ENVIRONMENTAL
CONSULTING SOLUTIONS

June 15, 2020

ECS Project No. ECS-2020-0003

Manitoba Conservation and Climate
1007 Century Street
Winnipeg, Manitoba
R3H 0W4

Attention: Ms. Shannon Kohler
Acting Director, Environmental Compliance & Enforcement Branch

Re: Construction of New Landfill Cell
Licence No. 3181
Municipal Waste Management Ltd. SW 35-8-21 W Landfill
Municipality of Souris-Glenwood, Manitoba

Dear Ms. Kohler,

Environmental Consulting Solutions (ECS) was retained by Municipal Waste Management Environmental (MWM) to design and engineer a new landfill cell at their Class I Waste Disposal Ground (Licence No. 3181) located at SW ¼ 35-8-21 WPM in the Municipality of Souris -Glenwood in accordance with MWM's proposal filed under *The Environmental Act* on January 5, 2016.

As outlined in MWM's Licence (No. 3181) final engineered design plans have been prepared and attached. Engineered design plans for the new cell construction have addressed the following at a minimum as per MWM's Class I Licence:

- Engineering design with respect to construction of the waste disposal cell base and sides or cut-off walls;
- Engineering design with respect to the construction of the leachate collection system in each new cell, and connections, if applicable, to the overall leachate management system;
- Location of access road(s) to the waste disposal cell;
- Details of the location of the waste disposal cell with respect to property lines; and
- Details of a drainage system to prevent water from entering the waste disposal cell and to channel the surface run-off into the surface water system for the Development.

We trust that the enclosed is sufficient for Manitoba Conservation and Climate, if you have any questions or require additional information please contact us at (204) 901-1530.

Yours very truly,

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Doug Dolby, Dipl. T. Env.
Environmental Specialist

Curtis Navrati. P. Eng.
Senior Engineer
LW Diamond Environmental Services

Attachment: Final Engineering Design Plans – Municipal Waste Management Ltd. SW 35-8-21 W Landfill (Licence No. 3181), Municipality of Souris-Glenwood, Manitoba

c.c. Kristy Forrestall, Brandon District Supervisor
Cory Graham, Environmental Engineer (Permits & Licences)

Attachment: Engineering Design Plans

MUNICIPAL WASTE MANAGEMENT

EXPANSION CELL DESIGN

ISSUED FOR CONSTRUCTION

PLAN INDEX

GENERAL INFORMATION:

CELL DESIGN:

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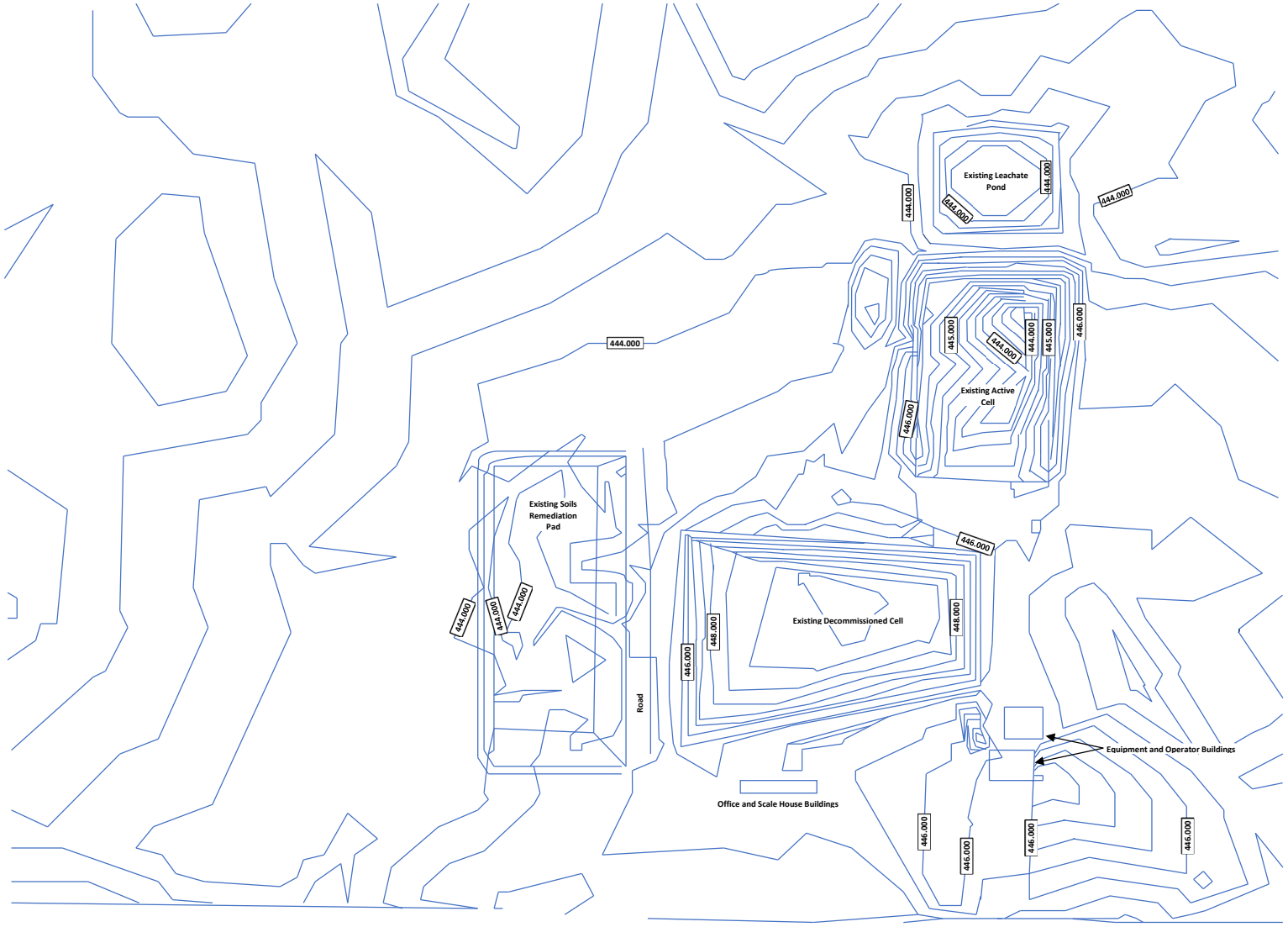
216 – 740 Rosser Avenue
Brandon, Manitoba
R7A 0K9
(204) 727-8898



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LOCATIONS OF UNDERGROUND STRUCTURES/UTILITIES AS SHOWN ARE BASED ON AVAILABLE INFORMATION BUT NO GUARANTEE IS GIVEN OR IMPLIED THAT ALL EXISTING UNDERGROUND STRUCTURES/UTILITIES ARE SHOWN OR THAT THE GIVEN LOCATIONS ARE EXACT. CONFIRMATION OF EXISTENCE AND EXACT LOCATION OF ALL UNDERGROUND STRUCTURES/UTILITIES MUST BE OBTAINED FROM THE APPROPRIATE AUTHORITY/OWNER, BY THE CONTRACTOR, BEFORE PROCEEDING WITH CONSTRUCTION.

Title: Waste Disposal Ground Existing Contour Plan

Project: Municipal Waste Management

Date:	Drawn By:	Project No.:	Scale:	Plan:
June 15, 2020	DD	ECS - 2020 - 003	NTS	2
	Checked By: CN			

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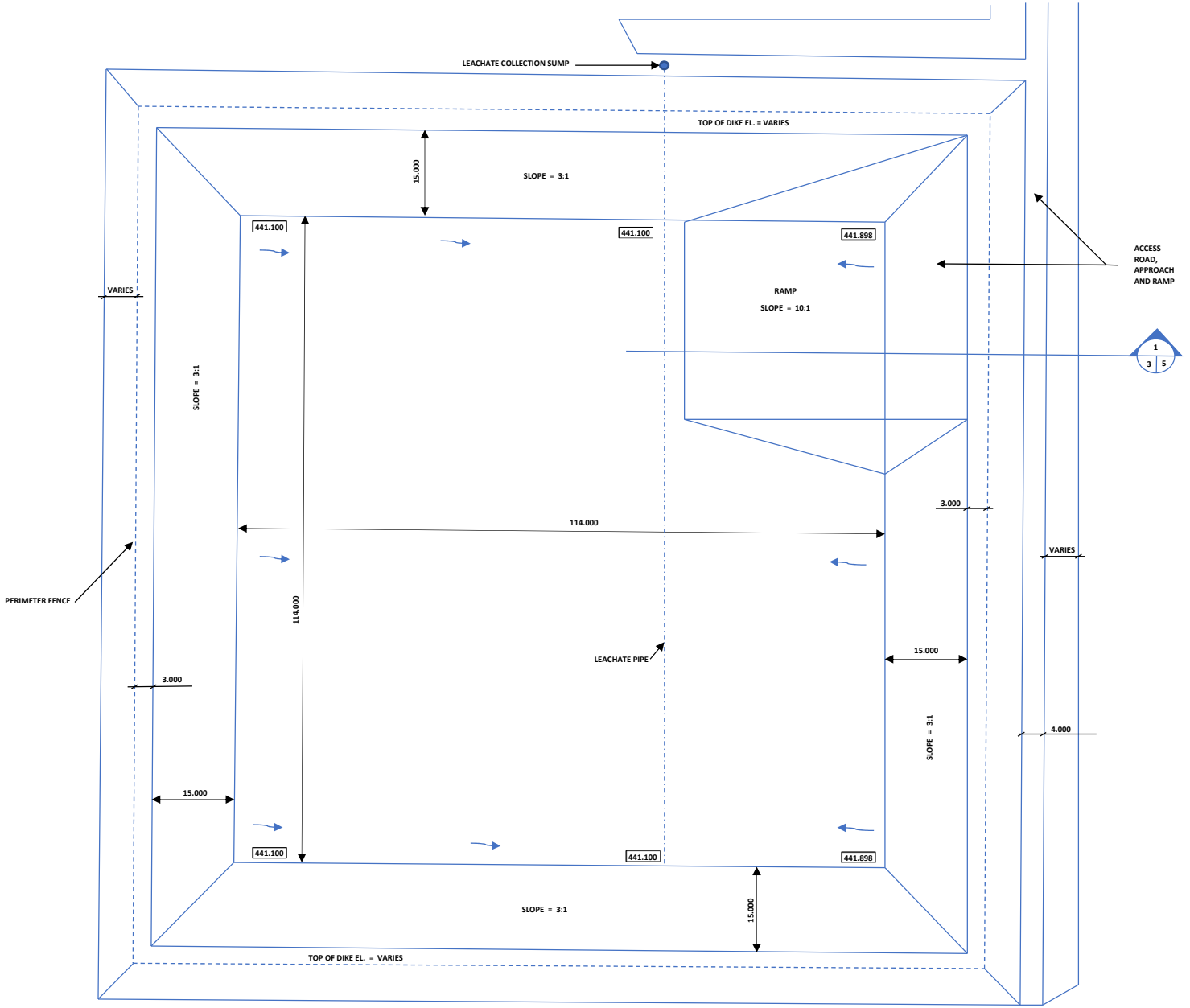
Title:

Waste Disposal Ground Layout Plan

Project:

Municipal Waste Management

Date:	Drawn By:	Project No.:	Scale:	Plan:
June 15, 2020	DD	ECS - 2020 - 003	NTS	3
	Checked By: CN			



LEGEND

Proposed Drainage →

Proposed Elevation **441.100**

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Title: Waste Disposal Ground Expansion Cell Elevation & Drainage Plan

Project: Municipal Waste Management

Date:	Drawn By:	Project No.:	Scale:	Plan:
June 15, 2020	DD	ECS - 2020 - 003	1:1000	4
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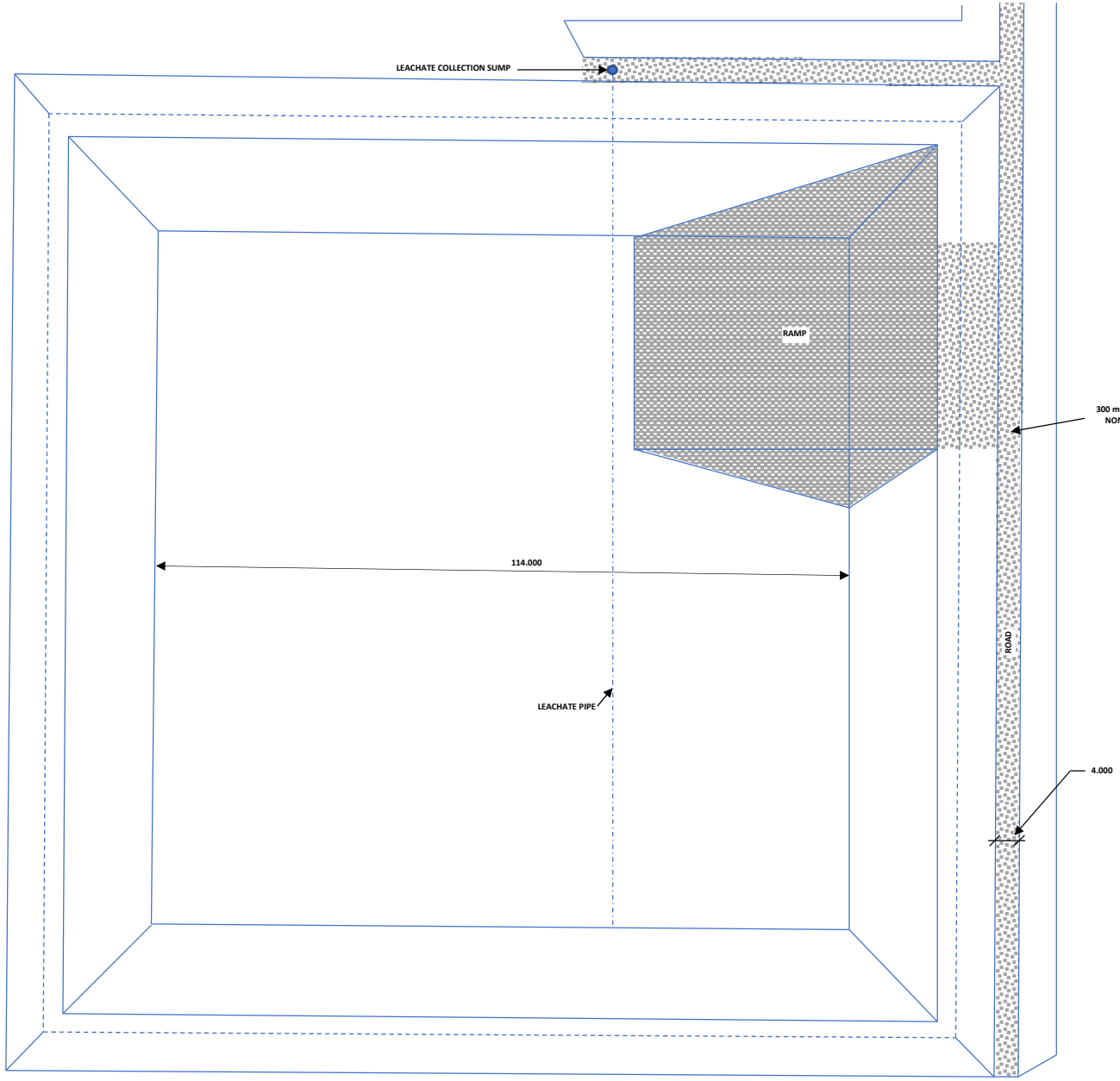

LEGEND

Granular Material
(as required)

300 mm Granular Material, over
non-woven Geotextile

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Title:
Road and Ramp Details

Project:
Municipal Waste Management

Date:	Drawn By:	Project No.:	Scale:	Plan:
June 15, 2020	DD	ECS - 2020 - 003	1:1000	5
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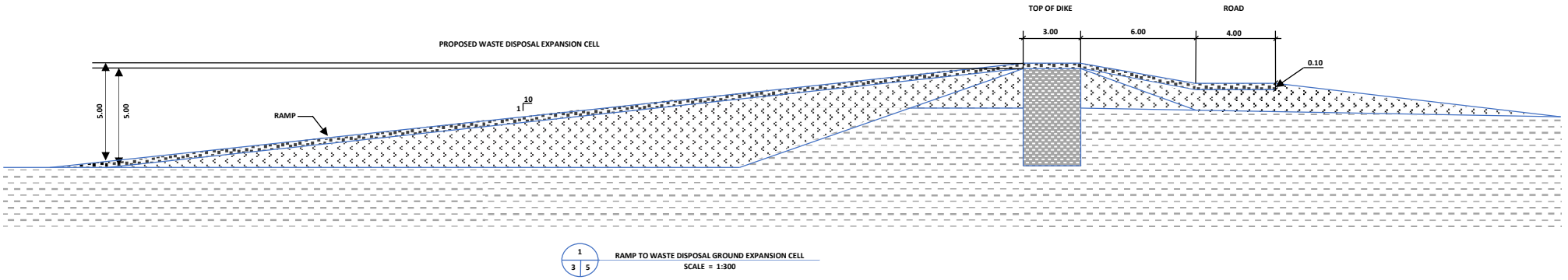
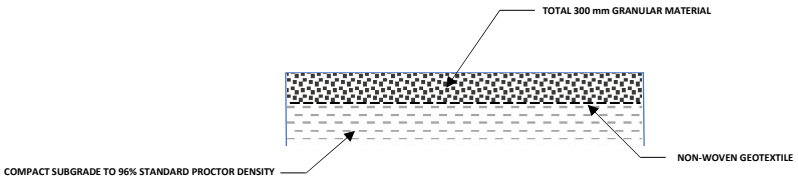


1/3/5 RAMP TO WASTE DISPOSAL GROUND EXPANSION CELL
SCALE = 1:300



4/7 GRANULAR STRUCTURE FOR ROAD, APPROACH AND RAMP
SCALE = NTS

LEGEND

- Native Silty Clay
- Excavated and Compacted Soil Material
- Granular Material
- Excavated and Compacted Silty Clay Type Soil

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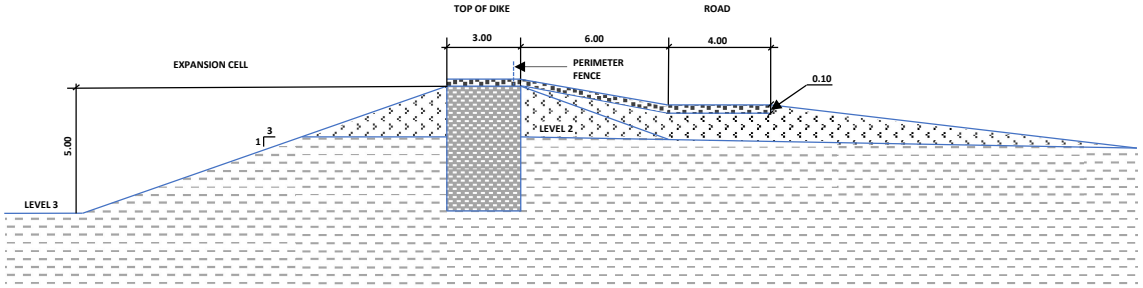
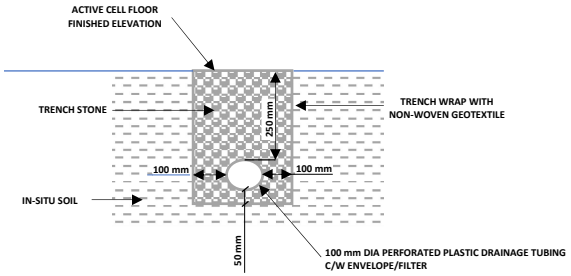
Title: Ramp Detail

Project: Municipal Waste Management

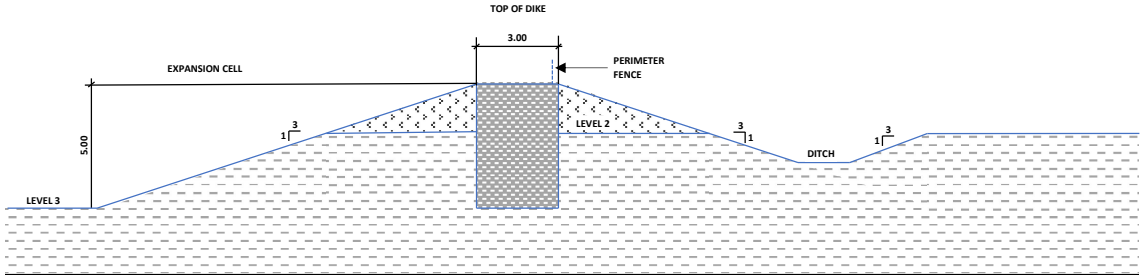
Date:	Drawn By:	Project No.:	Scale:	Plan:
June 15, 2020	DD	ECS - 2020 - 003	1:300	6
	Checked By: CN			



1/4 EXPANSION CELL NORTH AND WEST PERIMETER DIKES
SCALE = 1:300



4/10 LEACHATE COLLECTION PIPING DETAIL
SCALE = 1:25



3/4 EXPANSION CELL EAST AND SOUTH PERIMETER DIKE
SCALE = 1:300

LEGEND

Excavated and Compacted Silty Clay Type Soil

Excavated and Compacted Soil Material

IN-SITU

TRENCH STONE

LEVEL 1 - PRE-CONSTRUCTION PRAIRIE ELEVATION

LEVEL 2 - ELEVATION FOLLOWING STRIPPED ORGANICS/VEGETATION

LEVEL 3 - FINISHED CELL BOTTOM ELEVATION

LEVEL 2 AND 3 - TO BE COMPACTED WITH SHEEPSFOOT PACKER

LEVEL 4 - BOTTOM OF NATIVE CLAY LINER

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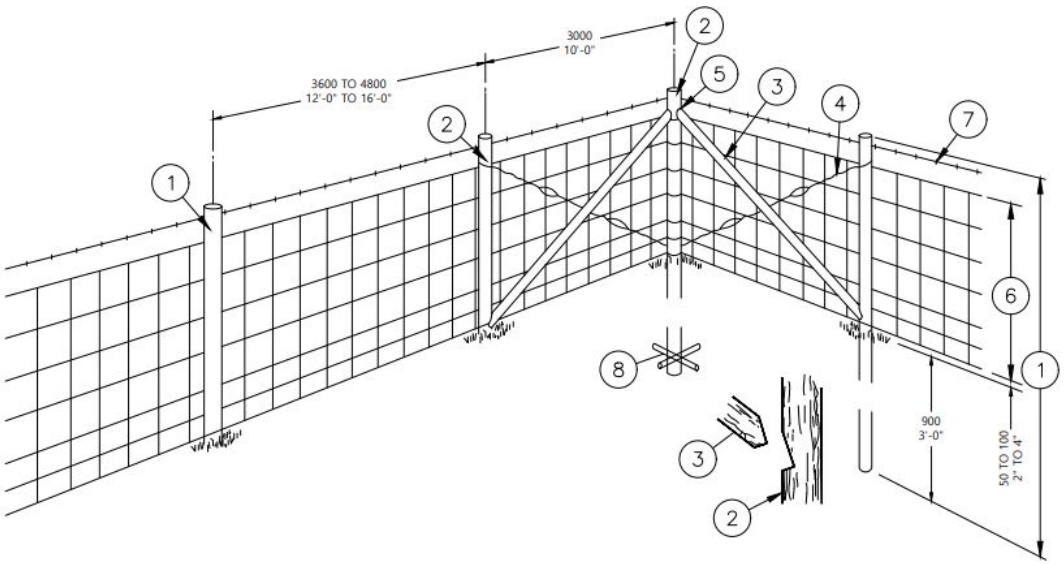
Title: Dike, Liner and Leachate Pipe Details

Project: Municipal Waste Management

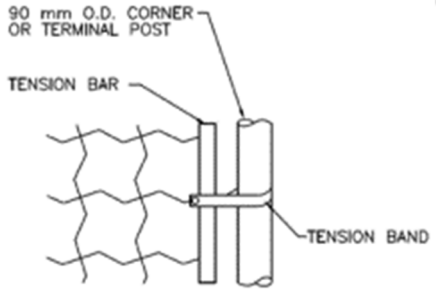
Date:	Drawn By:	Project No.:	Scale:	Plan:
June 15, 2020	DD	ECS - 2020 - 003	Various	7
	Checked By: CN			

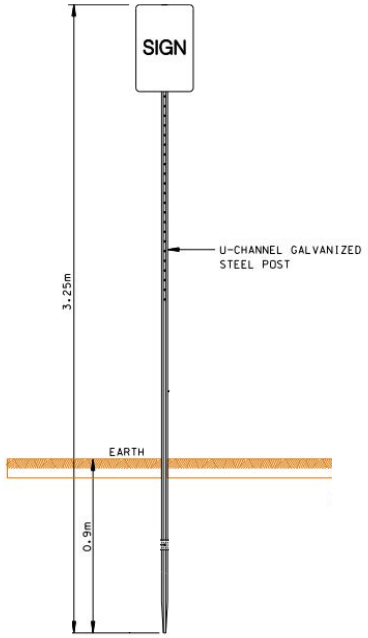
PAGE WIRE FENCE DETAIL



Notes:

1. 100 mm top diameter treated wood posts or commercial steel posts.
2. 150 mm corner and brace posts top diameter.
3. 100 mm diameter brace rial, notched and spiked into 2.
4. 4 mm (No. 9) brace wire, twist at two locations to tighten.
5. Start fencing at corners
6. Page wire fencing (see manufacturers specifications) use 1500 mm high.
7. Optional barbed wire top strand, at the discretion of MWM Environmental.
8. Corner - and end-post anchors, wired and spiked to post.





Note: All dimensions are in millimetres unless otherwise shown.

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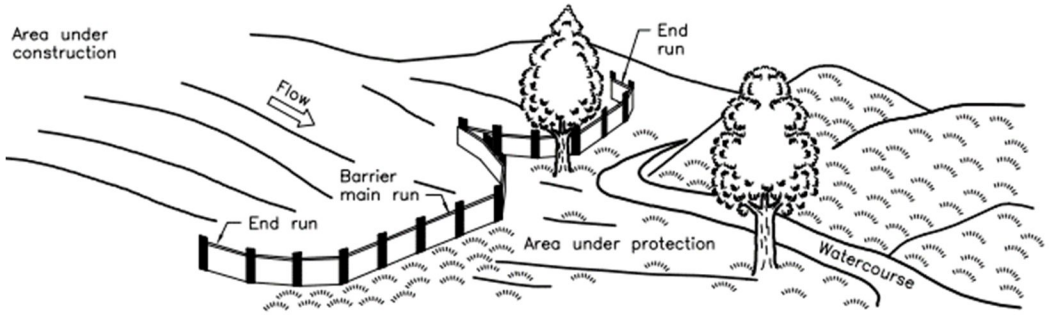
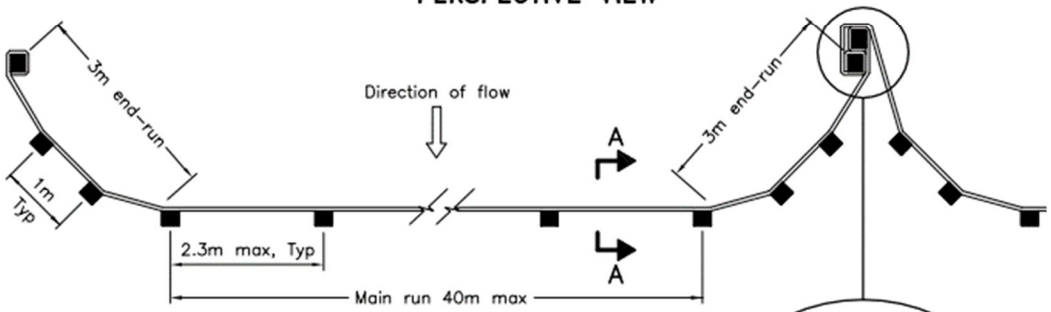
Title: Page Wire Fence and Sign Details

Project: Municipal Waste Management

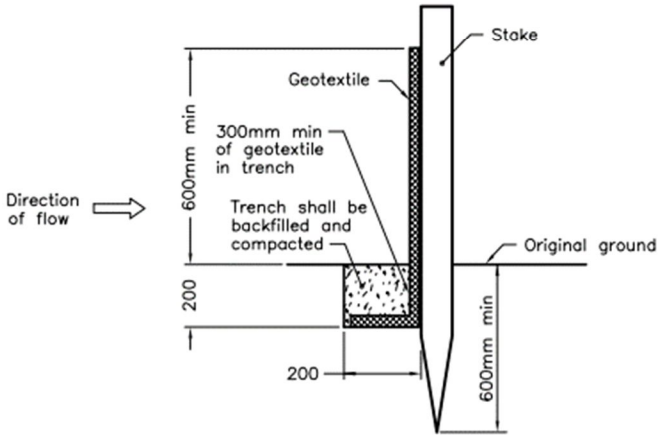
Date:	Drawn By:	Project No.:	Scale:	Plan:
June 15, 2020	DD	ECS - 2020 - 003	NTS	8
	Checked By: CN			

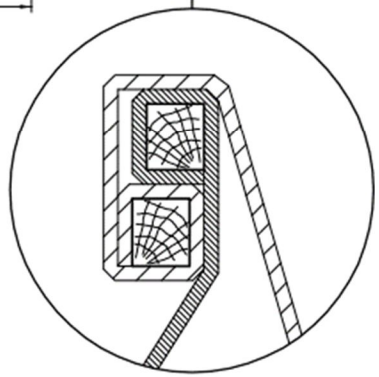


PERSPECTIVE VIEW



PLAN





JOINT DETAIL

Note: All dimensions are in millimetres unless otherwise shown.

SILT FENCE DETAIL

Notes:

1. The height of the silt fence shall not exceed 600 mm.
2. The filter fabric shall be purchased in a continuous roll cut to the length of the barrier to avoid the use of joints.
3. Posts shall be placed a maximum of 2.4 m apart at the barrier location and driven securely into the ground a minimum of 300 mm.
4. A trench shall be excavated approximately 100 mm wide and 100 mm deep along the line of posts and upslope from the barrier.
5. Standard strength filter fabric shall be stapled or wired to the fence, and 300 mm of the fabric shall be extended into the trench. The fabric shall not extend more than 600 mm above the original ground surface.
6. The trench shall be backfilled and the soil compacted over the filter fabric.
7. Silt fencing to be polypropylene synthetic fibre with ultraviolet stabilizers AMOCO 1196 or approved equivalent.
8. Wood posts to be 36 mm x 89 mm (2" x 4") pointed at one end and fabricated.
9. Install all supporting posts on the down slope side of the fencing.
10. Maintain silt fence throughout construction and until revegetation occurs.

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Title: Silt Fence Detail Plan

Project: Municipal Waste Management

Date:	Drawn By:	Project No.:	Scale:	Plan:
June 15, 2020	DD	ECS - 2020 - 003	NTS	9
	Checked By: CN			