



**McElhanney**

for / pour



**Parks Canada  
Agency**

**L'Agence Parcs  
Canada**

**TRANS-CANADA HIGHWAY - ROGERS PASS  
AVALANCHE MITIGATION  
COUGAR CORNER STA. 31+640 - 32+040  
AND ROAD IMPROVEMENTS**

**GLACIER NATIONAL PARK, BRITISH COLUMBIA**

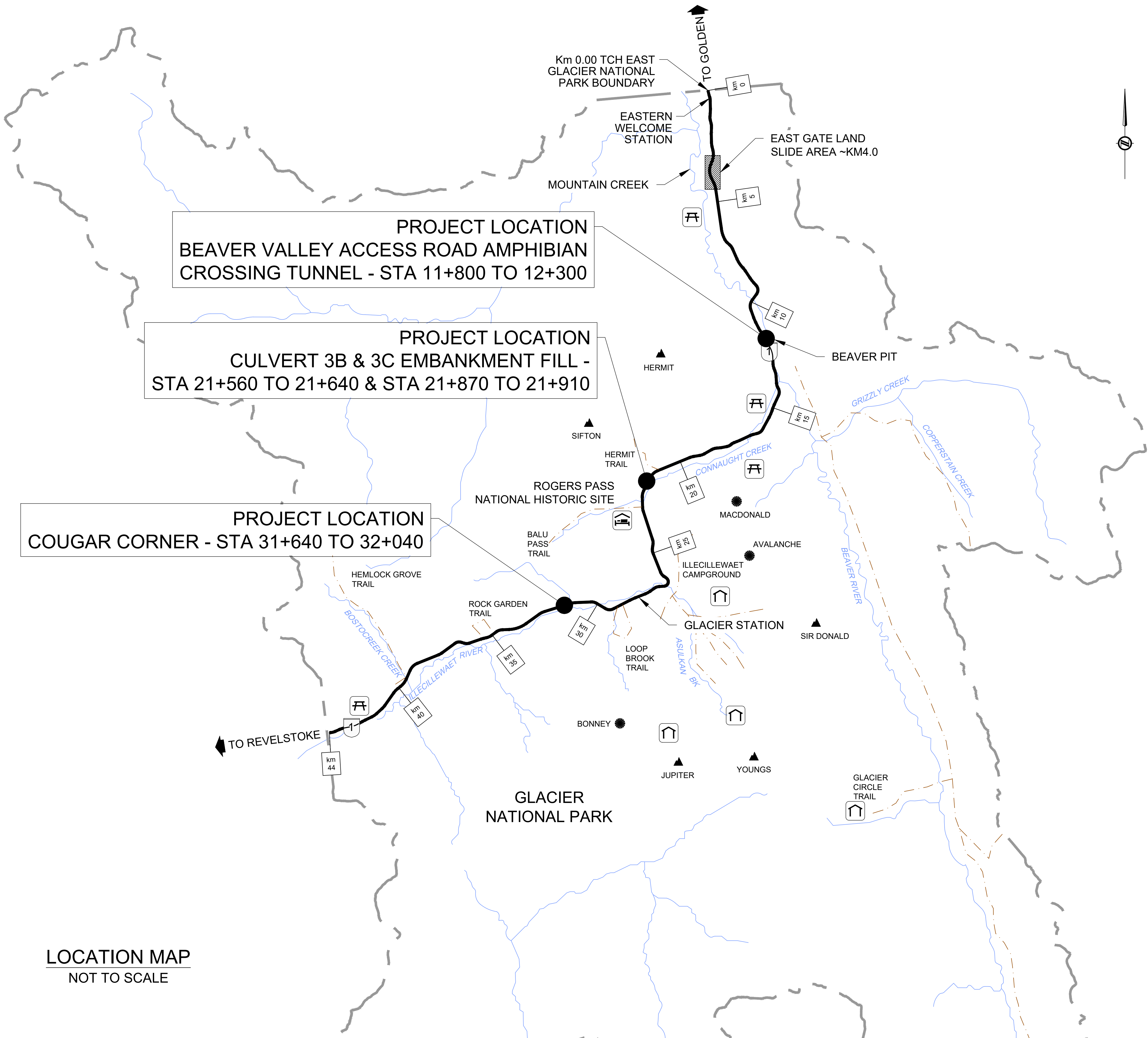
**ISSUED FOR TENDER**

**PROJECT NO. 566-08**

**MARCH, 2019**

C000

FILE: \\CORP.McELHANNEY.COM\PROJECTS\21-ENGINEERING\PROJ\2511-00656-02 - ROGERS PASS DIA REVIEW\COUGARC\10.0.DWG\10.3.1 SHEETS\00656-C000.DWG - PLOTTED: 2019/04/17 12:23 PM



LOCATION MAP  
NOT TO SCALE

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0	2019.03.29	ISSUED FOR TENDER	N.W.J.	R.P.	S.A.
Rev.	Date	Description	Drawn Dessiné	Designed Conçu	Approved Approuvé

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detail number

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source drawing no.

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de dessin no.

detail on drawing no.

detail sur dessin no.

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Consultant's Stamp  
Sceau de l'expert-conseil


Eng. Stamp  
Sceau de l'ingénieur

Client

 Parks Canada Agency

L'Agence Parcs Canada

Consultant's Name  
Nom de l'expert-conseil

 **McElhanney**  
McElhanney Consulting Services Ltd.

Project Title  
Titre du projet

TRANS-CANADA HIGHWAY  
ROGERS PASS  
AVALANCHE MITIGATION  
GLACIER NATIONAL PARK, BRITISH COLUMBIA

Drawing Title  
Titre du dessin

LOCATION MAP

Surveyed by / Arpenté par	Drawn by / Dessiné par	Date
-	N.W.J.	2019.03.29
Designed by / Conçu par	Reviewed by / Revisé par	Scale / Échelle
R.P.	S.A.	NOT TO SCALE

Parks Canada Project Manager / Administrateur de Projets Parcs Canada  
G. LUSSIER

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

566-08

2511-00656-02c

C001

Drawing Reference No. / No. de référence du dessin

Paper Size: ANSI D (22 x 34")

0 10 20 30 40 50 60 70 80 90 100mm



FILE: \\CORP.McELHANNEY.COM\CR2\21-ENGINEERING\PROJ\2511-00656-02 - ROGERS PASS DUA REVIEW\COUGAR\10.0.DWG\10.3.1 SHEET\50665-C000.DWG - PLOTTED: 2019/04/17 11:57 AM

DRAWING INDEX		
SHEET No.	REV No.	SHEET TITLE
C000	0	COVER SHEET
C001	0	LOCATION MAP
C002	0	DRAWING INDEX & LEGEND
C101	0	AMPHIBIAN CROSSING TUNNEL & FENCING - BEAVER VALLEY ACCESS ROAD
C102	0	CULVERT 3B & 3C EMBANKMENT FILL
C103	0	SITE GRADING & DRAINAGE - COUGAR CORNER
C301	0	TYPICAL DETAILS - AMPHIBIAN CROSSING TUNNEL & FENCING
C302	0	TYPICAL DETAILS - EMBANKMENT FILL & COUGAR CORNER
FOR REFERENCE ONLY		
C1001-C1002	0	CROSS SECTIONS - CULVERT EMBANKMENT FILL
C1003-C1010	0	CROSS SECTIONS - COUGAR CORNER

ALIGNMENT ABBREVIATIONS

BP - BEGINNING POINT  
EP - END POINT  
PC - TANGENT TO CURVE  
PI - POINT OF INTERSECTION  
PT - CURVE TO TANGENT  
BVC - BEGINNING OF VERTICAL CURVE  
EVC - END OF VERTICAL CURVE  
PVI - POINT OF VERTICAL INTERSECTION  
ELEV - ELEVATION  
STA - STATION

MISCELLANEOUS ABBREVIATIONS

BH - BORE HOLE  
B.O.F. - BOTTOM OF FILL  
E.O.P. - EDGE OF PAVEMENT  
EXIST. - EXISTING  
MoTI - BC MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE  
NB - NORTHBOUND  
PROP. - PROPOSED  
SB - SOUTHBOUND  
T.O.C. - TOP OF CUT  
INV. - INVERT

LEGEND

EXISTING	DESCRIPTION	PROPOSED
△ CTRL1455	CONTROL POINT & ID	
● MON2757	CONTROL MONUMENT & ID	
✕ BM2738	CONTROL BENCHMARK & ID	
⬮ 2015B-BH44	BORE HOLE & ID	
⬮ TH2756	TEST HOLE & ID	
<div><div>N</div><div>m</div><div>5643000</div><div>008</div></div>	SURVEY GRID (NAD 83)	
	CONTROL LINE & STATIONING	67+500 +
	ALIGNMENT GEOMETRY POINTS & STATIONING	T.S. 55+325.101

	EDGE OF WATER	
	TREE LINE	
	EDGE OF GRAVEL ROAD	
	EDGE OF PAVEMENT	
	EDGE OF GRAVEL SHOULDER	
	ELEVATION	
	DRAINAGE BARRIER	
	APPROXIMATE TOP OF CUT	
	APPROXIMATE BOTTOM OF FILL	
	APPROXIMATE EXISTING TREE LINE	
	APPROXIMATE GRUBBING EXTENT	
	DRAINAGE	
	CULVERT	
	DITCH BLOCK	
	LAMP STANDARD	
	APPROXIMATE CLEARING LIMITS	
	AMPHIBIAN CROSSING TUNNEL	
	WILDLIFE FENCING	
	CONCRETE BARRIER	
	RIP RAP	

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Sceau de l'expert-conseil

Eng. Stamp

Sceau de l'ingénieur

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Consultant's Name

Nom de l'expert-conseil

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Titre du projet

TRANS-CANADA HIGHWAY

ROGERS PASS

AVALANCHE MITIGATION

GLACIER NATIONAL PARK, BRITISH COLUMBIA

Drawing Title

Titre du dessin

DRAWING INDEX & LEGEND

Surveyed by / Arpenté par	Drawn by / Dessiné par	Date
-	N.W.J.	2019.03.29
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Parks Canada Project Manager / Administrateur de Projets Parcs Canada

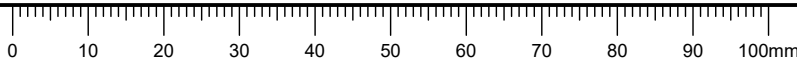
G. LUSSIER

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<div>Parks Canada Responsible Officer / Agent Responsable Parcs Canada</div>	<div>Parks Canada Project Manager / Administrateur de Projets Parcs Canada</div>

Project No. / No. du projet	Asset No. / No. du-bien	Sheet No. / No. de la feuille
566-08		C002

Drawing Reference No. / No. de référence du dessin

2511-00656-02c







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Eng. Stamp  
Sceau de l'ingénieur

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Titre du projet

TRANS-CANADA HIGHWAY  
ROGERS PASS  
AVALANCHE MITIGATION  
GLACIER NATIONAL PARK, BRITISH COLUMBIA

Drawing Title  
Titre du dessin

AMPHIBIAN CROSSING  
TUNNEL & FENCING  
BEAVER VALLEY ACCESS ROAD

Surveyed by / Arpenté par

Drawn by / Dessiné par

Date

Designed by / Conçu par

Reviewed by / Révisé par

Scale / Échelle

Parks Canada Project Manager / Administrateur de Projets Parcs Canada

G. LUSSIER

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Approved by / Approuvé par

Parks Canada Responsible Officer / Agent Responsable Parcs Canada

Parks Canada Project Manager / Administrateur du Projet Parcs Canada

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Sheet No. / No. de la feuille

566-08

C101

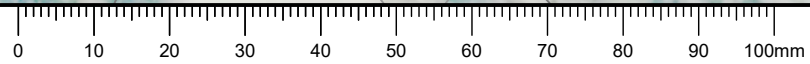
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2511-00656-02c

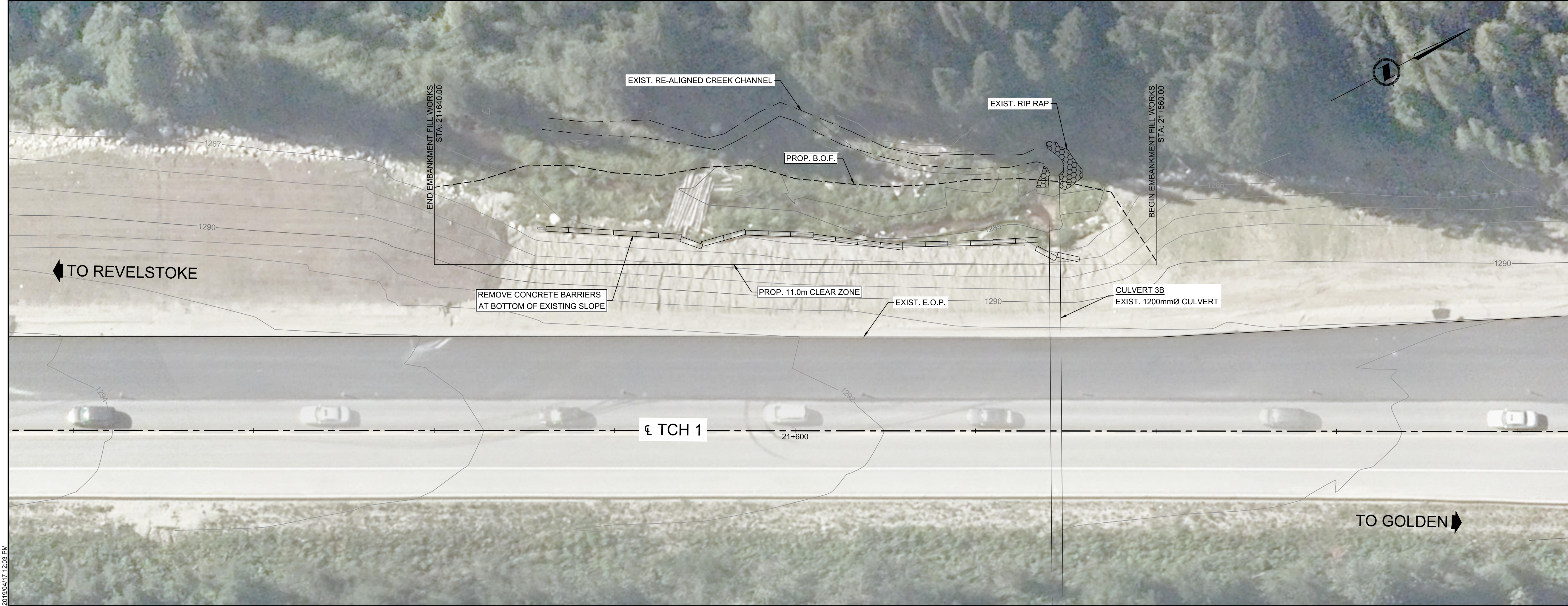
GENERAL NOTES:  
1. BRUSHING, CLEARING, GRUBBING, AND POTENTIAL REMOVAL OF DANGER TREES AS DIRECTED BY THE DEPARTMENTAL REPRESENTATIVE.

FILE: \\CORP.McELHANNEY.COM\CR\2121\ENGINEERING\PROJ\2511-00656-02 - ROGERS PASS DIA REVIEW\00656-C101.DWG - PLOTTED: 2019/05/28 3:54 PM

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TRANS-CANADA HIGHWAY  
ROGERS PASS  
AVALANCHE MITIGATION  
GLACIER NATIONAL PARK, BRITISH COLUMBIA

Drawing Title  
Titre du dessin

CULVERT 3B & 3C EMBANKMENT FILL

STA. 21+560 TO STA. 21+640 &  
STA. 21+870 TO STA. 21+910

Surveyed by / Arpenté par

Drawn by / Dessiné par

Date

Designed by / Conçu par

Reviewed by / Révisé par

Scale / Échelle

R.P.

S.A.

1:250

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566-08

C102

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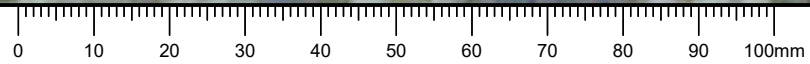
2511-00656-02c

NOTES:

1) COORDINATES ARE TO UTM ZONE 11

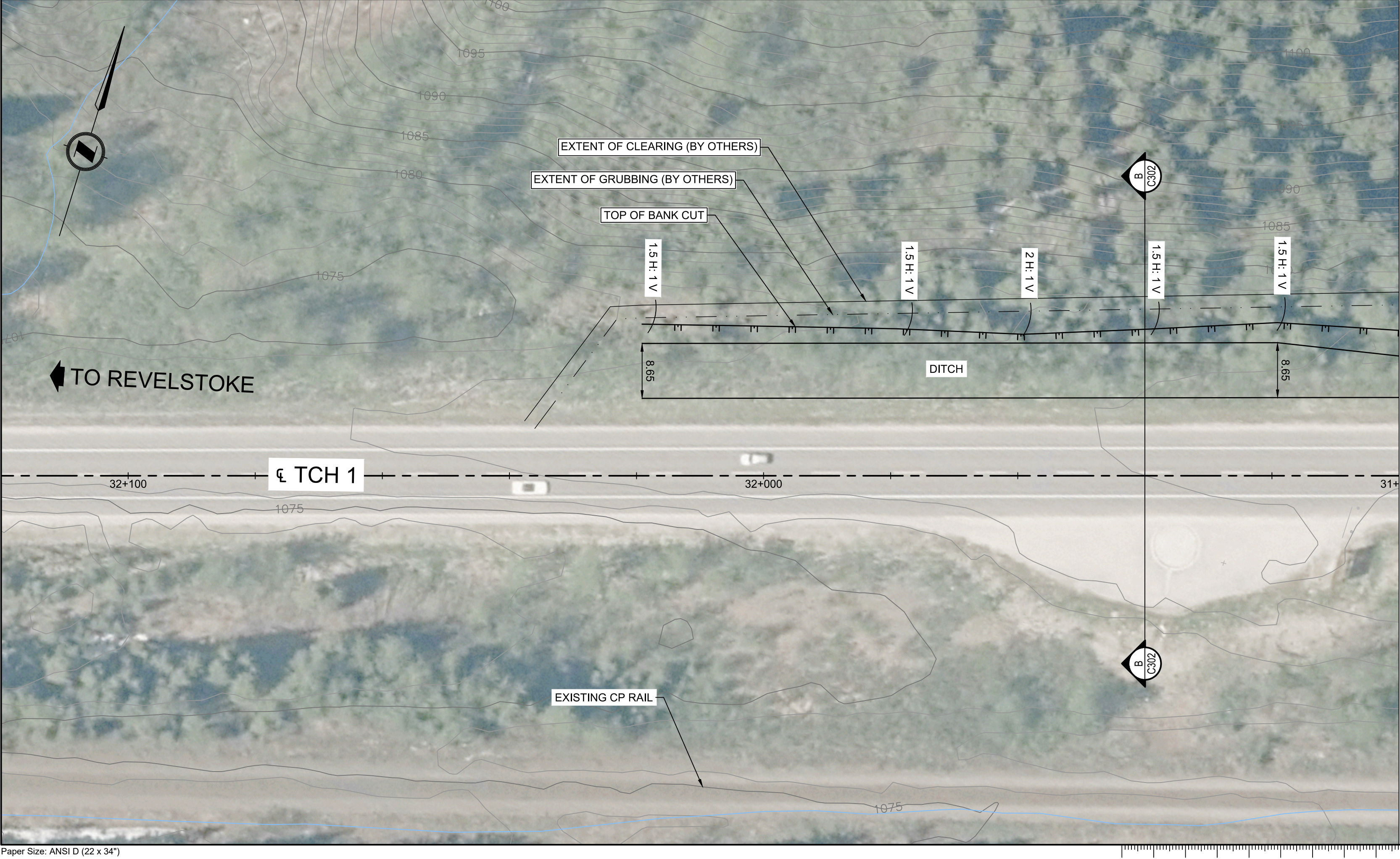
FILE: \\CORP.McELHANNEY.COM\CR2\21-ENGINEERING\PROJ\2511-00656-02 - ROGERS PASS DIA REVIEW\00656-C101.DWG - PLOTTED: 2019/04/17 12:03 PM

Paper Size: ANSI D (22 x 34")





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L'Agence Parcs Canada

Consultant's Name  
Nom de l'expert-conseil



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McElhanney Consulting Services Ltd.

Project Title  
Titre du projet

TRANS-CANADA HIGHWAY  
ROGERS PASS  
AVALANCHE MITIGATION  
GLACIER NATIONAL PARK, BRITISH COLUMBIA

Drawing Title  
Titre du dessin

SITE GRADING & DRAINAGE  
COUGAR CORNER  
  
STA. 31+640 TO STA. 32+040

Surveyed by / Arpenté par	Drawn by / Dessiné par	Date
	N.W.J.	2019.03.29
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R.P.	S.A.	1:500

Parks Canada Project Manager / Administrateur de Projets Parcs Canada  
G. LUSSIER

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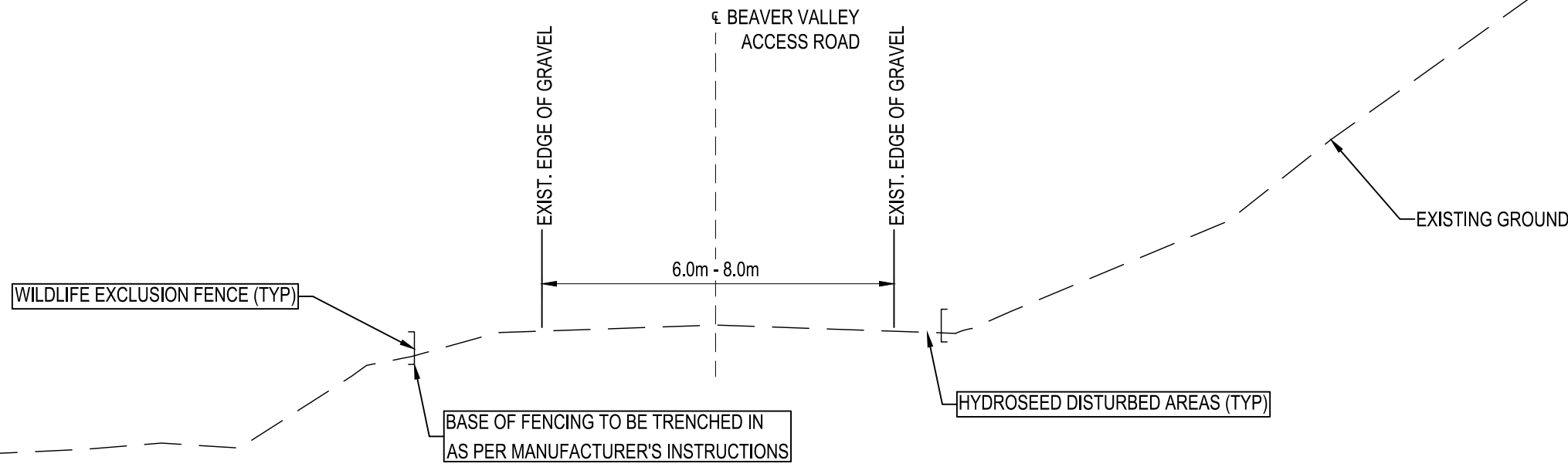
Project No. / No. du projet	Asset No. / No. du-bien	Sheet No. / No. de la feuille
566-08		C103

Drawing Reference No. / No. de référence du dessin  
2511-00656-02c

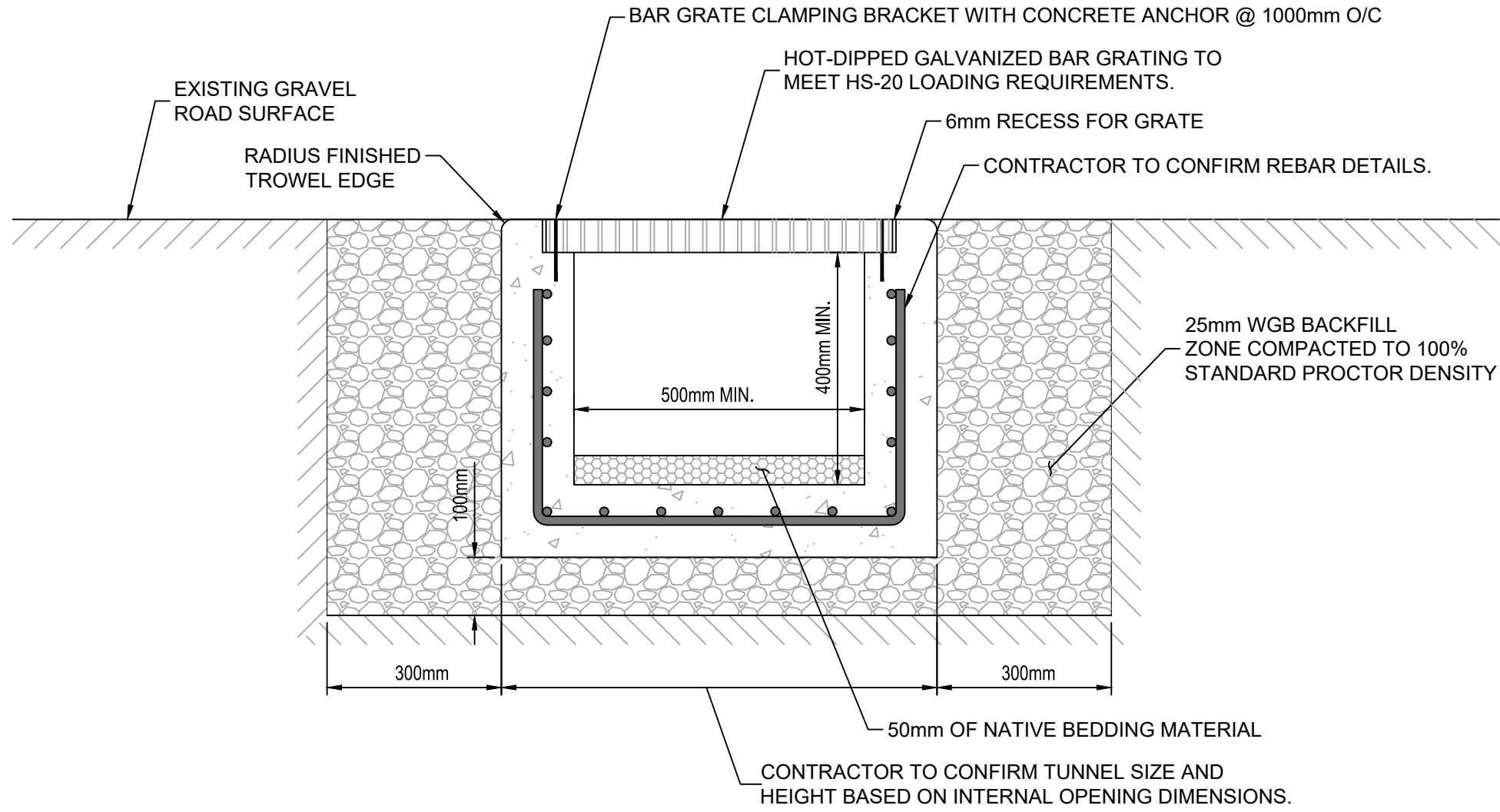
NOTES:  
1) COORDINATES ARE TO UTM ZONE 11  
2) BOREHOLES COMPLETED IN 2017. FOR DETAILS REFER TO GEOTECHNICAL INFORMATION BY BARR ENGINEERING AND ENVIRONMENTAL SCIENCE CANADA.



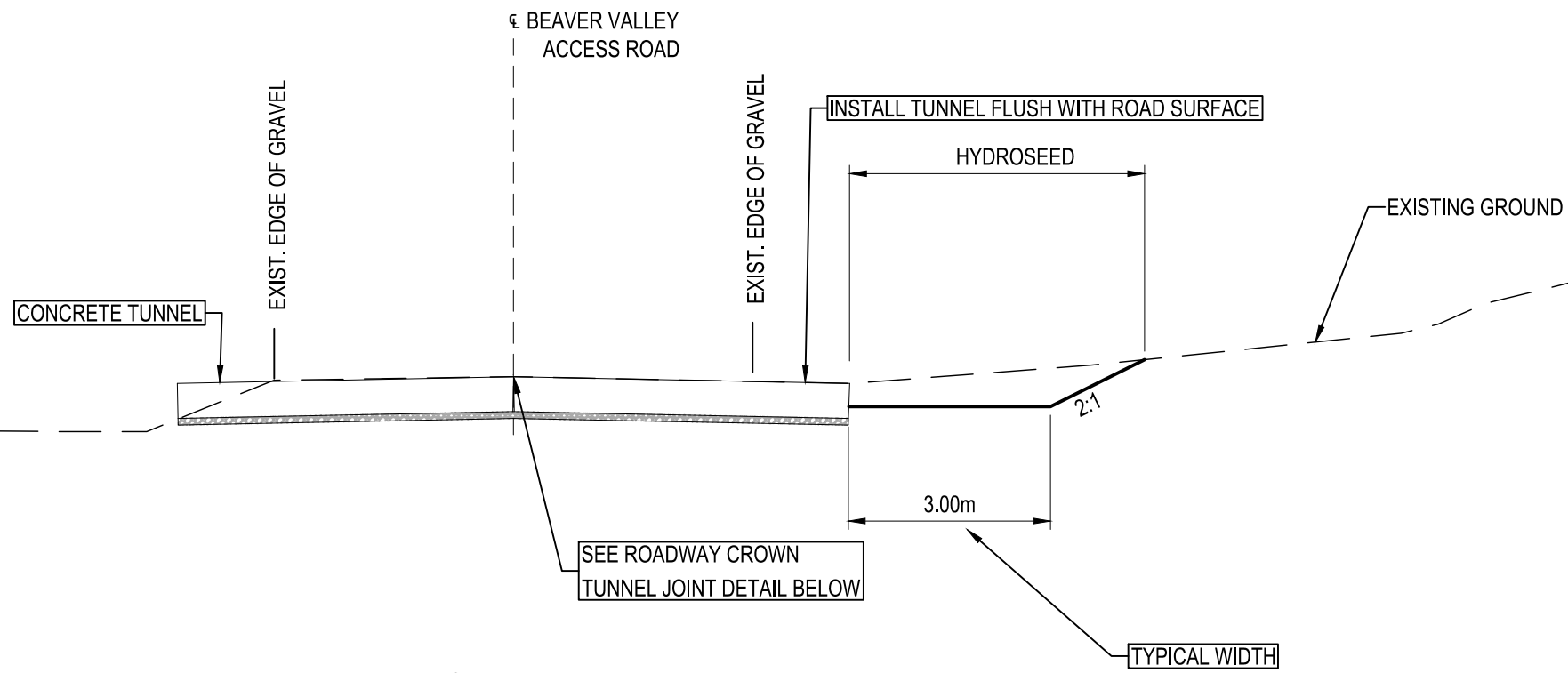
- GENERAL NOTES:
1. THE WILDLIFE EXCLUSION FENCE TO BE INSTALLED AS PER THE CONTRACT DOCUMENTS.
  2. TUNNEL SECTIONS TO HAVE HS-20 LOAD RATING.
  3. CONCRETE SHALL HAVE A 28 DAY COMPRESSIVE STRENGTH OF 35mPa AND SHALL CONFORM TO CSA A23.1 EXPOSURE CLASS C-1.
  4. ALL EXPOSED CORNERS OF CONCRETE TO BE CHAMFERED 25mm OR MAY ALTERNATEVLY BE HAND FINISHED WITH A RADIUS EDGE FINISHING TOOL.
  5. ALL REINFORCING STEEL TO CONFORM TO CSA SPECIFICATION G 30, 18M, GRADE 400, AND CONFORM TO SS 412.
  6. ALL EXPOSED FORMED CONCRETE SURFACES TO HAVE A CLASS 3 FINISH AS PER SS 211.17.03.



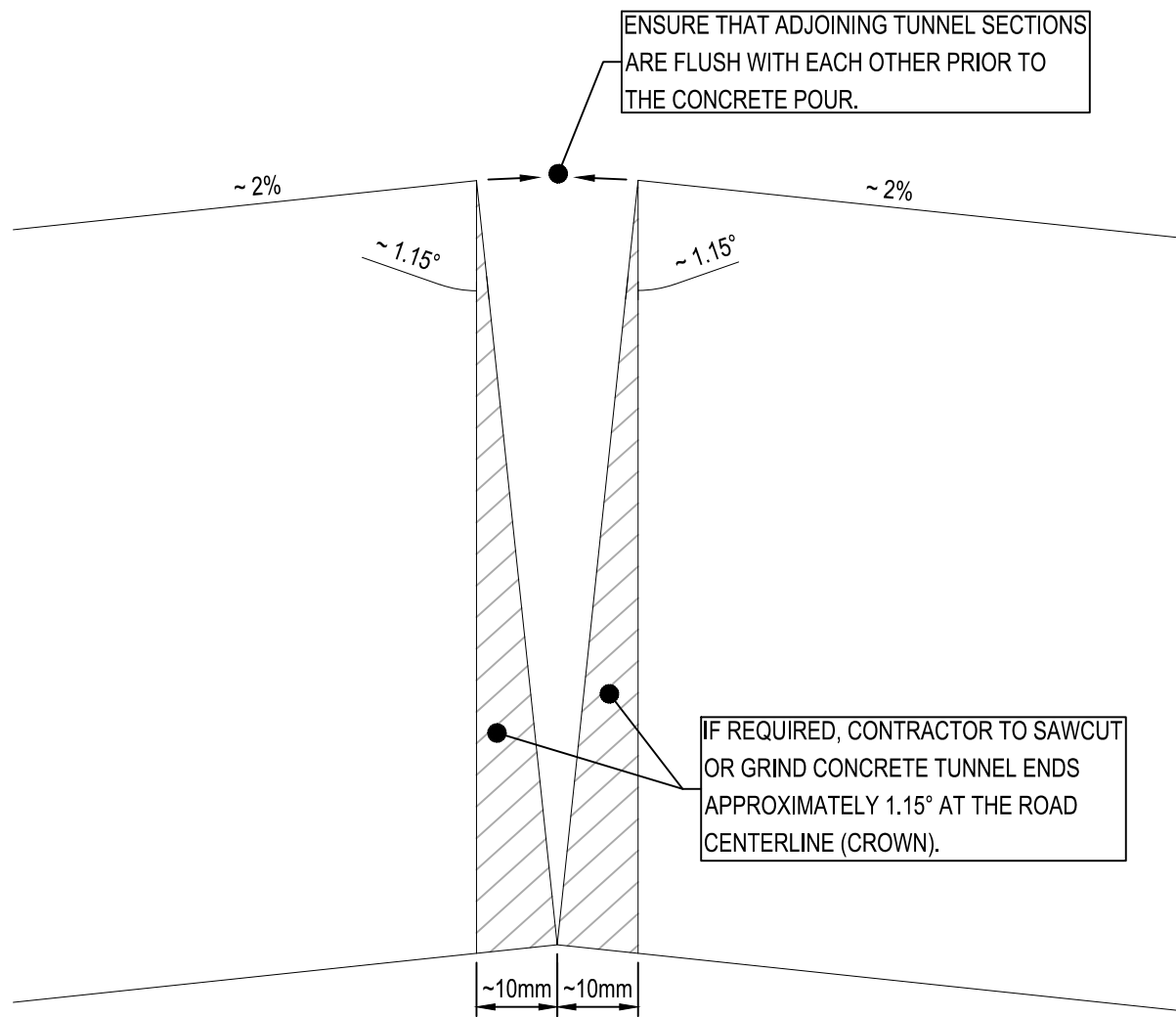
TYPICAL FENCE DETAIL  
SCALE H 1:100  
V 1:100



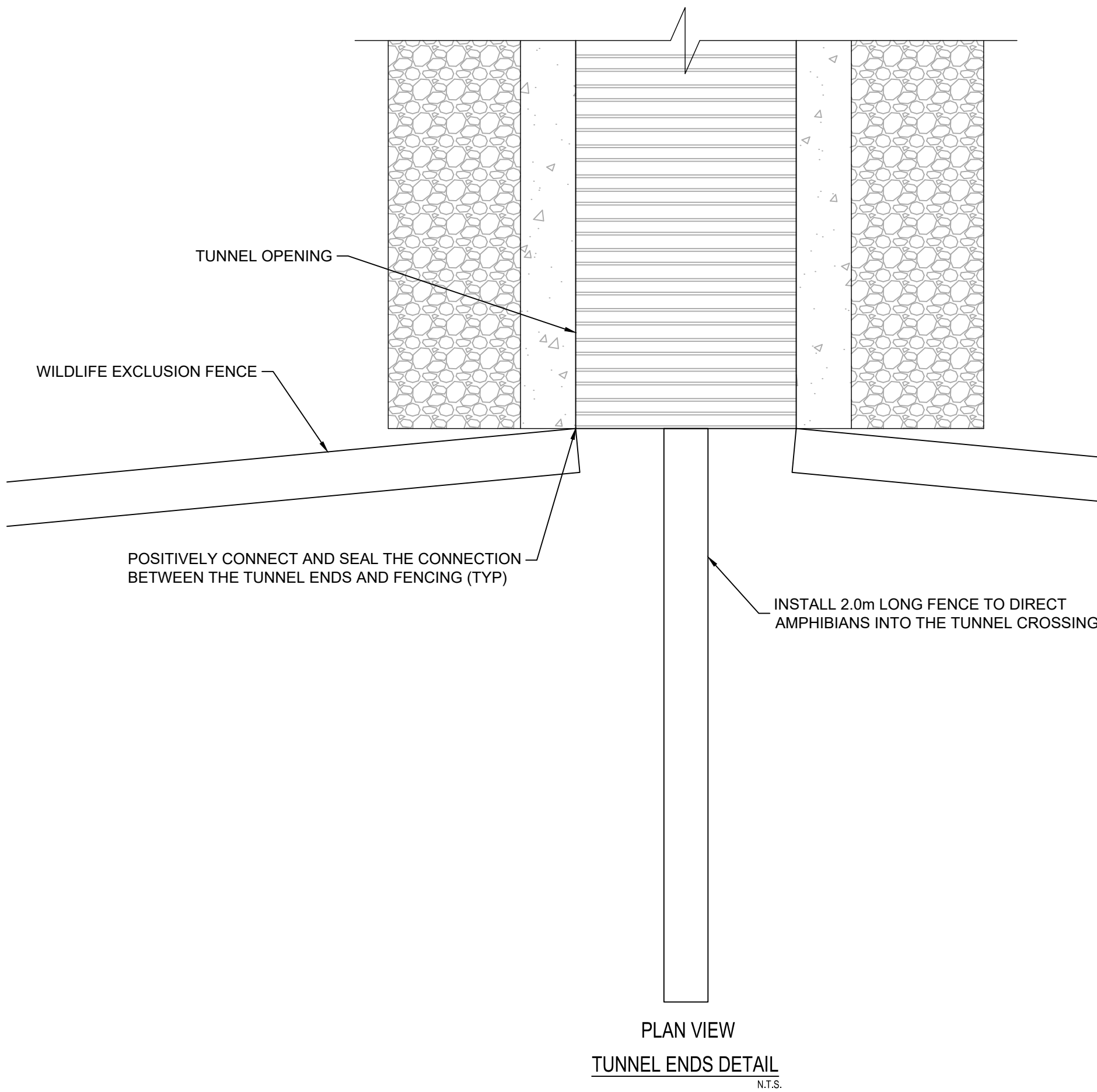
1  
-  
TYPICAL CONCRETE TUNNEL TRENCH DETAIL  
N.T.S.



TYPICAL TUNNEL DETAIL  
SCALE H 1:100  
V 1:100



ROADWAY CROWN TUNNEL JOINT DETAIL  
N.T.S.



PLAN VIEW

TUNNEL ENDS DETAIL  
N.T.S.

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Canada

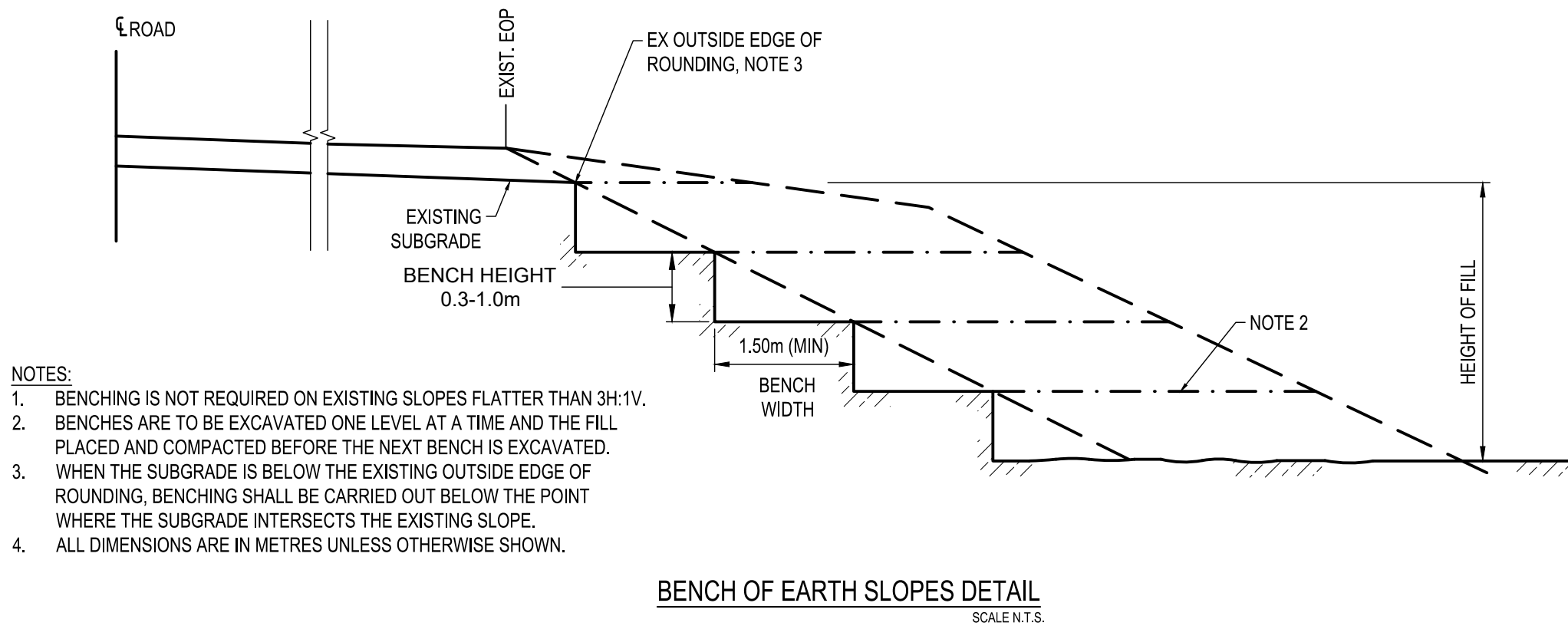
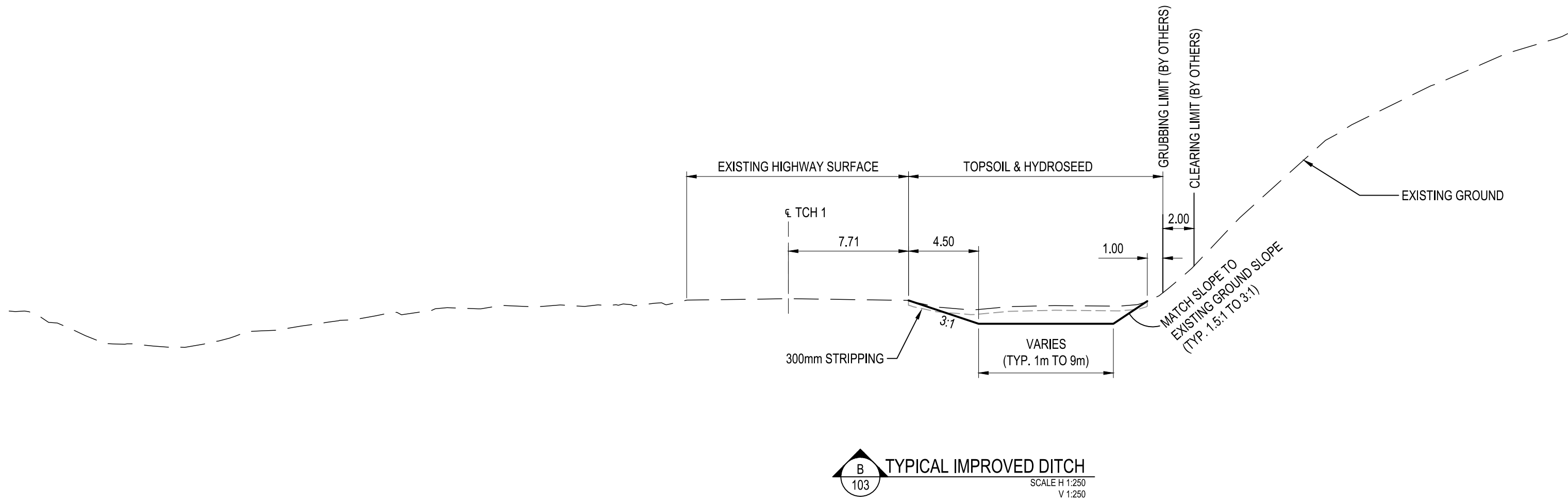
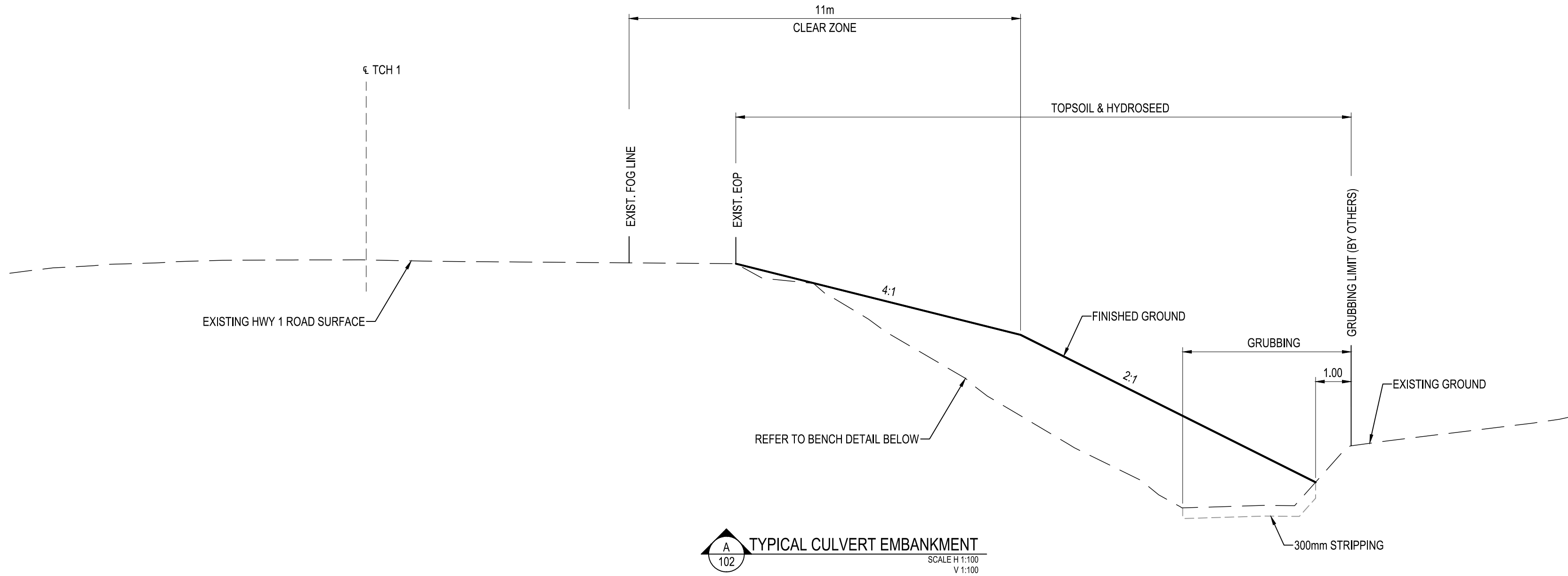
Consultant's Name Nom de l'expert-conseil	 <b>McElhanney</b> McElhanney Consulting Services Ltd.
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Project Title Titre du projet	TRANS-CANADA HIGHWAY ROGERS PASS AVALANCHE MITIGATION GLACIER NATIONAL PARK, BRITISH COLUMBIA
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Drawing Title Titre du dessin	TYPICAL DETAILS AMPHIBIAN CROSSING TUNNEL & FENCING
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Surveyed by / Arpenté par	Drawn by / Dessiné par	Date
	N.W.J.	2019.03.29
Designed by / Conçu par	Reviewed by / Révisé par	Scale / Echelle
R.P.	S.A.	1:500
Parks Canada Project Manager / Administrateur de Projets Parcs Canada G. LUSSIER		
Client Acceptance / Acceptation du client	Approved by / Approuvé par	
Parks Canada Responsible Officer / Agent Responsable Parcs Canada	Parks Canada Project Manager / Administrateur de Projets Parcs Canada	
Project No. / No. du projet	Asset No. / No. du-bien	Sheet No. No. de la feuille
566-08		C301
Drawing Reference No. / No. de référence du dessin		
2511-00656-02c		

FILE: \\CORP.McELHANNEY.COM\CORP\21-ENGINEERING\PROJ\2511-00656-02 - ROGERS PASS DIA REVIEW\00656-C300.DWG - PLOTTED: 2019057 9:59 AM



- NOTES:
1. BENCHING IS NOT REQUIRED ON EXISTING SLOPES FLATTER THAN 3H:1V.
  2. BENCHES ARE TO BE EXCAVATED ONE LEVEL AT A TIME AND THE FILL PLACED AND COMPACTED BEFORE THE NEXT BENCH IS EXCAVATED.
  3. WHEN THE SUBGRADE IS BELOW THE EXISTING OUTSIDE EDGE OF ROUNDING, BENCHING SHALL BE CARRIED OUT BELOW THE POINT WHERE THE SUBGRADE INTERSECTS THE EXISTING SLOPE.
  4. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE SHOWN.

BENCH OF EARTH SLOPES DETAIL  
SCALE 1:1.5

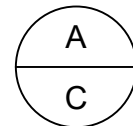
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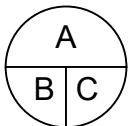
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ISSUED FOR  
TENDER


0	2019.03.29	ISSUED FOR TENDER	N.W.J.	R.P.	S.A.
Rev.	Date	Description	Drawn Dessiné	Designed Conçu	Approved Approuvé



A detail number  
numéro de detail  
B source drawing no.  
de dessin no.  
C detail on drawing no.  
detail sur dessin no.



Consultant's Stamp Sceau de l'expert-conseil	Eng. Stamp Sceau de l'ingénieur
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Client	
 Parks Canada Agency	L'Agence Parcs Canada

Consultant's Name Nom de l'expert-conseil
 <b>McElhanney</b> McElhanney Consulting Services Ltd.

Project Title Titre du projet
TRANS-CANADA HIGHWAY ROGERS PASS AVALANCHE MITIGATION GLACIER NATIONAL PARK, BRITISH COLUMBIA

Drawing Title Titre du dessin		
TYPICAL DETAILS EMBANKMENT FILL & COUGAR CORNER		
Surveyed by / Arpenté par	Drawn by / Dessiné par	Date
	N.W.J.	2019.03.29
Designed by / Conçu par	Reviewed by / Révisé par	Scale / Echelle
R.P.	S.A.	1:500
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Project No. / No. du projet	Asset No. / No. du bien	Sheet No. No. de la feuille
566-08		C302
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2511-00656-02c		

