Indian and Northern Affairs Canada | Affaires indiennes et du Nord Canada

PIN-B (Clifton Point)
Long Term Monitoring Plan

April 15, 2011

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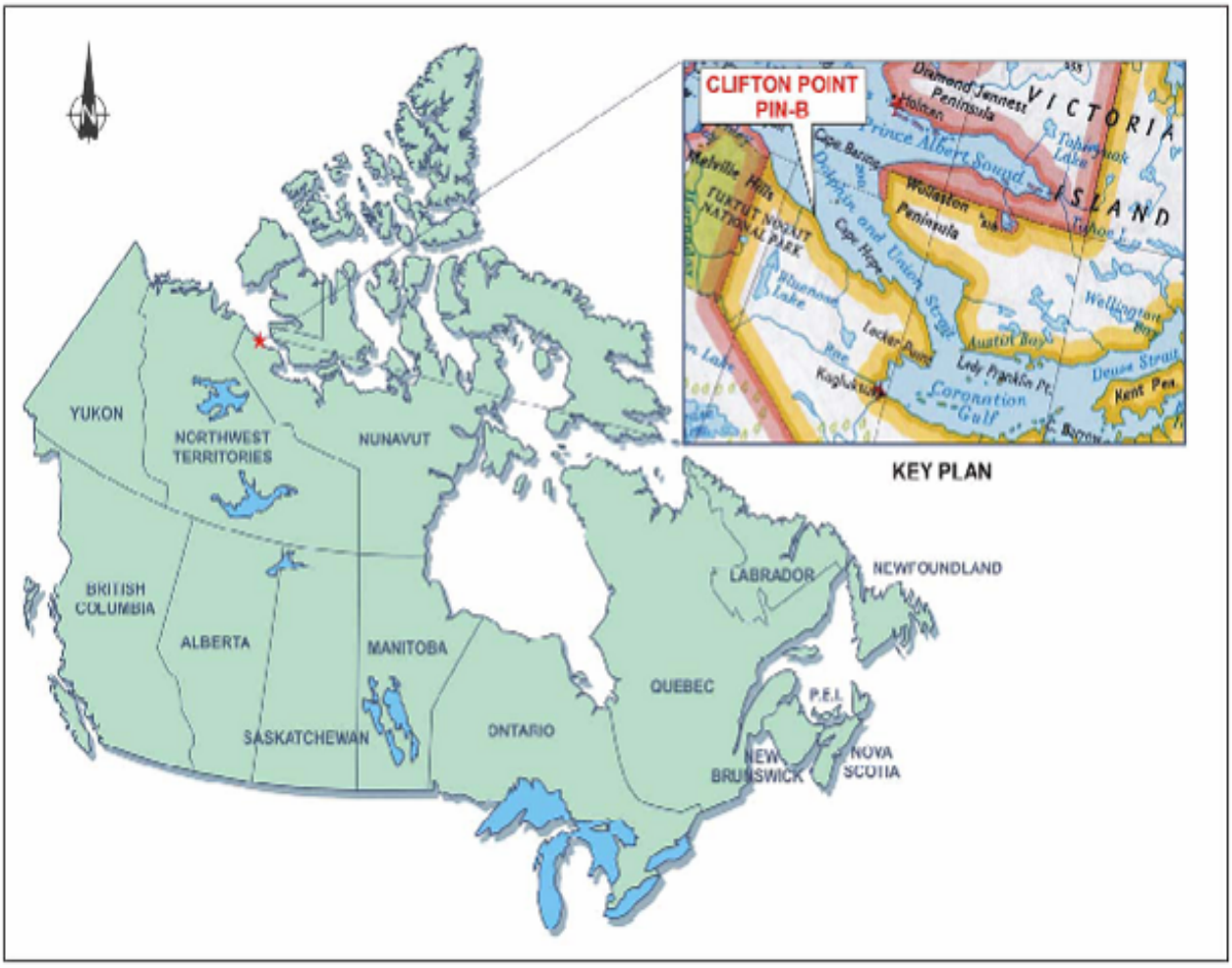
Appendices

1.0 Introduction

1.1 Site Location

Clifton Point is located on the coast of Amundsen Gulf (Beaufort Sea) in Nunavut. The nearest communities are Paulatuk, NWT, about 220 km to the northwest, and Kugluktuk, Nunavut about 220 km to the southeast. The site is situated about 1 km inland from the coast (see Figure 1 and Appendix A).



Source (inset): National Geographic (1999).

Figure 1: PIN-B (Clifton Point) site location

1.2 Background

PIN-B, Clifton Point, was reserved by the Department of National Defence (DND) in 1956 and the former PIN-B Intermediate DEW Line site was constructed in 1957 and subsequently closed and abandoned in 1963. In 1965, responsibility for the site reverted to INAC. The PIN-B station was comprised of a five-module building train (the "module train"), a warehouse, a garage, a

small house for Inuit staff (the "Inuit House"), a petroleum, oil and lubricants (POL) storage facility with associated distribution system, and a felled radar tower. In addition to the Station facilities, a cargo beaching area was constructed at the beach area. A second POL storage facility was located at the beach, in the vicinity of the cargo beach area. Two airstrips were constructed at the site: the primary airstrip is approximately 1 km long, located south of the beach area, while the second airstrip is much shorter, with a length of 300 m and located northwest of the main strip. Gravel roads were built linking the airstrip, water supply lake and beaching area to the station area. A small construction camp was erected during building of site facilities but was demolished once site construction was completed. The former camp of an Inuit family is located approximately 1.5 km southeast of the PIN-B site.

An environmental assessment of the PIN-B DEW Line site was initiated in 1985 when DND and Environment Canada visited the site to remove surface contaminants such as PCBs and petroleum, oils and lubricants (POL) and to identify areas of buried materials which could pose environmental risks in the future. Various pieces of PCB-containing equipment were removed from electrical cabinets at the site (172 pieces). Two soil samples collected at the station area (upper site) adjacent to the module train indicated that no PCB residues were present however no other results were reported.

The site was revisited in 1994 by the Environmental Sciences Group (ESG) of Royal Roads Military College at which time a limited sampling program was completed[1]. Surface soil and vegetation samples were collected, in addition to wall swabs from the module train and warehouse to investigate possible contamination. Floor tile and piping insulation samples were also taken from the module train in order to investigate possible asbestos content. Background samples were collected from locations that were considered to be unaffected by station activities. This investigation identified soil contamination exceeding Tier I and/or Tier II levels (based on the DND DEW Line Clean-up Criteria) around the module train, garage, sewage outfall, incinerator, warehouse, barrel/vehicle storage areas and sewage outfall. The analyses from the swab samples indicate that there are high levels of PCBs in the paint of the module train, and the floor tiles and insulation have been found to contain asbestos. One landfill was identified on site, 500 m west of the beach POL area and 40 m from the ocean. The majority of the debris in the Beach landfill was buried, however some evidence of erosion on the ocean facing side was observed. However, these investigations did not include an assessment of hydrocarbon contamination.

Finally, a Phase III Environmental Site Assessment[2] was completed by UMA during the summer of 2007. A total of approximately 570 m^3, including 550 m^3 from dump excavations, of soils with concentrations of metals, PCBs, which exceed the Tier I levels of the Abandoned Military Site Remediation Protocol[3], were identified at the site. This soil was to be used as intermediate fill in the non-hazardous landfill. An additional 1,210 m^3, including 880 m^3 from dump excavations, of soils was identified in excess of Tier II levels. Following a cost benefit analysis

[1] Environmental Study of Abandoned DEW Line Sites – One Auxiliary and Eight Intermediate Sites in the Canadian Arctic (Mar, 95)
[2] Phase III Environmental Site Assessment, UMA Engineering (Mar, 08)
[3] Indian and Northern Affairs Canada, Abandoned Military Sites Remediation Protocol - March, 2009

it was determined that this soil should be shipped off site for disposal. In addition, 80 m^3 of Type A (F3-F4) and 1,360 m^3 of Type B (F1-F3) hydrocarbon impacted soils were identified. The Type A soil was to be used as intermediate fill in the non-hazardous waste landfill and the Type B was to be treated onsite by alluing.

A total of 194 m^3 of hazardous materials have been identified at the site. Materials coated with PCB amended paint (PAP) comprise the majority of the hazardous material volume. The remainder of the hazardous material includes batteries, asbestos-containing materials, and drum contents. All hazardous material was to be shipped off site for disposal. Based on the combined results of the surface debris inventory, barrel assessment and demolition inventory, approximately 2,180 m^3 of non-hazardous waste was identified. This material was to be placed in the constructed non-hazardous landfill.

Seven existing dumps were investigated, including six that were previously unidentified in past assessments at the PIN-B site. The total volume of buried debris within the sites is approximately 6,600 m^3. Based on the location and condition of the dumps and contaminant migration assessment results, each dump site was assigned as a Class A, B or C dump according to the INAC protocol. Two dumps were classified as Class C, and will be covered in place. A third dump was classified as Class C, but excavation will be undertaken, based on UMA's recommendation, due to the proximity to a lake. Two dumps were classified as Class B and will require excavation. Finally, two dumps were classified as Class A and require excavation. Therefore, five of the seven dumps will be excavated due to stability or proximity to environmentally sensitive areas.

Water sample collected from Drinking Water Lake suggests that some chronic inputs of inorganic elements may have occurred, however, contaminant levels are all low, and no significant impacts were identified.

The PIN-B (Clifton Point) Remedial Action Plan[4] was used to develop the specifications and request for proposal for the PIN-B site. This package was posted on MERX November 10, 2008 and closed January 13, 2009. The bids were reviewed and the contract awarded to E. Grubens Transport Ltd (EGT) on April 1, 2009. EGT was able to fully mobilize in 2009 and set up camp and complete some remediation activities. Final remediation activities were completed in the 2010 field season and final demobilization of all supplies, equipment and waste occurred on August 18, 2010.

The overall objectives for the PIN-B (Clifton Point) remediation project were:

- To minimize environmental impacts to humans and wildlife at the site;
- To ensure the project is completed complying with all legal obligations;
- To ensure the project is undertaken in accordance with all Federal and/or Departmental policies;
- To increase public perception and attitude toward remediation activities;
- To promote the social and economic benefits of the project for Inuit; and
- To reduce liabilities to the Crown.

[4] Remedial Action Plan, AECOM Canada Ltd (Nov, 09)

2.0 Monitoring Plan

As dictated by the Nunavut Water Board Licence 1BR-CLI0914, the following monitoring activities were completed during remediation activities at the site:

Monitoring Station ID	Description	Parameters	Frequency
PIN-1	Raw water supply intake at Freshwater Lake or the unnamed lake 200m south of the airstrip	Volume	Daily
PIN-2a	Final Discharge Point from the Sewage Disposal Facilities, Lagoon 1	Volume and Water Quality	As Necessary
PIN-2b	Final Discharge Point from the Sewage Disposal Facilities, Lagoon 2	Volume and Water Quality	As Necessary
PIN-3	Final Point of Discharge from the Land Farm	Water Quality	As Necessary
PIN-4	Final Point of Discharge from the Non-Hazardous Waste Landfill	Water Quality	As Necessary

Specific results related to the monitoring of these points has been provided in the annual reports as specified in Part B, Item 1 of the PIN-B (Clifton Point) Water License. In addition, the monitoring of the natural environment and post-closure condition of the site was undertaken, as described in the following sections.

2.1 Natural Environment Monitoring

Natural environment data has been collected during the environmental assessment and during community meetings. In addition, information was also collected during the remediation of the site and will also be gathered during monitoring of the Non-Hazardous Waste Landfill. This data includes local and traditional knowledge of the site and will serve as a reference for post construction monitoring. The purpose of collecting this new data is not to find correlations with the landfill monitoring data but rather to provide anecdotal data related to the presence of wildlife and changes over time. The information to be gathered is included in the Visual Monitoring Checklist (see Appendix B).

The data to be collected during the Long Term Monitoring site visita will include:

- Wildlife sightings (species, number, gender, juveniles);
- Other evidence of recent presence of wildlife (droppings, tracks, feathers/fur, carcass remains, etc.)
- Wildlife activity (summering/nesting/denning, migratory/passing through);
- Qualitative assessment of relative numbers versus previous years (more, same, less); and
- Revegetation of disturbed areas versus previous years (more, same, less).

Information regarding visits made to the site by local people may also be collected through consultations with local community members and/or local Hunter and Trapper Associations (HTOs) and/or the Kitikmeot Inuit Association (KIA). The type of information that may be collected includes:

- Wildlife sightings;
- Use by people for traditional activities;
- Season(s);
- Activities (hunting, fishing, trapping, camping, other harvesting);
- Relative frequency versus previous years (more, same, less);
- Wildlife species present (sightings or evidence);
- Wildlife presence versus previous years (more, same, less);
- Health of wildlife observed or harvested (good, average, poor); and
- Relative health of wildlife versus previous years (better, same, worse).

2.2 Post Construction Monitoring

Construction of the Non-Hazardous Waste Landfill PIN-B (Clifton Point) was completed and closed in the summer of 2010 (see Appendix A for the location of the Non-Hazardous Waste Landfill). The Non-Hazardous Waste Landfill was designed to contain non-hazardous materials only. It was constructed on native ground, with all organic matter removed, and consists of four perimeter berms constructed of granular material. The non-hazardous waste was placed in the landfill in layers consisting of 0.5 metre lifts of waste covered by 0.15 metres of granular fill. Once all the waste were placed a final cover consisting of a minimum of 1.0 metres of granular fill will be used to cap the Non-Hazardous Waste Landfill.

The Non-Hazardous Waste Landfill at PIN-B (Clifton Point) contains the following material:
-F3 and F4 fraction hydrocarbon contaminated soil;
-Non-hazardous demolition debris, such as timbers, plywood, and sheet metal;
-Non-hazardous site debris, such as scrap metal and wood;
-Non-hazardous debris/soil excavated from landfills;
-Creosote timbers;
-Double-bagged asbestos; and
-Tier I contaminated soil (Lead concentration between 200 and 500ppm and PCB concentrations between 1 and 5 ppm).

Water

Samples will be taken from the four (4) monitoring wells installed around the Non-Hazardous Waste Landfill. These samples will be analysed and the results will be compared to those collected from background samples. The parameters that will be analyzed include:
-Petroleum Hydrocarbons;
-Total and Dissolved Metals;
-Major Ions, Hardness, Total Dissolved Solids, Total Suspended Solids;
-pH, Conductivity; and
-Polychlorinated biphenyls (PCBs).

Visual

This activity will check the physical integrity of the Non-Hazardous Waste Landfill and look for evidence of erosion, ponding, frost action, settlement and lateral movement through the use of a Visual Monitoring Checlist (see Appendix B). Photographs will be taken to document the condition of the Non-Hazardous Waste Landfill and substantiate the recorded observations.

Soil (as necessary)

Soil sampling will be limited to locations where seepage or staining has been identified as part of the visual inspection. When required, soil samples will be collected over the interval of 0 to 0.15 metres and 0.35 to 0.50 metres depth. The parameters that will be analysed include:
-Polychlorinated biphenyls (PCBs);
-Petroleum Hydrocarbons; and
-Arsenic, Cadmium, Cobalt, Chromium, Lead, Nickel, and Zinc.

2.3 Monitoring Schedule

The post construction monitoring frequency will follow the schedule identified in the INAC Abandoned Military Sites Remediation Protocol[5]. The three phases recommended by the protocol are:
• Phase I: years 1, 3 and 5;
• Phase II: years 7, 10, 15 and 25 (if required); and
• Phase III: beyond year 25 (if required).

Monitoring at the PIN-B (Clifton Point) site is anticipated to begin in 2011. Phase I monitoring will take place in years 2011, 2013 and 2015. Each of the four monitoring events discussed above (i.e. natural environment, water, visual and soil) will be conducted during each of the three site visits. The visits will be carried out sometime during the summer months of June, July, August or September. An evaluation of Phase I monitoring data would be carried out at the end of the 2015 program to confirm whether or not additional monitoring is required. If additional monitoring (Phase II) is required, it will be carried out during the years 2017, 2020, 2025 and 2035. At the completion of the 25 year monitoring program a review will take place and the need for continued monitoring will be assessed.

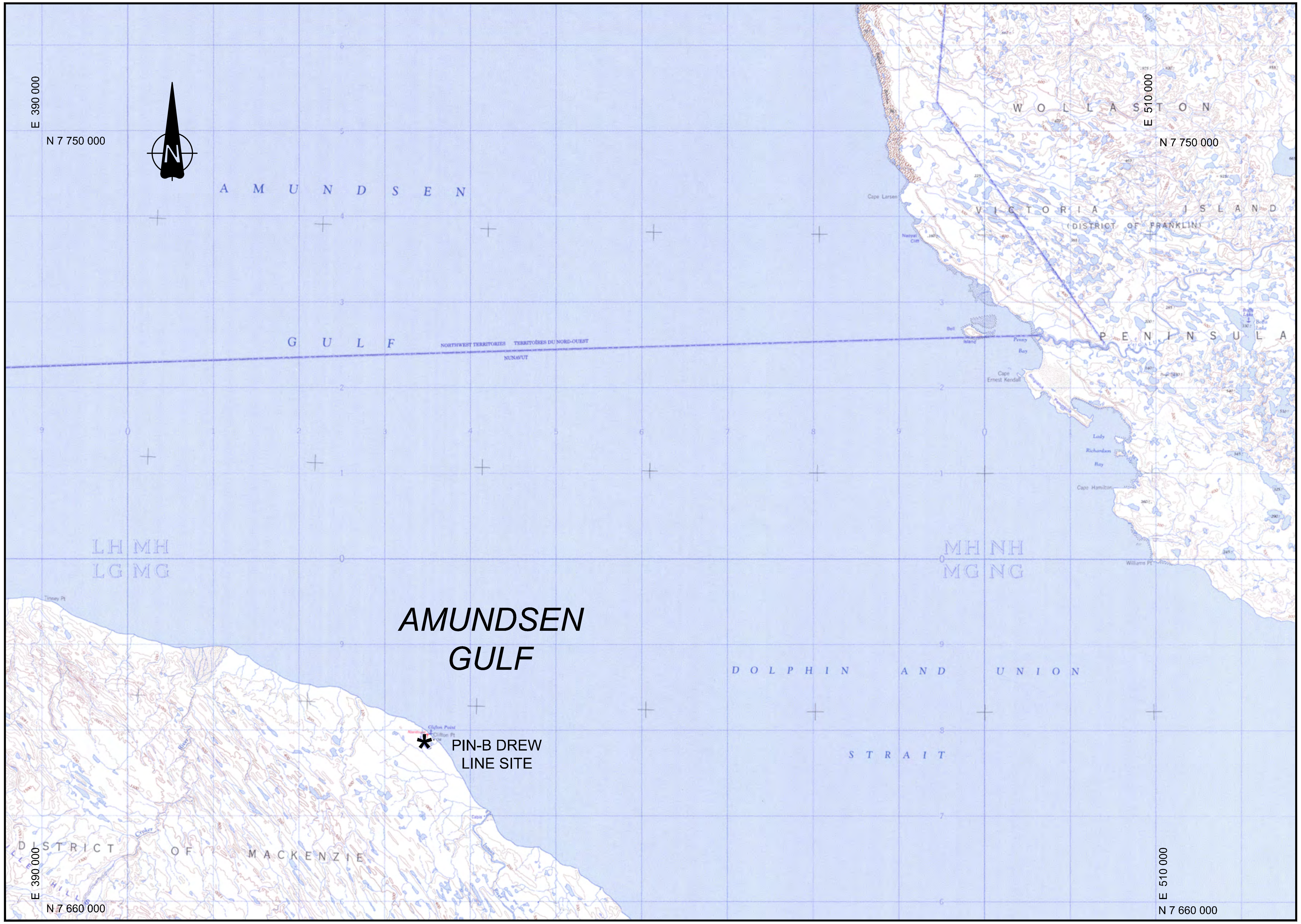
3.0 Quality Assurance / Quality Control Measures

All sampling, sample preservation and analyses will be conducted in accordance with methods prescribed in the current edition of “Standard Methods for the Examination of Water and Wastewater”. All analysis will be performed in a Canadian Association of Environmental Analytical Laboratories (CAEAL) Accredited Laboratory.

Quality Assurance/Quality Control (QA/QC) will be consistent with CAEAL regulations and guidelines. At least 20% of samples will be taken and analyzed in duplicate and all appropriate QA/QC data will be generated and reported.

[5] Indian and Northern Affairs Canada, Abandoned Military Sites Remediation Protocol - March, 2009

APPENDIX A:
PIN-B (Clifton Point) As-Builts



SITE PLAN

0 0.5 1 1.5 2km **Kilometres**

SCALE 1:50,000

KEY PLAN

NOT TO SCALE

REFERENCE:

1. Government of Canada, Natural Resources Canada, Centre for Topographic Information - TOPO-087C_2_0 Map

NOTE:

The coordinate system shown on this drawing is

UTM with NAD83 datum, Zone 13, Meter; Central Meridian 105d W

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Indian and Northern Affairs Canada | **Affaires indiennes et du Nord Canada**

PIN-B REMEDIATION PROGRAM

PIN-B DREW LINE
SITE LOCATION

SENES Consultants	Project Number	Figure
	34965	1

Mar 29, 2011 – 4:38pm – USER okabanov
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Saved by: Oleg Kabanov

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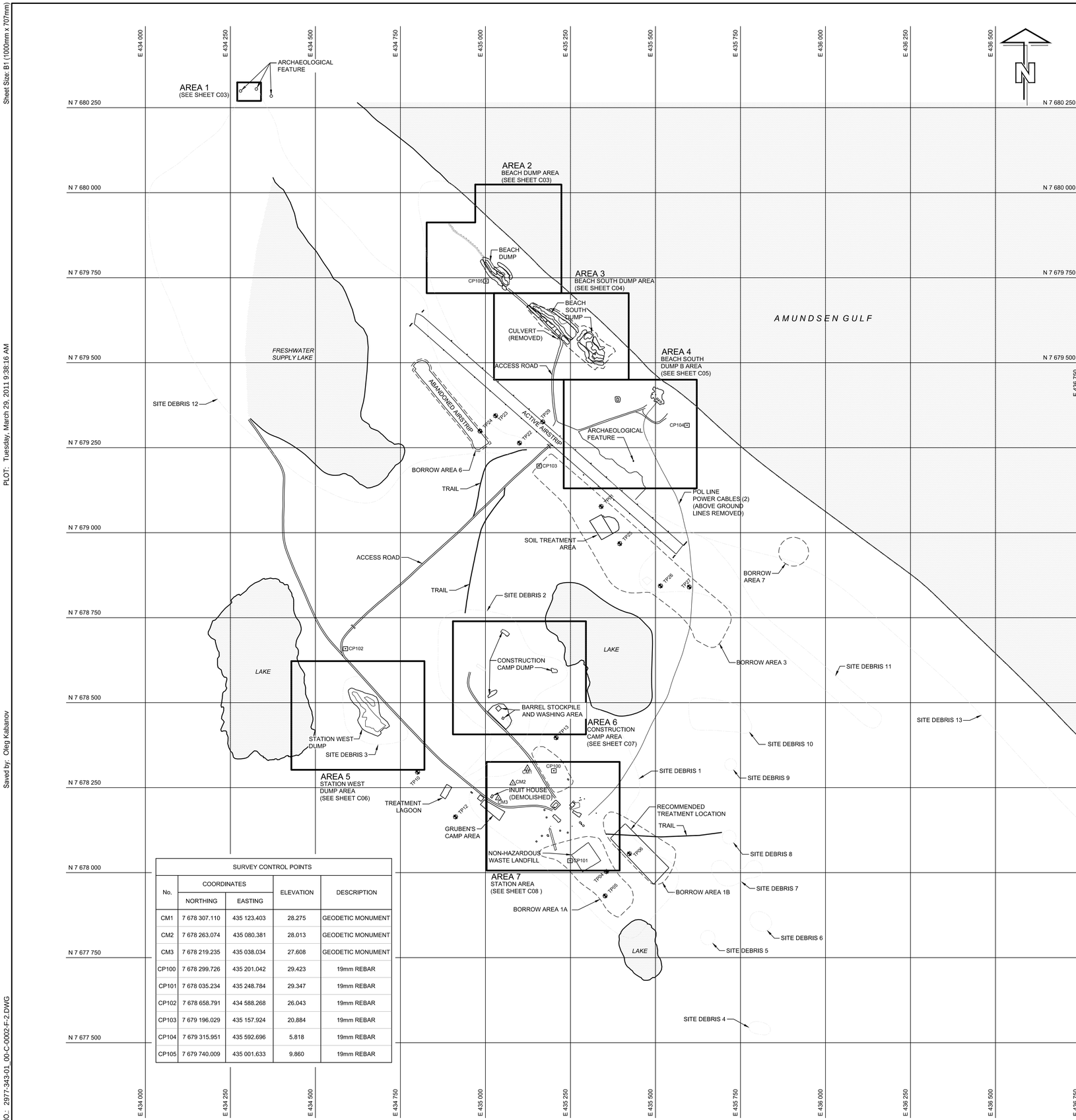
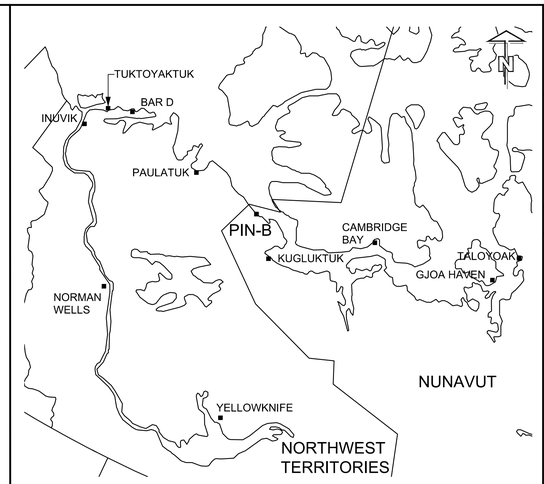


SURVEY CONTROL POINTS				
No.	COORDINATES		ELEVATION	DESCRIPTION
	NORTHING	EASTING		
CM1	7 678 307.110	435 123.403	28.275	GEODETIC MONUMENT
CM2	7 678 263.074	435 080.381	28.013	GEODETIC MONUMENT
CM3	7 678 219.235	435 038.034	27.608	GEODETIC MONUMENT
CP100	7 678 299.726	435 201.042	29.423	19mm REBAR
CP101	7 678 035.234	435 248.784	29.347	19mm REBAR
CP102	7 678 658.791	434 588.268	26.043	19mm REBAR
CP103	7 679 196.029	435 157.924	20.884	19mm REBAR
CP104	7 679 315.951	435 592.696	5.818	19mm REBAR
CP105	7 679 740.009	435 001.633	9.860	19mm REBAR



KEY PLAN

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Western Region

Client: Indian and Northern Affairs Canada / Affaires indiennes et du Nord Canada

Canada

NUNAVUT REGIONAL OFFICE
IQALUIT, NUNAVUT

GENERAL NOTES:

1. ALL DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE.
2. ALL COORDINATES ARE REFERENCED TO NAD83(CSRS). ELEVATIONS ARE REFERENCED TO MEAN SEA LEVEL, RELATIVE TO GEOID MODEL CANADIAN HT2_0.
3. ARCHAEOLOGICAL FEATURES LOCATED AS PER THE ARCHAEOLOGICAL IMPACT ASSESSMENT.

LEGEND:

- APPROXIMATE EXTENT OF BORROW AREA
- APPROXIMATE EXTENT OF SHORELINE
- ACCESS ROAD
- TRAIL
- EXTENT OF SITE DEBRIS AREAS
- CULVERT
- BODY OF WATER
- TP01 TESTPIT LOCATIONS
- CM1 SURVEY CONTROL MONUMENT
- CP100 SURVEY CONTROL POINTS

SENES Consultants

REVISIONS	DESCRIPTION	DATE
0	ISSUED FOR INFORMATION	14FEB11

A detail number / number du detail
B source drawing no. / de dessin no.
C detail on drawing no. / detail sur dessin no.

project title / titre du projet

PIN-B
REMEDIATION PROJECT
AS-BUILT

drawing title / titre du dessin

FIGURE 2
OVERALL SITE PLAN

designed by / conçu par	C.GRAVELLE
drawn by / dessiné par	O.KABANOV
approved by / approuvé par	C.GRAVELLE
PWGSC Project Manager / Administrateur de Projets TPSGC	M. BERNARDIN
scale / échelle	1:5000
project no. / projet no.	R.015218.012
date	FEBRUARY 2011
sheet / feuille	C02
	OF 8

R.015218.012 - C02

Sheet Size: B1 (1000mm x 707mm)

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Saved by: Oleg Kabanov

UMA FILE NO.: 2977-343-01_00-C-0003-F-3.DWG

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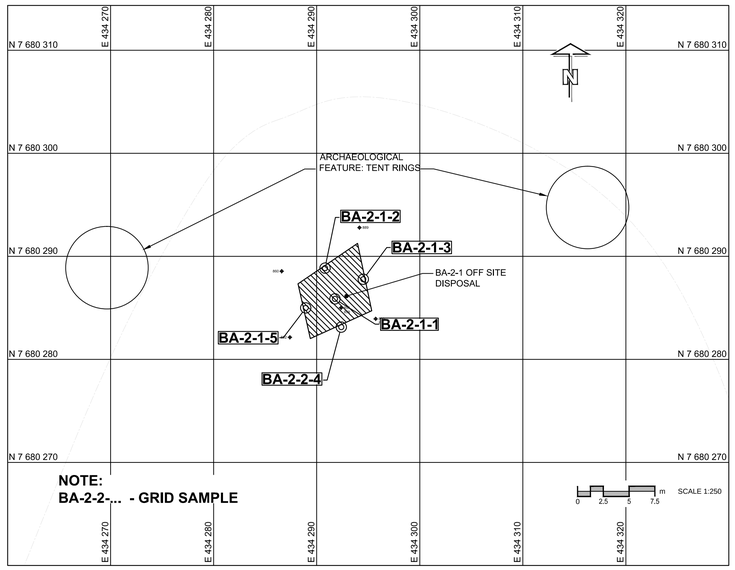

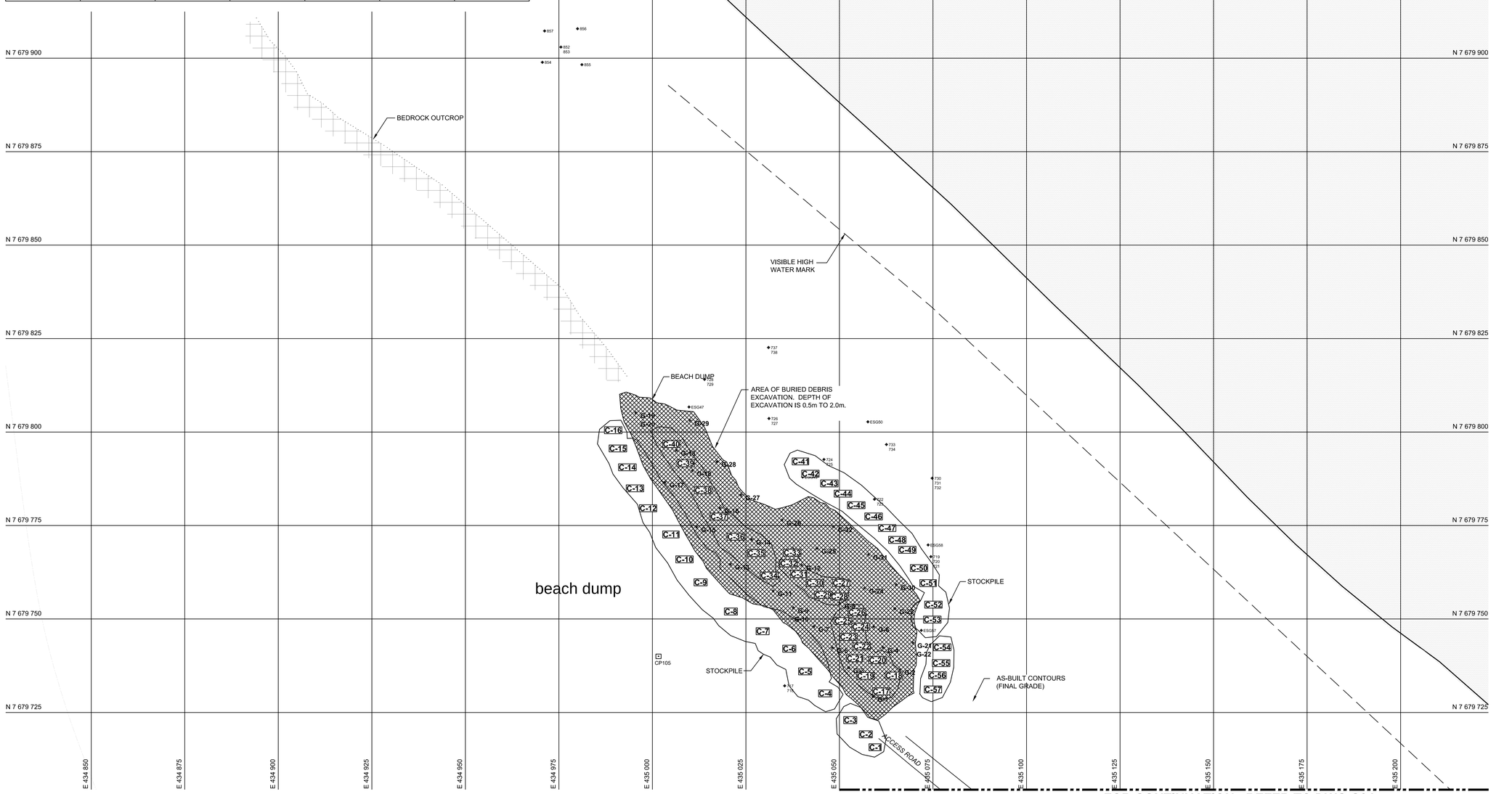

SURVEY CONTROL POINTS				
No.	COORDINATES		ELEVATION	DESCRIPTION
	NORTHING	EASTING		
CP105	7 679 740.009	435 001.633	9.860	19mm REBAR

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3. G - # - GRID SAMPLE FROM BASE OF EXCAVATION.
4. C - # - COMPOSITE SAMPLE TAKEN FROM STOCKPILE OF THE SAME #.
5. DISCRETE SAMPLES (NOT SHOWN) WERE TAKEN FROM STOCKPILES

LEGEND:

- APPROXIMATE EXTENT OF SHORELINE
- TIER II APPROXIMATE CONTAMINANT AREA
- BURIED DEBRIS
- BODY OF WATER
- CP1 SURVEY CONTROL POINTS
- 508 SAMPLE LOCATIONS

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REVISIONS	DESCRIPTION	DATE
0	ISSUED FOR INFORMATION	14FEB11

A detail number / number du detail
B source drawing no. / de dessin no.
C detail on drawing no. / detail sur dessin no.

project title / titre du projet
PIN-B REMEDIATION PROJECT AS-BUILT

drawing title / titre du dessin
FIGURE 3
AREA 1 AND 2
BEACH DUMP AREA

designed by / concu par	C.GRAVELLE
drawn by / dessine par	O.KABANOV
approved by / approuve par	C.GRAVELLE
PWGSC Project Manager / Administrateur de Projets TPSGC	M. BERNARDIN
scale / echelle	1:500
project no. / projet no.	R.015218.012
date	FEBRUARY 2011
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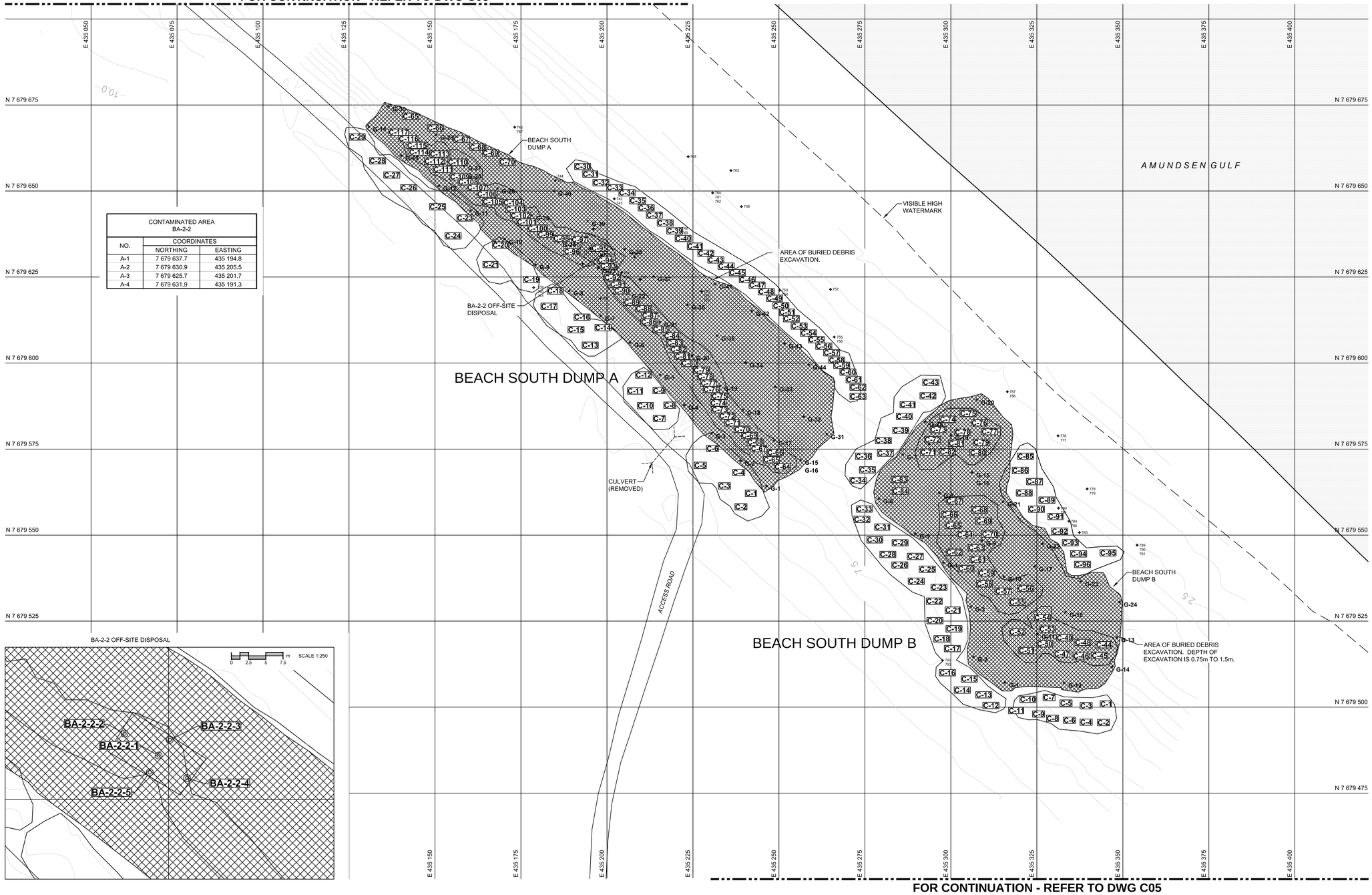
	OF 8

R.015218.012 - C02

FOR CONTINUATION - REFER TO DWG C03



CONTAMINATED AREA BA-2-2		
NO.	COORDINATES	
	NORTHING	EASTING
A-1	7 679 637.7	435 194.8
A-2	7 679 630.9	435 205.5
A-3	7 679 625.7	435 201.7
A-4	7 679 631.9	435 191.3

BA-2-2 OFF-SITE DISPOSAL

FOR CONTINUATION - REFER TO DWG C05

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3. G - # - GRID SAMPLE FROM BASE OF EXCAVATION.
4. C - # - COMPOSITE SAMPLE TAKEN FROM STOCKPILE OF THE SAME #.
5. DISCRETE SAMPLES (NOT SHOWN) WERE TAKEN FROM STOCKPILES

LEGEND:

- APPROXIMATE EXTENT OF SHORELINE
- ACCESS ROAD
- CULVERT
- TIER II APPROXIMATE CONTAMINATED AREA
- BURIED DEBRIS
- BODY OF WATER
- SAMPLE LOCATIONS

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C detail on drawing no. / detail sur dessin no.

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PIN-B REMEDIATION PROJECT AS-BUILT

drawing title / titre du dessin
FIGURE 4
AREA 3
BEACH SOUTH DUMP AREA

designed by / concu par	C.GRAVELLE
drawn by / dessine par	O.KABANOV
approved by / approuve par	C.GRAVELLE
PWGSC Project Manager / Administrateur de Projets TPSGC	M. BERNARDIN
scale / echelle	1:500
project no. / projet no.	R.015218.012
date	FEBRUARY 2011
sheet / feuille	C04 OF 8

FOR CONTINUATION - REFER TO DWG C04

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N 7 679 425 N 7 679 400 N 7 679 375 N 7 679 350 N 7 679 325 N 7 679 300 N 7 679 275 N 7 679 250 N 7 679 225 N 7 679 200 N 7 679 175

WEST BEACH POL COORDINATE POINTS BURIED DEBRIS REGRADE		
NO.	COORDINATES	
	NORTHING	EASTING
1-1	7 679 395.4	435 385.5
1-2	7 679 395.9	435 391.1
1-3	7 679 387.4	435 391.9
1-4	7 679 387.0	435 386.8

WEST BEACH POL BURIED DEBRIS

PERIMETER OF AREA REGRADED WITH 0.5m TYPE 2 GRANULAR FILL. SIDE SLOPES 6H:1V

BEACH POL TANK PAD

POL TANK FOUNDATIONS

BA-4-3 TREATMENT

VISIBLE HIGH WATER MARK

BEACH POL BLADDER PAD

AMUNDSEN GULF

ACCESS ROAD

CP104

ABOVE GROUND POL LINE POWER CABLES – 2 (ABOVE GROUND LINES REMOVED)

BA-2-4-2 BA-2-4-3 BA-2-4-5 BA-2-4-1 BA-2-4-4

BA-2-4 OFF-SITE DISPOSAL

NOTE:
BA-2-4-... - GRID SAMPLE

BARREL STOCKPILE D

ARCHAEOLOGICAL FEATURE: SUSPECTED GRAVE SITE

SURVEY CONTROL POINTS				
No.	COORDINATES		ELEVATION	DESCRIPTION
	NORTHING	EASTING		
CP104	7 679 315.951	435 592.696	5.818	19mm REBAR

G-61 G-62 G-57 G-63 G-58 G-40 G-20 G-39 G-38 G-59 G-37 G-41 G-42 G-21 G-29 G-29D G-32 G-20 G-52 G-22D G-43 G-49 G-19 G-31 G-48 G-30 G-53 G-44 G-56 G-50 G-50D G-45 G-47 G-54 G-16 G-55 G-18 G-46 G-15 G-14 G-26 G-13 G-12 G-28 G-11 G-10 G-35 G-9 G-8 G-36 G-34 G-5 G-6 G-24 G-7 G-27 G-4 G-3 G-2 G-23 G-33 G-1

0 1.5 3 3.5 m SCALE 1:150

0 5 10 15 m SCALE 1:500

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* G-23 GRID SAMPLE FROM BASE OF EXCAVATION.
○ G-2 <330 ppm TPH
● G-3 >330 ppm TPH

LEGEND:

- APPROXIMATE EXTENT OF BORROW AREA
- APPROXIMATE EXTENT OF SHORELINE
- ACCESS ROAD
- TIER II APPROXIMATE CONTAMINATED AREA
- TYPE B APPROXIMATE CONTAMINATED AREA
- BODY OF WATER
- TP01 TESTPIT LOCATIONS
- CP1 SURVEY CONTROL POINTS
- 508 SAMPLE LOCATIONS

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A detail number / number du detail
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C detail on drawing no. / detail sur dessin no.

project title / titre du projet
PIN-B REMEDIATION PROJECT AS-BUILT

drawing title / titre du dessin
FIGURE 5
AREA 4
FORMER POL PAD

designed by / conçu par	C.GRAVELLE
drawn by / dessiné par	O.KABANOV
approved by / approuvé par	C.GRAVELLE
PWGSC Project Manager / Administrateur de Projets TPSGC	M. BERNARDIN
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E 434 450 E 434 475 E 434 500 E 434 525 E 434 550 E 434 575 E 434 600 E 434 625 E 434 650 E 434 675 E 434 700 E 434 725 E 434 750 E 434 775 E 434 800

N 7 678 600 N 7 678 575 N 7 678 550 N 7 678 525 N 7 678 500 N 7 678 475 N 7 678 450 N 7 678 425 N 7 678 400 N 7 678 375 N 7 678 350 N 7 678 325

CONTAMINATED SOIL TO BE EXCAVATED

AREA NAME	APPROX. AREA (m²)	ESTIMATED DEPTH OF CONTAMINATION (m)	ESTIMATED VOLUME OF EXCAVATION (m³)	CONTAINMENT CLASSIFICATION	COMMENTS	REFERENCE POINTS N	REFERENCE POINTS E
SD-2-1	42	0.5	25	TIER II	OFF-SITE DISPOSAL	7 678 417	434 699

GENERAL NOTES:

1. ALL DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE.
2. ALL COORDINATES ARE REFERENCED TO NAD83(CSRS). ELEVATIONS ARE REFERENCED TO MEAN SEA LEVEL, RELATIVE TO GEOID MODEL CANADIAN HT2_0.
3. SD - # - GRID SAMPLE FROM BASE OF EXCAVATION.
4. AA - # - COMPOSITE SAMPLE

LEGEND:

- APPROXIMATE EXTENT OF SHORELINE
- ACCESS ROAD
- TIER II APPROXIMATE CONTAMINATE AREA
- BODY OF WATER
- TP01 TESTPIT LOCATIONS
- 508 SAMPLE LOCATIONS
- MARSH AREA

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PIN-B REMEDIATION PROJECT AS-BUILT

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FIGURE 6
AREA 5
STATION WEST DUMP AREA

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drawn by / dessiné par	O.KABANOV
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Sheet Size: B1 (1000mm x 707mm)

PLOT: Tuesday, March 29, 2011 9:13:24 AM

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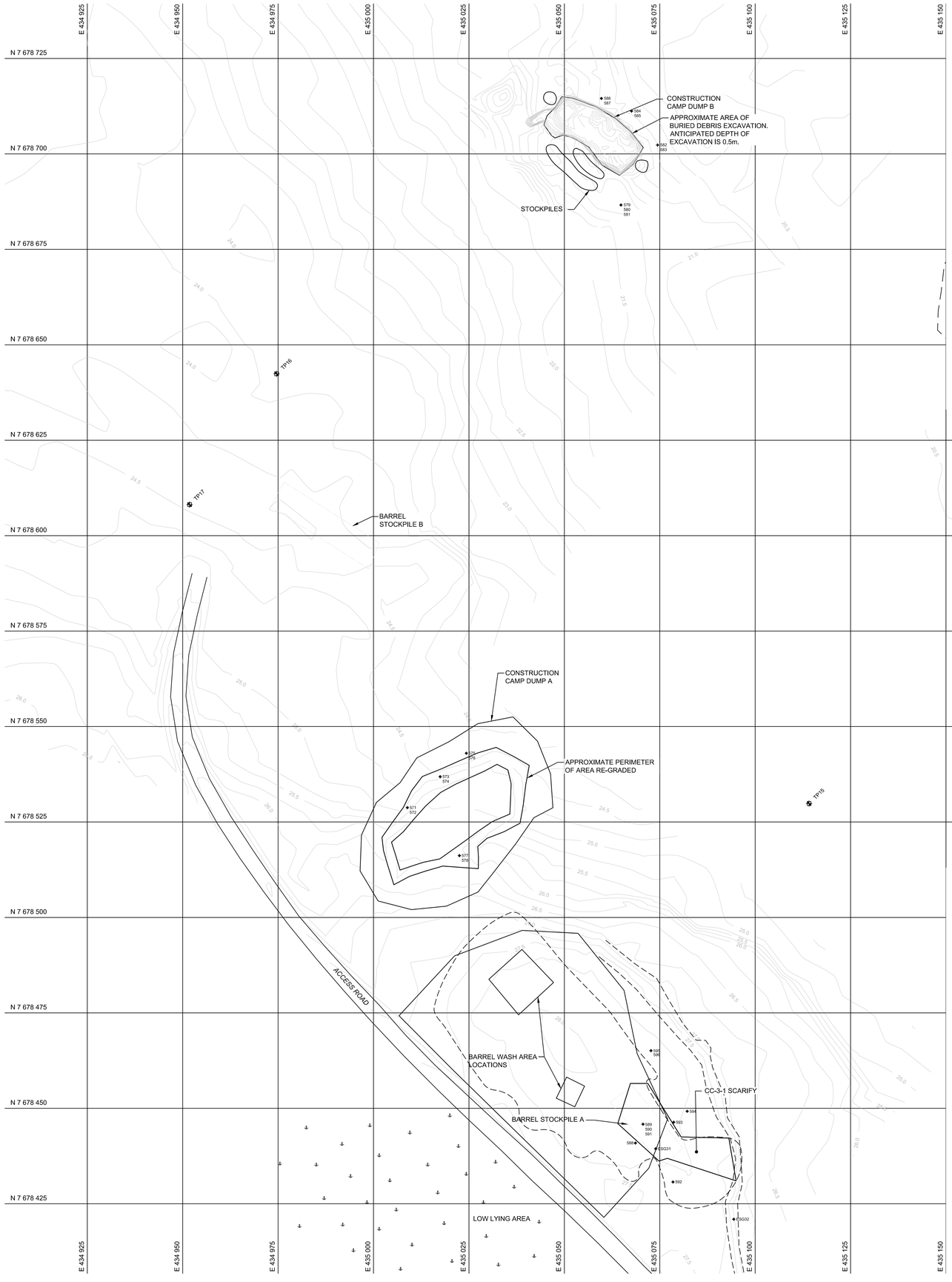
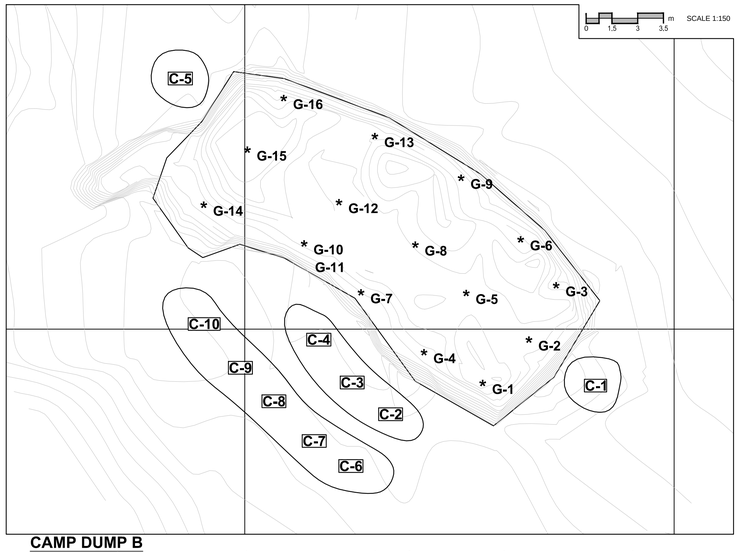
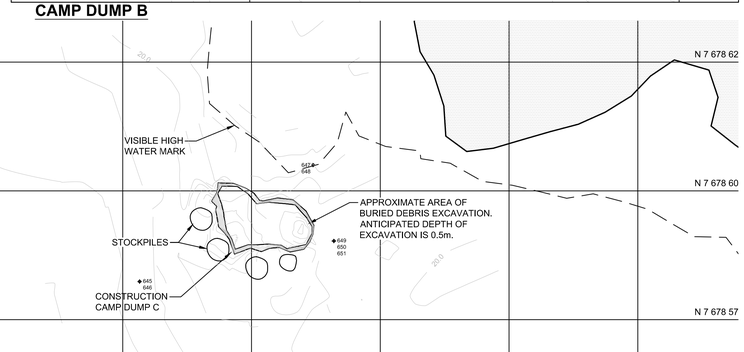
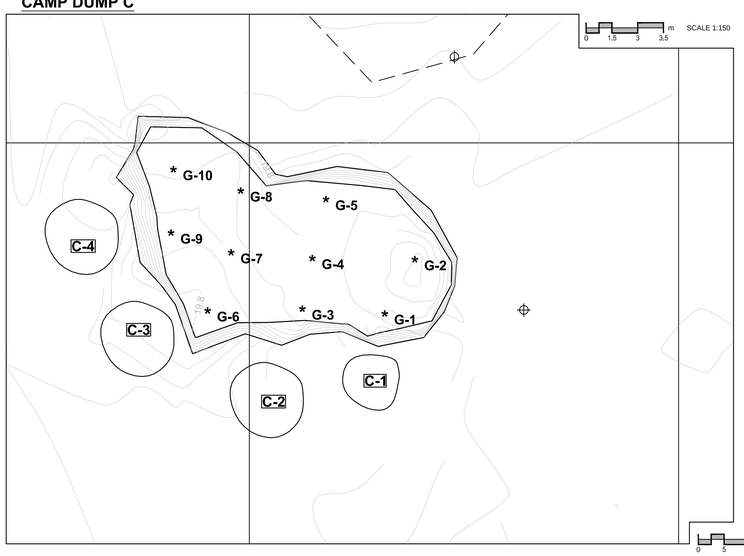




CAMP DUMP B



CONTAMINATED SOIL TO BE EXCAVATED							
AREA NAME	APPROX. AREA (m²)	ESTIMATED DEPTH OF CONTAMINATION (m)	ESTIMATED VOLUME OF EXCAVATION (m³)	CONTAINMENT CLASSIFICATION	COMMENTS	REFERENCE POINTS	
						N	E
CC-3-1	425	0,3	-	PHC TYPE A	SCARIFY	7 678 437	435 081



CAMP DUMP C

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3. G - # - GRID SAMPLE FROM BASE OF EXCAVATION.
4. C- # - COMPOSITE SAMPLE

LEGEND:

- APPROXIMATE EXTENT OF SHORELINE
- ACCESS ROAD
- TYPE A APPROXIMATE CONTAMINATED AREA
- BURIED DEBRIS
- BODY OF WATER
- TP01 TESTPIT LOCATIONS
- 508 SAMPLE LOCATIONS
- MARSH AREA

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FIGURE 7
AREA 6
CONSTRUCTION CAMP DUMP AREA

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drawn by / dessiné par	O.KABANOV
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B1 1000 x 707

R.015218.012 - C02

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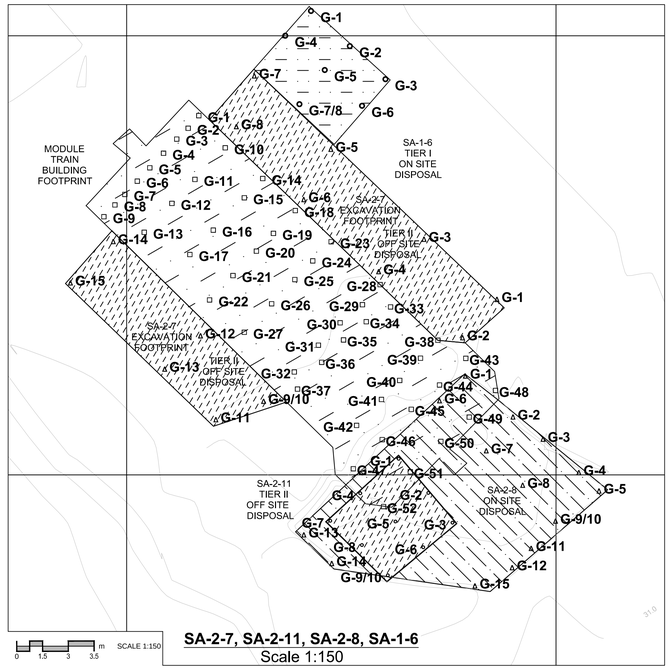
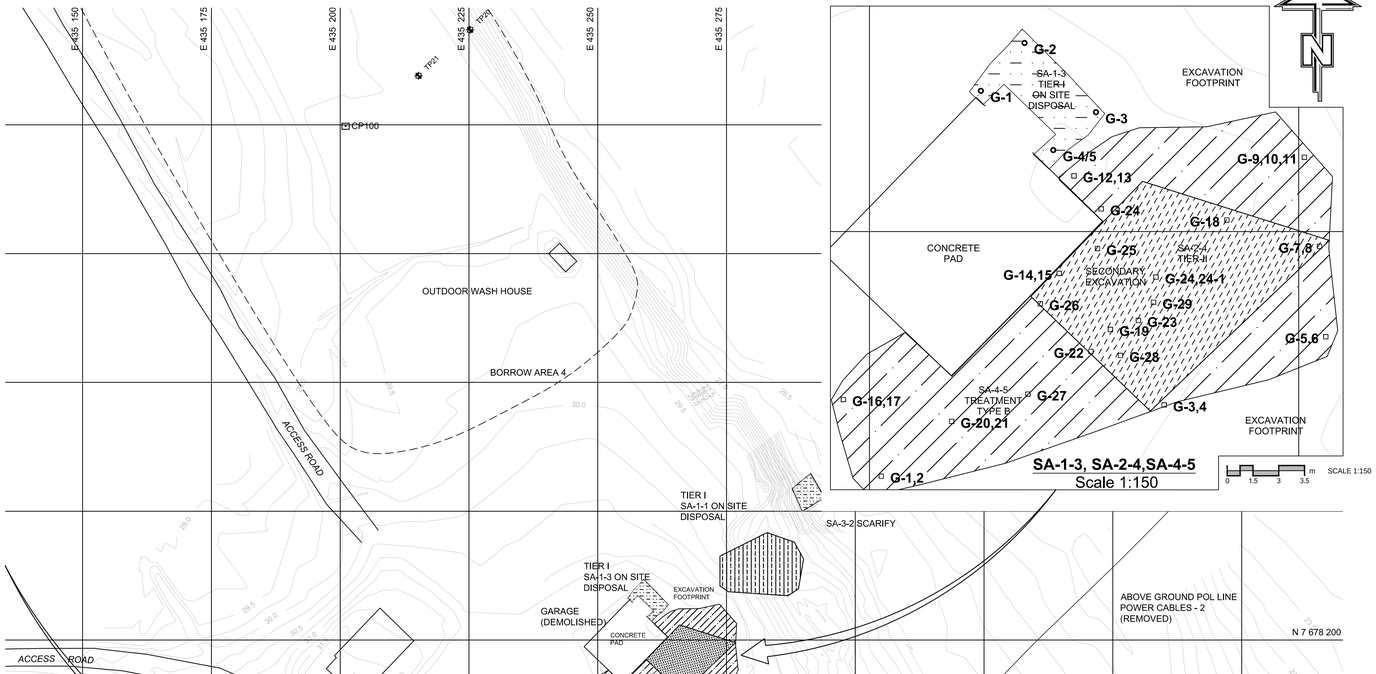
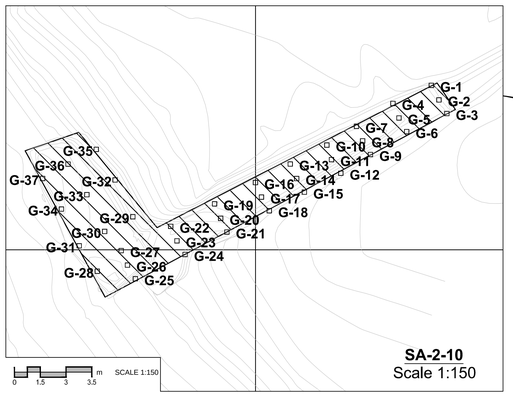
B1 1000 x 707







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3. G - # - GRID SAMPLE FROM BASE OF EXCAVATION.
4. C- # - COMPOSITE SAMPLE

LEGEND:

- APPROXIMATE EXTENT OF BORROW AREA
- ACCESS ROAD
- TIER I APPROXIMATE CONTAMINATED AREA
- TIER II APPROXIMATE CONTAMINATED AREA
- TYPE A APPROXIMATE CONTAMINATED AREA
- TYPE B APPROXIMATE CONTAMINATED AREA
- TP01 TESTPIT LOCATIONS
- CM1 SURVEY CONTROL MONUMENT
- CP1 SURVEY CONTROL POINTS
- SS8 SAMPLE LOCATIONS

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FIGURE 8
MAIN CAMP AREA

designed by / concu par	C.GRAVELLE
drawn by / dessine par	O.KABANOV
approved by / approuve par	C.GRAVELLE
PWGSC Project Manager / Administrateur de Projets TPSGC	M. BERNARDIN
scale / echelle	1:500
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APPENDIX B:
Visual Monitoring Checklist

Date:			
Site:			
Note	**Response**	**Extent**	**Description**
	Yes/No	*Provide information as applicable (i.e. length/width/depth/type)*	*Features of note, photographic reference with scale, point of view anddirection*
Natural Environmental Monitoring			
Wildlife Sightings			
Evidence of Wildlife			
Wildlife Activity			
Relative Number			
Evidence of Revegetation			
Landfill Location:			
Post-Closure Landfill Monitoring			
Evidence of Settlement			
Evidence of Erosion			
Evidence of Frost Action			
Animal Burrows			
Vegetation Present			
Vegetation Stresses			
Staining Present			
Seepage Points			
Exposed Debris			
Condition of Instruments			
Other Features			