



E. GRUBEN'S TRANSPORT LTD.
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PIN-D, Ross Point, Dew Line Cleanup Project
Submittal: Section 01 35 15 Wastewater Treatment Facility

All grey water and sewage (effluent) generated from the camp facility will be discharged into a single 250 liter surge tank adjacent to the camp. The surge tank will be fitted with a submersible macerator lift pump controlled by level switches to start and stop automatically as required. This submersible pump will pump the effluent to a lagoon situated at least 100 meters downgrade and downwind from the camp, at least 30 meters from a drainage course and 100 meters from fish bearing waters as agreed with the Departmental Representative (DR).

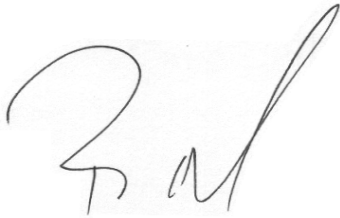
The lagoon will consist of two separate lagoons adjacent to each other and constructed to the dimensions as per the attached drawing. The lagoon base will be excavated approximately 0.5 meters into the existing ground. Perimeter berms will be constructed to a finished inside height of 2 meters allowing for a maximum depth of effluent of 1 meter and a freeboard of 1 meter. The lagoon base excavated material and/or Type 2 material obtained from one of the borrow sources will be used to construct the lagoon berms as agreed with the DR. The berms will be compacted with the onsite vibratory compactor.

Based upon an estimated daily camp water usage of 7 m³ per day and the same volume of effluent generated daily, and allowing for 50 days of total capacity in the lagoons at a maximum effluent depth of 1 meter, the total lagoon capacity, not including the 1 meter freeboard, will be 350 m³.

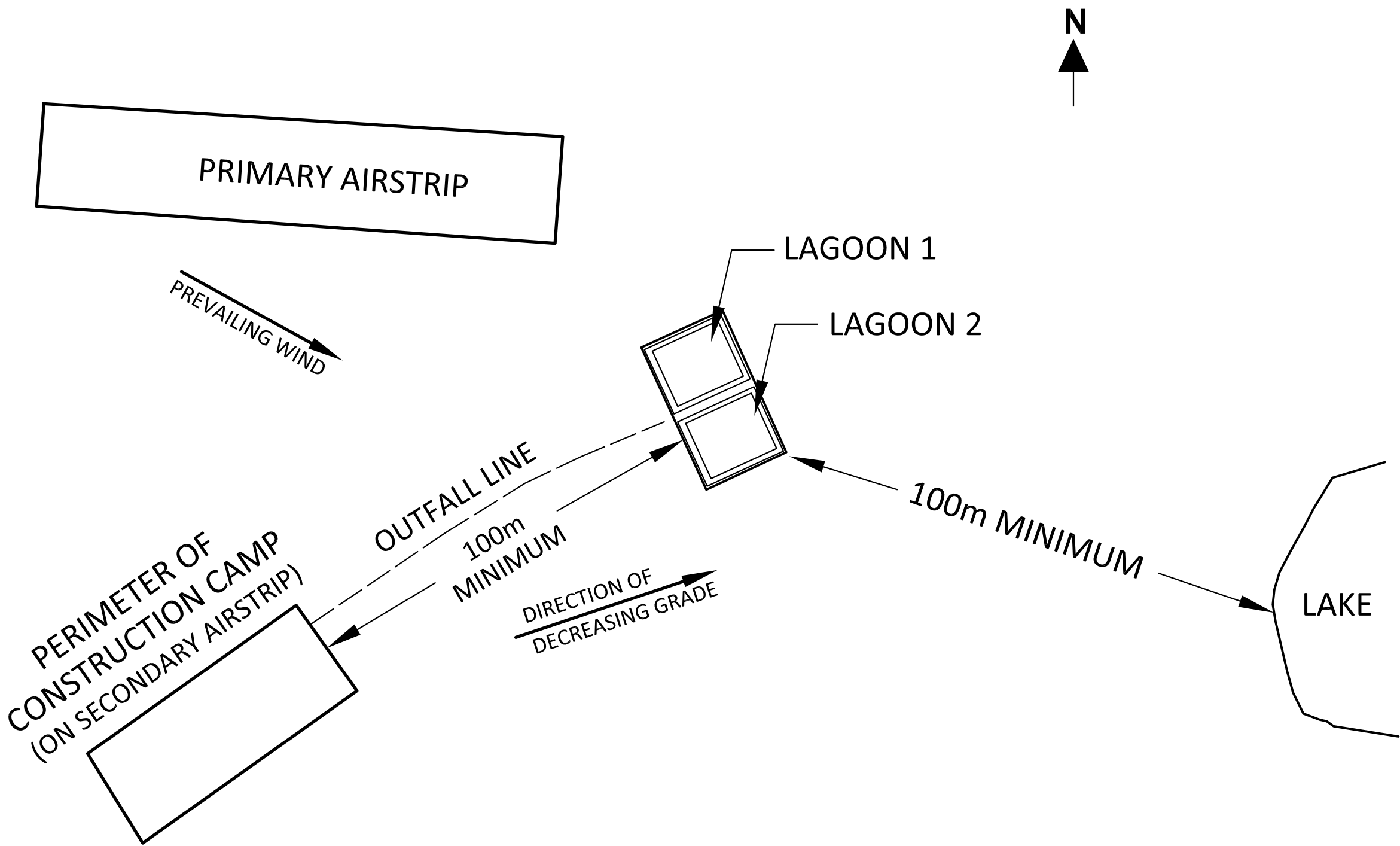
The lagoon discharge pipe from the camp will feed into the closest lagoon. An overflow pipe connecting the two lagoons will be placed so that liquid from beneath any "scum" layer at the surface can pass to the second lagoon.

The camp facility is fitted with 2 separate grease traps that will remove visible mineral oil and grease from the camp generated effluent. EGT and our Inuit catering contractor, Kitikmeot Caterers Ltd., are very experienced in the operation of remote camps, the required wastewater discharge criteria, cooking and housekeeping practices and the 'green' biodegradable products that must be used (and those that must not) to ensure that any effluent can meet discharge criteria. To improve water conservation all bathroom faucets are self closing and shower heads are water saver models.

The operation, discharge and closure of the lagoons will be in compliance with the Water License for PIN-D. The effluent will be sampled and tested at an approved third party testing facility (Maxxam Analytics, Edmonton Laboratory) to determine if the required discharge criterion has been met. EGT will take all required steps to ensure samples arrive at the testing location within the allowable time limits. Once testing confirms discharge criteria is met and discharge is approved the effluent will be pumped and released onto the ground at a location as agreed and approved by the DR that is a minimum of 30 meters from a natural drainage course, and 100 meters away from any river or any fish bearing lake.

A handwritten signature in black ink, appearing to read 'R. Newmark', is positioned above the printed name.

RUSSELL NEWMARK
E. GRUBEN'S TRANSPORT LTD



SEWAGE LAGOONS
SCALE: NTS

CAD FILE: 35070_Lagoon.dwg
LAYOUT:
DWN BY:
DATE:
CHK. BY:



INUKSHUK
Geomatics Inc.
300-6940 FISHER ROAD S.E.
CALGARY, ALBERTA T2H 0W3
PH (403) 253-8101
WWW.CHALLENGERGEOMATICS.COM
Email: calgary@chalgeo.com

GENERAL NOTES

1.

ALL DIMENSIONS ARE IN METRES UNLESS NOTE OTHERWISE.
2.

IN THE EVENT OF SHALLOW BEDROCK WHERE FLOOR OF THE LAGOON IS JUST BELOW ORIGINAL GROUND USE 3m WIDE TOP OF BERM.
3.

COMPACTED BERMS TO 95% OF STANDARD PROCTOR DRY DENSITY (SPDD), AT OPTIMUM MOISTURE CONTENT.
4.

DISCHARGE WASTEWATER FROM CORNER OPPOSITE TO INLET.
5.

MAXIMUM FLUID DEPTH NOT TO EXCEED 1m.
6.

LAGOON TO BE LOCATED A MINIMUM OF 100m FROM CAMP AND DOWNWIND, BASED ON PREVAILING WINDS.
- ASSUMPTIONS:

7.

LAGOON SIZED FOR HALF OF THE TIME THAT THE CAMP IS OCCUPIED.
8.

AVERAGE CAMP OCCUPANCY OF 40 PEOPLE.
9.

LOADING=0.175m3/PERSON/DAY.
10.

FREEBOARD≥ 1.0m as per Section 01560 p.4 PWGSC COnstruction Specification

SAMPLE CALCULATIONS:

LOADING

0.175m3/PERSON/DAY

CAMP SIZE

x 40PEOPLE

HALF CONSTRUCTION SEASON

x 50 DAYS

REQUIRED CAPACITY

OF EACH LAGOON

= 350m3

(NOT INCLUDING FREEBOARD)

LENGTH(AT 0.5m ABOVE BASE) x

WIDTH(AT 0.5m ABOVE BASE) x 1m≥ REQUIRED CAPACITY

| | | |
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| | | |
| REV. | DESCRIPTION | DATE |

E.GRUBEN'S TRANSPORT



PROJECT TITLE

PIN-D
REMEDIATION PROJECT

DRAWING TITLE

SEWAGE LAGOON
PLAN AND SECTIONS

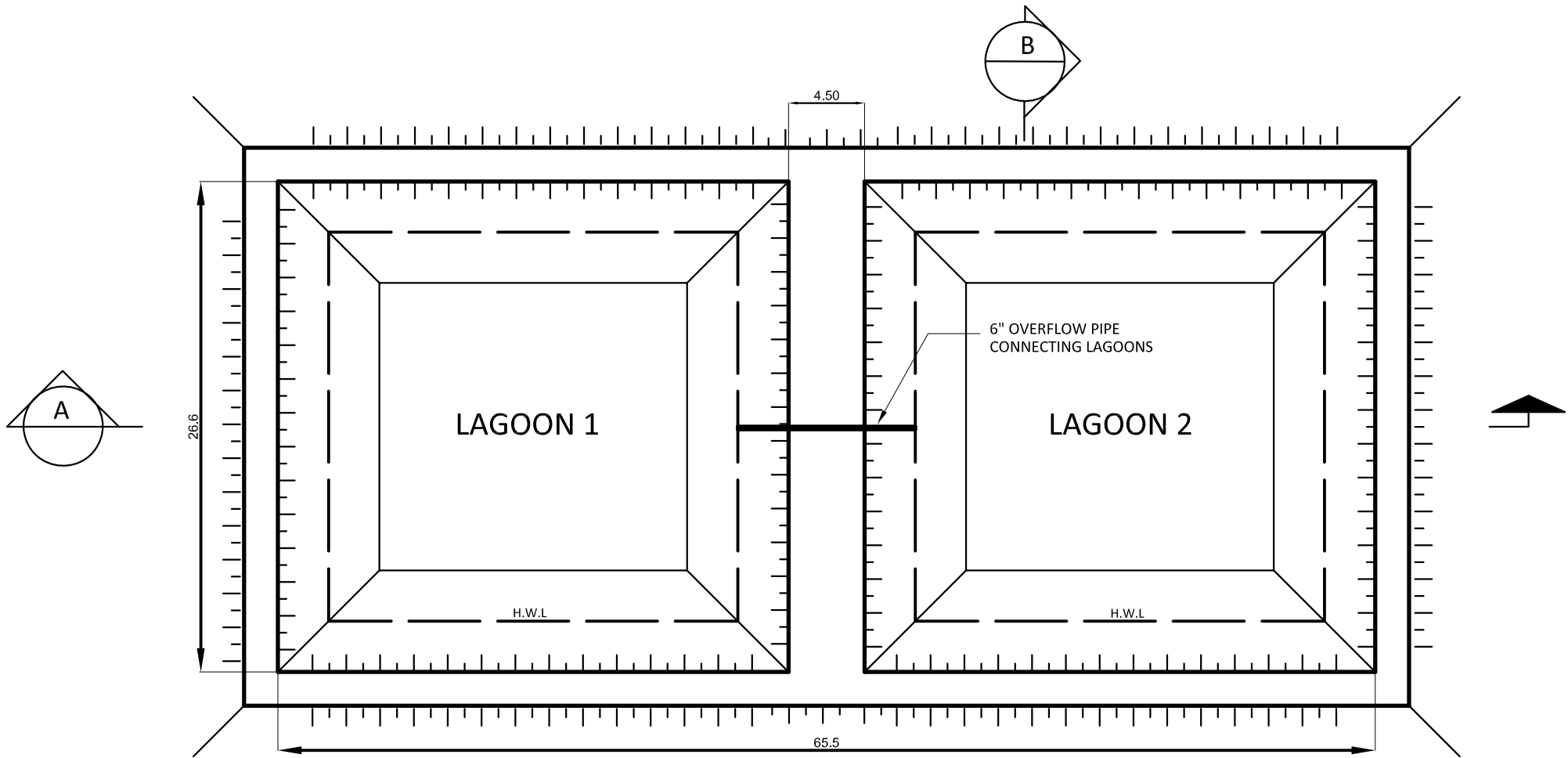
DESIGNED BY

DRAWN BY

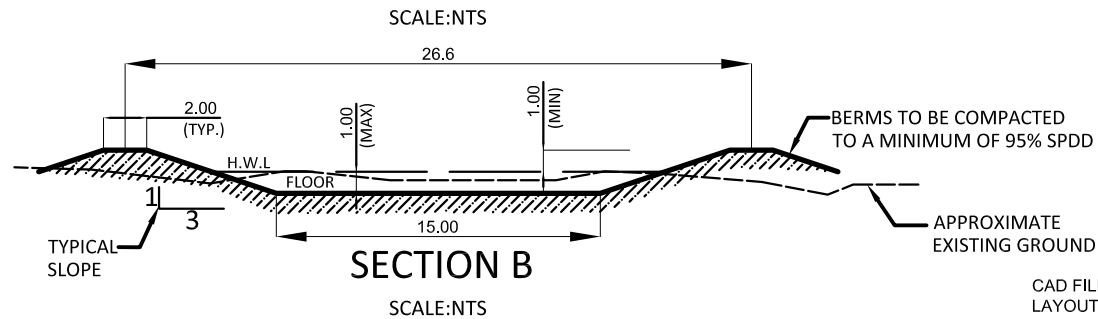
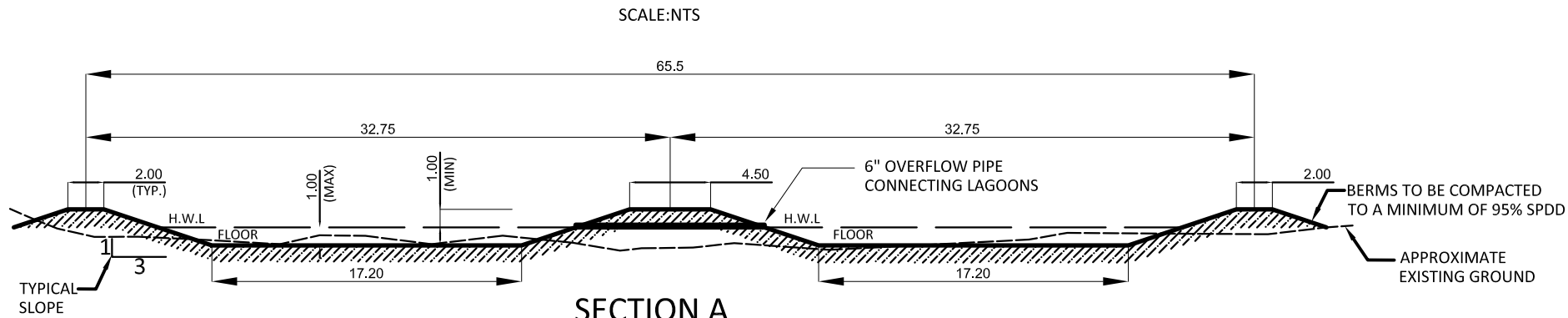
APPROVED BY

PROJECT MANAGER

| | |
|--------------|-----------------------|
| PROJECT # | SHEET 01 of 02 |
| DATE | |
| SCALE NTS | |



SEWAGE LAGOON PLAN



CAD FILE: 35070_Lagoon.dwg
LAYOUT:
DWN BY:
DATE:
CHK. BY:



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2. IN THE EVENT OF SHALLOW BEDROCK WHERE FLOOR OF THE LAGOON IS JUST BELOW ORIGINAL GROUND USE 3m WIDE TOP OF BERM.
3. COMPACTED BERMS TO 95% OF STANDARD PROCTOR DRY DENSITY (SPDD), AT OPTIMUM MOISTURE CONTENT.
4. DISCHARGE WASTEWATER FROM CORNER OPPOSITE TO INLET.
5. MAXIMUM FLUID DEPTH NOT TO EXCEED 1m.
6. LAGOON TO BE LOCATED A MINIMUM OF 100m FROM CAMP AND DOWNWIND, BASED ON PREVAILING WINDS.

ASSUMPTIONS:

7. LAGOON SIZED FOR HALF OF THE TIME THAT THE CAMP IS OCCUPIED.
8. AVERAGE CAMP OCCUPANCY OF 40 PEOPLE.
9. LOADING=0.175m³/PERSON/DAY.
10. FREEBOARD≥ 1.0m as per Section 01560 p.4 PWGSC Construction Specification

SAMPLE CALCULATIONS:

LOADING 0.175m³/PERSON/DAY
CAMP SIZE x 40PEOPLE
HALF CONSTRUCTION SEASON x 50 DAYS

REQUIRED CAPACITY
OF EACH LAGOON = 350m³
(NOT INCLUDING FREEBOARD)

LENGTH(AT 0.5m ABOVE BASE) x
WIDTH(AT 0.5m ABOVE BASE) x 1m≥ REQUIRED CAPACITY

| REV. | DESCRIPTION | DATE |
|------|-------------|------|
|------|-------------|------|

E.GRUBEN'S TRANSPORT



PIN-D REMEDIATION PROJECT

SEWAGE LAGOON PLAN AND SECTIONS

| | |
|-----------------|----------|
| DESIGNED BY | |
| DRAWN BY | |
| APPROVED BY | |
| PROJECT MANAGER | |
| PROJECT # | SHEET |
| DATE | |
| SCALE | 02 of 02 |