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Agency

L'Agence Parcs  
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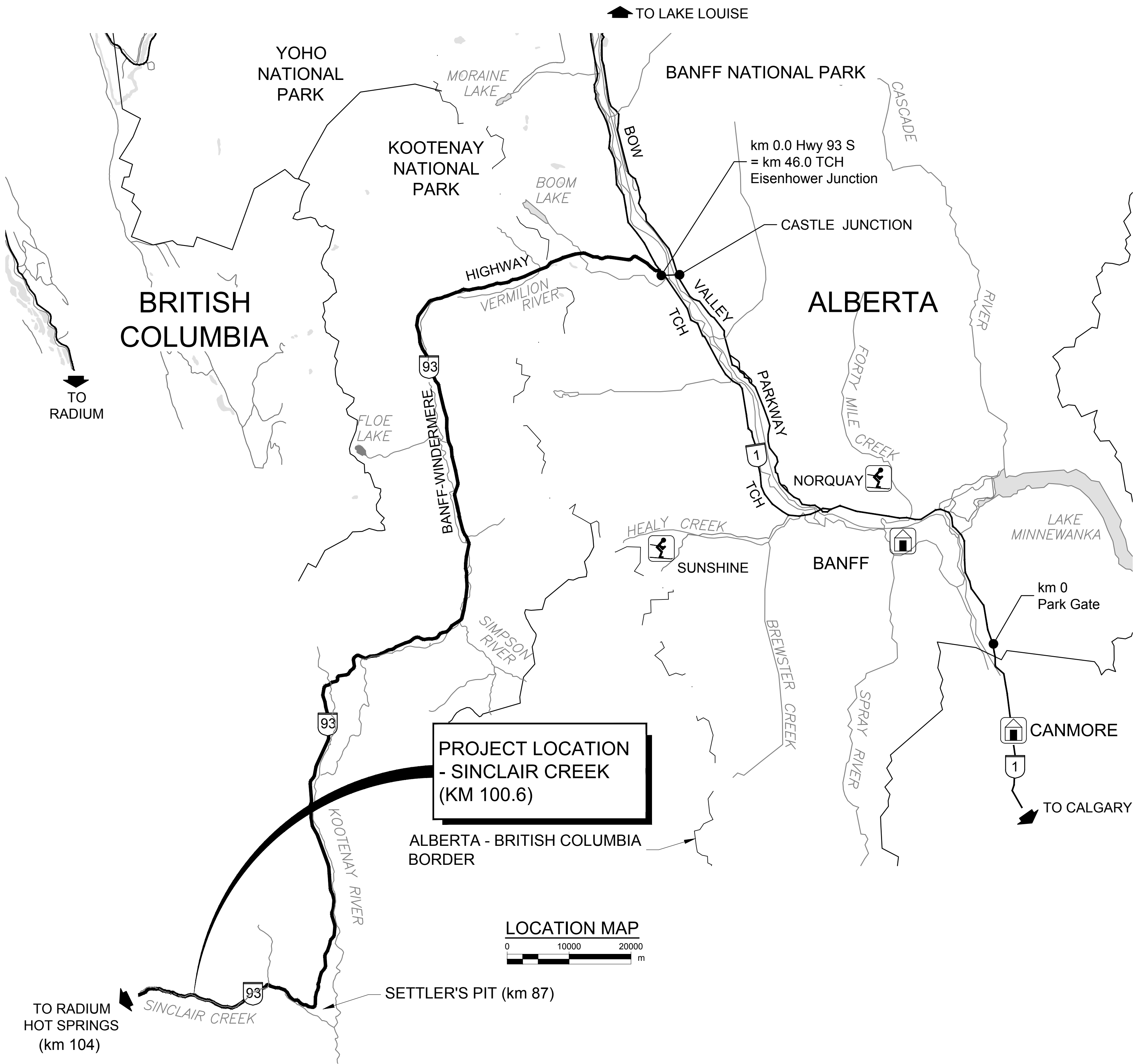
HIGHWAY 93 SOUTH  
BANFF – WINDERMERE HIGHWAY  
SINCLAIR CREEK CULVERT (KM 100.6)

KOOTENAY NATIONAL PARK, BRITISH COLUMBIA

ISSUED FOR TENDER

JULY 2019

00-C6-S000



DRAWING INDEX	
SHEET NUMBER	SHEET TITLE
S000	COVER SHEET
S100	LOCATION MAP & GENERAL NOTES
S101	EXISTING CULVERT LAYOUT
S102	CULVERT BACKFILL DETAILS
S103	CULVERT END TREATMENT
S104	INLET & OUTLET RIPRAP DETAILS

GENERAL NOTES

- ALL DIMENSIONS SHOWN ON SHEETS S101 & S103 ARE IN METRES. ALL OTHER SHEETS ARE DIMENSIONED IN MILLIMETERS.
- ALL DIMENSIONS AND DETAILS SHOWN ON THESE DRAWINGS PERTINENT TO NEW CONSTRUCTION AND EXISTING STRUCTURES SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR BEFORE STARTING CONSTRUCTION.
- PUMPS (IF REQUIRED):
  - PUMPS AND HOSES FOR USE IN-WATER TO BE SCREENED TO PREVENT AQUATIC FAUNA FROM ENTERING THE EQUIPMENT.
  - HAVE AT SITE AT ALL TIMES, AT LEAST ONE STANDBY PUMP FOR EACH CATEGORY OF PUMP BEING USED FOR DEWATERING AND WATER DIVERSION ACTIVITIES.
  - PROVIDE STANDBY POWER SUFFICIENT FOR OPERATION OF ALL REQUIRED DEWATERING AND WATER DIVERSION EQUIPMENT.

INSTALLATION AND BACKFILLING

- A 600 mm WIDE POLYOLEFIN BACKED EXTERIOR JOINT WRAP CONFORMING TO THE REQUIREMENTS OF ASTM C990-09 SHALL BE PLACED ON TOP AND SIDES OF EACH PRECAST UNIT CENTERED OVER THE JOINT.
- CONTRACTOR IS FULLY RESPONSIBLE FOR ADEQUATE PROTECTION OF ALL UTILITIES, SERVICES, STRUCTURES, ETC., DURING CONSTRUCTION OPERATIONS.
- EXCAVATION SHALL BE DONE TO LINES AND GRADES SHOWN ON THE DRAWINGS TO ALLOW FOR PLACEMENT AND COMPACTION OF ALL BACKFILL MATERIALS.
- STRUCTURAL BACKFILL SHALL CONSIST OF APPROVED GRANULAR MATERIAL. BACKFILL MATERIAL SHALL BE PLACED AND COMPACTED IN AN UNFROZEN CONDITION, MEET THE SPECIFIED GRADATION, CONTAIN NO ROCKS EXCEEDING 50 mm IN DIAMETER AND SHALL BE FREE OF LARGE OR FROZEN LUMPS, WOOD, OR OTHER UNSUITABLE MATERIAL. BACKFILLING IS NOT ALLOWED ON FROZEN SUBSTRATE OR WHEN AIR TEMPERATURE IS BELOW 0°C.
- THE STRUCTURAL FILLS SHALL BE PLACED IN MAXIMUM LIFTS OF 150 mm AND COMPACTED TO A 98% OF STANDARD PROCTOR DENSITY WITH OPTIMUM MOISTURE CONTENT TO BE WITHIN ± 1%.
- BACKFILL SHALL BE PLACED IN SIMULTANEOUS EQUAL LIFTS ON BOTH SIDES OF CULVERT.
- TOP OF BACKFILL ELEVATION SHALL BE WITHIN 150 mm ON BOTH SIDES OF CULVERT AT ALL TIMES.
- PRE-APPROVED GRANULAR MATERIALS SHALL MEET THE BC MoTI GRADATION SPECIFICATIONS FOR CRUSHED BASE COURSE AGGREGATES.
- GEOTEXTILE FILTER FABRIC SHOWN SHALL MEET THE FOLLOWING REQUIREMENTS:

WOVEN GEOTEXTILE FILTER FABRIC		NON-WOVEN GEOTEXTILE FILTER FABRIC	
SPECIFICATIONS AND PHYSICAL PROPERTIES		SPECIFICATIONS AND PHYSICAL PROPERTIES	
GRAB STRENGTH	1275 N	GRAB STRENGTH	900 N
ELONGATION (FAILURE)	15%	ELONGATION (FAILURE)	50%
PUNCTURE STRENGTH	275 N	PUNCTURE STRENGTH	550 N
TRAPEZOIDAL TEAR	475 N	TRAPEZOIDAL TEAR	350 N
MINIMUM FABRIC LAP TO BE 1000mm		MINIMUM FABRIC LAP TO BE 1000mm	

SEQUENCE OF OPERATIONS

- CONTRACTOR TO DETERMINE EQUIPMENT FREE ZONES AND LIMITS OF WORK. DFO REQUIREMENTS AND DRAINAGE COLLECTION AREAS TO BE ESTABLISHED.
- CONTRACTOR TO SUBMIT AN ENVIRONMENTAL PROTECTION PLAN (EPP), CHANNEL EXCAVATION PLAN, TEMPORARY CHANNEL DIVERSION AND DAMMING PLAN FOR APPROVAL BY THE DEPARTMENTAL REPRESENTATIVE.
- CONTRACTOR TO SUBMIT TRAFFIC ACCOMMODATION PLAN AND INSTALL TEMPORARY BARRIERS AND FENCES AS REQUIRED TO CREATE A SAFE WORKING AREA.
- INSTALL GEOTEXTILE FILTERS, BARRIERS AND SEDIMENT TRAPS ALONG WORK AREAS AS REQUIRED.
- CONTRACTOR TO MINIMIZE DISTURBANCE TO ALL NATURAL FEATURES AT BOTH UPSTREAM AND DOWNSTREAM OF THE CHANNEL.

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NOTES:  
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1	2019.05.16	ISSUED FOR TENDER	AU	SM	
No.	Date	Description	Drawn by Dessiné par	Approved Approuvé	

Revision / Revision



Detail number  
Sheet number

A Numéro de détail  
B Numéro de la feuille

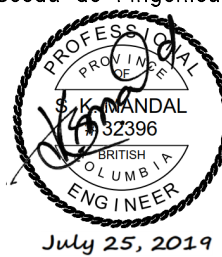
Linear dimensions  
in millimetres

Dimensions linéaires  
en millimètres

Consultant's Name  
Nom de l'expert-conseil

Eng. Stamp  
Sceau de l'ingénieur

**AECOM**



**Parks Canada**  
Asset Management  
Western and Northern Region

**Parcs Canada**  
Gestion des biens  
Région de l'Ouest et du Nord

**Canada**

Project title/Titre du projet

**HIGHWAY 93 SOUTH  
BANFF – WINDERMERE HWY  
SINCLAIR CREEK CULVERT  
(KM 100.6)**

Drawing title/Titre du dessin

**LOCATION MAP & GENERAL NOTES**

Surveyed by/Arpenté par <b>SA</b>	Drawn by/Dessiné par <b>AU</b>	Date <b>2019.05.16</b>
Designed by/Concept par <b>SM</b>	Reviewed by/Revisé par <b>BAS</b>	Scale/Échelle <b>AS SHOWN</b>
Client Acceptance/Acceptation du client		Approved by/Approuvé par
Date		Date
Project No./Nº du projet -	Asset No./Nº du bien -	Sheet No./ Nº de la feuille
Drawing Set No./Nº de série du dessin <b>60547362-C6</b>		<b>S100</b>



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Dimensions linéaires en millimètres	
Consultant's Name Nom de l'expert-conseil	Eng. Stamp Sceau de l'ingénieur
<b>AECOM</b>	

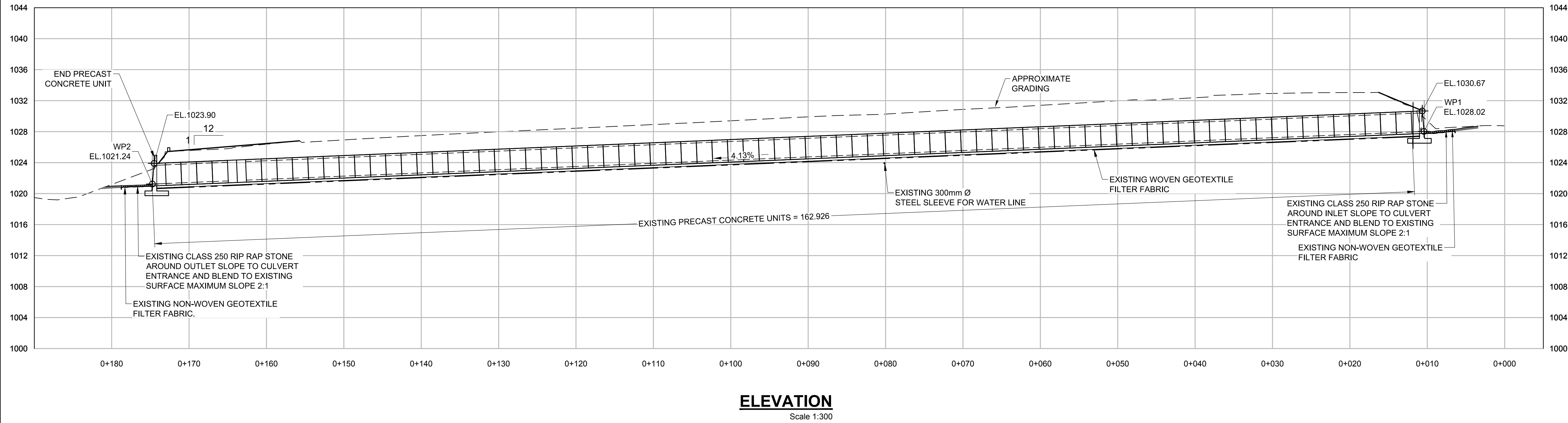
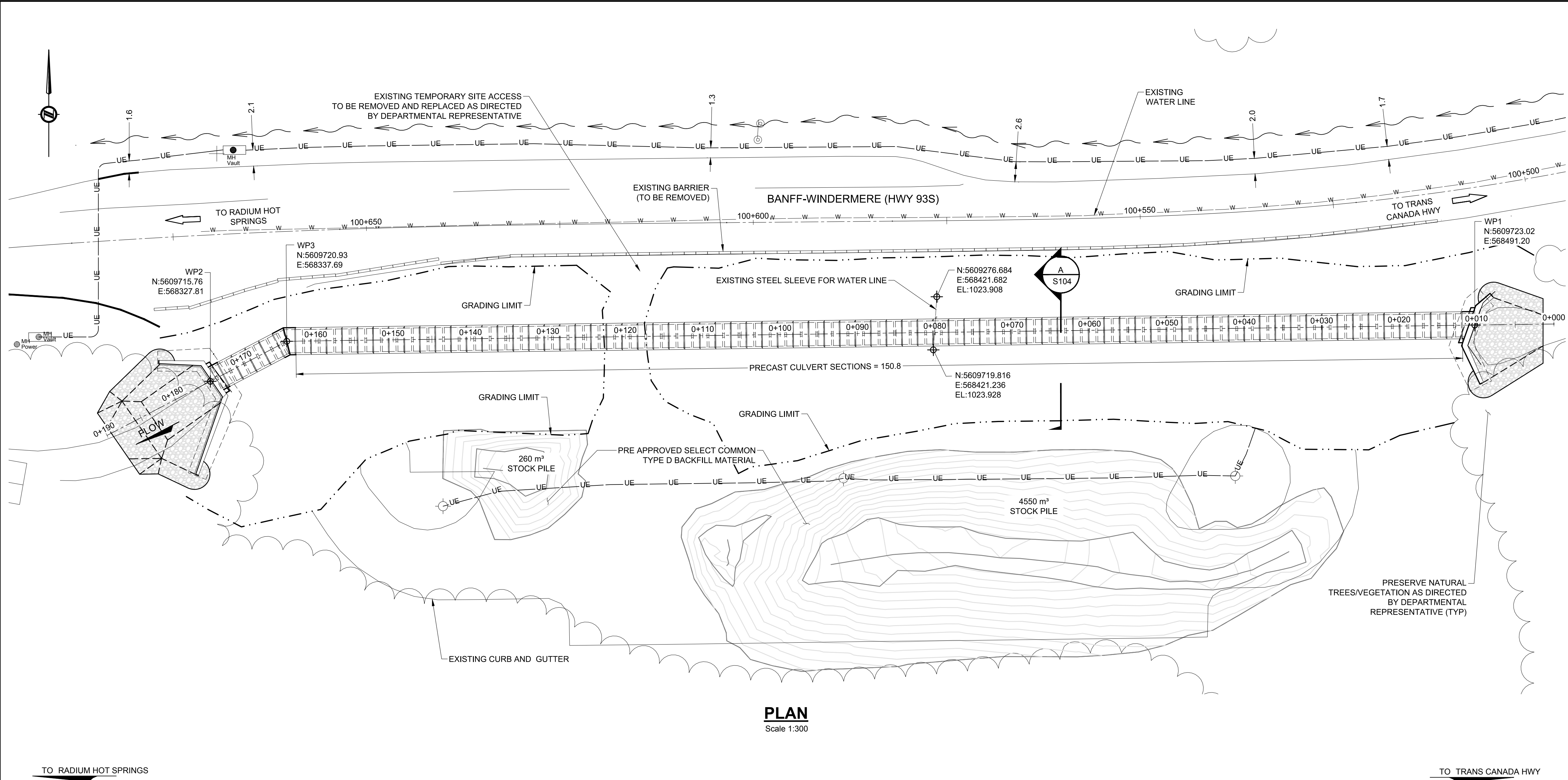
	Parks Canada	Parcs Canada
Asset Management Western and Northern Region	Gestion des biens Région de l'Ouest et du Nord	

Canada

Project title/Titre du projet  
**HIGHWAY 93 SOUTH  
BANFF – WINDERMERE HWY  
SINCLAIR CREEK CULVERT  
(KM 100.6)**

Drawing title/Titre du dessin  
**EXISTING CULVERT LAYOUT**

Surveyed by/Arpenté par <b>SA</b>	Drawn by/Dessiné par <b>AU</b>	Date <b>2019.05.16</b>
Designed by/Concept par <b>SM</b>	Reviewed by/Revisé par <b>BAS</b>	Scale/Echelle <b>AS SHOWN</b>
Client Acceptance/Acceptation du client		Approved by/Approuvé par
Date		Date
Project No./Nº du projet -	Asset No./Nº du bien -	Sheet No./ Nº de la feuille <b>S101</b>
Drawing Set No./Nº de série du dessin <b>60547362-C6</b>		





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in millimetres

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Consultant's Name  
Nom de l'expert-conseil

Eng. Stamp  
Sceau de l'ingénieur



**Parks Canada**  
Asset Management  
Western and  
Northern  
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**Parcs Canada**  
Gestion des biens  
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Drawing title/Titre du dessin

**CULVERT BACKFILL DETAILS**

Surveyed by/Arpenté par  
**SA**

Drawn by/Dessiné par  
**AU**

Date  
**2019.05.16**

Designed by/Conçeut par  
**SM**

Reviewed by/Revisé par  
**BAS**

Scale/Échelle  
**AS SHOWN**

Client Acceptance/Acceptation du client

Approved by/Approuvé par

Date

Date

Project No./Nº du projet

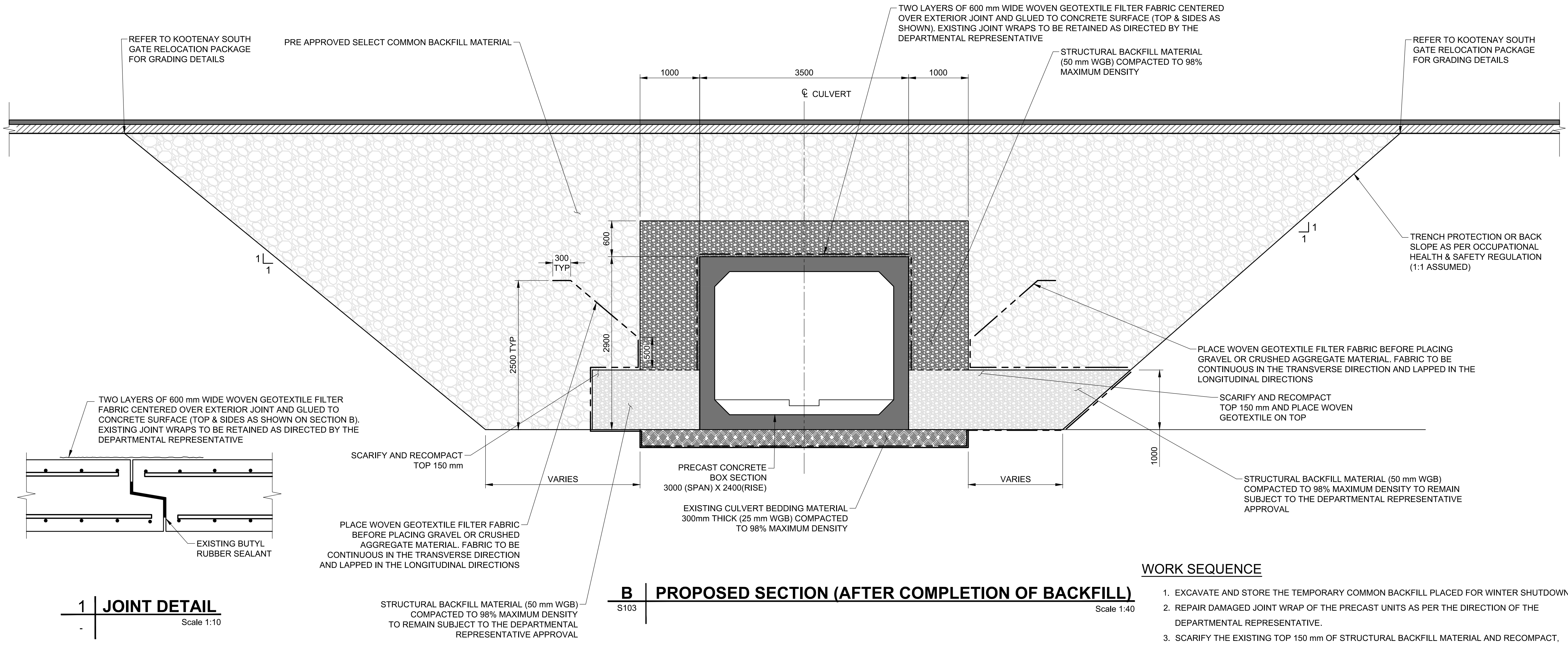
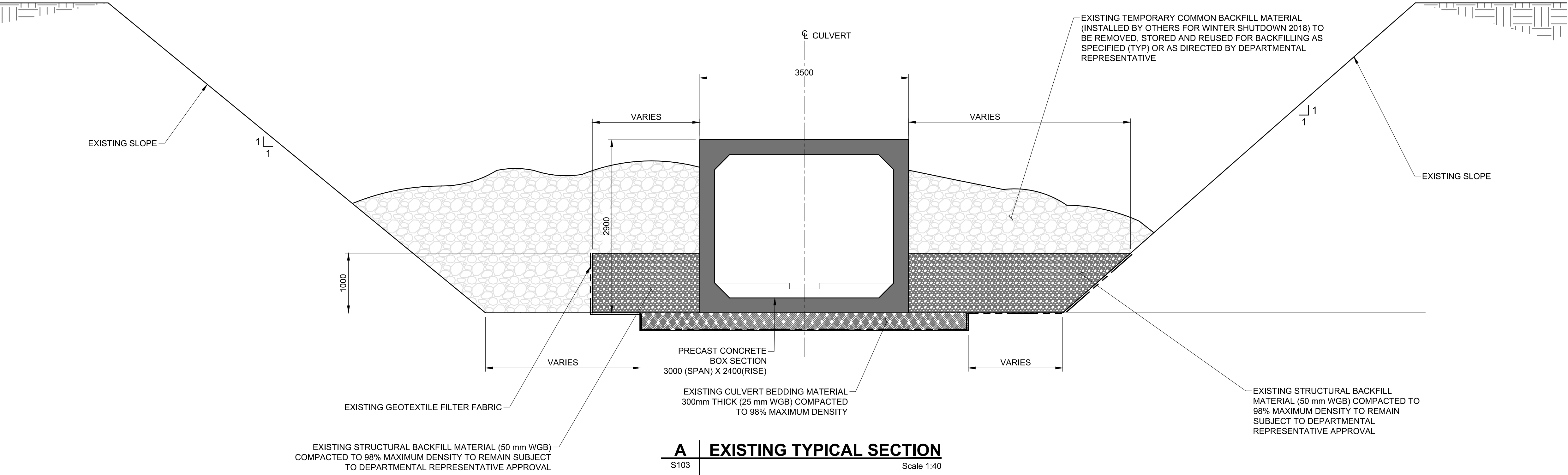
Asset No./Nº du bien

Sheet No./  
Nº de la feuille

Drawing Set No./Nº de série du dessin

**60547362-C6**

**S102**



#### WORK SEQUENCE

- EXCAVATE AND STORE THE TEMPORARY COMMON BACKFILL PLACED FOR WINTER SHUTDOWN.
- REPAIR DAMAGED JOINT WRAP OF THE PRECAST UNITS AS PER THE DIRECTION OF THE DEPARTMENTAL REPRESENTATIVE.
- SCARIFY THE EXISTING TOP 150 mm OF STRUCTURAL BACKFILL MATERIAL AND RECOMPACT, SUBJECT TO THE APPROVAL BY THE DEPARTMENTAL REPRESENTATIVE .
- PLACE GEOTEXTILE FILTER FABRIC AS SHOWN ON THIS DRAWING.
- PLACE AND COMPACT STRUCTURAL BACKFILL MATERIAL AS SPECIFIED.
- PLACE AND COMPACT PRE-APPROVED COMMON BACKFILL MATERIAL AS SPECIFIED.



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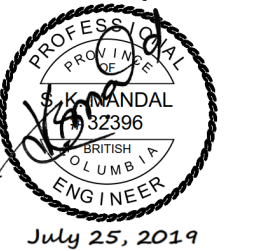
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Eng. Stamp  
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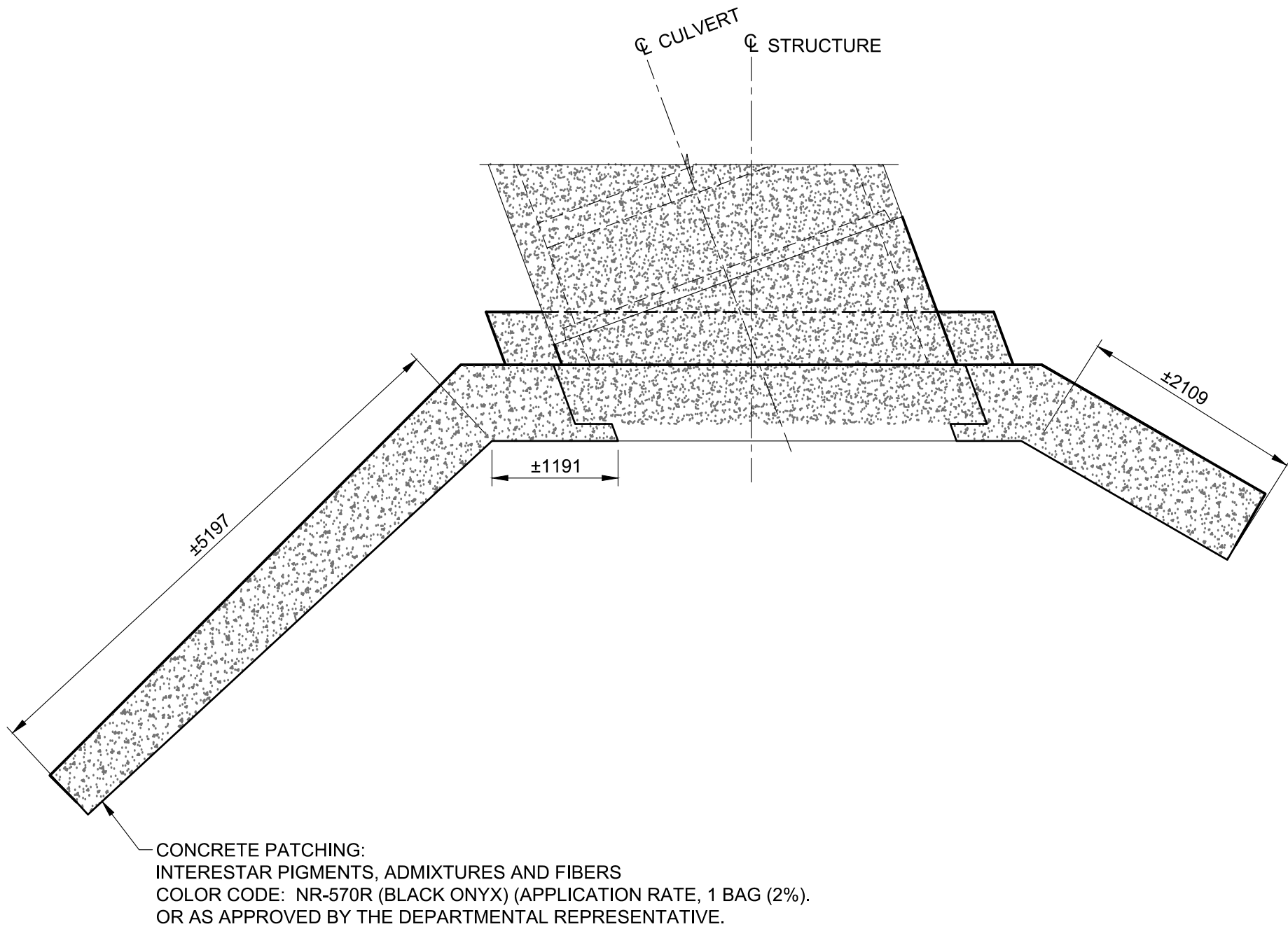
Drawing title/Titre du dessin  
**CULVERT END TREATMENT**

Surveyed by/Arpenté par <b>SA</b>	Drawn by/Dessiné par <b>AU</b>	Date <b>2019.05.16</b>
Designed by/Concept par <b>SM</b>	Reviewed by/Revisé par <b>BAS</b>	Scale/Echelle <b>AS SHOWN</b>

Client Acceptance/Acceptation du client  
Approved by/Approuvé par

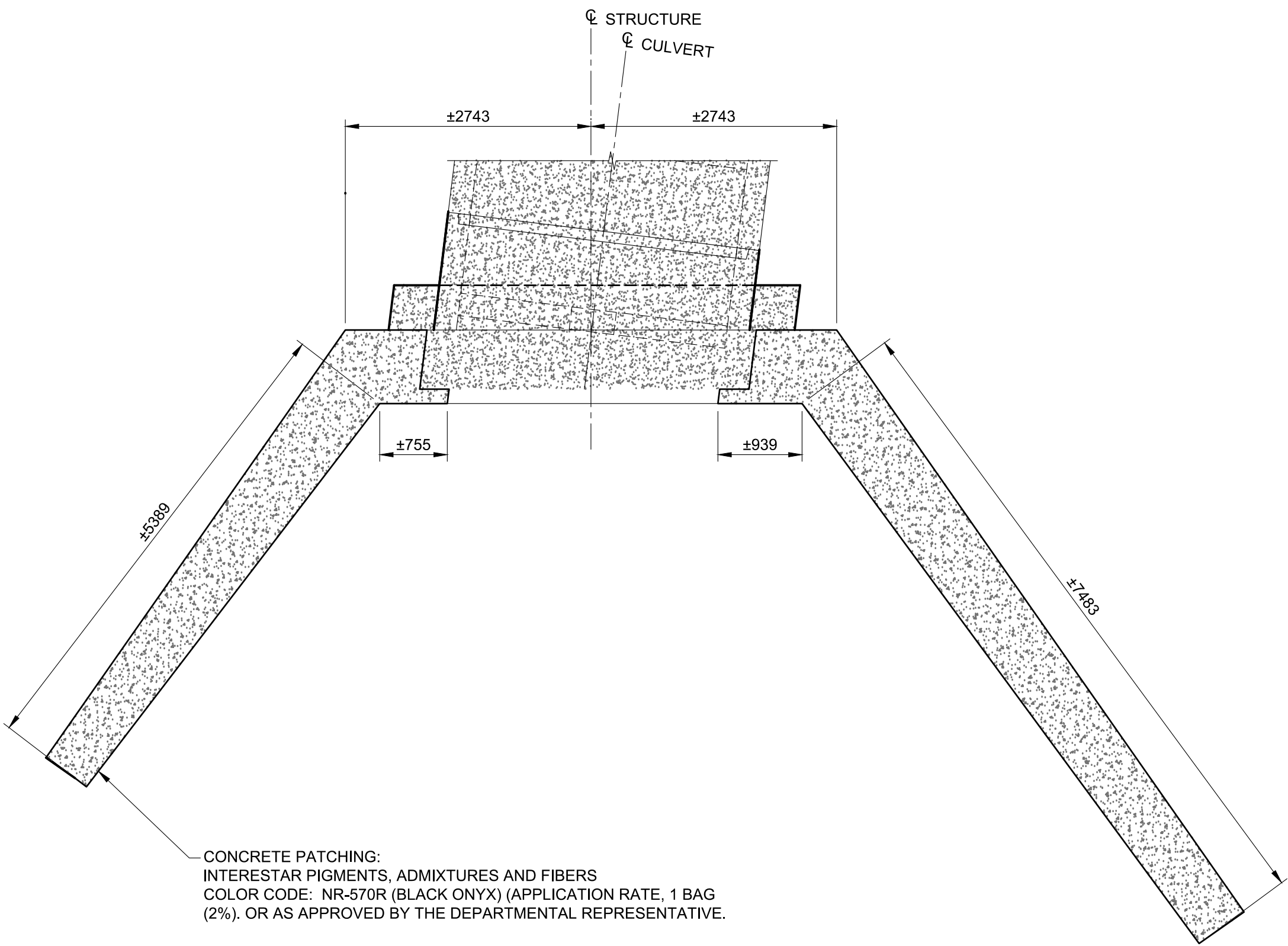
Project No./Nº du projet -	Asset No./Nº du bien -	Sheet No./ Nº de la feuille <b>S103</b>
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**60547362-C6**



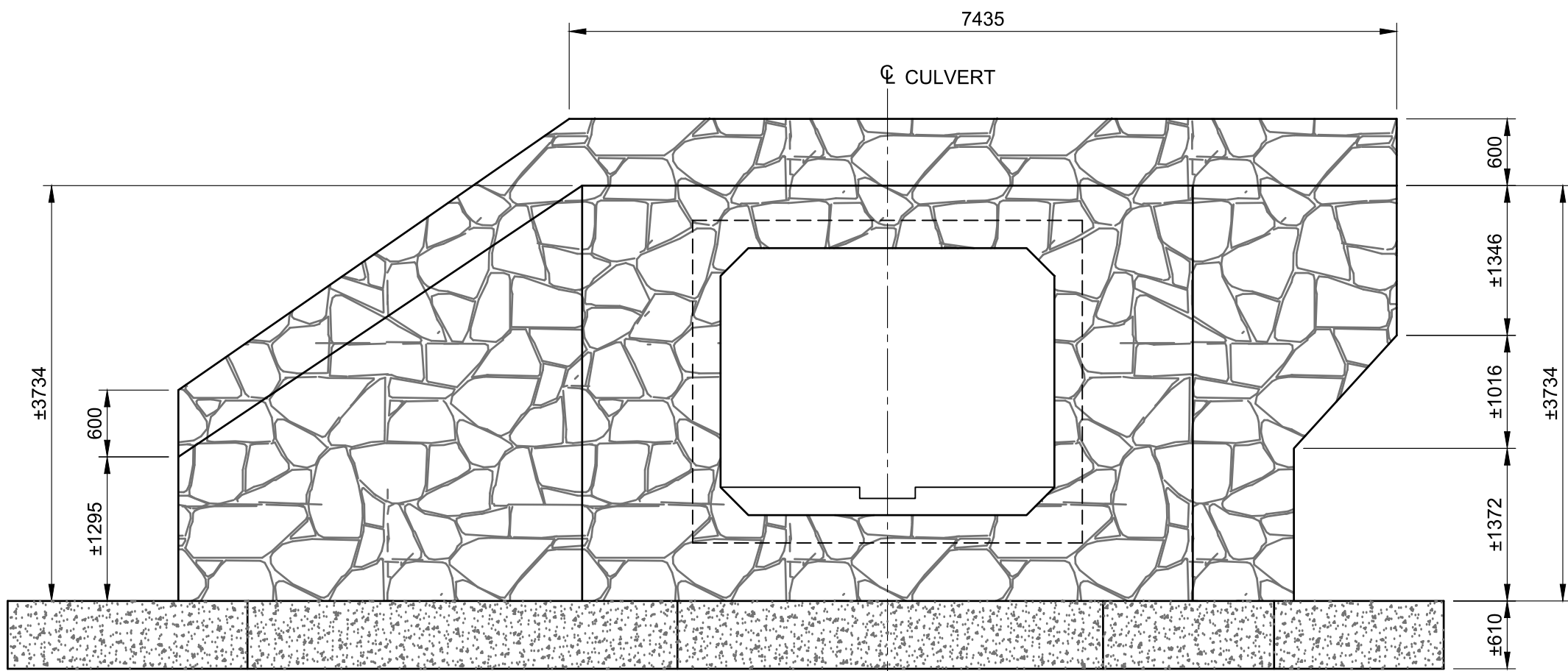
**INLET - PLAN**

Scale 1:40



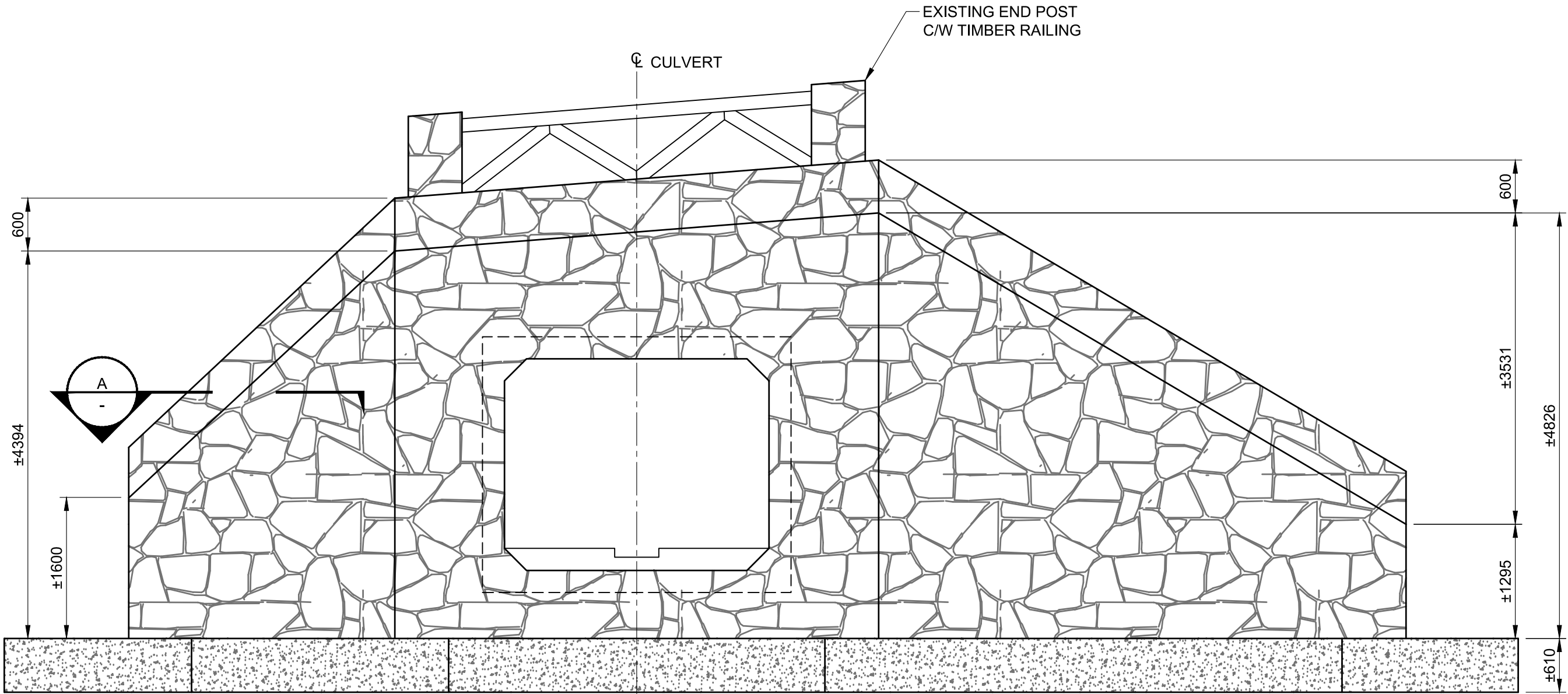
**OUTLET - PLAN**

Scale 1:40



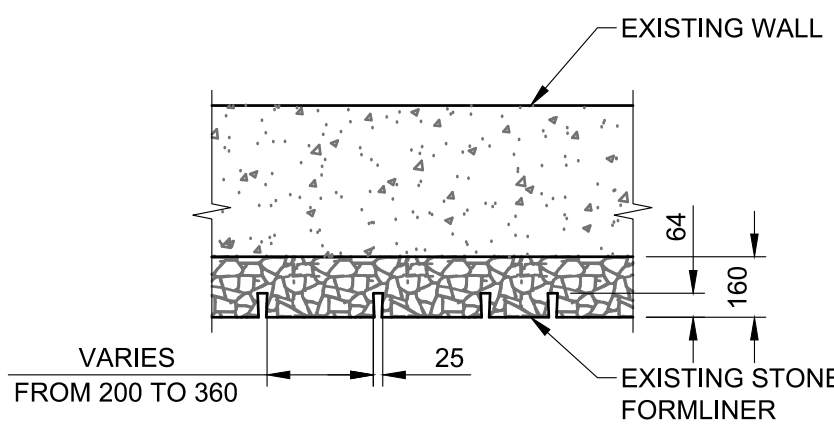
**INLET - ELEVATION**

Scale 1:50



**OUTLET - ELEVATION**

Scale 1:50



**A SECTION**

Scale 1:20

**LEGEND:**

- AREA TO BE CHECKED AND ALL EXISTING  
HOLES AND VOIDS TO BE PATCHED  
INLET AREA = 34 m²  
OUTLET AREA = 55 m²
- DENOTES EXISTING CONCRETE AREA



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Consultant's Name  
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**Parcs Canada**  
Asset Management  
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**Parcs Canada**  
Gestion des biens  
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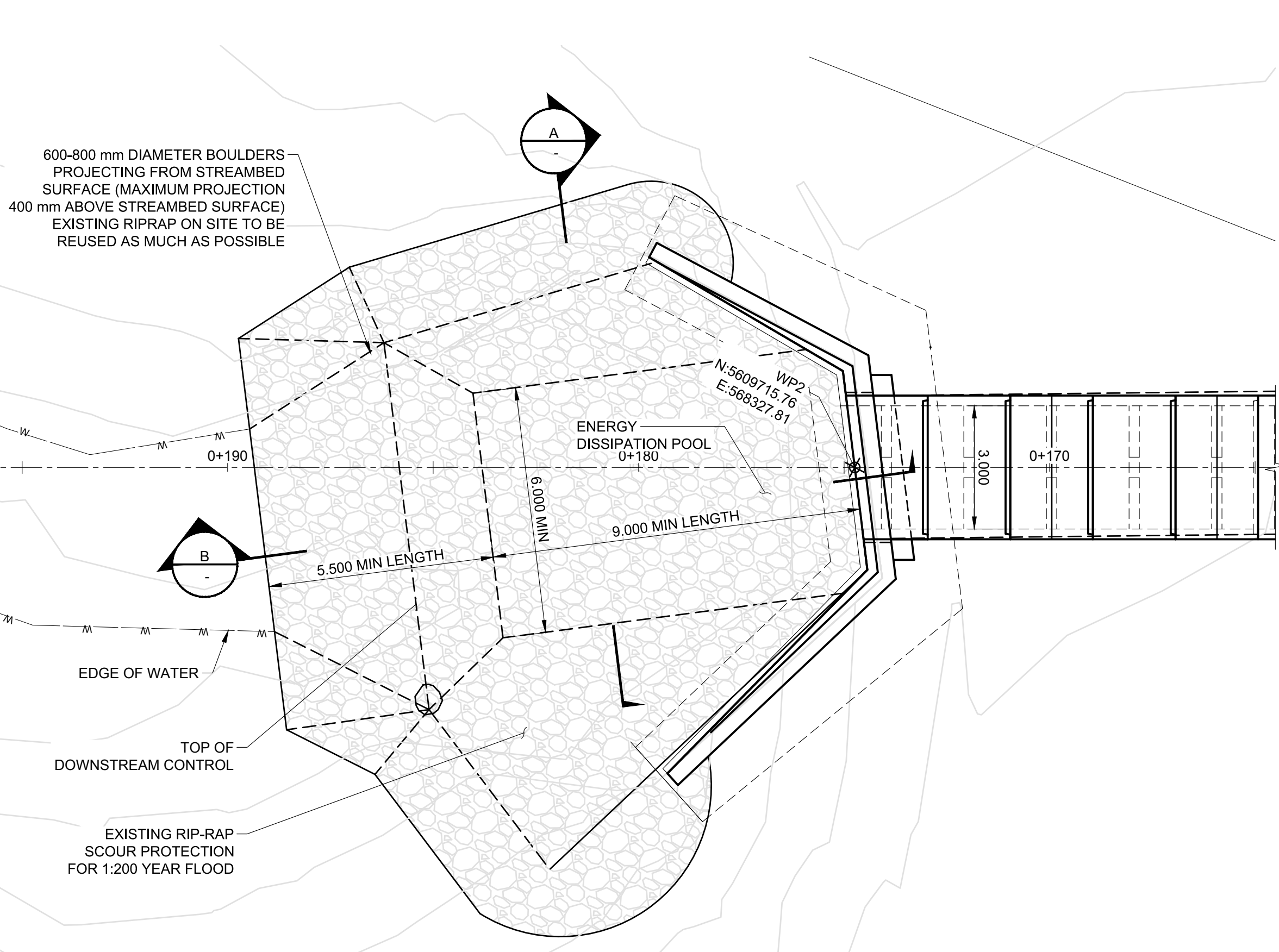
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Drawing title/Titre du dessin

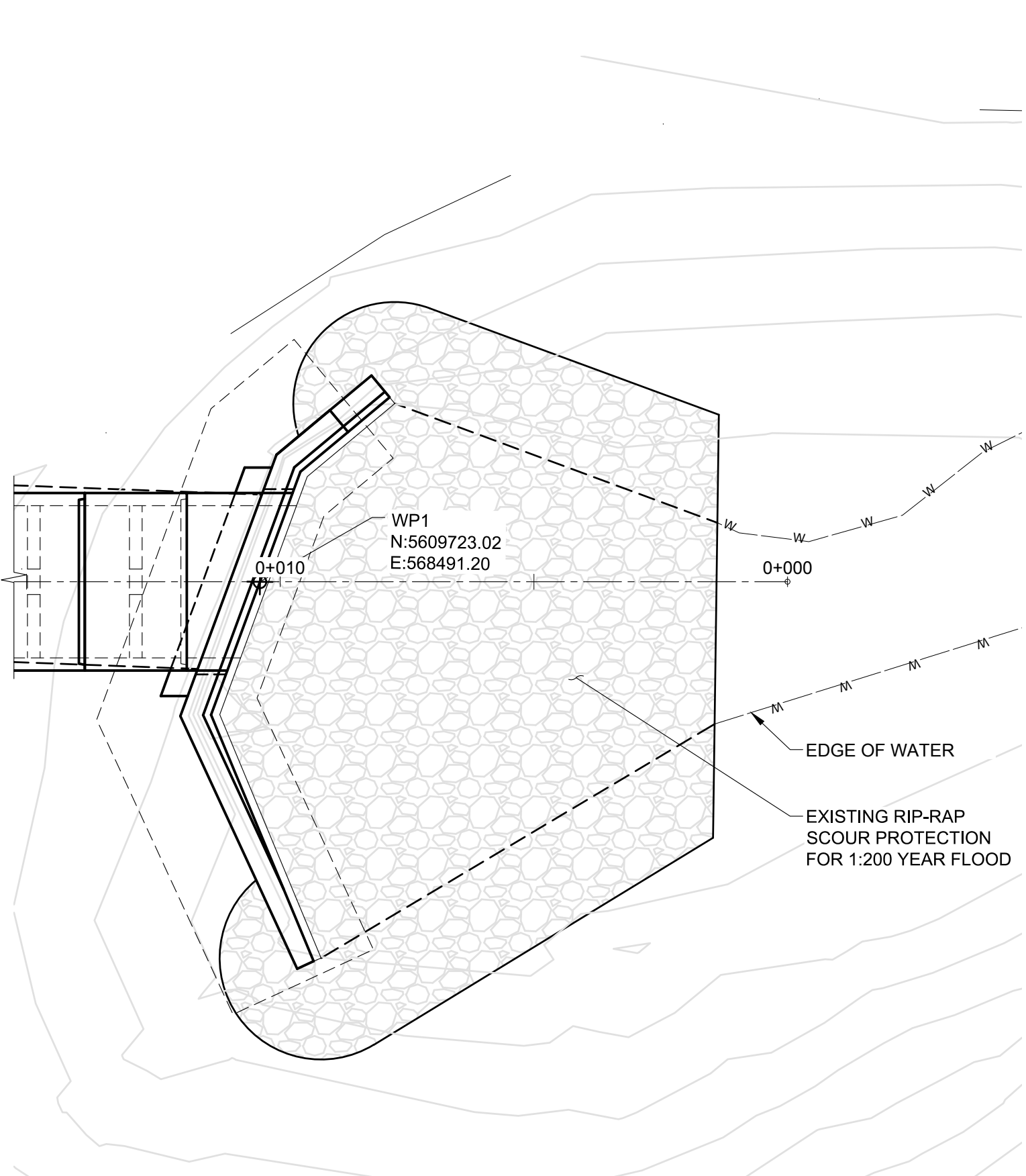
INLET & OUTLET RIPRAP DETAILS

Surveyed by/Arpenté par <b>SA</b>	Drawn by/Dessiné par <b>AU</b>	Date <b>2019.05.16</b>
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OUTLET PLAN

Scale 1:100



INLET PLAN

Scale 1:100

GENERAL NOTES

- FOR THE ENERGY DISSIPATION POOL HEAVY ROCK RIPRAP SHALL COVER THE AREA SHOWN ON THIS DRAWING
- EXISTING RIPRAP AT CULVERT INLET AND OUTLET TO BE REUSED WHERE FEASIBLE OR AS DIRECTED BY THE DEPARTMENTAL REPRESENTATIVE
- PLACE NON-WOVEN GEOTEXTILE FILTER FABRIC TOGETHER WITH IMPERMEABLE GEOMEMBRANE UNDER RIPRAP AS SHOWN ON THIS DRAWING

WORK SEQUENCE

- CLASS 10 RIPRAP IS TO BE PLACED OVER THE EXISTING CLASS 250 RIPRAP AS SHOWN IN THIS DRAWING.
- NON-WOVEN GEOTEXTILE FILTER FABRIC TOGETHER WITH IMPERMEABLE GEOMEMBRANE TO BE PLACED AS SHOWN IN THIS DRAWING.
- CLASS 10 RIPRAP TO BE PLACED AS SHOWN IN THIS DRAWING AT MINIMUM THICKNESS 350mm.
- REMAINING CLASS 250 TO BE PLACED AS SHOWN IN THIS DRAWING AT MINIMUM THICKNESS 800mm.

