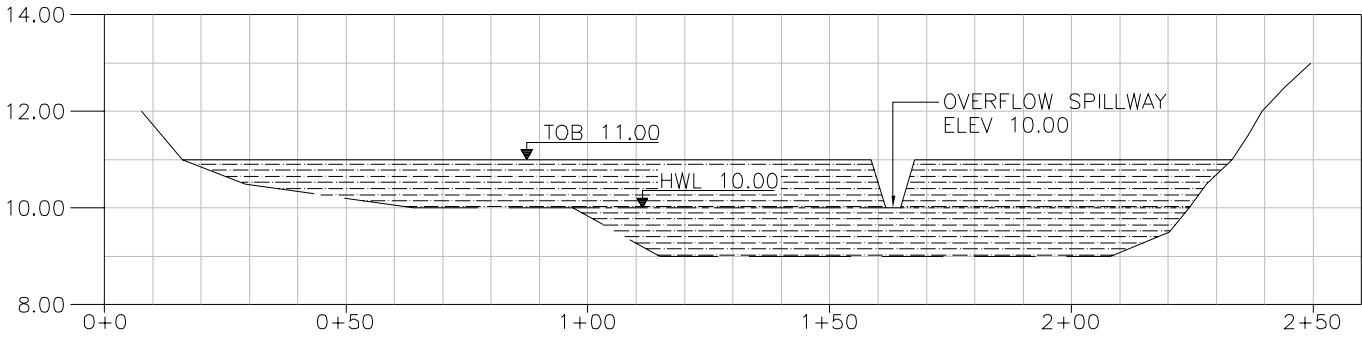




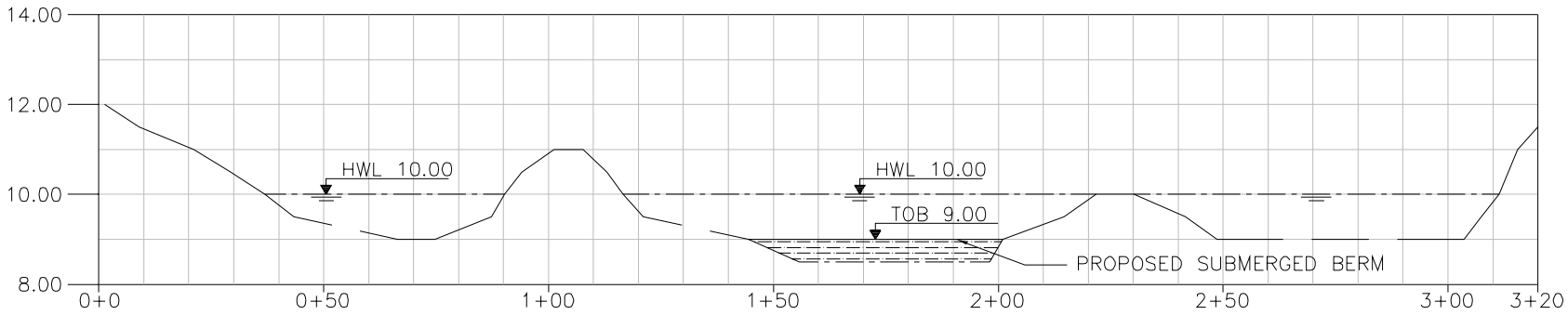
Appendix D

Landfill and Lagoon
Redevelopment
Record Drawings

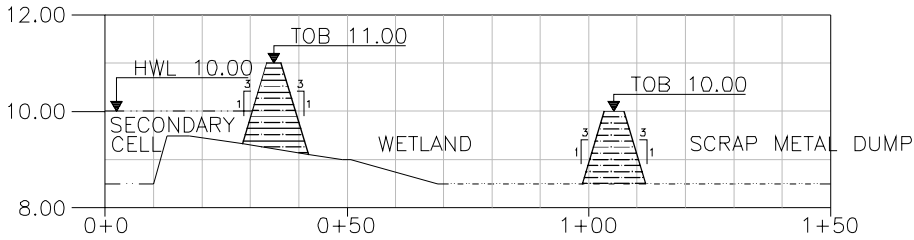
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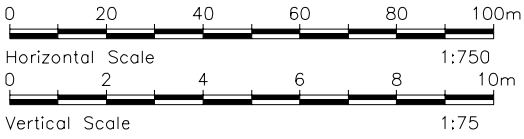
SECTION A (A C04)



SECTION B (B C04)



SECTION C (C C04)



AECOM

LEGEND

—	EXISTING GROUND
—	CONSTRUCTED GROUND LEVEL
- - -	WATER LEVEL

Stamp

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N.W.T.
ORIGINALLY SIGNED BY
February 9, 2010
Ken Johnston

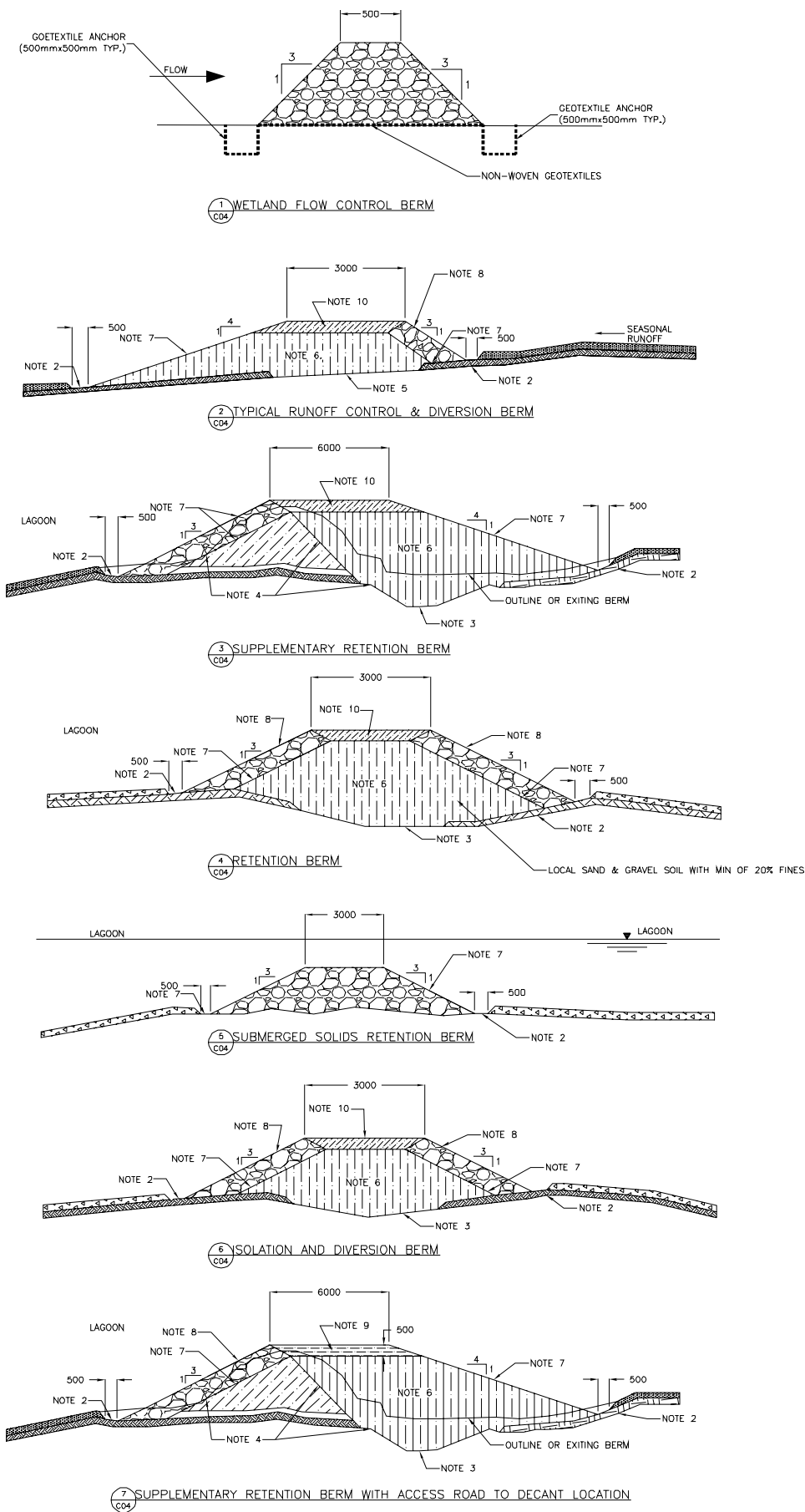
PERMIT TO PRACTICE
AECOM Canada Ltd.
Original Signature Bob Boon
Original Date February 9, 2010
PERMIT NUMBER: P639
NWT/NU Association of Professional Engineers and Geoscientists

E	2012 11/20	RECORD
D	2010 02/09	ISSUED FOR TENDER
C	2010 01/14	REISSUED FOR PRETENDER REVIEW
B	2009 02/16	ISSUED FOR TENDER
A	2008 01/16	ISSUED FOR PRETENDER REVIEW
No.	Date	Description



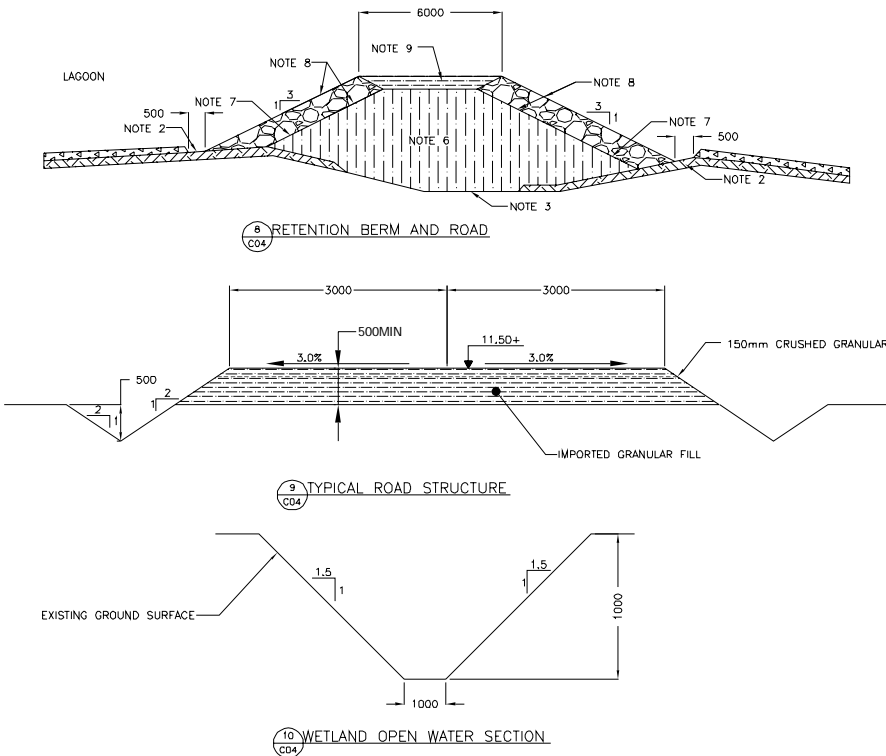
Design	M.Y./K.R.J.
Drawn	M.D.S.
Project Title	Cambridge Bay Sewage and Solid Waste Site improvements
Drawing Title	SEWAGE LAGOON CROSS SECTIONS
Scale: AS STATED	Date 10/02/09
Project No. 91011	Revision E
Drawing No. C-05	

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NOTES:

1. ESTABLISH CENTER AND PERIMETER DIMENSIONS OF PROPOSED BERM.
2. REMOVE ALL SURFACE ORGANICS TO A DISTANCE OF 0.5m BEYOND TOE OF BERM.
3. ESTABLISH CREST ALIGNMENT OF PROPOSED LOW PERMEABILITY BERM AND EXCAVATE A FURTHER 150mm DEPTH OR MORE TO A WIDTH EXTENDING 0.3m BEYOND THE EDGES OF THE CREST. REMOVE ALL COBBLES, BOULDERS AND COARSE GRAVEL AND EXPOSE NATIVE FINE GRAINED SOIL. PROOF ROLL AND COMPACT PREPARED SURFACE. ENSURE ALL REMNANTS OF FORMER DRAINAGE CHANNELS ARE REMOVED.
4. TRIM EXISTING BERMS TO A 1:1 SLOPE WHERE ADDITIONAL LOW PERMEABILITY LOCAL FILL IS TO BE PLACED OR TO 2H:1V WHERE RIP RAP MATERIAL IS TO BE PLACED. REUSE SUITABLE MATERIAL, DISPOSE OF OVERLY WET OR CONTAMINATED MATERIAL FROM BERMS. SUB EXCAVATE AT EXTERIOR EDGE OF EXISTING BERM IN AREA OF TP-2 TO REMOVE ALL BURNT DEBRIS FROM FORMER LANDFILL OPERATION FROM UNDER PROPOSED BERM CONSTRUCTION AREA.
5. REMOVE WATER FROM EXCAVATIONS THROUGH GRAVITY DRAINAGE OR PUMPING. WHERE INCOMING WATER PERSISTS, PLACE A MIXTURE OF 25% 'CLAY' (FROM BORROW AREA 1 OR 2 REFER TO GEOTECHNICAL ENGINEERING REPORT FOR THE LOCATION OF BORROW AREA 1 AND 2) WITH 75% LOW PERMEABILITY LOCAL FILL AND TAMP INTO BOTTOM OF CLEANED EXCAVATION AFTER REMOVAL OF EXCESS WATER. REPEAT WITH ADDITIONAL LIFTS OF SIMILAR MATERIAL UNTIL 0.3m ABOVE THE LEVEL OF INCOMING WATER/LOCAL WATER TABLE. ALLOW THIS FILL TO STABILIZE UNTIL IT CAN SUPPORT THE PASSAGE OF A HALF LOADED DUMP TRUCK. IF NECESSARY, CUT A 3m WIDE TRENCH ALONG THE MIDDLE OF OVERLY WET CLAY FILL AND PLACE AND COMPACT ADDITIONAL CLAY FILL IN LIFTS TO ACHIEVE THIS OBJECTIVE. ADDITIONAL LIFTS OF LOCAL LOW PERMEABILITY FILL MATERIAL CAN THEN BE PLACED AND COMPACTED AS SPECIFIED.
6. USE LOCAL SAND AND GRAVEL SOIL (150mm MINUS MATERIALS SEE SPECIFICATION) WITH A MINIMUM OF 10% FINES TO CONSTRUCT CORE OF BERM IN MAXIMUM 0.3m THICK LIFTS. SCREEN OUT OVERSIZE MATERIAL AND USE FOR RIP RAP. COMPACT EACH LIFT TO 95% OF MAXIMUM STANDARD PRACTOR DRY DENSITY AT 0% TO 2% ABOVE ITS OPTIMUM MOISTURE CONTENT.
7. ENDS OF BERM SHALL MEET WITH LOCAL TERRAIN. SLOPE SIDES OF FILL TO A MAXIMUM SLOPE OF 4H:1V WHERE SLOPE FACE IS NOT RIP RAPPED, AND TO A MAXIMUM SLOPE OF 3H:1V WHERE FACE IS RIP RAP.
8. ADD A 0.7m HORIZONTAL WIDTH OF RIP RAP MATERIAL TO ALL FACES EXPOSED TO STANDING OR RUNNING WATER AS INDICATED. RIP RAP SHALL CONSIST OF HARD DENSE ROCK WITH SIZES RANGING FROM 150mm TO 300mm WITH FIFTY (50%) PERCENT OF THE ROCK MATERIAL BEING LARGER THEN 200mm.
9. COVER CREST OF ABOVE WATER RETENTION BERMS WITH MINIMUM OF 0.3m THICK LIFT OF CRUSHED STONE WITH MINIMAL WIDTH OF 3m (CREST WIDTH). CROSS FALL 3.0%.
10. COVER CREST OF ABOVE WATER RETENTION BERMS WITH MINIMUM OF 0.3m THICK LIFT OF CRUSHED STONE OR RIP RAP WITH MINIMAL WIDTH OF 3m (CREST WIDTH).



AECOM

LEGEND

	ORGANIC GROUND COVER
	GRANULAR SURFACE ROCK
	SILTY SAND & GRAVEL
	RIP RAP ROCKFILL
	RIP RAP OR CRUSHED STONE
	CRUSHED STONE
	EXISTING GROUND

Stamp



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Original Date February 9, 2010
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NWT/NU Association of Professional
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A	2009 01/16	ISSUED FOR PRETENDER REVIEW
No.	Date	Description

REVISIONS

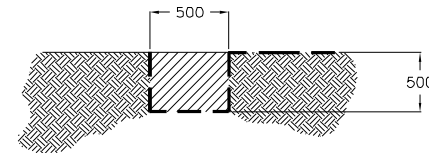
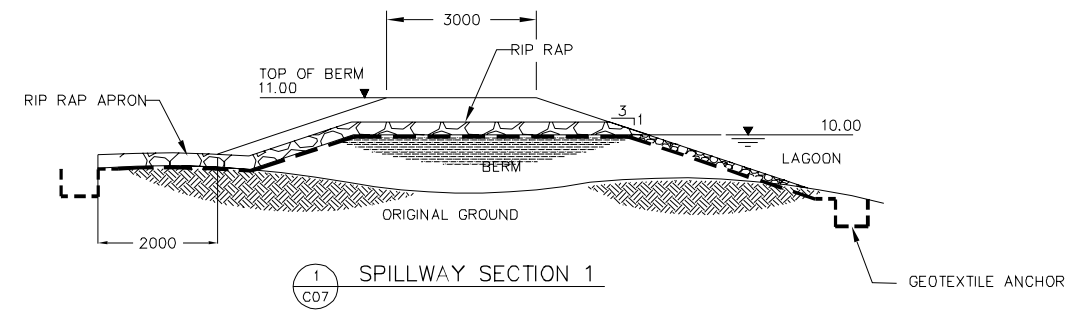


Design M.Y. \ K.R.J.
Drawn M.D.S.
Project Title
Cambridge Bay
Sewage and Solid Waste
Site improvements

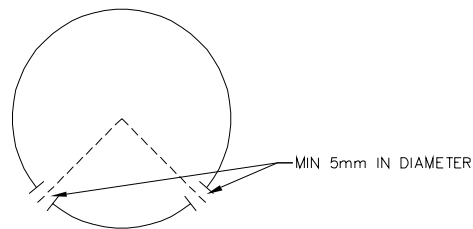
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SCHEMATIC
DETAILS OF
BERM
STRUCTURES

Scale:
NOT TO SCALE
Project No. 91011
Drawing No. C-06
Date 10/02/09
Revision E

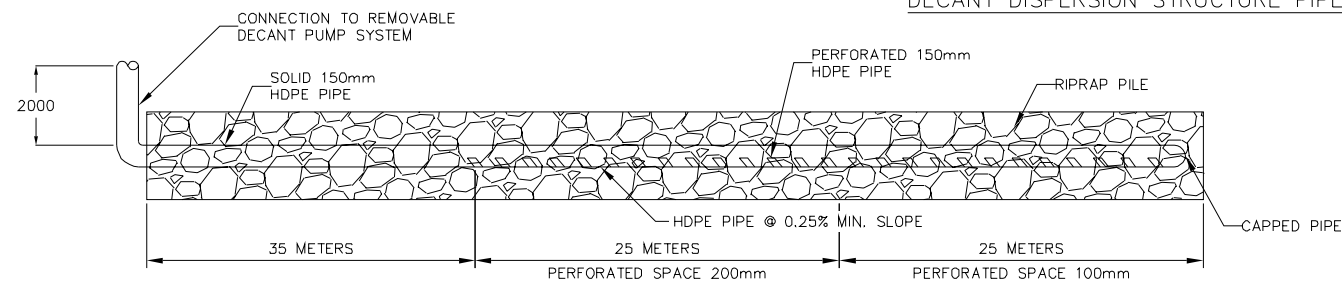
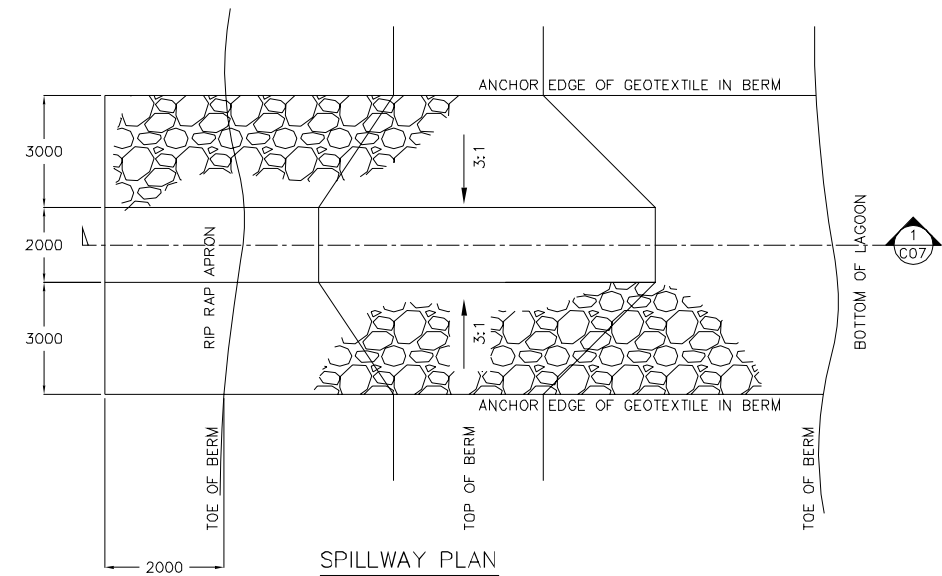
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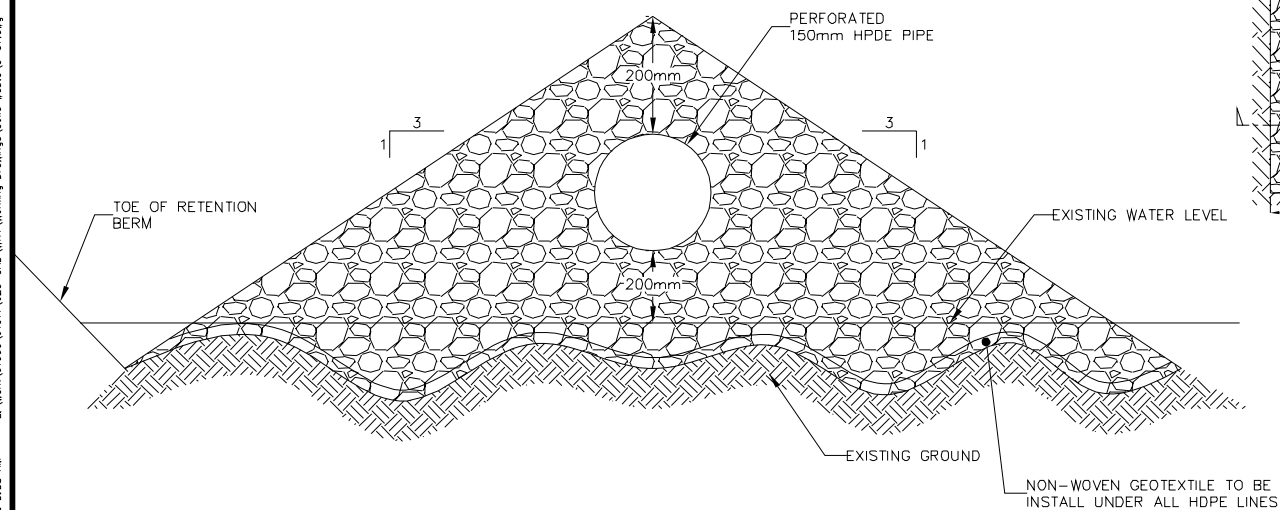
GEOTEXTILE ANCHOR DETAIL



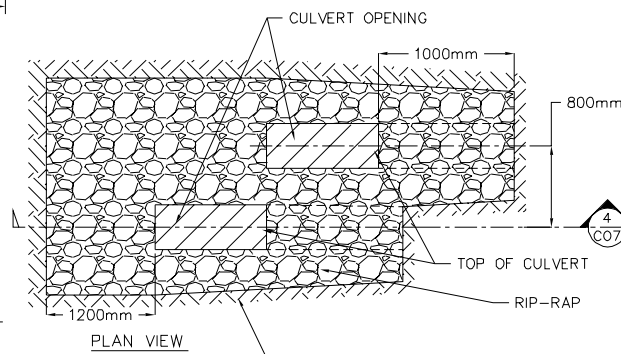
DECANT DISPERSION STRUCTURE PIPE PERFORATIONS



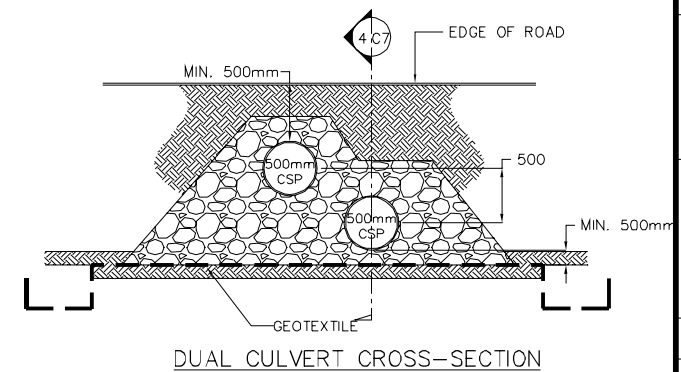
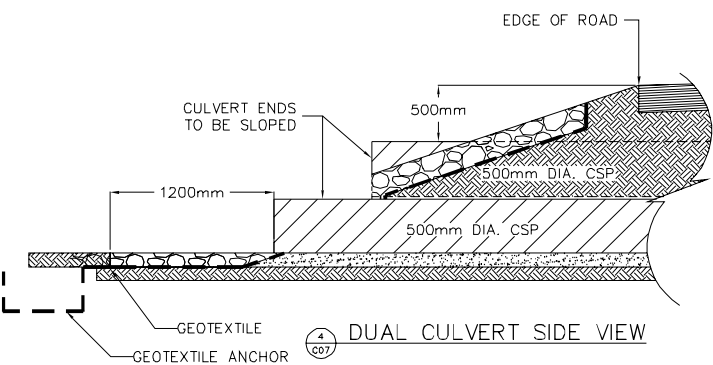
DECANT DISPERSION STRUCTURE SIDE VIEW



5 C07 DECANT DISPERSION STRUCTURE



DUAL CULVERT WITH EROSION PROTECTION



DUAL CULVERT CROSS-SECTION

- NOTES:
1. RIP RAP IS TO BE HAND PLACED.
 2. INLET AND OUTLET AREAS OF CULVERT TO SUFFICIENTLY BE EXCAVATED FOR GEOTEXTILE AND RIP RAP REPLACEMENT

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No.	Date	Description

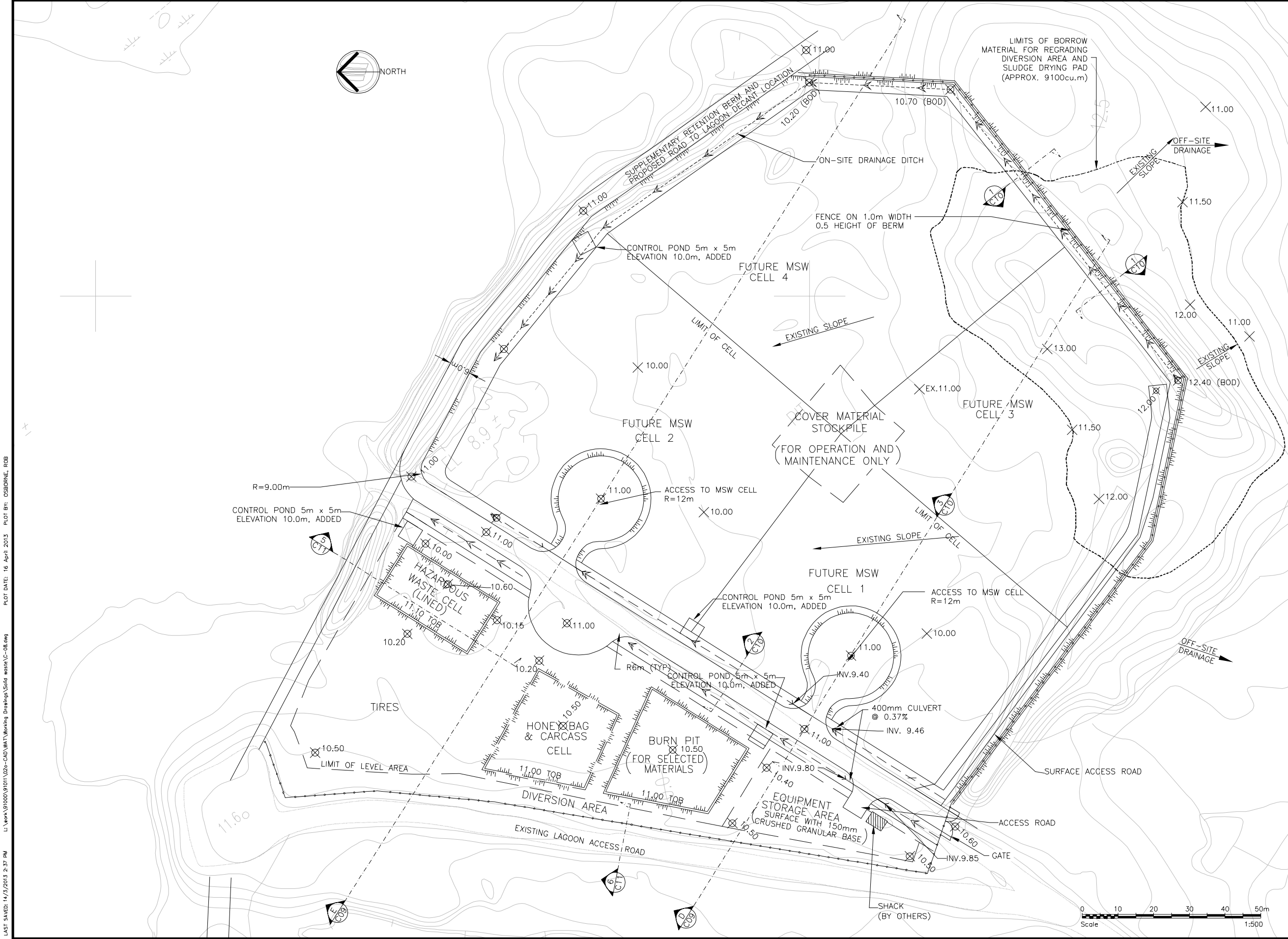
REVISIONS



Design: M.Y. / K.R.J.
Drawn: M.D.S.
Project Title: Cambridge Bay
Sewage and Solid Waste
Site improvements

Drawing Title: SEWAGE
LAGOON
IMPROVEMENT
DETAILS

Scale: NOT TO SCALE
Project No. 91011
Drawing No. C-07
Date: 10/02/09
Revision: E



AECOM

LEGEND	
	PROPOSED ELEVATION
	CHAINED FENCE
	GATE
	PROPOSED DITCH
	SLOPE GRADE
	ELEVATION OF BOTTOM OF DITCH
	EXISTING ELEVATION
	BORROW MATERIAL LIMIT AREA
	ELEVATION OF TOP OF BERM
	PERIMETER BERM

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No.	Date	Description
REVISIONS		



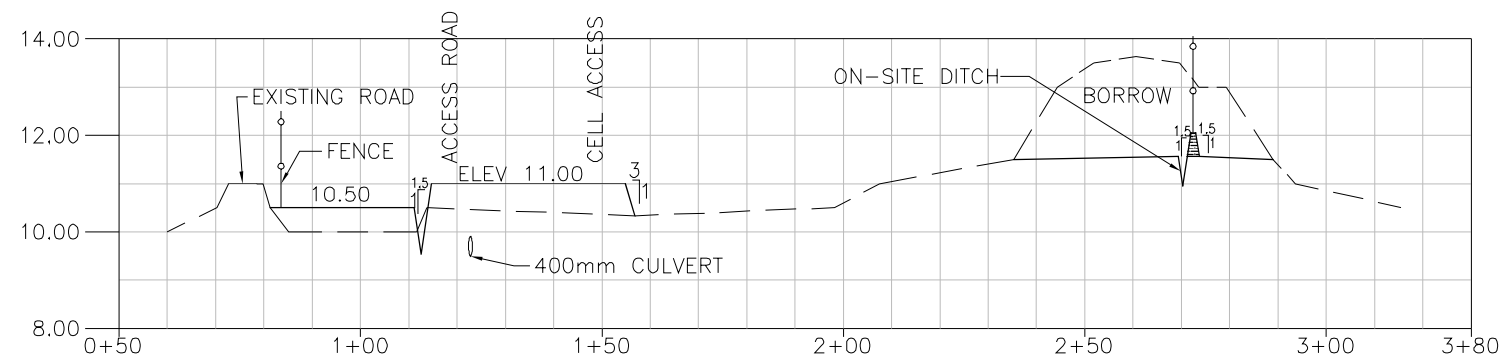
Design M.Y.
Drawn M.D.S.
Project Title
Cambridge Bay
Sewage and Solid Waste
Site improvements

Drawing Title	
LANDFILL SITE IMPROVEMENT PLAN	
Scale: 1:500	Date 10/02/09
Project No. 91011	Revision E
Drawing No. C-08	

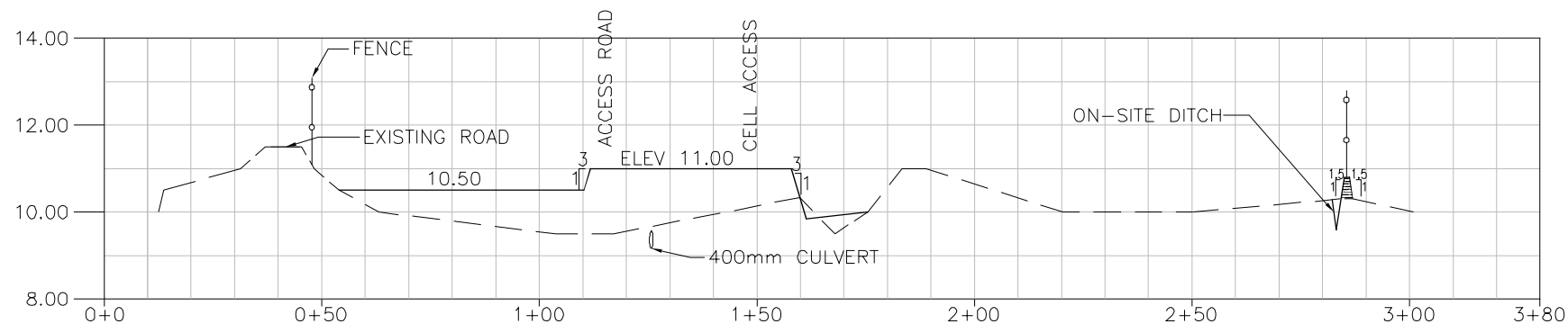
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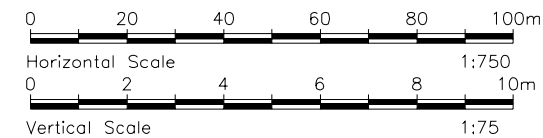
LEGEND	
	EXISTING GROUND
	CONSTRUCTED GROUND LEVEL
	WATER LEVEL



SECTION D-D (D C08)



SECTION E-E (E C08)



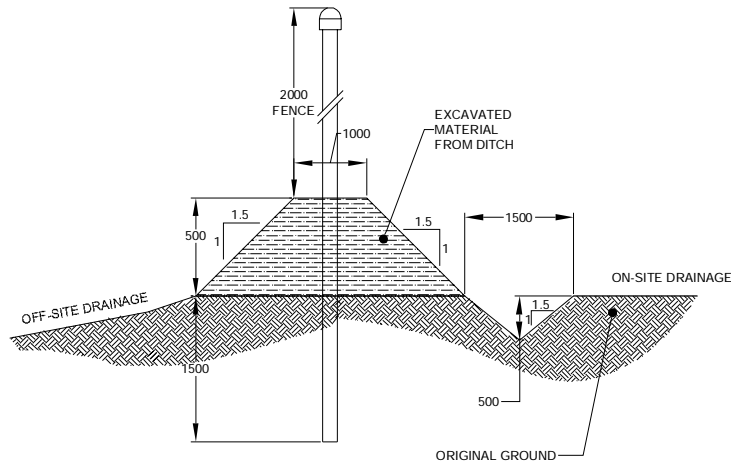
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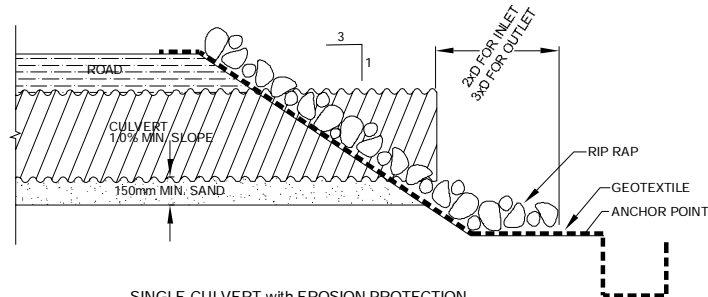
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A	2009 01/16	ISSUED FOR PRETENDER REVIEW



Design	M.Y. / K.R.J.
Drawn	M.D.S.
Project Title	Cambridge Bay Sewage and Solid Waste Site improvements
Drawing Title	LANDFILL SITE CROSS SECTIONS
Scale:	AS NOTED
Project No.	91011
Date	10/02/09
Drawing No.	C-09
Revision	D

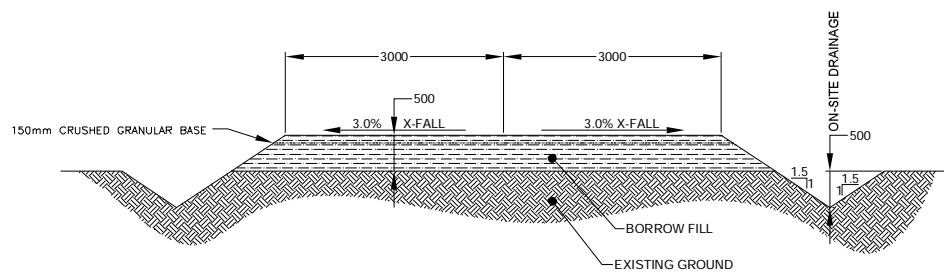


1
C08 0.5m BERM and FENCE
NOT TO SCALE
DIMENSIONS IN mm

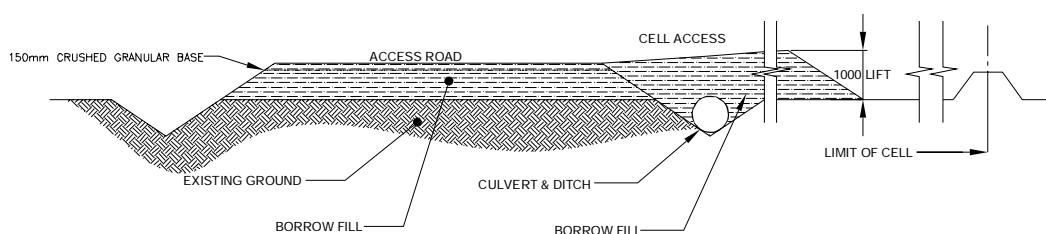


SINGLE CULVERT with EROSION PROTECTION
NOT TO SCALE

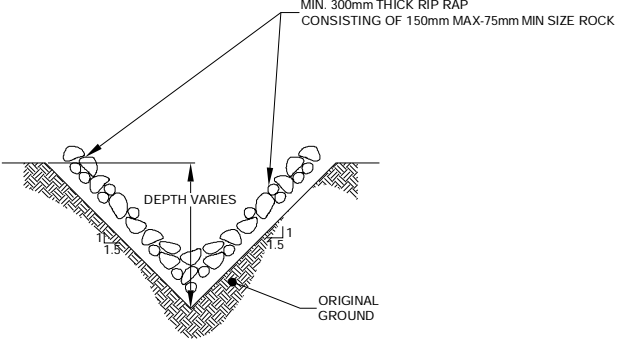
- NOTES:
1. GEOTEXTILE TO EXTEND 1.5xD ON EITHER SIDE OF CULVERT
 2. 300mm THICK RIP RAP TO BE PLACED. MAX 150mm TO MIN 50mm ROCK SIZE
 3. RIP RAP SHALL BE HAND PLACED COBBLE



2
C08 ACCESS ROAD and DITCH STRUCTURE
NOT TO SCALE
DIMENSIONS IN mm



3
C08 TYPICAL SECTION
NOT TO SCALE
DIMENSIONS IN mm



TYPICAL DITCH with EROSION PROTECTION
DIMENSIONS IN mm

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REVISIONS

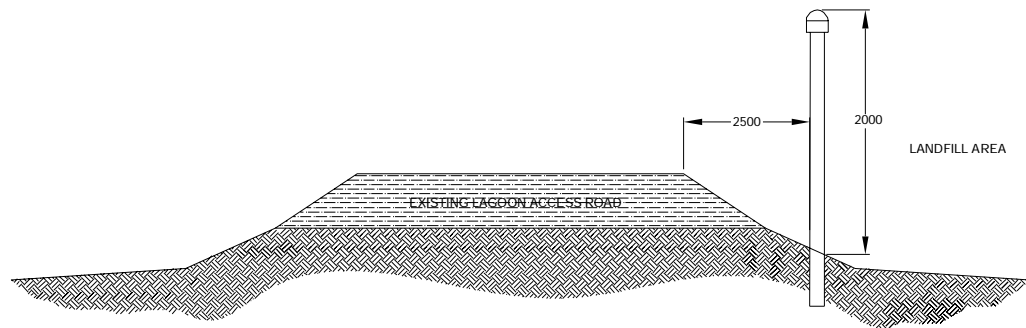


Design K.R.J. / M.Y.
Drawn M.D.S.
Project Title
Cambridge Bay
Sewage and Solid Waste
Site improvements

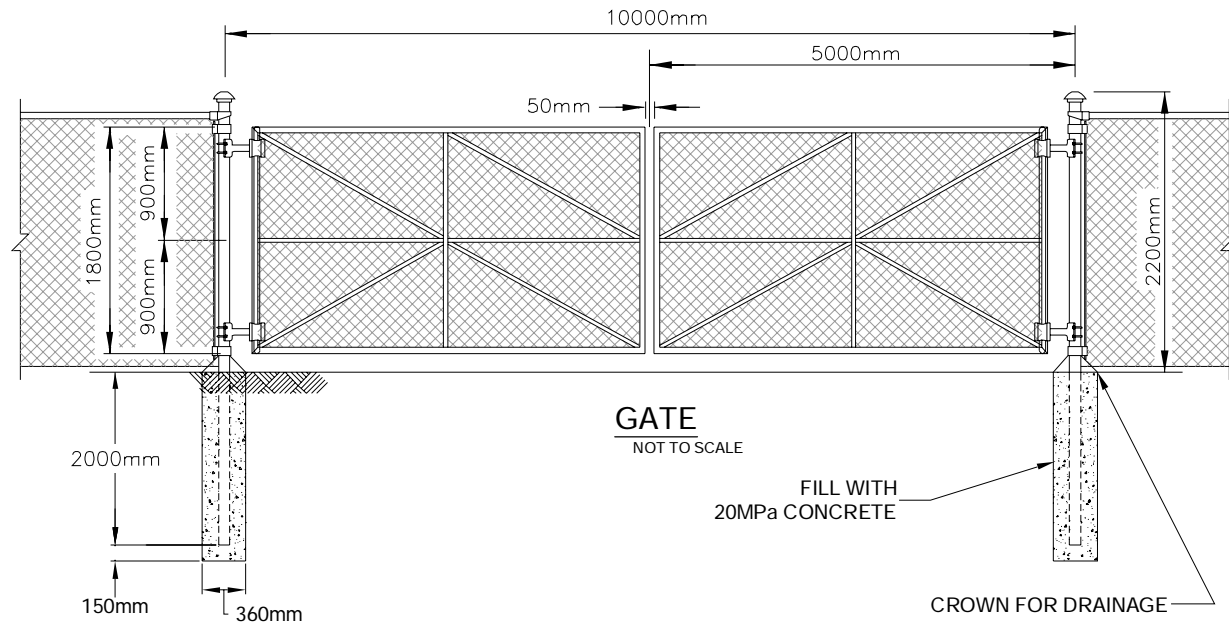
Drawing Title
LANDFILL SITE
IMPROVEMENTS
DETAILS

Scale:
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Project No. 91011 Date 10/02/09
Drawing No. C-10 Revision E

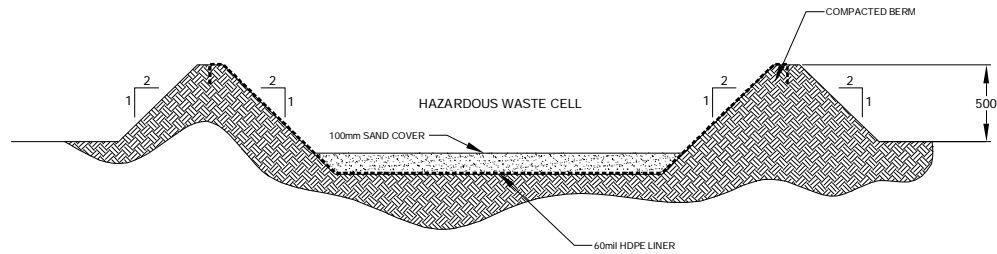
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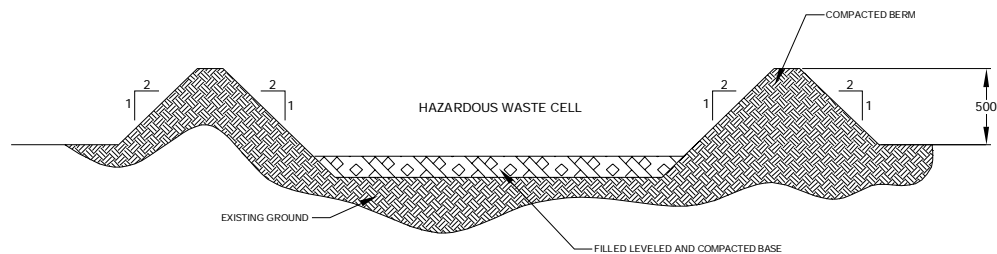
6 FENCE ON THE SHOULDER OF EXISTING ROAD
NOT TO SCALE
DIMENSIONS IN mm



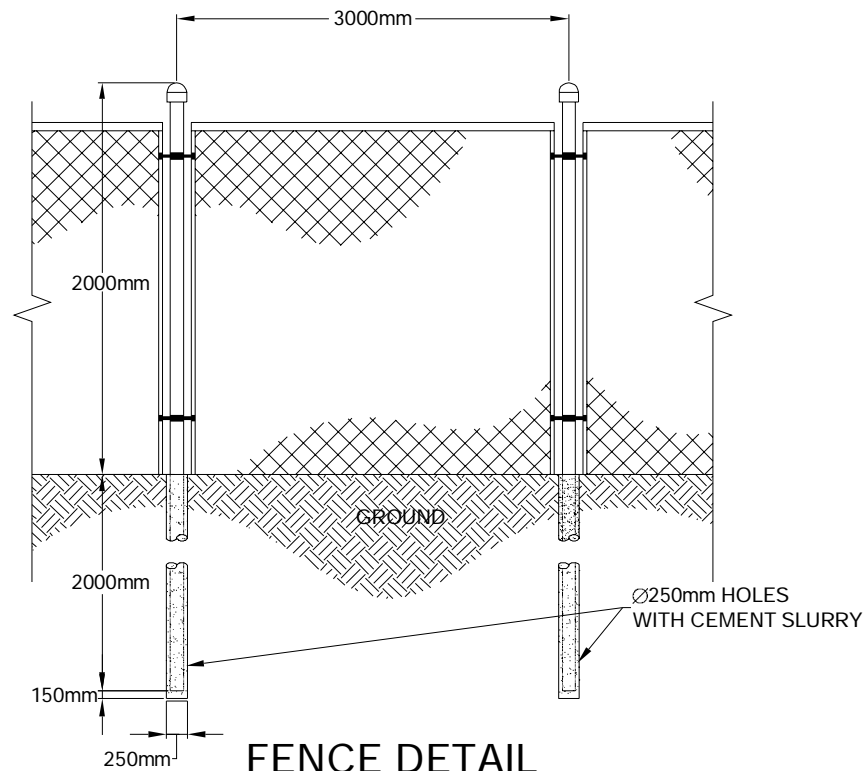
GATE
NOT TO SCALE



5 HAZARDOUS WASTE CELL LANDFARM AREA
DIMENSIONS IN mm



11 SLUDGE DRYING AND COMPOSTING PAD
DIMENSIONS IN mm



FENCE DETAIL
DIMENSIONS IN mm

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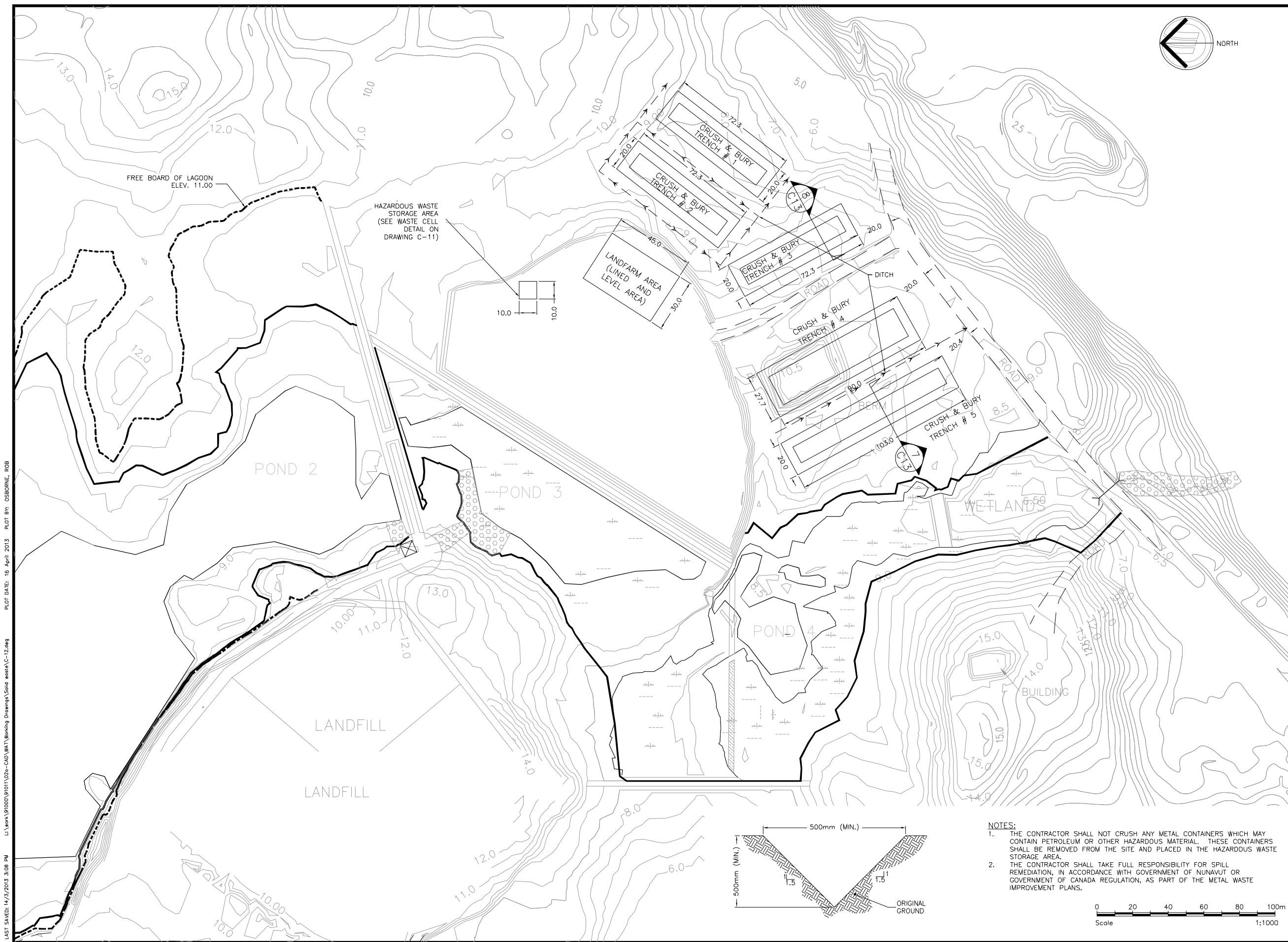
REVISIONS



Design M.Y. / K.R.J.
Drawn M.D.S.
Project Title
Cambridge Bay
Sewage and Solid Waste
Site improvements

Drawing Title
LANDFILL SITE
IMPROVEMENTS
DETAILS

Scale:
NOT TO SCALE
Project No. 91011 Date 10/02/09
Drawing No. C-11 Revision E



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No.	Date	Description

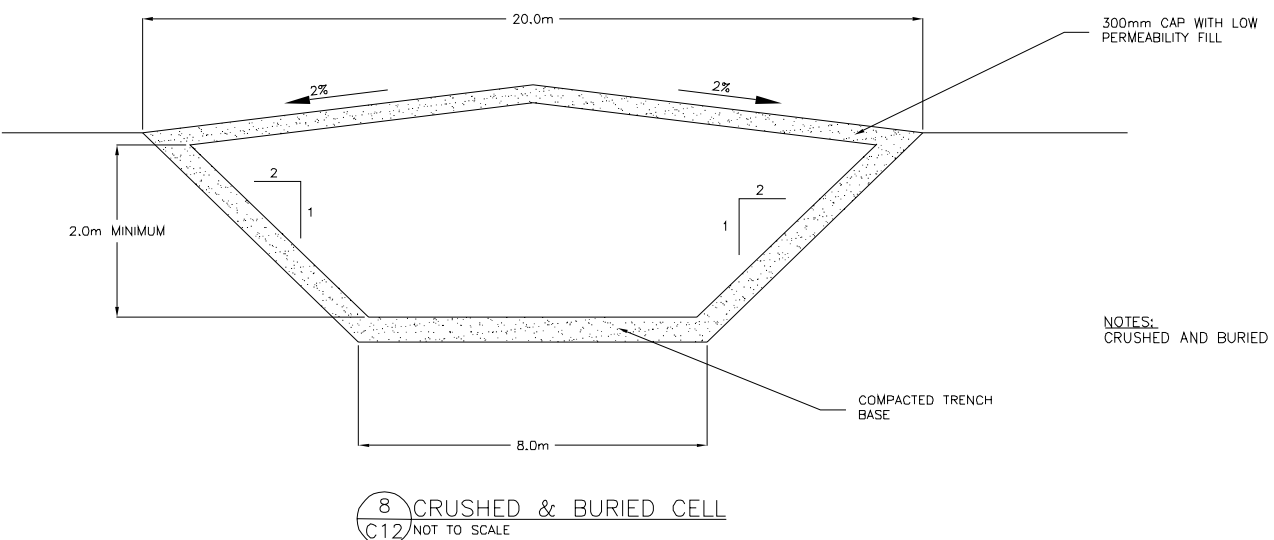
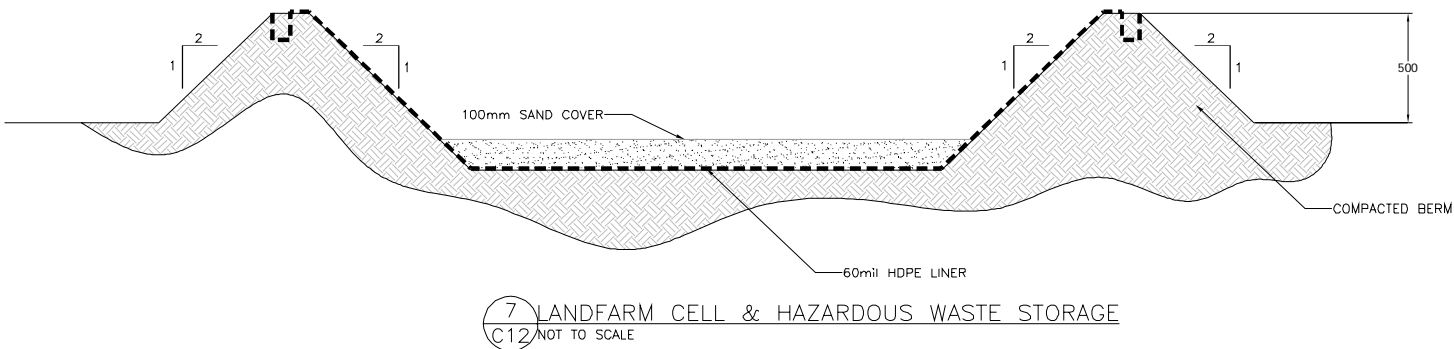
REVISIONS



Design K.R.J.
Drawn M.D.S.
Project Title
Cambridge Bay
Sewage and Solid Waste
Site improvements

Drawing Title
METAL
WASTE
IMPROVEMENT
PLAN

Scale:
1:1000
Project No.
91011
Date
10/02/09
Drawing No.
C-12
Revision
D



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REGISTERED PROFESSIONAL ENGINEER
ORIGINAL SIGNED BY
February 9, 2010
Ken Johnston
N.W.T.

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Original Date February 9, 2010
PERMIT NUMBER: P639
NWT/NU Association of Professional
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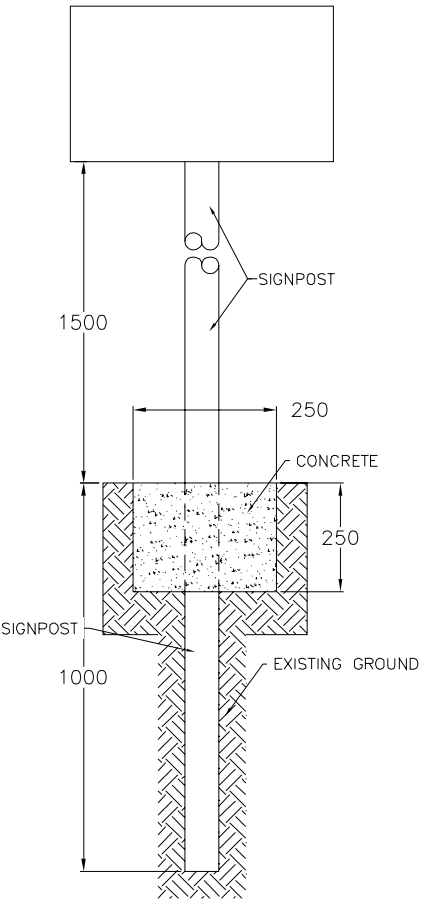
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A	2009 01/16	ISSUED FOR PRETENDER REVIEW
No.	Date	Description



Design M.Y. / K.R.J.
Drawn M.D.S.
Project Title
Cambridge Bay
Sewage and Solid Waste
Site improvements

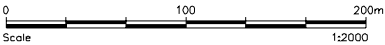
Drawing Title
METAL
WASTE
IMPROVEMENT
DETAILS
Scale:
NOT TO SCALE
Project No. 91011 Date 10/02/09
Drawing No. C-13 Revision E

1. SEWAGE TREATMENT LAGOON SIGN LOCATION.
2. SEWAGE TREATMENT WETLAND SIGN LOCATION.
3. SEWAGE TREATMENT LAGOON ENTRANCE SIGN LOCATION.
4. SEWAGE TREATMENT LAGOON DISCHARGE AREA SIGNAGE LOCATION.
5. LANDFILL ENTRANCE SIGN LOCATION.
6. HAZARDOUS WASTE DISPOSAL AREA SIGN LOCATION.
7. TIRE DISPOSAL AREA SIGN LOCATION.
8. HONEY BAG DISPOSAL AREA SIGN LOCATION
9. MUNICIPAL DISPOSAL AREA SIGN LOCATION
10. METAL WASTE DISPOSAL ENTRANCE SIGN LOCATION.
11. DIRECTIONAL SIGNAGE SIGN LOCATION.
12. STOP SIGN



SIGNPOST INSTALLATION

NOT TO SCALE
DIMENSIONS IN mm



NOTES:
ELEVATIONS ARE EXPRESSED IN METER OR DECIMALS THEREOF



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Original Date February 9, 2010
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A	2009 01/16	ISSUED FOR PRETENDER REVIEW

No.	Date	Description
REVISIONS		



Design	T.J.H.
Drawn	M.D.S.
Project Title	
Cambridge Bay Sewage and Solid Waste Site improvements	

Drawing Title

SIGN
LOCATION
PLAN

Scale: 1:2000	
Project No. 91011	Date 10/02/09
Drawing No. C-14	Revision E