

ANNEX B – PIN-M SITE-SPECIFIC INFORMATION

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NOTE: ADDITIONAL INFORMATION, INCLUDING UPDATED REPORTS/RECORDS, WILL BE PROVIDED TO THE SUCCESSFUL PROPONENT FOLLOWING CONTRACT AWARD.

B. SITE SPECIFIC INFORMATION – PIN-M CAPE PARRY

B.1 Introduction

The PIN-M Cape Parry former main DEW Line site is located in the Northwest Territories at approximately 70° 10' 17" N, 124° 43' 30" W. The site is approximately 100 km northwest of the community of Paulatuk and is located on Parry Peninsula, adjacent to Amundsen Gulf. The nearest community in the Inuvialuit Settlement Region with an aircraft charter base and a full range of commercial and public services is Inuvik, approximately 415 km to the southwest. The site is characterized by sandy, gravelly terrain as well as low-lying, poorly drained areas. The site is located within the zone of continuous permafrost.

PIN-M is accessible via charter aircraft (fixed wing or helicopter); the condition of the runway is unknown. North Warning System (NWS) on-site facilities are not available for accommodation; NWS on-site transportation is not available and the condition of various site access roads is unknown.

PIN-M was converted to a NWS Long Range Radar (LRR) station in 1993. An environmental clean-up and demolition of facilities not required for LRR operation was completed in 1999, including closure and remediation of five landfills. Post-clean-up landfill monitoring is being carried out at the site at the following locations shown on Figure PIN-M.1:

1. Station Area Landfill and Extension
2. Main Landfill – West
3. Main Landfill – East
4. West Point Landfill
5. Abandoned Camp Landfill

The monitoring schedule for PIN-M Cape Parry is provided in Table B1 below:

Table B1 – Monitoring Schedule PIN-M Cape Parry		
No. of Years After Construction	Monitoring Event Number	Year
Prior to/During:	Baseline	1989-1998
1	1	1999
3	2	2001
5	3	2003
7	4	2005
10	5	2008
15	6	2013
19*	6b*	2017*
25	7	2023
<i>Shaded cells are those covered under this contract.</i>		
<i>* A supplemental monitoring event was added in 2017 to address recommendations derived from the findings of the 2013 monitoring.</i>		

The most recent pre-scheduled monitoring event at PIN-M, Cape Parry, was conducted in 2013, 15 years following remediation of the site. The next pre-scheduled monitoring event for PIN-M is to be completed in 2023 (year 25). Based on the findings of the 2013 monitoring event, an additional visual inspection of the Station Area and Extension Landfill was recommended in order to re-assess erosion features observed along the east side of the landfill slope and evaluate the rate of erosion at this location. In addition, soil and groundwater sampling/monitoring is to be conducted at this landfill in 2017, and the locks on wells MW-2 and MW-5 are to be replaced.

In addition to the above, a visual inspection was recommended to assess the east side of the Main Landfill – West, where a significant erosion feature was noted across the access road northeast of the landfill in 2013. The erosion feature/washout is to be assessed and maintenance options are to be provided by the consultant as part of this contract. No additional sampling or monitoring is to be undertaken at this landfill in 2017.

A summary of monitoring installations associated with the Station Area Landfill and Extension is provided in Table B2 below.

Table B2 – Summary of Landfill Monitoring/Sampling Locations			
PIN-M Cape Parry			
Landfill Designation/Monitoring Locations	Coordinates¹		Elevation
	North (m)	East (m)	(masl)
Station Area Landfill and Extension			
MW-1 (soil and groundwater)			
MW-2 (soil and groundwater) ²			
MW-3 (soil and groundwater)			
MW-4 (soil and groundwater)			
MW-5 (soil and groundwater) ²			
1. Coordinates of sampling/monitoring locations will be provided to the consultant following contract award.			
2. Replace lock.			

The following sections provide a brief description of the landfills included in the 2017 supplementary monitoring event, and associated general monitoring requirements. Refer also to the Terms of Reference for specific monitoring requirements.

B.2 Station Area Landfill and Extension

The Station Area Landfill is located approximately 200 metres east of the main module train area. No evidence of contaminated leachate or contaminated soil in excess of the remediation criteria was detected at this landfill during the assessment program.

The Station Area Landfill was classified as a low potential environmental risk. Remediation consisted of regrading and the placement of additional fill, as described in the following paragraph.

The Extension was created to the south of the Station Area Landfill to accommodate non-hazardous debris from the West Landfill, which was excavated during the clean-up. The design of the Extension included perimeter berms with maximum side slopes of 4H:1V. The final cover design on the Station Area Landfill and Extension consisted of a 0.75 m depth of granular fill. Five monitoring wells were installed at the landfill.

The long term monitoring plan consists of visual monitoring of landfill stability and the periodic collection of soil and groundwater samples at the locations identified on Figure PIN-M.2.

For the 2017 supplementary monitoring event, complete a visual inspection of the landfill and extension (with an emphasis on the erosion features present on the east side of the landfill slope) along with soil and groundwater sampling and analyses. A thorough evaluation of the rate of erosion in the area of the east slope is to be completed based on historical observations and 2017 findings. The consultant shall also replace seized locks at monitoring wells MW-2 and MW-5, as well as other damaged locks, if required.

B.3 Main Landfill – West

The Main Landfill – West is located approximately 1 km south of the main module train. No evidence of contaminated leachate or contaminated soil in excess of the remediation criteria was detected at this landfill during the assessment program.

The Main Landfill – West was classified as a low potential environmental risk. Remediation consisted of regrading. The surface of the landfill slopes to the south at an average gradient of 12%. Steeper slopes are present in localized areas. Some drainage channels were present near the perimeter of the landfill, and minor erosion had occurred. Surface water run-off from the landfill flows to the south, eventually draining into Franklin Bay, which at its nearest point is approximately 200 m downgradient.

The long term monitoring plan consists of visual inspection of landfill stability, and the periodic collection of soil samples. The landfill is shown on Figure PIN-M.3.

For the 2017 supplementary monitoring event, complete a visual inspection of the landfill. The monitoring report should present a specific section on the erosion feature located in the area of the access road bordering the northeast side of the landfill and include maintenance recommendations to address the issue.

B.4 Climate Normals

The 1961-1990 and 1971-2000 climate normals prepared by Environment and Climate Change Canada (ECCC) for Cape Parry can be found at the following links, respectively:

http://climate.weather.gc.ca/climate_normals/results_1961_1990_e.html?searchType=stnProv&stProvince=NT&txtCentralLatMin=0&txtCentralLatSec=0&txtCentralLongMin=0&txtCentralLongSec=0&stnID=753&dispBack=0

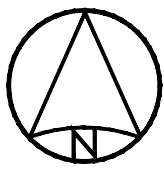
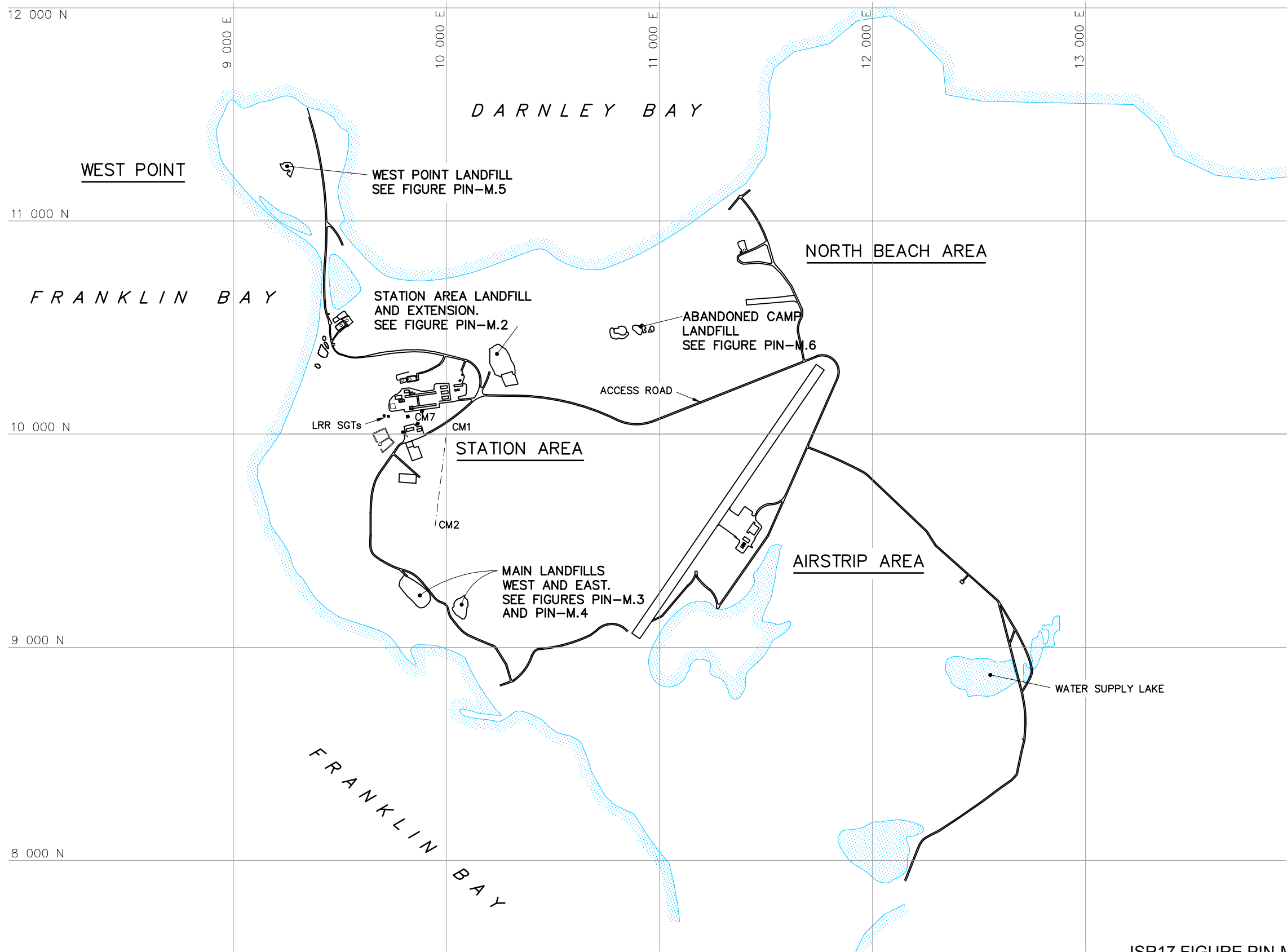
http://climate.weather.gc.ca/climate_normals/results_e.html?searchType=stnName&txtStationName=Cape+Parry&searchMethod=contains&txtCentralLatMin=0&txtCentralLatSec=0&txtCentralLongMin=0&txtCentralLongSec=0&stnID=1633&dispBack=1

More recent climate normals from ECCC are not available for Cape Parry. The closest location for which more climate information is available is Tuktoyaktuk. Climate normals for the 1981-2010 period for Tuktoyaktuk can be found at the following link:


http://climate.weather.gc.ca/climate_normals/results_1981_2010_e.html?stnID=1700&lang=e&StationName=tuktoyaktuk&SearchType=Contains&stnNameSubmit=go&dCode=5&dispBack=1

10 cm
5
4
3
2
1
0

Filename: (\\QUEBEC-SF5\projets) G:\129\p-0003939_DCC_ISR13_LFM\z5_CAD\OTP_d01-290-017_Version finale 00-Copie Client\PIN-M.1_2013.dwg
Printed: 2014/03/14 11:45




LEGEND:


CM1  SURVEY CONTROL MONUMENT

[SOURCE MAP PROVIDED BY
DEFENCE CONSTRUCTION CANADA]

SCALE 1:20,000 0 200 400 m

ISR17 FIGURE PIN-M.1
LOCATION PLAN

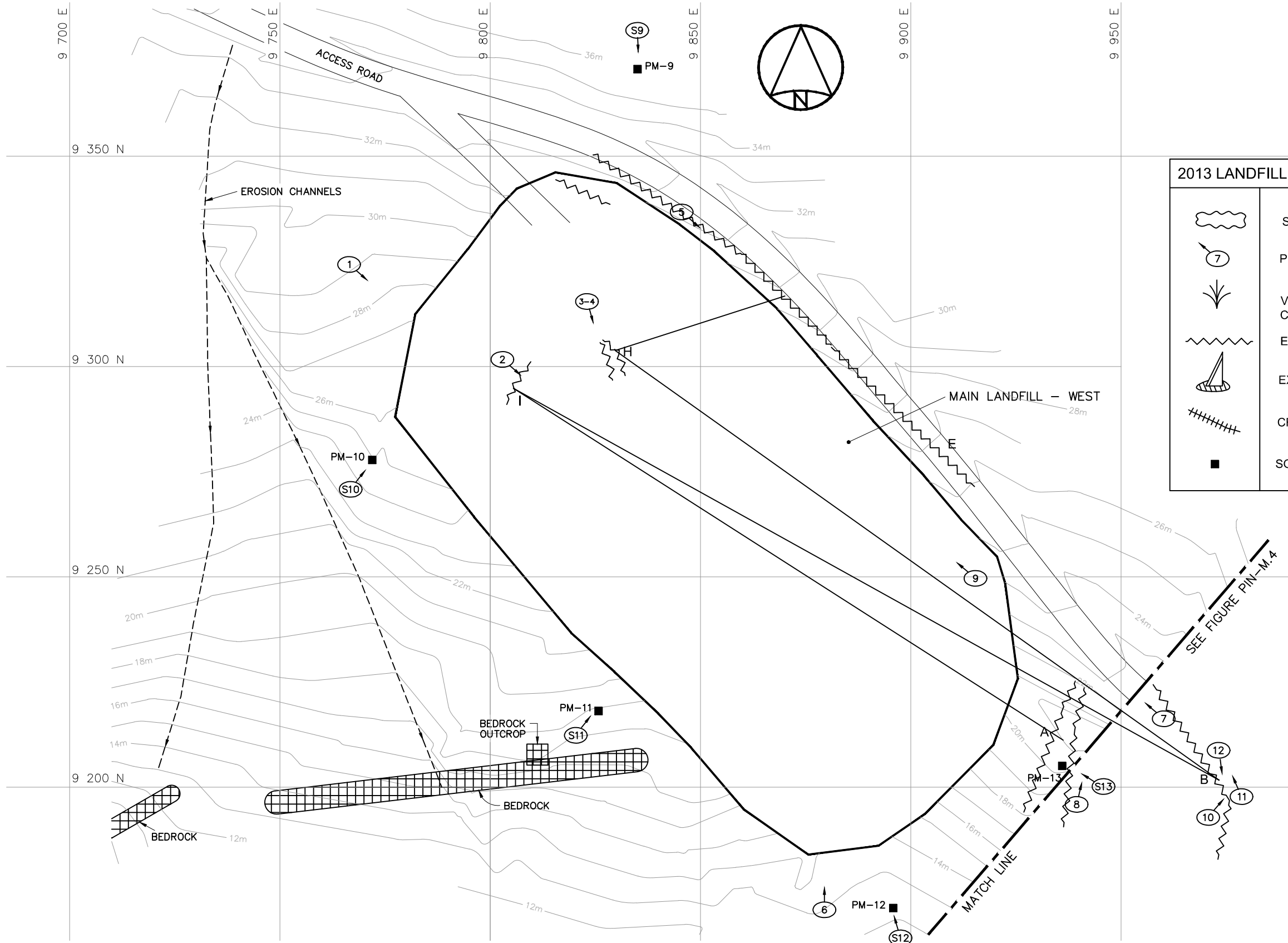
Client	 Defence Construction Canada Construction de Défense Canada
Project	THE COLLECTION OF LANDFILL MONITORING DATA AT THE FORMER PIN-M DEW LINE SITE PROJECT : DLCLFMP2 / CONTRACT 53924 KN CAPE PARRY, NORTHWEST TERRITORIES
Title	FIGURE 1 OVERALL SITE PLAN

		LVM inc. 1260, Lebourgneuf Blvd. suite 250 Quebec (Quebec) G2K 2G2 Phone : 418.626.1688 Fax : 418.626.5464				
Prepared M. Fleury, P.Eng.	Discipline Environment	Project Manager M. Fleury, P.Eng.				
Drawn G.G / A.G.	Scale 1 : 25 000	Sequence No. 01 of 06				
Verified J.-P. Pelletier	Date 03-07-2014					
Serv. char.	Project	Wbs	Disc.	Type	Drawing No.	Rev.
129	P-0003939	001290	EN	D	0101	00

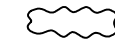
References
[SOURCE MAP PROVIDED BY DEFENCE CONSTRUCTION CANADA]

10 cm
5
4
3
2
1
0

Filename: (\\QUEBEC-SF5\projets) G:\129\P-0003939_DCC ISR13_LFM\z5_CAD\OTP_d-01-290-017_Version finale 00-Copie Client\PIN-M.3_2013.dwg
Printed: 2014/03/14 11:46



2013 LANDFILL OBSERVATIONS LEGEND



SEEPAGE



PHOTO REFERENCE



VEGETATION
COVER



EROSION



EXPOSED DEBRIS



CRACKING / SETTLEMENT




SOIL SAMPLING LOCATION

ISR17 FIGURE PIN-M.3
MAIN LANDFILL - WEST

SCALE 1:1000 0 10 20 m

References

Client
 **Defence Construction Canada**
Construction de Défense Canada

Project
**THE COLLECTION OF LANDFILL MONITORING
DATA AT THE FORMER PIN-M DEW LINE SITE**
PROJECT : DLCLFMP2 / CONTRACT 53924 KN
CAPE PARRY, NORTHWEST TERRITORIES

Title
**FIGURE 3
MAIN LANDFILL WEST**

LVM

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Prepared **M. Fleury, P.Eng.**
Drawn **G.G / A.G.**
Verified **J.-P. Pelletier**

Discipline **Environment**
Scale **1 : 1000**
Date **03-07-2014**

Project Manager
M. Fleury, P.Eng.
Sequence No.
03 of 06

Serv. char.	Project	Wbs	Disc.	Type	Drawing No.	Rev.
129	P-0003939	001290	EN	D	0103	00