Defence Construction Canada

Monitoring Program

DYE-M, Cape Dyer

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March 2005

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1.0 Construction Monitoring Program

The program during the construction phase of the project addresses the requirement for effluent monitoring of the sewage lagoon.

Table 1: Monitoring Requirements During the Construction Phase

Location	Sample Type	Frequency	Parameters
DM-1	Water	Twice. Once at 30 days after establishment and once prior to discharge.	Mineral Oil & Grease
			Total Suspended Solids
			Biological Oxygen Demand
			Faecal Coliforms
			pH

NOTE: GPS coordinates have not yet been collected.

2.0 Post-Construction Monitoring Program

2.1 INTRODUCTION

The following summary is being provided for the post-construction landfill monitoring program as described in the DND-NTI Environmental Cooperation Agreement for the former DYE-M, Cape Dyer DEW Line site (see Appendix II). Information on both the development and review process for the program, as well as the specific components of the program are included.

2.2 BACKGROUND

The Department of National Defence (DND), in cooperation with Nunavut Tunngavik Incorporated (NTI), developed a landfill monitoring plan to address post closure monitoring requirements for the landfills at the DEW Line Sites. Defence Construction Canada (DCC) is managing the cleanup and monitoring programs on behalf of DND.

The objective of the landfill monitoring program is to collect sufficient information to assess the performance of the landfills from a geotechnical and environmental perspective. The landfill monitoring plan specifies the requirements for visual inspection, and chemical and thermal monitoring of landfills at the DEW Line sites under DND's jurisdiction.

2.3 PROGRAM COMPONENTS

The post-construction landfill monitoring program consists of four main components to measure the performance of the landfills, depending on the remediation plan for each landfill. These components are visual, soil, groundwater and thermal monitoring. Details on each of the monitoring components are provided below.

Visual Monitoring: The physical integrity of the landfill is inspected and reported using hand-drawn sketches. Documented observations include:

- Evidence of settlement, ponding, frost action, erosion, and lateral movement.
- Sloughing of berms/covering layers, thermal contraction cracks, etc.

Photographic records are to be provided to document the general condition of the landfill and to substantiate all recorded observations. The location of all photographic viewpoints will be referenced to existing monuments.

Soil and Groundwater Monitoring: The soil and groundwater monitoring program consists of baseline/background assessment and contaminant evaluation. Background conditions represent soil and water quality from an area not impacted by the landfill. Background (naturally occurring) values are obtained from samples collected from areas that were not directly influenced by activities at the

DEW Line site, but are indicative of the prevailing geochemistry. These samples are taken hydraulically upgradient and at some distance from the landfill. Baseline conditions refer to existing soil and water quality at the landfill area, prior to any remediation and/or construction work being carried out. These samples are generally collected from areas both up and downgradient of the landfill.

Soil and groundwater samples (where required) are collected prior to construction/closure of a landfill, to represent background as well as baseline conditions. The results of subsequent landfill monitoring events are compared to these baseline and background values to evaluate any potential changes in environmental conditions.

In general, one monitoring well is installed upgradient and two to three wells are installed downgradient of the landfill during the construction phase. Using water elevation data from a minimum of three wells allows assessment of the hydraulic gradient and flow velocities. Review of analytical data from water samples collected from wells up and down gradient allows evaluation of potential impacts associated with the landfill. Soil samples are collected from the toe of the landfill, generally from the same locations as the monitoring wells. Contamination in soil samples at the toe of the landfill reflects chronic input from water that may have infiltrated the landfill, and is an important factor of contaminated leachate.

Prior to collection of samples from a monitoring well, the well is purged and allowed to reach equilibrium. Physical measurements are collected prior to and after purging and are referenced to the top of the monitoring well pipe. The measured physical parameters include:

- Water elevation;
- Total depth of water;
- Presence of hydrocarbons;
- Hydrocarbon layer thickness (if appropriate);
- Colour, odour;
- pH;
- Conductivity; and
- Temperature.

Thermal Monitoring: Geothermal analysis were carried out as part of the design to predict the length of time required for permafrost aggradation through landfills requiring leachate containment, including the Tier II Soil Disposal Facility. These analyses also provided information on the long and short term thermal regime in the ground, and the depth of the active layer in the cover material.

A thermal monitoring system provides measurement of sub-surface ground temperatures, which allows comparison to and verification of the predicted ground temperatures. The thermal monitoring system consists of installation of thermistor strings, with thermistor beads at selected intervals to provide ground temperature profiles at various locations within the landfill. The thermistor strings are attached to automated data-loggers that allow for remote data collection. In general, a minimum of three thermistors are installed at each landfill where permafrost aggradation through the landfill contents is an integral part of the design.

2.4 FREQUENCY

The landfill monitoring program consists of three phases, as described in detail below.

2.4.1 Phase I

Phase I involves monitoring of conditions to confirm that equilibrium is achieved. The frequency of monitoring events during Phase I monitoring is dependent on the closure or remediation design at specific landfills. The Powerhouse Landfill and the Tier II Soil Disposal Facility will be monitored on an annual basis for the first five years. The five-year term was selected on the basis that ground-temperature thermal regimes at these landfills will require three to five years to reach equilibrium.

The Non-Hazardous Waste Landfills, West Landfill, NWS Landfill, Crossroads Landfill, and Foundation Landfill will be monitored over a reduced frequency in the first, third and fifth years following construction in Phase I.

The South Landfill East, South Landfill West, DEW Drop Landfill, Lower Camp Landfill East, Lower Camp Landfill West, Beach Landfill North and Beach Landfill South are being excavated and therefore do not require any monitoring.

An evaluation of all Phase I data will be carried out at the end of five years to confirm that thermal and chemical equilibrium is achieved, and that no stability issues are identified. The Phase I monitoring program may be extended, if required, to provide sufficient data to establish equilibrium conditions.

The first year of the Phase I post-construction monitoring is completed by the Environmental Sciences Group (ESG) of the Royal Military College of Canada, who are part of the DEW Line Clean Up Project Team. Subsequent landfill monitoring events are carried out by independent contractors, who successfully win the competitive tender.

2.4.2 Phase II

Phase II monitoring is the verification of equilibrium conditions established in Phase I. The monitoring frequency in Phase II is downgraded from Phase I and will be carried out according to the following schedule, year 7, year 10, year 15 and year 25. Year 25 marks the end of Phase II monitoring.

2.4.3 Phase III

Phase III involves the monitoring for long-term issues such as liner integrity, permafrost stability, and significant storm events. At the end of the Phase II program, 25 years after construction, a re-evaluation of the landfill monitoring program will be carried out prior to initiating any Phase III program. The scope of the Phase III monitoring program is not included here, but is anticipated to be based on a 10 year monitoring interval.

2.5 REVIEW AND EVALUATION PROCESS

An Environmental Working Group (EWG) was established to provide a technical report and to support to the DLCU Steering Committee. This working group is comprised of qualified engineering and environmental scientists with expertise in environmental remediation and clean up in northern climates. The EWG has four designated representatives, two from each of the Owner (DND) and the Inuit (through the NTI), respectively.

During the monitoring program, the EWG reviews the results of the monitoring program in accordance with the methodology as described previously. The results of the review and any recommendations regarding changes to the monitoring plan and/or remediation requirements are reported to the DND/NTI Steering Committee.

The requirement for further monitoring after 25 years is evaluated. Monitoring may be terminated if the performance of the landfill was satisfactory over the period of monitoring from an environmental, geotechnical and thermal perspective, as appropriate. The assessment of satisfactory performance is carried out jointly by the NTI and DND.

3.0 Detailed Landfill Monitoring Requirements

The following sections provide a summary and the detailed monitoring requirement for each landfill at DYE-M. Drawings showing the landfill areas are in Appendix I.

3.1 TIER II SOIL DISPOSAL FACILITY

There are two DCC Tier II Soil Disposal Facilities is being constructed at the DYE-M site for the disposal of Tier II contaminated soils excavated during the cleanup. Consistent with the Environmental Provisions of the Cooperation Agreement, monitoring of the Tier II soil disposal facility consists of visual monitoring for evidence of settlement, erosion, differential movement, collection of soil and groundwater samples from around the facility to monitor the effectiveness of the containment system, and monitoring of sub-surface ground temperatures in the berms and in the main body of the disposal facility. The monitoring station coordinates are not yet available for the Tier II Soil Disposal Facilities. Table 2 provides the detailed monitoring requirements at the Tier II Soil Disposal Facilities. See Drawings H-C75/1-9101-112 and 165 for details. The drawings will be updated at construction completion.

Table 2: Detailed Monitoring Requirements at the Tier II Soil Disposal Facilities

Location	Sample Type	Frequency	Parameters
Determined on site	Visual	Once per year in years 1, 2, 3, 4, 5, 7, 10, 15, 25 post-construction	N/A
TBD	Groundwater	Once per year in years 1, 2, 3, 4, 5, 7, 10, 15, 25 post-construction	Total Arsenic
			Total Cadmium
			Total Chromium
			Total Cobalt
			Total Copper
			Total Lead
			Total Nickel
			Total Zinc
			Total Mercury
			PCBs
			Total Petroleum Hydrocarbons (C_6-C_{32})

Location	Sample Type	Frequency	Parameters
TBD	Soil	Once per year in years 1, 2, 3, 4, 5, 7, 10, 15, 25 post-construction	PCBs
			TPH as F1 (C6-C10)
			TPH as F2 (C10-C16)
			TPH as F3 (C16 to C34)
			Arsenic
			Cadmium
			Chromium
			Cobalt
			Copper
			Lead
			Nickel
			Zinc
			Mercury
VT-1 → VT-4 VT-9 → VT-12	Thermal	Once per year in years 1, 2, 3, 4, 5, 7, 10, 15, 25 post-construction	Temperature

3.2 NON-HAZARDOUS WASTE LANDFILL

Two Non-Hazardous Waste (NHW) Landfills are being constructed at the DYE-M site for the disposal of non-hazardous debris, demolition material and Tier I contaminated soils that are a result of cleanup activities. One of the NHW Landfills is located at the Lower Site area while the other NHW Landfill is located at the Upper Site area. Monitoring of the NHW Landfills includes visual monitoring for evidence of settlement, erosion, differential movement, and periodic collection of soil and groundwater samples from around the facility to monitor for the presence of leachate. The monitoring station coordinates are not yet available for the NHW Landfills. Table3 provides the detailed monitoring requirements at the Non-Hazardous Waste Landfills. See Drawings H-C75/1-9101-110 and 167 for more information. The drawings will be updated upon construction completion.

Table 3: Detailed Monitoring Requirements at the Non-Hazardous Waste Landfills

Location	Sample Type	Frequency	Parameters
Determined on site	Visual	Once per year in years 1, 3, 5, 7, 10, 15, 25 post-construction	N/A
TBD	Groundwater	Once per year in years 1, 3, 5, 7, 10, 15, 25 post-construction	Total Arsenic
			Total Cadmium
			Total Chromium
			Total Cobalt
			Total Copper
			Total Lead
			Total Nickel
			Total Zinc
			Total Mercury
			PCBs
			Total Petroleum Hydrocarbons (C_6-C_{32})
TBD	Soil	Once per year in years 1, 3, 5, 7, 10, 15, 25 post-construction	PCBs
			TPH as F1 (C6-C10)
			TPH as F2 (C10-C16)
			TPH as F3 (C16 to C34)
			Arsenic
			Cadmium
			Chromium
			Cobalt
			Copper
			Lead
			Nickel
			Zinc
			Mercury

3.3 POWERHOUSE LANDFILL

The Powerhouse Landfill was formerly the location of an Inuit construction camp that included a number of buildings. Based on the environmental and engineering investigations, it was determined this landfill posed a moderate potential environmental risk. The remediation plan for this landfill is to install a leachate containment system. Monitoring will include visual monitoring for evidence of settlement, erosion, differential movement, collection of soil and groundwater samples from around

the facility to monitor the effectiveness of the containment system, and monitoring of subsurface ground temperatures in the berms and in the main body of the landfill. The monitoring stations for this landfill are not yet available. Table 4 provides the detailed monitoring requirements at the Powerhouse Landfill. See Drawing H-C75/1-9101-109 for details of the proposed monitoring locations. The drawings will be updated upon construction completion.

Table 4: Detailed Monitoring Requirements at the Pallet Line Landfill

Location	Sample Type	Frequency	Parameters
Determined on site	Visual	Once per year in years 1, 2, 3, 4, 5, 7, 10, 15, 25 post-construction	N/A
TBD	Groundwater	Once per year in years 1, 2, 3, 4, 5, 7, 10, 15, 25 post-construction	Total Arsenic
			Total Cadmium
			Total Chromium
			Total Cobalt
			Total Copper
			Total Lead
			Total Nickel
			Total Zinc
			Total Mercury
			PCBs
			Total Petroleum Hydrocarbons (C_6-C_{32})
TBD	Soil	Once per year in years 1, 2, 3, 4, 5, 7, 10, 15, 25 post-construction	PCBs
			TPH as F1 (C6-C10)
			TPH as F2 (C10-C16)
			TPH as F3 (C16 to C34)
			Arsenic
			Cadmium
			Chromium
			Cobalt
			Copper
			Lead
			Nickel
			Zinc
			Mercury
VT-5 → VT-8	Thermal	Once per year in years 1, 2, 3, 4, 5, 7, 10, 15, 25 post-construction	Temperature

3.4 WEST LANDFILL

The West Landfill is located approximately 800 m west of the station area on the north side of the access road. The West Landfill consists of three lobes: the West Lobe, the Centre Lobe, and the East Lobe. A portion of the West Lobe will be excavated and the remediation of the remainder of the landfill includes removal of pockets of contaminated soil and regrading. Monitoring of the West Landfill includes visual monitoring for evidence of settlement and erosion, and periodic collection of soil samples from around the facility to monitor for the presence of leachate. The monitoring station coordinates are not yet available. Table 5 provides the detailed monitoring requirements at the West Landfill. See Drawings H-C75/1-9101-165 and 166 for details. The drawings will be updated upon construction completion.

Table 5: Detailed Monitoring Requirements at the West Landfill

Location	Sample Type	Frequency	Parameters
Determined on site	Visual	Once per year in years 1, 3, 5, 7, 10, 15, 25 post-construction	N/A
TBD	Soil	Once per year in years 1, 3, 5, 7, 10, 15, 25 post-construction	PCBs
			TPH as F1 (C6-C10)
			TPH as F2 (C10-C16)
			TPH as F3 (C16 to C34)
			Arsenic
			Cadmium
			Chromium
			Cobalt
			Copper
			Lead
			Nickel
			Zinc
			Mercury

3.5 NWS LANDFILL

The NWS Landfill is located 60 m north of the South Landfill West on the west side of the access road. The remediation for this landfill includes the removal of pockets of contaminated soil and regrading. Monitoring requirements for this landfill include visual monitoring for evidence of erosion and periodic collection of soil samples to monitor for potential leachate. The monitoring

station coordinates are not yet available. Table 6 provides the detailed monitoring requirements for the NWS Landfill. See Drawing H-C75/1-9101-111 for details. The drawings will be updated upon construction completion.

Table 6: Detailed Monitoring Requirements at the NWS Landfill

Location	Sample Type	Frequency	Parameters
Determined on site	Visual	Once per year in years 1, 3, 5, 7, 10, 15, 25 post-construction	N/A
TBD	Soil	Once per year in years 1, 3, 5, 7, 10, 15, 25 post-construction	PCBs
			TPH as F1 (C6-C10)
			TPH as F2 (C10-C16)
			TPH as F3 (C16 to C34)
			Arsenic
			Cadmium
			Chromium
			Cobalt
			Copper
			Lead
			Nickel
			Zinc
			Mercury

3.6 CROSSROADS LANDFILL

The Crossroads Landfill is located northwest of the lower camp in an area of tundra east of the lower site access road. The remediation for this landfill includes the removal of pockets of contaminated soil and regrading. Monitoring requirements for this landfill include visual monitoring for evidence of erosion and periodic collection of soil samples to monitor for potential leachate. The monitoring stations are not yet available. Table 7 provides the detailed monitoring requirements for the Crossroads Landfill. See Drawing H-C75/1-9101-109 for details. The drawings will be updated upon construction completion.

Table 7: Detailed Monitoring Requirements at the Crossroads Landfill

Location	Sample Type	Frequency	Parameters
Determined on site	Visual	Once per year in years 1, 3, 5, 7, 10, 15, 25 post-construction	N/A
TBD	Soil	Once per year in years 1, 3, 5, 7, 10, 15, 25 post-construction	PCBs
			TPH as F1 (C6-C10)
			TPH as F2 (C10-C16)
			TPH as F3 (C16 to C34)
			Arsenic
			Cadmium
			Chromium
			Cobalt
			Copper
			Lead
			Nickel
			Zinc
			Mercury

3.7 FOUNDATION LANDFILL

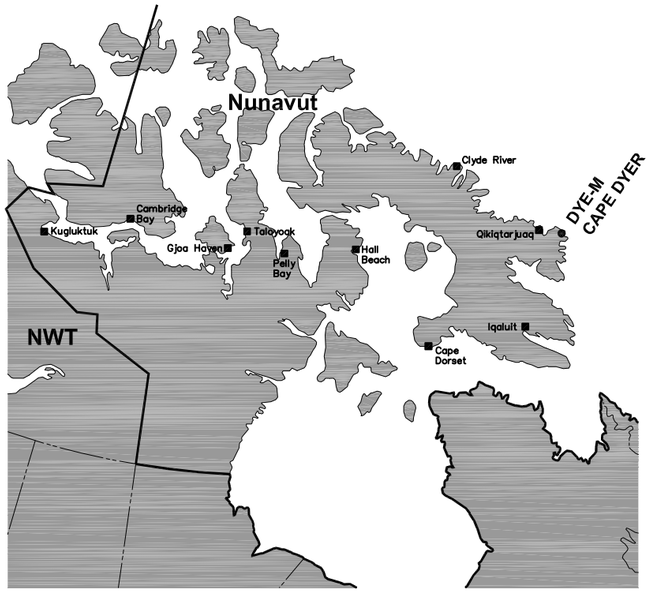
The Foundation Landfill is located southeast of the Crossroads Landfill. Based on the environmental and engineering investigations, this landfill was evaluated as a low potential environmental risk. The remediation plan for this landfill is to remove the areas of surface contamination and regrade the landfill. The monitoring plan includes visual monitoring, and the periodic collection of soil samples to monitor for potential leachate. The monitoring stations for this landfill are not yet available. Table 8 provides the detailed monitoring requirements at the Foundation Landfill. See Drawing H-C75/1-9101-109 for more information.

Table 8: Detailed Monitoring Requirements at the Foundation Landfill.

Location	Sample Type	Frequency	Parameters
Determined on site	Visual	Once per year in years 1, 3, 5, 7, 10, 15, 25 post-construction	N/A
TBD	Soil	Once per year in years 1, 3, 5, 7, 10, 15, 25 post-construction	PCBs
			TPH as F1 (C6-C10)
			TPH as F2 (C10-C16)
			TPH as F3 (C16 to C34)
			Arsenic
			Cadmium
			Chromium
			Cobalt
			Copper
			Lead
			Nickel
			Zinc
			Mercury

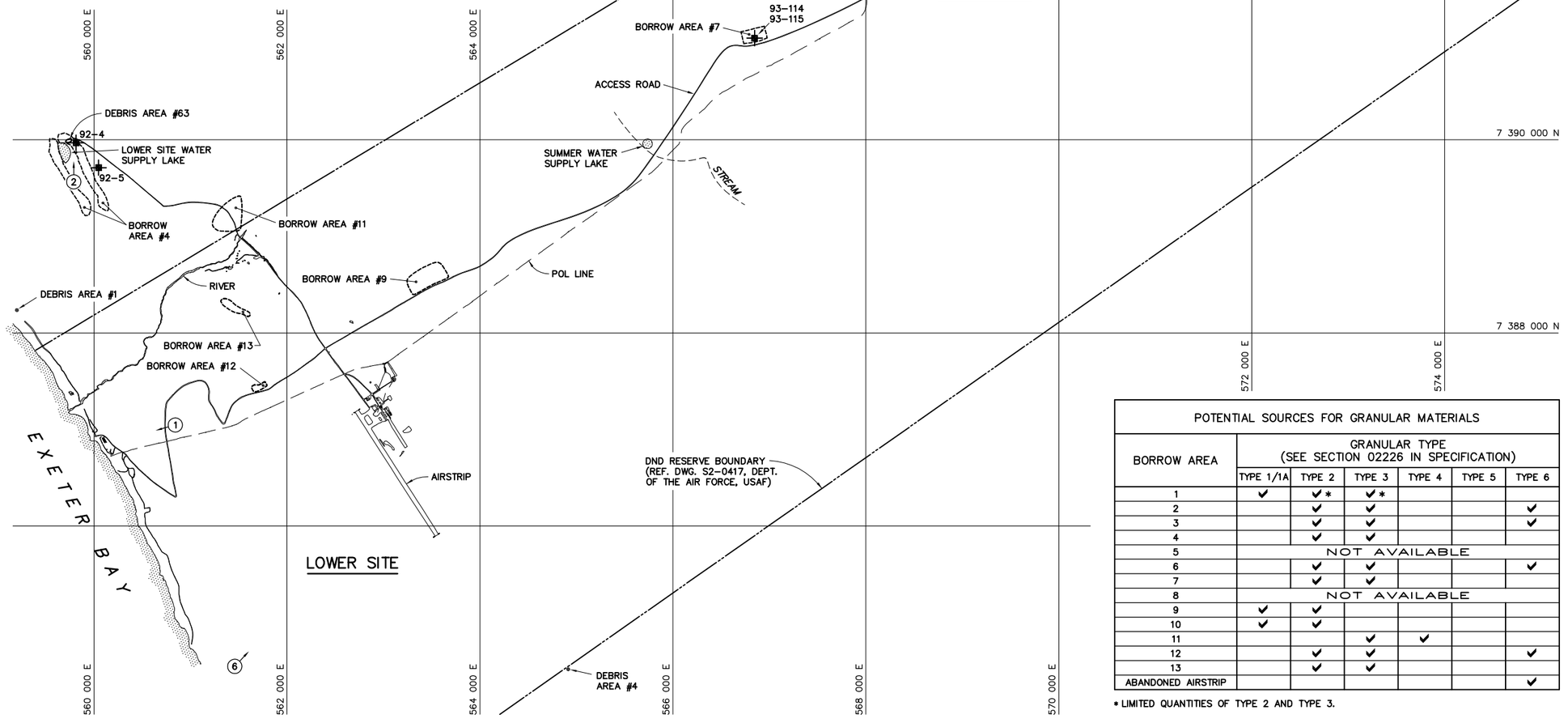
Appendix I:

Drawings



LOCATION OF CAPE DYER WITHIN NUNAVUT TERRITORY

N.T.S.



POTENTIAL SOURCES FOR GRANULAR MATERIALS						
BORROW AREA	GRANULAR TYPE (SEE SECTION 02226 IN SPECIFICATION)					
	TYPE 1/1A	TYPE 2	TYPE 3	TYPE 4	TYPE 5	TYPE 6
1	✔	✔*	✔*			
2		✔	✔			✔
3		✔	✔			✔
4		✔	✔			
5	NOT AVAILABLE					
6		✔	✔			✔
7		✔	✔			
8	NOT AVAILABLE					
9	✔	✔				
10	✔	✔				
11			✔	✔		
12		✔	✔			✔
13		✔	✔			
ABANDONED AIRSTRIP						✔

* LIMITED QUANTITIES OF TYPE 2 AND TYPE 3.

National Defence / Défense nationale

Headquarters / Quartier général

General Notes:

1. ALL COORDINATES ARE REFERENCED TO UTM ZONE 20N, NAD83.
2. ALL NON-HAZARDOUS DEBRIS FROM SOURCES WEST OF BORROW AREA #7 TO BE PLACED IN LOWER SITE NON-HAZARDOUS WASTE LANDFILL. ALL NON-HAZARDOUS DEBRIS FROM SOURCES EAST OF BORROW AREA #7 TO BE PLACED IN UPPER SITE NON-HAZARDOUS WASTE LANDFILL.
3. REFER TO TABLE 02219-1 IN SPECIFICATIONS FOR DESCRIPTION OF DEBRIS AREAS.

Legend:

- PHOTOGRAPHIC VIEWPOINT
- TEST PIT LOCATION
- BODY OF WATER
- APPROXIMATE EXTENT OF DEBRIS AREAS
- APPROXIMATE EXTENT OF BORROW AREAS
- APPROXIMATE LOCATION OF PROPERTY BOUNDARIES

No.	DATE	REVISION	REVISION	APPR.

UMA / SNC-LAVALIN

SCALE – ECHELLE 400 200 0 400 800 1200m

PROJECT – PROJET

DYE-M CAPE DYER

DEW LINE CLEAN UP

TRADE – METIER	DATE
SITING	2003-12-16

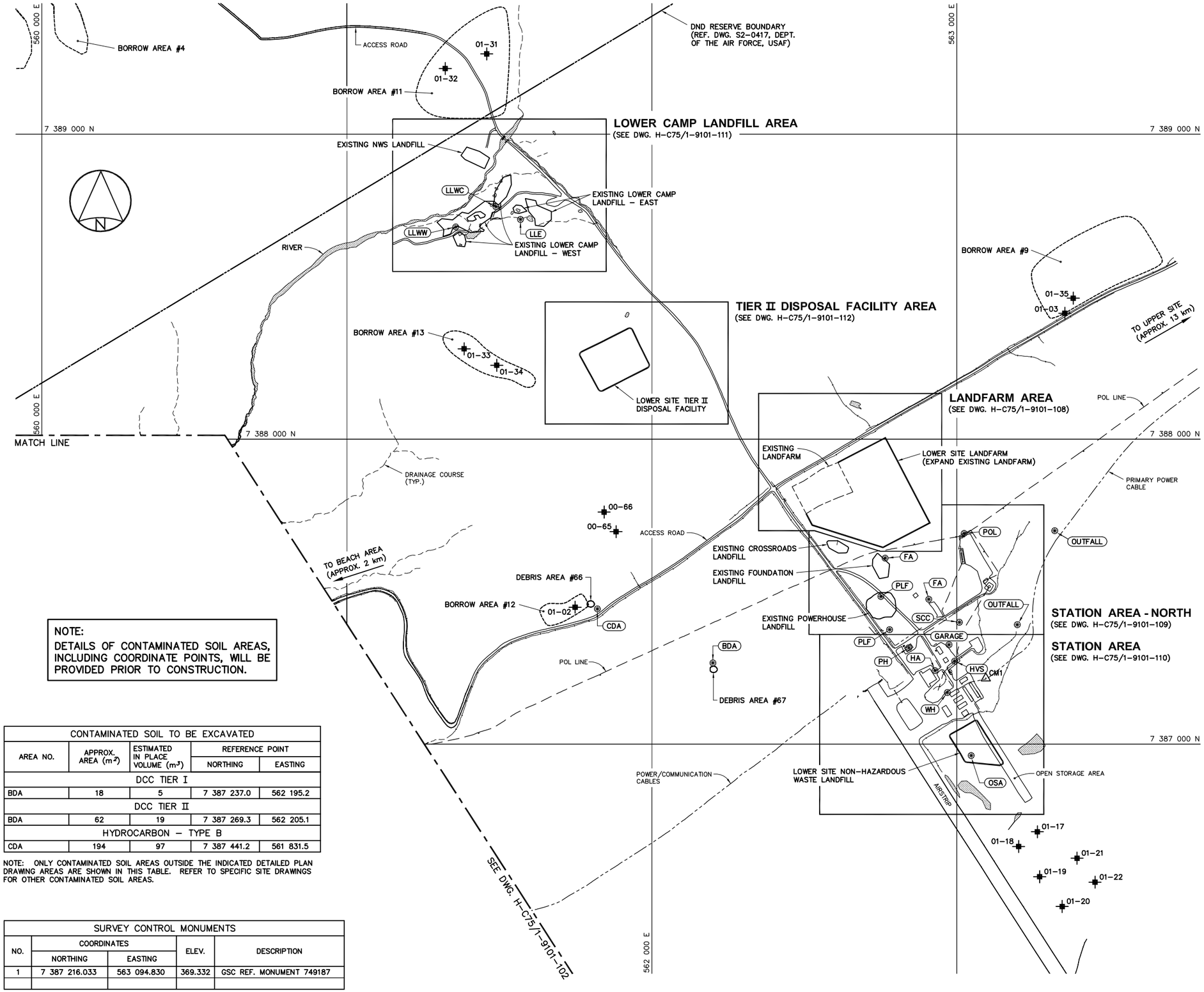
SUBJECT – SUJET

OVERALL SITE PLAN

PRODUCTION	CONCURRENCE – ASSENTIMENT	
DESIGNED / ETUDIE BWF/CY		DES OFF / AGENT CONCEPT
DRAWN / DESSINE IC/CAE		SECT HD / CHEF SECT
CHECKED / VERIFIE RRM		DES MGR / GEST CONCEPT
COORDINATION SMS	REVIEWED – REVU	

DWG. NO. – DESSIN NO.
H-C75/1-9101-101

Canada



NOTE:
DETAILS OF CONTAMINATED SOIL AREAS, INCLUDING COORDINATE POINTS, WILL BE PROVIDED PRIOR TO CONSTRUCTION.

CONTAMINATED SOIL TO BE EXCAVATED				
AREA NO.	APPROX. AREA (m^2)	ESTIMATED IN PLACE VOLUME (m^3)	REFERENCE POINT	
			NORTHING	EASTING
DCC TIER I				
BDA	18	5	7 387 237.0	562 195.2
DCC TIER II				
BDA	62	19	7 387 269.3	562 205.1
HYDROCARBON - TYPE B				
CDA	194	97	7 387 441.2	561 831.5

NOTE: ONLY CONTAMINATED SOIL AREAS OUTSIDE THE INDICATED DETAILED PLAN DRAWING AREAS ARE SHOWN IN THIS TABLE. REFER TO SPECIFIC SITE DRAWINGS FOR OTHER CONTAMINATED SOIL AREAS.

SURVEY CONTROL MONUMENTS				
NO.	COORDINATES		ELEV.	DESCRIPTION
	NORTHING	EASTING		
1	7 387 216.033	563 094.830	369.332	GSC REF. MONUMENT 749187

National Defence / Défense nationale

Headquarters
Quartier général

General Notes:

1. ALL COORDINATES ARE REFERENCED TO UTM ZONE 20N, NAD83.
2. ARCHAEOLOGICAL FEATURES LOCATED AS PER ENVIRONMENTAL CLEAN UP STUDY OF 21 DEW LINE SITES IN CANADA, VOL. 23, UMA 1991.
3. HORIZONTAL CONTROL REFERENCED TO SURVEY CONTROL MONUMENTS.
4. ALL DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE.
5. ALL NON-HAZARDOUS DEBRIS WITHIN PLAN AREA TO BE PLACED IN LOWER SITE NON-HAZARDOUS WASTE LANDFILL.
6. REFER TO TABLE 02219-1 IN SPECIFICATIONS FOR DESCRIPTION OF DEBRIS AREAS.
7. ALL SURFACE DEBRIS IS TO BE REMOVED FROM ALL CONTAMINATED SOIL AREAS AND EXISTING AND NEW LANDFILL AREAS PRIOR TO ANY FILL PLACEMENT OR EXCAVATION TAKING PLACE.

Legend:

- CM1 — SURVEY CONTROL MONUMENT
- CONTAMINATED AREA
- TEST PIT LOCATION
- BODY OF WATER

No.	DATE	REVISION	REVISION	APPR.

UMA — SAE

SCALE - ECHELLE 100 50 0 100 200 300m

PROJECT - PROJET
DYE-M CAPE DYER

DEW LINE CLEAN UP

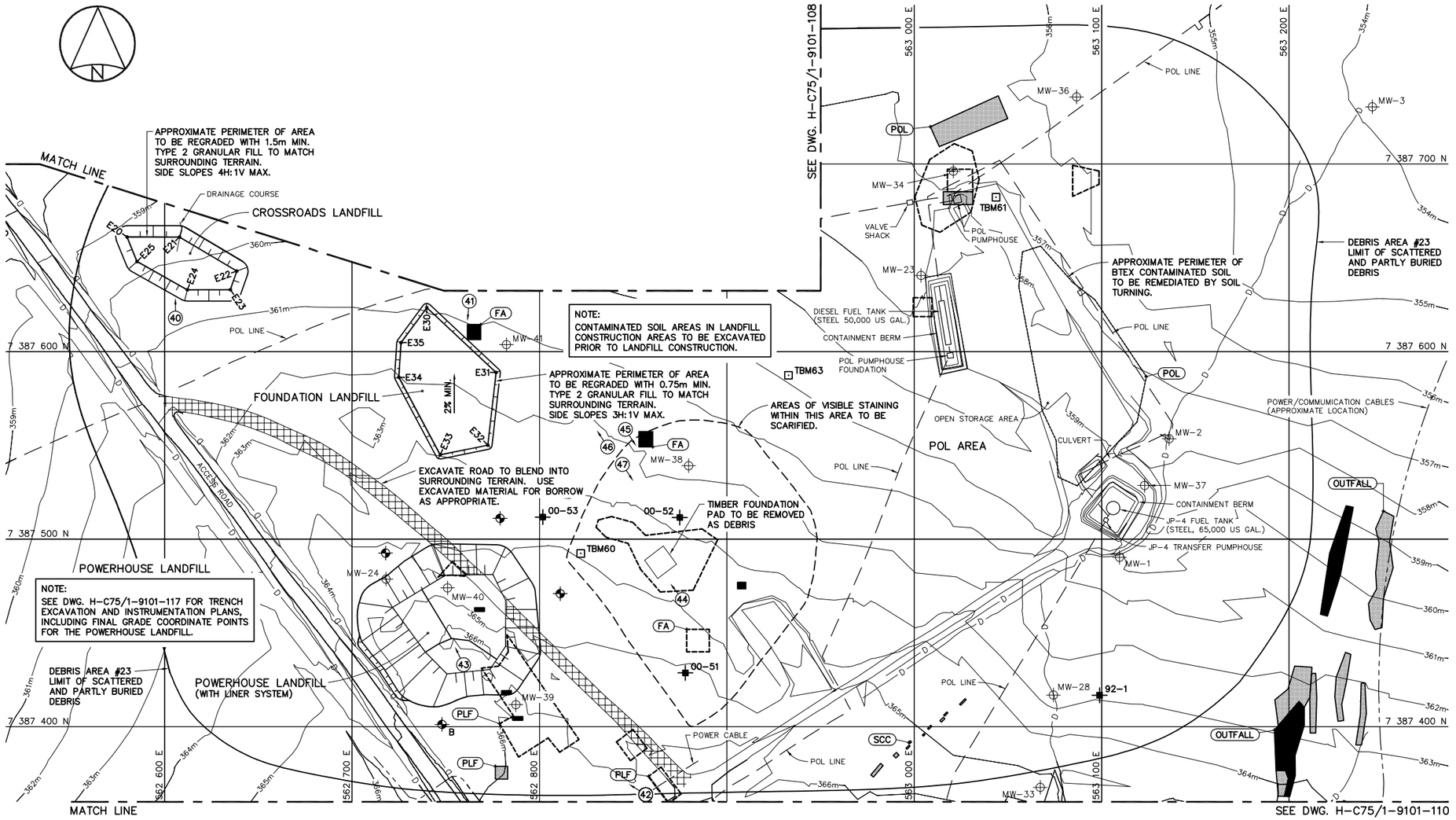
TRADE - METIER	DATE
SITING	2003-12-16

SUBJECT - SUJET
LOWER SITE
STATION AREA
PROJECT LAYOUT

PRODUCTION	CONCURRENCE - ASSENTIMENT	
DESIGNED ETUDIE BWF/CY		DES OFF AGENT CONCEPT
DRAWN DESSINE IC/CAE		SECT HD CHIEF SECT
CHECKED VERIFIE RRM		DES MGR GEST CONCEPT
COORDINATION SMS	REVIEWED - REVU	

DWG. NO. - DESSIN NO.
H-C75/1-9101-103

Canada



COORDINATE POINTS CROSSROADS LANDFILL REGRADING		
NO.	COORDINATES	
	NORTHING	EASTING
E20	7 387 661.2	562 579.8
E21	7 387 661.2	562 607.9
E22	7 387 643.0	562 638.4
E23	7 387 633.0	562 635.0
E24	7 387 633.0	562 612.1
E25	7 387 648.1	562 585.2

COORDINATE POINTS FOUNDATION LANDFILL REGRADING		
NO.	COORDINATES	
	NORTHING	EASTING
E30	7 387 623.5	562 739.8
E31	7 387 588.9	562 776.8
E32	7 387 550.2	562 772.4
E33	7 387 545.1	562 747.0
E34	7 387 586.4	562 724.9
E35	7 387 604.8	562 726.0

CONTAMINATED SOIL TO BE EXCAVATED				
AREA NO.	APPROX. AREA (m^2)	ESTIMATED IN PLACE VOLUME (m^3)	REFERENCE POINT	
			NORTHING	EASTING
DCC TIER I				
PLF	52	16	7 387 378.9	562 776.4
SCC	75	71	7 387 391.6	562 997.0
POL	638	192	7 387 720.0	563 008.5
OUTFALL	1277	383	7 387 515.0	563 250.4
DCC TIER II				
PLF	43	13	7 387 463.5	562 765.3
FA	153	46	7 387 614.5	562 768.5
OUTFALL	1936*	581*	7 387 398.3	563 192.2
HYDROCARBON – TYPE B				
PLF	2128	1057	7 387 373.6	562 858.1
FA	1659	1582	7 387 452.0	562 878.5
POL	1678	1537	7 387 682.9	563 084.5

* TABLE INCLUDES CONTAMINATED SOIL SHOWN ON DWG. H-C75/1-9101-110.

TEMPORARY BENCHMARKS				
NO.	COORDINATES		ELEV.	DESCRIPTION
	NORTHING	EASTING		
60	7 387 492.427	562 821.971	364.112	IRON BAR
61	7 387 682.345	563 043.561	357.349	IRON BAR
62	7 387 750.797	562 561.203	357.141	IRON BAR
63	7 387 587.419	562 932.859	359.865	IRON BAR

NOTE:
DETAILS OF CONTAMINATED SOIL AREAS, INCLUDING COORDINATE POINTS, WILL BE PROVIDED PRIOR TO CONSTRUCTION.

National Defence / Défense nationale

Headquarters
Quartier général

General Notes:

1. ALL COORDINATES ARE REFERENCED TO UTM ZONE 20N, NAD83.
2. HORIZONTAL CONTROL REFERENCED TO SURVEY CONTROL MONUMENTS.
3. ALL DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE.
4. ALL NON-HAZARDOUS DEBRIS WITHIN PLAN AREA TO BE PLACED IN LOWER SITE NON-HAZARDOUS WASTE LANDFILL.
5. REFER TO TABLE 02219-1 IN SPECIFICATIONS FOR DESCRIPTION OF DEBRIS AREAS.
6. ALL SURFACE DEBRIS IS TO BE REMOVED FROM ALL CONTAMINATED SOIL AREAS AND EXISTING AND NEW LANDFILL AREAS PRIOR TO ANY FILL PLACEMENT OR EXCAVATION TAKING PLACE.
7. FOR MONITORING WELL INSTALLATION DETAILS, SEE DWG. H-C75/1-9101-191. EXACT LOCATIONS TO BE FIELD DETERMINED BY THE ENGINEER.

Legend:

- TBM60 — TEMPORARY BENCHMARK
- DCC TIER I CONTAMINATED SOIL
- DCC TIER II CONTAMINATED SOIL
- HYDROCARBON – TYPE B CONTAMINATED SOIL
- BTEX CONTAMINATED SOIL
- TEST PIT LOCATION
- EXISTING MONITORING WELL LOCATION
- E20 — COORDINATE POINT
- PROPOSED MONITORING WELL LOCATION (3)
- B — PROPOSED BACKGROUND MONITORING WELL LOCATION (1)
- 40 — PHOTOGRAPHIC VIEWPOINT

No.	DATE	REVISION	REVISION	APPR.

UMA / SAIC

SCALE – ECHELLE 20 10 0 20 40 60m

PROJECT – PROJET
DYE-M CAPE DYER

DEW LINE CLEAN UP

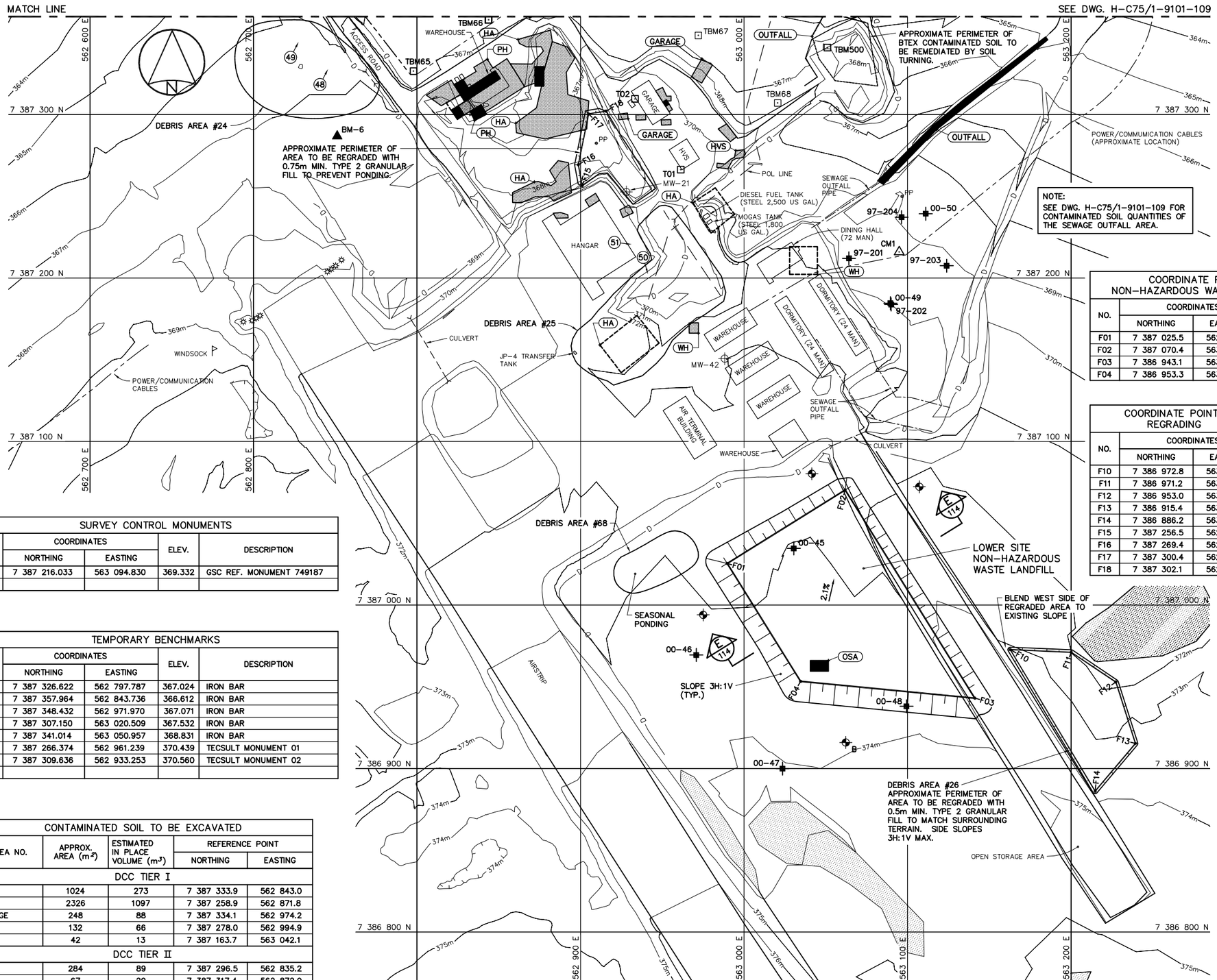
TRADE – METIER	DATE
SITING	2003-12-16

SUBJECT – SUJET
LOWER SITE
STATION AREA – NORTH
PLAN

PRODUCTION	CONCURRENCE – ASSENTIMENT	
DESIGNED ETUDIE BWF/CY		DES OFF AGENT CONCEPT
DRAWN DESSINE IC/CAE		SECT HD CHEF SECT
CHECKED VERIFIE RRM		DES MGR GEST CONCEPT
COORDINATION SMS	REVIEWED – REVU	

DWG. NO. – DESSIN NO.
H-C75/1-9101-109

Canada



SURVEY CONTROL MONUMENTS

NO.	COORDINATES		ELEV.	DESCRIPTION
	NORTHING	EASTING		
1	7 387 216.033	563 094.830	369.332	GSC REF. MONUMENT 749187

TEMPORARY BENCHMARKS

NO.	COORDINATES		ELEV.	DESCRIPTION
	NORTHING	EASTING		
65	7 387 326.622	562 797.787	367.024	IRON BAR
66	7 387 357.964	562 843.736	366.612	IRON BAR
67	7 387 348.432	562 971.970	367.071	IRON BAR
68	7 387 307.150	563 020.509	367.532	IRON BAR
500	7 387 341.014	563 050.957	368.831	IRON BAR
T01	7 387 266.374	562 961.239	370.439	TECSULT MONUMENT 01
T02	7 387 309.636	562 933.253	370.560	TECSULT MONUMENT 02

CONTAMINATED SOIL TO BE EXCAVATED

AREA NO.	APPROX. AREA (m^2)	ESTIMATED IN PLACE VOLUME (m^3)	REFERENCE POINT	
			NORTHING	EASTING
DCC TIER I				
PH	1024	273	7 387 333.9	562 843.0
HA	2326	1097	7 387 258.9	562 871.8
GARAGE	248	88	7 387 334.1	562 974.2
HVS	132	66	7 387 278.0	562 994.9
WH	42	13	7 387 163.7	563 042.1
DCC TIER II				
PH	284	89	7 387 296.5	562 835.2
HA	67	20	7 387 317.4	562 872.0
GARAGE	12	4	7 387 306.4	562 954.1
OSA	82	8	7 386 966.1	563 051.5
HYDROCARBON – TYPE B				
PH	138	33	7 387 302.6	562 820.8
HA	1078	1078	7 387 159.1	562 911.8
WH	304	152	7 387 202.4	563 044.8

NOTE:
DETAILS OF CONTAMINATED SOIL AREAS, INCLUDING COORDINATE POINTS, WILL BE PROVIDED PRIOR TO CONSTRUCTION.

COORDINATE POINTS NON-HAZARDOUS WASTE LANDFILL

NO.	COORDINATES		ELEV.
	NORTHING	EASTING	
F01	7 387 025.5	562 989.6	376.45
F02	7 387 070.4	563 061.8	375.18
F03	7 386 943.1	563 141.1	377.43
F04	7 386 953.3	563 034.6	377.73

COORDINATE POINTS REGRADING

NO.	COORDINATES	
	NORTHING	EASTING
F10	7 386 972.8	563 162.8
F11	7 386 971.2	563 200.0
F12	7 386 953.0	563 227.3
F13	7 386 915.4	563 239.3
F14	7 386 886.2	563 214.7
F15	7 386 256.5	562 900.9
F16	7 387 269.4	562 898.6
F17	7 387 300.4	562 904.9
F18	7 387 302.1	562 915.6

National Defence / Défense nationale

Headquarters
Quartier général

General Notes:

1. ALL COORDINATES ARE REFERENCED TO UTM ZONE 20N, NAD83.
2. HORIZONTAL CONTROL REFERENCED TO SURVEY CONTROL MONUMENTS.
3. ALL DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE.
4. ALL NON-HAZARDOUS DEBRIS WITHIN PLAN AREA TO BE PLACED IN LOWER SITE NON-HAZARDOUS WASTE LANDFILL.
5. REFER TO TABLE 02219-1 IN SPECIFICATIONS FOR DESCRIPTION OF DEBRIS AREAS.
6. ALL SURFACE DEBRIS IS TO BE REMOVED FROM ALL CONTAMINATED SOIL AREAS AND EXISTING AND NEW LANDFILL AREAS PRIOR TO ANY FILL PLACEMENT OR EXCAVATION TAKING PLACE.
7. FOR PERMANENT SURVEY CONTROL (BENCHMARK) AND MONITORING WELL INSTALLATION DETAILS, SEE DWG. H-C75/1-9101-191. LOCATIONS TO BE APPROVED BY THE ENGINEER.

Legend:

- CM1 — SURVEY CONTROL MONUMENT
- TBM65 — TEMPORARY BENCHMARK
- DCC TIER I CONTAMINATED SOIL
- DCC TIER II CONTAMINATED SOIL
- HYDROCARBON – TYPE B CONTAMINATED SOIL
- BTEX CONTAMINATED SOIL
- TEST PIT LOCATION
- EXISTING MONITORING WELL LOCATION
- F01 — COORDINATE POINT
- PROPOSED MONITORING WELL LOCATION (3)
- B — PROPOSED BACKGROUND MONITORING WELL LOCATION (1)
- 48 — PHOTOGRAPHIC VIEWPOINT
- BM-6 — PROPOSED PERMANENT BENCHMARK LOCATION (1). (SEE NOTE 7).

No.	DATE	REVISION	REVISION	APPR.

UMA / SNC

SCALE – ECHELLE 20 10 0 20 40 60m

PROJECT – PROJET
DYE-M CAPE DYER

DEW LINE CLEAN UP

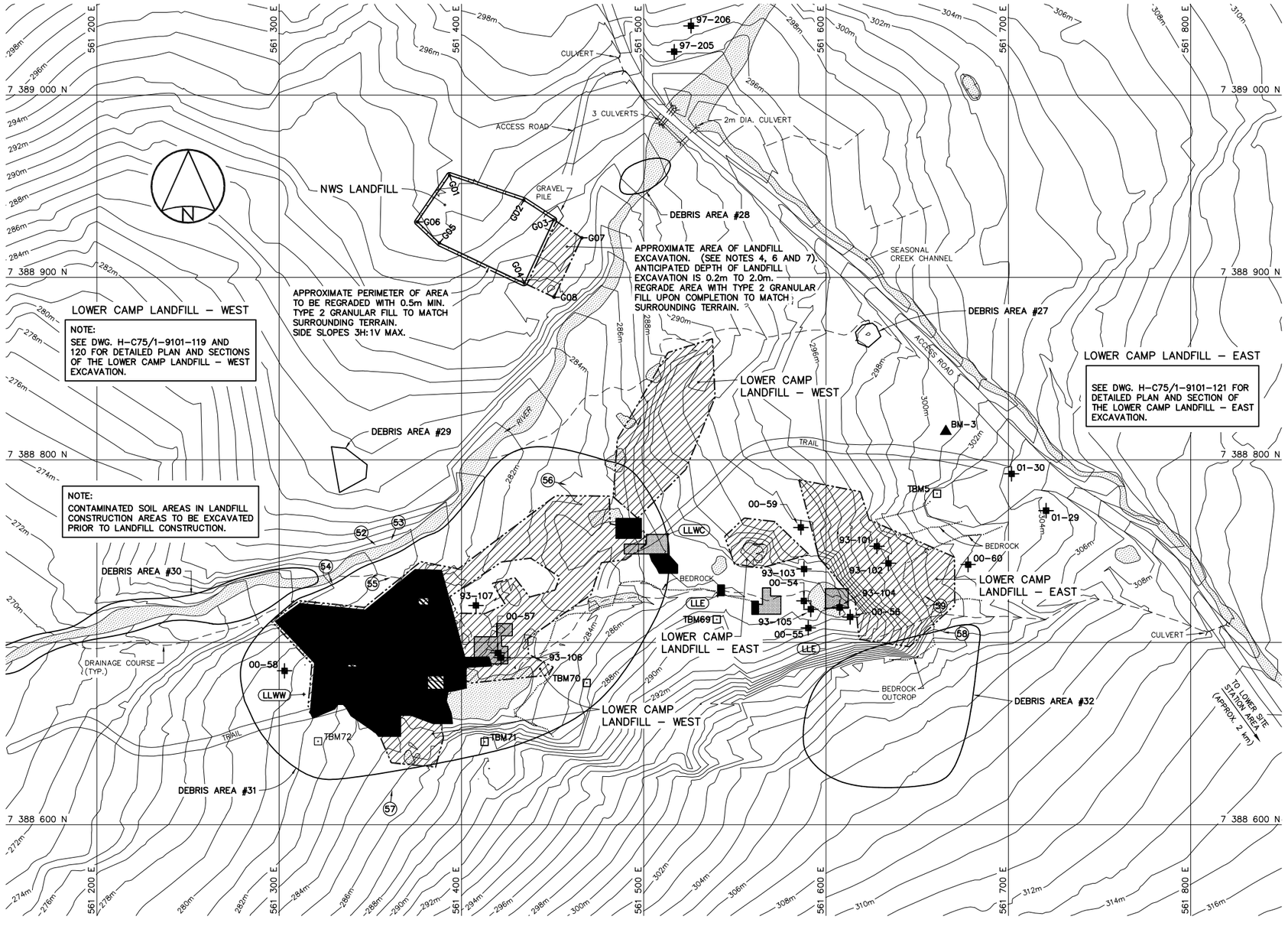
TRADE – METIER	DATE
SITING	2003-12-16

SUBJECT – SUJET
LOWER SITE
STATION AREA
PLAN

PRODUCTION	CONCURRENCE – ASSENTIMENT	
DESIGNED – ETUDIE BWF/CY		DES OFF – AGENT CONCEPT
DRAWN – DESSINE IC/CAE		SECT HD – CHEF SECT
CHECKED – VERIFIE RRM		DES MGR – GEST CONCEPT
COORDINATION SMS	REVIEWED – REVU	

DWG. NO. – DESSIN NO.
H-C75/1-9101-110

Canada



COORDINATE POINTS NWS LANDFILL REGRADING		
NO.	COORDINATES	
	NORTHING	EASTING
G01	7 388 956.0	561 393.5
G02	7 388 942.3	561 434.2
G03	7 388 931.6	561 450.7
G04	7 388 896.8	561 434.5
G05	7 388 918.9	561 387.9
G06	7 388 930.4	561 375.8

COORDINATE POINTS NWS LANDFILL EXCAVATION		
NO.	COORDINATES	
	NORTHING	EASTING
G03	7 388 921.7	561 466.0
G04	7 388 889.1	561 450.8

CONTAMINATED SOIL TO BE EXCAVATED				
AREA NO.	APPROX. AREA (m^2)	ESTIMATED IN PLACE VOLUME (m^3)	REFERENCE POINT	
			NORTHING	EASTING
DCC TIER I				
LLWW	303	91	7 388 710.2	561 427.9
LLWC	204	102	7 388 759.1	561 513.2
LLE	323	183	7 388 718.7	561 599.7
DCC TIER II				
LLWW	6485	2548	7 388 671.5	561 313.5
LLWC	297	143	7 388 742.5	561 518.5
LLE	59	18	7 388 725.6	561 540.6
HAZARDOUS (LEACHABLE LEAD)				
LLWW	116	47	7 388 681.8	561 381.4

TEMPORARY BENCHMARKS				
NO.	COORDINATES		ELEV.	DESCRIPTION
	NORTHING	EASTING		
5	7 388 781.494	561 660.844	302.637	IRON BAR
69	7 388 712.547	561 540.057	289.365	IRON BAR
70	7 388 677.759	561 468.711	287.435	IRON BAR
71	7 388 645.430	561 412.709	288.405	IRON BAR
72	7 388 645.726	561 321.370	281.611	IRON BAR
366	7 388 706.855	561 354.699	282.901	IRON BAR

NOTE:
DETAILS OF CONTAMINATED SOIL AREAS, INCLUDING COORDINATE POINTS, WILL BE PROVIDED PRIOR TO CONSTRUCTION.

National Defence / Défense nationale

Headquarters
Quartier général

General Notes:

1. ALL COORDINATES ARE REFERENCED TO UTM ZONE 20N, NAD83.
2. HORIZONTAL CONTROL REFERENCED TO SURVEY CONTROL MONUMENTS.
3. ALL DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE.
4. ALL NON-HAZARDOUS DEBRIS WITHIN PLAN AREA TO BE PLACED IN LOWER SITE NON-HAZARDOUS WASTE LANDFILL.
5. REFER TO TABLE 02219-1 IN SPECIFICATIONS FOR DESCRIPTION OF DEBRIS AREAS.
6. DEPTH OF LANDFILL/BURIED DEBRIS EXCAVATION TO EXTEND TO THE BASE OF THE DEBRIS. LIMIT AND DEPTH OF LANDFILL/BURIED DEBRIS EXCAVATION TO BE FIELD VERIFIED BY CONFIRMATORY TESTING AND EXCAVATION OF TEST PITS.
7. ALL SURFACE DEBRIS IS TO BE REMOVED FROM ALL CONTAMINATED SOIL AREAS AND EXISTING AND NEW LANDFILL AREAS PRIOR TO ANY FILL PLACEMENT OR EXCAVATION TAKING PLACE.
8. FOR PERMANENT SURVEY CONTROL (BENCHMARK) INSTALLATION DETAILS, SEE DWG. H-C75/1-9101-191. LOCATIONS TO BE APPROVED BY THE ENGINEER.

Legend:

- TBM5 — TEMPORARY BENCHMARK
- DCC TIER I CONTAMINATED SOIL
- DCC TIER II CONTAMINATED SOIL
- HAZARDOUS CONTAMINATED SOIL
- TEST PIT LOCATION
- G01 — COORDINATE POINT
- (52) — PHOTOGRAPHIC VIEWPOINT
- BODY OF WATER
- LANDFILL/BURIED DEBRIS EXCAVATION AREA
- BM-3 — PROPOSED PERMANENT BENCHMARK LOCATION (1). (SEE NOTE 8).

No.	DATE	REVISION	REVISION	APPR.

UMA ENGINEERING LTD. / SNC

SCALE – ECHELLE 20 10 0 20 40 60m

PROJECT – PROJET
DYE-M CAPE DYER

DEW LINE CLEAN UP

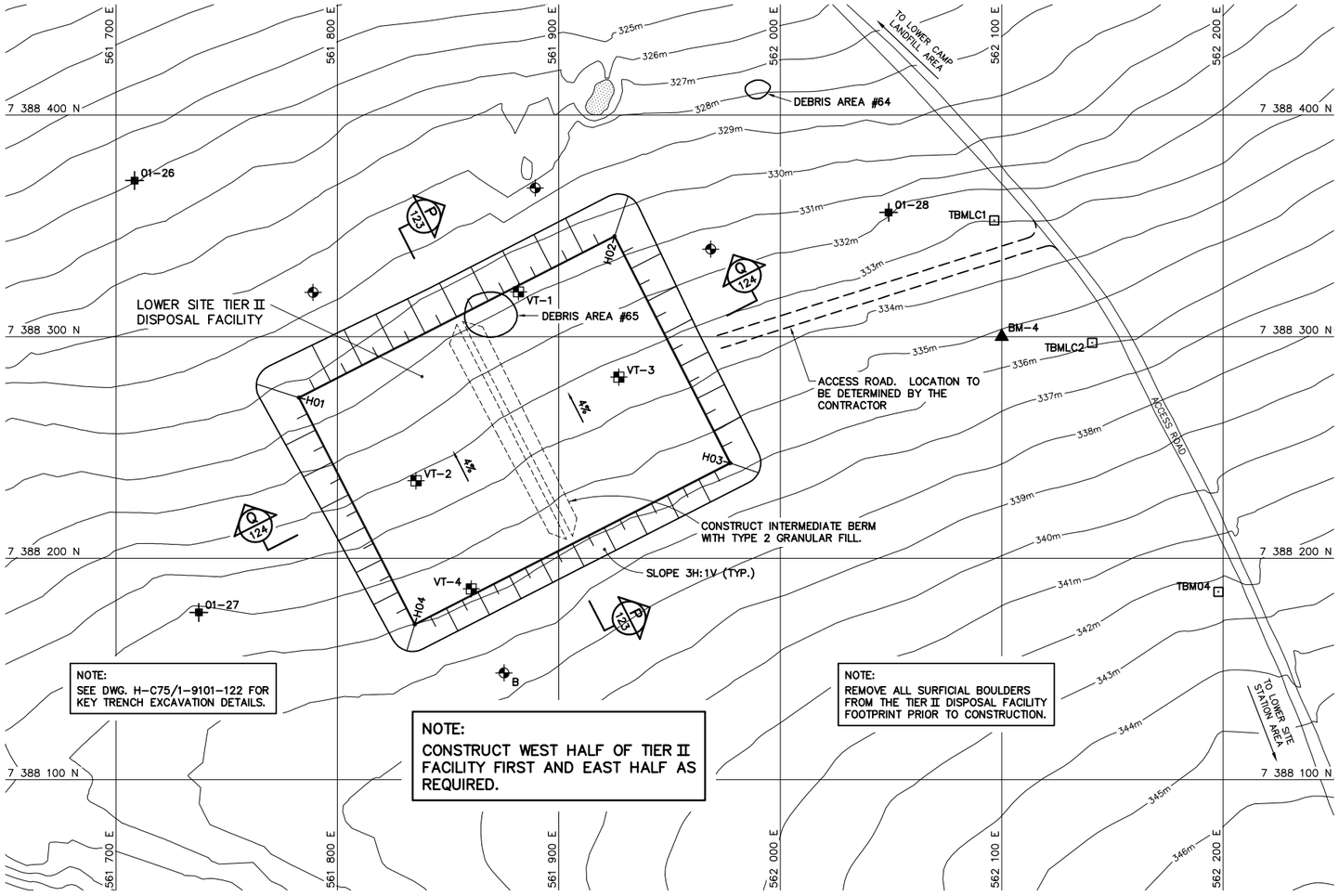
TRADE – METIER: SITING
DATE: 2003-12-16

SUBJECT – SUJET
LOWER SITE
LOWER CAMP LANDFILL AREA
PLAN

PRODUCTION	CONCURRENCE – ASSENTIMENT	
DESIGNED – ETUDIE BWF/CY		DES OFF – AGENT CONCEPT
DRAWN – DESSINE IC/CAE		SECT HD – CHEF SECT
CHECKED – VERIFIE RRM		DES MGR – GEST CONCEPT
COORDINATION SMS	REVIEWED – REVU	

DWG. NO. – DESSIN NO.
H-C75/1-9101-111

Canada



TEMPORARY BENCHMARKS				
NO.	COORDINATES		ELEV.	DESCRIPTION
	NORTHING	EASTING		
04	7 388 184.843	562 197.797	342.220	IRON BAR
LC1	7 388 352.475	562 096.597	333.194	REBAR
LC2	7 388 297.279	562 140.842	336.422	REBAR

COORDINATE POINTS FINAL DISPOSAL FACILITY SURFACE			
NO.	COORDINATES		ELEV.
	NORTHING	EASTING	
H01	7 388 272.5	561 782.6	335.60
H02	7 388 345.3	561 925.1	335.60
H03	7 388 242.9	561 977.4	340.20
H04	7 388 170.1	561 835.0	340.20

National Defence / Défense nationale

Headquarters
Quartier général

General Notes:

1. ALL COORDINATES ARE REFERENCED TO UTM ZONE 20N, NAD83.
2. HORIZONTAL CONTROL REFERENCED TO SURVEY CONTROL MONUMENTS.
3. ALL DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE.
4. ALL NON-HAZARDOUS DEBRIS WITHIN PLAN AREA TO BE PLACED IN LOWER SITE NON-HAZARDOUS WASTE LANDFILL.
5. REFER TO TABLE 02219-1 IN SPECIFICATIONS FOR DESCRIPTION OF DEBRIS AREAS.
6. ALL SURFACE DEBRIS IS TO BE REMOVED FROM ALL CONTAMINATED SOIL AREAS AND EXISTING AND NEW LANDFILL AREAS PRIOR TO ANY FILL PLACEMENT OR EXCAVATION TAKING PLACE.
7. FOR GROUND TEMPERATURE CABLE AND MONITORING WELL INSTALLATION DETAILS, SEE DWGS. H-C75/1-9101-190 AND 191. EXACT LOCATIONS TO BE FIELD DETERMINED BY THE ENGINEER.
8. FOR PERMANENT SURVEY CONTROL (BENCHMARK) INSTALLATION DETAILS, SEE DWG. H-C75/1-9101-191. LOCATIONS TO BE APPROVED BY THE ENGINEER.

Legend:

- TBM04 — TEMPORARY BENCHMARK
- TEST PIT LOCATION
- H01 — COORDINATE POINT
- PROPOSED MONITORING WELL LOCATION (3)
- B — PROPOSED BACKGROUND MONITORING WELL LOCATION (1)
- VT-1 — VERTICAL GROUND TEMPERATURE CABLE INSTALLATION (4)
- BODY OF WATER
- BM-4 — PROPOSED PERMANENT BENCHMARK LOCATION (1). (SEE NOTE 8).

No.	DATE	REVISION	REVISION	APPR.

UMA SAE

SCALE – ECHELLE 20 10 0 20 40 60m

PROJECT – PROJET
DYE-M CAPE DYER

DEW LINE CLEAN UP

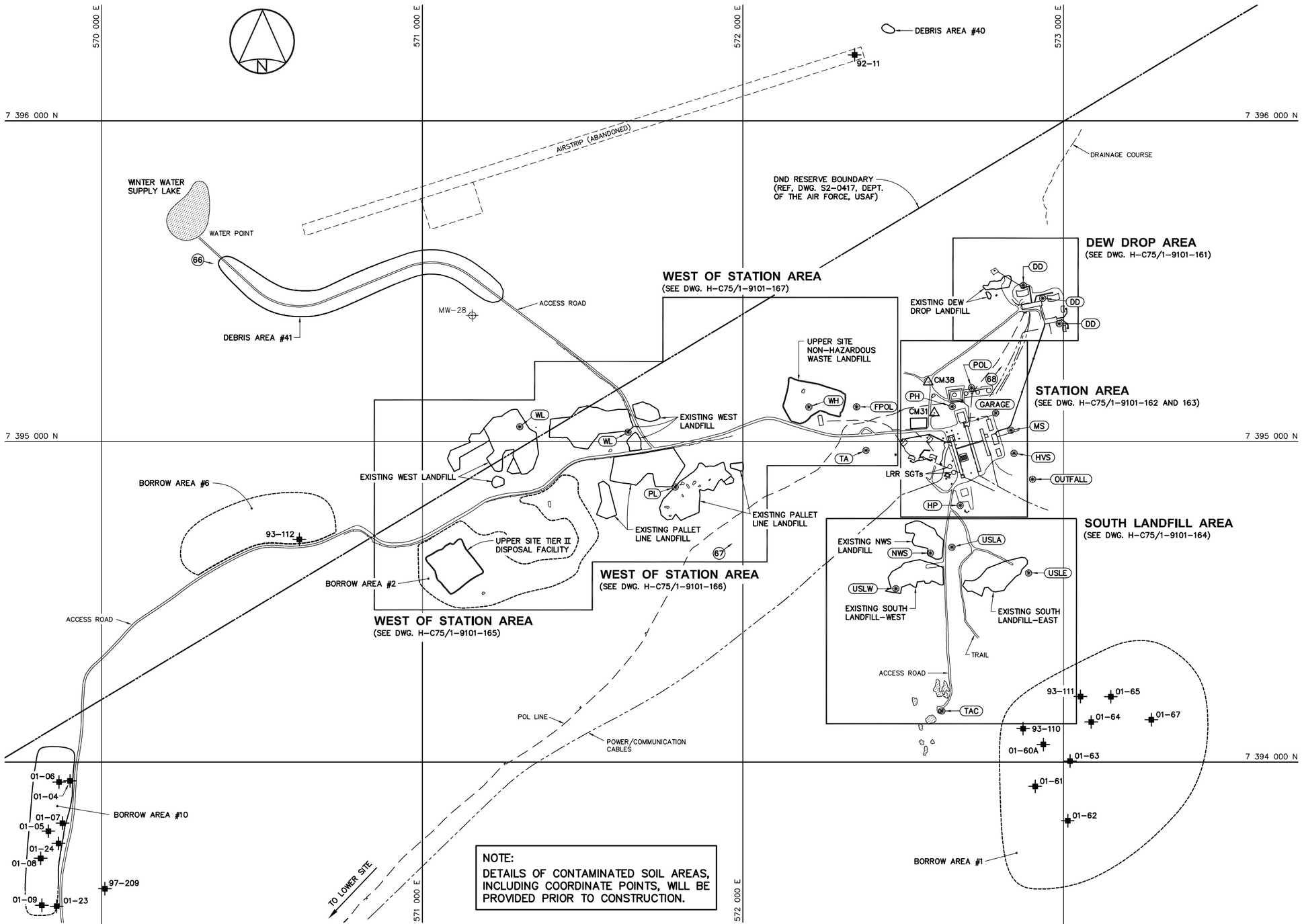
TRADE – METIER	DATE
SITING	2003-12-16

SUBJECT – SUJET
LOWER SITE
TIER II DISPOSAL FACILITY AREA
PLAN

PRODUCTION	CONCURRENCE – ASSENTIMENT	
DESIGNED ETUDIE BWT/CY		DES OFF AGENT CONCEPT
DRAWN DESSINE IC/CAE		SECT HD CHEF SECT
CHECKED VERIFIE RRM		DES MGR GEST CONCEPT
COORDINATION SMS	REVIEWED – REVU	

DWG. NO. – DESSIN NO.
H-C75/1-9101-112

Canada



NOTE:
DETAILS OF CONTAMINATED SOIL AREAS, INCLUDING COORDINATE POINTS, WILL BE PROVIDED PRIOR TO CONSTRUCTION.

CONTAMINATED SOIL TO BE EXCAVATED				
AREA NO.	APPROX. AREA (m^2)	ESTIMATED IN PLACE VOLUME (m^3)	REFERENCE POINT	
			NORTHING	EASTING
DCC TIER I				
OUTFALL	435	87	7 394 879.9	572 888.9

NOTE: ONLY CONTAMINATED SOIL AREAS OUTSIDE THE INDICATED DETAILED PLAN DRAWING AREAS ARE SHOWN IN THIS TABLE. REFER TO SPECIFIC SITE DRAWINGS FOR OTHER CONTAMINATED SOIL AREAS.

SURVEY CONTROL MONUMENTS				
NO.	COORDINATES		ELEV.	DESCRIPTION
	NORTHING	EASTING		
31	7 395 089.590	572 596.606	738.971	DYE-M BASELINE STA. 0+00
38	7 395 185.733	572 577.579	730.016	DYE-M BASELINE STA. N/A

NOTE: BASELINE STATIONS SHOWN ARE IN IMPERIAL UNITS.

National Defence / Défense nationale

Headquarters
Quartier général

General Notes:

1. ALL COORDINATES ARE REFERENCED TO UTM ZONE 20N, NAD83.
2. HORIZONTAL CONTROL REFERENCED TO SURVEY CONTROL MONUMENTS.
3. ALL DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE.
4. ALL NON-HAZARDOUS DEBRIS WITHIN PLAN AREA TO BE PLACED IN UPPER SITE NON-HAZARDOUS WASTE LANDFILL.
5. REFER TO TABLE 02219-1 IN SPECIFICATIONS FOR DESCRIPTION OF DEBRIS AREAS.
6. ALL LONG RANGE RADAR (LRR) FACILITIES ARE CURRENTLY OPERATIONAL AND ARE NOT TO BE DISTURBED. SEE DWGS. H-C75/1-9101-202 AND 203 FOR ADDITIONAL DETAILS.
7. ALL SURFACE DEBRIS IS TO BE REMOVED FROM ALL CONTAMINATED SOIL AREAS AND EXISTING AND NEW LANDFILL AREAS PRIOR TO ANY FILL PLACEMENT OR EXCAVATION TAKING PLACE.

Legend:

- △CM31 — SURVEY CONTROL MONUMENT
- ⊛ CONTAMINATED AREA — CONTAMINATED AREA
- TEST PIT LOCATION
- 67 — PHOTOGRAPHIC VIEWPOINT
- BODY OF WATER
- APPROXIMATE EXTENT OF DEBRIS AREA

No.	DATE	REVISION	REVISION	APPR.

SCALE – ECHELLE 100 50 0 100 200 300m

PROJECT – PROJET
DYE-M CAPE DYER

DEW LINE CLEAN UP

TRADE – METIER	DATE
SITING	2003-12-16

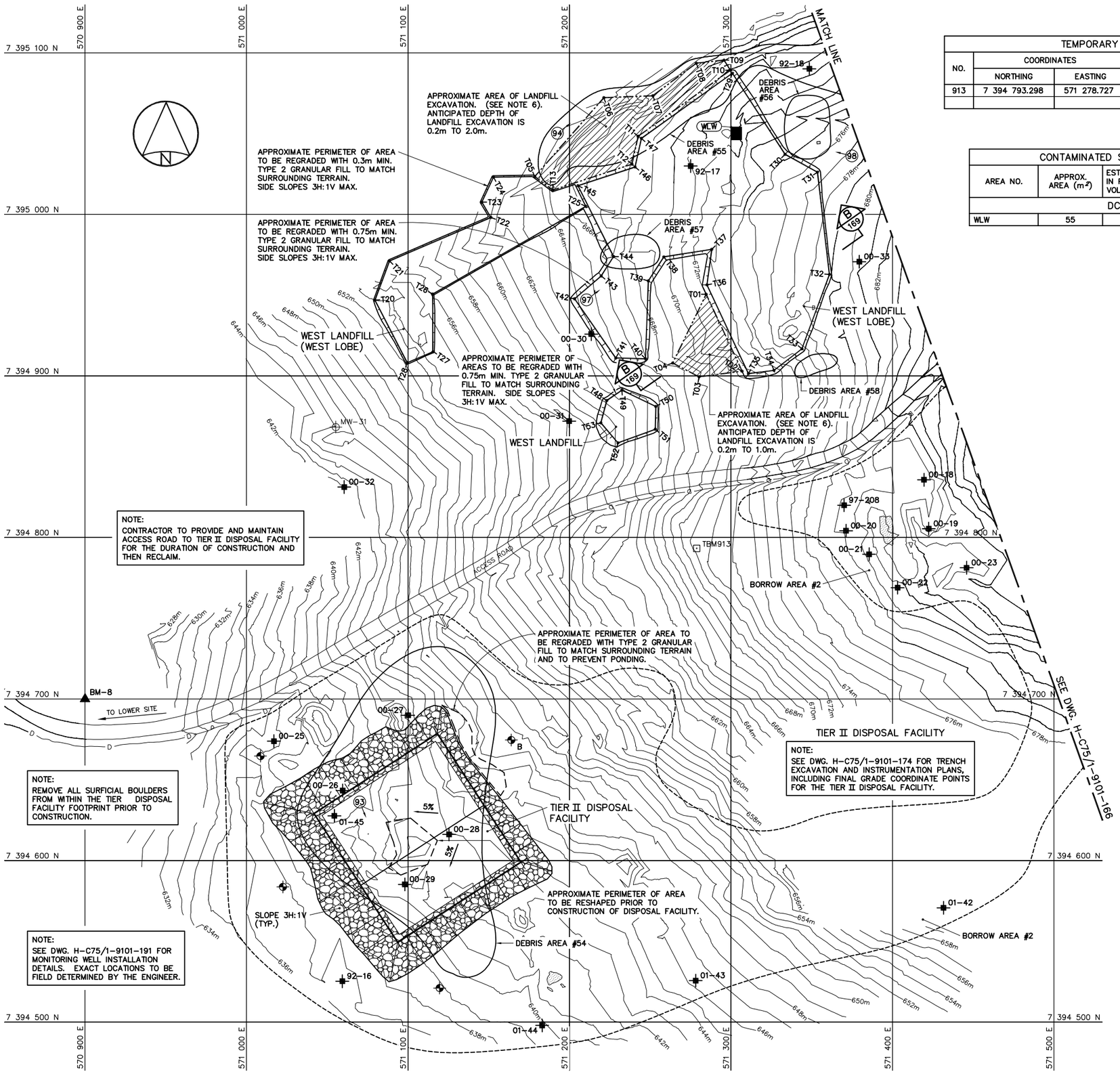
SUBJECT – SUJET

UPPER SITE
PROJECT LAYOUT

PRODUCTION	CONCURRENCE – ASSENTIMENT	
DESIGNED – ETUDIE SWT/CY		DES OFF – AGENT CONCEPT
DRAWN – DESSINE IC/CAE		SECT HD – CHEF SECT
CHECKED – VERIFIE RRM		DES MGR – GEST CONCEPT
COORDINATION SMS	REVIEWED – REVU	

DWG. NO. – DESSIN NO.
H-C75/1-9101-160

Canada



TEMPORARY BENCHMARKS				
NO.	COORDINATES		ELEV.	DESCRIPTION
	NORTHING	EASTING		
913	7 394 793.298	571 278.727	671.171	NAIL

CONTAMINATED SOIL TO BE EXCAVATED				
AREA NO.	APPROX. AREA (m^2)	ESTIMATED IN PLACE VOLUME (m^3)	REFERENCE POINT	
			NORTHING	EASTING
DCC TIER II				
WLW	55	18	7 395 054.1	571 300.1

COORDINATE POINTS WEST LANDFILL REGRADING		
NO.	COORDINATES	
	NORTHING	EASTING
T20	7 394 946.9	571 079.5
T21	7 394 971.2	571 088.5
T22	7 394 998.1	571 151.3
T23	7 395 007.6	571 145.7
T24	7 395 023.1	571 152.9
T25	7 395 005.1	571 210.1
T26	7 394 950.7	571 115.3
T27	7 394 914.9	571 115.4
T28	7 394 908.2	571 099.5
T29	7 395 087.4	571 300.8
T30	7 395 037.2	571 333.4
T31	7 395 026.2	571 353.5
T32	7 394 962.9	571 360.9
T33	7 394 916.8	571 343.9
T34	7 394 903.5	571 326.6
T35	7 394 901.5	571 310.7
T36	7 394 956.4	571 285.1
T37	7 394 978.5	571 288.1
T38	7 394 973.7	571 258.3
T39	7 394 958.9	571 248.8
T40	7 394 910.7	571 247.0
T41	7 394 911.1	571 228.6
T42	7 394 947.8	571 203.1
T43	7 394 961.9	571 219.6
T44	7 394 973.9	571 227.3
T45	7 395 017.8	571 205.2
T46	7 395 029.4	571 240.6
T47	7 395 047.1	571 244.4
T48	7 394 884.8	571 223.0
T49	7 394 891.2	571 232.4
T50	7 394 881.2	571 253.4
T51	7 394 867.0	571 253.1
T52	7 394 858.6	571 230.0
T53	7 394 871.0	571 219.4

COORDINATE POINTS WEST LANDFILL EXCAVATION		
NO.	COORDINATES	
	NORTHING	EASTING
T01	7 394 950.6	571 284.6
T02	7 394 903.0	571 306.9
T03	7 394 899.5	571 280.2
T04	7 394 908.0	571 263.9
T05	7 395 023.5	571 178.5
T06	7 395 072.3	571 221.2
T07	7 395 073.5	571 251.6
T08	7 395 093.7	571 278.5
T09	7 395 095.5	571 295.6
T10	7 395 089.3	571 299.6
T11	7 395 048.4	571 242.4
T12	7 395 031.1	571 238.7
T13	7 395 015.1	571 189.7

National Défense Defence nationale

Headquarters
Quartier général

General Notes:

1. ALL COORDINATES ARE REFERENCED TO UTM ZONE 20N, NAD83.
2. HORIZONTAL CONTROL REFERENCED TO SURVEY CONTROL MONUMENTS.
3. ALL DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE.
4. ALL NON-HAZARDOUS DEBRIS WITHIN PLAN AREA TO BE PLACED IN UPPER SITE NON-HAZARDOUS WASTE LANDFILL.
5. REFER TO TABLE 02219-1 IN SPECIFICATIONS FOR DESCRIPTION OF DEBRIS AREAS.
6. DEPTH OF LANDFILL/BURIED DEBRIS EXCAVATION TO EXTEND TO THE BASE OF THE DEBRIS. LIMIT AND DEPTH OF LANDFILL/BURIED DEBRIS EXCAVATION TO BE FIELD VERIFIED BY CONFIRMATORY TESTING AND EXCAVATION OF TEST PITS.
7. ALL SURFACE DEBRIS IS TO BE REMOVED FROM ALL CONTAMINATED SOIL AREAS AND EXISTING AND NEW LANDFILL AREAS PRIOR TO ANY FILL PLACEMENT OR EXCAVATION TAKING PLACE.
8. FOR PERMANENT SURVEY CONTROL (BENCHMARK) INSTALLATION DETAILS, SEE DWG. H-C75/1-9101-191. LOCATIONS TO BE APPROVED BY THE ENGINEER.

Legend:

- TBM913 — TEMPORARY BENCHMARK
- DCC TIER II CONTAMINATED SOIL
- TEST PIT LOCATION
- EXISTING MONITORING WELL LOCATION
- PROPOSED MONITORING WELL LOCATION (3)
- B — PROPOSED BACKGROUND MONITORING WELL LOCATION (1)
- T01 — COORDINATE POINT
- 93 — PHOTOGRAPHIC VIEWPOINT
- LANDFILL/BURIED DEBRIS EXCAVATION AREA
- BM-8 — PROPOSED PERMANENT BENCHMARK LOCATION (1). (SEE NOTE 8).

No.	DATE	REVISION	REVISION	APPR.

SCALE - ECHELLE 20 10 0 20 40 60m

PROJECT - PROJET
DYE-M CAPE DYER

DEW LINE CLEAN UP

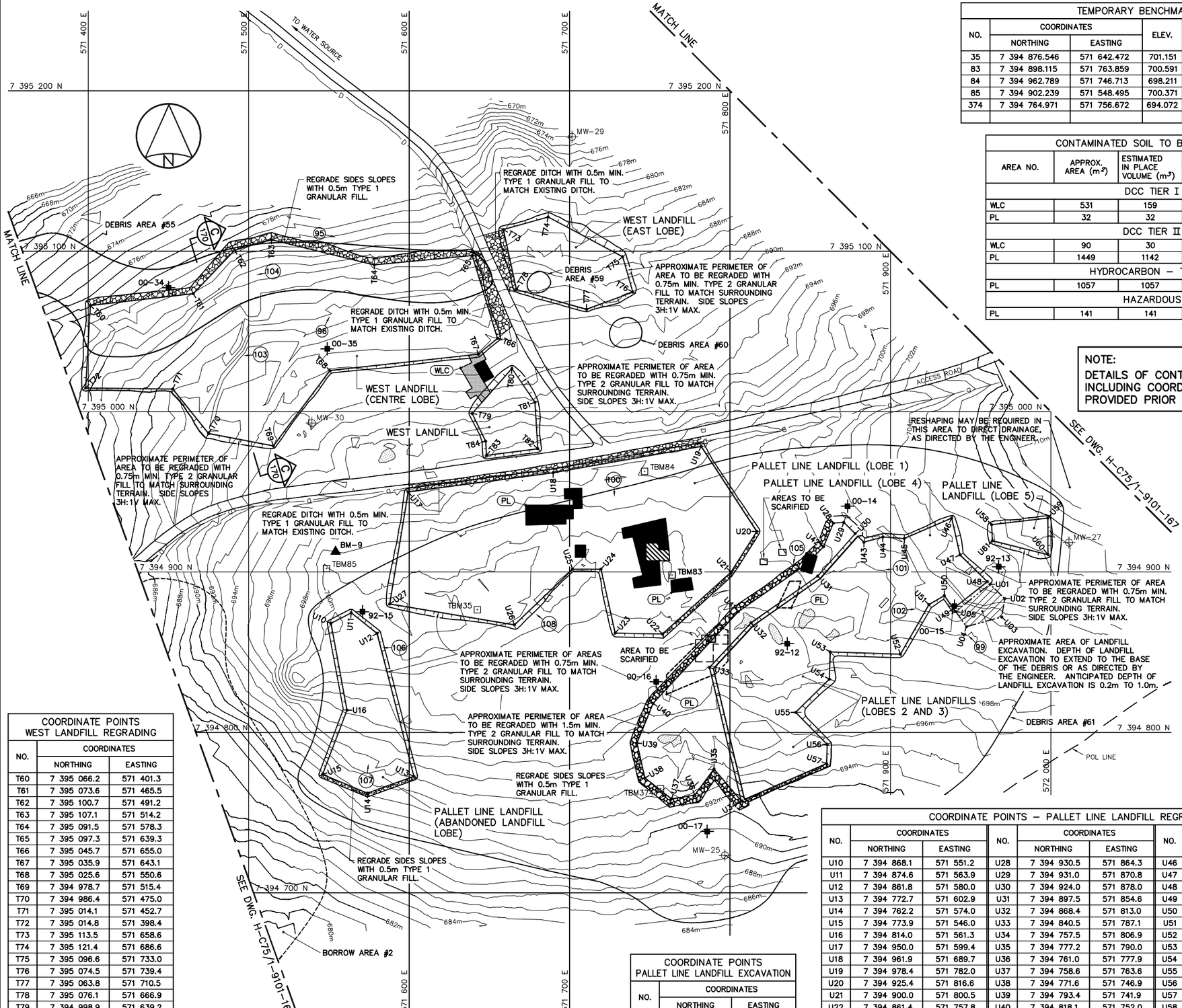
TRADE - METIER: SITING
DATE: 2003-12-16

SUBJECT - SUJET
UPPER SITE
WEST OF STATION AREA
PLAN SH. 1

PRODUCTION	CONCURRENCE - ASSENTIMENT	
DESIGNED - ETUDIE BWT/CY		DES OFF - AGENT CONCEPT
DRAWN - DESSINE IC/CAE		SECT HD - CHEF SECT
CHECKED - VERIFIE RRM		DES MGR - GEST CONCEPT
COORDINATION SMS	REVIEWED - REVU	

DWG. NO. - DESSIN NO.
H-C75/1-9101-165

Canada



TEMPORARY BENCHMARKS				
NO.	COORDINATES NORTHING	COORDINATES EASTING	ELEV.	DESCRIPTION
35	7 394 876.546	571 642.472	701.151	NAIL
83	7 394 898.115	571 763.859	700.591	IRON BAR
84	7 394 962.789	571 746.713	698.211	IRON BAR
85	7 394 902.239	571 548.495	700.371	IRON BAR
374	7 394 764.971	571 756.672	694.072	NAIL

CONTAMINATED SOIL TO BE EXCAVATED				
AREA NO.	APPROX. AREA (m^2)	ESTIMATED IN PLACE VOLUME (m^3)	REFERENCE POINT NORTHING	REFERENCE POINT EASTING
DCC TIER I				
WLC	531	159	7 395 027.2	571 632.0
PL	32	32	7 394 860.8	571 786.2
DCC TIER II				
WLC	90	30	7 395 021.7	571 652.7
PL	1449	1142	7 394 941.7	571 672.6
HYDROCARBON – TYPE B				
PL	1057	1057	7 394 894.3	571 837.1
HAZARDOUS				
PL	141	141	7 394 907.0	571 762.3

NOTE:
DETAILS OF CONTAMINATED SOIL AREAS, INCLUDING COORDINATE POINTS, WILL BE PROVIDED PRIOR TO CONSTRUCTION.

National Défense Defence nationale

Headquarters
Quartier général

General Notes:

1. ALL COORDINATES ARE REFERENCED TO UTM ZONE 20N, NAD83.
2. HORIZONTAL CONTROL REFERENCED TO SURVEY CONTROL MONUMENTS.
3. ALL DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE.
4. ALL NON-HAZARDOUS DEBRIS WITHIN PLAN AREA TO BE PLACED IN UPPER SITE NON-HAZARDOUS WASTE LANDFILL.
5. REFER TO TABLE 02219-1 IN SPECIFICATIONS FOR DESCRIPTION OF DEBRIS AREAS.
6. ALL SURFACE DEBRIS IS TO BE REMOVED FROM ALL CONTAMINATED SOIL AREAS AND EXISTING AND NEW LANDFILL AREAS PRIOR TO ANY FILL PLACEMENT OR EXCAVATION TAKING PLACE.
7. FOR PERMANENT SURVEY CONTROL (BENCHMARK) INSTALLATION DETAILS, SEE DWG. H-C75/1-9101-191. LOCATIONS TO BE APPROVED BY THE ENGINEER.

Legend:

- TBM35 TEMPORARY BENCHMARK
- DCC TIER I CONTAMINATED SOIL
- DCC TIER II CONTAMINATED SOIL
- HYDROCARBON – TYPE B CONTAMINATED SOIL
- HAZARDOUS CONTAMINATED SOIL
- TEST PIT LOCATION
- EXISTING MONITORING WELL LOCATION
- U01 COORDINATE POINT
- (95) PHOTOGRAPHIC VIEWPOINT
- LANDFILL/BURIED DEBRIS EXCAVATION AREA
- BM-9 PROPOSED PERMANENT BENCHMARK LOCATION (1). (SEE NOTE 7).

No.	DATE	REVISION	REVISION	APPR.

SCALE – ECHELLE 20 10 0 20 40 60m

PROJECT – PROJET
DYE-M CAPE DYER

DEW LINE CLEAN UP

TRADE – METIER	DATE
SITING	2003-12-16

SUBJECT – SUJET
UPPER SITE
WEST OF STATION AREA
PLAN SH. 2

PRODUCTION	CONCURRENCE – ASSENTIMENT	
DESIGNED – ETUDIE SWF/CY		DES OFF – AGENT CONCEPT
DRAWN – DESSINE IC/CAE		SECT HD – CHEF SECT
CHECKED – VERIFIE RRM		DES MGR – GEST CONCEPT
COORDINATION SMS	REVIEWED – REVU	

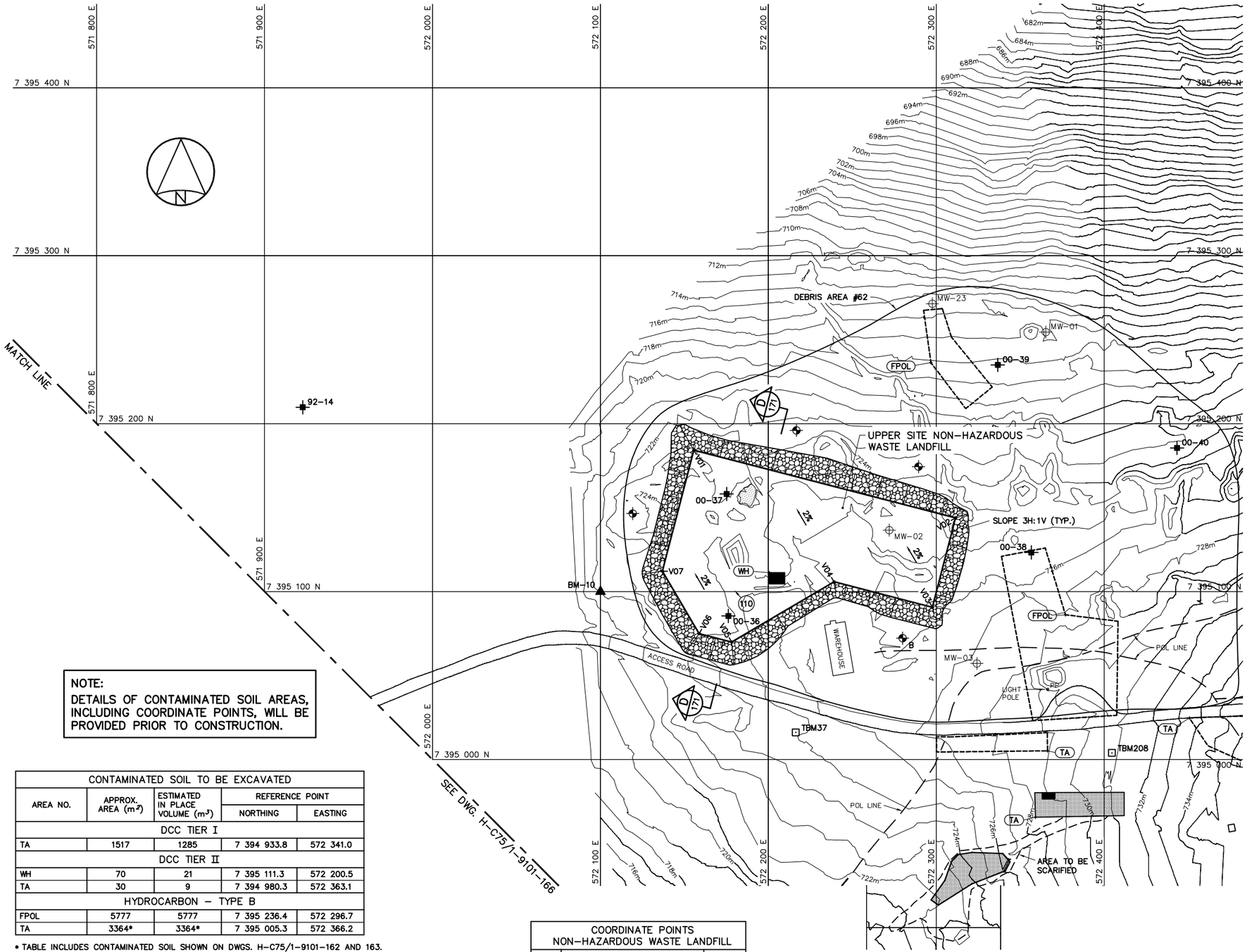
DWG. NO. – DESSIN NO.
H-C75/1-9101-166

Canada

COORDINATE POINTS WEST LANDFILL REGRADING		
NO.	COORDINATES NORTHING	COORDINATES EASTING
T60	7 395 066.2	571 401.3
T61	7 395 073.6	571 465.5
T62	7 395 100.7	571 491.2
T63	7 395 107.1	571 514.2
T64	7 395 091.5	571 578.3
T65	7 395 097.3	571 639.3
T66	7 395 045.7	571 655.0
T67	7 395 035.9	571 643.1
T68	7 395 025.6	571 550.6
T69	7 394 978.7	571 515.4
T70	7 394 986.4	571 475.0
T71	7 395 014.1	571 452.7
T72	7 395 014.8	571 398.4
T73	7 395 113.5	571 658.6
T74	7 395 121.4	571 686.6
T75	7 395 096.6	571 733.0
T76	7 395 074.5	571 739.4
T77	7 395 063.8	571 710.5
T78	7 395 076.1	571 666.9
T79	7 394 998.9	571 639.2
T80	7 395 026.9	571 664.0
T81	7 395 005.9	571 678.4
T82	7 394 976.9	571 680.1
T83	7 394 972.8	571 648.2
T84	7 394 981.7	571 647.6

COORDINATE POINTS PALLET LINE LANDFILL EXCAVATION		
NO.	COORDINATES NORTHING	COORDINATES EASTING
U01	7 394 892.4	571 962.0
U02	7 394 883.5	571 971.2
U03	7 394 872.0	571 969.3
U04	7 394 866.0	571 947.3
U05	7 394 875.5	571 940.5

COORDINATE POINTS – PALLET LINE LANDFILL REGRADING								
NO.	COORDINATES NORTHING	COORDINATES EASTING	NO.	COORDINATES NORTHING	COORDINATES EASTING	NO.	COORDINATES NORTHING	COORDINATES EASTING
U10	7 394 868.1	571 551.2	U28	7 394 930.5	571 864.3	U46	7 394 933.7	571 938.1
U11	7 394 874.6	571 563.9	U29	7 394 931.0	571 870.8	U47	7 394 910.7	571 943.3
U12	7 394 861.8	571 580.0	U30	7 394 924.0	571 878.0	U48	7 394 894.0	571 960.4
U13	7 394 772.7	571 602.9	U31	7 394 897.5	571 854.6	U49	7 394 877.3	571 939.2
U14	7 394 762.2	571 574.0	U32	7 394 868.4	571 813.0	U50	7 394 885.3	571 933.5
U15	7 394 773.9	571 546.0	U33	7 394 840.5	571 787.1	U51	7 394 879.7	571 923.9
U16	7 394 814.0	571 561.3	U34	7 394 757.5	571 806.9	U52	7 394 848.8	571 906.1
U17	7 394 950.0	571 599.4	U35	7 394 777.2	571 790.0	U53	7 394 850.2	571 862.4
U18	7 394 961.9	571 689.7	U36	7 394 761.0	571 777.9	U54	7 394 833.2	571 861.8
U19	7 394 978.4	571 782.0	U37	7 394 758.6	571 763.6	U55	7 394 812.6	571 840.9
U20	7 394 925.4	571 816.6	U38	7 394 771.6	571 746.9	U56	7 394 792.6	571 860.5
U21	7 394 900.0	571 800.5	U39	7 394 793.4	571 741.9	U57	7 394 780.6	571 860.1
U22	7 394 861.4	571 757.8	U40	7 394 818.1	571 752.0	U58	7 394 929.6	571 963.0
U23	7 394 862.0	571 728.4	U41	7 394 875.3	571 805.1	U59	7 394 933.7	571 998.0
U24	7 394 901.8	571 719.5	U42	7 394 915.9	571 858.3	U60	7 394 910.9	571 998.1
U25	7 394 901.8	571 701.8	U43	7 394 918.6	571 883.4	U61	7 394 919.5	571 963.5
U26	7 394 867.1	571 665.6	U44	7 394 921.9	571 895.2			
U27	7 394 880.1	571 587.8	U45	7 394 920.9	571 908.6			



NOTE:
DETAILS OF CONTAMINATED SOIL AREAS, INCLUDING COORDINATE POINTS, WILL BE PROVIDED PRIOR TO CONSTRUCTION.

CONTAMINATED SOIL TO BE EXCAVATED				
AREA NO.	APPROX. AREA (m^2)	ESTIMATED IN PLACE VOLUME (m^3)	REFERENCE POINT	
			NORTHING	EASTING
DCC TIER I				
TA	1517	1285	7 394 933.8	572 341.0
DCC TIER II				
WH	70	21	7 395 111.3	572 200.5
TA	30	9	7 394 980.3	572 363.1
HYDROCARBON – TYPE B				
FPOL	5777	5777	7 395 236.4	572 296.7
TA	3364*	3364*	7 395 005.3	572 366.2

* TABLE INCLUDES CONTAMINATED SOIL SHOWN ON DWGS. H-C75/1-9101-162 AND 163.

TEMPORARY BENCHMARKS				
NO.	COORDINATES		ELEV.	DESCRIPTION
	NORTHING	EASTING		
37	7 395 016.222	572 216.264	725.144	NAIL
208	7 395 004.031	572 404.522	730.747	IRON BAR

COORDINATE POINTS NON-HAZARDOUS WASTE LANDFILL			
NO.	COORDINATES		ELEV.
	NORTHING	EASTING	
V01	7 395 184.3	572 155.5	726.54
V02	7 395 144.0	572 311.4	728.82
V03	7 395 090.7	572 297.6	729.60
V04	7 395 105.9	572 239.1	728.74
V05	7 395 070.0	572 178.1	728.74
V06	7 395 075.0	572 158.8	728.46
V07	7 395 112.2	572 136.9	727.60

NOTE:
FINAL DESIGN COORDINATES AND ELEVATIONS ARE GIVEN TO THE FINAL CREST OF THE TYPE 2 GRANULAR FILL, PRIOR TO THE PLACEMENT OF THE TYPE 1 GRANULAR FILL.

National Defence / Défense nationale

Headquarters
Quartier général

General Notes:

1. ALL COORDINATES ARE REFERENCED TO UTM ZONE 20N, NAD83.
2. HORIZONTAL CONTROL REFERENCED TO SURVEY CONTROL MONUMENTS.
3. ALL DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE.
4. ALL NON-HAZARDOUS DEBRIS WITHIN PLAN AREA TO BE PLACED IN UPPER SITE NON-HAZARDOUS WASTE LANDFILL.
5. REFER TO TABLE 02219-1 IN SPECIFICATIONS FOR DESCRIPTION OF DEBRIS AREAS.
6. ALL LONG RANGE RADAR (LRR) FACILITIES ARE CURRENTLY OPERATIONAL AND ARE NOT TO BE DISTURBED. SEE DWGS. H-C75/1-9101-202 AND 203 FOR ADDITIONAL DETAILS.
7. ALL SURFACE DEBRIS IS TO BE REMOVED FROM ALL CONTAMINATED SOIL AREAS AND EXISTING AND NEW LANDFILL AREAS PRIOR TO ANY FILL PLACEMENT OR EXCAVATION TAKING PLACE.
8. FOR PERMANENT SURVEY CONTROL (BENCHMARK) AND MONITORING WELL INSTALLATION DETAILS, SEE DWG. H-C75/1-9101-191. LOCATIONS TO BE APPROVED BY THE ENGINEER.

Legend:

- TBM37 — TEMPORARY BENCHMARK
- DCC TIER I CONTAMINATED SOIL
- DCC TIER II CONTAMINATED SOIL
- HYDROCARBON – TYPE B CONTAMINATED SOIL
- TEST PIT LOCATION
- EXISTING MONITORING WELL LOCATION
- V01 — COORDINATE POINT
- 110 — PHOTOGRAPHIC VIEWPOINT
- PROPOSED MONITORING WELL LOCATION (3)
- B — PROPOSED BACKGROUND MONITORING WELL LOCATION (1)
- BM-10 — PROPOSED PERMANENT BENCHMARK LOCATION (1). (SEE NOTE 8).

No.	DATE	REVISION	REVISION	APPR.

UMA | SNC

SCALE – ECHELLE 20 10 0 20 40 60m

PROJECT – PROJET
DYE-M CAPE DYER

DEW LINE CLEAN UP

TRADE – METIER	DATE
SITING	2003-12-16

SUBJECT – SUJET
UPPER SITE
WEST OF STATION AREA
PLAN SH. 3

PRODUCTION	CONCURRENCE – ASSENTIMENT	
DESIGNED ETUDIE BWT/CY		DES OFF AGENT CONCEPT
DRAWN DESSINE IC/CAE		SECT HD CHEF SECT
CHECKED VERIFIE RRM		DES MGR GEST CONCEPT
COORDINATION SMS	REVIEWED – REVU	

DWG. NO. – DESSIN NO.
H-C75/1-9101-167

Canada

Appendix II:

DND-NTI Cooperation Agreement