

# VILLAGE OF MCBRIDE

## WATER TREATMENT PLANT BRIDGE REPLACEMENT



DRAWING INDEX

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LEGEND

WATERLINE	
SANITARY SEWER	
SAN FORCEMAIN	
STORM SEWER	
DITCHING	
CULVERT	
LEGAL BOUNDARY	
FENCE LINE	
ROAD SHOULDER	
POWERLINE	
TELEPHONE LINE	
GASLINE	
NATURAL WATER	
UTILITY POLE	
VALVE	
CURB STOB	
BLOW-OFF HYDRANT	
FIRE HYDRANT	
WATER WELL	
MANHOLE SANITARY/STORM	
CLEAN OUT	
OLD IRON PIN	
SURVEY HUB	
SURVEY BENCHMARK	
TEST PIT	



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PROJECT #: 403-GEN  
DATE: SEPT 2025

GENERAL

- THE CONTRACTOR IS REQUIRED TO OBTAIN A STRUCTURAL ENGINEER TO DESIGN/CERTIFY THE RECONSTRUCTION OF THE BRIDGE.
- FOR INSTALLATION BY OTHERS NO RESPONSIBILITY CAN BE ACCEPTED FOR WORK BY OTHERS.
- DESIGN AND CONSTRUCTION TO CONFORM TO THE VILLAGE OF MCBRIDE "SUBDIVISION AND DEVELOPMENT SERVICING BYLAW" 2010 AND MINISTRY OF FORESTS "BRIDGE STANDARDS MANUAL" 2025.
- ANY DESIGN CHANGES PROPOSED DURING CONSTRUCTION SHALL REQUIRE PRIOR WRITTEN APPROVAL FROM COORDINATING REGISTERED PROFESSIONAL.
- CONSTRUCTION SHALL CONFORM TO THE REQUIREMENTS OF THE ENVIRONMENTAL PERMITS. CONTRACTOR TO PROVIDE ENVIRONMENTAL MONITORING PER THE PERMIT AND ENVIRONMENTAL MANAGEMENT PLAN.
- SURVEY WAS PERFORMED ON MAY 29, 2025 USING RTK GPS UNIT. A UTM10 NAD 83 COORDINATE SYSTEM WAS USED WITH A GRS 1980 ELLIPSOID MODEL FOR A DATUM. THE GPS RTK BASE UNIT WAS SET UP ON AN EXISTING CONTROL BENCHMARK, SEE COORDINATES BELOW.
- BM 8, N:5909968.115 E:688790.577 Z: 718.307

GEOTECHNICAL

- GEOTECHNICAL ENGINEERING IS NOT INCLUDED WITHIN THE SCOPE OF SERVICES PROVIDED BY R. RADLOFF & ASSOCIATES INC. THEREFORE THIS DESIGN HAS BEEN PREPARED WITHOUT THE BENEFIT OF GEOTECHNICAL FIELD INVESTIGATION OR ADVICE. GROUND CONDITIONS MAY VARY, THE FOUNDATION REQUIREMENTS AND BRIDGE CONCEPT MAY NEED TO BE MODIFIED TO ACCOMMODATE ACTUAL SITE CONDITIONS ENCOUNTERED DURING CONSTRUCTION. R. RADLOFF & ASSOCIATES INC. ACCEPTS NO LIABILITY OR RESPONSIBILITY FOR DELAY OR ADDITIONAL COSTS THAT MAY RESULT IF GROUND CONDITIONS VARY FROM THOSE ASSUMED.

HYDROLOGY AND HYDRAULIC ASSESSMENT

HYDRAULIC ANALYSIS BASED ON ASSUMED CHANNEL CONDITIONS.

MATERIALS

- ALL COMPONENTS TO GENERALLY CONFORM TO THE VILLAGE OF MCBRIDE "SUBDIVISION AND DEVELOPMENT SERVICING BYLAW" 2010 AND MINISTRY OF FORESTS "BRIDGE STANDARDS MANUAL" 2025.

GENERAL CONSTRUCTION PROCEDURE

1. LOCATE EXISTING UTILITIES
2. CONSTRUCT TEMPORARY STREAM DIVERSION AND INSTALL AND MONITORING OF EROSION AND SEDIMENT CONTROL MEASURES AS REQUIRED BY CONTRACTOR'S CERTIFIED ENVIRONMENTAL PROFESSIONAL.
3. DIRECT STREAM FLOW THROUGH TEMPORARY DIVERSION
4. REMOVE EXISTING BRIDGE.
5. REINSTALL BRIDGE PER CONTRACTOR'S STRUCTURAL ENGINEER REQUIREMENTS.
6. INSTALL RIPRAP PER MINISTRY OF FOREST RIPRAP INSTALLATION GUIDE
7. REINSTATE ROAD STRUCTURE WITH 300mm W.G.B. GRAVELS COMPACTED TO 98% S.P.D.
8. CUT NEW BRIDGE DECKS TO LENGTH AND INSTALL PER CONTRACTOR'S STRUCTURAL ENGINEER REQUIREMENTS.
9. REMOVE TEMPORARY STREAM DIVERSION TO ALLOW FLOW THROUGH CREEK.

CLEARING & GRUBBING

- REMOVE TREES, STUMPS, LOGS, BRUSH, VINES, UNDERGROWTH, ROTTEN WOOD, DEAD PLANT MATERIAL, EXPOSED BOULDERS AND DEBRIS WITHIN AREAS DESIGNATED ON DRAWINGS.
- REMOVE ANY STUMPS, TREE ROOTS OR OTHER DELETERIOUS MATERIAL BELOW SUBGRADE OR BEDDING MATERIAL
- DISPOSE OF CLEARED AND GRUBBED MATERIAL OFF SITE DAILY TO DISPOSAL AREAS ACCEPTABLE TO AUTHORITY HAVING JURISDICTION.

GEOTEXTILE

- GEOTEXTILE SHALL BE NON-WOVEN AND MEET OR EXCEED THE SPECIFICATIONS PROVIDED IN TABLE 1. TABLE 1: SPECIFICATION FOR NON-WOVEN GEOTEXTILE.

PROPERTY	TEST METHOD	REQUIREMENT
GRAB TENSILE STRENGTH (MIN.)	ASTM-D4632	900 N
GRAB ELONGATION	ASTM-D4632	50%
PUNCTURE CBR (MIN)	ASTM-D6241	2200 N
PERMITTIVITY (MIN.)	ASTM-D4491	0.5 sec
APPARENT OPENING SIZE (AOS) (MAX.)	ASTM-D4751	0.25 mm
U.V. STABILITY	ASTM D-4355	50 % @ 500 hrs
FABRIC OVERLAP	-	0.5 m

RIPRAP AND GRANULAR MATERIAL

- RIPRAP SHALL BE SUPPLIED AND PLACED IN ACCORDANCE WITH THE MINISTRY OF FOREST'S "RIPRAP STANDARDS" 2022. SOURCES FOR GRAVEL AND RIPRAP SHALL BE APPROVED BY THE COORDINATING REGISTERED PROFESSIONAL PRIOR TO SOURCE DEVELOPMENT. PERMITS FROM REGULATORY AGENCIES MAY ALSO BE REQUIRED.
- RIPRAP THICKNESS SHOWN ON DRAWINGS. RIPRAP GRADATION AS PER "RIPRAP STANDARDS" 2022.
- THE EXTENT OF THE RIPRAP IS BASED ON AVAILABLE INFORMATION. THE EXTENTS SHOULD BE ADJUSTED IN THE FIELD TO ENSURE ADEQUATE SCOUR PROTECTION IS PROVIDED TO THE BRIDGE ABUTMENTS.

EXCAVATIONS

- EXCAVATIONS TO UNDERSIDE OF FOUNDATION BEDDING SHALL BE KEPT FREE OF WATER DURING CONSTRUCTION. CARE SHALL BE TAKEN NOT TO DISTURB THE BOTTOM OF THE EXCAVATION.
- WHERE FOUNDATION MATERIALS ENCOUNTERED DO NOT MEET THE DESIGN ASSUMPTIONS SHOWN ON THE DRAWINGS OR IN THE CONSTRUCTION SPECIFICATIONS, THE COORDINATING REGISTERED PROFESSIONAL SHALL BE CONSULTED PRIOR TO INSTALLATION OF BEDDING MATERIALS. THE COORDINATING REGISTERED PROFESSIONAL SHALL BE RESPONSIBLE TO STIPULATE MEASURES TO MEET DESIGN REQUIREMENTS AND CONSULT GEOTECHNICAL ENGINEERS AS REQUIRED.

BACKFILLING AND BEDDING

- INSPECTION: DO NOT COMMENCE BACKFILLING UNTIL FILL MATERIAL AND SPACES TO BE FILLED HAVE BEEN INSPECTED AND APPROVED BY COORDINATING REGISTERED PROFESSIONAL.
- REMOVE SNOW, ICE, CONSTRUCTION DEBRIS, ORGANIC SOIL AND STANDING WATER FROM SPACES TO BE BACKFILLED.
- LATERAL SUPPORT: MAINTAIN EVEN LEVELS OF BACKFILL AROUND STRUCTURES AS WORK PROGRESSES TO EQUALIZE EARTH PRESSURES.
- BEDDING MATERIAL: CLEAN SAND AND GRAVELS WITH A MAXIMUM AGGREGATE SIZE OF 100mm AND A MAXIMUM FINE CONTENT (SILTS AND CLAY PARTICLES) OF 10%.
- PLACING: PLACE BACKFILL, FILL MATERIAL IN 150mm LIFTS AND COMPACT EACH LAYER TO 95% STANDARD PROCTOR DENSITY TAKING SPECIAL CARE TO OBTAIN DENSITY UNDER HAUNCHES. ADD WATER AS REQUIRED TO ACHIEVE SPECIFIED DENSITY.
- PLACEMENT OF BEDDING MATERIAL: DE-WATER EXCAVATION, AS NECESSARY, TO ALLOW PLACEMENT OF FOUNDATION BEDDING IN THE DRY. PLACE MINIMUM 300mm OF APPROVED GRANULAR MATERIAL ON BOTTOM OF EXCAVATION AND COMPACT TO 95% STANDARD PROCTOR DENSITY.
- COMPACTION OF SUBGRADE: FILL EXCAVATED AREAS WITH APPROVED SUBGRADE MATERIAL. EACH LAYER TO BE COMPACTED TO 95% ASTM D698.

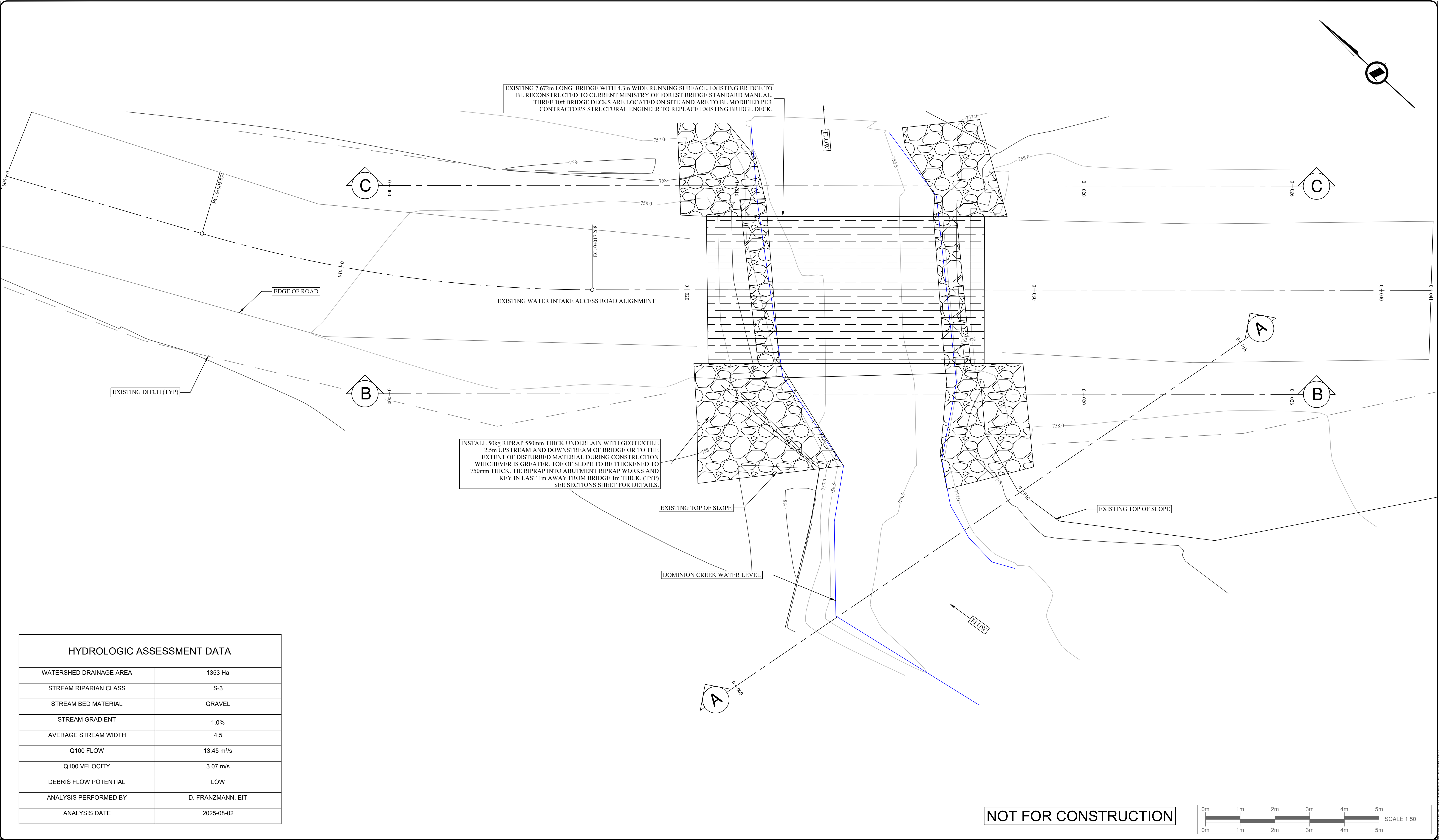
SITE CLEANUP

- CLEANUP OF THE SITE MUST BE COMPLETED IMMEDIATELY FOLLOWING CONSTRUCTION. THIS SHALL INCLUDE THE PICKUP AND REMOVAL OF ALL EQUIPMENT, MATERIALS, TRASH, EQUIPMENT REFUSE AND CONSTRUCTION DEBRIS TO THE SATISFACTION OF THE COORDINATING REGISTERED PROFESSIONAL.

WATER QUALITY AND INSTREAM WORKS

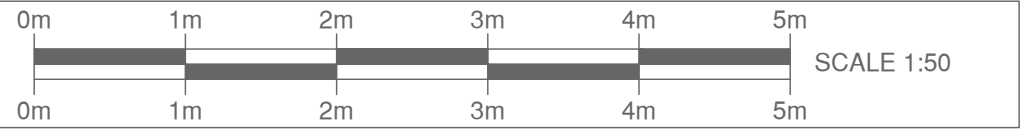
- CONSTRUCTION SHALL BE CARRIED OUT IN SUCH A MANNER TO ENSURE WATER QUALITY IS MAINTAINED BY KEEPING SOIL EROSION AND RUNOFF TO A MINIMUM DURING INCLEMENT WEATHER AND BY TAKING MEASURES TO SEDIMENTATION AND CONSTRUCTION DEBRIS FROM ENTERING THE WETTED PERIMETER, INCLUDING THE FOLLOWING:
  - EXCAVATIONS SHALL BE ISOLATED FROM RUNNING WATER USING TEMPORARY SEDIMENT CONTAINMENT METHODS; SEDIMENT LADEN WATER SHALL BE PUMPED OUT OF THE CONTAINMENT AREAS TO THE BUSH WHERE SEDIMENT WILL SETTLE AND FILTER PRIOR TO ENTERING ANY WATERCOURSE. PRIOR TO BACKFILLING OR REMOVAL OF CONTAINMENT MEASURES, IF NECESSARY, A SETTLING AREA SHALL BE CONSTRUCTED TO PREVENT SEDIMENT LADEN WATER RETURNING TO THE STREAM;
  - ALL CROSSINGS OR ENCROACHMENT BY EQUIPMENT ON THE WETTED PERIMETER SHALL BE APPROVED BY THE ENVIRONMENTAL CONSULTANT;
  - ANY UNDUE DISTURBANCE TO THE STREAM CHANNEL OR BANKS AS A RESULT OF CONSTRUCTION ACTIVITIES SHALL BE CORRECTED TO THE SATISFACTION OF THE REGULATORY AGENCY AND COORDINATING REGISTERED PROFESSIONAL.





HYDROLOGIC ASSESSMENT DATA	
WATERSHED DRAINAGE AREA	1353 Ha
STREAM RIPARIAN CLASS	S-3
STREAM BED MATERIAL	GRAVEL
STREAM GRADIENT	1.0%
AVERAGE STREAM WIDTH	4.5
Q100 FLOW	13.45 m³/s
Q100 VELOCITY	3.07 m/s
DEBRIS FLOW POTENTIAL	LOW
ANALYSIS PERFORMED BY	D. FRANZMANN, EIT
ANALYSIS DATE	2025-08-02

NOT FOR CONSTRUCTION



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DESIGN BY	DATE				
DJF	25/09/02				
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DJF	25/09/02				
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APPROVED BY	DATE				
MRN	25/09/02				

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1	25/08/02	DJF	FOR DISCUSSION	MRN
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VILLAGE OF MCBRIDE

SCALE HORIZ. 1:50 SCALE VERT. 1:50

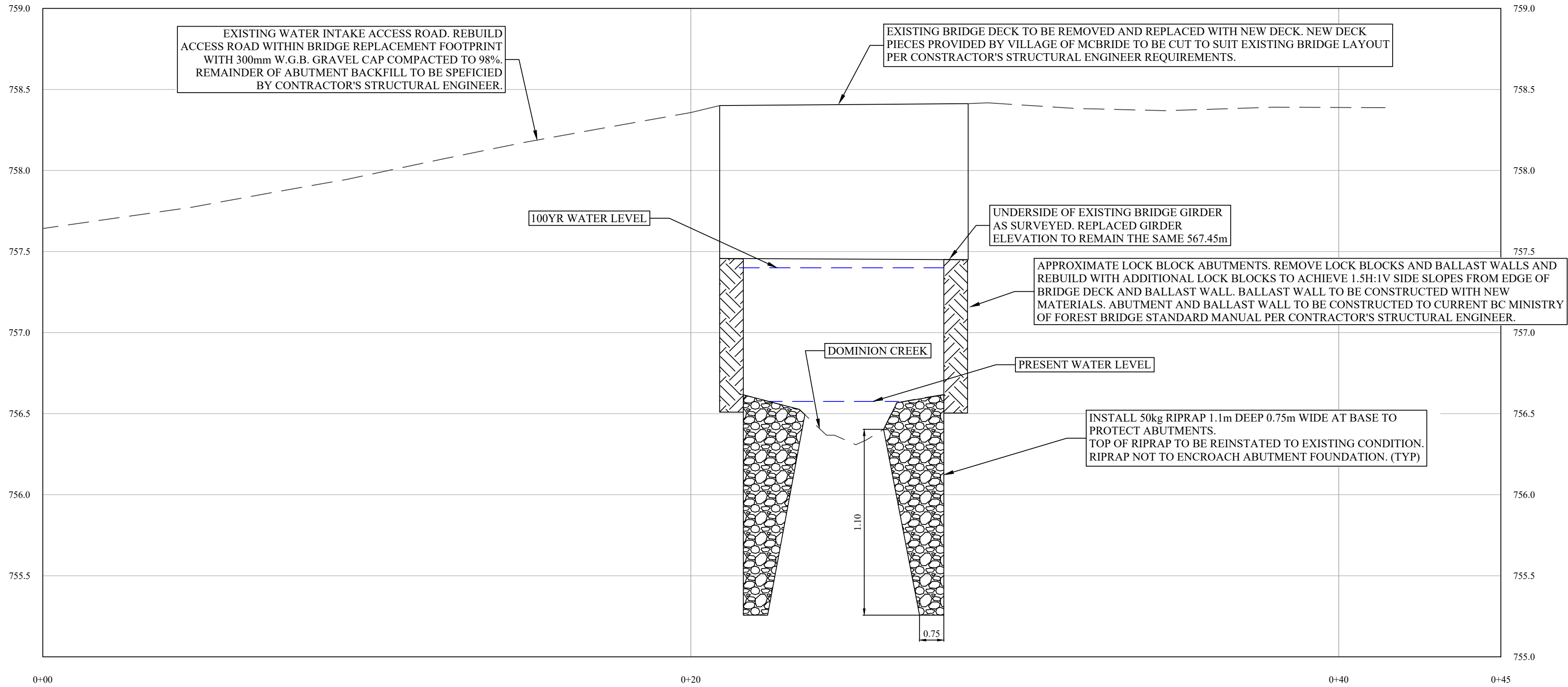
SHEET C02 OF C03

ENG PROJECT NUMBER 403-GEN

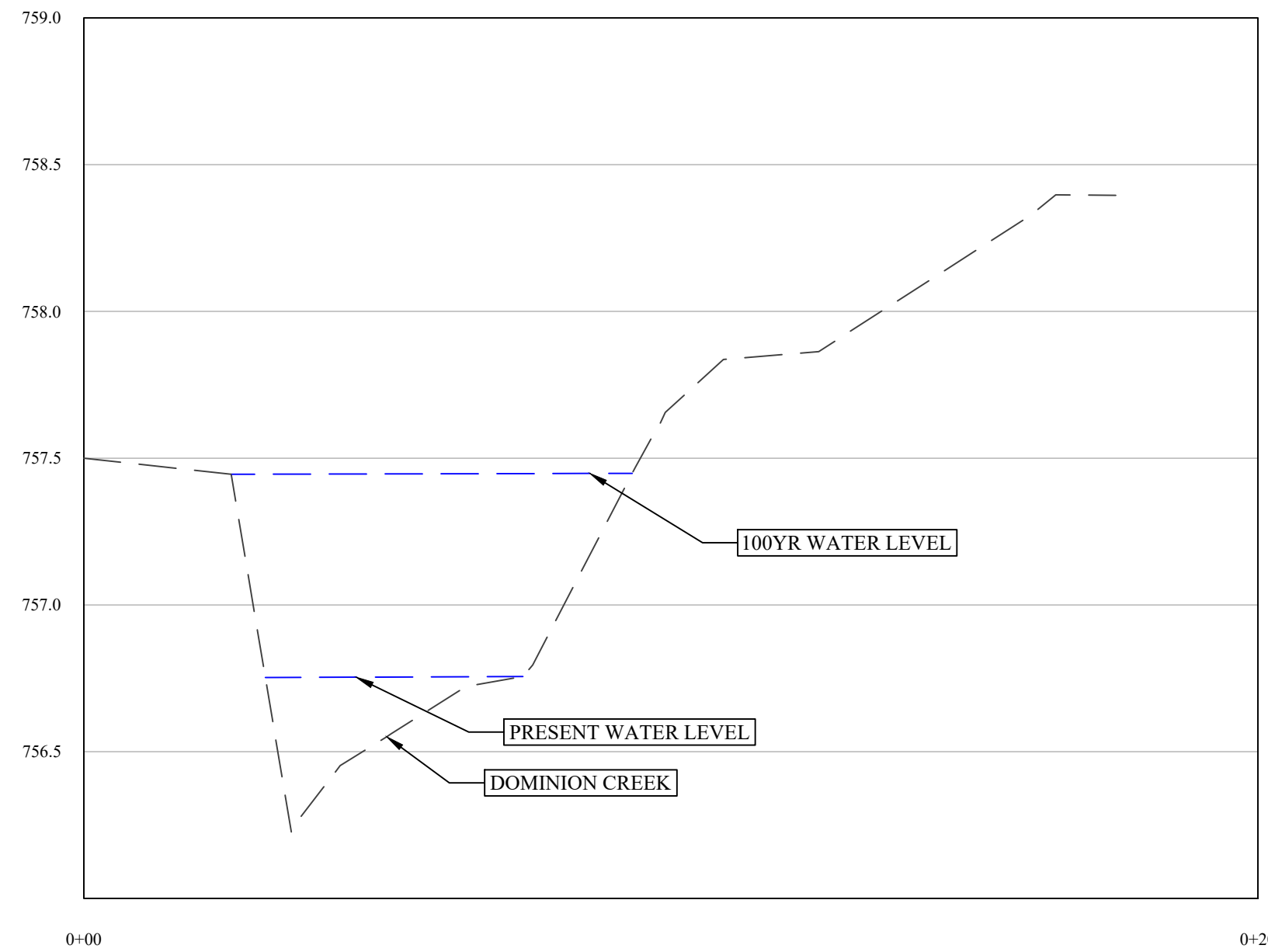
PROJECT WATER TREATMENT PLANT BRIDGE REPLACEMENT

SHEET TITLE SITE PLAN

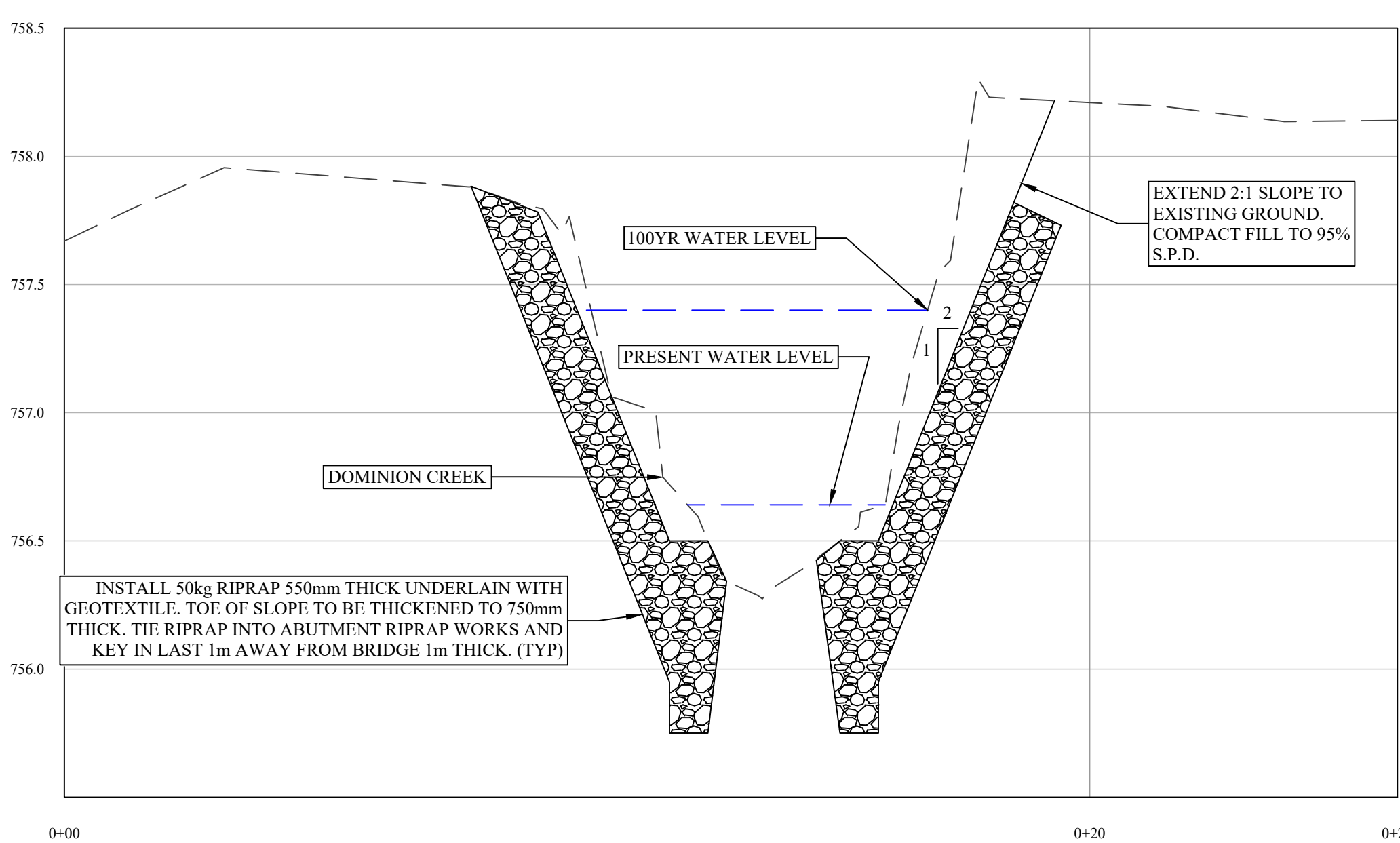
WATER TREATMENT PLANT ACCESS ROAD BRIDGE ALIGNMENT



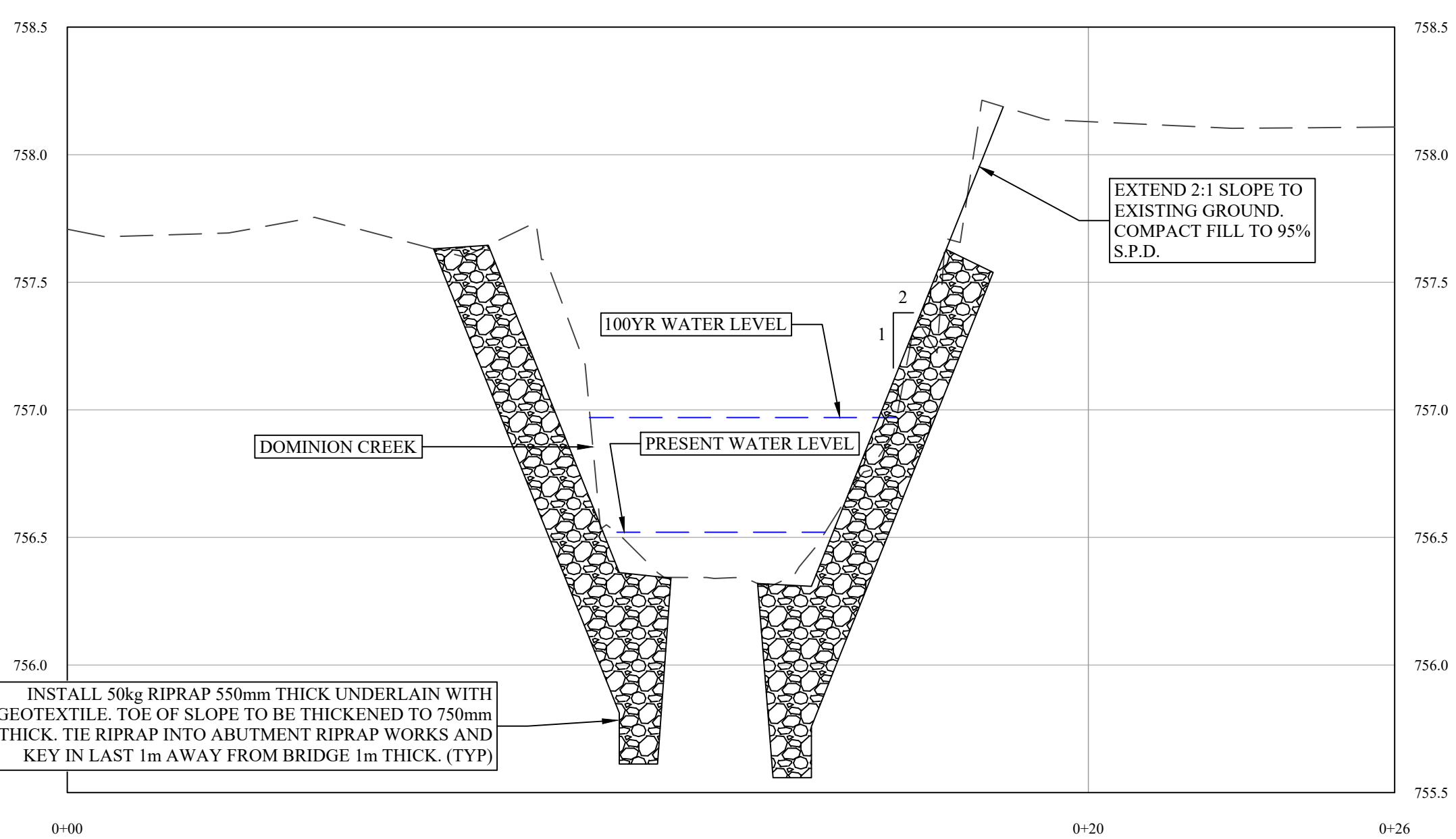
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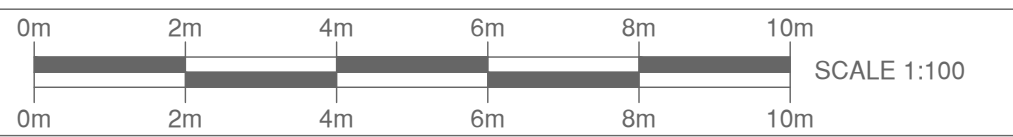
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C-C



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VILLAGE OF MCBRIDE

SCALE HORIZ. 1:100 SCALE VERT. 1:20  
SHEET C03 OF C03  
ENG PROJECT NUMBER 403-GEN

PROJECT

WATER TREATMENT PLANT  
BRIDGE REPLACEMENT

SHEET TITLE

SECTIONS