INUVIALUIT SIVUNNIUQPAIT IMAKKUN

INUVIALUIT WATER BOARD

Water Licence Application Questionnaire

for

Municipal Undertakings

'To provide for the conservation, development and utilization of waters in a manner that will provide the optimum benefit for all Canadians and in particular, for the residents of the Inuvialuit Settlement Region.'

October 2014

The purpose of this questionnaire is to solicit supplemental information from an applicant to support his/her application for a water license (or its renewal). It is anticipated that the completion of this questionnaire will reduce delays arising from the Inuvialuit Water Board having to solicit additional information after an application has been submitted. This information will also be useful during the review of your application, which must be undertaken prior to development and approval of a water license.

The applicant should complete the questionnaire to the best of his/her ability, recognizing that some questions may not be relevant to the project under consideration. For questions that do not relate to the operation undertaking, the applicant is requested to indicate “N/A” (Not Applicable).

NOTE: If space is insufficient for any of the responses on this questionnaire, use the back of the sheet or an attachment.

If any questions arise while completing the questionnaire, the applicant may wish to contact the Inuvialuit Water Board at (867) 678-2942.

This questionnaire can be sent with the application for a new licence or the renewal of an existing licence to the following contact information:

Executive Director
Inuvialuit Water Board
P.O. 2531
Inuvik, NT, Canada
X0E 0T0
Email: info@inuvwb.ca

Table of Contents

SECTION 1: GENERAL

Date: 2023-Oct-06

Applicant:

Hamlet of Tuktoyaktuk

(Company, Corporation, Hamlet, Town)

Lucy Kuptana

(Person to contact and its position)

Box 120 NT, X0E 1C0

(Postal address)

867-977-2286 (Telephone number)

867-977-2110 (Facsimile number)

Community Status

City ☐ Village ☐ Town ☐ Camp ☐
Other Hamlet

Population (according to most recent census results), and the Estimated Growth Rate over next five years or Camp Maximum Capacity:

The population was 937 people in 2021 based on the 2021 Statistic Canada survey, with an estimated growth rate of 4.3% based on the population growth since 2016

Indicate the status of the municipality's license on the date of application.

New Application: Yes ☐ No ☑

If No, please submit your Water Licence Number and the date the licence was issued.

Renewal of Water License Number: N5L3-0714 Date of Issuance: December 21st, 2018

Has any baseline data been collected for the main water bodies in the area?

Yes ☐ No ☐ Unknown ☑

If yes, please attach:

- All data gathered on the physical, biological and chemical characteristics at each sampling location;
- A summary or program details indicating sampling locations, description of waste at each location, sampling frequency, and parameters analyzed;
- An outline of Quality Assurance/Quality Control methods being applied to sampling, preservation and analysis within the program.

Has any baseline data collection and evaluation been undertaken with respect to the various biophysical components of the environment potentially affected by the project (e.g., wildlife, soils, air quality) in addition to water related information requested in this questionnaire?

Yes ☐ No ☐ Unknown ☑

If yes, please attach copies of reports or cite titles, authors and dates (prepared by, title and completion date).

If no, do you plan on doing such studies? If you do plan on doing such studies, please describe the proposals.

None planned

Attach detailed maps which show the relative locations of the:

- raw water intake;
- water treatment facilities;
- fuel & chemical storage;
- sewage treatment facilities;
- wastewater treatment area and discharge outlets;
- solid waste disposal areas and drainage patterns;
- hazardous waste disposal area;
- transportation access routes; and
- existing waterbodies/courses and any changes to these water bodies/courses which have or may occur as a result of water use of waste disposal facilities, locations of environmental monitoring sites.

Attach detailed scale plan drawing(s) of the proposed (or present) sewage treatment system. The drawing(s) must be stamped by an engineer registered in NWT and include the following:

- details of pond size and elevation;
- precise details of all retaining structures (dimensions, materials of construction, etc.);
- details of the drainage basin, and existing and proposed drainage modifications;
- details of all decant, siphon mechanisms etc, including sewage treatment facilities;
- details regarding direction and route followed by wastewater flow from the area;
- indications of the distance to nearby major watercourses, and fish bearing waters;
- location and construction of liners;
- leachate and groundwater collection systems; and
- control structures.

See attached drawings for the sewage lagoons

Attach detailed scale plan drawings of the proposed (or present) solid waste disposal area. The drawings must include the following:

- precise details of all retaining structures (dimensions, materials of construction, etc.);
- details of the drainage basin, and existing and proposed drainage modifications;
- details regarding direction and route followed by wastewater flow from the area;
- indications of the distance to nearby major watercourses, and fish bearing waters;
- all sources of seepage presently encountered in the vicinity of these areas;
- the volume of each seepage flow (m^3/day); and
- the direction of each flow.

Detailed drawings are not available for the existing solid waste disposal site

Attach the present or proposed contingency plan which will be used for each portion of the waste control system in the event it fails to operate properly.

Solid Waste Disposal Facilities O&M Plan 2018 and Sewage Disposal Facility O&M Plan 2018 attached

Attach the present or proposed spill contingency plan which will be employed in case a spill of hazardous materials occurs. Describe courses of action, mitigative methods and equipment available for use.

Spill Contingency Plan 2018 attached

NOTE: Individual detailed large scale drawings of all facilities (dam, decant system, ditch, dike, water treatment plant, etc) constructed or proposed must be attached. Specific details with regard to the methods of construction, materials used, etc. are required.

SECTION 2: WATER SUPPLY

Volume of water use (m^3/day) 119

Type of source

Lake: ☑ River: ☐ Well: ☐ Other:

Name of raw water source and alternative, if any

Kudlak Lake

Usual break-up & freeze-up months

Break-up: June Freeze-up: October

Please provide short descriptions for the following

Freshwater intake facility:

Intake facility includes a water pumphouse at Kudlak Lake and a 200 mm diameter HDPE intake pipeline. The intake pipeline is partially submerged under Tuktoyaktuk Harbour and runs along the ground surface overland to the raw water reservoir. Raw water reservoir is approximately 4.5 km from Kudlak Lake.

Operating capacity of the pumps used:

Approximately 3336 m3/day or 2317 L/min (estimate based on 2020 reservoir filling)

Type of water storage facility (ie: Reservoir, storage, tank, none. For other, please provide a description)

Reservoir

What is the capacity of the water storage facility? m^3

94,300 m3

What is the rate of withdrawal from the source? (m^3/day)

Average 119 m3/day, or 3455 m3/day (3336 + 119) during reservoir filling.

Is water drawn from the source?

Yes

If yes, during what month(s) is it drawn? And for what period of time is it drawn (days/weeks/months)?

Typically 2-3 weeks between July and September. For example, in 2020, water was withdrawn for 15 days from August to September.

What is the rate of flow of source (if river) or size (if lake)?

Lake - 289 ha

At the intended rate of water usage, describe the effects on the river or lake from which water will be drawn.

No effect expected. Annual water use is less than 1% of estimated lake volume (assuming average water depth of 2.4m).

General condition of

Water supply facility: Satisfactory ☑ Unsatisfactory ☐

If unsatisfactory, explain:

Storage facility: Satisfactory ☑ Unsatisfactory ☐

If unsatisfactory, explain:

Distribution system: Satisfactory ☑ Unsatisfactory ☐

If unsatisfactory, explain:

Are there any changes planned in the water supply system?

Yes ☐ No ☑

If yes, please attach a copy of the plan, or describe changes.

SECTION 3: WATER TREATMENT

Indicate the quality of the raw water prior to treatment & distribution and give a description

Good ☐ Fair ☑ Poor ☐

Description: Moderately hard, moderate amount of dissolved solids, well buffered, slightly alkaline, high organics (7 - 10 mg/L TOC)

Indicate the capacity of the treatment facility (L/minute)

560 L/min

Type of water treatment facility (ie: Filtration & Chlorination, Chlorination only, UV, None. If other, please describe)

Cartridge filtration, pressure filtration, UV, and chlorination.

Describe in detail the method of water treatment (ie: backwash, flocculation, sedimentation, chemicals used) and provide the results of the most recent bacteriological and chemical analysis. Attach a diagram if possible.

50 micron cartridge filters, UV reactors applying a 40 mJ/cm2 dose

Have there been any problems or health and environmental concerns with the water treatment facilities?

Yes ☑ No ☐

If yes, please describe: Manganese was measured above the federal drinking water guideline maximum allowance concentration of 0.12 mg/L on six occasions. Colour and turbidity were detected above the federal guideline values of 15 TCU and 1 NTU on one occasion each. Additionally, iron exceeded the federal guideline on one occasion.

Are there any changes planned in the water treatment facilities?

Yes ☑ No ☐

If yes, please attach a copy of the plan or indicate change

There are plans for a new water treatment plant which has not been designed yet

SECTION 4: SEWAGE DISPOSAL

Indicate the level of treatment the sewage will be receiving (primary, secondary or tertiary. If other, please describe)

Secondary

Pre-treatment (if applicable)

Screening ☐ Maceration ☐

Lagoons (if applicable)

Anaerobic ☐ aerobic ☐ facultative ☑

Indicate the capacity of the sewage treatment facility (m^3)

> 57,000 m3

Indicate the retention time of the sewage while in the treatment facility (days)

365 days

Indicate the estimated rate of discharge of wastewater

Estimated to be approximately 6,200 m3/day based on annual sewage disposal and a 1-week decant.

Indicate the location of the discharge point

On the south edge of the lagoon

Will the discharge be seasonal or continuous?

Seasonal

If seasonal, during what month(s) will it occur?

August, September and/or October

What is the duration of the discharge (days/weeks/months)

1 - 3 weeks

Comment on the general condition of the:

Sewage collection system

Good

Discharge control system

Good

Dams, diversion, dykes or berms

Good

Have there been any problems or health and environmental concerns with the sewage disposal facilities?

Yes ☑ No ☐

If yes, please describe: Sample results from the lagoon (SNP-0714-2) have been within Water Licence discharge criteria except for on three occasions: Aug-21-2018, Sept-10-2018, Nov-29-2019; when fecal coliforms exceeded 10,000 CFU/mL. Additionally, the pH exceeded 9 several times, including prior to an emergency decant in 2021.

The average depth of the wastewater lagoon is (>1 meters)

What is the design freeboard? (1 meters)

Is there any harvesting of fish or shellfish in the waters where waste is discharged?

Yes ☐ No ☑

If yes, please indicate species harvested, and estimate amounts.

Will the municipality be using a honey bag pit?

Yes ☑ No ☐

If yes, describe its location, drainage and operation & maintenance

in a segregated area of the solid waste facility

Are there any sources of commercial or industrial liquid waste being discharged or deposited to the municipal system which may affect the quality of the effluent or leachate produced?

Yes ☐ No ☑

If yes, please describe:

Have any spills occurred in the past five years?

Yes ☐ No ☑

If yes, please submit a list of all spills with the date of the spill, the type of spill, the quantity spilled, the location of the spill, the method used to clean the spill and the results of the clean-up.

Have there been any operating problems with the lagoon?

Yes ☐ No ☑

If yes, please describe:

Are there any changes planned in the sewage disposal facilities?

Yes ☐ No ☑

If yes, please describe and if possible, attach a copy of the plan:

SECTION 5: SOLID WASTE DISPOSAL

Indicate the capacity of the disposal area (m^3) Area is approximately 70 m wide and 50 m long

The average depth of the solid waste disposal site is (0.5 **meters)**

Are there any sources of commercial or industrial solid waste being deposited in the municipal system which may affect the quality of the effluent or leachate produced?

Yes ☐ No ☑

If yes, please describe:

Briefly describe how the solid waste will be picked up & delivered to the disposal area Solid waste is collected from the community by truck, by a company under contract to the Hamlet. Residents also dispose of items at the solid waste site as and when needed.

Is the solid waste site fenced?

Yes ☑ No ☐

Will the municipality be using a dead animal pit?

Yes ☑ No ☐

If yes, please describe its location, drainage and operation & maintenance:

Site is segregated and drainage is internal drainage within the solid waste site with clear signage.

Will the municipality be using a bulky metal waste disposal area?

Yes ☑ No ☐

If yes, please describe its location and operation & maintenance:

Site is segregated within the solid waste site with clear signage

Will the municipality be using a hazardous waste disposal area?

Yes ☐ No ☑

If yes, please describe it location, structure and operation & maintenance:

Stored in a fenced in area at the Hamlet 4 Bay Garage with signage before it is shipped to a disposal facility

Are there any hazardous commercial wastes entering the solid waste disposal system?

Yes ☐ No ☑

If yes, please describe (source, volume, special handling and disposal methods for these wastes):

If any natural watercourse may gain access to the proposed solid waste disposal area, what methods will be used to decrease the amount of runoff water entering these areas? Indicate the volume of water which may enter these areas from the source(s) in question and attach all pertinent details of proposed diversions

A perimeter berm prevents the ingress of the ocean. This is a 250 m long gravel and clay berm on the western side of the site. Surface runoff within the solid waste site is retained in a surface runoff lagoon.

Please describe the nature of any diversions of watercourses

Have there been any problems or health and environmental concerns with the solid waste disposal facilities?

Yes ☑ No ☐

If yes, please describe: Emergency decant of the solid waste site run-off lagoon was required in 2020 to maintain safe freeboard. ENR inspection reports have identified issues such as wind-blown material, insufficient segregation, and improper storage of batteries.

Are any changes planned in the solid waste disposal system?

Yes ☐ No ☑

If yes, please describe and, if possible, attach a copy of the plan:

SECTION 6: ABANDONMENT AND RESTORATION PROGRAM

List and describe the locations of abandoned or restored water treatment facilities.

None

List and describe the locations of abandoned or restored sewage treatment facilities.

None

List and describe the locations of abandoned or restored solid waste disposal facilities.

None

Do you have an abandonment and restoration plan?

Yes ☐ No ☑

If yes, please attach a copy of the plan.

No plans to abandon and reclaim the current solid waste site at this time.

SECTION 7: WATER QUALITY MONITORING PROGRAM

Briefly describe the methodology that is presently used to sample the raw water supply

Raw water samples are collected at SNP 0714-1 and submitted for analysis.

Briefly describe any monitoring that is done on wastewater effluent and leachate

Samples are collected at the lagoon SNP 0714-2 and at the landfill SNP 0714-3 prior to and during each decant (discharge) and submitted for analysis. All sampling jars are rinsed three times prior to sample collection.

Recognized laboratory performing analysis of samples

Name of the laboratory: Taiga Environmental Laboratories

Contact name: General contact

Postal address: 4601 - 52nd Avenue, Yellowknife, NT X1A 2R3

Telephone number: 867-669-2788 Facsimile number: 867-669-2718

Are any changes planned in the water quality monitoring program?

Yes ☐ No ☑

If yes, please describe

SECTION 8: ENVIRONMENTAL ASSESSMENT AND SCREENING

Has this project ever undergone an initial environmental review, including previous owners?

Yes ☐ No ☐ Unknown ☑

If yes, by whom and when?

Has approval been obtained or sought from the Department of Fisheries and Oceans for using any fish bearing water bodies for containment or disposal of waste? original/historical approval unknown

Yes ☐ No ☑

Are there any environmental studies ongoing or planned?

Yes ☐ No ☑

If yes, please provide a list of these studies.

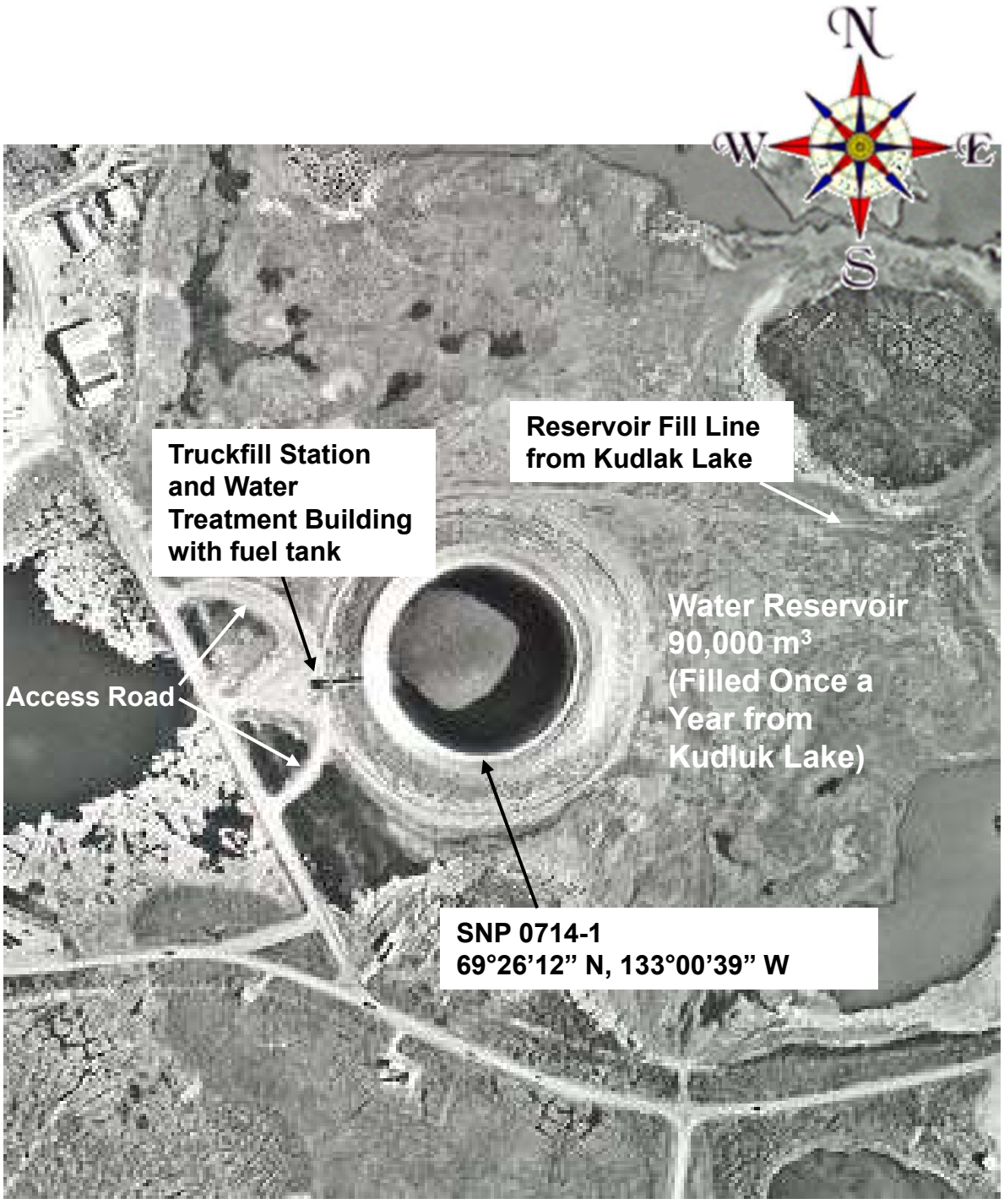
Prepared by: DES BRENNAN (Printed Name) — Finance Comptroller (Title)

Signature — 2023-10-10 (Completion Date)

SECTION 9: LIST OF ATTACHMENTS

Reference to the question in the questionnaire	Title of the documents	Date of the documents	Author(s) of the documents	Number of pages of the documents
Question Nº: Section 1, page 5	Figures (maps)	September 2018	AECOM	4
Question Nº: Section 1, page 5	Sewage Disposal Site Drawings - 2018 upgrade	August 20, 2018	AECOM	9
Question Nº: Section 4, page 12	Sewage Lagoon Overflow Sketches	September 19 - 24, 2018	AECOM	4
Question Nº: Section 1, page 6	Spill Contingency Plan	October 2023	AECOM	97
Question Nº: Section 1, page 6	Solid Waste Facility O&M Plan	October 2023	AECOM	82
Question Nº: Section 1, page 6	Sewage Facility O&M Plan	October 2023	AECOM	33
Question Nº:	Hazardous Waste Management Plan	October 2023	AECOM	26
Question Nº:				
Question Nº:				
Question Nº:				
Question Nº:				
Question Nº:				

AECOM



Hamlet of Tuktoyaktuk
Water Licence Renewal

Figure 2. Water Supply Site Plan

2018 09 21

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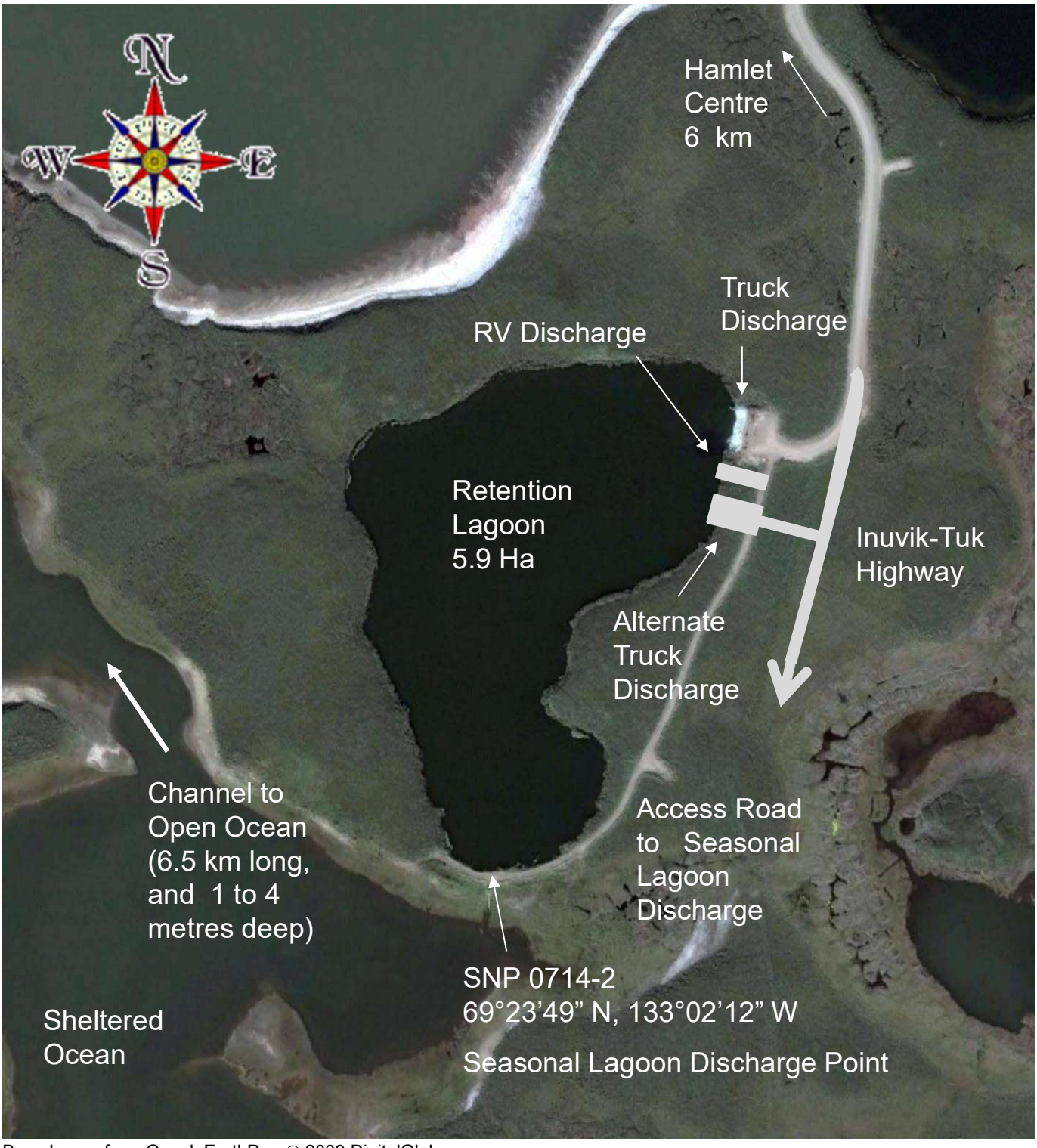


Base Image from GoogleEarthPro, © 2009 DigitalGlobe

Hamlet of Tuktoyaktuk
Water Licence Renewal

Figure 3. Sewage Lagoon Site Plan

2018 09 24

AECOM

Base Image from GoogleEarthPro, © 2009 DigitalGlobe

Hamlet of Tuktoyaktuk
Water Licence Renewal

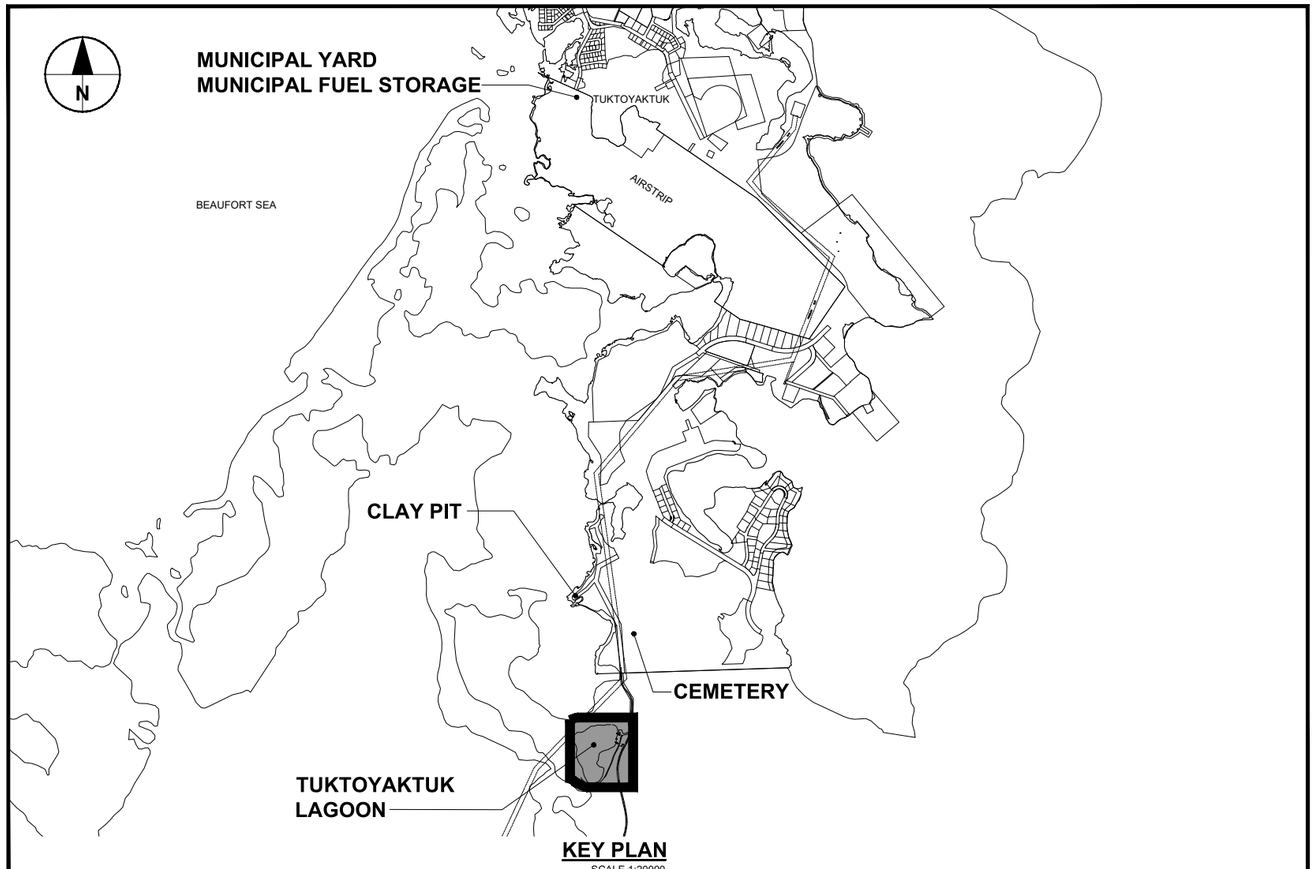
Figure 4. Landfill Site Plan

2018 09 21

HAMLET OF TUKTOYAKTUK

DRAWING LIST

SHEET NUMBER		DRAWING NAME
C-0000	Rev 1	COVER SHEET AND DRAWING LIST
C-1000	Rev 1	OVERALL PLAN - INDEX AND TOPOGRAPHY
C-1001	Rev 1	SITE PLAN
C-1100	Rev 1	PLAN AND PROFILE - DYKE - STATION 1+000 TO 1+200
C-1101	Rev 1	PLAN AND PROFILE - ACCESS ROAD AND RV DUMP STATION ACCESS
C-3000	Rev 1	SECTIONS (SHEET 1 OF 2)
C-3001	Rev 1	SECTIONS (SHEET 2 OF 2)
C-4000	Rev 1	DETAILS
C-4001	Rev 1	SEWAGE LAGOON DUMPING CHUTE DETAILS



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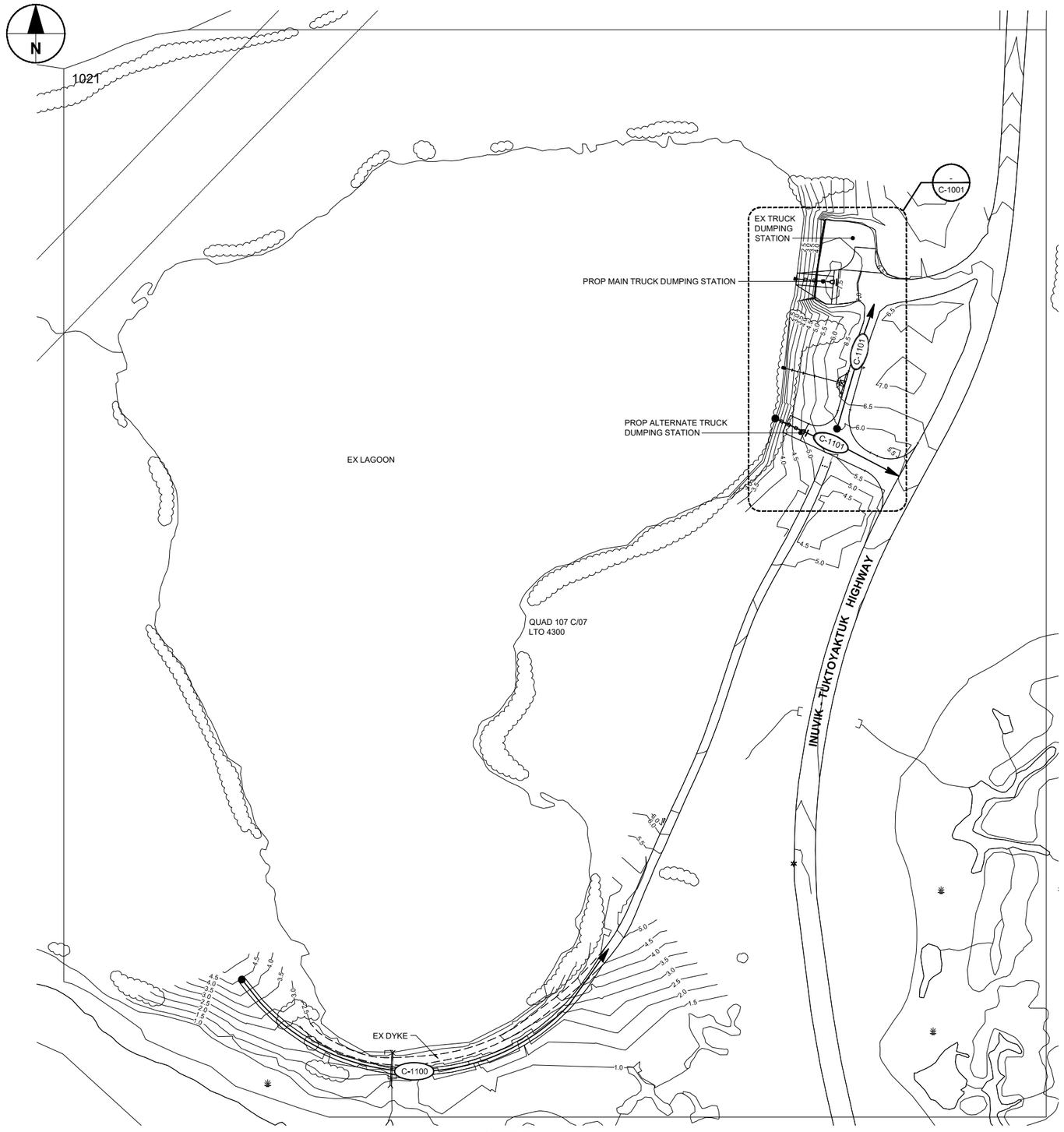
60568807

HAMLET OF TUKTOYAKTUK
LAGOON REHABILITATION

2018-08-20
ISSUED FOR CONSTRUCTION



SITE PLAN

0 25 50 m

1:1000

GENERAL NOTES:

1. ALL DIMENSIONS AND ELEVATIONS ARE IN METRES UNLESS NOTED OTHERWISE.
2. CONTOURS DERIVED FROM DEC 2016 SURVEY AND ARE SHOWN IN 0.5 m INTERVALS.
3. ALL ELEVATIONS TO FINISHED GRADE UNLESS INDICATED OTHERWISE.

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PROJECT

TUKTOYAKTUK LAGOON REHABILITATION

CLIENT

HAMLET OF TUKTOYAKTUK

CONSULTANT

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101, 18817 - STONY PLAIN ROAD NW
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www.aecom.com

REGISTERED PROFESSIONAL ENGINEER
M.A. LANTEIGNE
25-08-2018
NWT/NU

PERMIT TO PRACTICE
AECOM CANADA LTD.
Signature
Date 28-08-2018
PERMIT NUMBER: P639
NWT/NU Association of Professional Engineers and Geoscientists

REGISTRATION

ISSUE/REVISION

I/R	DATE	DESCRIPTION
1	2018-08-20	Issued For Construction
0	2018-06-22	Issued For Tender

KEY PLAN

PROJECT NUMBER

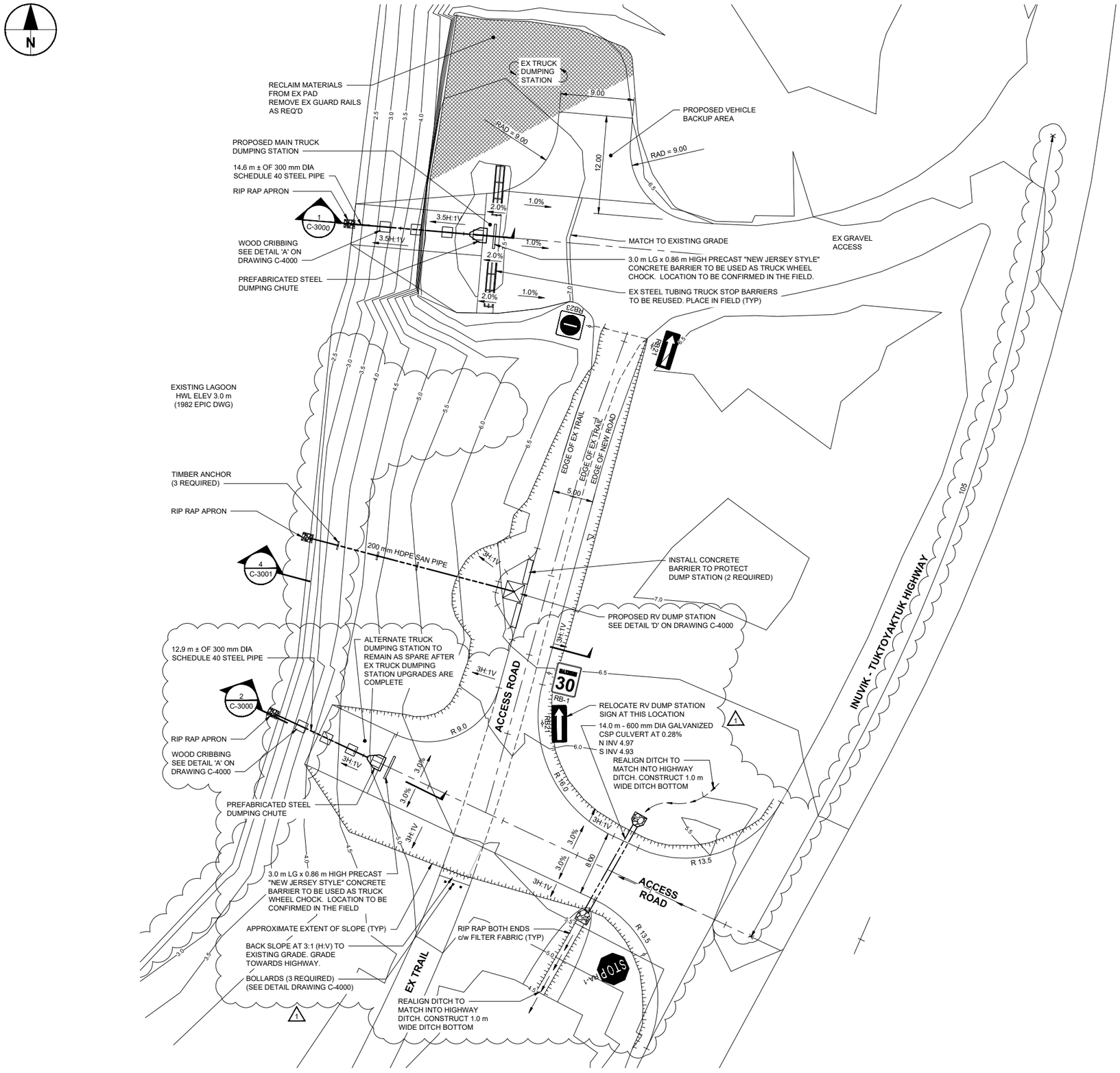
60568807

SHEET TITLE

OVERALL PLAN
INDEX AND TOPOGRAPHY

SHEET NUMBER

C-1000 Rev 1



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SITE PLAN

SHEET NUMBER

C-1001 Rev 1

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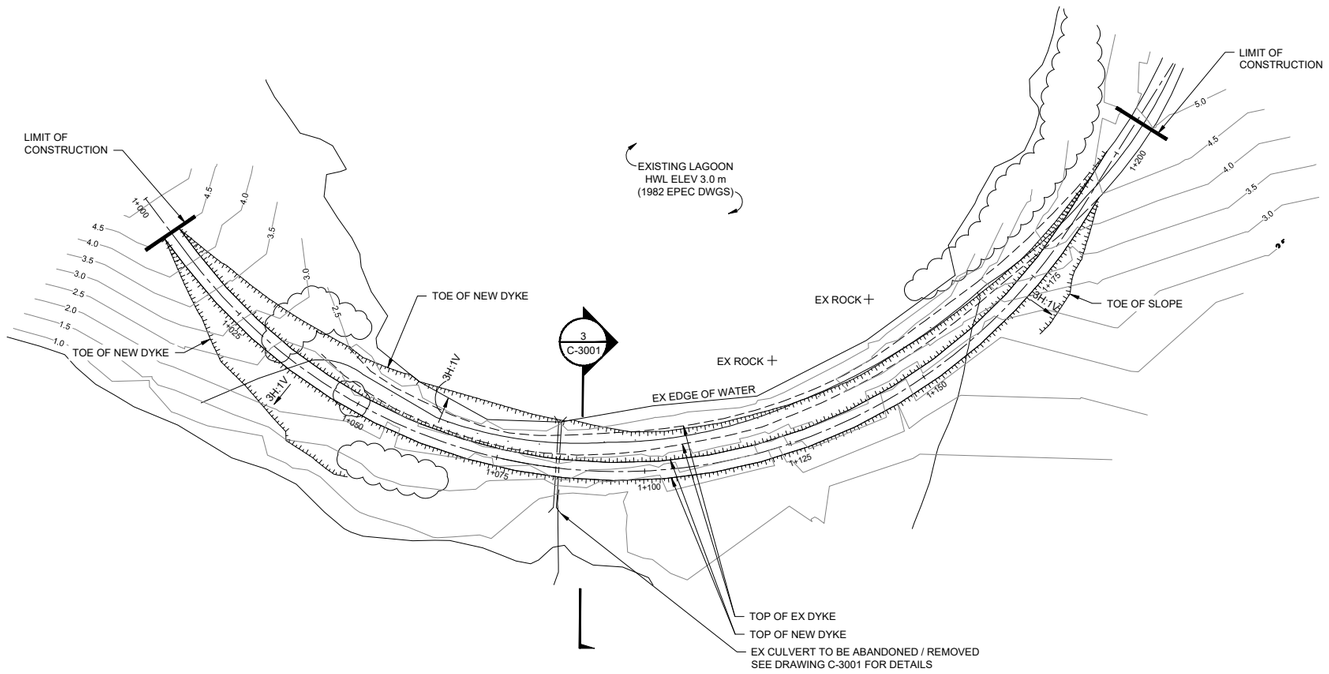

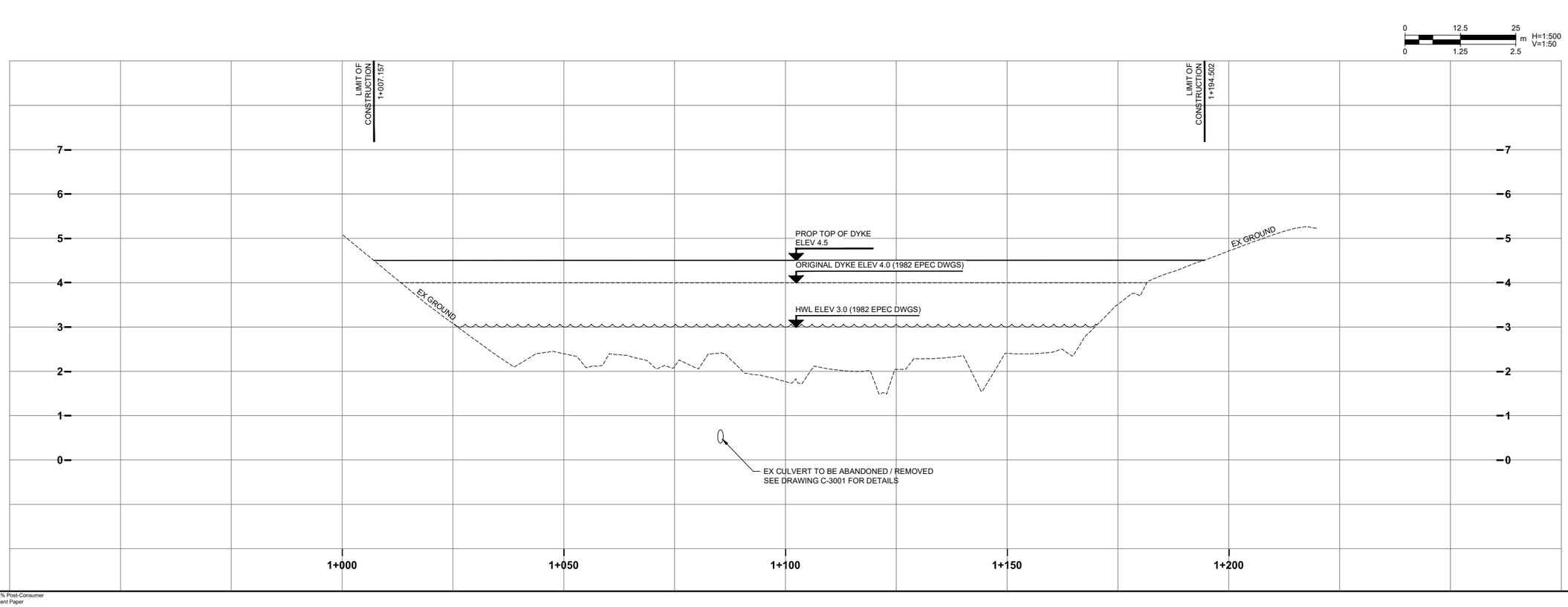

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TUKTOYAKTUK
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KEY PLAN

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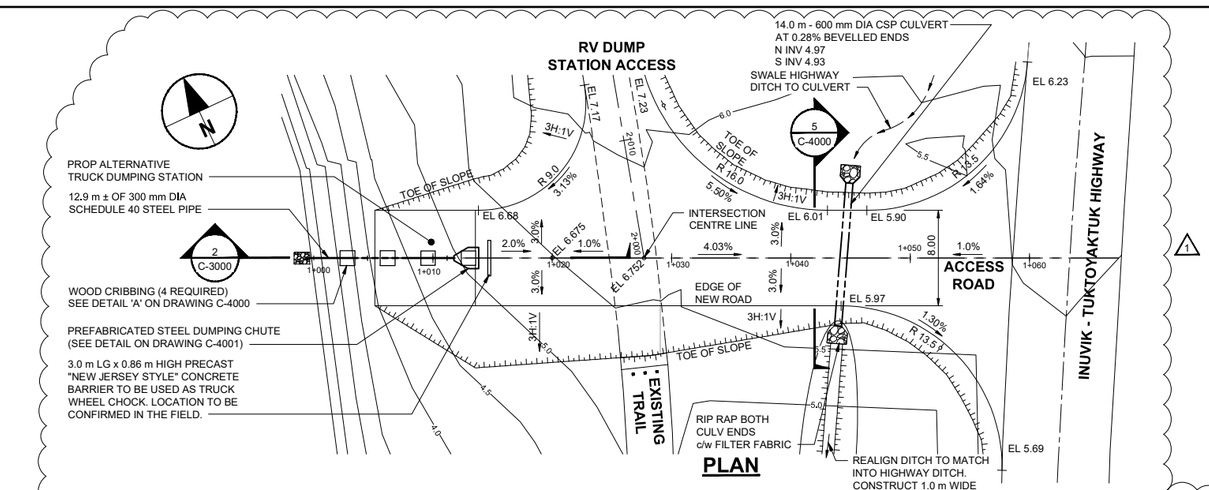
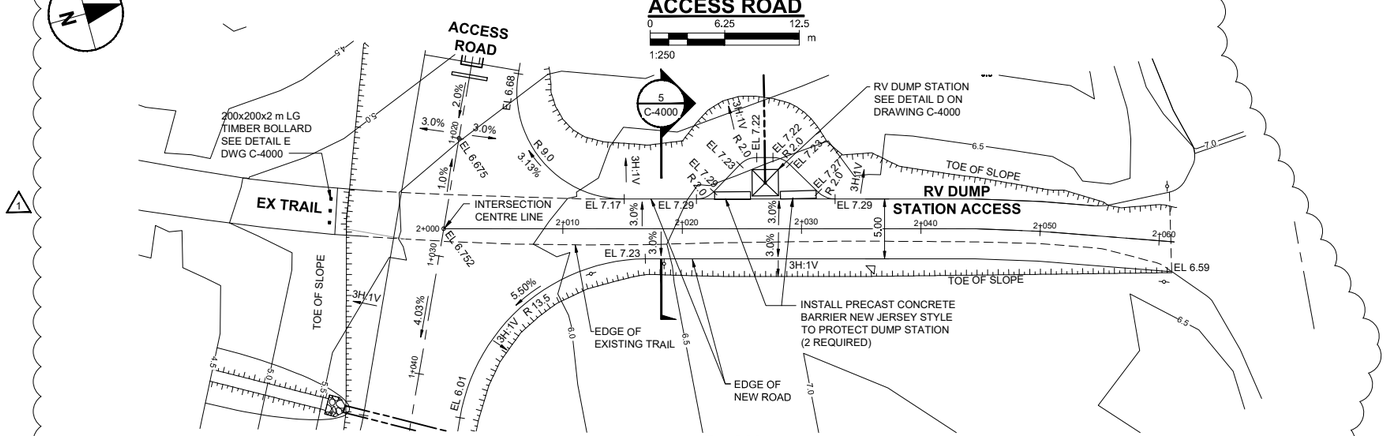
SHEET TITLE

PLAN AND PROFILE
DYKE
STATION 1+000 TO 1+200

SHEET NUMBER

C-1100 Rev 1





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3. ALL ELEVATIONS TO FINISHED GRADE UNLESS INDICATED OTHERWISE.
4. ALL DIMENSIONS SHOWN THUS XXX± SHALL REQUIRE CONSULTANT APPROVAL.
5. ALL SIDE SLOPES SHALL BE 3:1 UNLESS INDICATED OTHERWISE.

CONSTRUCTION NOTES:

1. ALL FASTENING BOLTS, WASHERS AND NUTS SHALL BE 304 STAINLESS STEEL OR APPROVED EQUAL.
2. ALL ANCHOR BOLTS SHALL BE HEX HEAD TYPE. BOLTS AND WASHERS SHALL BE ZINC PLATED.

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TUKTOYAKTUK
LAGOON
REHABILITATION

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SHEET TITLE

PLAN AND PROFILE
ACCESS ROAD AND
RV DUMP STATION ACCESS

SHEET NUMBER

C-1101 Rev 1

GENERAL NOTES:

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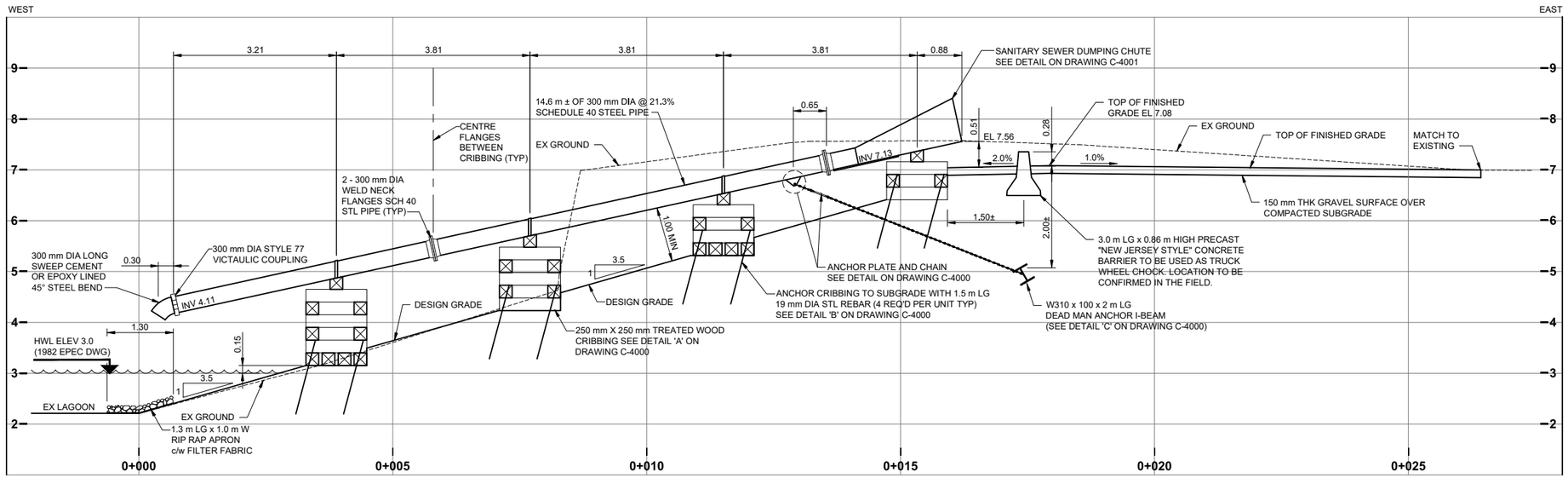
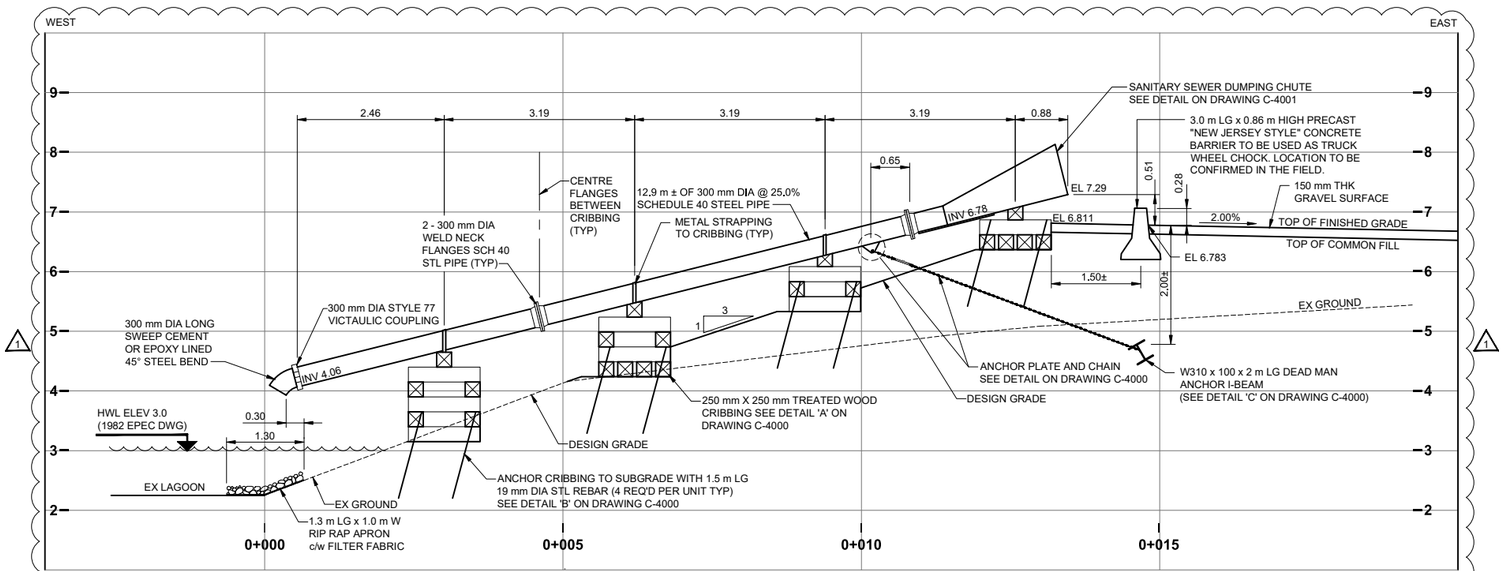


1 | SECTION
C-1001
0 1.25 2.5 m
1:50

MAIN DUMPING STATION



2 | SECTION
C-1001
0 1.25 2.5 m
1:50

ALTERNATE DUMPING STATION

AECOM

PROJECT

TUKTOYAKTUK LAGOON REHABILITATION

CLIENT

HAMLET OF TUKTOYAKTUK

CONSULTANT

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101, 18817 - STONY PLAIN ROAD NW
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REGISTERED PROFESSIONAL ENGINEER NWT/NU M.A. LANTEIGNE 20-08-2018

PERMIT TO PRACTICE
AECOM CANADA LTD.
Signature
Date 20-08-2018
PERMIT NUMBER: P639
NWT/NU Association of Professional Engineers and Geoscientists

REGISTRATION

ISSUE/REVISION

1	2018-08-20	Issued For Construction
0	2018-06-22	Issued For Tender
I/R	DATE	DESCRIPTION

KEY PLAN

PROJECT NUMBER

60568807

SHEET TITLE

SECTIONS
(SHEET 1 OF 2)

SHEET NUMBER

C-3000 Rev 1

Project Management Initials: Designer: Checked: Approved: ANSI D 864mm x 559mm

Last saved by: HENDERSONR(2018-08-14) Last Plotted: 2018-08-21
Filename: P:\60568807\900-CAD_GIS\910-CAD\20-SHEETS\C\60519663-SHT-01-0000-00-C-3000.DWG

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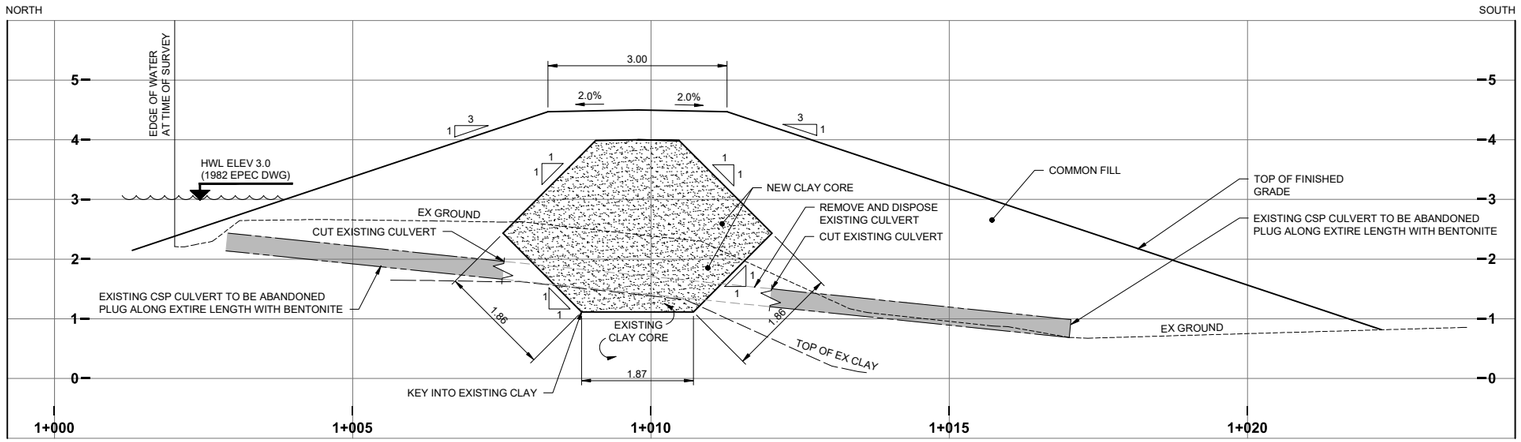
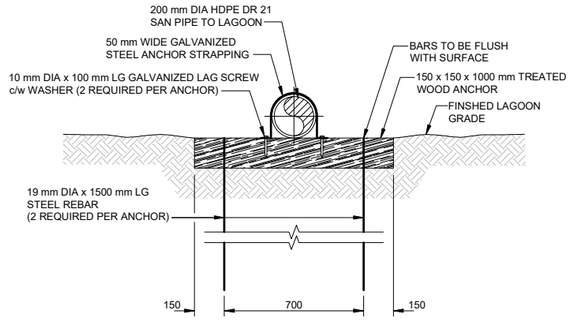


3 | SECTION
C-1100
0 1.25 2.5 m
1:50



A | HDPE ANCHOR DETAIL
SCALE 1:15

GENERAL NOTES:

1. ALL DIMENSIONS AND ELEVATIONS ARE IN METRES UNLESS NOTED OTHERWISE.

CONSTRUCTION NOTES:

1. RIP RAP SHALL BE CLASS 1m ROCK MATERIAL OR BAGGED.
   1.1 - NOMINAL MASS 7 Kg
   1.2 - NOMINAL DIAMETER 175 mm
   1.3 - MASS / SIZE (Kg / mm) DISTRIBUTION

NONE GREATER THAN	40 / 300
20% - 50%	10 / 200
50% - 80%	7 / 175
100% GREATER THAN	3 / 125

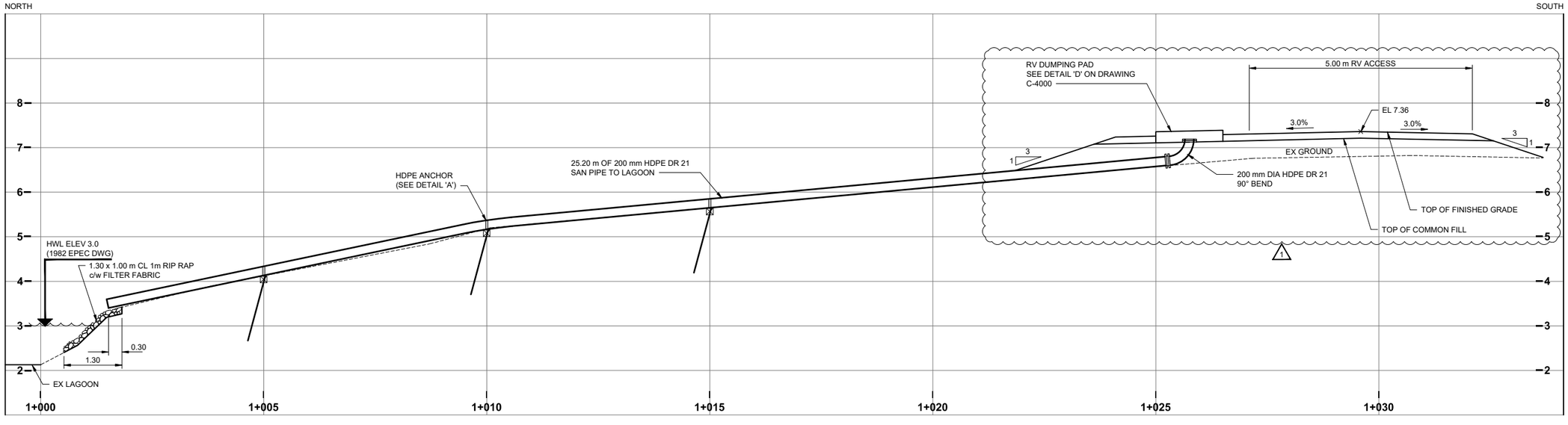
   1.4 MINIMUM DURABILITY UNDER: 52

2. BAGGED RIP RAP (ABOVE HWL)
   2.1 - 370 mm x 685 mm x 285 mm BURLAP WITH APPROXIMATE CAPACITY OF 0.30 cu.m
   2.2 - CEMENT: TYPE MS
   2.3 - BURLAP BAGS FILLED TO 70% CAPACITY.
   2.4 - SECURELY SOW OR STAPLE TO FORM STRAIGHT EDGE CLOSURE.
   2.5 - BAGS TO BE OF SURFACE STRAIGHT TO PERMIT LIFTING BY THE TOP CORNER WHEN FILLED.
   2.6 - PREPARE BASE AND PLACE NON-WOVEN FILTER FABRIC.
   2.7 - UTILIZE STAGGERED PATTERN BETWEEN ROWS.
   2.8 - KEEP SACKS MOIST FOR 24 HOURS AFTER PLACEMENT.

3. FILTER FABRIC SHALL BE NON-WOVEN AMECO 4551 OR APPROVED EQUAL.

WOOD CRIBBING CONNECTION:
1. PRE-DRILL WOOD TIMBERS TO ACCEPT 19 mm ANCHOR BOLTS TO MANUFACTURER'S RECOMMENDATIONS.
2. EVENLY STAGGER HOLE PATTERNS.
3. INSTALL 19 mm x 600 mm GALVANIZED LAG BOLTS c/w 19 mm GALVANIZED OGEE STYLE WASHER.
   LAG BOLT SHANK TO EXTEND FOR THE COMPLETE DEPTH OF THE TOP TIMBER SECTION.
4. COUNTER SINK DRILL HOLE TO SO THE BOLT HEAD AND WASHER WILL BE FLUSH WITH THE WOOD SURFACE.
5. PAINT ALL EXPOSED SURFACES WITH WOOD PRESERVATIVE.

WOOD CRIBBING STRUCTURE ANCHORING:
1. PRE-DRILL WOOD TIMBER BASE AT FOUR LOCATIONS AS INDICATED ON THE DRAWINGS.
2. INSTALL 19M REBAR TO THE MINIMUM DEPTH OF 1.5 METRES OR TO REFUSAL, WHICHEVER IS GREATER.
3. REBAR EXTENSION ABOVE WOOD BASE TO BE 250 mm.



4 | SECTION
C-1001
0 1.25 2.5 m
1:50

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KEY PLAN

PROJECT NUMBER
60568807

SHEET TITLE
SECTIONS
(SHEET 2 OF 2)

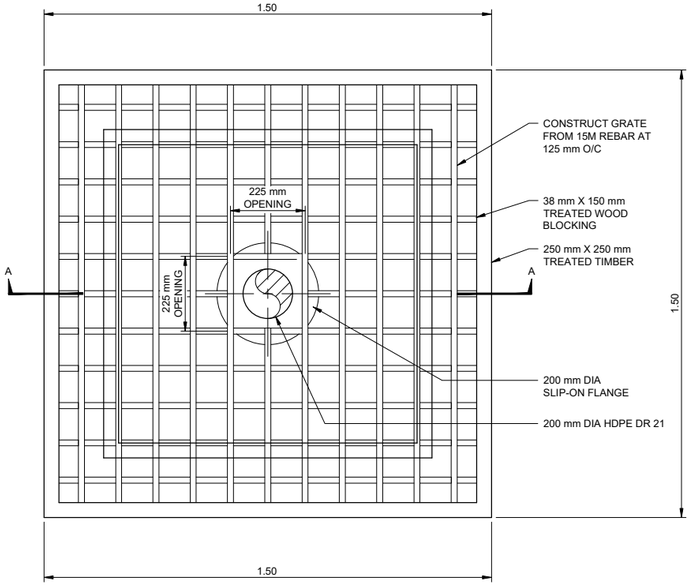
SHEET NUMBER
C-3001 Rev 1

Project Management Initials: Designer: ____ Checked: ____ Approved: ____ ANSI D 864mm x 559mm

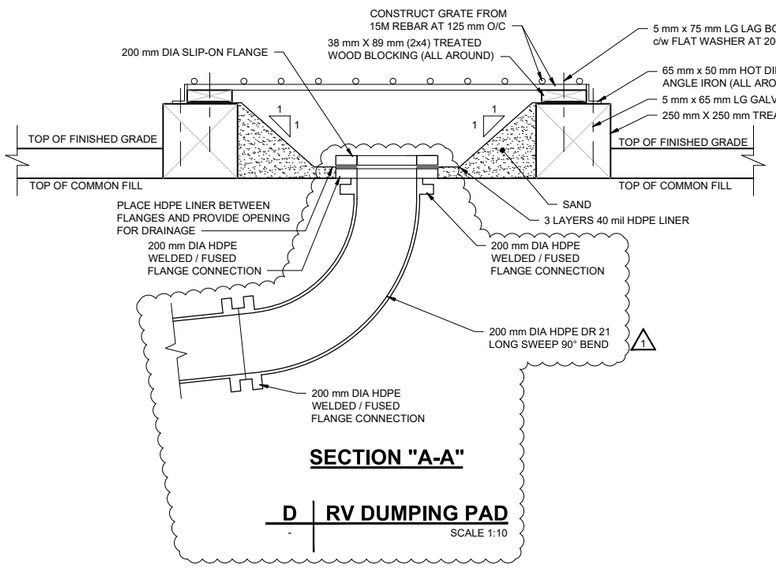
Last saved by: HENDERSONR(2018-08-14) Last Plotted: 2018-08-21
Filename: P:\60568807\900-CAD_GIS\910-CAD\20-SHEETS\C\60519663-SHT-01-0000-00-C-3001.DWG

GENERAL NOTES:

1. ALL DIMENSIONS AND ELEVATIONS ARE IN METRES UNLESS NOTED OTHERWISE.
2. ALL REBAR SHALL BE BILLET STEEL, GRADE 400 DEFORMED BARS TO CAN/CSA-G30, 18.
3. METAL STRAPPING SHALL BE:
   3.1 - 3 mm GALVANIZED THICK METAL AND SHAPED TO CONFORM TO THE PIPE CIRCUMFERENCE.
   3.2 - EACH STRAP SHALL BE ANCHORED USE 5 mm x 60 mm LG GALVANIZED ANCHOR BOLTS AND FLAT WASHER.

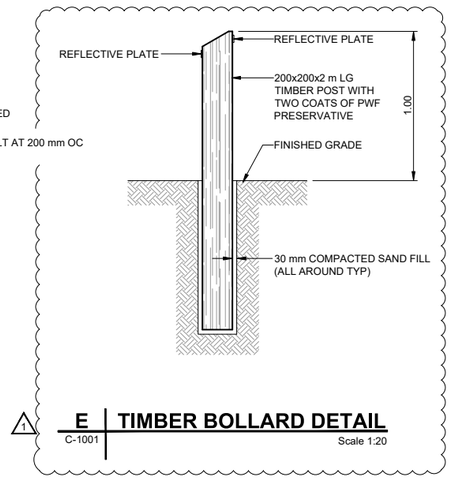


PLAN

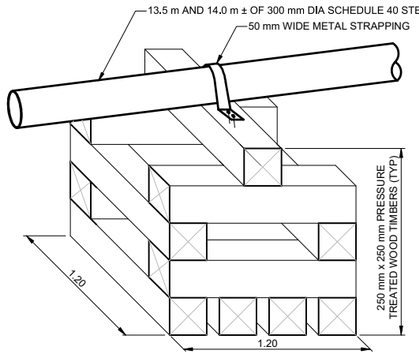


SECTION "A-A"

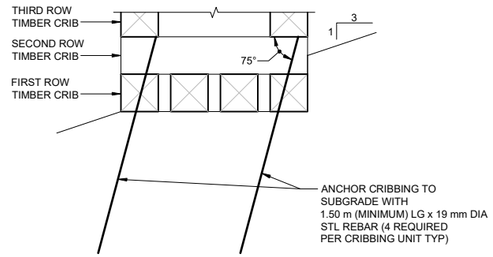
D | RV DUMPING PAD
- | Scale 1:10



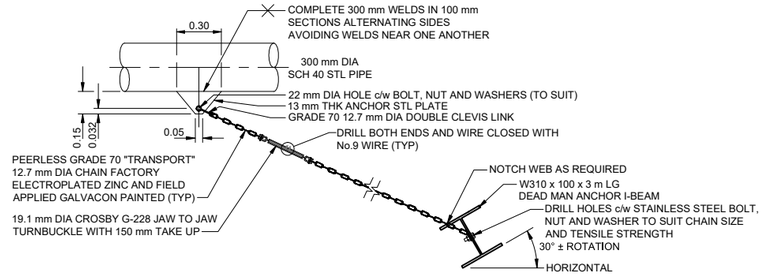
E | TIMBER BOLLARD DETAIL
C-1001 | Scale 1:20



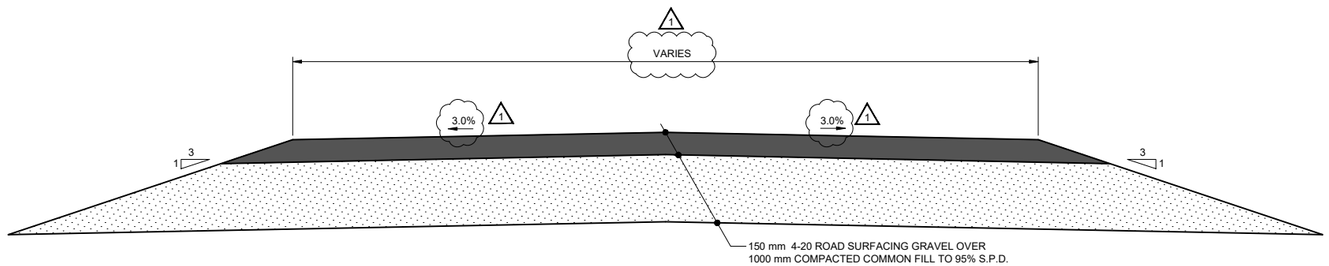
A | WOOD CRIBBING DETAIL
C-3000 | Scale 1:20



B | CRIBBING ANCHOR DETAIL
C-3000 | Scale 1:20



C | LINE ANCHOR DETAIL
C-3000 | Scale 1:20



5 | ROAD SECTION
C-1101 | Scale 1:20

AECOM

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KEY PLAN

PROJECT NUMBER

60568807

SHEET TITLE

DETAILS

SHEET NUMBER

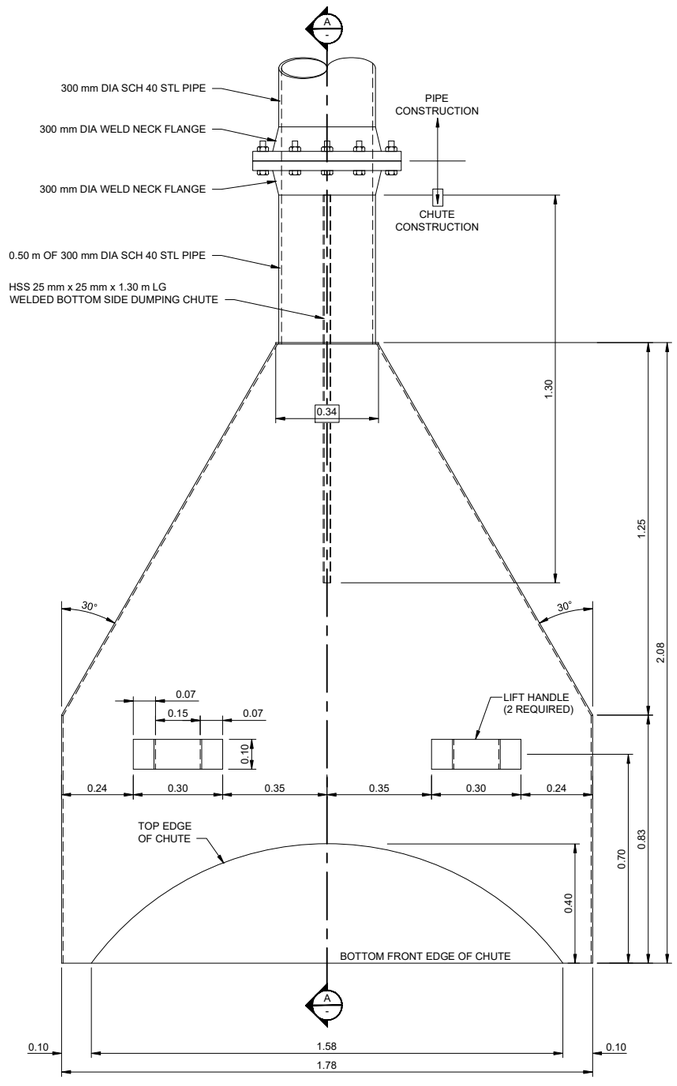
C-4000 Rev 1

GENERAL NOTES:

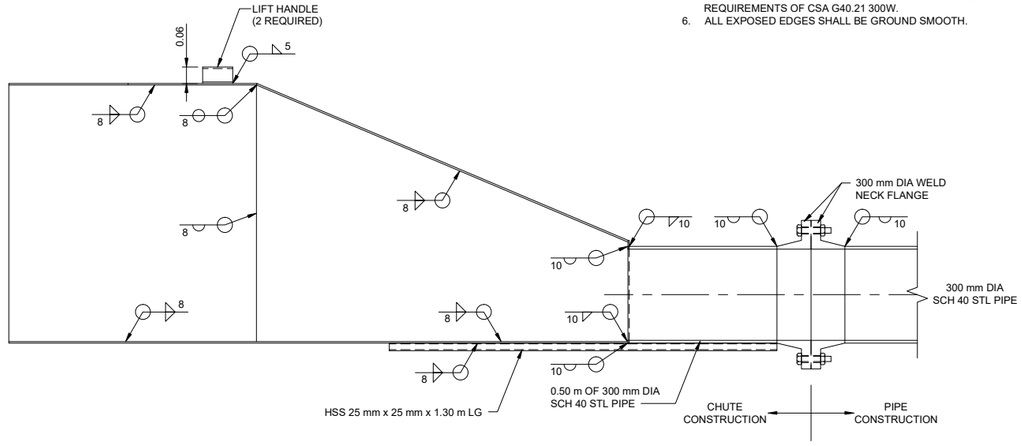
1. ALL DIMENSIONS AND ELEVATIONS ARE IN METRES UNLESS NOTED OTHERWISE.

CONSTRUCTION NOTES:

1. TWO DUMPING CHUTES REQUIRED.
2. CONSTRUCT CHUTE AND LIFT HANDLES FROM 5 mm (3/16") THICK STEEL.
3. WELD IN ACCORDANCE WITH CSA W59-13.
4. WELD ALL CHUTE JOINTS FRONT AND BACK.
5. ALL FABRICATION PLATE STEEL SHALL BE 5 mm THICK AND MEET THE REQUIREMENTS OF CSA G40.21 300W.
6. ALL EXPOSED EDGES SHALL BE GROUND SMOOTH.



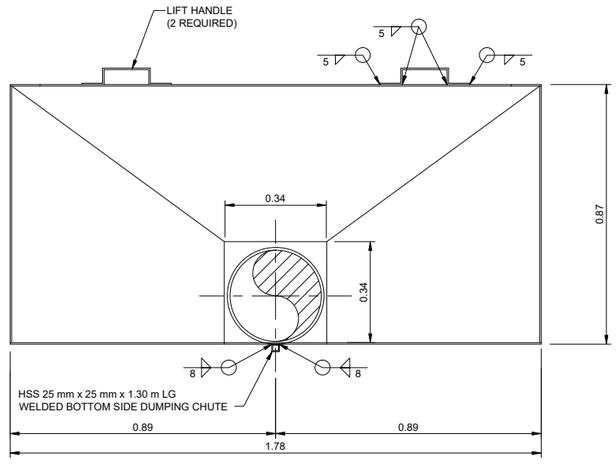
PLAN



SECTION "A-A"

0 0.25 0.50 m

1:10



FRONT ELEVATION

SCALE 1:10

1 - SEWAGE DUMPING CHUTE DETAILS

SCALE 1:10

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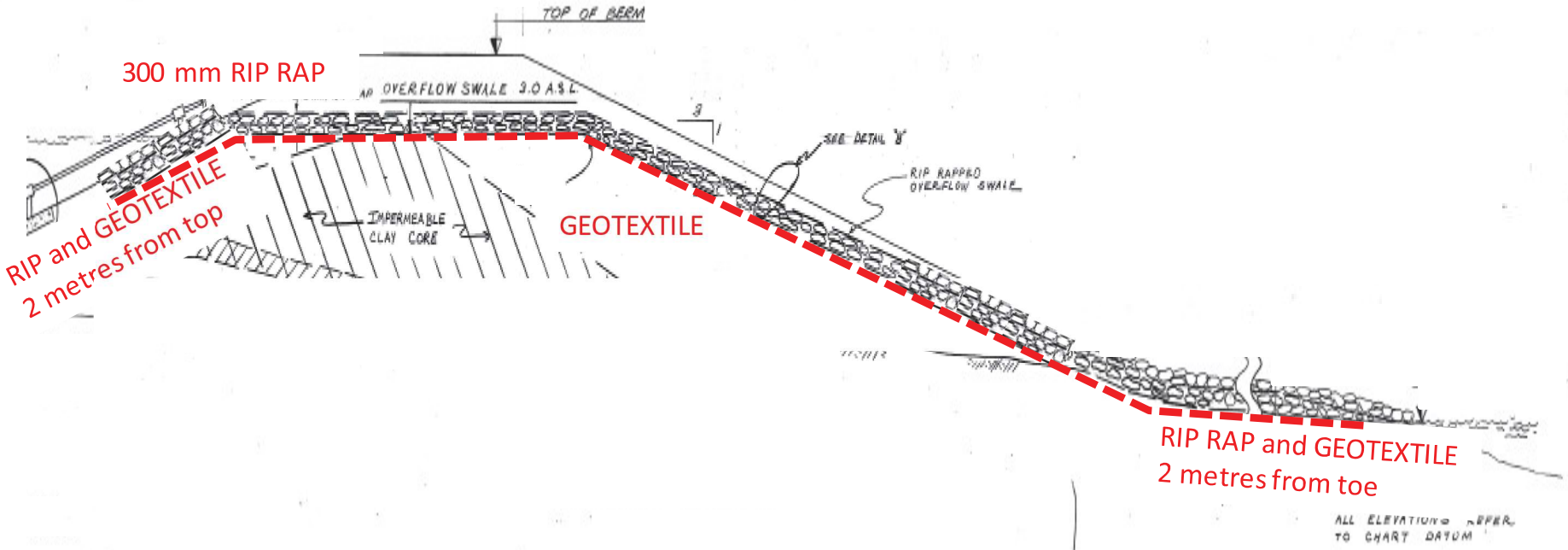
SHEET TITLE

SEWAGE LAGOON DUMPING CHUTE DETAILS

SHEET NUMBER

C-4001 Rev 1



NOTE: DRAWING IS EXCERPT FROM 1982 DESIGN BY EPEC

Tuktoyaktuk Sewage Lagoon Improvements 2018
Emergency Overflow

Prepared by Ken Johnson, RPP, P.Eng 2018 09 19

AECOM

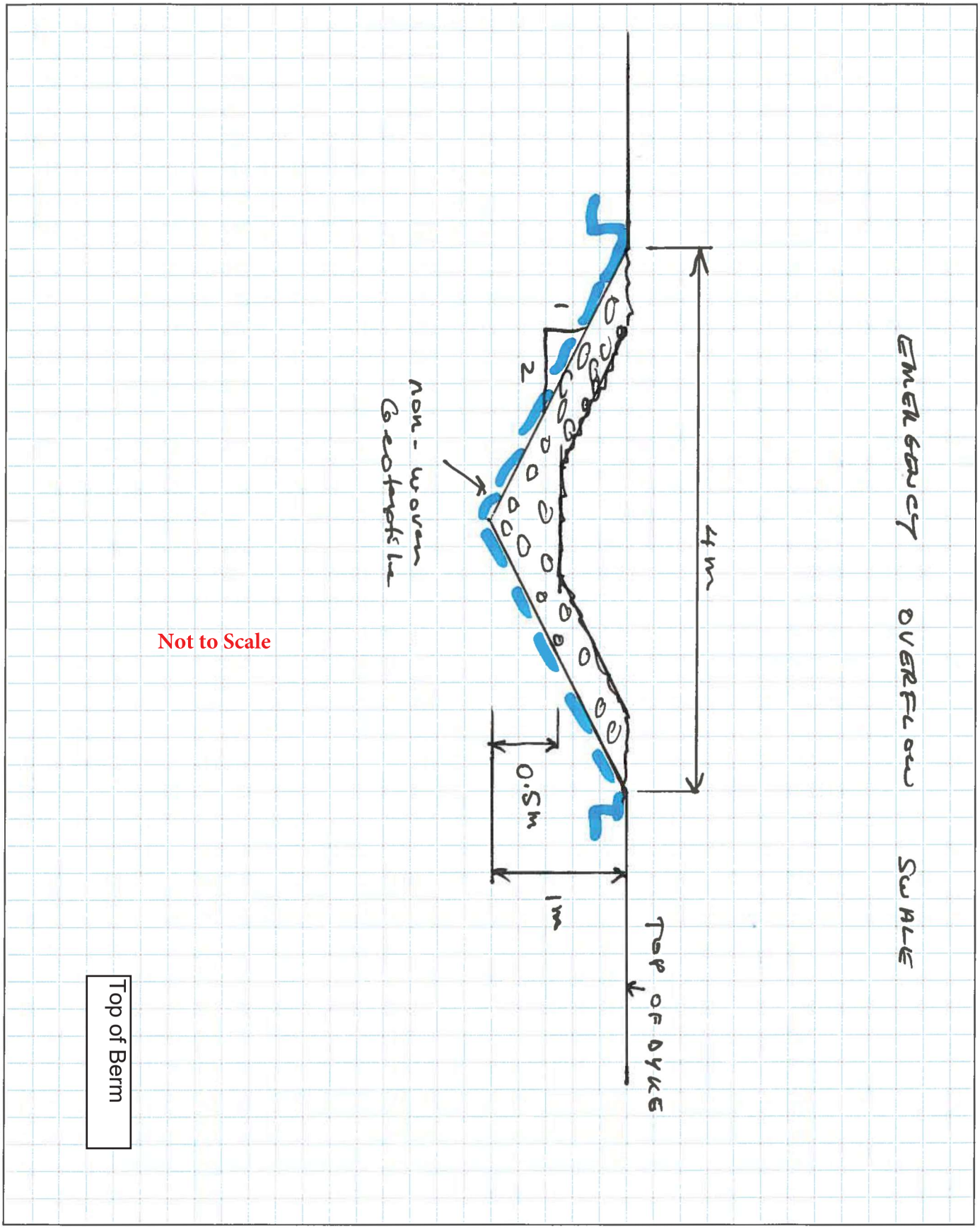
JOB TITLE TUK LAGOON REHAB.

JOB NO. _____ CALCULATION NO. _____

ORIGINATOR MAL DATE Sept 19, 2018

REVIEWER _____ DATE Sept

SCALE _____ SHEET NO. 1 OF 1



Grid: 5x5 = 1 in

AECOM

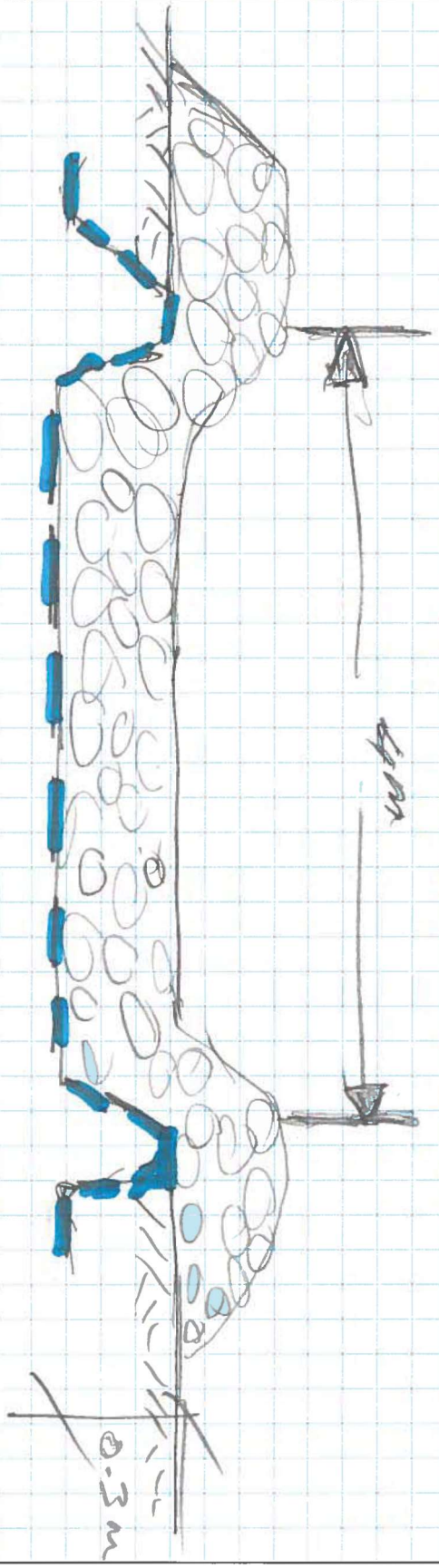
JOB TITLE _____

JOB NO. _____ CALCULATION NO. _____

ORIGINATOR _____ DATE _____

REVIEWER _____ DATE _____

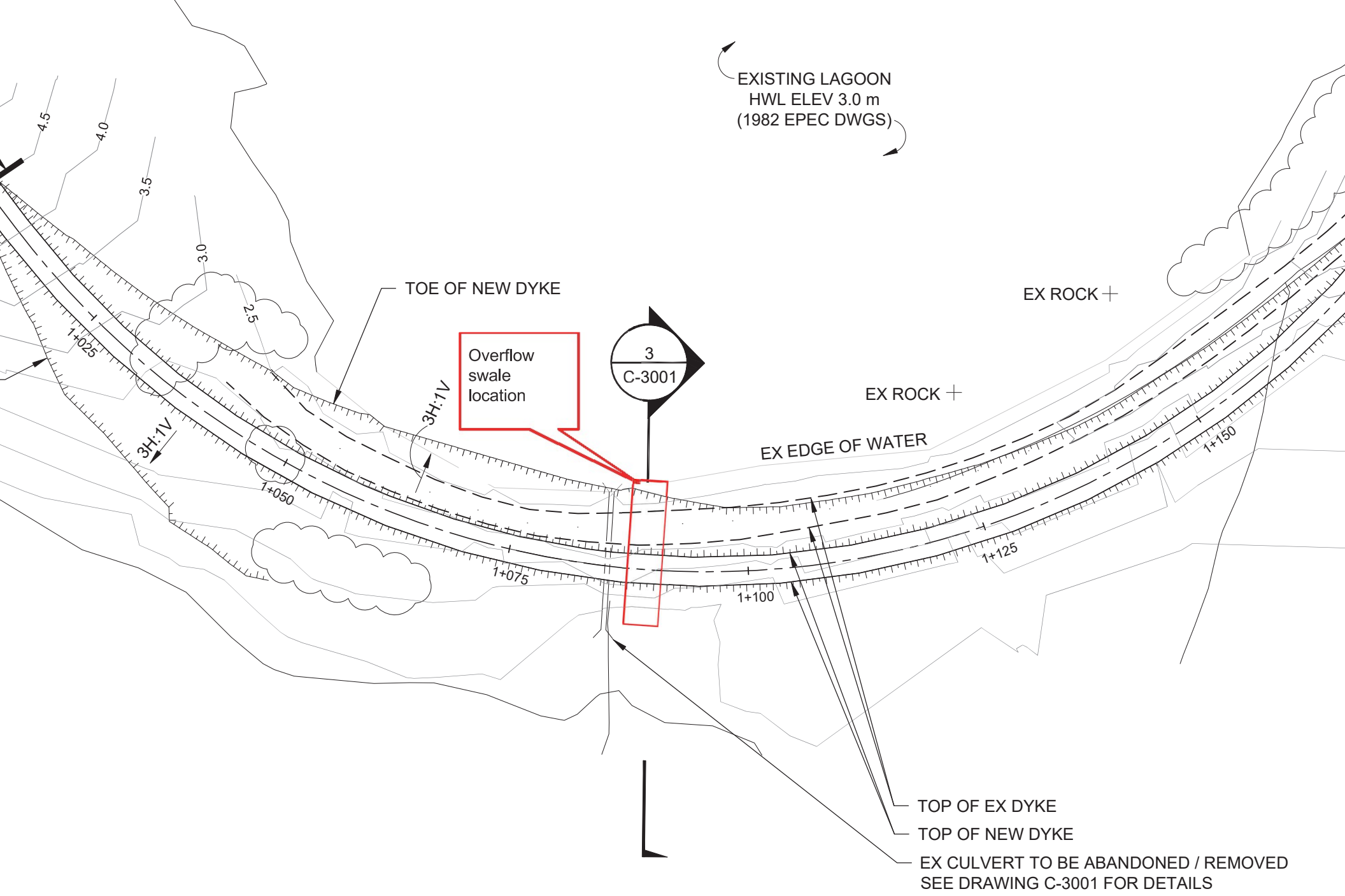
SCALE _____ SHEET NO. _____ OF _____



Not to Scale

Slope / Spillway

Grid: 5x5 = 1 in



Tuktoyaktuk Lagoon Overflow Location
Sketch date 2018-09-24
Reference drawing C-1100, project 60568807, IFC 2018-08-20