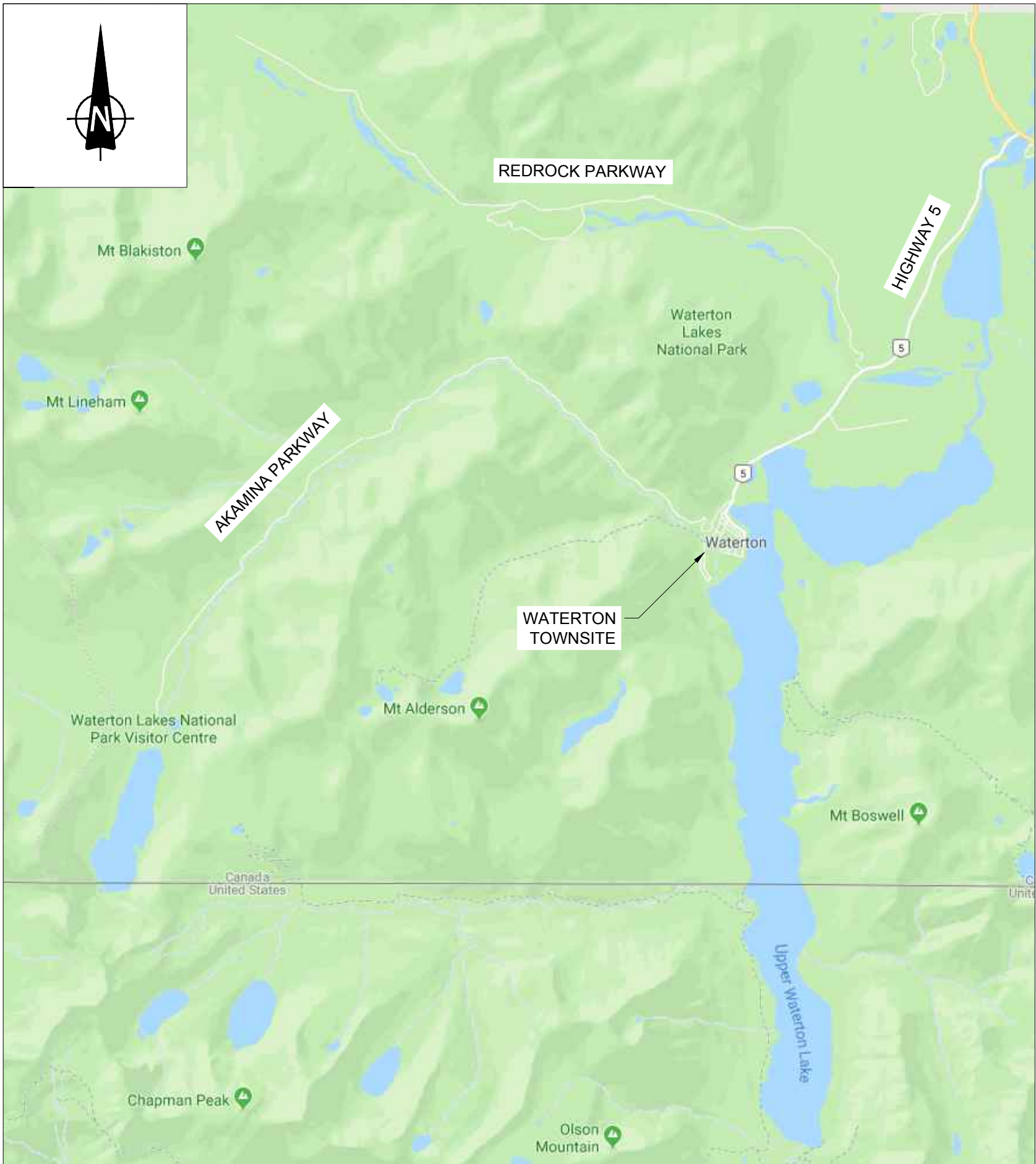


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PARKS CANADA AGENCY

WILDFIRE HAZARD ASSESSMENT WATERTON LAKES NATIONAL PARK REDROCK PARKWAY SIGNAGE AND GUARDRAIL UPGRADES

SHEET LIST TABLE	
Drawing Number	Sheet Title
C-00	COVER PAGE
C-01	SITE PLAN KM 0.00 TO KM 3.90
C-02	SITE PLAN KM 3.90 TO KM 7.56
C-03	SITE PLAN KM 7.56 TO KM 11.40
C-04	SITE PLAN KM 11.40 TO KM 14.07
C-05	SIGNS INVENTORY
C-06	GUARDRAILS INVENTORY
C-07	TYPICAL DETAILS



ISSUED FOR TENDER

ISSUE DATE: 2019-03-07

wood.

Set No.: _____

PROJECT NUMBER	DRAWING NUMBER	ISSUE/REVISION
R.095522.001	C-00	0



REAL PROPERTY SERVICES
Western Region

PRELIMINARY NOT FOR CONSTRUCTION

NOTES:

1. THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH DRAWINGS C-05, C-06 AND C-07.
2. ALL SIGNING AND MARKING DETAILS SHALL FOLLOW PARKS CANADA AND M.U.T.C.D.C. GUIDELINES.
3. ALL NEW OR REPLACED INFORMATION/GUIDANCE SIGNS TO BE DESIGNED, SUPPLIED AND INSTALLED BY OTHERS.
4. THE CONTRACTOR SHOULD COORDINATE THE EXACT LOCATION OF THE NEW SIGNS AND POSTS WITH THE DEPARTMENTAL REPRESENTATIVE BASED ON THE SITE CONDITIONS. THE CONTRACTOR SHOULD REFER TO PARKS CANADA AND ALBERTA TRANSPORTATION GUIDELINES FOR THE SIGN POST INSTALLATION.
5. FALLEN ROCK AND AVALANCHE ZONES ARE DEFINED BASED ON STUDIES DONE BY OTHERS AND PROVIDED BY PARKS CANADA.
6. THE SOIL IS VERY ROCKY AND THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE APPROPRIATE METHODS AND MEANS OF CONSTRUCTION TO INSTALL THE SIGNS AND GUARDRAILS.
7. FOR DELINEATORS INSTALLATION BEFORE AND AFTER THE GUARDRAIL END TREATMENT, REFER TO STANDARD DETAIL TEB_3.51.
8. ALL TRAFFIC SIGNS SHALL BE INSTALLED WITH BREAKAWAY WOOD POST AS PER DETAIL 2 IN DRAWING C-07.

Consultant's Name

Nom de l'expert-conseil

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DO NOT SCALE DRAWINGS

revisions	description	date
0	ISSUED FOR TENDER	19/03/07

PARKS CANADA AGENCY

WATERTON LAKES NATIONAL PARK, AB

project title

**WILDFIRE HAZARD ASSESSMENT
WATERTON LAKES NATIONAL PARK**

**REDROCK PARKWAY
SIGNAGE AND GUARDRAIL
UPGRADES**

approved by

JL

designed by

MA

drawn by

TW

PWOSC Project Manager

MB

PWOSC, Architectural and Engineering Resources Manager

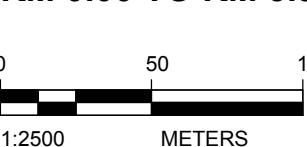
Client

PARKS CANADA AGENCY

drawing title

SITE PLAN

KM 0.00 TO KM 3.90



project no.	sheet	revision no.
R.095522.001	C-01	0




NOTES CONTINUED:

9. ALL DAMAGED DELINEATORS TO BE REMOVED AND DISPOSED. UNDAMAGED DELINEATORS TO BE MAINTAINED UNLESS OTHERWISE INDICATED ON THE DESIGN DRAWINGS AND/OR AS DIRECTED BY THE DEPARTMENTAL REPRESENTATIVE. FOR DELINEATOR DETAIL, REFER TO DETAIL 1 ON DRAWING C-07.
10. FOR GUARDRAIL AND POST DETAILS, REFER TO DRAWING C-07.
11. SELECTED TREES TO BE CUT AS DIRECTED BY THE DEPARTMENTAL REPRESENTATIVE ON SITE.

LEGEND

- NEW GUARDRAIL
EXISTING GUARDRAIL
EXISTING RETAINING WALL
FIRE KILLED TREES
TO BE CUT (20m OFFSET FROM
PAVEMENT EDGE); SEE NOTE 11
NEW FLEXIBLE GUIDE POST
(DELINEATOR)
EXISTING FLEXIBLE GUIDE POST
(DELINEATOR) TO BE REMOVED
EXISTING FLEXIBLE GUIDE POST
(DELINEATOR) TO BE MAINTAINED





Public Works and
Government Services
Canada

Travaux publics et
Services gouvernementaux
Canada

REAL PROPERTY SERVICES
Western Region

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Consultant's Name
Nom de l'expert-conseil

Wood Environment &
Infrastructure Solutions,
a Division of Wood Canada Ltd.

Eng. Stamp
Sceau de l'ingénieur



PERMIT TO PRACTICE
WOOD ENVIRONMENT &
INFRASTRUCTURE SOLUTIONS
A DIVISION OF WOOD CANADA LIMITED
Signature: [Signature]
Date: 2 May 2019
PERMIT NUMBER: P04546
The Association of Professional
Engineers and Geoscientists of Alberta

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revisions	description	date
0	ISSUED FOR TENDER	19/03/07

PARKS CANADA AGENCY

WATERTON LAKES NATIONAL PARK, AB

project title

WILDFIRE HAZARD ASSESSMENT
WATERTON LAKES NATIONAL PARK
REDROCK PARKWAY
SIGNAGE AND GUARDRAIL
UPGRADES

approved by
JL

designed by
MA

drawn by
TW

PWGSC Project Manager
MB

PWGSC, Architectural and Engineering Resources Manager

Client
PARKS CANADA AGENCY

drawing title

SITE PLAN

KM 3.90 TO KM 7.56

0 50 100

1:2500 METERS

project no.	sheet	revision no.
R.095522.001	C-02	0

NOTES CONTINUED:

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11. SELECTED TREES TO BE CUT AS DIRECTED BY THE DEPARTMENTAL REPRESENTATIVE ON SITE.

LEGEND

NEW GUARDRAIL

EXISTING GUARDRAIL

EXISTING RETAINING WALL

FIRE KILLED TREES TO BE CUT (20m OFFSET FROM PAVEMENT EDGE), SEE NOTE 11

NEW FLEXIBLE GUIDE POST (DELINEATOR)

EXISTING FLEXIBLE GUIDE POST (DELINEATOR) TO BE REMOVED

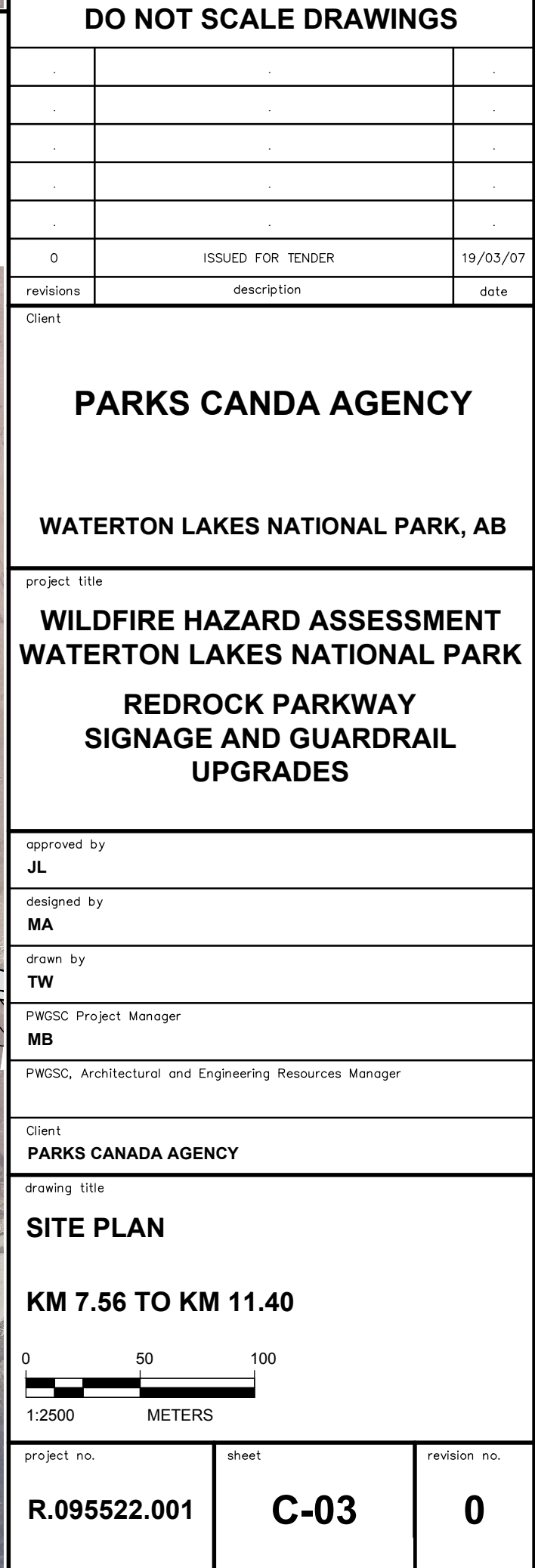
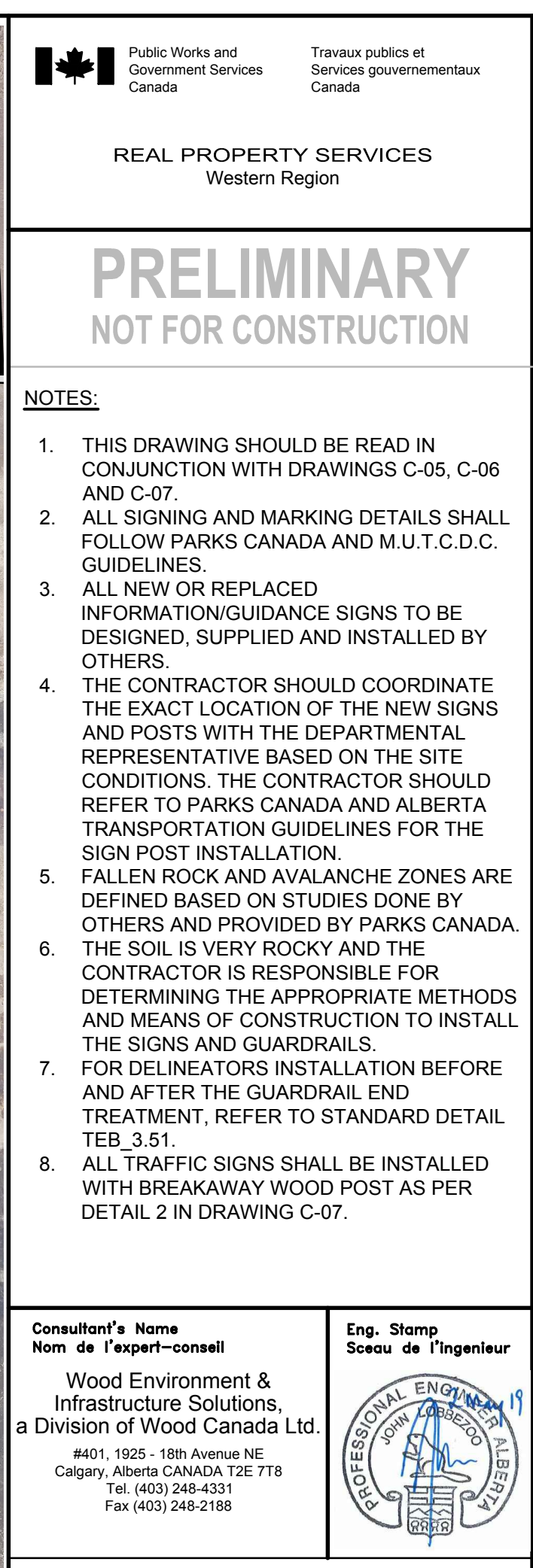
EXISTING FLEXIBLE GUIDE POST (DELINEATOR) TO BE MAINTAINED

wood.

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

PWGSC - A1 - 841X594

Red Rock Parkway Sign Assessment



PRELIMINARY NOT FOR CONSTRUCTION

NOTES:

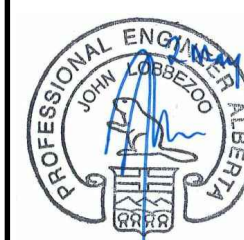
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Consultant's Name
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Signature: [Signature]
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revisions	description	date
0	ISSUED FOR TENDER	19/03/07

Client

PARKS CANADA AGENCY

WATERTON LAKES NATIONAL PARK, AB

project title

WILDFIRE HAZARD ASSESSMENT
WATERTON LAKES NATIONAL PARK

REDROCK PARKWAY SIGNAGE AND GUARDRAIL UPGRADES

approved by

JL

designed by

MA

drawn by

TW

PWQSC Project Manager

MB

PWQSC, Architectural and Engineering Resources Manager

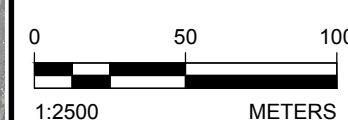
Client

PARKS CANADA AGENCY

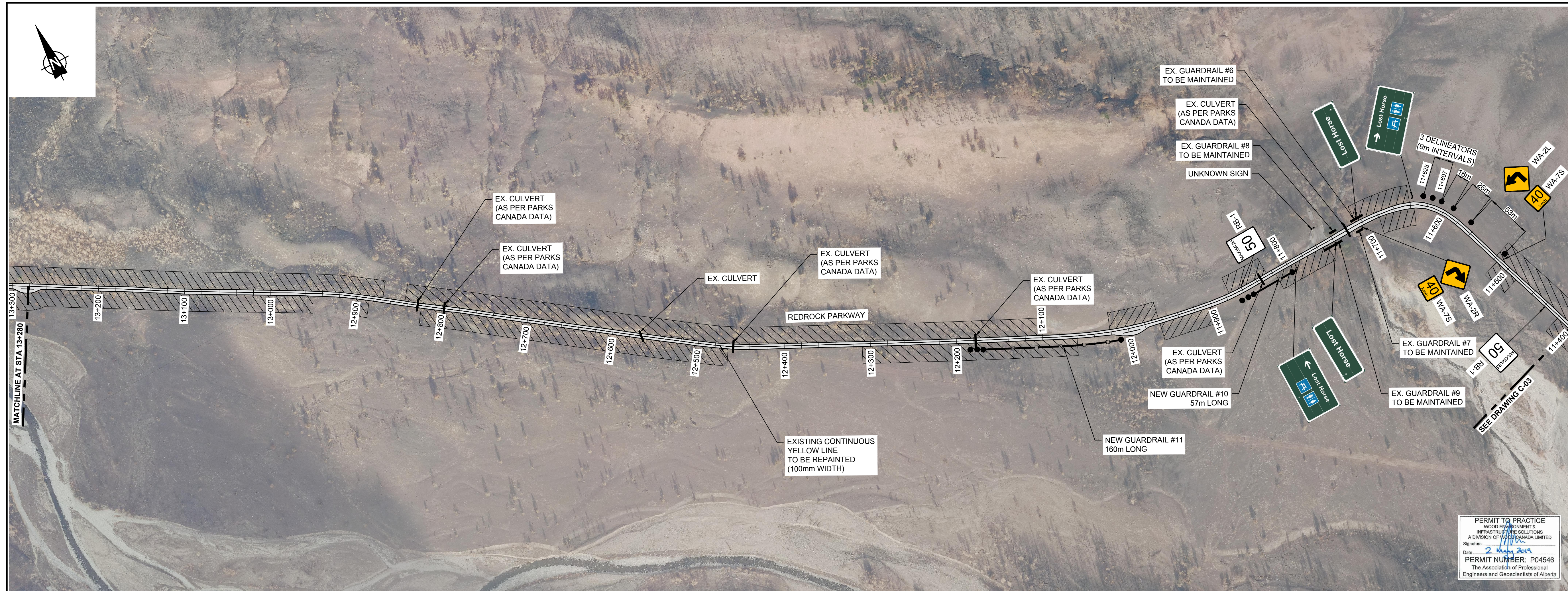
drawing title

SITE PLAN

KM 11.40 TO KM 14.07



project no.	sheet	revision no.
R.095522.001	C-04	0



SURVEY CONTROL DATA				
CONTROL POINT NUMBER	NORTHING (m)	EASTING (m)	ELEVATION (m)	DESCRIPTION
1	5440852.442	289440.370	1348.132	FCP
2	5440506.169	289594.409	1337.315	FCIP
4	5440852.442	289440.370	1348.132	FCP
5	5440506.169	289594.409	1337.315	FCIP
6	5439703.745	289270.499	1313.361	FIP
7	5445558.435	280271.747	1461.549	FCP
8	5445769.838	279955.250	1465.144	FCP
9	5439786.032	289351.557	1315.756	FIP
10	5439876.626	289449.419	1315.461	FIP
11	5440112.567	289480.580	1322.181	FIP
12	5441582.949	289348.997	1348.003	FCP
12_GNSS	5441582.949	289348.997	1348.003	Base Setup
13	5440449.514	289368.027	1328.484	FIP
14	5439668.975	289987.157	1295.964	FIP
15	5440473.053	290022.731	1333.952	FIP
16	5441277.044	290058.903	1337.495	FIP
17	5440037.968	289773.936	1299.625	FIP
2001	5446073.393	291878.931	1344.963	FCIP
2002	5439703.745	289270.499	1313.361	FIP
2003	5439786.032	289351.557	1315.756	FIP
2004	5439876.626	289449.419	1315.461	FIP
2005	5440112.567	289480.580	1322.181	FIP
2006	5440449.514	289368.027	1328.484	FIP
2008	5439668.975	289987.157	1295.964	FIP
2009	5440473.053	290022.731	1333.952	FIP
2010	5441277.044	290058.903	1337.495	FIP
3001	5440852.445	289440.361	1348.094	4 CK
3002	5440506.175	289594.409	1337.397	2 CK
3003	5445769.827	279955.247	1465.108	8 CK
3004	5444528.745	281611.867	1433.142	CP 3004 SPIKE
10003	5440852.443	289440.367	1348.131	FCP
10080	5440037.968	289773.936	1299.625	FIP

LEGEND

NEW GUARDRAIL

EXISTING GUARDRAIL

EXISTING RETAINING WALL

FIRE KILLED TREES
TO BE CUT (20m OFFSET FROM
PAVEMENT EDGE), SEE NOTE 11

NEW FLEXIBLE GUIDE POST
(DELINEATOR)

EXISTING FLEXIBLE GUIDE POST
(DELINEATOR) TO BE REMOVED

EXISTING FLEXIBLE GUIDE POST
(DELINEATOR) TO BE MAINTAINED

NOTES CONTINUED:

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- FOR GUARDRAIL AND POST DETAILS, REFER TO DRAWING C-07.
- SELECTED TREES TO BE CUT AS DIRECTED BY THE DEPARTMENTAL REPRESENTATIVE ON SITE.
- THE NEW WHEEL STOP SHOULD MATCH EXISTING. FOR WHEEL STOP DETAIL, REFER TO STANDARD DETAIL FOR PRECAST CONCRETE CURB TYPE A OR EQUIVALENT.

wood.



SIGNS INVENTORY

STATION	SIDE	SIGN								POST				NOTES
		Description	Name	Size			Ex. Condition	Replace	No. to replace/New	Material	Ex. Condition	Replace	No. to replace or New	
				W(mm)	H(mm)	Area(m2)								
0+015	Left	Stop	RA-1*	600	600	0.36	Good	YES**	1	wood	Good	YES**	1	REPLACE SIGN & POST
0+040	Left	4 Info signs	-	-	-	-	Good	BY OTHERS	-	wood-double	Good	BY OTHERS	-	NOT PART OF THIS CONTRACT
0+061	Right	Max speed 50	RB-1	600	750	0.45	Good	YES**	1	wood	Good	YES**	1	REPLACE SIGN & POST
0+090		Barricade					Good	No	-	-	Good	No	-	-
0+090	center	Road Closed	-	600	300	0.18	Good	YES**	1	on barricade	-	-	-	REPLACE SIGN
0+090	center	Object Marker	WA-36R*	900	300	0.27	Good	YES**	1	on barricade	-	-	-	REPLACE SIGN
0+090	center	Object Marker	WA-36L*	900	300	0.27	Good	YES**	1	on barricade	-	-	-	REPLACE SIGN
0+122	Right	Winding Road Right	WA-6R*	600	600	0.36	Good	YES**	1	wood-single	Good	YES**	1	REPLACE SIGN & POST
		Advisory speed tab 30km/h	WA-75*	450	450	0.20	Good	YES**	1					REPLACE SIGN & POST
0+315	Right	Chevron Alignment	WA-9L*	450	600	0.27	Good	YES**	1	wood-single	Good	YES**	1	REPLACE SIGN & POST
		Chevron Alignment	WA-9R*	450	600	0.27	Good	YES**	1					REPLACE SIGN & POST
0+335	Right	Chevron Alignment	WA-9L*	450	600	0.27	Good	YES**	1	wood-single	Good	YES**	1	REPLACE SIGN & POST
		Chevron Alignment	WA-9R*	450	600	0.27	Good	YES**	1					REPLACE SIGN & POST
0+350	Right	Chevron Alignment	WA-9L*	450	600	0.27	Good	YES**	1	wood-single	Good	YES**	1	REPLACE SIGN & POST
		Chevron Alignment	WA-9R*	450	600	0.27	Good	YES**	1					REPLACE SIGN & POST
0+365	Right	Chevron Alignment	WA-9L*	450	600	0.27	Good	YES**	1	wood-single	Good	YES**	1	REPLACE SIGN & POST
		Chevron Alignment	WA-9R*	450	600	0.27	Good	YES**	1					REPLACE SIGN & POST
0+380	Right	Chevron Alignment	WA-9L*	450	600	0.27	Good	YES**	1	wood-single	Good	YES**	1	REPLACE SIGN & POST
		Chevron Alignment	WA-9R*	450	600	0.27	Good	YES**	1					REPLACE SIGN & POST
0+400	Right	Automobiles Prohibited	RB-88	600	600	0.36	Good	YES**	1	metal-double to be replaced by 2 wood posts	Good	YES**	2	REPLACE SIGN & POST
0+400	Right	No Backpacking/Hiking	1-1-054	600	600	0.36	Good	YES**	1					REPLACE SIGN & POST
0+400	Right	No Horseback Riding	1-1-075	600	600	0.36	Good	YES**	1					REPLACE SIGN & POST
0+400	Right	Cycling Prohibited	RB-67	600	600	0.36	Good	YES**	1					REPLACE SIGN & POST
0+400	Right	Stop	RA-1*	600	600	0.36	Good	YES**	1	wood	Good	YES**	1	REPLACE SIGN & POST
0+418	Right	Single curve right	WA-3R*	600	600	0.36	Replace	YES	1	wood-single	Good	YES**	1	REPLACE EXISTING SIGN WA-5R with WA-3R & REPLACE POST
		Advisory speed tab 30km/h	WA-75*	450	450	0.20	New	-	1					NEW SIGN
0+420	Right	Guidance (direction of exhibit & viewpoint signs)	-	-	-	-	Good	BY OTHERS	-	wood-double	Good	BY OTHERS	-	NOT PART OF THIS CONTRACT
0+532	Right	Reverse curve Left	WA-5L*	600	600	0.36	Good	YES**	1	wood-single	Good	YES	1	REPLACE EXISTING SIGN WA-6L with WA-5L and REPLACE POST. RELOCATE FROM 0+525 TO 0+532
		Advisory speed tab 30km/h	WA-75*	450	450	0.20	Good	YES**	1					REPLACE & RELOCATE SIGN & POST FROM 0+525 TO 0+532
0+540	Right	Deer crossing	WC-13	600	600	0.36	Good	YES**	1	wood	burnt	YES	1	REPLACE SIGN & POST
0+550	Left	Winding Road Left	WA-6L*	600	600	0.36	Missing	YES	1	wood-single	Missing	YES	1	REPLACE SIGN & POST
		Advisory speed tab 30km/h	WA-75*	450	450	0.20	Missing	YES	1					REPLACE SIGN & POST
0+800	Right	Max speed 50	RB-1	600	750	0.45	Good	YES**	1	wood	Good	YES**	1	REPLACE SIGN & POST
0+840	Left	Reverse curve left	WA-5L*	600	600	0.36	Missing	Yes	1	wood-single	burnt	Yes	1	REPLACE & RELOCATE SIGN & POST FROM 0+828 TO 0+840
		Advisory speed tab 30km/h	WA-75*	450	450	0.20	Missing	Yes	1					
1+000	Right	Guidance (Crandell campground&RedRock canyon)	-	-	-	-	Good	BY OTHERS	-	wood-double	Good	BY OTHERS	-	NOT PART OF THIS CONTRACT
1+800	Right	Single curve left	WA-3L*	600	600	0.36	Good	YES**	1	wood-single	burnt	YES	1	REPLACE SIGN & POST
		Advisory speed tab 40km/h	WA-75*	450	450	0.20	New	-	1					NEW SIGN
1+830	Left	Max speed 50	RB-1	600	750	0.45	New	-	1	wood	New	-	1	NEW SIGN & POST
1+950	Left	Single curve right	WA-3R*	600	600	0.36	Good	YES**	1	wood-single	Good	YES**	1	REPLACE SIGN & POST
		Advisory speed tab 40km/h	WA-75*	450	450	0.20	New	-	1					NEW SIGN
1+981	Right	Max speed 50	RB-1	600	750	0.45	New	-	1	wood	New	-	1	NEW SIGN & POST
2+845	left	Max speed 50	RB-1	600	750	0.45	Missing	YES	1	wood	burnt	YES	1	REPLACE SIGN & POST
2+900	Right	Guidance (Bellevue)	-	-	-	-	Good	BY OTHERS	-	wood-double	Good	BY OTHERS	-	NOT PART OF THIS CONTRACT
3+000	Right	Bear	-	-	-	-	Good	BY OTHERS	-	-	-	BY OTHERS	-	NOT PART OF THIS CONTRACT
3+000	Right	Info (Wild Meetings)	-	-	-	-	Good	BY OTHERS	-	wood-double	burnt	BY OTHERS	-	NOT PART OF THIS CONTRACT
3+100	Left	Guidance (Bellevue)	-	-	-	-	Good	BY OTHERS	-	wood-double	burnt	BY OTHERS	-	NOT PART OF THIS CONTRACT
3+100	Right	Max speed 50	RB-1	600	750	0.45	Missing	YES	1	wood	burnt	YES	1	REPLACE & RELOCATE SIGN & POST FROM 2+845 TO 3+100
3+630	Right	Reverse curve left	WA-5L*	600	600	0.36	Damaged	YES	1	wood-single	burnt	YES	1	REPLACE & RELOCATE SIGN & POST FROM 3+640 TO 3+630
		Advisory speed tab 40km/h	WA-75*	450	450	0.20	New	-	1					NEW SIGN
3+840	Left	End of Avalanche Area	-	600	1200	0.72	New	-	1	wood	New	-	1	NEW SIGN & POST
3+850	Right	No Stopping-Avalanche Area	-	600	1200	0.72	New	-	1	wood	New	-	1	NEW SIGN & POST
3+870	Left	Reverse curve left	WA-5L*	600	600	0.36	Missing	YES	1	wood-single	Missing	YES	1	REPLACE & RELOCATE SIGN & POST FROM 3+892 TO 3+870
		Advisory speed tab 40km/h	WA-75*	450	450	0.20	New	-	1					NEW SIGN
4+260	Right	End of Avalanche Area	-	600	1200	0.72	New	-	1	wood	New	-	1	NEW SIGN & POST
4+260	Left	No Stopping-Avalanche Area	-	600	1200	0.72	New	-	1	wood	New	-	1	NEW SIGN & POST
4+770	Left	Max speed 50	RB-1	600	750	0.45	Damaged	YES	1	wood	burnt	YES	1	REPLACE SIGN & POST
4+942	Right	Guidance (direction of exhibit & viewpoint signs)	-	-	-	-	Good	BY OTHERS	-	wood-double	Good	BY OTHERS	-	NOT PART OF THIS CONTRACT
5+050	Left	Info (Akaitapi campsite)	-	-	-	-	Good	BY OTHERS	-	wood-double	Good	BY OTHERS	-	NOT PART OF THIS CONTRACT
5+147	Left	Guidance (direction of exhibit & viewpoint signs)	-	-	-	-	Damaged	BY OTHERS	-	wood-double	burnt	BY OTHERS	-	NOT PART OF THIS CONTRACT
5+240	Right	Max speed 50	RB-1	600	750	0.45	Damaged	YES	1	wood	burnt	YES	1	REPLACE & RELOCATE SIGN & POST FROM 5+800 TO 5+240
6+740	Left	Max speed 50	RB-1	600	750	0.45	Missing	YES	1	wood	burnt	YES	1	REPLACE SIGN & POST
6+752	Right	Guidance (Crandell campground)	-	-	-	-	Damaged	BY OTHERS	-	wood-double	burnt	BY OTHERS	-	NOT PART OF THIS CONTRACT
6+782	Left	Stop	RA-1*	600	600	0.36	Good	YES**	1	wood	burnt	YES	1	REPLACE SIGN & POST
6+800	Right	checkerboard	WA-88	750	750	0.56	Good	YES**	1	wood	Good	YES**	1	REPLACE SIGN & POST
6+820	Right	Max speed 50	RB-1	600	750	0.45	Damaged	YES	1	wood-single	Good	YES	1	REPLACE & RELOCATE SIGN & POST FROM 6+880 TO 6+820
		Road narrows	WA-23	750	750	0.56	Damaged	YES	1					

STATION	SIDE	SIGN								POST				NOTES
		Description	Name	Size			Ex. Condition	Replace	No. to replace/New	Material	Ex. Condition	Replace	No. to replace or New	
				W(mm)	H(mm)	Area(m2)								
6+858	Left	Guidance (Crandell campground)	-	-	-	-	Good	BY OTHERS	-	wood-double	Good	BY OTHERS	-	NOT PART OF THIS CONTRACT
7+080	Left	Traffic counter pole	-	-	-	-	DAMAGED	-	-	metal	-	-	-	BURNT POST & CABLES (NOT PART OF THIS CONTRACT)
7+717	Right	Single curve left	WA-3L*	600	600	0.36	Good	YES**	1	wood-single	burnt	YES	1	REPLACE SIGN & POST
		Advisory speed tab 40km/h	WA-75*	450	450	0.20	New	-	1					NEW SIGN
7+730	Left	Max speed 50	RB-1	600	750	0.45	Good	YES**	1	wood	burnt	YES	1	REPLACE & RELOCATE SIGN & POST FROM 7+946 TO 7+730
7+750	Right	Guidance (Coppermine picnic)	-	-	-	-	Good	BY OTHERS	-	wood-double	Good	BY OTHERS	-	NOT PART OF THIS CONTRACT
7+840	Right	Guidance (Coppermine)	-	-	-	-	Good	BY OTHERS	-	wood-double	burnt	BY OTHERS	-	NOT PART OF THIS CONTRACT
7+860	Left	Guidance (Coppermine)	-	-	-	-	Good	BY OTHERS	-	wood-double	Good	BY OTHERS	-	NOT PART OF THIS CONTRACT
7+880	Left	Guidance (Coppermine picnic)	-	-	-	-	Good	BY OTHERS	-	wood-double	Good	BY OTHERS	-	NOT PART OF THIS CONTRACT
7+900	Left	Single curve right	WA-3R*	600	600	0.36	Missing	YES	1	wood-single	Missing	YES	1	REPLACE & RELOCATE SIGN & POST FROM 7+867 TO 7+900
		Advisory speed tab 40km/h	WA-75*	450	450	0.20	New	-	1					NEW SIGN
7+950	Right	Guidance (Crandell Lake & Canyon Youth Camp)	-	-	-	-	Good	BY OTHERS	-	wood-triple	Good	BY OTHERS	-	NOT PART OF THIS CONTRACT
7+973	Left	Stop	RA-1*	600	600	0.36	Good	YES**	1	wood	burnt	YES	1	REPLACE SIGN & POST
7+980	Right	Fallen Rock	WC-6	750	750	0.56	New	-	1	wood-single	New	-	1	NEW SIGN & POST
		Watch for Fallen Rock	WC-6T	600	300	0.18	New	-	1					
		Risque D'eboulis	WC-6TF	600	300	0.18	New	-	1					
8+000	Left	Guidance (Crandell Lake & Canyon Youth Camp)	-	-	-	-	Good	BY OTHERS	-	wood-triple	burnt	BY OTHERS	-	NOT PART OF THIS CONTRACT
8+006	Right	Max speed 50	RB-1	600	750	0.45	Damaged	YES	1	wood	burnt	YES	1	REPLACE SIGN & POST
8+100	Right	No Stopping-Avalanche Area	-	600	1200	0.72	New	-	1	wood	New	-	1	NEW SIGN & POST
8+100	Left	End of Avalanche Area	-	600	1200	0.72	New	-	1	wood	New	-	1	NEW SIGN & POST
8+809	Right	Single curve right	WA-3R*	600	600	0.36	New	-	1	wood	New	-	1	NEW SIGN & POST
8+830	Left	Fallen Rock	WC-6	750	750	0.56	New	-	1	wood-single	New	-	1	NEW SIGN & POST
		Watch for Fallen Rock	WC-6T	600	300	0.18	New	-	1					
		Risque D'eboulis	WC-6TF	600	300	0.18	New	-	1					
9+030	Right	End of Avalanche Area	-	600	1200	0.72	New	-	1	wood	New	-	1	NEW SIGN & POST
9+030	Left	No Stopping-Avalanche Area	-	600	1200	0.72	New	-	1	wood	New	-	1	NEW SIGN & POST
9+050	Left	Single curve left	WA-3L*	600	600	0.36	New	-	1	wood	New	-	1	NEW SIGN & POST
9+950	Left	Max speed 50	RB-1	600	750	0.45	Damaged	YES	1	wood	burnt	YES	1	REPLACE & RELOCATE SIGN & POST FROM 9+750 TO 9+950
10+000	Right	Single curve left	WA-3L*	600	600	0.36	Good	YES**	1	wood	burnt	YES	1	REPLACE & RELOCATE SIGN & POST FROM 10+020 TO 10+000
		Advisory speed tab 40km/h	WA-75*	450	450	0.20	New	-	1					NEW SIGN
10+160	Left	Single curve right	WA-3R*	600	600	0.36	Damaged	YES	1	wood-single	burnt	YES	1	REPLACE & RELOCATE SIGN & POST FROM 10+130 TO 10+160
		Advisory speed tab 40km/h	WA-75*	450	450	0.20	New	-	1					NEW SIGN
10+420	Right	Max speed 50	RB-1	600	750	0.45	Damaged	YES	1	wood	burnt	YES	1	REPLACE & RELOCATE SIGN & POST FROM 10+560 TO 10+420
10+800	Right	Guidance (direction of exhibit)	-	-	-	-	Good	BY OTHERS	-	wood-double	Good	BY OTHERS	-	NOT PART OF THIS CONTRACT
10+900	Right	Info (Moving Mountains)	-	-	-	-	Good	BY OTHERS	-	wood-double	burnt	BY OTHERS	-	NOT PART OF THIS CONTRACT
11+440	Left	Max speed 50	RB-1	600	750	0.45	Good	YES**	1	wood	burnt	YES	1	REPLACE SIGN & POST
11+510	Right	Single turn left	WA-2L*	600	600	0.36	Damaged	YES	1	wood-single	burnt	YES	1	REPLACE EXISTING SIGN WA-3L WITH WA-2L & REPLACE POST. RELOCATE FROM 11+540 TO 11+510
		Advisory speed tab 40km/h	WA-75*	450	450	0.20	New	-	1					NEW SIGN
11+638	Right	Guidance (Lost Horse Picnic)	-	-	-	-	Damaged	BY OTHERS	-	wood-double	burnt	BY OTHERS	-	NOT PART OF THIS CONTRACT
11+700	Left	Single turn right	WA-2R*	600	600	0.36	Damaged	YES	1	wood-single	burnt	YES	1	REPLACE EXISTING SIGN WA-3R WITH WA-2R & REPLACE POST
		Advisory speed tab 40km/h	WA-75*	450	450	0.20	New	-	1					NEW SIGN
11+704	Right	Guidance (Lost Horse)	-	-	-	-	Good	BY OTHERS	-	wood-double	Good	BY OTHERS	-	NOT PART OF THIS CONTRACT
11+739	Left	Guidance (Lost Horse)	-	-	-	-	Good	BY OTHERS	-	wood-double	Good	BY OTHERS	-	NOT PART OF THIS CONTRACT
11+750	Right	Guidance (Unknown)	-	-	-	-	Damaged	BY OTHERS	-	wood-double	burnt	BY OTHERS	-	NOT PART OF THIS CONTRACT
11+793	Left	Guidance (Lost Horse Picnic)	-	-	-	-	Good	BY OTHERS	-	wood-double	burnt	BY OTHERS	-	NOT PART OF THIS CONTRACT
11+860	Right	Max speed 50	RB-1	600	750	0.45	Missing	YES	1	wood	burnt	YES	1	REPLACE SIGN & POST
13+580	Right	Guidance (Red Rock Canyon)	-	-	-	-	Good	BY OTHERS	-	wood-double	Good	BY OTHERS	-	NOT PART OF THIS CONTRACT
13+635	Left	Max speed 50	RB-1	600	750	0.45	Missing	YES	1	wood	burnt	YES	1	REPLACE SIGN & POST
13+641	Right	Max speed 20	RB-1	600	750	0.45	Damaged	YES	1	wood	Good	YES**	1	REPLACE SIGN & POST
13+720	Right	Guidance (parking&washroom)	-	-	-	-	Good	BY OTHERS	-	wood-triple	Good	BY OTHERS	-	NOT PART OF THIS CONTRACT
13+740	Right	Guidance (exhibit & picnic&washroom&bicycling&horseback riding)	-	-	-	-	Good	BY OTHERS	-	wood	burnt	BY OTHERS	-	NOT PART OF THIS CONTRACT
13+769	Left	Stop	RA-1*	600	600	0.36	Damaged	YES	1	wood	broken	YES	1	REPLACE SIGN & POST
13+800	Left	No camping	-	150	150	0.02	Good	YES**	1	wood	burnt	YES	1	REPLACE SIGN & POST
14+040	Left	Guidance (parking& washroom&hiking&horseback riding)	-	-	-	-	Good	BY OTHERS	-	wood-triple	burnt	BY OTHERS	-	NOT PART OF THIS CONTRACT
14+058	Left	Max speed 20	RB-1	600	750	0.45	Damaged	YES	1	wood	burnt	YES	1	REPLACE SIGN & POST
14+070	Left	Guidance (parking)	-	-	-	-	Good	BY OTHERS	-	wood	Good	BY OTHERS	-	NOT PART OF THIS CONTRACT
14+080	Right	Info (unlawful to feed wildlife)	-	450	600	0.27	Damaged	YES	1	wood	burnt	YES	1	REPLACE SIGN & POST (DIFFERENT SIGN CONFIGURATION)
Parking lot P1 (red Rock Canyon Trailhead)	-	Guidance (Red Rock Canyon)	-	-	-	-	Damaged	BY OTHERS	-	wood-double	burnt	BY OTHERS	-	NOT PART OF THIS CONTRACT
	-	Caution	-	450	600	0.27	Damaged	YES	1	metal	leaning	YES	1	REPLACE SIGN & POST
	-	POST WITHOUT SIGN	-	-	-	-	Missing	-	-	metal	Good	No	-	UNKNOWN SIGN
	-	Guidance (Bus parking only)	-	300	500	0.15	Damaged	Yes	1	wood	Good	No	-	REPLACE SIGN
	-	3 damaged wheel stops												REPLACE 3 WHEEL STOPS
TOTAL			PERMIT TO PRACTICE			34			94				63	

EXISTING GUARDRAILS ASSESSMENT

EX. GUARDRAIL #	SIDE	STATION	SECTION	TYPE	LENGTH (m)	EXISTING CONDITION				NOTES
						W-BEAM GUARDRAIL	TOTAL # WOOD POSTS	BURNT POSTS	% BURNT WOOD POSTS	
1	RIGHT	00+190.4	END TREATMENT	TURN DOWN	0.75	NOT BURNT	65	18	28%	1-W-BEAM & POSTS TO BE REMOVED AND REPLACED BY STRONG POST W-BEAM WITH STEEL POSTS 2-START AND END STATIONS TO BE RELOCATED
		00+191.1	W-BEAM	WEAK	102.69					
		00+293.8	W-BEAM	STRONG	68.73					
		00+362.5	W-BEAM	WEAK	7.80					
		00+369.6	END TREATMENT	TURN DOWN	0.58					
2	LEFT	00+554.3	END TREATMENT	TURN DOWN	0.46	NOT BURNT	49	31	63%	1-W-BEAM & POSTS TO BE REMOVED AND REPLACED BY STRONG POST W-BEAM WITH STEEL POSTS 2-START AND END STATIONS TO BE RELOCATED
		00+554.8	W-BEAM	STRONG	45.89					
		00+600.7	W-BEAM	WEAK	38.37					
		00+639.0	W-BEAM	STRONG	14.93					
		00+654.0	W-BEAM	WEAK	3.80					
		00+657.5	W-BEAM	STRONG	16.90					
		00+673.9	W-BEAM	WEAK	20.10					
		00+694.0	END TREATMENT	TURN DOWN	0.65					
3	LEFT	04+956.5	END TREATMENT	TURN DOWN	0.58	BURNT	17	17	100%	1-W-BEAM & POSTS TO BE REMOVED AND REPLACED BY STRONG POST W-BEAM WITH STEEL POSTS 2-START AND END STATIONS TO BE RELOCATED
		04+957.0	W-BEAM	WEAK	64.07					
		05+021.1	END TREATMENT	TURN DOWN	0.61					
4	LEFT	05+523.4	END TREATMENT	TURN DOWN	0.52	LEANING	20	20	100%	1-W-BEAM & POSTS TO BE REMOVED AND REPLACED BY STRONG POST W-BEAM WITH STEEL POSTS 2-START AND END STATIONS TO BE RELOCATED
		05+523.9	W-BEAM	WEAK	73.34					
		05+597.2	END TREATMENT	TURN DOWN	0.52					
5	LEFT	08+931.7	END TREATMENT	WING END	0.70	NOT BURNT	56	56	100%	1-W-BEAM & POSTS TO BE REMOVED AND REPLACED BY STRONG POST W-BEAM WITH STEEL POSTS 2-START AND END STATIONS TO BE RELOCATED
		08+932.4	W-BEAM	STRONG	104.32					
		09+036.7	END TREATMENT	CRASHWORTHY	1.53					
6	RIGHT	11+695.8	END TREATMENT	CRASHWORTHY	1.53	NOT BURNT	9	0	0%	
		11+697.3	W-BEAM	STRONG	14.46					
		11+711.8	END TREATMENT	-	-					
7	LEFT	11+703.3	END TREATMENT	WING END	0.70	NOT BURNT	5	0	0%	
		11+704.0	W-BEAM	STRONG	7.31					
		11+711.3	END TREATMENT	WING END	0.66					
8	RIGHT	11+730.9	END TREATMENT	WING END	0.82	NOT BURNT	5	0	0%	
		11+731.7	W-BEAM	STRONG	7.27					
		11+738.9	END TREATMENT	WING END	0.77					
9	LEFT	11+730.8	END TREATMENT	WING END	0.69	NOT BURNT	13	0	0%	
		11+731.5	W-BEAM	STRONG	23.10					
		11+753.3	END TREATMENT	CRASHWORTHY	1.63					
TOTAL						239		142	59%	TO BE MAINTAINED

NEW GUARDRAILS INVENTORY

NEW GUARDRAIL #	SIDE	START STATION	END STATION	SECTION	TYPE	GUARDRAIL LENGTH (m)	WARRANT	NOTES
1	RIGHT	-	00+144	CRASHWORTHY END TREATMENT	SKT SYSTEM WITH DEEP STEEL POST		STEEP EMBANKMENT	REPLACE EXISTING*
		00+144	00+368	W-BEAM GUADRAIL	W-BEAM STRONG POST WITH DEEP STEEL POST	224.79		
		00+368	-	CRASHWORTHY END TREATMENT	SKT SYSTEM WITH DEEP STEEL POST			
2	LEFT	-	00+531	CRASHWORTHY END TREATMENT	SKT SYSTEM WITH DEEP STEEL POST		STEEP EMBANKMENT	REPLACE EXISTING*
		00+531	00+679	W-BEAM GUADRAIL	W-BEAM STRONG POST WITH DEEP STEEL POST	150.50		
		00+679	-	CRASHWORTHY END TREATMENT	SKT SYSTEM WITH DEEP STEEL POST			
3	LEFT	-	01+962	CRASHWORTHY END TREATMENT	SKT SYSTEM WITH DEEP STEEL POST		STEEP EMBANKMENT	NEW
		01+962	02+318	W-BEAM GUADRAIL	W-BEAM STRONG POST WITH DEEP STEEL POST	356.24		
		02+318	-	CRASHWORTHY END TREATMENT	SKT SYSTEM WITH DEEP STEEL POST			
4	LEFT	-	03+880	CRASHWORTHY END TREATMENT	SKT SYSTEM WITH DEEP STEEL POST		STEEP EMBANKMENT	NEW
		03+880	04+423	W-BEAM GUADRAIL	W-BEAM STRONG POST WITH DEEP STEEL POST	544.83		
		04+423	-	CRASHWORTHY END TREATMENT	SKT SYSTEM WITH DEEP STEEL POST			
5	LEFT	-	04+945	CRASHWORTHY END TREATMENT	SKT SYSTEM WITH DEEP STEEL POST		STEEP EMBANKMENT	REPLACE EXISTING*
		04+945	05+011	W-BEAM GUADRAIL	W-BEAM STRONG POST WITH DEEP STEEL POST	66.68		
		05+011	-	CRASHWORTHY END TREATMENT	SKT SYSTEM WITH DEEP STEEL POST			
6	LEFT	-	05+192	CRASHWORTHY END TREATMENT	SKT SYSTEM WITH DEEP STEEL POST		STEEP EMBANKMENT	NEW
		05+192	05+274	W-BEAM GUADRAIL	W-BEAM STRONG POST WITH DEEP STEEL POST	83.82		
		05+274	-	CRASHWORTHY END TREATMENT	SKT SYSTEM WITH DEEP STEEL POST			
7	LEFT	-	05+492	CRASHWORTHY END TREATMENT	SKT SYSTEM WITH DEEP STEEL POST		STEEP EMBANKMENT	REPLACE EXISTING*
		05+492	05+619	W-BEAM GUADRAIL	W-BEAM STRONG POST WITH DEEP STEEL POST	127.64		
		05+619	-	CRASHWORTHY END TREATMENT	SKT SYSTEM WITH DEEP STEEL POST			
8	LEFT	-	07+808	CRASHWORTHY END TREATMENT	SKT SYSTEM WITH DEEP STEEL POST		STEEP EMBANKMENT	NEW
		07+808	07+913	W-BEAM GUADRAIL	W-BEAM STRONG POST WITH DEEP STEEL POST	106.68		
		07+913	-	CRASHWORTHY END TREATMENT	SKT SYSTEM WITH DEEP STEEL POST			
9	LEFT	-	08+019	CRASHWORTHY END TREATMENT	SKT SYSTEM WITH DEEP STEEL POST		STEEP EMBANKMENT**	REPLACE EXISTING* (LONGER THAN EXISTING)
		08+019	09+440	W-BEAM GUADRAIL	W-BEAM STRONG POST WITH DEEP STEEL POST	1423.04		
		09+440	-	CRASHWORTHY END TREATMENT	SKT SYSTEM WITH DEEP STEEL POST			
10	LEFT	-	11+798	CRASHWORTHY END TREATMENT	SKT SYSTEM WITH DEEP STEEL POST		STEEP EMBANKMENT	NEW
		11+798	11+853	W-BEAM GUADRAIL	W-BEAM STRONG POST WITH DEEP STEEL POST	57.15		
		11+853	-	CRASHWORTHY END TREATMENT	SKT SYSTEM WITH DEEP STEEL POST			
11	LEFT	-	12+011	CRASHWORTHY END TREATMENT	SKT SYSTEM WITH DEEP STEEL POST		STEEP EMBANKMENT	NEW
		12+011	12+169	W-BEAM GUADRAIL	W-BEAM STRONG POST WITH DEEP STEEL POST	160.02		
		12+169	-	CRASHWORTHY END TREATMENT	SKT SYSTEM WITH DEEP STEEL POST			
12	LEFT	-	13+820	CRASHWORTHY END TREATMENT	SKT SYSTEM WITH DEEP STEEL POST		TO PROHIBIT PARKING AS PER PARKS CANADA REQUEST	NEW
		13+820	14+070	W-BEAM GUADRAIL	W-BEAM STRONG POST WITH DEEP STEEL POST	251.46		
		14+070	-	CRASHWORTHY END TREATMENT	SKT SYSTEM WITH DEEP STEEL POST			
TOTAL						3552.83		

* START AND END STATIONS ARE DIFFERENT THAN EXISTING
** AS PER LIDAR DATA

REAL PROPERTY SERVICES
Western Region

PRELIMINARY
NOT FOR CONSTRUCTION

NOTES:

- GUARDRAILS DETAILS/ INSTALLATION SHALL FOLLOW DRAWING C-07 AND ALBERTA TRANSPORTATION ROADSIDE DESIGN GUIDELINES.
- THE START AND END STATION OF THE W-BEAM GUARDRAILS COULD SLIGHTLY VARY BASED ON THE ACTUAL SITE CONDITIONS IN COORDINATION WITH AND AS DIRECTED BY THE DEPARTMENTAL REPRESENTATIVE.
- THE SOIL IS VERY ROCKY AND THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE APPROPRIATE METHODS AND MEANS OF CONSTRUCTION TO INSTALL THE GUARDRAILS AND POSTS.

wood.

Consultant's Name
Nom de l'expert-conseil

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Eng. Stamp
Sceau de l'ingénieur



PERMIT TO PRACTICE
WOOD ENVIRONMENT & INFRASTRUCTURE SOLUTIONS
A DIVISION OF WOOD CANADA LIMITED
Signature: [Signature]
Date: 2 May 2014
PERMIT NUMBER: P04546
The Association of Professional Engineers and Geoscientists of Alberta

DO NOT SCALE DRAWINGS

0	ISSUED FOR TENDER	19/03/07
revisions	description	date

Client

PARKS CANADA AGENCY

WATERTON LAKES NATIONAL PARK, AB

project title

WILDFIRE HAZARD ASSESSMENT
WATERTON LAKES NATIONAL PARK

REDROCK PARKWAY
SIGNAGE AND GUARDRAIL
UPGRADES

approved by
JL

designed by
MA

drawn by
TW

PWGSC Project Manager
MB

PWGSC, Architectural and Engineering Resources Manager

Client
PARKS CANADA AGENCY

drawing title

GUARDRAILS INVENTORY

project no.

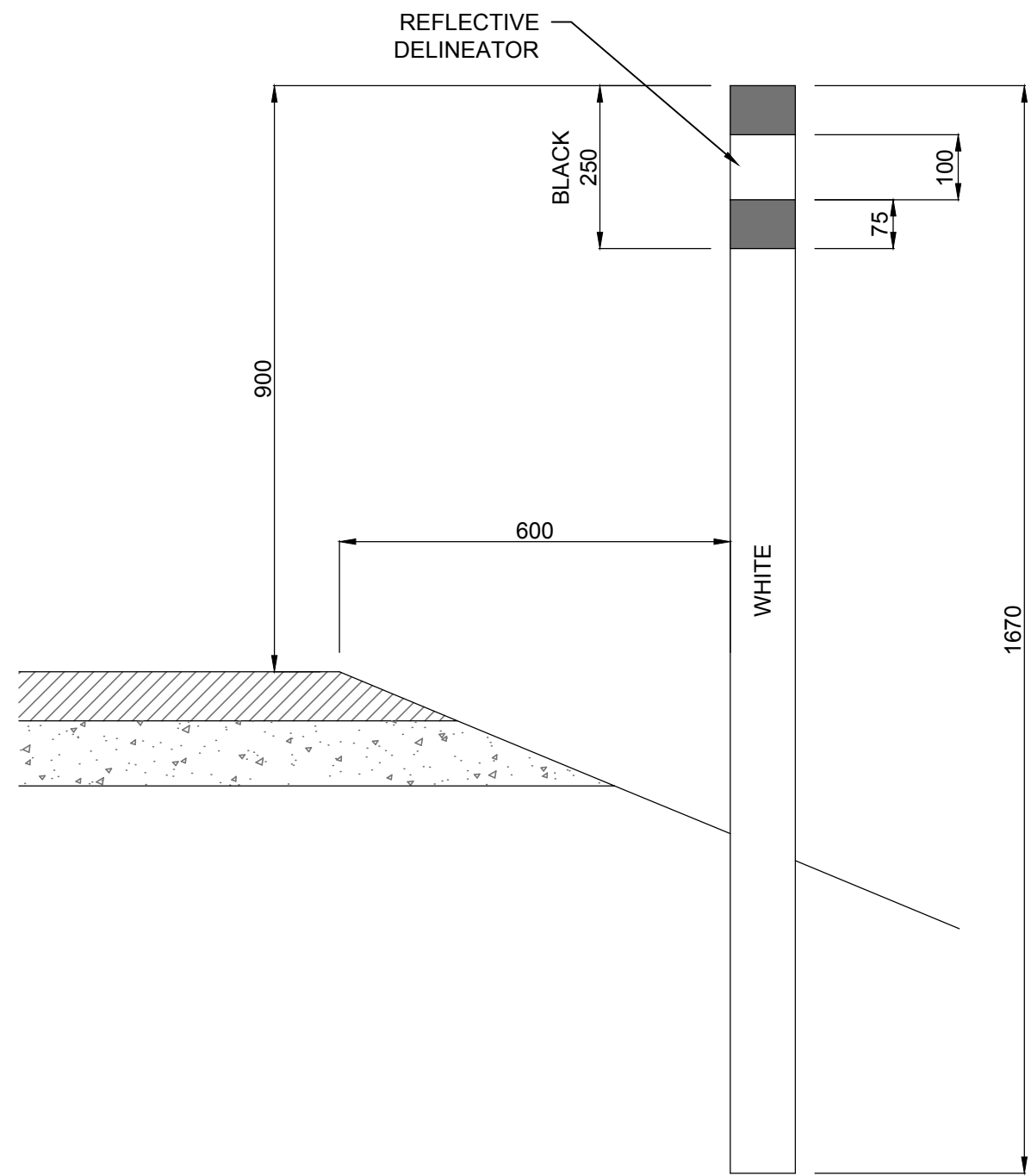
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sheet

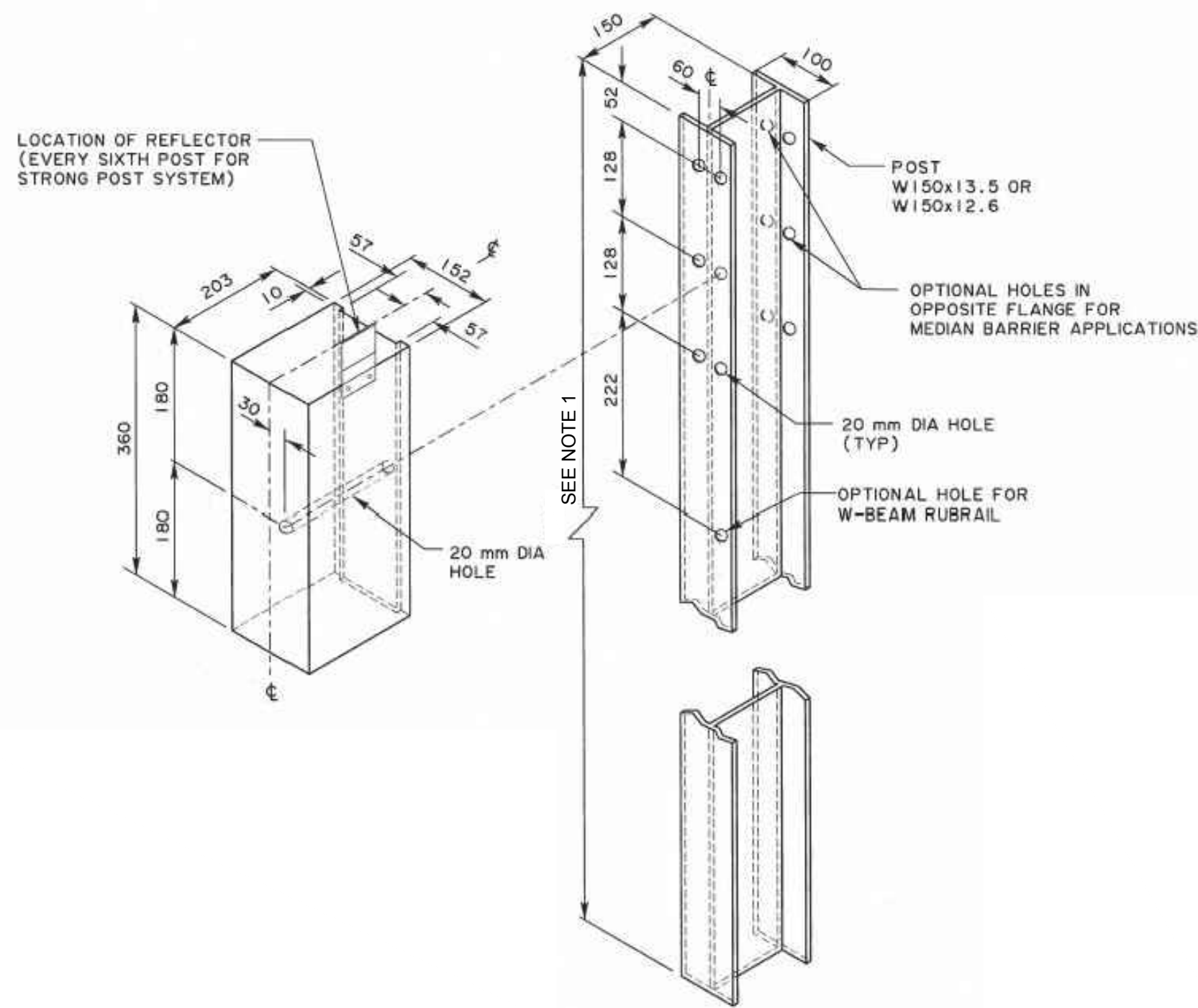
C-06

revision no.

0

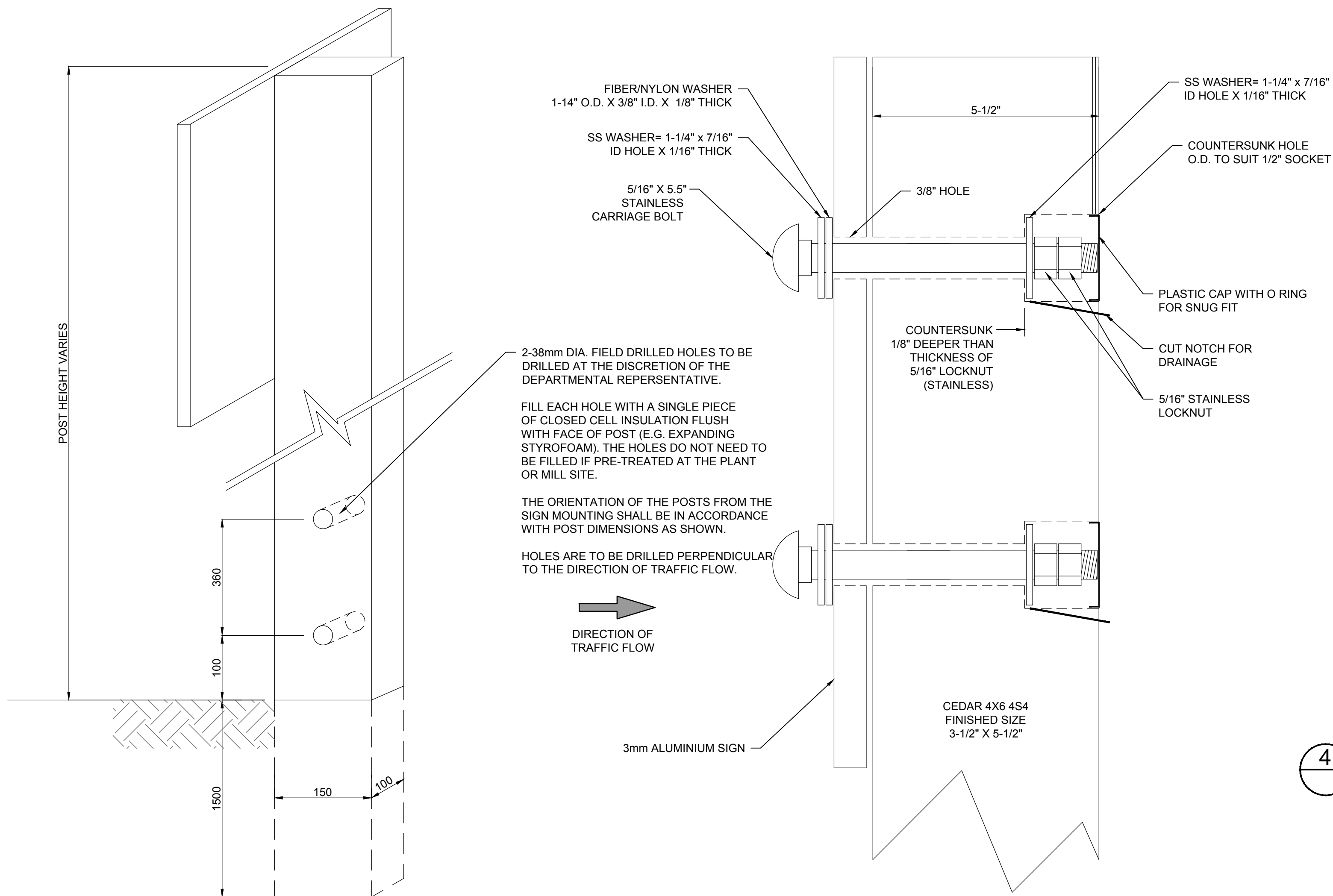


1 FLEXIBLE GUIDE POST (DELINEATOR) DETAIL
NOT TO SCALE

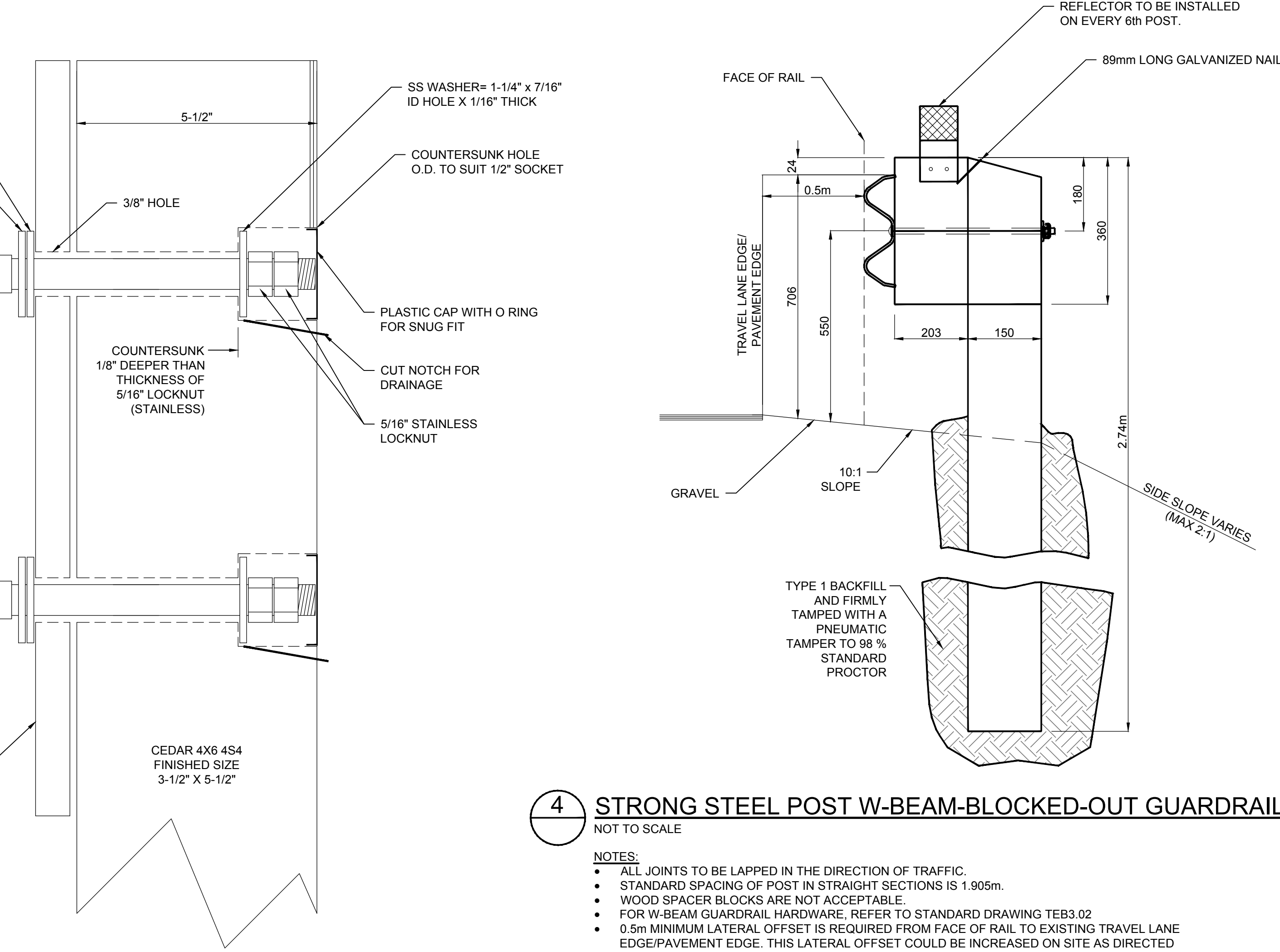


3 STEEL POST DETAIL WITH ROUTED SPACER BLOCK
NOT TO SCALE

NOTE:
1. DEEP STEEL POST IS REQUIRED WITH A LENGTH OF 2.74m (9 FEET)

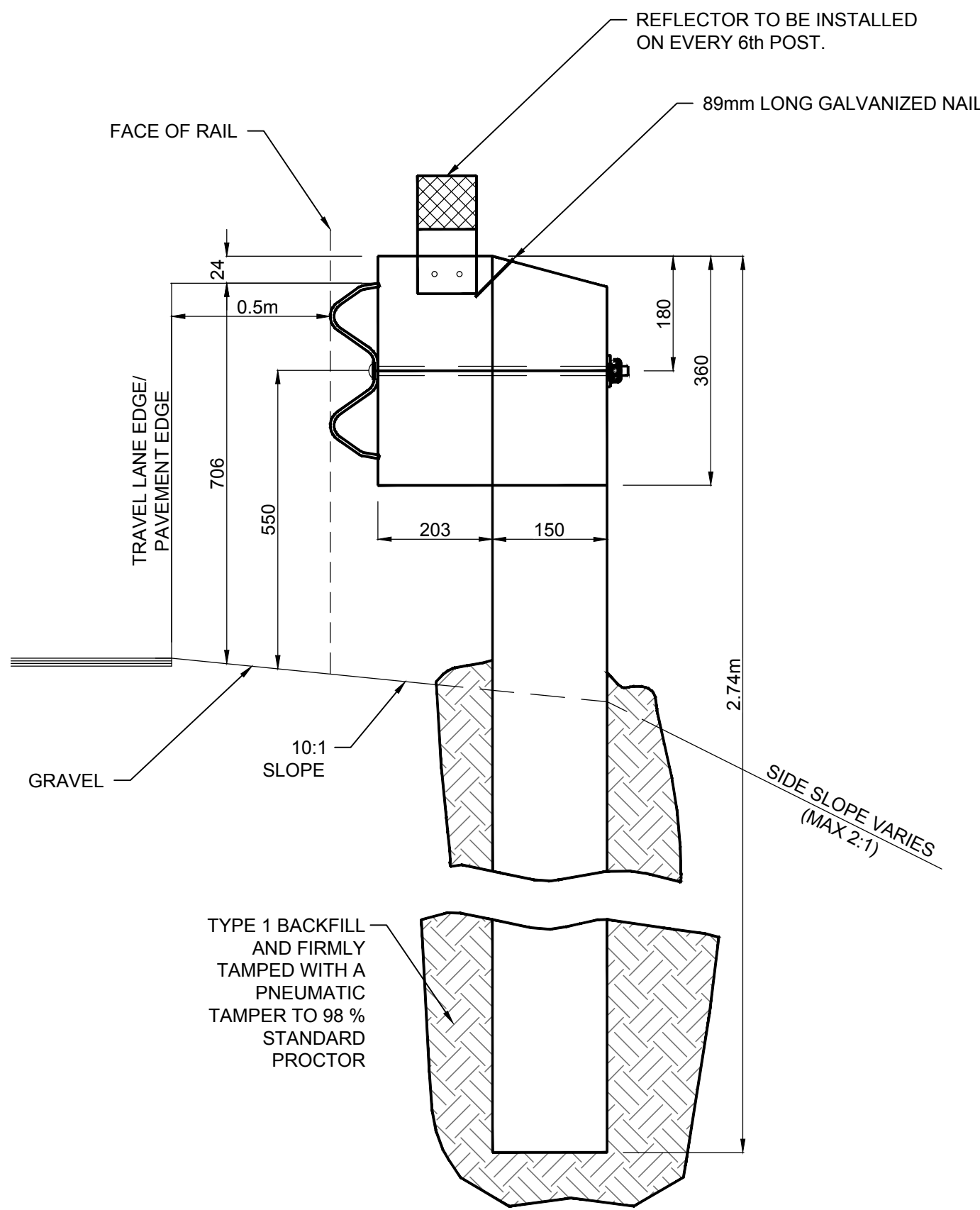


2A BREAKAWAY WOOD POST DETAIL
NOT TO SCALE



2B SIGN ASSEMBLY DETAIL
NOT TO SCALE

NOTE:
• THE BACK OF SIGNS SHOULD BE POWDER COATED PARKS CANADA HERITAGE GREEN.



4 STRONG STEEL POST W-BEAM-BLOCKED-OUT GUARDRAIL SECTION
NOT TO SCALE

NOTES:

- ALL JOINTS TO BE LAPPED IN THE DIRECTION OF TRAFFIC.
- STANDARD SPACING OF POST IN STRAIGHT SECTIONS IS 1.905m.
- WOOD SPACER BLOCKS ARE NOT ACCEPTABLE.
- FOR W-BEAM GUARDRAIL HARDWARE, REFER TO STANDARD DRAWING TEB3.02
- 0.5m MINIMUM LATERAL OFFSET IS REQUIRED FROM FACE OF RAIL TO EXISTING TRAVEL LANE EDGE/PAVEMENT EDGE. THIS LATERAL OFFSET COULD BE INCREASED ON SITE AS DIRECTED BY THE DEPARTMENTAL REPRESENTATIVE. THE CONTRACTOR SHOULD ENSURE THAT THERE IS NO DROP IN ELEVATION BETWEEN EXISTING PAVEMENT EDGE AND ADJACENT GRAVEL SURFACE.
- SKT CRASHWORTHY END TREATMENT TO BE INSTALLED WITH REASONABLE FLARING IN COORDINATION WITH THE DEPARTMENTAL REPRESENTATIVE ON SITE TO ENSURE AT LEAST 0.8m LATERAL OFFSET FROM OUTER SIDE OF THE TERMINAL END TO EXISTING TRAVEL LANE EDGE/PAVEMENT EDGE. GROUND SLOPE 10:1 (GRAVEL) IS REQUIRED ALONG THE END TREATMENT SIMILAR TO W-BEAM GUARDRAIL.

**PRELIMINARY
NOT FOR CONSTRUCTION**

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE INDICATED.

wood.

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revisions	description	date
0	ISSUED FOR TENDER	19/03/07

Client

PARKS CANADA AGENCY

WATERTON LAKES NATIONAL PARK, AB

project title

**WILDFIRE HAZARD ASSESSMENT
WATERTON LAKES NATIONAL PARK**

**REDROCK PARKWAY
SIGNAGE AND GUARDRAIL
UPGRADES**

approved by

JL

designed by

MA

drawn by

TW

PWGSC Project Manager

MB

PWGSC, Architectural and Engineering Resources Manager

Client

PARKS CANADA AGENCY

drawing title

TYPICAL DETAILS

project no.

R.095522.001

sheet

C-07

revision no.

0