

The City of Kawartha Lakes
26 Francis Street
Lindsay, ON
K9V 5R8

April 3, 2024

**Re: Short and 2A Drain - Masters Low Level Crossing Improvement Revisions for
Consideration at the April 30, 2024 Council Meeting**

Following the Meeting to Consider the Report, a landowner requested M. Gerrits Consulting Inc. review if the proposed improvement was a primary or secondary access. Upon review of the property, it was determined that the access was the only access for the lands ending with the Area Roll Number 161100004010900, and is considered a primary access for the lands.

The references to the secondary access and grant on pages 2, 3 and 4 of the drain report dated February 12, 2024, have been updated to reflect the changes, and are attached for consideration and incorporation into the adopted report at the April 30, 2024 Council meeting.

Yours truly,

AA
April 3, 2024
2023-012

Michael Gerrits, P. Eng.
M. Gerrits Consulting Inc.

The City of Kawartha Lakes
26 Francis Street
Lindsay, ON
K9V 5R8

February 12, 2024

Re: Short and 2A Drain - Masters Low Level Crossing Improvement

In accordance with your instructions, M. Gerrits Consulting Inc. has undertaken an examination of the Short and 2A Drain, with respect to construction of a low level crossing on the B., G., & R. Masters property at 823 Peniel Road (Part of Lot 14, Concession 12), within the City of Kawartha Lakes.

Authorization Under the Drainage Act

This Engineer's Report has been prepared under Section 78(5) of the Drainage Act, as per the request of an affected landowner.

Existing Reports

W.E. Yarnold, Township Engineer prepared a report for the Short and 2A Drain, dated April 12, 1981. The report included the construction of the original drain.

T. Pridham. P.Eng. prepared a drain report, dated March 20, 2006. The report included deepening and widening of the drain.

Existing Conditions and Investigation

M. Gerrits Consulting Inc. completed a site visit and survey on June 5, 2023. The open channel portion of the drain at the proposed low level crossing appeared to be in good condition.

Drain Classification

The Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA), Agricultural mapping, indicates that the Short and 2A Drain is a Class D drain.

On Site Meeting

An on site meeting was held on June 5, 2023 at 823 Peniel Road. The following attended the meeting:

Richard Monaghan, City of Kawartha Lakes Drainage Superintendent

Michael Gerrits, M. Gerrits Consulting Inc.

Guy Masters – Landowner

Reid Master – Landowner

The following is a brief summary of the meeting.

- M. Gerrits completed an overview of the Drainage Act.
- M. Gerrits confirmed the minor improvement met the requirements under Section 78(5) of the Drainage Act.
- G. Masters identified the location of the access, and marked it with a wooden stake.
- M. Gerrits confirmed the access width with G. Masters who agreed to a 10m driving platform.
- Following the meeting, M. Gerrits completed a survey of the proposed low level crossing.

Recommendations

It is therefore recommended that a new drain report be prepared for a 10m wide, low level crossing on the Short and 2A Drain in Part of Lot 14, Concession 12 (Masters land), within the City of Kawartha Lakes.

Design

The drainage works will be located at Station 6+957 of the Short and 2A Drain. The proposed low level crossing will maintain the drain cross section and will not impede flows. Due to the limited use of the crossing, the rip rap access has been installed to a level 0.6m above the channel bottom.

Approvals

All construction will be completed in accordance with the Department of Fisheries and Oceans (DFO) regulations, and the applicable Conservation Authority permits.

Estimate of Cost

It is recommended that the work be carried out in accordance with the accompanying specification of work and profile, that form a part of this report. An Estimate of Cost has been prepared in the amount of \$32,641, which includes engineering fees but does not include work beyond the preparation of the report, such as inspection during construction or in person meetings.

A plan has been prepared, which shows the location of the work, the approximate drainage area, and the depths and grades of the proposed work.

Assessment

As per Section 21 of the Drainage Act, a Schedule of Assessment for the lands and roads affected by the Short and 2A Drain low level crossing has been prepared.

Lands, roads, buildings, utilities, or other structures that are increased in value or are more easily maintained as a result of the construction, improvement, maintenance, or repair of a drainage works, may be assessed for benefit (Section 22).

Lands and roads that use the drainage works as an outlet, for which the drainage works are constructed or improved, an improved outlet is provided either directly or indirectly through the medium of any other drainage works or of a swale, ravine, creek, or watercourse, may be assessed for outlet. The assessment for outlet shall be based on the volume and the rate of flow of the water artificially caused to flow into the drainage works, from the lands and roads liable for such assessments. If, from any land or road, water is artificially caused by any means to flow upon and injure any other land or road, the land or road from which the water is caused to flow, may be assessed for injuring liability with respect to a drainage works, to relieve the injury so caused to such other land or road (Section 23).

The estimated cost of the drainage works has been assessed in the following manner:

- The low level crossing is considered an additional crossing for the Masters lands (ARN 161100004010900), and is being installed under Section 78(5) of the Drainage Act; therefore, the cost of the low level crossing has been assessed with 100% of the estimated cost assessed as a benefit assessment to the Masters lands.

Allowances

The proposed work is an access with all costs being assessed to the requesting landowner, and for this reasoning there will be no Section 29 or Section 30 allowances paid under this report.

Access and Working Area

In addition to the access and working area set out in the current drain report, access to the low level crossing will be via the Master lands (ARN 161100004010900). The working corridor will be extended to 25m either side of the drain, for the length of the low level crossing.

Restrictions

Following construction, no trees or shrubs shall be planted nor shall permanent structures be erected within the working area without prior written permission of Council, unless otherwise specified in this report.

Attention is also drawn to Sections 80 and 82 of the Drainage Act, which refers to a landowner's responsibility regarding obstruction of a drainage works, the removal of obstructions in a drain, and the damage caused to a drain by an obstruction.

Agricultural Grant

Under Section 85 of the Drainage Act, a grant may be available for assessments against privately owned parcels of land which are used for agricultural purposes, and are eligible for the Farm Property Class Tax Rate. Section 88 of the Drainage Act directs the Municipality to make application for this grant upon certification of this drain.

Maintenance

Upon completion of the work, the drainage works shall be repaired and maintained by the City of Kawartha Lakes, under the provisions of the Drainage Act at the expense of the owner on which the low level crossing is located.

Yours truly,



Michael Gerrits, P. Eng.
M. Gerrits Consulting Inc.

Short and 2A Drain
 City of Kawartha Lakes
 February 12, 2024

ESTIMATE OF COST

	Quantity	Unit	Unit Price	Total
<u>General Work</u>				
Benchmark Verification	1	L.S.	100	100
Light Duty Silt Fence (Station 6+588)	5	m	100	500
Stripping	555	sq.m.	2	1110
Excavation	456	cu.m.	5	2280
200mm - 300mm Channel Rip Rap (0.3m Depth)	150	sq.m.	70	10500
200mm - 400mm Access Bank Rip Rap (0.4m Depth) c/w Geotextile	70	sq.m.	80	5600
Level Spoils	1	LS	600	600
Restoration of Disturbed Areas	130	sq.m.	2	260
			Subtotal	20950
			Miscellaneous	1054
			Engineering	10630
			Net HST	575
			Total Estimate	\$ 33,209

Short and 2A Drain
 City of Kawartha Lakes
 February 12, 2024

**SCHEDULE OF ASSESSMENT
 MASTERS LOW LEVEL CROSSING
 (Station 6+597)**

Conc.	Lot or Part	Aff. Hect.	Roll No.	Owner	Special Benefit (\$)	Benefit (\$)	Outlet (\$)	Total (\$)	Eq. Area (Ha)
<u>Agricultural Lands</u>									
12	Pt. Lot 13 & 14	20.0	161100004010900	B., G., & R. Masters	-	33,209	-	33,209	20.0
					-	33,209	-	33,209	

Total Special Benefit	-
Total Benefit	33,209
Total Outlet	-
Total - Agricultural Lands	33,209

Total Assessment \$ 33,209

Short and 2A Drain – Masters Low Level Crossing
The City of Kawartha Lakes
February 12, 2024

SPECIFICATION OF WORK

1. Scope of Work

The work to be included in this specification includes the low level crossing on the Masters land at 823 Peniel Road (Part of Lot 14, Concession 12), within the City of Kawartha Lakes.

2. Plans and Specifications

These specifications shall apply and be a part of the construction Contract. This Specification of Work shall take precedence over all plans and general conditions pertaining to the Contract. The Contractor shall provide all labour, equipment, and supervision necessary to complete the work as shown in the plans and described in these specifications. Any work not described in these specifications shall be completed according to the Ontario Provincial Standard Specifications (OPSS) and Standard Drawings (OPSD).

Any reference to the Owner contained in these Contract Documents, shall refer to The City of Kawartha Lakes, or the Engineer authorized by The City of Kawartha Lakes, to act on its behalf.

3. Health and Safety

The Contractor, at all times, shall be responsible for health and safety on the worksite, including ensuring that all employees wear suitable personal protective equipment, including safety boots and hard hats.

The Contractor shall be responsible to ensure that all procedures are followed under the Occupational Health and Safety Act, to ensure that work sites are safe, and that accidents are prevented. In the event of a serious or recurring problem, a notice of noncompliance will be issued. The Contractor will be responsible for reacting immediately to any deficiency, and correcting any potential health and safety risk. Continuous disregard for any requirement of the Occupational Health and Safety Act could be cause for a stop work order to be issued, or even termination of the Contract.

The Contractor shall also ensure that only competent workmen are employed onsite, and that appropriate training and certification is supplied to all employees.

4. Workplace Safety and Insurance Board

The Contractor hereby certifies that all employees and officers working on the project are covered by the Contractor's benefits. The WSIB Clearance Certificate must be furnished prior to the execution of the Contract, and updated every 90 days.

5. Benchmarks

The benchmark locations are identified on the drawings. The Contractor is required to complete a benchmark loop, prior to construction, to verify the benchmarks. If discrepancies exist, the Contractor must notify the Drainage Superintendent and Engineer prior to completing any work.

6. Utility Locates

Prior to completing any tile installation, the Contractor shall locate all utilities in the working area and adjacent road allowances, and forward the locations and elevations to the Drainage Superintendent and Engineer for review.

7. Geotechnical Investigation

A geotechnical investigation has not been undertaken within the project limits.

8. Access and Working Area

In addition to the access and working area set out in the current drain report, access to the low level crossing will be via the Master lands (ARN 161100004010900). The working corridor will be extended to 25m either side of the drain, for the length of the low level crossing.

9. Strip Existing Channel

The existing channel shall be stripped of organic matter. Topsoil shall be placed on the east side of the drain and the material must be used as part of the final restoration.

Stripping shall be in accordance with OPSS 206.

10. Excavation Channel

The low level access shall be excavated and maintained to the depths and grades as per the drawings, which are contained in this Engineer's Report. The low level access shall be excavated to the proper depth using a laser or similar approved device, with a labourer on site to ensure that the grade is correct.

The low level access shall have a minimum of 10H:1V back slopes and 2H:1V side slopes. The existing topsoil in the area of the excavation and working area, shall be stripped and stockpiled within the working area and used for restoration of the working area. The centre of the low level crossing shall be in the same location as the existing channel.

Any spoils shall be levelled within the working area. Spoils shall be placed on the east side of the channel. The excavated material shall be placed and levelled to a maximum depth of two hundred millimeters (200mm), and shall not impede overland drainage. If the spoils have sub-soil in them, the topsoil shall be windrowed along the edge of the working area, prior to placing the sub-soil. After the excavated material has been levelled, the topsoil shall be spread to its original depth and left in a condition suitable for seeding.

The side slopes of the low level access shall be seeded as soon as the final grading is completed.

Restoration is to be in accordance with the Restoration Specification.

Excavation shall be in accordance with OPSS MUNI 206.

11. Low Level Access Rip Rap

Rip rap channel bank protection shall have a minimum 2H:1V sideslopes. The rip rap shall consist of 200mm - 400mm quarry stone, or an approved equal. The area to receive the rip rap shall be graded to a depth of 300mm below the finished grade. Filter fabric (Terrafix 270R or an approved equal) shall then be placed in areas of the channel bank with any joints overlapped at a minimum of 600mm. The quarry stone shall be placed with the smaller pieces placed in the gaps and voids to give it a uniform appearance.

Rip low level crossing protection shall have a minimum 10H:1V backslopes. The rip rap shall consist of 150mm - 300mm quarry stone, or an approved equal. The area to receive the rip rap shall be graded to a depth of 400mm below the finished grade. The quarry stone shall be placed with the smaller pieces placed in the gaps and voids to give it a uniform appearance. The rip rap shall be installed to a level 0.6m above the channel bottom.

12. Levelling of Excavated Material

The excavated material shall be levelled to a maximum depth of 200mm, and left in a condition suitable for restoration.

13. Restoration

Restoration shall be in accordance with the following:

Working Area and Access Restoration

- Disturbed areas within the working area other than tilled lands, shall be restored with a minimum of 100mm of native topsoil generated on site and seed.

Seed

- The application rates are as follows:
 - a. Primary seed (85 kg/ha.) consisting of 50% red fescue, 40% perennial ryegrass and 5% white clover.
 - b. Nurse crop consisting of Italian (annual) ryegrass at 25% total weight.
 - c. Fertilizer (300 kg/ha.) consisting of 8-32-16.
- Hand seeding shall be spread on the affected areas on a daily basis during construction with the seed mixture, fertilizer, and application rate as shown above.

Topsoil shall be in accordance with OPSS MUNI 802.

Seed shall be in accordance with OPSS MUNI 804.

14. Silt Fence

Light duty silt fencing shall be installed immediately downstream of the low level crossing, for the duration of construction. The silt fence shall consist of filter fabric, or manufactured silt fence supported with posts.

The light duty silt fencing and accumulated sediment shall be removed once the disturbed area has been revegetated.

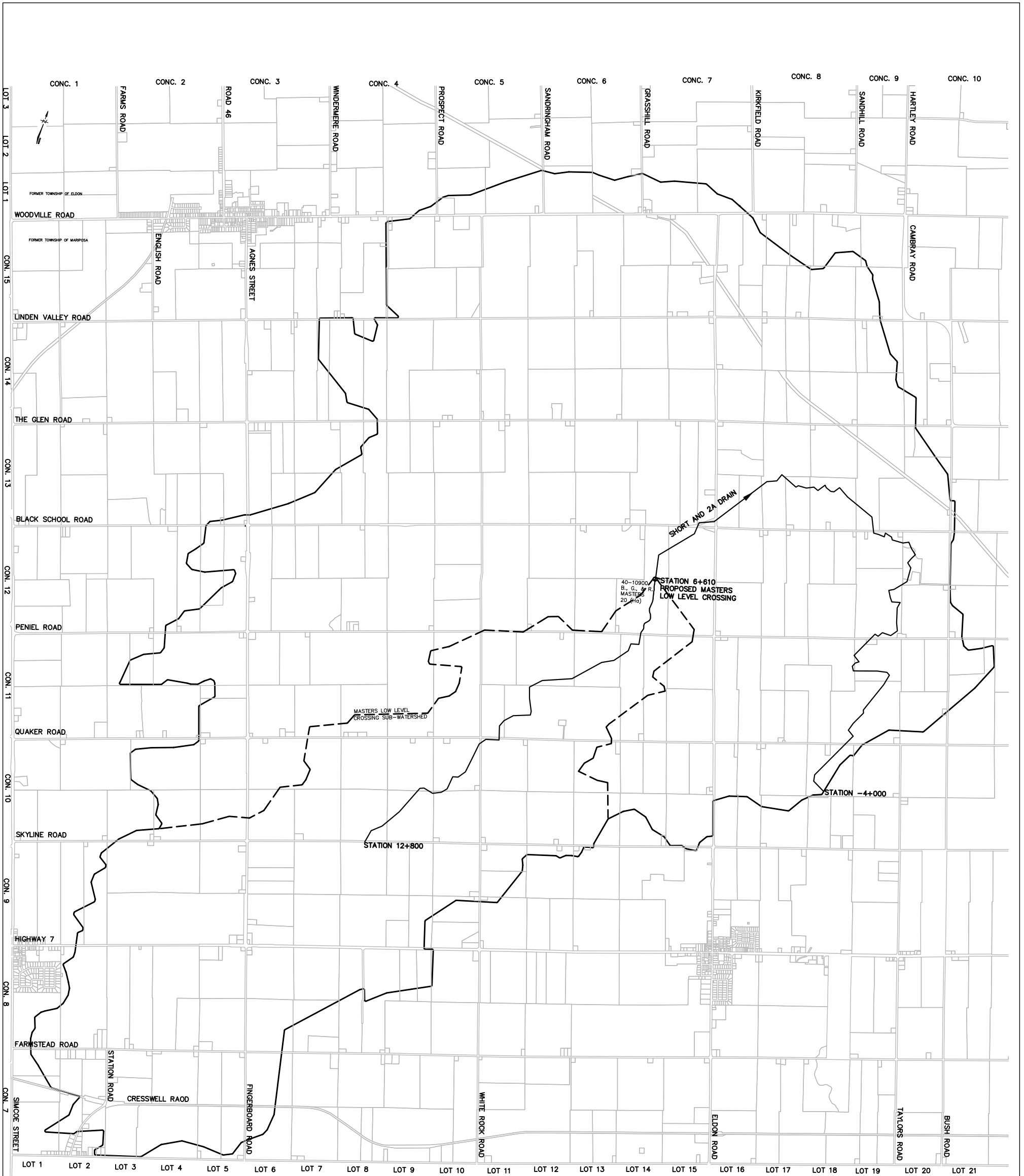
Light duty silt fencing shall be in accordance with OPSS MUNI 805 and OPSD 219.110.

15. Environmental Considerations

The Contractor shall take care to adhere to the following considerations:





- All excavated and stockpiled material shall be placed a minimum of 1.5m from the top of the bank. Material shall not be placed in surface water runs or open inlets that enter the channel.
- All granular and erosion control materials shall be stockpiled a minimum of 1.5m from the top of the bank or surface water runs. Material shall not be placed in surface water runs or open inlets that enter the channel.
- All activities, including maintenance procedures, shall be controlled to prevent the entry of petroleum products, debris, rubble, concrete, or other deleterious substances into the water. Vehicle and equipment refuelling and maintenance, shall be conducted away from the channel, any surface water runs, or open inlets. All waste materials shall be stockpiled well back from the top of the bank, surface water runs, and open inlets that enter the drain.

- All construction in the channel shall be carried out during periods of low flow. When possible, the Contractor shall schedule work to avoid periods of high winds and rain. The Contractor shall maintain a dry working area during construction. Prior to construction, the Contractor shall install a silt fence downstream of the work area.
- The work shall be completed in accordance with any required Department of Fisheries and Oceans timing windows and Conservation Authority permits.



SCALE: 1:50,000
 0 250 500 750 1000m

LEGEND

-  APPROXIMATE DRAINAGE AREA
-  SHORT AND 2A DRAIN
-  APPROXIMATE SUB-CATCHMENT BOUNDAR
-  PROPOSED LOW LEVEL CROSSING

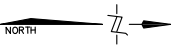


No.	REVISIONS	DATE	BY
1	FOR APPROVAL REVIEW	JULY 19, 2023	MG
2	FOR REPORT	FEB. 12, 2024	MG

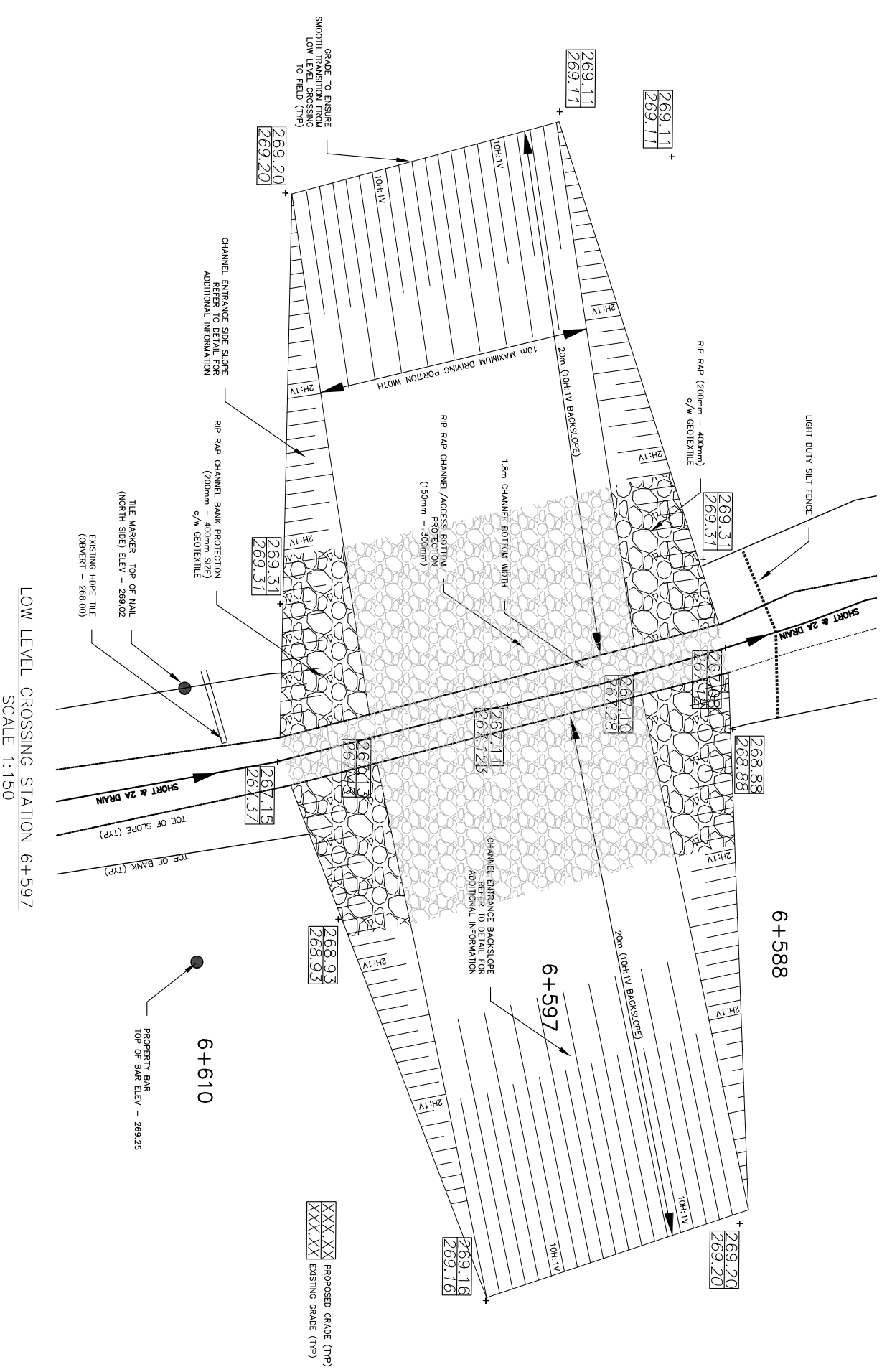
**SHORT AND 2A DRAIN
 MASTERS LOW LEVEL CROSSING
 CITY OF KAWARTHA LAKES**

OVERALL PLAN

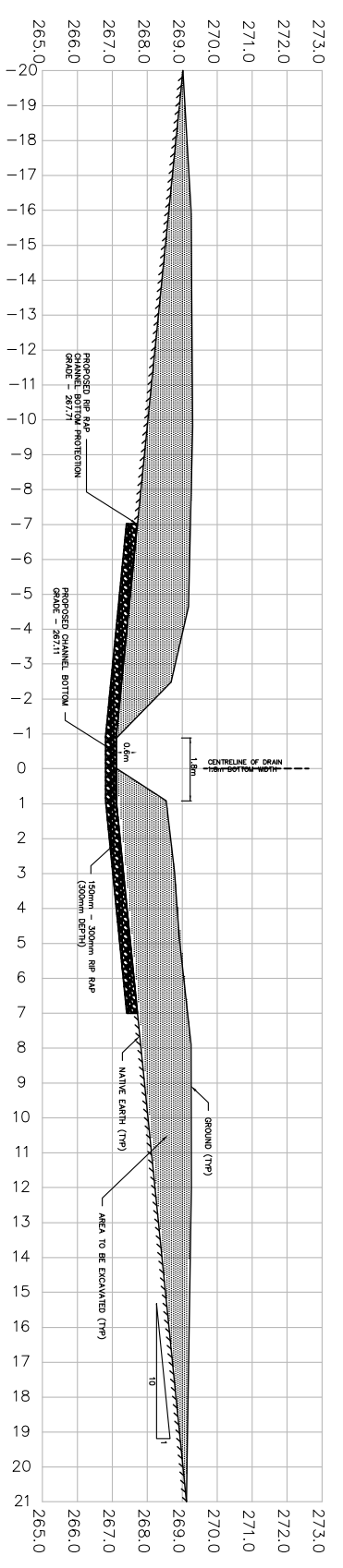
DRAWN	MG
CHECKED	EG
DATE	FEBRUARY 12, 2024
PROJECT NO.	2023-012
SHEET	1 OF 2



- GENERAL NOTES**
- BENCHMARK #1 ELEV. 269.25
TOP OF PROPERTY BAR ON EAST SIDE OF CHANNEL AT STATION 6+597.25
 - BENCHMARK #2 ELEV. 269.02
TOP OF NAIL LOCATED 0.05m NORTH OF TILE MARKER AT STATION 6+608.
 - THE CONTRACTOR IS REQUIRED TO COMPLETE A BENCHMARK LOOP. PRIOR TO CONSTRUCTION, TO VERIFY THE BENCHMARKS. IF DISCREPANCIES EXIST, THE CONTRACTOR MUST NOTIFY THE DRAINAGE SUPERINTENDENT AND ENGINEER, PRIOR TO COMMENCING ANY WORK.



LOW LEVEL CROSSING STATION 6+597
SCALE 1:150



LOW LEVEL CROSSING CROSS SECTION STATION 6+597
SCALE 1:150

No.	REVISIONS	DATE	BY
1	FOR APPROVAL REVIEW	JULY 19, 2023	MG
2	FOR REPORT	FEB 12, 2024	MG

NO.	REVISIONS	DATE	BY
1	FOR APPROVAL REVIEW	JULY 19, 2023	MG
2	FOR REPORT	FEB 12, 2024	MG

**SHORT AND 2A DRAIN
MASTERS LOW LEVEL CROSSING
CITY OF KAWARTHA LAKES**

DRAWN	MG
CHECKED	EG
DATE	FEBRUARY 12, 2024
PROJECT NO.	2023-012
SHEET	2 OF 2

