

# GROSS ROAD CULVERT REPLACEMENT

TOWNSHIP OF MUSKOKA LAKES

T-2025-38




INDEX

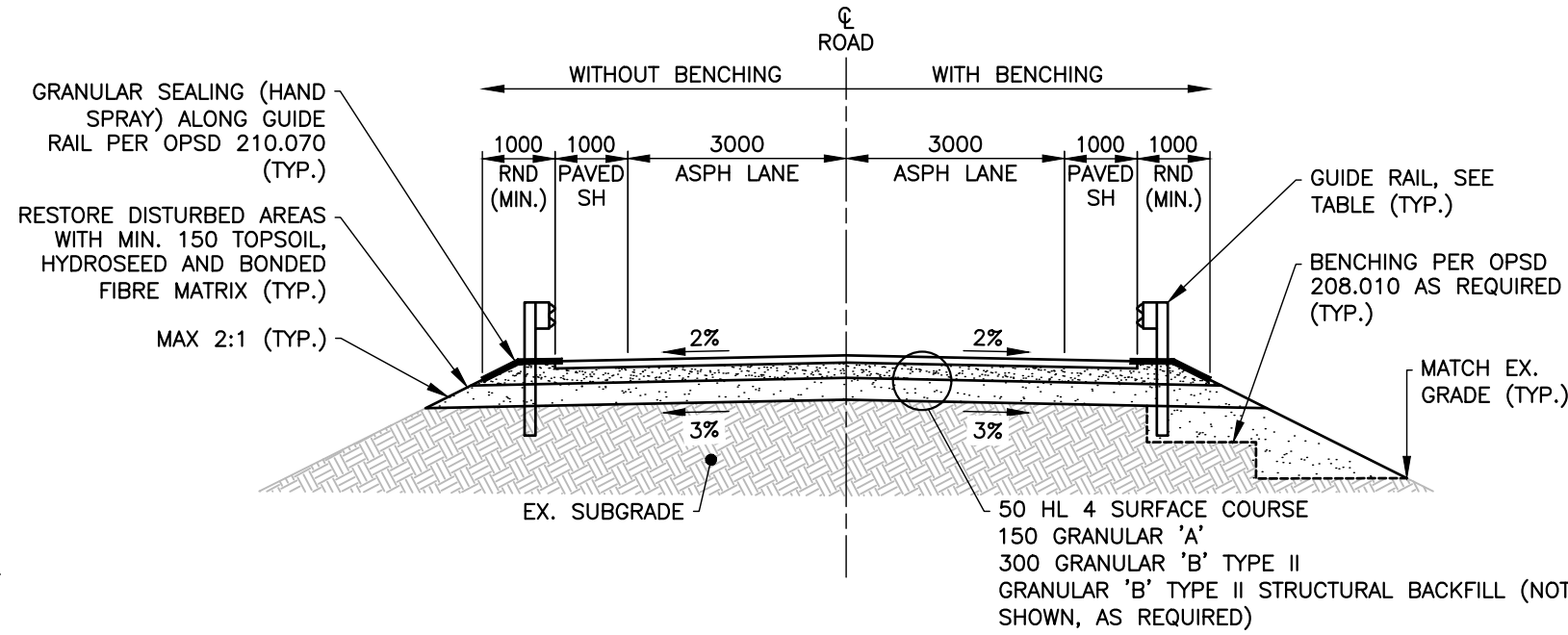
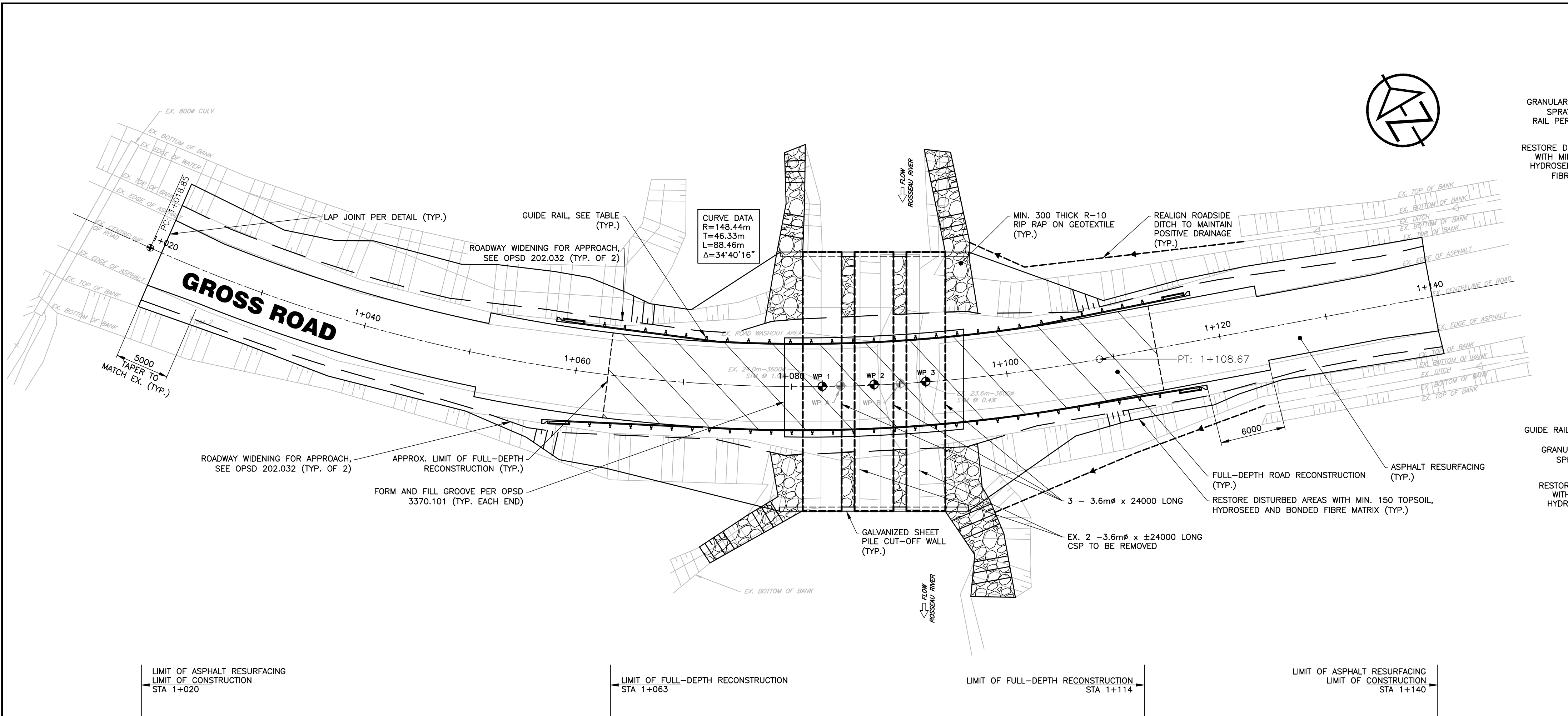
DRAWING	DESCRIPTION
TP.01	TITLE PAGE
IN.01	INDEX
PP.01	PLAN AND PROFILE
GA.01	GENERAL ARRANGEMENT
EP.01	ENVIRONMENTAL PROTECTION

LEGEND

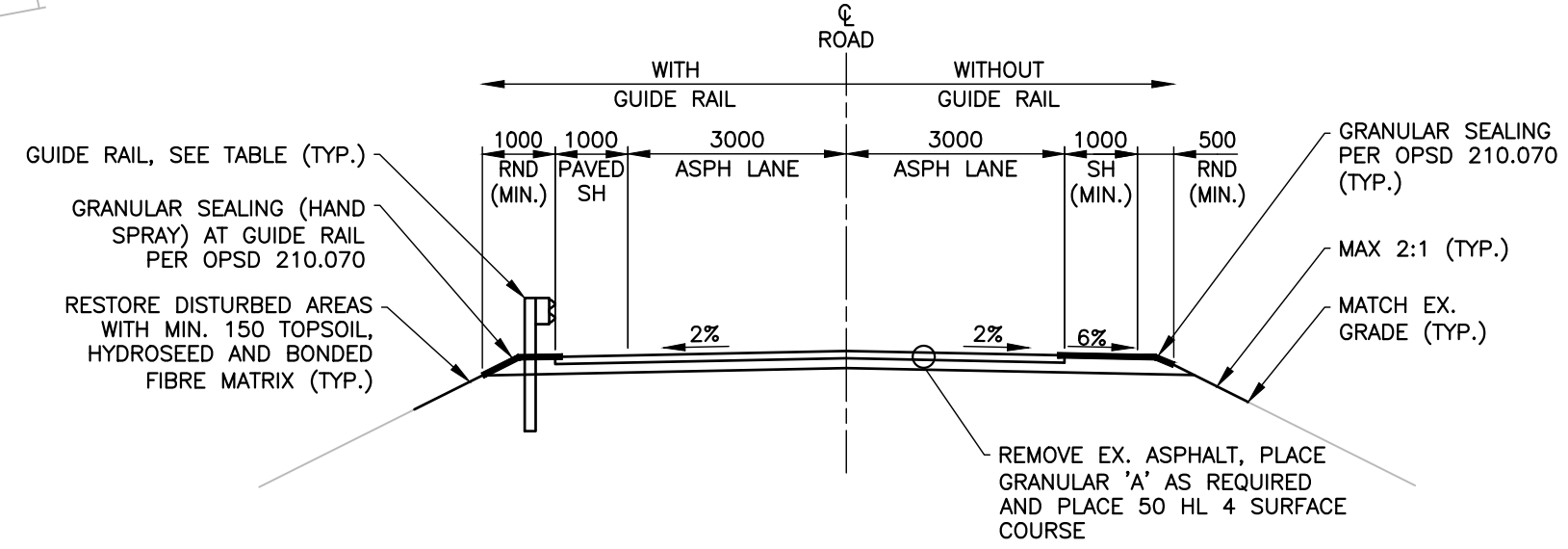
ITEM	EXISTING	PROPOSED
PROPERTY LINE	----	----
LOT LINE	----	----
CENTRELINE	----	----
EDGE OF ASPHALT	----	----
CONCRETE CURB	----	----
EDGE OF GRAVEL SHOULDER	----	----
DITCH/DIRECTION OF FLOW	----->	----->
DRAINAGE SWALE/DIRECTION OF FLOW	----->	----->
WATERMAIN/SIZE	----- 150Ø W/M	----- 150Ø W/M
WATER SERVICE	-----	-----
FIRE HYDRANT	◇ HYD	◆ HYD
EXISTING WATER VALVE	◇ WV	◆ WV
CURB STOP VALVE	◇ CSV	◆ CSV
WATERMAIN PLUG AND THRUST BLOCK	□	□
WATERMAIN BLOWOFF	○ BLOWOFF	○ BLOWOFF
WATERMAIN REDUCER	□	■
SANITARY SEWER/SIZE/DIRECTION OF FLOW	----- 200Ø SAN >	----- 200Ø SAN >
SANITARY MAINTENANCE HOLE	○ SAN MH	● SAN MH4
SANITARY SERVICE	-----	-----
SANITARY FORCEMAIN	----->	----->
STORM SEWER/SIZE/DIRECTION OF FLOW	----- 375Ø STM >	----- 375Ø STM >
STORM MAINTENANCE HOLE	○ STM MH	● STM MH4
CATCH BASIN	□ CB	■ CB4
DOUBLE CATCH BASIN	□ DCB	■ DCB4
CATCH BASIN MAINTENANCE HOLE	○ CBMH	○ CBMH4
DOUBLE CATCH BASIN MAINTENANCE HOLE	□ DCBMH	■ DCBMH4
DITCH INLET CATCH BASIN	□ DICB	■ DICB4
CULVERT	=====	=====
BELL UNDERGROUND	----- BU	----- BU
BELL AERIAL	----- BA	----- BA
CABLE UNDERGROUND	----- CU	----- CU
CABLE AERIAL	----- CA	----- CA
HYDRO UNDERGROUND	----- HU	----- HU
HYDRO AERIAL	----- HA	----- HA
GAS MAIN/SERVICE	----- GAS	----- GAS
FENCE	--- X --- X ---	--- X --- X ---
GUIDERAIL	-----	-----
BUSHLINE/TREELINE	~~~~~	~~~~~
CONTOUR	~~~~~ 179.00	~~~~~ 179.00
SPOT ELEVATION	x 179.00	x 179.00
GRADING DIRECTION/GRADE PERCENTAGE	----- 1.9%	----- 1.9%
DRAINAGE FLOW	----->	----->
TRAFFIC SIGN	▷ SIGN	▷ SIGN
TRAFFIC POLE/TRAFFIC SIGNAL	○ TLS	● P1
LIGHT STANDARD	○ LS	● LS
HYDRO POLE	○ HP	● HP
GUY WIRE	-----	-----
BELL POLE	○ BP	
BELL MAINTENANCE HOLE	○ BELL MH	
BELL PEDESTAL/VAULT	□	
CABLE PEDESTAL/VAULT	□	
HYDRO TRANSFORMER/VAULT	□	
GAS VALVE	◇ GAS VALVE	
GAS MARKER	⊕ GAS	
MAILBOX	✉	
STANDARD IRON BAR	⚡ SIB	
IRON BAR	⚡ IB	
TEMPORARY BENCHMARK	⊕ TBM#1	
BOREHOLE/TEST HOLE	⊕ BHP	
DECIDUOUS/CONIFEROUS TREE, SHRUB/BUSH	⊕	

<b>DISCLAIMER AND COPYRIGHT</b>  CONTRACTOR MUST VERIFY ALL DIMENSIONS AND BE RESPONSIBLE FOR SAME. ANY DISCREPANCIES MUST BE REPORTED TO THE ENGINEER BEFORE COMMENCING WORK. DRAWINGS ARE NOT TO BE SCALED.  TATHAM ENGINEERING LIMITED CLAIMS COPYRIGHT TO THIS DRAWING WHICH MAY NOT BE USED FOR ANY PURPOSE OTHER THAN THAT PROVIDED IN THE CONTRACT BETWEEN THE OWNER/CLIENT AND THE ENGINEER WITHOUT THE EXPRESS CONSENT OF TATHAM ENGINEERING LIMITED.	<b>BENCHMARKS</b>  TBM 1 – ELEVATION 265.41 NAIL ON THE SOUTH WEST SIDE OF THE GROSS ROAD AND ASPDIN ROAD INTERSECTION.  TBM 2 – ELEVATION 264.24 NAIL ON THE SOUTH EAST SIDE OF THE 800# CULVERT WEST OF THE ROSSEAU RIVER CULVERTS.	<b>NOTES</b>  1. SURVEY COMPLETED BY TATHAM ENGINEERING LTD, APRIL 2025.	<b>No.</b>	<b>REVISION DESCRIPTION</b>	<b>DATE</b>	<b>ENGINEER STAMP</b>	<b>GROSS ROAD CULVERT REPLACEMENT</b> <b>TOWNSHIP OF MUSKOKA LAKES</b> <b>T-2025-38</b>  	<div>DESIGN: AC</div> <div>DRAWN: AC</div> <div>CHECK: MS</div>	<div>FILE: 225020</div> <div>DATE: MAY 2025</div> <div>SCALE: AS SHOWN</div>	DWG: <b>IN.01</b>
			1.	ISSUED FOR REVIEW	JUL 3/25					
			2.	ISSUED FOR TENDER	JUL 9/25					
INDEX										

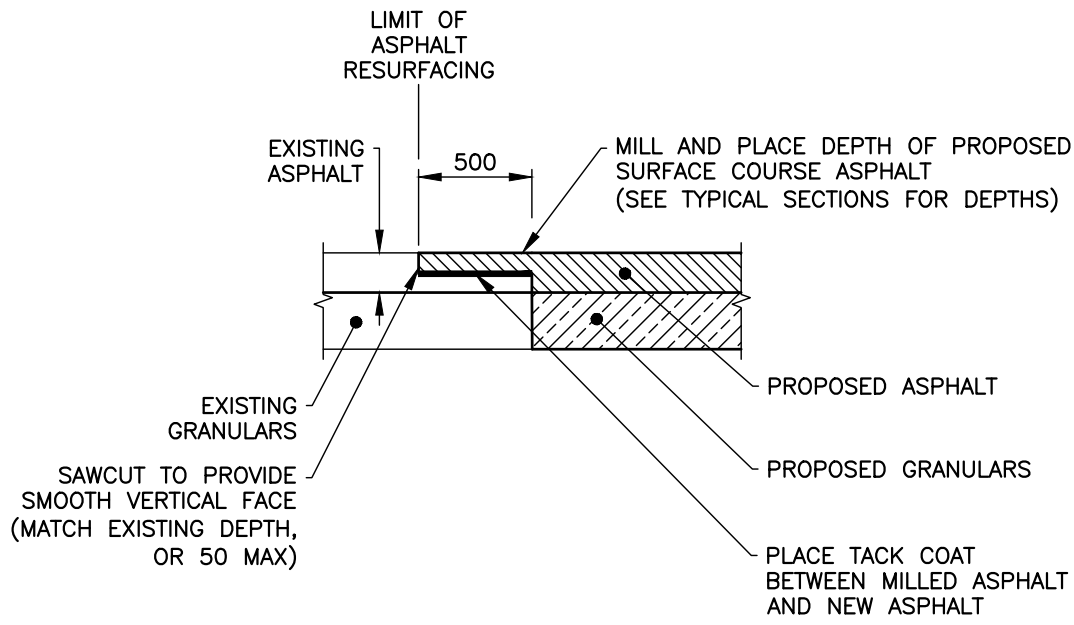




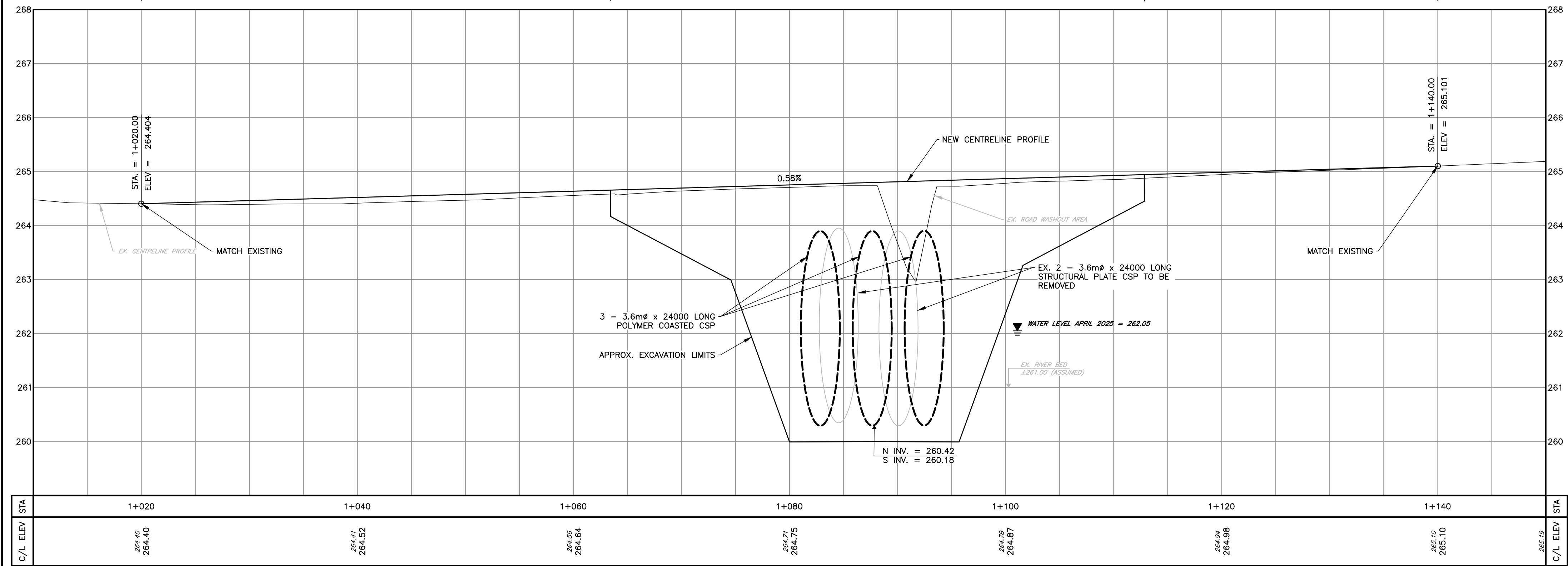
TYPICAL SECTION - FULL-DEPTH RECONSTRUCTION  
N.T.S.



TYPICAL SECTION - ASPHALT RESURFACING  
N.T.S.




DETAIL - LAP JOINT  
N.T.S.

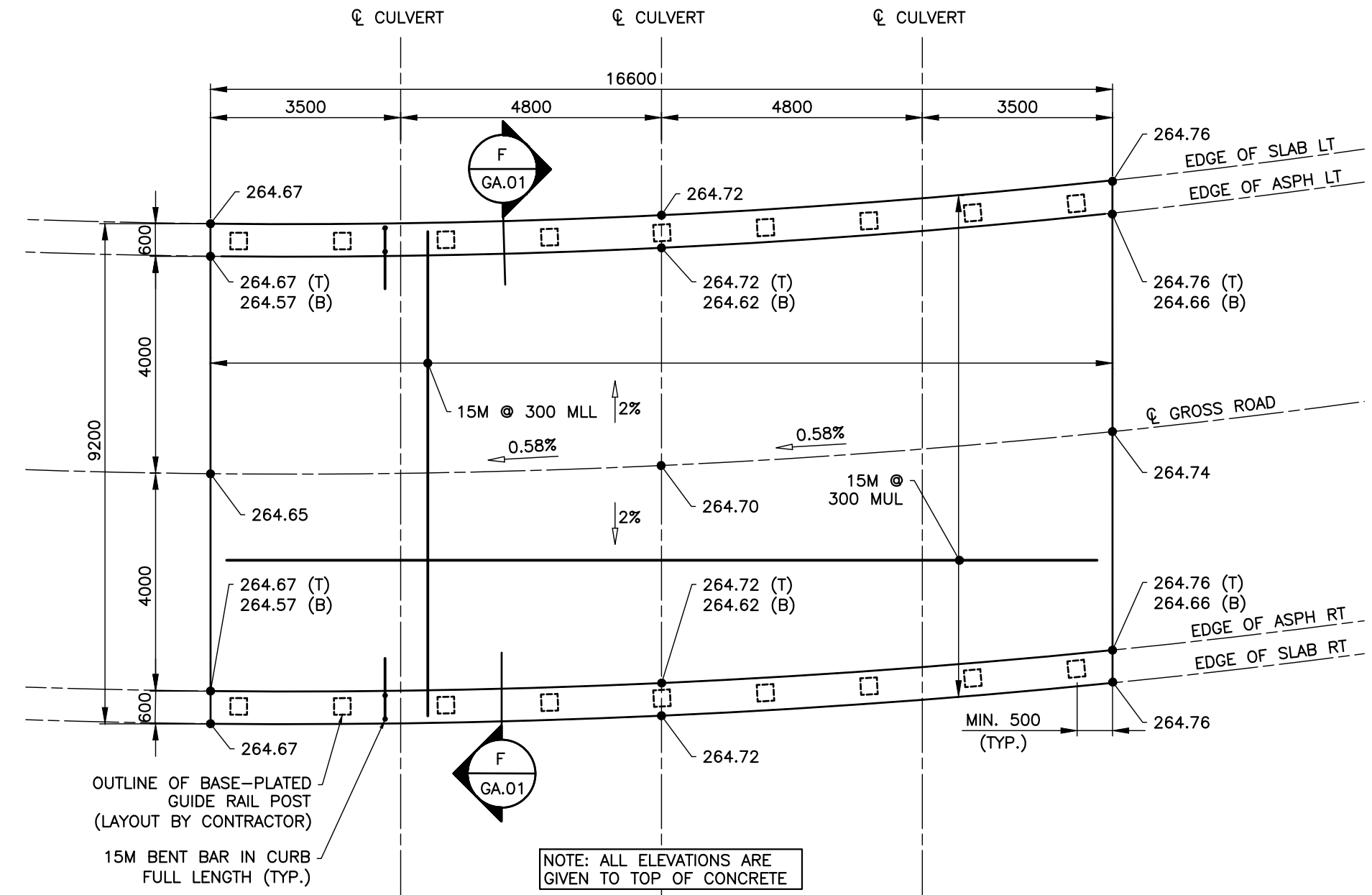


WORKING POINTS			
WP#	STA	T/ASPH ELEV	DESCRIPTION
1	1+082.85	264.77	PROP WEST CULVERT
2	1+087.65	264.80	PROP MIDDLE CULVERT
3	1+092.45	264.83	PROP EAST CULVERT
A	1+084.55	264.78	EX. WEST CULVERT
B	1+090.08	264.81	EX. EAST CULVERT

GUIDE RAIL		
LOCATION	STA	DESCRIPTION
LT	1+058.18 TO 1+117.21	15 m SBEAT PER OPSD 922.186 (PARALLEL TO ROAD)
		30.48 m SBGR PER OPSD 912.185 INCLUDING BASE PLATED POSTS PER OPSD 912.249 ON DISTRIBUTION SLAB
		15 m SBEAT PER OPSD 922.186 (PARALLEL TO ROAD)
RT	1+056.79 TO 1+118.80	15 m SBEAT PER OPSD 922.186 (PARALLEL TO ROAD)
		30.48 m SBGR PER OPSD 912.185 INCLUDING BASE PLATED POSTS PER OPSD 912.249 ON DISTRIBUTION SLAB
		15 m SBEAT PER OPSD 922.186 (PARALLEL TO ROAD)

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			1.	ISSUED FOR REVIEW	JUL 3/25					
			2.	ISSUED FOR TENDER	JUL 9/25					





GENERAL NOTES:

1. DESIGN TO CSA S6-19 FOR CL-625-ONT LIVE LOAD.
2. SPECIFICATIONS: OPSS VOLUME 7-8 AND SPECIAL PROVISIONS.
3. REFER TO OPSD 1000 SERIES FOR ABBREVIATIONS.
4. ALL ELEVATIONS IN METRES, ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE NOTED.
5. DO NOT SCALE DRAWINGS.
6. FEATURES OF CONSTRUCTION NOT FULLY SHOWN ARE OF THE SAME CHARACTER AS THOSE NOTED FOR SIMILAR CONDITIONS.
7. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, DETAILS AND ELEVATIONS THAT ARE RELEVANT TO THE WORK SHOWN ON THE DRAWINGS PRIOR TO COMMENCEMENT OF THE WORK. ANY DISCREPANCIES SHALL BE REPORTED TO THE CONTRACT ADMINISTRATOR AND THE PROPOSED ADJUSTMENT OF THE WORK SHALL BE SUBMITTED FOR APPROVAL.
8. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING AND PROTECTING ALL EXISTING UTILITIES PRIOR TO AND DURING CONSTRUCTION. LOCATION OF EXISTING UTILITIES TO BE VERIFIED IN THE FIELD.

**CORRUGATED STEEL PIPE:**

1. STRUCTURAL PLATE CORRUGATED STEEL PIPE SHALL BE PROVIDED BY OWNER DELIVERED TO SITE AND INSTALLED BY CONTRACTOR. CONTRACTOR WILL TAKE OWNERSHIP OF PIPE MATERIAL UPON DELIVERY. CARE AND CONTROL OF PIPE MATERIAL DURING UNLOADING SHALL BE RESPONSIBILITY OF CONTRACTOR.
2. BACKFILL AND BEDDING MATERIAL TO BE APPROVED BY THE ENGINEER.
3. BACKFILL TO BE PLACED IN MAXIMUM 200 mm THICK LAYERS SIMULTANEOUSLY ON ALTERNATING SIDES OF CULVERT. THE MAXIMUM DIFFERENCE IN ELEVATION SHALL BE 400 mm. ALL BEDDING AND BACKFILL TO BE COMPACTED TO 100% SPMDM UNLESS NOTED OTHERWISE.
4. BACKFILL MATERIAL SHALL NOT BE DUMPED ONTO THE TOP OF THE PIPE. BACKFILL SHALL BE PLACED ON EITHER SIDE OF THE PIPE THEN SPREAD IN LAYERS SUITABLE FOR COMPACTING. TRUCK END-DUMPING OR DOZER PLACEMENT AGAINST THE PIPE IS NOT PERMITTED.
5. BACKFILL IN AREAS CLOSE TO THE PIPE SHALL BE COMPACTED USING VIBRATING OR TAMPING EQUIPMENT RUNNING PARALLEL WITH THE LENGTH OF THE PIPE AT ALL TIMES.
6. ALL CSP JOINTS SHALL BE COMPLETELY WRAPPED WITH MINIMUM 1200 mm WIDE GEOTECHTILE, CENTRED ON JOINT (TERRAFIX 270R OR EQUIVALENT).
7. NO HEAVY CONSTRUCTION EQUIPMENT SHALL BE PLACED WITHIN 1.5 m Laterally OF THE STRUCTURE(S) UNTIL THE BACKFILL MATERIAL HAS BEEN PLACED AND COMPACTED.
8. PRIOR TO ALLOWING HEAVY CONSTRUCTION EQUIPMENT OVER THE STRUCTURE, THE DEPTH OF COMPACTED COVER MATERIAL SHALL NOT BE LESS THAN 600 mm.

CONCRETE:

1. C-1, 35 MPa @ 28 DAYS UNLESS NOTED OTHERWISE.
2. MAX AGGREGATE SIZE 20 mm UNLESS OTHERWISE APPROVED.
3. ALL MIX DESIGNS AND ADMIXTURES TO BE SUBMITTED TO THE CONTRACT ADMINISTRATOR FOR REVIEW PRIOR TO USE.

CLEAR COVER TO REINFORCING STEEL:

1.  $70 \pm 20$  UNLESS NOTED OTHERWISE.

REINFORCING STEEL:

1. REINFORCING STEEL SHALL BE GRADE 400W.
2. UNLESS SHOWN OTHERWISE, TENSION LAP SPLICES FOR REINFORCING STEEL BARS SHALL BE CLASS 'B'.
3. ALL INSERTS AND THREADING ARE PART OF REINFORCING STEEL.
4. BAR HOOKS SHALL HAVE STANDARD HOOK DIMENSIONS USING MINIMUM BEND RADIUSES. MINIMUM STIRRUPS AND TIES SHALL HAVE MINIMUM HOOK DIMENSIONS. ALL HOOKS SHALL BE IN ACCORDANCE WITH THE STRUCTURAL STANDARD DRAWING SS112-1, UNLESS INDICATED OTHERWISE.

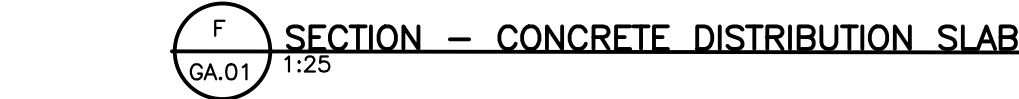
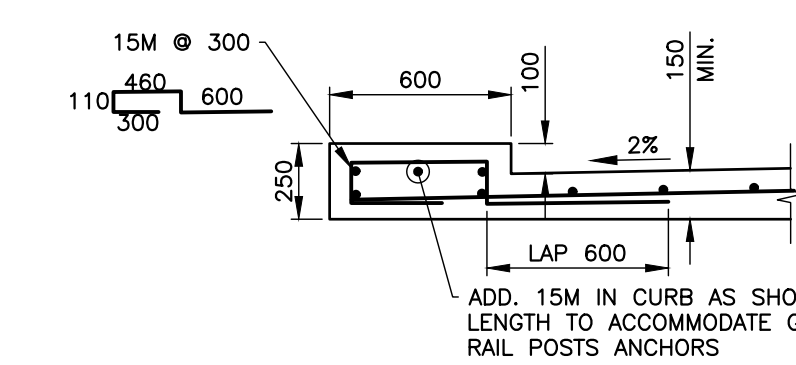
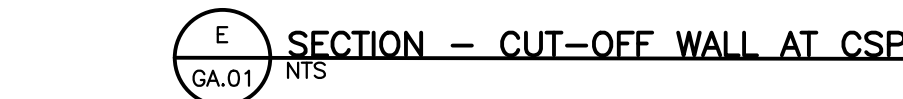
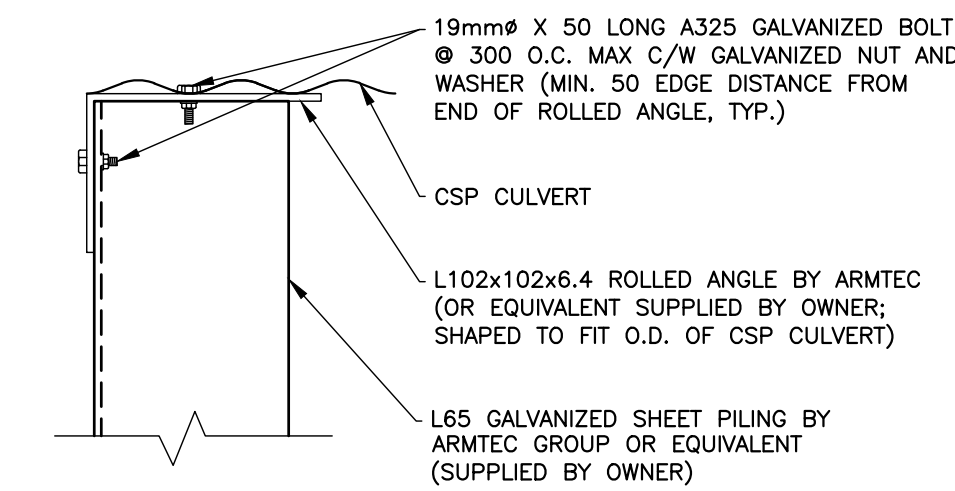
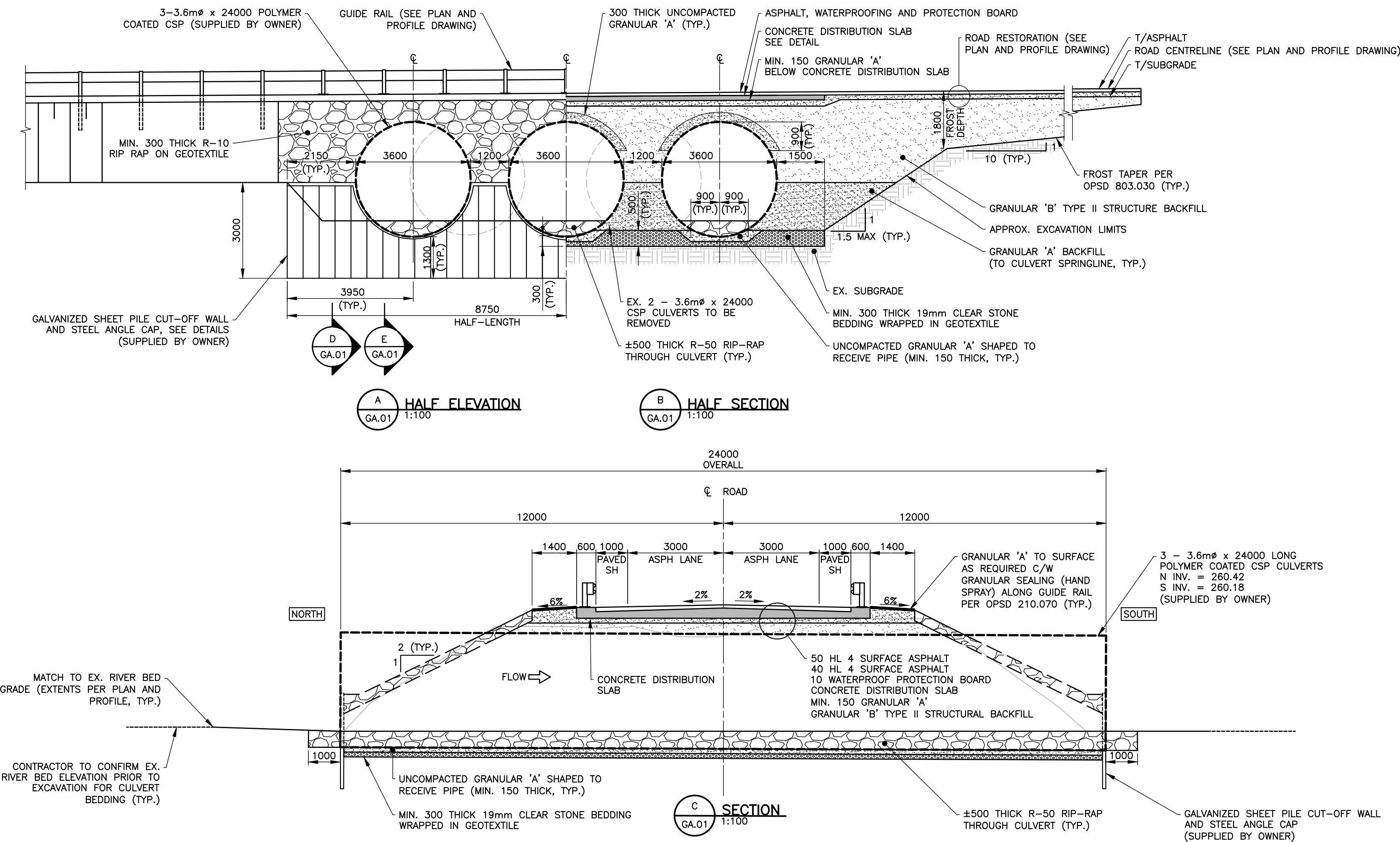
**STRUCTURAL STEEL:**

1. ALL STRUCTURAL STEEL SHALL CONFORM TO CSA G40.20/G40.21. CHANNELS, ANGLES AND PLATES SHALL BE 300W. L SERIES SHEET PILES SHALL BE 260W. ALL OTHER STRUCTURAL STEEL TO BE 350W (UNLESS OTHERWISE NOTED).
2. SHEET PILES AND STRUCTURAL STEEL FOR BENT PLATE / SHEETING CAP / BEAM SHALL BE GALVANIZED, ZINC COATING MASS (TOTAL ON BOTH SIDES) SHALL NOT BE LESS THAN 9.45 G/M2 WHEN TESTED BY THE TRIPLE POINT TEST (TST). FIELD TOUCH UP ALL CUTTING AND HOLES WITH TWO COATS OF ZINC RICH PAINT PER CSA G401.
3. BOLTED CONNECTIONS TO BE ASTM A325 HIGH STRENGTH, UNLESS NOTED OTHERWISE. ALL BOLTS SHALL BE TIGHTENED USING TURN-OF-NUT METHOD AS SPECIFIED IN CSA S6. BOLT THREADS TO BE EXCLUDED FROM SHEAR PLANE.
4. NO DRILLING OR CUTTING AFTER FABRICATION UNLESS APPROVED BY THE CONTRACT ADMINISTRATOR.
5. ALL WELDING SHALL BE AS PER CSA W59 BY A QUALIFIED WELDER UNDER CSA W47.1. ALL WELDS TO BE CONTINUOUS UNLESS NOTED OTHERWISE.
6. UNLESS OTHERWISE NOTED, THE MINIMUM FILLET WELD SHALL BE AS FOLLOWS:

MATERIAL THICKNESS OF THICKER PART JOINED (mm)	MINIMUM SIZE OF SINGLE PASS FILLET WELD (mm)
TO 12 INCLUSIVE	5
OVER 12 TO 20	6
OVER 20 TO 40	8
OVER 40 TO 60	10
OVER 60 TO 120	12

CONSTRUCTION NOTES:

1. CONTRACT ADMINISTRATOR SHALL REVIEW REINFORCING STEEL AND FORMWORK PRIOR TO ANY CONCRETE POURS. PROVIDE MINIMUM 48 HOURS NOTICE.
2. CONSTRUCTION JOINTS SHALL ONLY BE MADE AT LOCATIONS SHOWN ON THE DRAWINGS OR AS APPROVED BY THE CONTRACT ADMINISTRATOR.
3. SUCCESSIVE POURS SHALL BE SUITABLY KEYPED TOGETHER.
4. FALSEWORK SHALL NOT BE REMOVED WITHOUT THE CONTRACT ADMINISTRATOR'S APPROVAL.
5. A DRAFT GEOTECHNICAL REPORT PREPARED BY CAMBIUM INC. DATED JULY 9, 2025 HAS BEEN REVIEWED IN PREPARATION OF THESE DRAWINGS. THE REQUIRED BEARING PRESSURE AT THE UNDERSIDE OF CULVERT ELEVATION IS 100 KPa SLS AND 150 KPa ULS.
6. THE FOUNDING SOILS SHALL BE INSPECTED AND APPROVED BY THE GEOTECHNICAL ENGINEER IMMEDIATELY FOLLOWING EXCAVATION. ANY DISTURBED OR POOR SOILS SHALL BE REMOVED FROM THE EXCAVATED AREA AND REPLACED WITH CONCRETE OR ENGINEERED FILL AT THE DISCRETION OF THE GEOTECHNICAL ENGINEER.
7. CULVERT BEDDING SHALL BE PLACED IMMEDIATELY AFTER THE EXCAVATION AND SOILS ARE INSPECTED AND APPROVED BY THE GEOTECHNICAL ENGINEER TO PROTECT THE FOUNDING SOILS.
8. CROSSING OF THE EXISTING STRUCTURE BY CONSTRUCTION EQUIPMENT DURING CONSTRUCTION AT THE RISK OF THE CONTRACTOR WHO SHALL TAKE SUCH MEASURES AS THEY CONSIDER NECESSARY TO ENSURE SAFE PASSAGE OF EQUIPMENT.
9. EXCAVATIONS SHALL BE PER SOIL CLASS AND OCCUPATIONAL HEALTH AND SAFETY ACT.
10. ALL IMPORTED FILL MATERIAL TO BE COMPACTED TO MINIMUM 98% SPMD, UNLESS NOTED OTHERWISE.
11. ALL PROPRIETARY REPAIR PRODUCTS SHALL BE SELECTED FROM THE MTO DSM (DESIGNATED SOURCES FOR MATERIALS) LIST AND SHALL BE USED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.



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## BENCHMARKS

TBM 1 - ELEVATION 265.41  
NAIL ON THE SOUTH WEST SIDE OF THE GROSS ROAD  
AND ASPDIN ROAD INTERSECTION.

TBM 2 - ELEVATION 264.24  
NAIL ON THE SOUTH EAST SIDE OF THE 800Ø CULVERT  
WEST OF THE ROSSEAU RIVER CULVERTS.

**NOTES**

1. SURVEY COMPLETED BY TATHAM ENGINEERING LTD,  
APRIL 2025.

No.	REVISION DESCRIPTION	DATE
1.	ISSUED FOR REVIEW	JUL 3/25
2.	ISSUED FOR TENDER	JUL 9/25

ENGINEER STAMP

**GROSS ROAD CULVERT  
REPLACEMENT  
TOWNSHIP OF MUSKOKA LAKES  
T-2025-38**

## GENERAL ARRANGEMENT

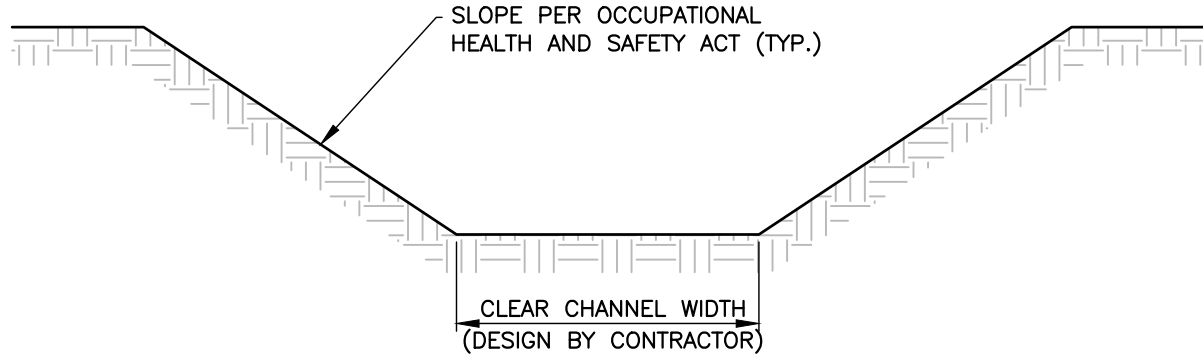


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DRAWN: AC	DATE: MAY 2025	
CHECK: MS	SCALE: AS SHOWN	



SUGGESTED SEQUENCE OF CONSTRUCTION:

1. INSTALL EROSION, SEDIMENT CONTROLS, AND ENVIRONMENTAL PROTECTION MEASURES.
2. INSTALL TEMPORARY DIVERSION CHANNEL AND CROSSING
3. INSTALL COFFERDAM UPSTREAM AND DOWNSTREAM OF EXISTING CSP BARRELS TO ISOLATE WORKSITE.
4. COMPLETE FISH RESCUE.
5. COMPLETE SURFACE FEATURE REMOVALS, EXCAVATE, REMOVE EXISTING CSP BARREL, INSTALL NEW CSP BARRELS, INSTALL CUT-OFF WALLS, AND COMPLETE EMBANKMENT REALIGNMENT.
6. BACKFILL AND REMOVE COFFERDAM TO DIVERT FLOWS THROUGH NEW BARRELS.
7. COMPLETE REMOVAL OF TEMPORARY DIVERSION CHANNEL AND CROSSING.
8. RESTORE ROAD.
9. COMPLETE SITE RESTORATION.
10. REMOVE EROSION AND SEDIMENT CONTROLS UPON STABILIZATION OF RESTORED AREAS.



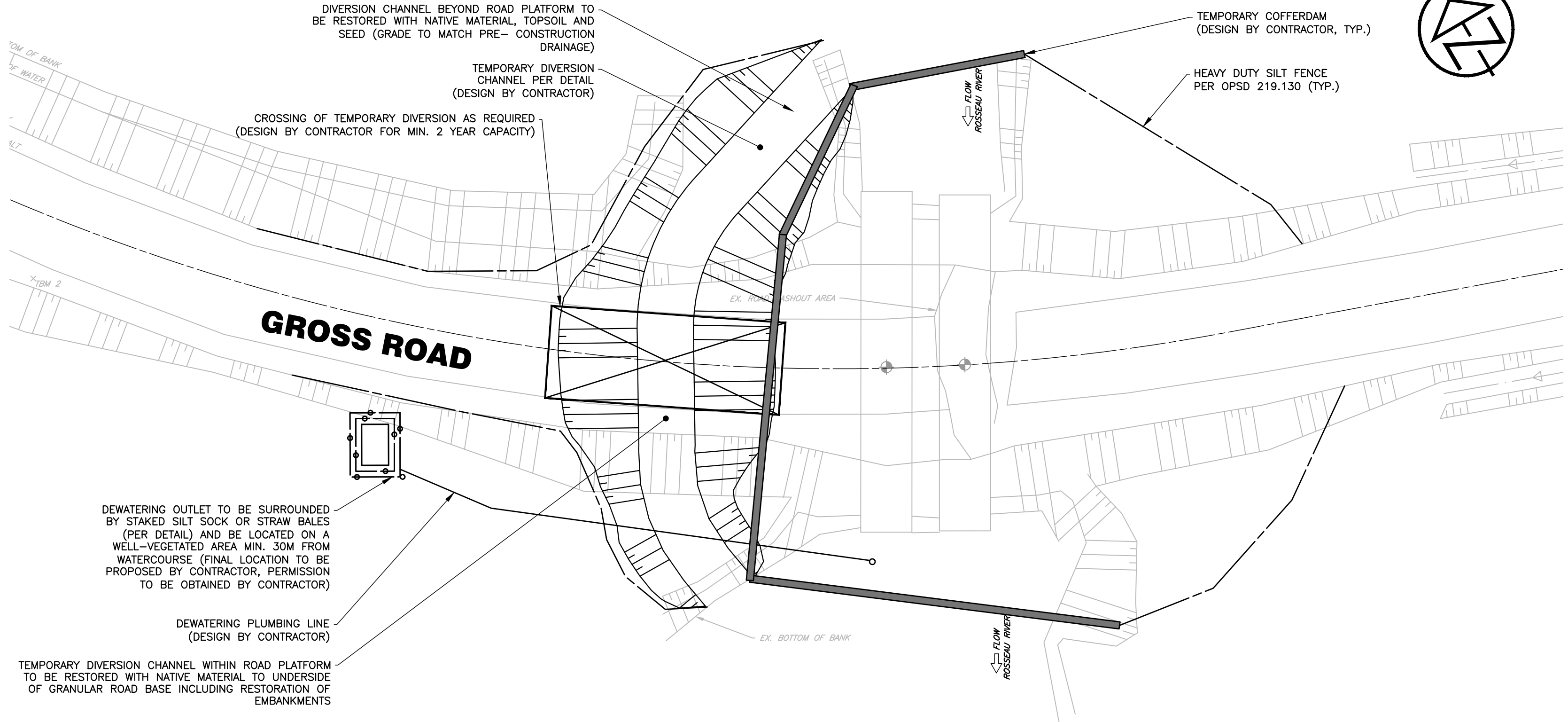
TEMPORARY DIVERSION CHANNEL

N.T.S.

NOTE:

A CLEAR CHANNEL WIDTH OF 4.0m AT 0.6% SLOPE IS ESTIMATED TO CONVEY THE 2 YEAR DESIGN FLOW AT AN APPROXIMATE DEPTH OF 2.0m. THIS INFORMATION IS PROVIDED AS A COURTESY ONLY. THE CONTRACTOR IS ULTIMATELY RESPONSIBLE FOR THE SECTION OF TEMPORARY WORKS FOR STREAM DIVERSION INCLUDING DIVERSION METHOD, CROSSINGS AND SHORING, AS REQUIRED.

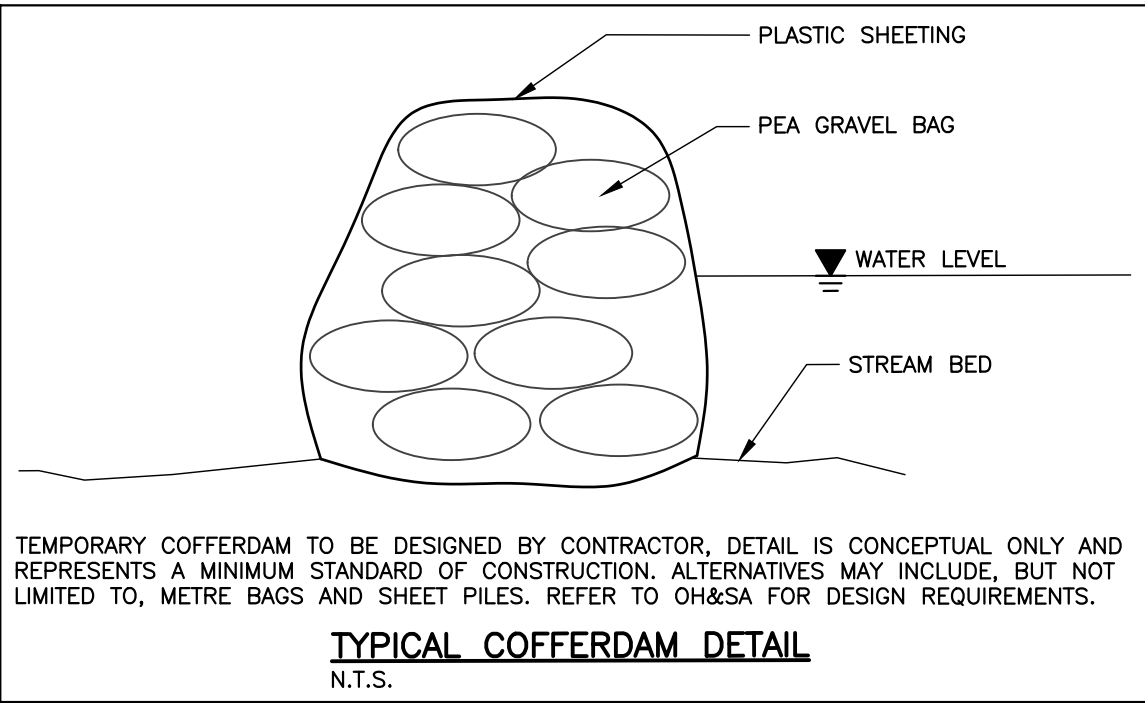
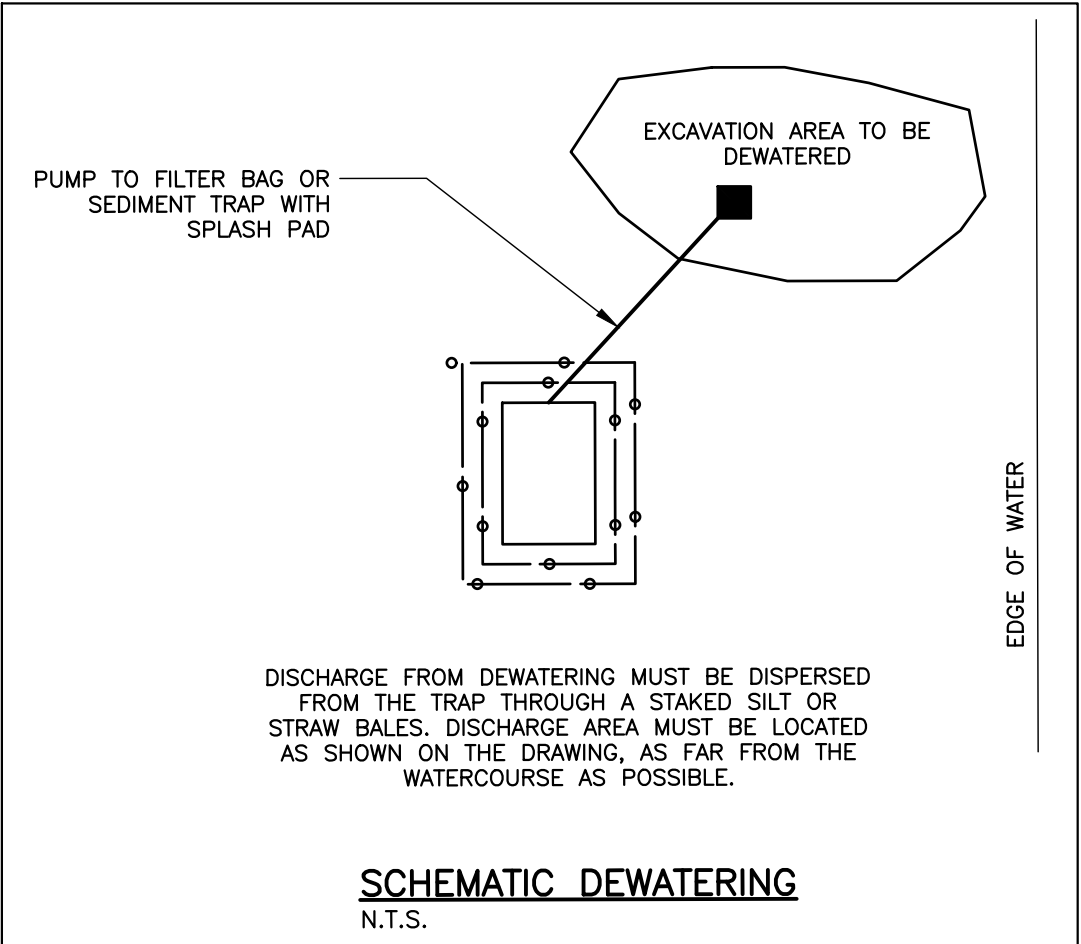
RETURN PERIOD	ESTIMATED WATER SURFACE ELEVATION	ESTIMATED FLOW (m3/s)
2 YEAR	263.2	36.0
10 YEAR	264.1	55.6



PLAN – ENVIRONMENTAL PROTECTION

ENVIRONMENTAL REQUIREMENTS:

1. ANY DEWATERING OPERATIONS REQUIRED TO COMPLETE THE WORK IN THE DRY ARE NOT TO EXCEED 50,000 LITRES PER DAY WITHOUT A MINISTRY OF THE ENVIRONMENT, CONSERVATION AND PARKS (MECP) PERMIT TO TAKE WATER OR COMPLETION OF AN ENVIRONMENTAL ACTIVITY AND SECTOR REGISTRY (AS APPLICABLE).
2. THE CONTRACTOR IS RESPONSIBLE FOR PREPARATION, COST AND SUBMISSION OF ALL REPORTS, PLANS AND APPLICATIONS REQUIRED TO SECURE A PERMIT TO TAKE WATER (CATEGORY 1, 2 OR 3) OR ENVIRONMENTAL ACTIVITY AND SECTOR REGISTRY (AS APPLICABLE) FROM THE MECP FOR DEWATERING OPERATIONS WHICH EXCEED 50,000 LITRES PER DAY.
3. ESTIMATED 2 YEAR FLOW = 36.0 m3/s.
4. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN OF TEMPORARY WORKSITE ISOLATION, DIVERSION AND DEWATERING SYSTEMS. DIVERSION AND WORK SITE ISOLATION DETAILS IN THE DRAWING SET ARE FOR SCHEMATIC PURPOSES ONLY. THE CONTRACTOR SHALL PROVIDE SUBMISSIONS OF ALL RELEVANT DETAILS FOR THESE WORKS TO THE CONTRACT ADMINISTRATOR FOR REVIEW. ALTERNATIVE SCHEMATICS ARE SUBJECT TO REVIEW BY REGULATORY AGENCIES AND ANY DELAYS FROM SUCH REVIEWS ARE THE RESPONSIBILITY OF THE CONTRACTOR.
5. ALL MATERIAL AND EQUIPMENT USED FOR THE PURPOSE OF OR GENERATED DURING COMPLETION OF THE WORKS SHALL BE OPERATED, STORED AND REMOVED FROM SITE IN A MANNER THAT PREVENTS ANY DELETERIOUS SUBSTANCE. (EG. PETROLEUM PRODUCTS, SILT, DEBRIS, ETC.) FROM ENTERING THE WATERCOURSE.
6. ANY STOCKPILED MATERIALS SHALL BE STORED AND STABILIZED A MINIMUM OF 30 METRES AWAY FROM AND ABOVE THE HIGH-WATER MARK. STOCKPILES OF ERODABLE MATERIAL SHALL BE SURROUNDED WITH SILT FENCE PER TYPE NOTED ON PLAN OR EQUIVALENT WITHIN 48 HOURS OF STOCKPILING UNLESS THEY ARE TO BE USED/DISPOSED OF WITHIN 14 DAYS.
7. IN WATER WORK IS TO OCCUR BETWEEN JULY 15 AND MARCH 14 (INCLUSIVE).
8. ALL DISTURBED AREAS SHALL BE STABILIZED AND RE-VEGETATED AS REQUIRED UPON COMPLETION OF WORK AND RESTORED TO A PRE-DISTURBED STATE OR BETTER, INCLUDING RE-INSTATEMENT AND RE-STABILIZATION OF THE WATERCOURSE.
9. SEDIMENT AND EROSION CONTROL MEASURES SHALL BE IMPLEMENTED PRIOR TO COMMENCEMENT OF WORK, AND MAINTAINED THROUGHOUT CONSTRUCTION TO PREVENT ENTRY OF SEDIMENT INTO THE WATERCOURSE OR THE MOVEMENT OF RE-SUSPENDED SEDIMENT.
10. SEDIMENT AND EROSION CONTROL MEASURES SHALL BE LEFT IN PLACE UNTIL ALL DISTURBED AREAS HAVE BEEN STABILIZED.
11. NO WORK IS PERMITTED IN THE WATERCOURSE AND NO MATERIAL SHALL BE RELEASED INTO THE WATERCOURSE. WORK IS TO BE COMPLETED IN THE DRY.
12. NO MACHINERY SHALL CROSS THE WATERCOURSE AT ANY TIME. MACHINERY THAT IS REQUIRED ON THE OPPOSITE SIDE OF THE WATERCOURSE WHILE THE STRUCTURE IS BEING REPLACED SHALL BE DRIVEN ACROSS THE STRUCTURE ITSELF, HAULED BY FLOAT, OR DRIVEN AROUND ON ROADS.
13. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ANY TEMPORARY PROTECTION MEASURES OR DEBRIS CONTAINMENT SYSTEMS NECESSARY TO PREVENT ANY CONCRETE, RUBBLE, DEMOLITION DEBRIS, OR DUST FROM ENTERING THE WATERCOURSE. SUCH MATERIAL SHALL BE REMOVED FROM TEMPORARY PROTECTION MEASURES REGULARLY AND AT THE END OF EACH DAY.
14. THE SEDIMENT AND EROSION CONTROL MEASURES MAY BE SUBJECT TO CHANGE OR MODIFICATIONS AS A RESULT OF SITE DEVELOPMENT OR CHANGES ON-SITE. REVIEW AGENCIES ARE TO BE NOTIFIED ON ANY SUCH CHANGE.
15. ADDITIONAL MATERIALS INCLUDING, BUT NOT LIMITED TO, PUMPS, GEOTEXTILE, SILT FENCE AND CLEAR STONE SHALL BE KEPT ON-SITE FOR REPAIRS TO PROPOSED SEDIMENT AND EROSION CONTROL FEATURES.
16. EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE EVALUATED ON A WEEKLY BASIS AS WELL AS BEFORE AND AFTER ANY FORECAST PRECIPITATION EVENT. ANY REPAIRS REQUIRED ARE TO BE RECTIFIED IMMEDIATELY.
17. SEDIMENT LADEN WATERS ARE TO BE TREATED PRIOR TO DISCHARGING INTO THE WATERCOURSE.
18. MACHINERY, VEHICLES, EQUIPMENT, AND PUMPS SHALL NOT BE REFUELED OR CLEANED WITHIN 30 METRES OF THE WATERCOURSE.
19. ALL MACHINERY SHALL BE MAINTAINED FREE OF FLUID LEAKS AND SHALL ARRIVE ON-SITE IN A CLEAN AND WASHED CONDITION.
20. AN EMERGENCY SPILL KIT SHALL BE KEPT ON SITE AT ALL TIMES. THE CONTRACTOR SHALL COMPLY WITH ALL MECP REQUIREMENTS AND SHALL REPORT SPILLS TO THE SPILLS ACTION CENTRE (1-800-268-6060). A SPILL RESPONSE PLAN IS TO BE KEPT ON SITE AT ALL TIMES.
21. MEASURES SHALL BE TAKEN TO PREVENT CONCRETE LEACHATE FROM ENTERING THE WATERCOURSE. ALL CEMENTITIOUS PRODUCTS INCLUDING CONCRETE, GROUT, AND MORTAR SHALL BE COMPLETELY ISOLATED FROM PRECIPITATION AND WATERCOURSE FLOW FOR A MINIMUM OF 48 HOURS (OR UNTIL SIGNIFICANTLY CURED) TO ALLOW THE PH TO REACH NEUTRAL LEVELS. CONTAINMENT FACILITIES SHALL BE PROVIDED AT THE SITE FOR WASH DOWN OF CONCRETE TRUCKS, PUMPS, EQUIPMENT, AND TOOLS AS REQUIRED.
22. SMALL MESH SEINE TO BE USED TO EXCLUDE FISH FROM THE PROJECT AREA. ALL FISH STRANDED WITHIN THE PROJECT AREA DURING CONSTRUCTION SHALL BE RELOCATED BY A QUALIFIED BIOLOGIST.
23. THE CONTRACTOR SHALL MONITOR THE WEEKLY WEATHER FORECAST ON A DAILY BASIS AND PREPARE THE SITE ADEQUATELY FOR CONDITIONS THAT MAY CAUSE WATER LEVELS TO RISE.
24. ALL GRADES WITHIN THE REGULATORY FLOOD PLAIN ARE TO BE MAINTAINED OR MATCHED UNLESS OTHERWISE APPROVED.
25. ENGINEERED CHANGES TO ESC MEASURES MAY BE NEEDED AS SITE CONDITIONS CHANGE THROUGHOUT THE CONSTRUCTION PROCESS AND MUST REFLECT BEST MANAGEMENT PRACTICES TO CONTROL SEDIMENT AND EROSION ON SITE. UPDATES SHALL BE COMPLETED BASED ON DIRECTION FROM THE CONTRACT ADMINISTRATOR THROUGHOUT THE CONSTRUCTION PROCESS.
26. ALL DISTURBED AREAS LEFT INACTIVE FOR 30 DAYS ARE TO BE STABILIZED WITH AN APPROPRIATE SEED MIXTURE PER OPSS/MUNI 804 APPLIED AT A MINIMUM RATE OF 25kg/ha.



DISCLAIMER AND COPYRIGHT

CONTRACTOR MUST VERIFY ALL DIMENSIONS AND BE RESPONSIBLE FOR SAME. ANY DISCREPANCIES MUST BE REPORTED TO THE ENGINEER BEFORE COMMENCING WORK. DRAWINGS ARE NOT TO BE SCALED.

TATHAM ENGINEERING LIMITED CLAIMS COPYRIGHT TO THIS DRAWING WHICH MAY NOT BE USED FOR ANY PURPOSE OTHER THAN THAT PROVIDED IN THE CONTRACT BETWEEN THE OWNER/CLIENT AND THE ENGINEER WITHOUT THE EXPRESS CONSENT OF TATHAM ENGINEERING LIMITED.

BENCHMARKS

TBM 1 – ELEVATION 265.41  
NAIL ON THE SOUTH WEST SIDE OF THE GROSS ROAD AND ASPDIN ROAD INTERSECTION.

TBM 2 – ELEVATION 264.24  
NAIL ON THE SOUTH EAST SIDE OF THE 800# CULVERT WEST OF THE ROSSEAU RIVER CULVERTS.

NOTES

1. SURVEY COMPLETED BY TATHAM ENGINEERING LTD, APRIL 2025.

No.	REVISION DESCRIPTION	DATE	ENGINEER STAMP
1.	ISSUED FOR REVIEW	JUL 3/25	
2.	ISSUED FOR TENDER	JUL 9/25	

GROSS ROAD CULVERT REPLACEMENT  
TOWNSHIP OF MUSKOKA LAKES  
T-2025-38

ENVIRONMENTAL PROTECTION



DESIGN: AC	FILE: 225020	DWG: <b>EP.01</b>
DRAWN: AC	DATE: MAY 2025	
CHECK: MS	SCALE:	