



October 8, 2015

Project No: 141-15176-00

Tracey Braun, M.Sc.

Director, Environmental Approvals
MANITOBA CONSERVATION AND WATER STEWARDSHIP
160-123 Main Street
Winnipeg, MB R3C 1A5

Dear Ms. Braun:

**RE: L.G.D. OF PINAWA
WASTEWATER STABILIZATION POND EXPANSION
NOTICE OF ALTERATION – LICENCE No: 230 VC R**

On behalf of our client, we would like to apply for an alteration to Environment Act Licence No. 230 VC R, revised on September 25, 2014 for the L.G.D. of Pinawa wastewater stabilization pond, "lagoon". The proposed changes do not affect any of the existing clauses of the licence.

During the excavation of the floor for New Secondary Cell no. 3 and 4, three notable pockets of sandy clay till were found. As we investigated further, we discovered that these pockets of till affect the 1 m insitu clay liner in three fairly large areas, approximately 17,000 sq.m of the floor within Cell no. 4; 7,300 sq.m of the floor in the north end of Cell no. 3; and 1,000 sq.m of the floor in the south end of Cell no. 3. This is further detailed in the attached drawings.

For the area where the till affects the upper 0.5 m of the 1 m insitu clay liner, we are proposing to excavate down to an elevation of 274.0 m (0.5 m below the design floor elevation of 274.5 m), remove and stockpile this unsuitable till material, and build that area back up 1.0 m with suitable clay material, to an elevation of 275.0 m.

For the area where the till affects the lower 0.5 m of the 1 m insitu clay liner, we are proposing to build up the remaining area to an elevation of 275.0 m with suitable clay material, thus still achieving a 1 m clay liner.

We have utilized a portion of the floor within Cell no. 3 as a shallow borrow area for suitable clay liner material to complete the changes to the clay liner in Cell no. 3. This area is approximately 5,000 sq.m and is situated in the centre of Cell no. 3 where our testholes indicate that the till is approximately 2.5 m below the design floor elevation of 274.5 m. The borrow area has not surpassed 0.6 m below the design floor elevation, thus still achieving a 1 m insitu clay liner. Now that the till areas in Cell no. 3 are capped with suitable clay material, we are proposing that the borrow area will be backfilled with the unsuitable till material excavated from Cell no. 3 to return the borrow area to the design floor elevation of 274.5 m.

There have also been two instances where bedrock was uncovered within the 1 m insitu clay liner in Cell no. 3. To ensure a 1 m clay liner, these bedrock areas have been capped with at least 1 m of clay above the top surveyed elevation of the bedrock. To protect this clay liner from potential erosion, it will be covered with riprap at a thickness of 0.3 m, underlain by an approved geotextile. The locations of this bedrock has been denoted on the attached drawings as well as a detail regarding the riprap covering this clay liner.

If you have any questions regarding this alteration notification, please contact the undersigned. We look forward to your response on this matter and respectfully request a reply by October 15, 2015.

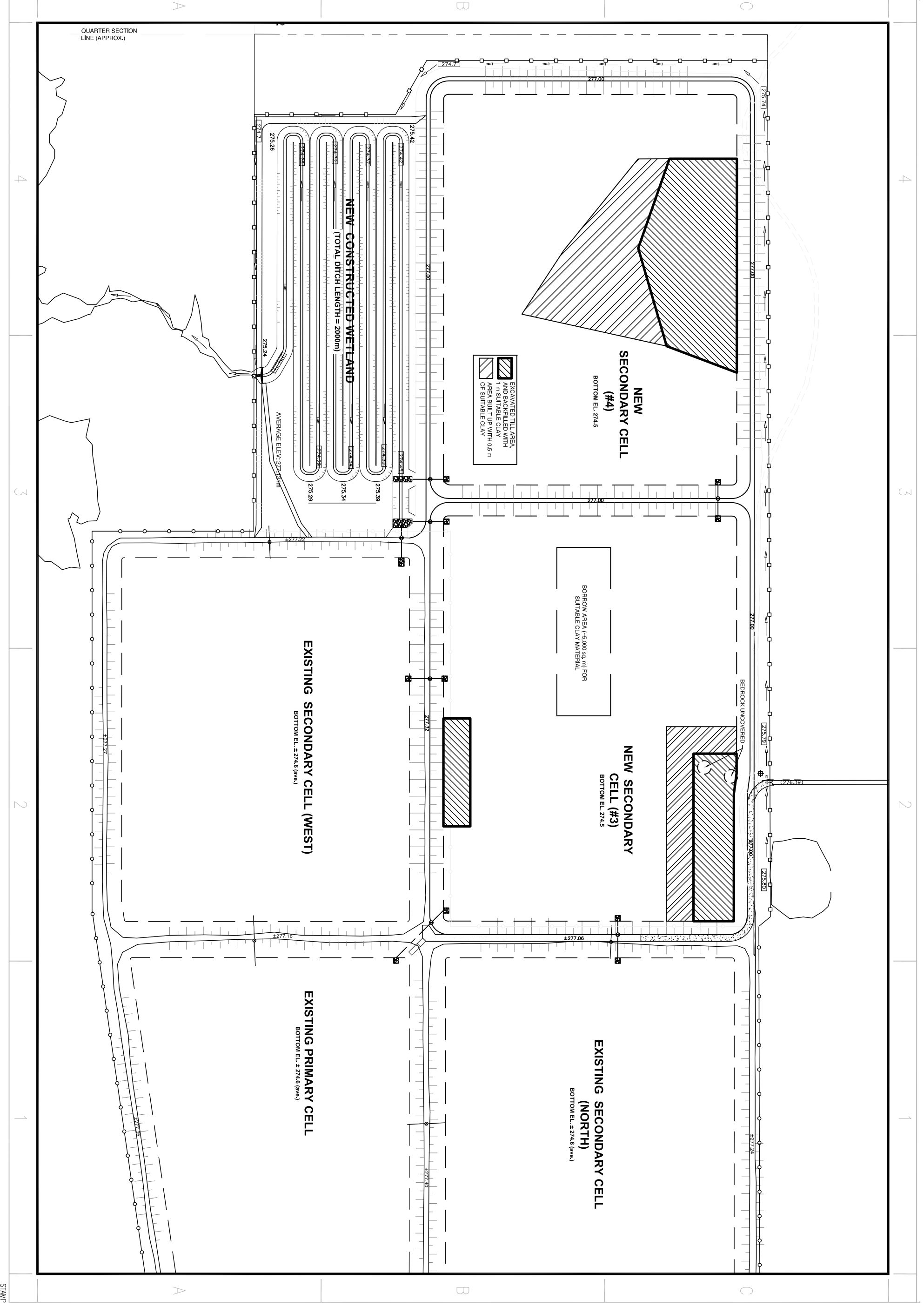
Regards,

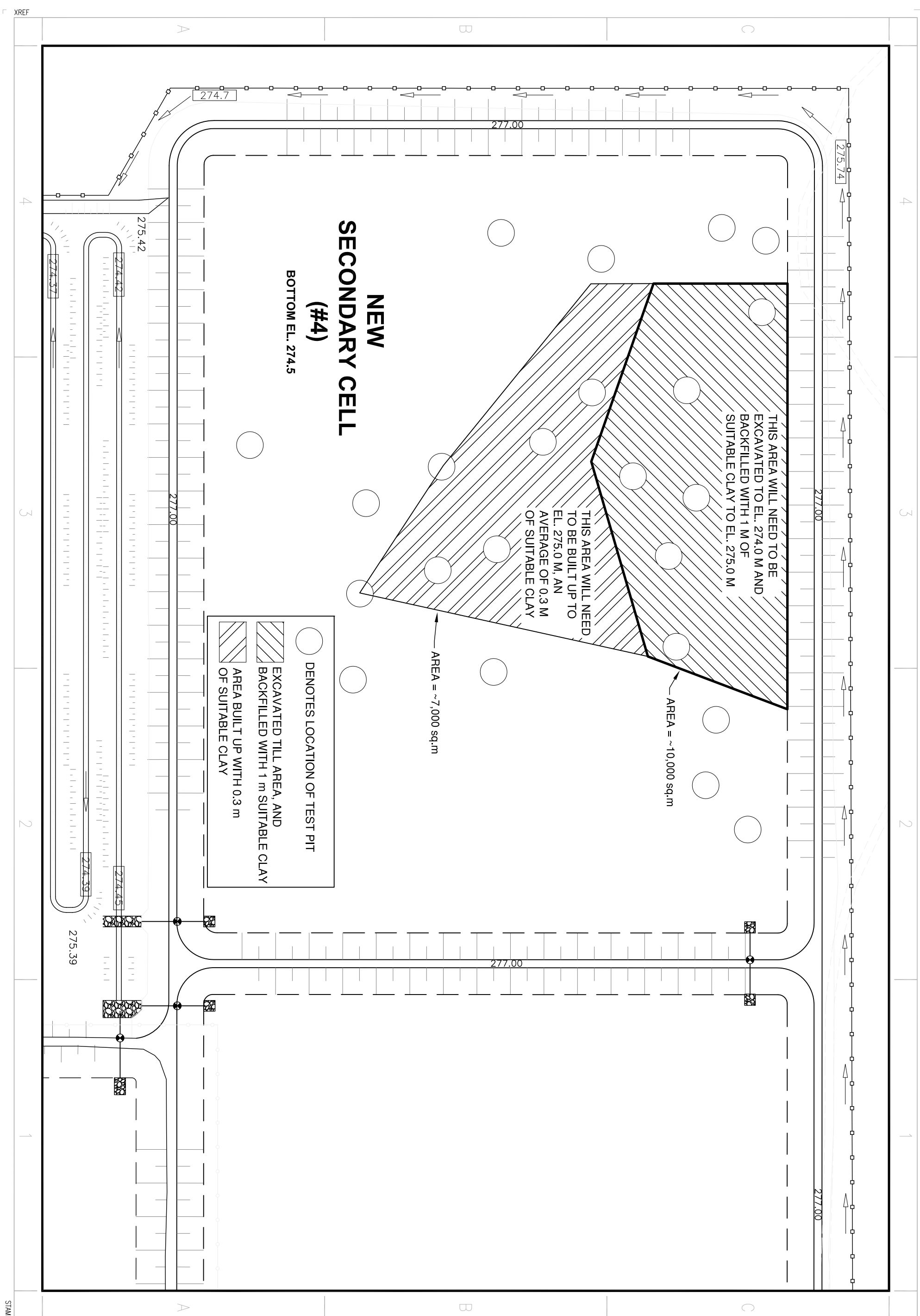
WSP Canada Inc.



Dana Bredin, P.Eng
Geotechnical / Civil Engineer

cc: Ms. Gisele Smith, Acting CAO – L.G.D. of Pinawa
Mr. Andrew Toews, Public Works Manager – L.G.D. of Pinawa
Mr. Robert Boswick, P.Eng. – Manitoba Conservation and Water
Stewardship





**NEW
SECONDARY CELL
(#4)**




BOTTOM EL. 274.5

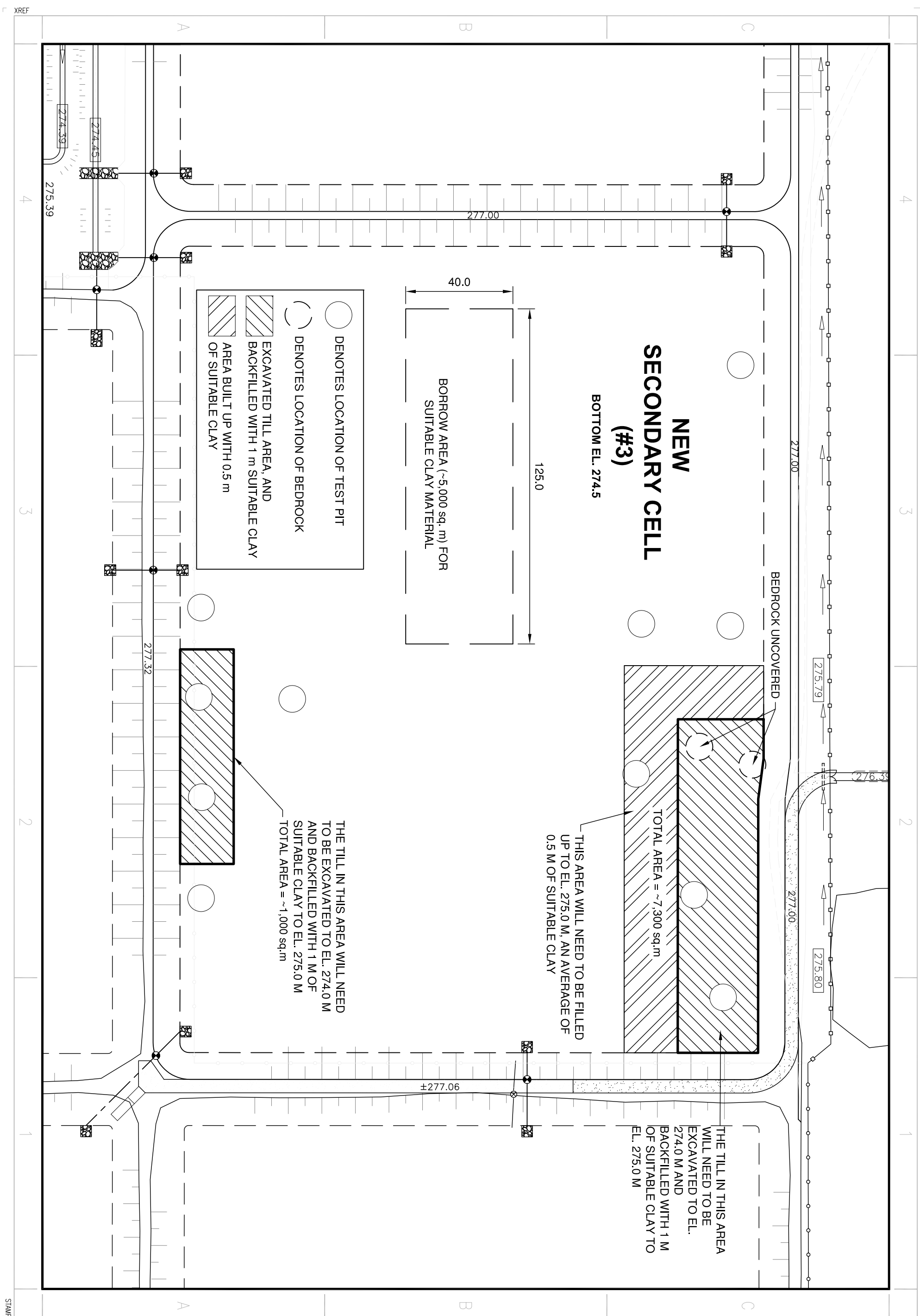
THIS AREA WILL NEED TO BE
EXCAVATED TO EL. 274.0 M AND
BACKFILLED WITH 1 M OF
SUITABLE CLAY TO EL. 275.0 M

THIS AREA WILL NEED
TO BE BUILT UP TO
EL. 275.0 M, AN
AVERAGE OF 0.3 M
OF SUITABLE CLAY

AREA = ~7,000 sq.m

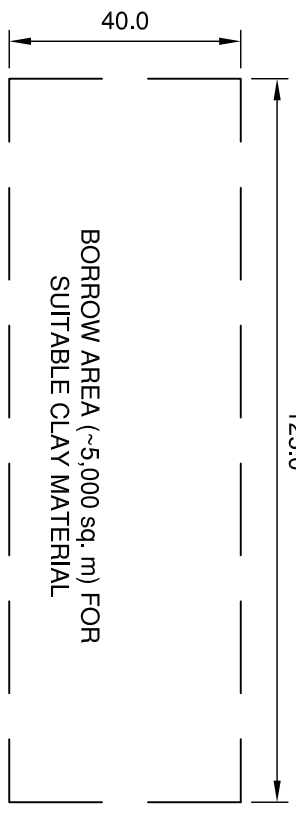
AREA = ~10,000 sq.m

-  DENOTES LOCATION OF TEST PIT
-  EXCAVATED TILL AREA, AND
BACKFILLED WITH 1 m SUITABLE CLAY
-  AREA BUILT UP WITH 0.3 m
OF SUITABLE CLAY

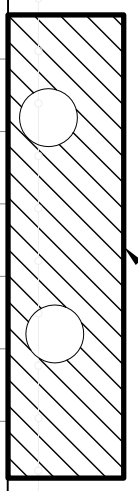
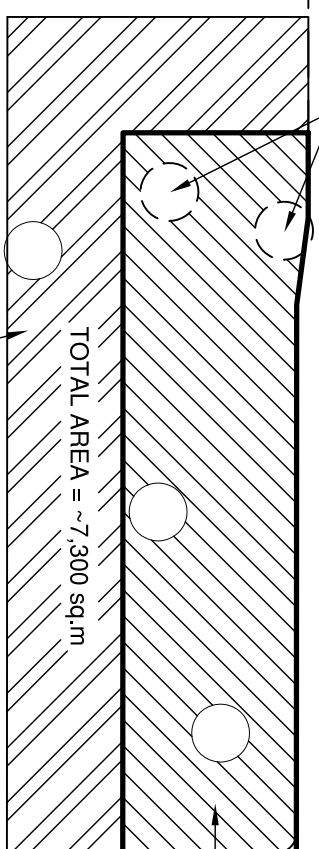


**NEW
SECONDARY CELL
(#3)**

BOTTOM EL. 274.5



- DENOTES LOCATION OF TEST PIT
- DENOTES LOCATION OF BEDROCK
- ▨ EXCAVATED TILL AREA, AND BACKFILLED WITH 1 m SUITABLE CLAY
- ▨ AREA BUILT UP WITH 0.5 m OF SUITABLE CLAY



THE TILL IN THIS AREA WILL NEED TO BE EXCAVATED TO EL. 274.0 M AND BACKFILLED WITH 1 M OF SUITABLE CLAY TO EL. 275.0 M

BEDROCK UNCOVERED

277.00

275.79

276.58

275.80

277.00

±277.06

275.39

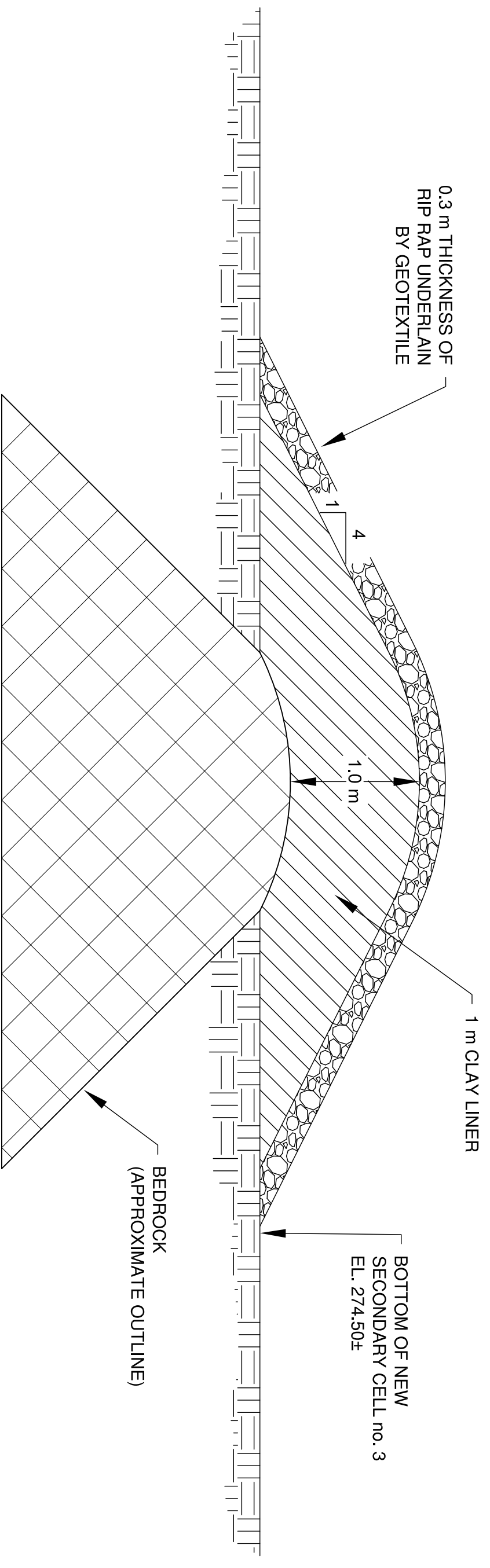
274.45

274.39

277.32

XREF

STAMP



PROJECT:

L.G.D. OF PINAWA
WWSW EXPANSION

SUPPLEMENTAL:

ADDENDUM:
DIRECTIVE:
CHANGE ORDER:

ADD_#
DIR_#
CHG_#

TITLE:

DETAIL OF CLAY LINER ABOVE BEDROCK



1600 BUFFALO PLACE
WINNIPEG, MANITOBA
CANADA R3T 6B8
PHONE: 204-477-6650 FAX : 204-474-2864
WWW.WSPGROUP.COM

DRAWN BY:
D. BREDIN
CHECKED BY:
R. WEBSTER

SCALE:
N.T.S.
PROJECT NO:
141-15176-00

DATE:
2015/10/08
SUPPLEMENTAL NO:
1.0

XREF

STAMP