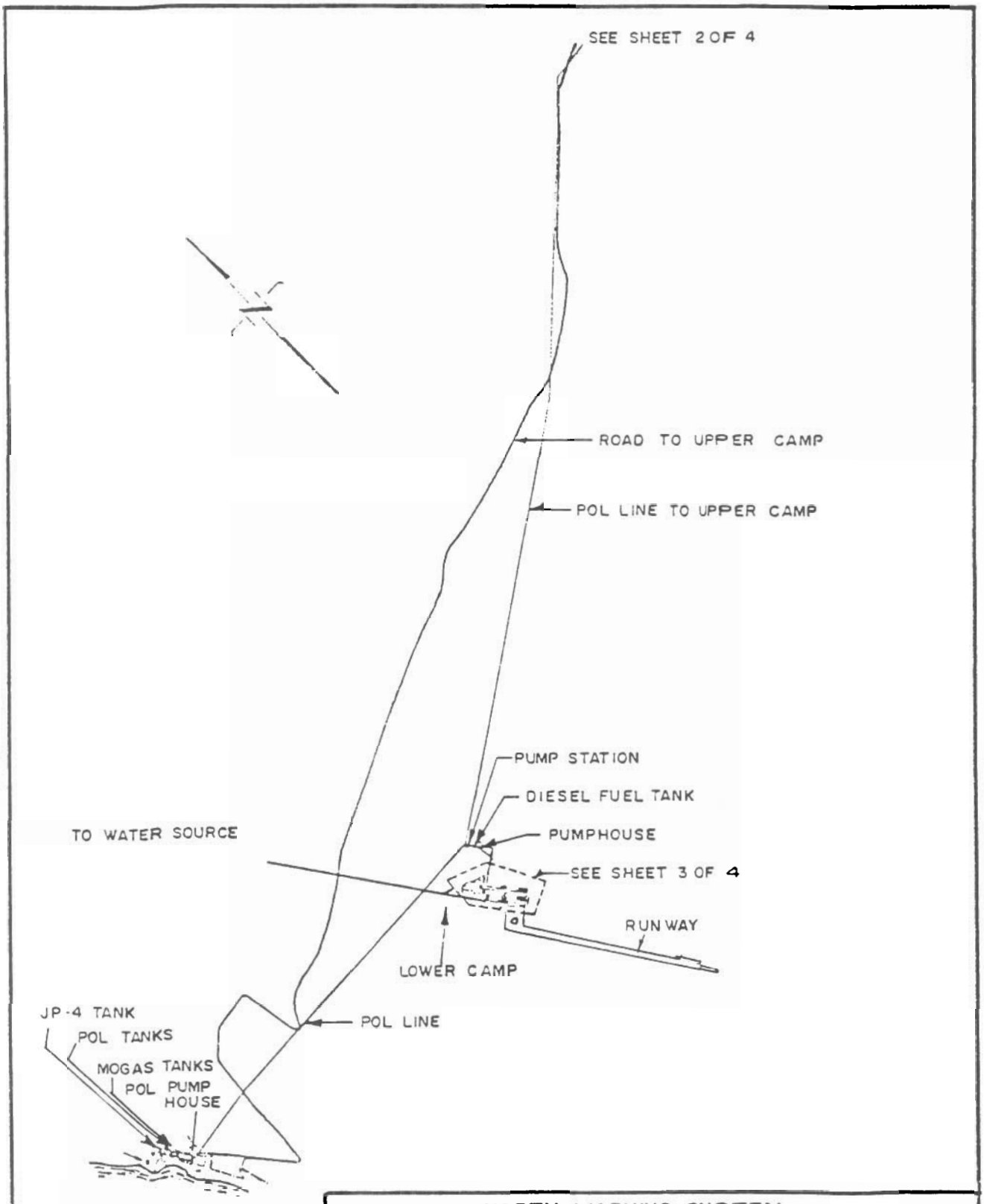
PROJECT DESCRIPTION

2.1 The DEW Line radar station at Cape Dyer (DYE-Main) is in a unique geographic setting. Cape Dyer is the easternmost point on Baffin Island: to the east lies Davis Strait and beyond that Greenland. The exact location of upper camp, the main radar station is 66°-39'-52" N, 61°-21'-27" W which is essentially on the Arctic Circle. The entire station occupies approximately 9,425 hectares. To the west lies Sunneshine Fiord, a large protected harbour.

2.2 Characteristic of Cape Dyer and the eastern coastline of Baffin Island are the rugged mountains with steep-sided cliffs which descend to the ocean from more than 700 m.

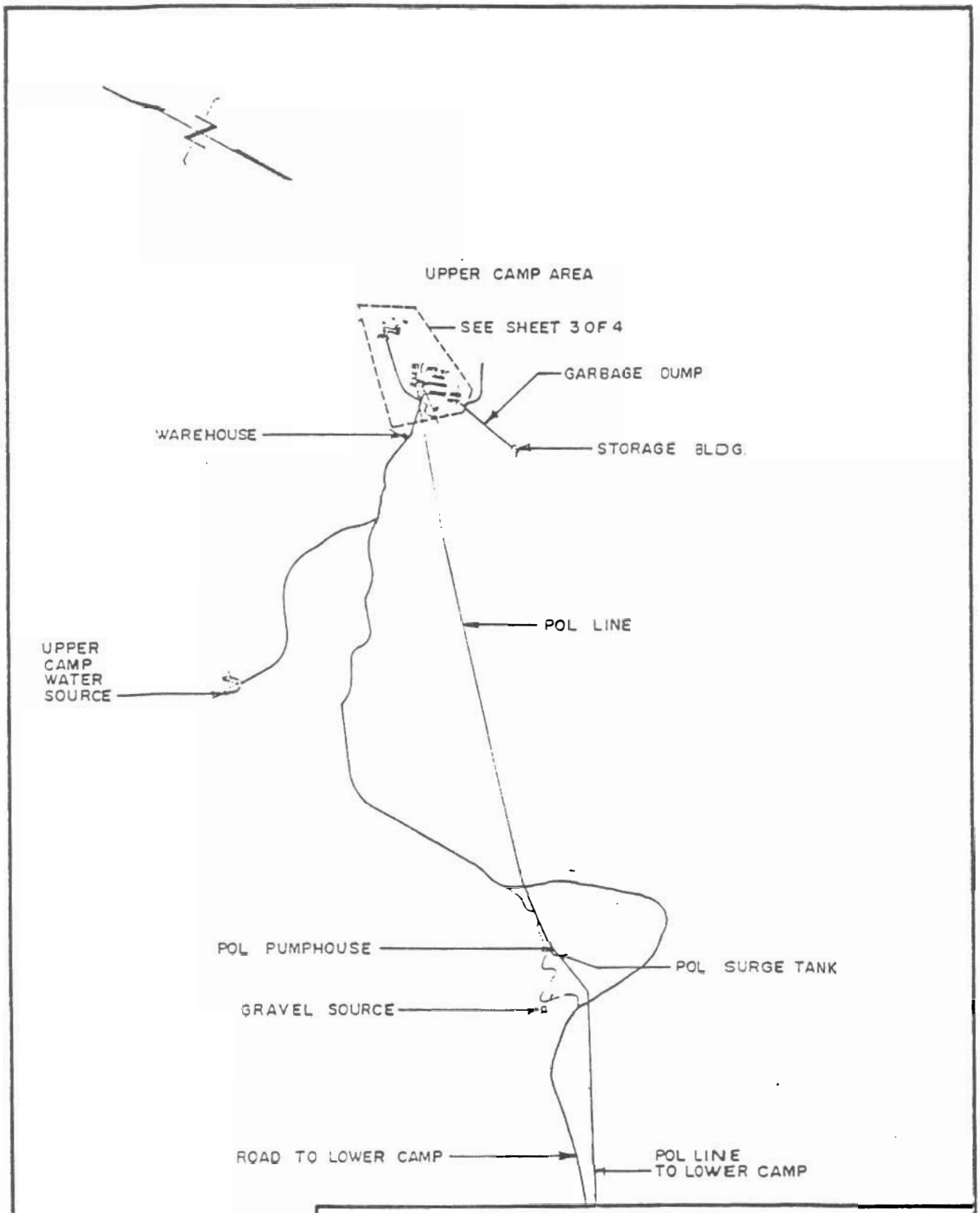
2.3 DYE-Main serves as an operational and administrative centre for other auxiliary radar stations, originally those in Greenland. Today stations north along the eastern coast of Baffin Island, (FOX-5 and FOX-4) are served by DYE-Main.

2.4 DYE-Main (Figure H-1) consists of three distinct components: the beach area at sea level on Sunneshine Fiord, the airport farther east on a level plateau at 350 m above

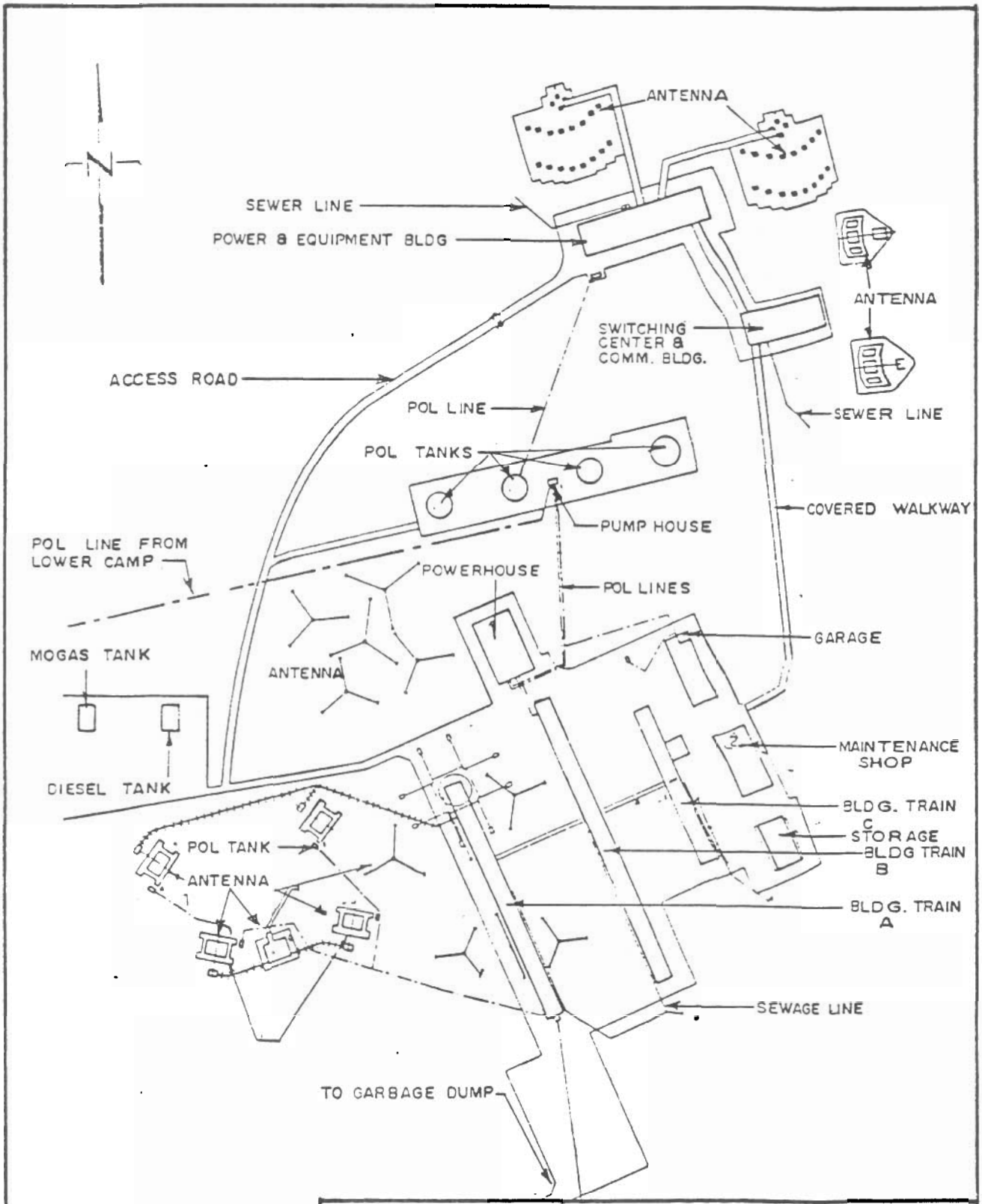


NORTH WARNING SYSTEM
INITIAL ENVIRONMENTAL EVALUATION
FIGURE: H-1

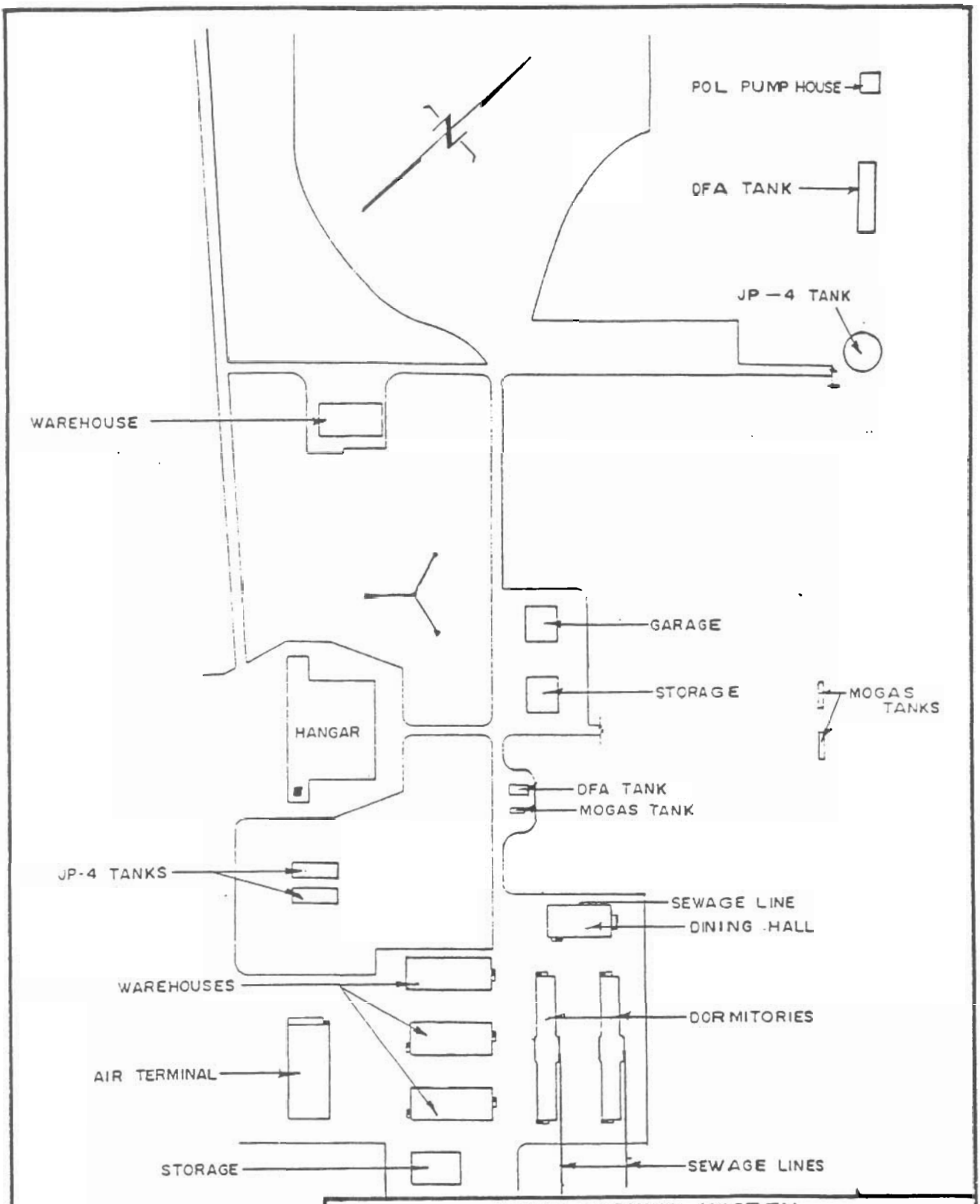
DYE – MAIN SITE PLAN
(SHEET 1 OF 4)



NORTH WARNING SYSTEM
INITIAL ENVIRONMENTAL EVALUATION
FIGURE: H-1
DYE – MAIN SITE PLAN
(SHEET 2 OF 4)



NORTH WARNING SYSTEM
INITIAL ENVIRONMENTAL EVALUATION
FIGURE : H-1
DYE-MAIN SITE PLAN
(SHEET 3 OF 4)



NORTH WARNING SYSTEM
INITIAL ENVIRONMENTAL EVALUATION
FIGURE : H-1
DYE — MAIN SITE PLAN
(SHEET 4 OF 4)

sea level, and the radar station high upon the mountain (700 m above sea level) to the east overlooking Davis Strait. The three are separated by a distance of about 15 km and an elevation of about 700 metres.

2.5 The upper camp consists of dual 25 module building trains, maintenance and storage buildings, fuel and water tanks and the radome. The lower camp at the airport consists of an aircraft hangar, storage buildings, garages and complete accommodation facilities as weather frequently prohibits movement between the upper and lower camps. Staff at the lower camp maintain the airstrip facilities and the lower half of the road to the upper camp.

2.6 The upper camp at Cape Dyer will be modernized to include new power generators in a new power generation module on the south end of "A" train, 2 SGTs, new radar and electronics as well as a stiffened and strengthened radome tower.

2.7 DYE-Main is an active site: because of this and its size, the modifications necessary to make it a LRR are not expected to result in any incremental environmental disturbance. No activities will take place beyond the existing upper site.

2.8 Construction personnel on site are expected to number less than 20 and will be on site during the summer months of 1986

and 1987. The annual average staff complement for present operations and maintenance is 62. This number will be reduced for NWS O&M but because staff will be required at the lower camp, more than the minimum of 10 will be required.

2.9 Dye-Main has had more polar-bear incidents than any other DEW Line site over the past 30 years. No humans, but some camp dogs have been injured during these encounters.

PART 3

EXISTING ENVIRONMENT

3.1 Biophysical Resources

3.1.1 Baffin Island is typically described as a landscape of high mountains, deep fiords, and glaciers. DYE-Main is situated in such an environment on the most easterly tip of Baffin Island. The main camp sits atop a boulder-strewn mountain at an elevation of 700 m. The ocean is inaccessible to the east because of high cliffs. Access to Cape Dyer is via the beach and steep hillside 15 km to the west in Sunneshine Fiord. Above the embankment at an elevation of about 400 m is a flat plateau upon which the airport and lower camp are situated.

3.1.2 The beach at Cape Dyer is the eastern edge of Sunneshine Fiord, a long fiord extending generally northwest from Davis Strait. The fiord is approximately 30 km long and over 4 km wide at the DYE-Main beach. It serves as a deep and well-protected harbour. It is in excess of 150 m deep in the centre of the channel, about 2 km offshore.

3.1.3 Cape Dyer has an alpine tundra and marine climate. Few pockets of impoverished soils exist between the barren rocks. Lichen, moss and small vascular plant life are the typical vegetation.

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3.1.4 Total annual precipitation is 66 cm of which 510 is snowfall. Fog is prevalent between the beach and the upper camp. The climate is wet and cold during a winter season that can last up to eight months. The minimum recorded temperature is $-47^{o}C$ and the maximum recorded temperature is $26^{o}C$.

3.1.5 Cape Dyer is isolated on the eastern edge of a mountainous peninsula and wildlife is not common. Caribou are occasionally seen at the lower camp on the plateau and periodically polar bears are encountered at both camps, particularly during the start of the open water season when they are forced ashore by the break-up of the land-fast ice. Arctic fox are often seen in the region and near the camps.

3.1.6 The coastal waters are important habitat to walrus, seals and many species of whales and porpoises. Icebergs and multi-year ice features are always present offshore and in the fiords. Landfast ice builds up in the winter and extends some distance offshore.

3.2 Socio-economic Setting

3.2.1 DYE-Maine is remote from northern communities. Inuit from the coastal community of Broughton Island, 150 km northwest, tend to utilize the marine and terrestrial wildlife closer to home. There are aircraft and communication connections between Cape Dyer and Broughton primarily because there is a DEW Line site (FOX-5) near the community on Broughton Island.

3.2.2 Broughton Island is more directly connected by aircraft to Pangnirtung in Cumberland Sound which is 170 km southwest across the Auyuittuq National Park.

3.2.3 In recent years the fiord at Cape Dyer has been used as a safe harbour by a cruise ship enroute to the Northwest Passage during summer months.

3.3 Land Use

3.3.1 Cape Dyer is sufficiently remote and rugged that other than for DYE-Main there is no other consistent use made of the land.

3.4 Heritage Resources

3.4.1 There are no known heritage resources in the immediate vicinity of the station. The Baffin Island National Park is in excess of 100 km to the west of the station.

PART 4

PROJECT IMPACTS AND MITIGATIVE MEASURES

4.1 Potential Impacts

4.1.1 DYE-Main is one of the larger stations on the DEW Line, being an administrative and maintenance centre for other DEW Line stations on Baffin Island and the eastern terminus for aircraft flights on the Canadian DEW Line.

4.1.2 The following discussion of potential impacts is predicated upon the assumption that DYE-M is presently operated in an environmentally acceptable manner. Thus the evaluation addresses the incremental effects of construction activities required to convert the existing DEW Line station to a LRR and the effects of subsequent O&M over the expected 20-year lifespan.

4.1.3 Any potential sources of environmental impact will result from construction noise and site activity. This activity is limited to modifications to existing facilities and installation of two SGTs. All activities will be within the summit camp.

4.1.4 In the future, the site size is expected to remain constant and although personnel are expected to be reduced the activities should remain consistent with what has occurred

over the past 30 years. Consequently, the O&M and decommissioning and abandonment activities at DYE-Main do not represent significant sources of environmental disturbance.

4.1.5 The modifications which will be undertaken to upgrade the existing station to a LRR will be minimal compared to the existing facilities at DYE-Main upper camp. The following table lists the site alterations which will be required to upgrade DYE-M.

Site: CAPE DYER		DYE-M
EXISTING SITE COMPONENTS	EXPECTED ALTERATIONS	NET CHANGES
1. TERRAIN General Features Prominent Features	. No change	. No change
Roads/Culverts Surface Drainage	. No change	. None
2. AIRPORT/RUNWAY Buildings Landing Strip Cut & Fill Refuelling Facility	. No change	. No change

Suggested to be BYE M data ???

FOX-M DATA

Site: HALL BEACH FOX-M

EXISTING SITE COMPONENTS	EXPECTED ALTERATIONS	NET CHANG
3. CAMP SYSTEMS		
General Site Buildings	. Modifications to radar module . Build new power module . Demolish old power module	. Stiffen, strengthen radome tower, install new radar . Modify C&E module for new electronics equipment . New power module replaces old
Construction Buildings	. None. Adequate accommodations exists	. None
Water Supply/Source Water Treatment	. No change, adequate as is	. Increase in use rate during two summers
Sewage Disposal Sewage Treatment Garbage/Waste Disposal	. No change, facilities adequate	. Increase in use rate during two summers
Heating System Power Systems	. A new larger power power system was installed in 1986 . Decommission old power module	. New power module was added to the south end of "A" train, upper camp . Demolish old power module and remove debris
4. STORAGE Fuel Tanks/Berms Drums/Pipelines Other Liquids	. No change	. None
5. SCRAP Materials/Vehicles	. Construction and demolition debris to be disposed	. Disposal of debris by landfill or sealift
6. HARBOUR/BEACH Shoreline Dock/Landing Area Staging Area Boats, Other Vessels	. Adequate as is	. None

Site: HALL BEACH		FOX-M
EXISTING SITE COMPONENTS	EXPECTED ALTERATIONS	NET CHANGES
7. QUARRIES/GRAVEL SOURCE Land Use Stock Pile	. No changes.	. None. Existing source adequate
8. NOISE SOURCES Machinery/Buildings Vehicles/Aircraft Activities	. Construction activity & vehicle traffic	. Minor increase in noise & activity at upper camp during two summers
9. WILDLIFE Animals/Habitat Birds/Habitat Marine Animals	. No habitat conflicts or disturbance expected	. So few animals near upper camp that no effects are likely
10. VEGETATION General Features Plants etc.	. No change	. No change
11. ASTHETIC/VISUAL Towers Lights	. No change	. No change
12. COMMUNITY Village Resource Use Activities Other	. No change	. None
13. PEOPLE NWS Others	. increase of construction staff for 2 summers . reduced staff during O&M	. 10 - 20 construction staff for 2 summers at upper site. . reduced O&M staff at upper camp.
14. HISTORICAL RESOURCES Archaeological Sites Artifacts	. None at site	. No change
15. PROTECTED AREAS Parks etc.	. Auyuittuq National Park about 110 km away	. No change

Site: HALL BEACH		FOX-M
EXISTING SITE COMPONENTS	EXPECTED ALTERATIONS	NET CHANGES
16. ENVIR./SOCIO-ECONOMIC ISSUES Type	. None expected	. No change
17. OTHER	. None	. None

4.1.1 Biophysical Resources

4.1.1.1 A review of the Valued Ecosystem Components and potential issues outlined in Table 3-1 suggests that wildlife disturbance is the only significant potential issue of concern. The marine life offshore Cape Dyer and in the adjacent harbour is recognized as an important resource. Potential disturbance to the marine resources is, however, unlikely because there will be no increase in sealift activity and all site modifications will be at the main camp. In the absence of direct harassment, no terrestrial animals would be disturbed or otherwise affected by a minor increase in site noise or activity. Construction impacts are characterized as being local, short term and negligible.

4.1.1.2 The additional construction personnel on site will result in greater use being made of all site services which are, however, adequate to handle the additional requirements.

4.1.1.3 No incremental effects are expected from the reduced activities associated with NWS O&M at DYE-Main.

4.1.2 Socio-economics

4.1.2.1 There will be no direct socio-economic impacts as a result of the DYE-Main LRR construction. Most site construction staff are skilled tradesmen brought to site by the contractors. Operation of the LRR with a reduced staff will have no incremental socio-economic impact on local economics.

4.1.3 Heritage Resources

4.1.3.1 Construction activities will be restricted to the existing site area so that there is no potential for impacting either identified or presently unknown regional archaeological sites. Similarly site operations will be restricted, as in the past, to the developed site area.

4.2 Residual Effects

4.2.1 It is not anticipated that there will be any incremental residual impacts from the DYE-Main LRR construction or operation because except for a reduction in staff, there will be no discernible change in the size of the site or level of activities.

4.3 Monitoring Programs

4.3.1 As part of current O&M, equipment is maintained at a high level of reliability including fuel handling pumps, pipelines and related equipment. These procedures will continue and also be enhanced by the implementation of an environmental protection plan for the NWS.

4.3.2 No monitoring programs are anticipated at this time but, as required by future circumstances, appropriate programs could be implemented to define unanticipated environmental changes or monitor the success of some mitigative efforts.

4.4 Trade-offs and Alternatives

4.4.1 Site location and standard operating practices will be maintained consequently there are no relevant alternatives to the proposed facility modifications at DYE-Main.