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PROTECTING OUR ARCTIC ENVIRONMENT

July 2, 2025

Sulaimon Ayilara
Manager, Technical & Environmental Services
Petroleum Products Division, Transportation and Infrastructure Nunavut
Government of Nunavut
P.O. Box 590, Rankin Inlet, NU X0C 0G0

Re: Survey, Sampling, and Regulatory Update, Baker Lake Landfarm

Dear Mr. Ayilara,

Nunatta Environmental Services Inc. (Nunatta) was retained by the Petroleum Products Division (PPD) of the Government of Nunavut's Department of Community and Government Services for the design and submission of regulatory documents required for the construction of a landfarm in Baker Lake, Nunavut.

BACKGROUND

The Baker Lake Bulk Fuel facility stores fuel for the community and the adjacent gas station. The site contains eight above ground storage tanks. There is an above ground steel pipeline to the east of the site, connecting the fuel storage tanks with Baker Lake, 300 metres to the south.

In 2021, a gasoline spill estimated at 10,000 litres was discovered at the facility. The source of the spill was identified as a ruptured drain valve on the pipeline. The leak was stopped upon discovery, and the spill was believed to be contained within the protective berm surrounding the fuel tank farm.

At the end of March 2021, gasoline was detected outside the tank farm's berm. Nunatta responded to this spill, and managed the initial stages of the cleanup. Nunatta managed the retention, sampling and treatment of water potentially impacted by the fuel spill. Nunatta collected soil samples and identified and delineated impacted soils.

Impacted soils were excavated and placed in a containment cell at the site. Since the time of the spill, some soil has been bioremediated and is ready for re-use, but it is likely that some soil remains impacted. A new landfarm would allow for the treatment and re-use of this impacted soil. Nunatta has

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been involved in the process of selecting a location for the new landfarm. The Hamlet of Baker Lake has selected an area northwest of the built up area and north of the airport for the landfarm.

The Government of Nunavut's Department of Community and Government Services (CGS) issued a Sketch Plan Approval Report[1] for the subdivision of the proposed landfarm site in October 2024.

According to the Report, the Baker Lake Council approved the plan for the creation of a lot for the tank farm on September 19, 2024 via motion 104/09/19/24.

The Report contains analysis of the land tenure, planning implications, and effect on Territorial directives and policies of the new lot.

According to the land tenure analysis in the Report, the larger lot (451) containing the smaller proposed landfarm lot is entirely owned by the Hamlet in fee simple, and was previously in use as a quarry. The Report says that, since the new lot will consist only of land owned by the Hamlet, "once the survey is complete, no additional paperwork is required to have the survey registered at the Land titles office… Once the titles are carried over, the Hamlet will issue an equity lease to the Commissioner of Nunavut for [Lot 454] to be used for a land farm that will be administered by the Petroleum Products Division."

The planning analysis describes the options considered for legal frontage for the proposed lot, which is 160 metres east of the established road. In consultation with the surveyor, the Report indicates that a "flag lot" (i.e., a thin strip of land connecting the body of the property to the road) with 6 m frontage was recommended.

According to the Report, the property is in an area zoned "Hinterland." The designation supports protecting the land through traditional and recreational activities, as well as quarrying. The Report indicates that the proposed use is not supported by the intent of the designation.

The Report indicates that "the applicant has agreed to proceed with a Community Plan and Zoning By-law amendment. A Planning Act by-law will need to amend By-law 218 to redesignate the lands from Hinterland to Waste Disposal and another by-law will be needed to amend By-law 219 to re-zone the subject lands from Hinterland (H) to Waste Disposal (WD)."

The Report notes that the site is close to the Baker Lake Airport's approach surface, and recommends a review of the plan by Nunavut Airports for conformity with the Airport Zoning Regulations.

The analysis of the plan against Territorial directives and policies notes that this subdivision supports the orderly development of this community and hence contributes to Inuuqatigiittiarniq (healthy communities).

The Report concludes that the subdivision of the property is approved with the following conditions:

[1] Patch, William – Director, Planning and Lands, Department of Community and Government Services. October 3, 2024. Letter to Nathaniel Hutchinson re: Preliminary Sketch Plan Approval, Proposed Land Farm, Subdivision of Lot 451 Plan 4823, Rankin Inlet, Nunavut.

- That signed council minutes are submitted, and
- Amendments to the Community Plan and Zoning By-law are completed.

The Report also notes that there is "some potential for the proposed subdivision to contain archaeological sites protected by the Archaeological and Palaeontological Sites Regulations and Historical Resources Act" and requests notification of the Department of Culture and Heritage or Territorial Archaeologist if archaeological sites or specimen, or palaeontological sites or fossils are encountered.

Following from the Sketch Plan Approval Report, the site was surveyed as Lot 454 with an area of 0.540 hectares in October 2024. The plan of survey was assigned plan number 114003 Canada Lands Survey Record (CLSR) in Nunavut.

REGULATORY APPLICATIONS AND SUBMISSIONS

Nunatta prepared a project application for the landfarm to the Nunavut Planning Commission (NPC). Nunatta prepared and submitted the project application including information about the nature of the project, the project site, equipment and materials to be used, the number of people involved, and other details. The application was submitted on May 15, 2025.

According to a letter dated June 25, 2025[2], the NPC reviewed the project and determined that it conforms to the Keewatin Regional Land Use Plan. The NPC further indicated that the project will require screening by the Nunavut Impact Review Board (NIRB) because "it does not belong to a class of exempt works or activities set out in Schedule 12-1 of the Nunavut Agreement."

Screening by NIRB is designed to determine whether proposed projects require a full environmental review, or whether they should instead be allowed to proceed and receive their required permits, licenses and approvals without further assessment. A project proposal must be submitted to NIRB and proceed through the 45-day screening process, which includes a public commenting opportunity.

The screening process has three possible outcomes:

- a decision that a full review of the project is not required;
- a decision that a full environmental and socio-economic review of the project is required; or
- a decision that the project should be modified or abandoned.

The Board of NIRB can also request re-submission of the screening application because the information provided was insufficient.

According to NIRB, "Reviews are … generally reserved for major development projects or projects that may cause significant public concern. Reviews require the development of an Impact Statement by the Proponent, and the scheduling of a public hearing by the NIRB. Projects that are approved following a

[2] Haney, Daniel – Senior Planner, Nunavut Planning Commission. June 25, 2025. Letter to Cassel Kapolak *et al* re NPC File No. 150831 [Baker Lake Land Farm].

Review by the NIRB are issued a Project Certificate and may be monitored by the NIRB." Nunatta does not believe that this description fits the construction of the landfarm, and believes that it is likely that the project will not require the extensive environmental and socio-economic review.

If NIRB finds that full review is not required, the project will proceed to the licensing phase.

The Nunavut Water Board (NWB) issues licenses and approvals for uses of water or deposits of waste into water with some exceptions based in Regulations. Based on previous approvals, the landfarm will require an NWB licence.

SITE VISIT

Nunatta visited Baker Lake to make observations at the proposed landfarm site and to evaluate the current situation in the soil cell near the tank farm.

On June 7, 2025, Nunatta visited the proposed landfarm site. The site is accessible from the road that travels northeast towards the municipal gravel pit from the Airport Road.

During the field program, Nunatta took photos of the site and surrounding area. Photos are presented in a log attached to this letter. The site was reportedly previously used by Baker Lake Contracting Supplies (BLCS) as an aggregate source. Remaining soils appear clayey, with no bedrock outcrops.

The site is relatively level, with a slight slope from northwest to southeast. The grade shows signs of modification, likely from the removal of aggregate. At the time of the site visit, there was water running along the eastern property boundary.

Survey

During the site visit, Nunatta surveyed the area around the proposed landfarm. The objective of the topographic survey was to collect ground elevation information to accurately describe the lay of the land, drainage patterns and location/type of any manmade features with the survey limits.

Nunatta surveyed the ground with a robotic total station. Ground points were surveyed at regular intervals, with special attention paid to ridges and other site features. The survey points were stored electronically.

Survey data will be provided to PPD electronically with this letter.

Sampling

During the field program, Nunatta also visited the contaminated soil cell at the Baker Lake tank farm. Nunatta took photos of the cell and surrounding areas, which are attached to this letter.

Nunatta also collected soil samples from two locations in the soil containment cell at the tank farm to characterize the current state of bioremediation at the site. Nunatta collected two soil samples from depths 0-0.10 m below the surface of the soil in the cell.

Soils were coarse with some rocks. Because the soil was frozen, it was only possible to collect surficial samples.

Samples were analyzed for petroleum hydrocarbon (PHC) fractions F1-F4; benzene, toluene, ethylbenzene and xylenes (BTEX); and polycyclic aromatic hydrocarbons (PAHs).

Samples were analyzed at Bureau Veritas (BV) in Mississauga, Ontario. BV is certified by the Canadian Association for Laboratory Accreditation Inc. (CALA). BV has an internal quality assurance/quality control (QA/QC) program that includes replicate analysis, blank spikes, matrix spikes, instrument calibration, internal standards, method blanks, and internal QC checks.

Analytical results are presented in tables attached to this report.

None of the samples exhibited exceedances of guidelines. As noted above, the samples are only representative of the external layer of the soil, and not the entire stockpile in the cell.

DRAWINGS AND DESCRIPTION OF WORK

Nunatta retained its engineering subcontractor, Yedoma Inc., to prepare drawings and a description of the work required for the proposed landfarm.

The drawings and description of work are submitted to PPD with this letter for review.

COST ESTIMATE

Based on the scope of work and drawings, Nunatta has prepared a cost estimate for the project. The costs are based on design development drawings and description of work, which include the preliminary design and the results of all site/installation investigations. This estimate provides for the establishment of realistic cost objectives.

Nunatta estimates the cost of the landfarm will be $425,000. Nunatta will continue to refine the cost estimate in subsequent stages of the project.

The cost estimate is attached to this letter.

RECOMMENDATIONS

Based on the regulatory process to this point, Nunatta makes the following recommendations for next steps.

- Submit a project proposal to the NIRB.
- Engage the Hamlet of Baker Lake on the subject of an equity lease to the Commissioner of Nunavut for Lot 454 to be administered by PPD.
- Make an application for re-zoning of the property concurrent with the lease negotiations. An example re-zoning form is attached to this letter.

- Hold informal discussions with Nunavut Airports on any recommendations for constructing a landfarm in the Airport Zoning Area.
- Submit a development application to the Hamlet so that construction can begin early in the 2026 construction season.
- Develop materials for the Nunavut Water Board, on the assumption that the NIRB will refer the project to the Water Board. This includes manuals typically required for landfarms, including an Operations and Maintenance Plan, a Spill Response Plan, and a Closure and Reclamation Plan.
- Finalize Drawings and prepare construction specifications if required.
- Refine Cost Estimate.

CLOSURE

Please contact the undersigned with any questions or concerns.

Sincerely,

Nunatta Environmental Services Inc.

DRAFT

Andrew Henderson, P.Eng., PMP
Principal Engineer
Yedoma Inc.

DRAFT

Jim Wilson
President
Nunatta Environmental Services Inc.

Encl: Photo Log
Tables
Drawings
Description of Work
Cost Estimate

PHOTO LOG

Photo Log

Date: June 7, 2025
Description: View towards proposed landfarm site from road to the west.

Date: June 7, 2025
Description: View across proposed landfarm site from the northwest to southeast.

Date: June 7, 2025
Description: View towards road from the northwest corner of the proposed landfarm site.

Date: June 7, 2025
Description: View along the western property boundary from the northwest corner of the proposed landfarm site.

Date: June 7, 2025
Description: View along the southern property boundary from the southeast corner of proposed landfarm site.

Date: June 7, 2025
Description: View across the centre of the site from the southeast corner of proposed landfarm site.

Date: June 7, 2025
Description: View north from the southeast corner of proposed landfarm site.

Date: June 7, 2025
Description: Water runoff east of proposed landfarm site.

Date: June 7, 2025
Description: View to the north from the northeast corner of proposed landfarm site.

Date: June 7, 2025
Description: View to the west from the northeast corner of proposed landfarm site.

Date: June 7, 2025
Description: Centre of proposed landfarm site, view to the northwest.

Date: June 7, 2025
Description: Centre of proposed landfarm site, view to the south.

Date: June 7, 2025
Description: Northwest corner of proposed landfarm site survey marker.

Date: June 7, 2025
Description: Tank farm spill Cell 1

Date: June 7, 2025
Description: Cell 1 and remediated soil (behind).

Date: June 7, 2025
Description: Former location of Cell 2.

1 

Date: June 7, 2025
Description: Dam and drainage downgradient.

Date: June 7, 2025
Description: Water drainage to the east.

Date: June 7, 2025
Description: Cell 1 (left) and remediated soil (right)

Date: June 7, 2025
Description: Water downgradient of site

TABLES

Table 1
Soil Analytical Results, PHCs and BTEX

PARAMETER	Guidelines			
Sample ID	CCME[1] Soil Quality Guideline	CWS for PHC[2] in Soil	**SS01.2025**	**SS02.2025**
Sampling Date			25-06-07	25-06-07
Sampling Depth (m)			0-0.10 m	0-0.10 m
BTEX Parameters (mg/kg)				
Benzene	0.3	---	<0.0060	<0.0060
Toluene	0.1	---	<0.020	<0.020
Ethylbenzene	50	---	<0.010	<0.010
m/p-Xylene	---	---	<0.020	<0.020
o-Xylene	---	---	<0.020	<0.020
Xylenes, total	37	---	<0.020	<0.020
Petroleum Hydrocarbons (mg/kg)				
F1 (C6-C10)	---	---	<10	<10
F1 (C6-C10) - BTEX	---	320	<10	<10
F2 (C10-C16)	---	380	28	7.9
F3 (C16-C34)	---	1700	51	<50
F4 (C34-C50)/F4G	---	3300	<50	<50
Reached Baseline at C50			Yes	Yes

Notes:

1	Canadian Council of Ministers of the Environment, Canadian Soil Quality Guidelines, (coarse-grained surface soils, industrial land use). Potable groundwater pathway excluded.
2	Canada-Wide Standards for Petroleum Hydrocarbons in Soil, coarse-grained surface soils, industrial land use. Potable groundwater pathway excluded.
<10	Not detected at detection limit noted
20	Exceedance of guideline

Table 2
Soil Analytical Results, Polycyclic Aromatic Hydrocarbons

PARAMETER	CCME[1] Soil Quality Guidelines	BaP Potency Equivalence Factor[2]		
Sample ID			**SS01.2025**	**SS02.2025**
Sampling Date			2025-06-07	2025-06-07
Sampling Depth (m)			0-0.10 m	0-0.10 m
Polycyclic Aromatics (mg/kg)				
Acenaphthene	0.28		<0.0050	<0.0050
Benzo[a]pyrene TPE	5.3		<0.0071	<0.0071
Acenaphthylene			<0.0050	<0.0050
Acridine			<0.010	<0.010
Anthracene	32		0.0054	0.005
Benzo(a)anthracene	10	0.1	<0.0050	<0.0050
Benzo(b&j)fluoranthene	10	0.1	<0.0050	<0.0050
Benzo(k)fluoranthene	10	0.1	<0.0050	<0.0050
Benzo(g,h,i)perylene		0.01	<0.0050	<0.0050
Benzo(c)phenanthrene			<0.0050	<0.0050
Benzo(a)pyrene	72	1	<0.0050	<0.0050
Benzo(e)pyrene			<0.0050	<0.0050
Chrysene		0.01	<0.0050	<0.0050
Dibenz(a,h)anthracene	10	1	<0.0050	<0.0050
Fluoranthene	180		<0.0050	<0.0050
Fluorene	0.25		<0.0050	<0.0050
Indeno(1,2,3-cd)pyrene	10	0.1	<0.0050	<0.0050
1-Methylnaphthalene			<0.0050	<0.0050
2-Methyl Naphthalene			<0.0050	<0.0050
Naphthalene	0.013	---	<0.0050	<0.0050
Phenanthrene	0.046	---	<0.0050	<0.0050
Perylene			<0.0050	<0.0050
Pyrene	100	---	0.0066	<0.0050
Quinoline		---	<0.010	<0.010

Notes:

1 Canadian Council of Ministers of the Environment, Canadian Soil Quality Guidelines, (Industrial Land Use, Coarse-grained Soil).

2 BaP TPE is the sum of estimated cancer potency relative to B[a]P for all potentially carcinogenic unsubstituted PAHs. The B[a]P TPE for a soil sample is calculated by multiplying the concentration of each PAH in the sample by its B[a]P Potency Equivalence Factor (PEF).

<10	Not detected at detection limit noted
20	Exceedance of guideline
<0.050	Detection limit exceeds guideline

DRAWINGS

FILE: 25-29-V0-R0.dwg

SITE VICINITY
~1:150,000
Government of Canada, *Atlas of Canada webpage*
https://natural-resources.canada.ca/maps-tools-publications/maps/atlas-canada/atlas-canada [accessed June 20, 2025]

LEGEND

SUBJECT PROPERTY BOUNDARY

SCALE 1:5000

50 0 50 100 200m

REFERENCES:

1. Government of Nunavut Department of Community Services Panning and Lands Division website: https://cs-pals.ca/downloads/baker-lake/ [accessed June 27, 2025]
2. Sub-Arctic Geomatics, "Compiled Plan of Lots 454 to 456, and Road R45 and Field Notes of Survey Baker Lake, Nunavut" Canada Lands Surveys Records 114003 Dated 2025-04-10, Filed in the Land Titles Office for Nunavut as 4945.
3. Google Earth V 7.3.6.10201. (6/20/2023) Baker Lake, NU 14W 639835.58 m E 7136064.65 m N, eye alt 2.90 km 2025 Airbus 2025 CNES / Airbus [acdessed June 10, 2025]

SEAL

VERSIONS

NO	DESCRIPTION	DATE
1	90% SUBMISSION	2025-06-30

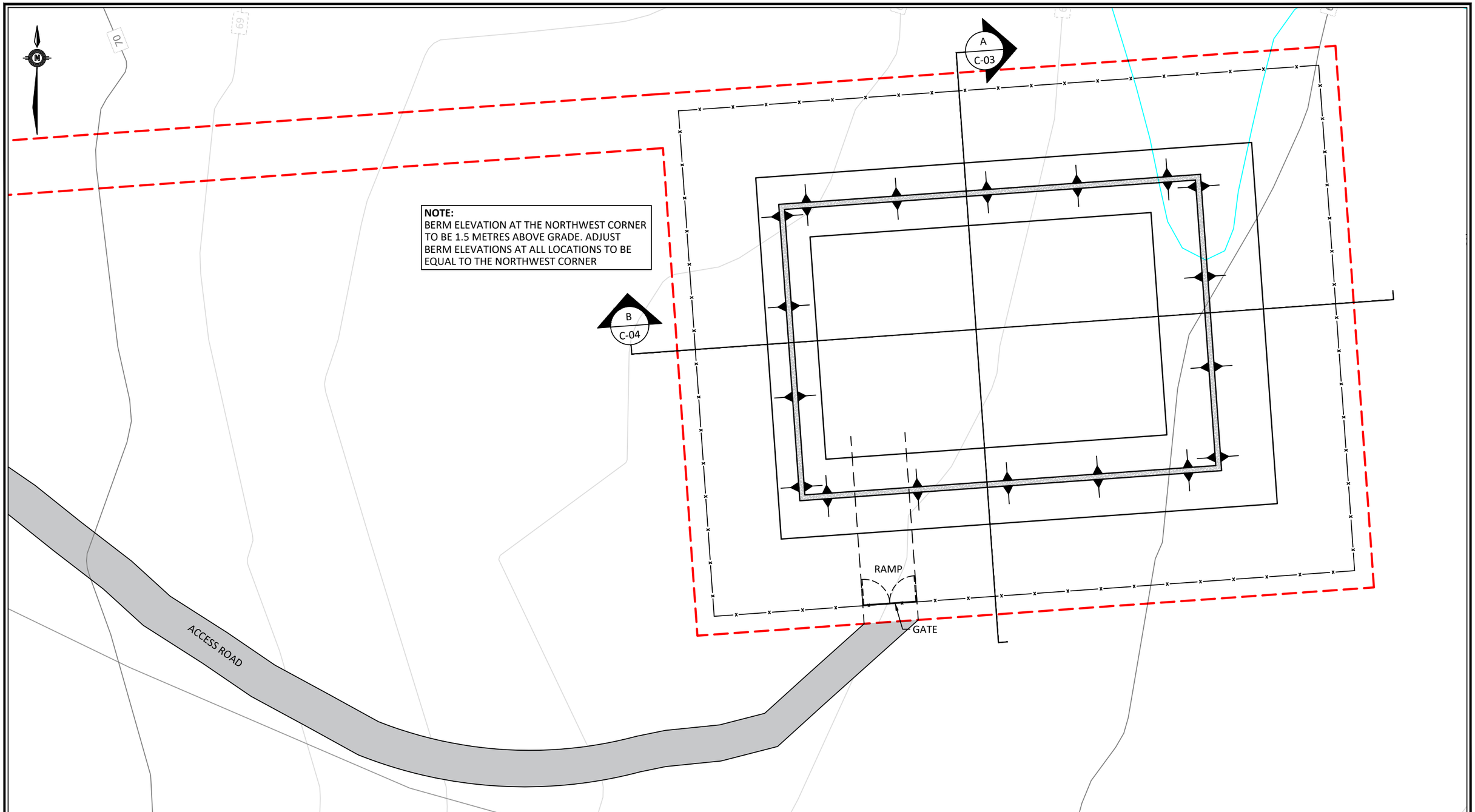
CLIENT
COMMUNITY AND GOVERNMENT SERVICES PETROLEUM PRODUCTS DIVISION

PROJECT
BAKER LAKE LANDFARM

TITLE
CIVIL SITE PLAN

PROJECT NO.	DWN	CKD	DATE	
25-29	SG	AH	June 27, 2025	C-01

FILE: 25-29-V0-R0.dwg



NOTE:
BERM ELEVATION AT THE NORTHWEST CORNER TO BE 1.5 METRES ABOVE GRADE. ADJUST BERM ELEVATIONS AT ALL LOCATIONS TO BE EQUAL TO THE NORTHWEST CORNER

LEGEND

- PROPERTY BOUNDARY
- BERM
- FENCE

SCALE 1:400

4 0 4 10 16m

REFERENCES:

1. Government of Nunavut Department of Community Services Panning and Lands Division website: https://cs-pals.ca/downloads/baker-lake/ [accessed June 27, 2025]
2. Sub-Arctic Geomatics, "Compiled Plan of Lots 454 to 456, and Road R45 and Field Notes of Survey Baker Lake, Nunavut" Canada Lands Surveys Records 114003 Dated 2025-04-10, Filed in the Land Titles Office for Nunavut as 4945

SEAL

VERSIONS

NO	DESCRIPTION	DATE
1	90% SUBMISSION	2025-06-30

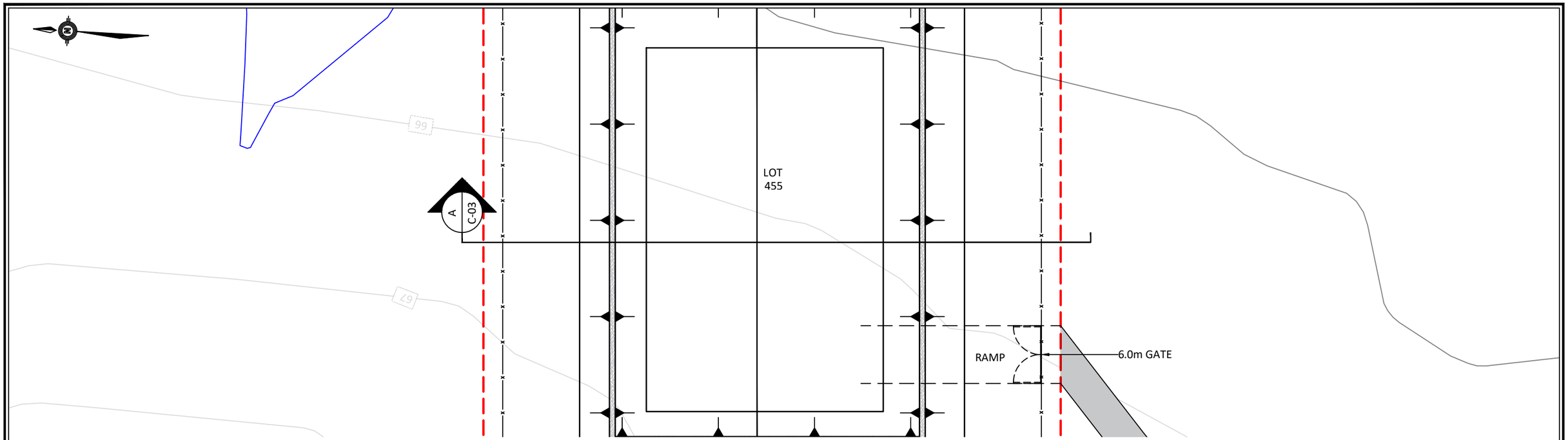
CLIENT
COMMUNITY AND GOVERNMENT SERVICES PETROLEUM PRODUCTS DIVISION

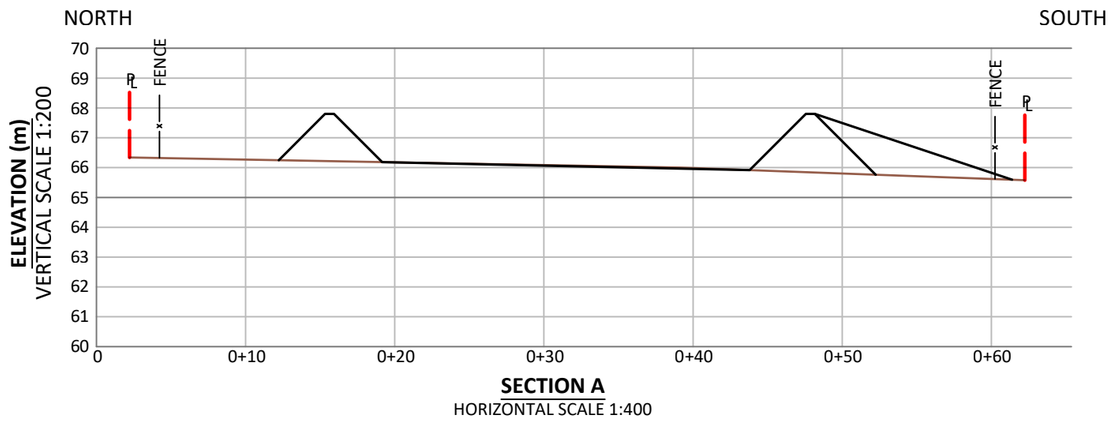
PROJECT
BAKER LAKE LANDFARM

TITLE
CIVIL GRADING PLAN

PROJECT NO.	DWN	CKD	DATE	
25-29	SG	AH	June 27, 2025	C-02

FILE: 25-29-V0-R0.dwg





SECTION A
HORIZONTAL SCALE 1:400

LEGEND

PROPERTY BOUNDARY

REFERENCES:
1. Government of Nunavut Department of Community Services Panning and Lands Division website: https://cs-pals.ca/downloads/baker-lake/ [accessed June 27, 2025]
2. Sub-Arctic Geomatics, "Compiled Plan of Lots 454 to 456, and Road R45 and Field Notes of Survey Baker Lake, Nunavut" Canada Lands Surveys Records 114003 Dated 2025-04-10, Filed in the Land Titles Office for Nunavut as 4945

SEAL

VERSIONS

NO	DESCRIPTION	DATE
1	90% SUBMISSION	2025-06-30

CLIENT
COMMUNITY AND GOVERNMENT SERVICES PETROLEUM PRODUCTS DIVISION

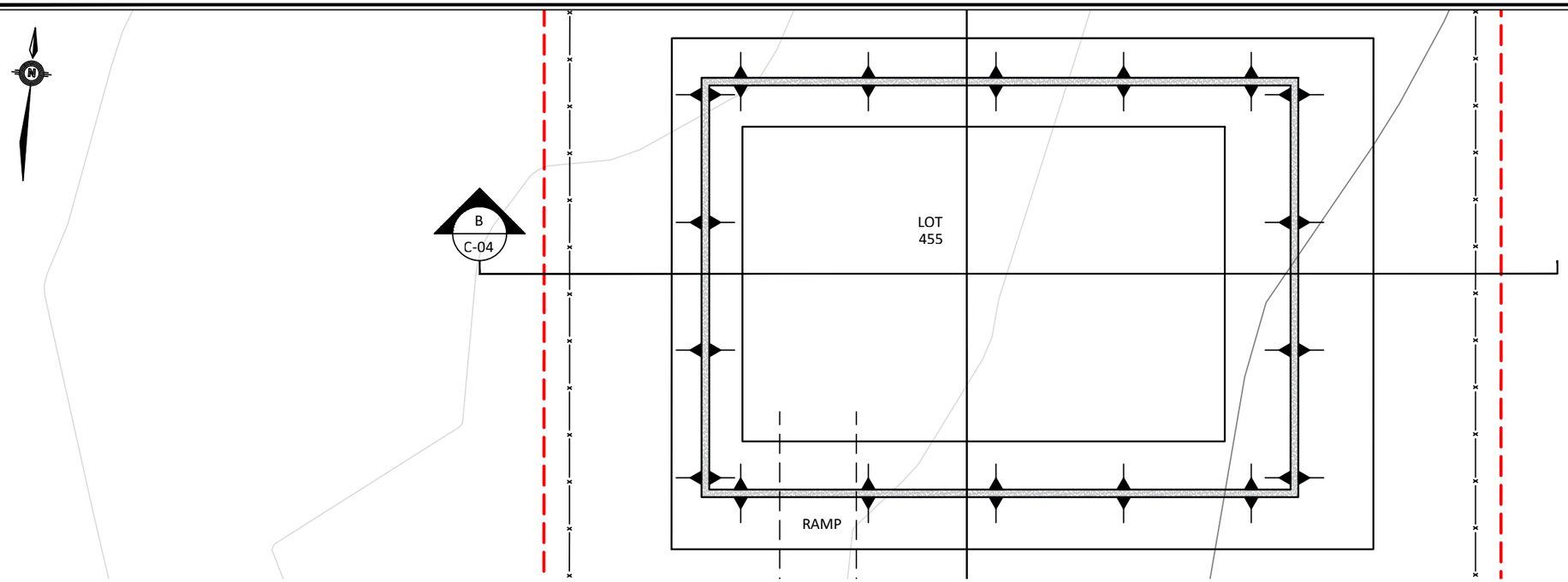
Yedoma

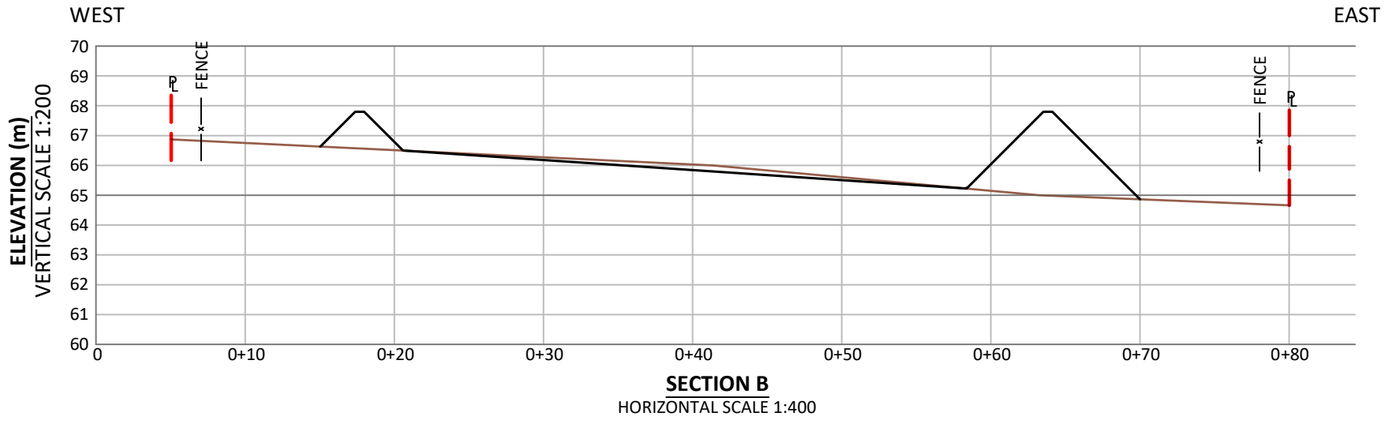
PROJECT
BAKER LAKE LANDFARM

TITLE
CROSS SECTION A

PROJECT NO.	DWN	CKD	DATE	
25-29	SG	AH	June 27, 2025	C-03

FILE: 25-29-V0-R0.dwg





SECTION B
HORIZONTAL SCALE 1:400

LEGEND

PROPERTY BOUNDARY

REFERENCES:
1. Government of Nunavut Department of Community Services Panning and Lands Division website: https://cs-pals.ca/downloads/baker-lake/ [accessed June 27, 2025]
2. Sub-Arctic Geomatics, "Compiled Plan of Lots 454 to 456, and Road R45 and Field Notes of Survey Baker Lake, Nunavut" Canada Lands Surveys Records 114003 Dated 2025-04-10, Filed in the Land Titles Office for Nunavut as 4945

SEAL

VERSIONS

NO	DESCRIPTION	DATE
1	90% SUBMISSION	2025-06-30

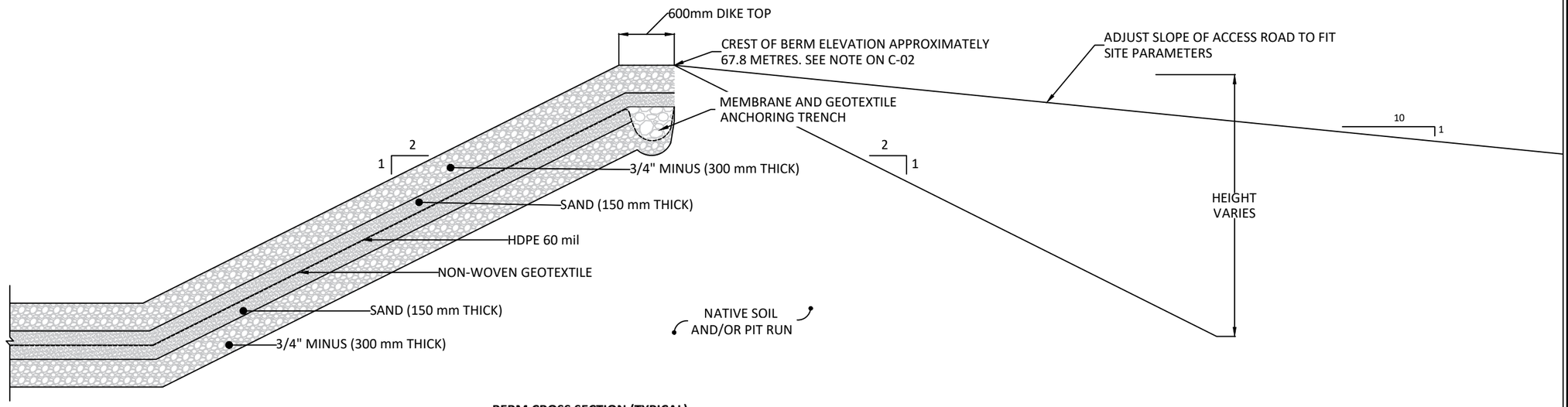
CLIENT
COMMUNITY AND GOVERNMENT SERVICES
PETROLEUM PRODUCTS DIVISION

PROJECT
BAKER LAKE LANDFARM

TITLE
CROSS SECTION B

PROJECT NO.	DWN	CKD	DATE	
25-29	SG	AH	June 27, 2025	C-04

FILE: 25-29-V0-R0.dwg



BERM CROSS SECTION (TYPICAL)
SCALE: 1:50

REFERENCES:
1. Government of Nunavut Department of Community Services Panning and Lands Division website: https://cs-pals.ca/downloads/baker-lake/ [accessed June 27, 2025]
2. Sub-Arctic Geomatics, "Compiled Plan of Lots 454 to 456, and Road R45 and Field Notes of Survey Baker Lake, Nunavut" Canada Lands Surveys Records 114003 Dated 2025-04-10, Filed in the Land Titles Office for Nunavut as 4945

SEAL

VERSIONS

NO	DESCRIPTION	DATE
1	90% SUBMISSION	2025-06-30

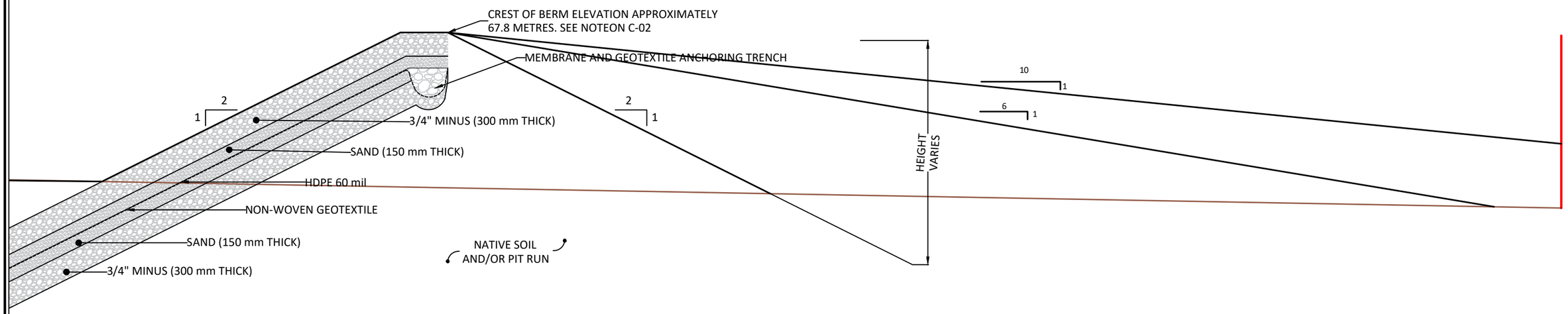
CLIENT
COMMUNITY AND GOVERNMENT SERVICES PETROLEUM PRODUCTS DIVISION

PROJECT
BAKER LAKE LANDFARM

TITLE
DETAILS

PROJECT NO.	DWN	CKD	DATE	
25-29	SG	AH	June 27, 2025	C-05

FILE: 25-29-V0-R0.dwg



BERM CROSS SECTION (TYPICAL)
SCALE: 1:50

1. THIS IS A QUICK MARKUP (ALONG SECTION A) THAT SHOWS WHERE A RAMP AT 1:10 WOULD END UP

REFERENCES:
1. Government of Nunavut Department of Community Services Panning and Lands Division website: https://cs-pals.ca/downloads/baker-lake/ [accessed June 27, 2025]
2. Sub-Arctic Geomatics, "Compiled Plan of Lots 454 to 456, and Road R45 and Field Notes of Survey Baker Lake, Nunavut" Canada Lands Surveys Records 114003 Dated 2025-04-10, Filed in the Land Titles Office for Nunavut as 4945

SEAL

VERSIONS

NO	DESCRIPTION	DATE
1	90% SUBMISSION	2025-06-30

CLIENT
COMMUNITY AND GOVERNMENT SERVICES PETROLEUM PRODUCTS DIVISION

PROJECT
BAKER LAKE LANDFARM

TITLE
DETAILS

PROJECT NO.	DWN	CKD	DATE	
25-29	SG	AH	June 27, 2025	C-05

DESCRIPTION OF WORK

Description of Work

The Work consists of the following tasks:

1. Construction of a Land Treatment Unit (LTU) at Lot 454 in Baker Lake.
2. Construction of a fence around Lot 454 in Baker Lake.
3. Excavation and transportation of contaminated soil from the Baker Lake Tank Farm to the LTU at Lot 454.

Construction of Landfarm

1. Construct LTU as Shown on Figures C-01 through C-05.
2. Strip surficial soils within the LTU location as required to construct berm. Stripped top soil materials shall be temporarily stockpiled in a designated location in proximity to the LTU.
3. Stockpiled soil materials and locally available pit run shall be used to build the soil berm along the LTU perimeter. Stockpiled backfill soils shall be tested prior to use and analytical parameters should be confirmed to be below CCME Commercial Land Use Guidelines.
4. The slope of the soil berm shall be 1.5H: 1V.
5. The dimensions of the LTU as shown on Figure C-02. The LTU shall be graded to slope down to a LTU low corner for collection of water.
6. Place granular fill ¾” (0.75 mm) or an alternate approved by the Department Representative to form the base of the LTU to depth as shown on Figure C-05.
7. Place sand above granular fill to depth as shown on Figure C-05.
8. Place non-woven geotextile above the sand as indicated on Figure C-05.
9. Place single-sided textured high density polyethylene geomembrane within the LTU as indicated on Figure C-05 of this tender package. The textured side of the liner shall be the walking surface to reduce slippery hazard. The liner shall extend over the perimeter of the LTU soil berms.
10. Place sand above high density polyethylene geomembrane to depth as shown on Figure C-05.
11. Place granular fill ¾” (0.75 mm) or an alternate approved by the Department Representative above the sand to depth as shown on Figure C-05.

Construction of Fence

1. Install fence along fencelines indicated on Drawings.
2. Excavate post holes to 915-mm depth x 250-mm diameter.
3. Excavate corner posts 300 mm deeper than line posts.
4. Space line posts 3 m apart, measured parallel to ground surface.
5. Install additional straining posts at sharp changes in grade.
6. Install corner post where change in alignment exceeds 10 degrees.
7. Install end posts at end of fence.
8. Install gate posts on both sides of gate openings.
9. Place concrete in post holes then embed posts into concrete to minimum 300-mm depth].
10. Extend concrete 50 mm above ground level. Slope upper concrete surface to drain water away from posts.
11. Temporarily brace posts in plumb position and true to alignment and elevation until concrete has set.
12. Allow concrete to cure a minimum of 7 days before beginning installation of fence fabric.
13. Install brace between end and gate posts and nearest line post, placed in centre of panel and parallel to ground surface.
14. Install braces on both sides of corner and straining posts in similar manner.

15. Install overhang tops and caps.
16. Install top rail between posts and fasten securely to posts and secure waterproof caps and overhang tops.
17. Install bottom tension wire, stretch tightly and fasten securely to end, corner, gate and straining posts with turnbuckles and tension bar bands.
18. Lay out fence fabric. Stretch tightly to tension recommended by manufacturer and fasten to end, corner, gate and straining posts with tension bar secured to post with tension bar bands spaced at 300 mm intervals.
19. Install grounding rods.
20. Install gates in locations as indicated on Drawings. Before fence fabric is installed, Departmental Representative may make minor adjustments to exact gate locations that do not alter the quantity of materials.
21. Level ground between gate posts and set gate bottom approximately 40 mm above ground surface.
22. Determine position of centre gate rest for double gate.
23. Cast gate rest into concrete.
24. Slope upper concrete surface to drain water away from gate rest.

Excavation and Transportation of Contaminated Soil

1. The source of the soil for the LTU will be the contaminated soil cell at the Baker Lake Tank Farm.
2. Before excavation, the soil stockpile shall be surveyed to establish initial ground level conditions.
3. All soil in the cell shall be excavated and transported to the LTU.
4. Liner should be removed and disposed of at facility approved by the Departmental Representative.
5. Berms and soil below the cell should be sampled and analyzed for Canadian Council of Ministers of the Environment (CCME) guidelines for petroleum hydrocarbons, benzene, toluene, ethylbenzene, xylenes and polycyclic aromatic hydrocarbons.
6. Re-excavate any soil areas above CCME guidelines.
7. Once it has been verified that all soil above the guidelines has been excavated, the final volume of all excavated shall be surveyed. No backfilling procedures shall begin until the results of the survey are reviewed and approved by the Departmental Representative.
8. All excavated areas at the Baker Lake Tank Farm shall be re-graded to allow water to drain freely.
9. At the LTU, place contaminated soil within the cell. Procedures for soil placement should be such that aeration of the soil is maximized during initial placement.

COST ESTIMATE

Construction Cost Estimate

	Task Number		0		1		2		3		
	Task Name		Project Management, Reporting, Regulatory Work		Construct Fence		Construct Land Farm		Transport Soil from Tank Farm		Total
Personnel	**Rate**	**Unit**	#	$	#	$	#	$	#	$	
Jim Wilson, Project Director	242	hr	60	$14,520		$0		$0		$0	$14,520
Andrew Henderson, Engineer	287	hr	96	$27,552	20	$5,740	140	$40,180	20	$5,740	$79,212
CADD/Draftperson	99	hr	32	$3,168		$0	32	$3,168		$0	$6,336
Admin/Labour	99	hr	20	$1,980		$0		$0		$0	$1,980
Labour Subtotal			**$47,220**		**$5,740**		**$43,348**		**$5,740**		**$102,048**
Disbursements											
Sampling supplies	200	each		$0		$0		$0		$0	$0
Surveying equipment	350	day		$0	140	$49,000		$0		$0	$49,000
Supplies Subtotal				**$0**		**$49,000**		**$0**		**$0**	**$49,000**
Construction Contractor											
330 Excavator	402.5	hour		$0	20	$8,050	100	$40,250	20	$8,050	$56,350
D8 dozer	460	hour		$0		$0	60	$27,600		$0	$27,600
Tandem dump truck	230	hour		$0		$0	30	$6,900	40	$9,200	$16,100
Labour	100	hour		$0	40	$4,000		$0		$0	$4,000
Laser level	115	day		$0		$0	20	$2,300		$0	$2,300
Liner Contractor											
Lump Sum Mobilization	10,000	each		$0		$0	1	$10,000		$0	$10,000
Daily Rate	1920			$0		$0	3	$5,760		$0	$5,760
Daily Hotel, Per Diem, Truck	900			$0		$0	3	$2,700		$0	$2,700
Contractor Materials											
Pit run	116.15	m^3		$0		$0	200	$23,230		$0	$23,230
Sand	116.15	m^3		$0		$0	60	$6,969		$0	$6,969
3/4" Stone	126.5	m^3		$0		$0	120	$15,180		$0	$15,180
Fence Materials											
Chain link fabric (1.83 metres high)	100	linear m		$0	270	$27,000		$0		$0	$27,000
Posts	100	each		$0	108	$10,800		$0		$0	$10,800
Gate	1000	panel		$0	2	$2,000		$0		$0	$2,000
Shipping	2000	each		$0	1	$2,000		$0		$0	$2,000
Subcontractors Subtotal				**$0**		**$53,850**		**$140,889**		**$17,250**	**$211,989**
Soil											
Petroleum Hydrocarbons/BTEX	105	sample		$0		$0	10	$1,050		$0	$1,050
PAHs	90	sample		$0		$0	10	$900		$0	$900
PCBs	60	sample		$0		$0		$0		$0	$0
Grain Size	30	sample		$0		$0	2	$60		$0	$60
Water (groundwater, active layer)											$0
Petroleum Hydrocarbons/BTEX	100	sample		$0		$0		$0		$0	$0
CCME groundwater inorganics	112	sample		$0		$0		$0		$0	$0
PCBs	60	sample		$0		$0		$0		$0	$0
Dioxins and Furans	1050	sample		$0		$0		$0		$0	$0
PFAS (extended list, 28 parameters)	650	sample		$0		$0		$0		$0	$0
Bottle Supply	8.5	sample		$0		$0		$0		$0	$0
Shipping	100			$0		$0		$0		$0	$0
Lab Subtotal				**$0**		**$0**		**$0**		**$0**	**$0**
Disbursements Subtotal			**$0**		**$102,850**		**$140,889**		**$17,250**		**$260,989**
Travel (Consultant)											
Airfare Winnipeg-Baker	5000	rtn		$0		$0	1	$5,000		$0	$5,000
Airfare Ottawa-Winnipeg	1200	rtn		$0		$0	1	$1,200		$0	$1,200
Taxi to/from airport, Ottawa	50	each		$0		$0	2	$100		$0	$100
Rental vehicle	275	day		$0	2	$550	14	$3,850	2	$550	$4,950
Accommodations Baker Lake	449	night		$0	2	$898	14	$6,286	2	$898	$8,082
Accommodations Winnipeg	400	night		$0		$0	2	$800		$0	$800
Meals and Incidentals (Nunavut)	174.9	day		$0	2	$350	14	$2,449	2	$350	$3,148
Meals and Incidentals (ON, MB)	124.57	day		$0		$0	1	$125		$0	$125
Travel Subtotal			**$0.00**		**$1,797.80**		**$19,809.17**		**$1,797.80**		**$23,405**
Subtotal			**$47,220.00**		**$110,387.80**		**$204,046.17**		**$24,787.80**		**$386,441.77**
Admin Fee	10%		**$4,722.00**		**$11,038.78**		**$20,404.62**		**$2,478.78**		**$38,644.28**
Subtotal + Admin			**$51,942.00**		**$121,426.58**		**$224,450.79**		**$27,266.58**		**$425,085.95**
GST	5%		**$2,597.10**		**$6,071.33**		**$11,222.54**		**$1,363.33**		**$21,254.35**
Total			**$54,539.10**		**$127,497.91**		**$235,673.33**		**$28,629.91**		**$446,340.24**

EXAMPLE ZONING APPLICATION

FORM I – Application for Amendment to Zoning By-law

APPLICATION FOR AMENDMENT TO THE ZONING BY-LAW

Fee:
$250

Date: 2025-07-02

Zoning Amendments are subject to the provisions of the *Planning Act* Section 29 and Section 3.23 of this By-law.

I/We hereby make application to amend the Zoning By-law.

Applicant: Sulaimon Ayliara, Manager, Technical & Environmental Services, Petroleum Products Division Telephone: 867-645-8444

Address: P.O. Box 590, Rankin Inlet, NU, X0C 0G0

Owner of Land or Lessee: Hamlet of Baker Lake Telephone: 867-793-2874

Address: 3022 4th Ave, Baker Lake, NU X0C 0A0

Land Description: Lot: 454 Plan: 4945

Civic Address: None

Amendment Proposed:

From: Hinterland To: Waste Disposal

Reasons in support of Application for Amendment:

Spills of diesel fuel and gasoline have impacted soil in Baker Lake. These impacted soils have been stored temporarily near the tank farm and elsewhere in the community. The purpose of this re-zoning is to create a landfarm outside of the built-up area of the Hamlet where soil can be bio-remediated.

Signature of Applicant

2025-07-02
Date