



McElhanney

for / pour



Parks Canada
Agency
Western and
Northern Region

L'Agence Parcs
Canada
Ouest et Nord
Région

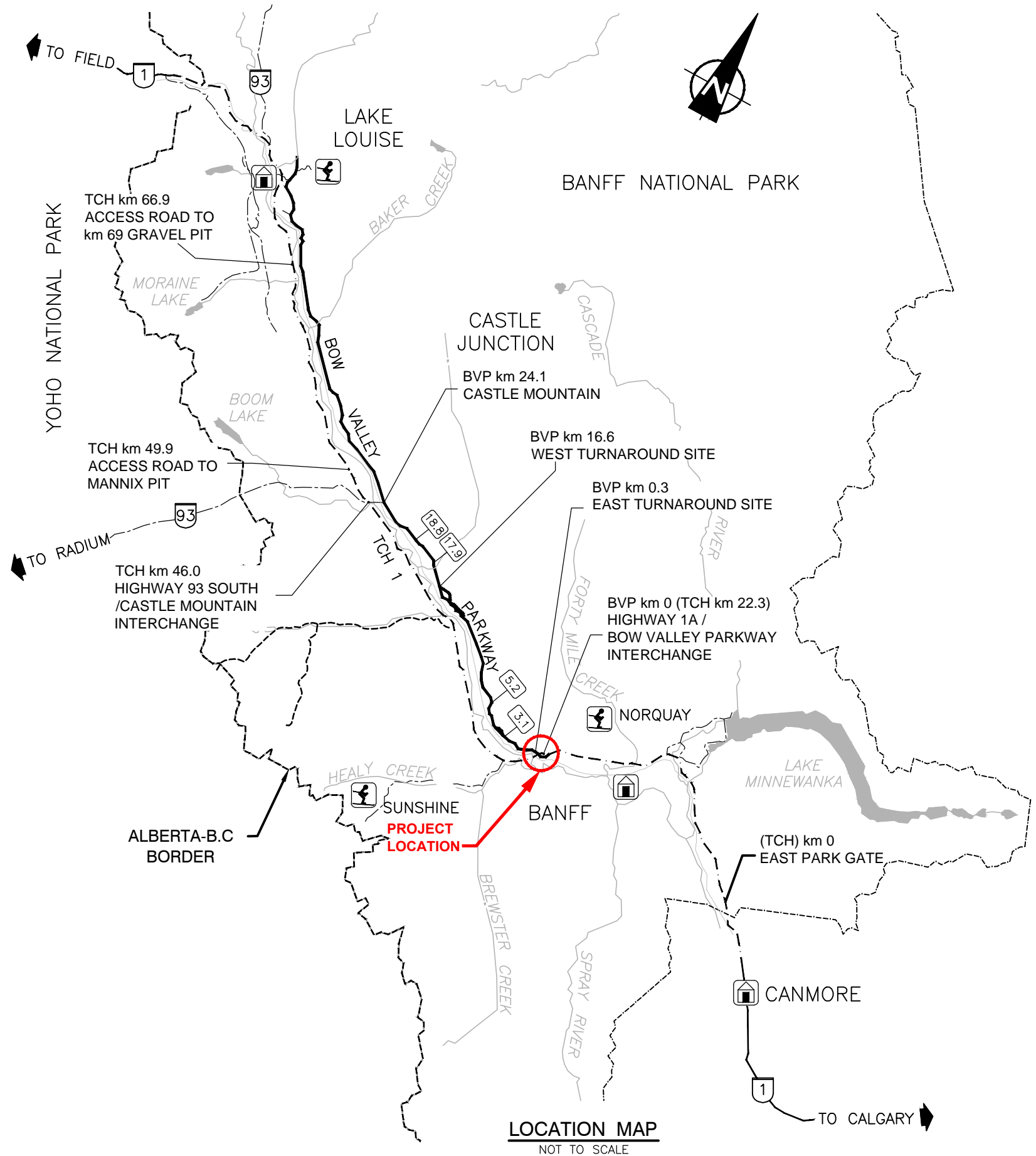
**LONG TERM SIGN PLAN
FOR BOW VALLEY PARKWAY
TRAVEL RESTRICTIONS**

BANFF NATIONAL PARK

PROJECT No.

OCTOBER 2014

DRAWING INDEX	
SHEET No.	SHEET TITLE
C01	COVER SHEET
C02	LOCATION PLAN & DRAWING INDEX
SP01	GENERAL GUIDE SIGN PLAN
S01	POLE AND BASE DETAILS
S02	REFERENCE DRAWING 1
S03	REFERENCE DRAWING 2



LOCATION MAP
NOT TO SCALE

No.	Date/Date	Description/Description	Drawn by Dessiné par	Approved Approuvé
A	2014-10-31	ISSUED FOR REVIEW	KDW	NJ

Revision / Révision			
A	detail number / numéro de détail	A	
B	source drawing no. / de dessin no.	B	C
C	detail on drawing no. / détail sur dessin no.		

Consultant's Stamp / Sceau de l'expert-conseil	Eng. Stamp / Sceau de l'ingénieur
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Client/client
 Parks Canada Agency / L'Agence Parcs Canada
 Western and Northern Region / Ouest et Nord Région

Consultant's Name / Nom de l'expert-conseil
McElhanney

Project title/Titre du projet
LONG TERM SIGN PLAN FOR BOW VALLEY PARKWAY TRAVEL RESTRICTIONS

Drawing title/Titre du dessin
GUIDE SIGN PLAN LOCATION PLAN AND DRAWING INDEX

Surveyed by/Arpenté par	Drawn by/Dessiné par	Date/Date
	KDW	2014-10-31
Designed by/Concept par	Reviewed by/Revisé par	Scale/Echelle
	MF	N.T.S.

Parks Canada Project Manager/Administrateur de Projets Parcs Canada

Client Acceptance/Acceptation du client	Approved by/Approuvé par
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Project No./No. du projet	Asset No./No. du bien	Sheet No./No. de la feuille
2511-00512-00		C02
Drawing Reference No./No. de référence du dessin		

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 October 31, 2014, 10:54:47
 Plotter:



NOTES:

- SIGN LOCATIONS ARE APPROXIMATED
- SIGN IMAGES ARE NOT TO SCALE
- NOT ALL GUIDE SIGNS ARE SHOWN FOR CLARITY
- FRENCH TRANSLATIONS SHOWN ON THE LED SIGN PANELS TO BE CONFIRMED PRIOR TO IMPLEMENTATION

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Scelu de l'expert-conseil

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Scelu de l'ingénieur

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Nom de l'expert-conseil

McElhanney

Project title/Titre du projet

LONG TERM SIGN PLAN FOR BOW VALLEY PARKWAY TRAVEL RESTRICTIONS

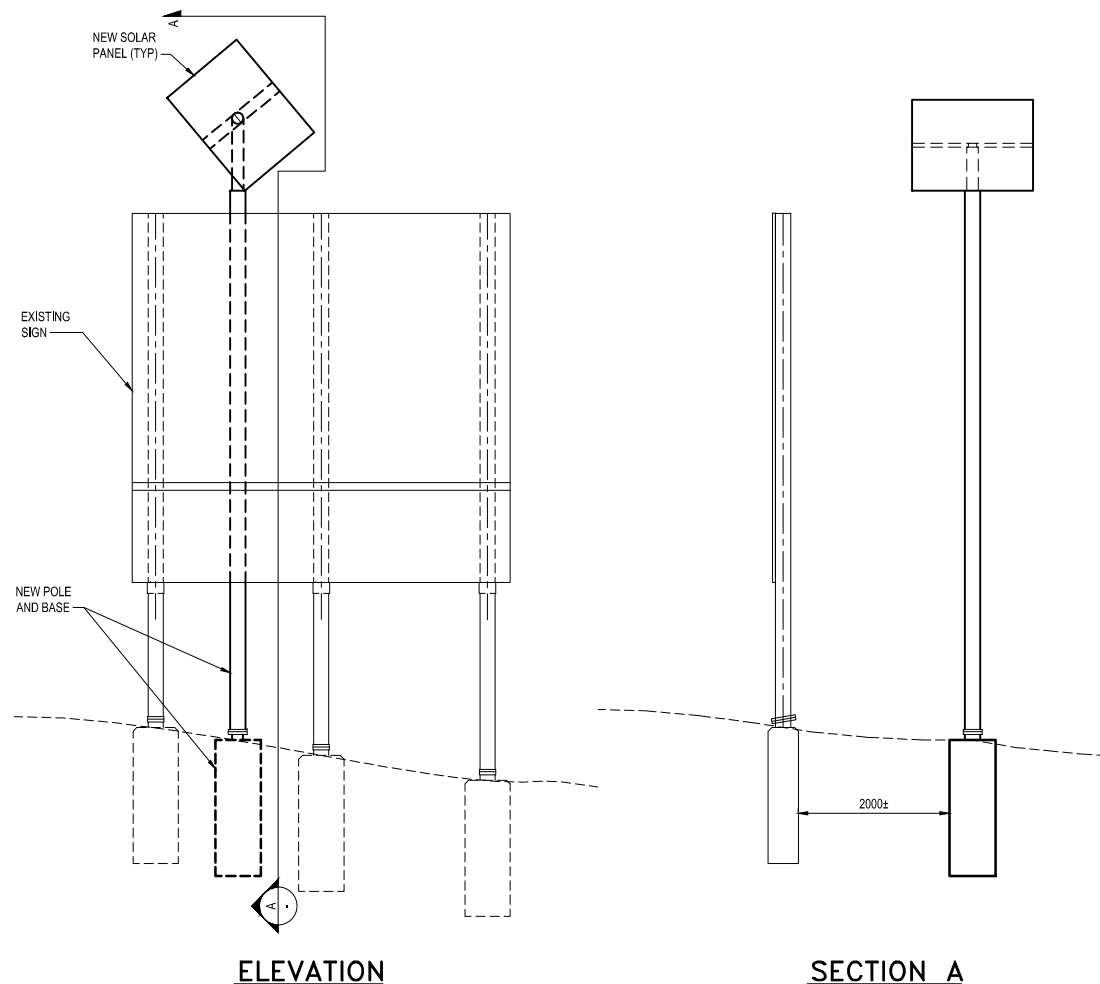
Drawing title/Titre du dessin

GUIDE SIGN PLAN WITH SOLAR PANEL ARRAY GENERAL GUIDE SIGN PLAN

Surveyed by/Arpenté par	Drawn by/Dessiné par	Date/Date
	KDW	2014-10-31
Designed by/Concept par	Reviewed by/Revisé par	Scale/Echelle
	DL	N.T.S.

Parks Canada Project Manager/Administrateur de Projets Parcs Canada		
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Parks Canada Responsible Officer/Agent Responsable Parcs Canada	Parks Canada Project Manager/Administrateur de Projets Parcs Canada	
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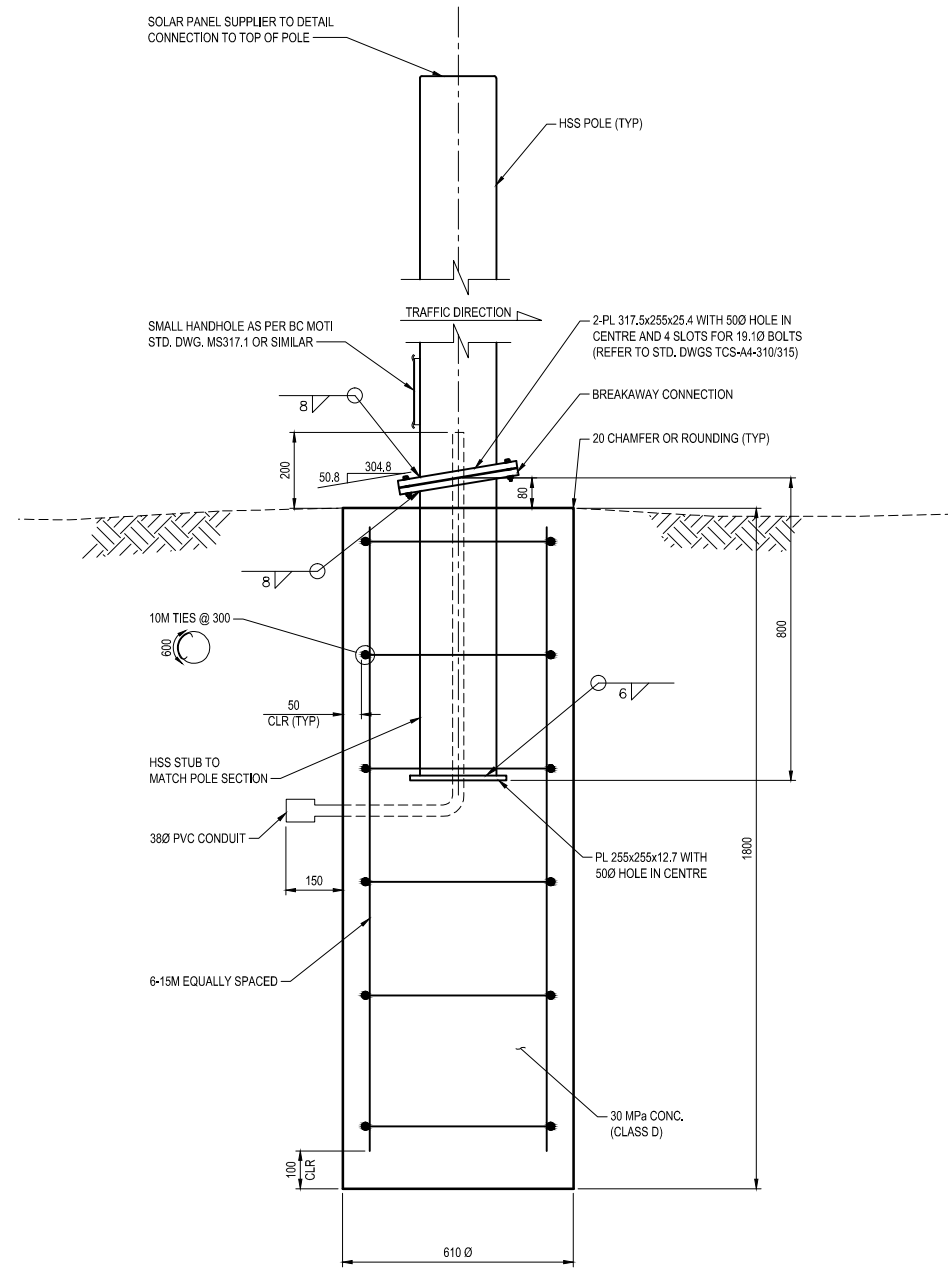
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 Plotter: AT 841 x 594 mm



ELEVATION

SECTION A

TYPICAL EXISTING SIGN
SCALE - 1:50



SOLAR PANEL POLE AND BASE
SCALE - 1:10

NOTES:

- DESIGN IS IN ACCORDANCE WITH CSA S6.
- NEW ROADSIDE SIGNS: 1:10 YEAR WIND = 390 Pa
- NEW SOLAR PANEL SUPPORTS: 1:25 YEAR WIND = 440 Pa
- CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE ALBERTA TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION AND STANDARD SPECIFICATIONS FOR BRIDGE CONSTRUCTION.
- THE FINAL SOLAR PANEL POLE LOCATIONS SHALL BE FIELD FIT TO SUIT THE SITE CONDITIONS.
- ALL DIMENSIONS ARE IN mm UNLESS NOTED OTHERWISE.
- ALL STRUCTURAL STEEL AND HARDWARE SHALL BE HOT DIP GALVANIZED IN ACCORDANCE WITH THE REQUIREMENTS.
- HSS SECTIONS SHALL CONFORM TO CSA G40.21 GRADE 350.

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Western and Northern Region / Ouest et Nord Région

**Consultant's Name /
Nom de l'expert-conseil**

McElhanney

Project title/Titre du projet

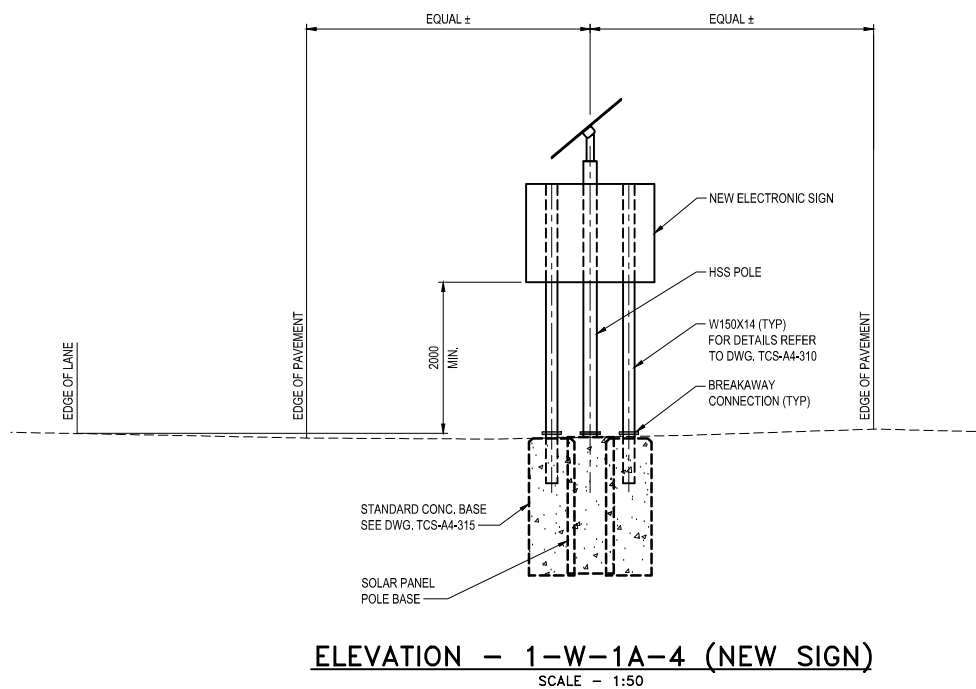
LONG TERM SIGN PLAN
FOR BOW VALLEY PARKWAY
TRAVEL RESTRICTIONS

Drawing title/Titre du dessin

GUIDE SIGN PLAN
WITH SOLAR PANEL ARRAY
POLE AND BASE DETAILS

Surveyed by/Arpenté par	Drawn by/Dessiné par	Date/Date
	KDW	2014-10-31
Designed by/Concept par	Reviewed by/Revisé par	Scale/Echelle
MF	NJ	AS SHOWN

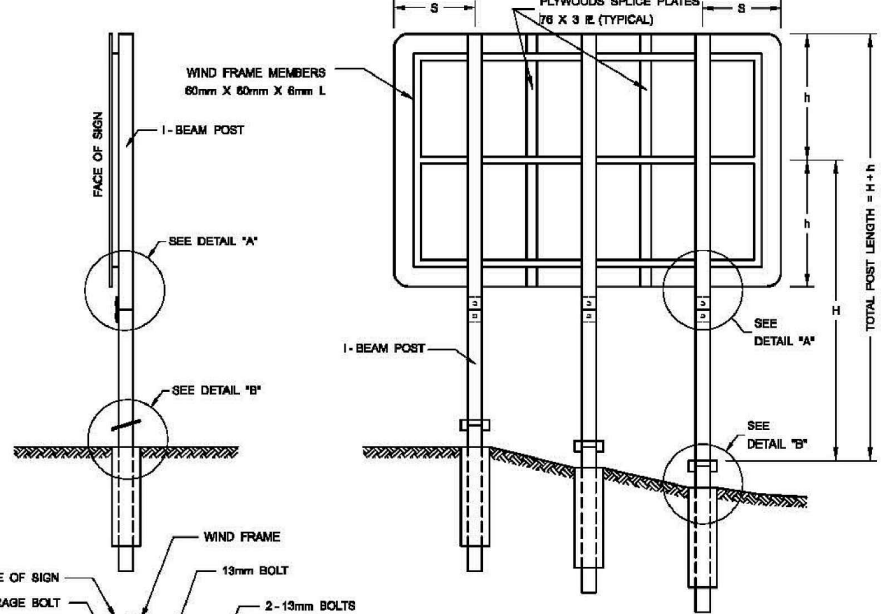
Parks Canada Project Manager/Administrateur de Projets Parcs Canada		
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Project No./No. du projet	Asset No./No. du bien	Sheet No./ No. de la feuille
2511-00512-00		S01
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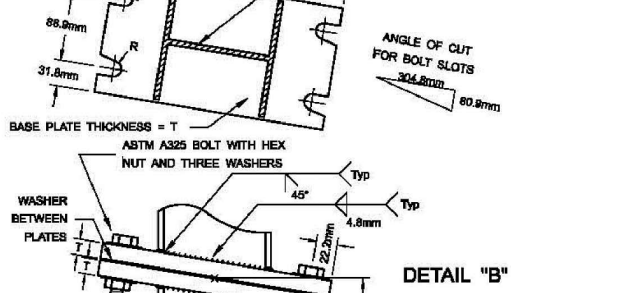
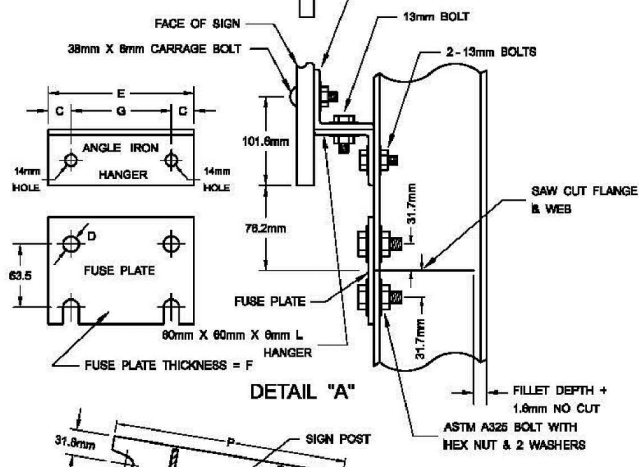
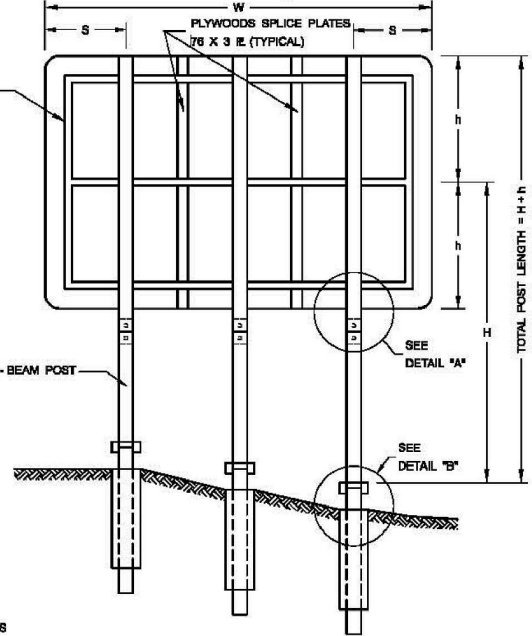
ELEVATION - 1-W-1A-4 (NEW SIGN)
SCALE - 1:50

SEPARATE SOLAR PANEL POLE						
SIGN		POLE (HSS)	POLE LENGTH (m)	TRANSVERSE OFFSET FROM C SIGN (m)	DIST. BEHIND SIGN (m)	ASSUMED SOLAR PANEL SIZE (m)
1-E-1A-1	EXISTING	203x203x6.4	7.7	1.0± L	2.0±	1.6 x 1.2
1-E-1A-2	EXISTING	203x203x6.4	8.0	1.0± R	2.0±	1.6 x 1.2
1-E-1A-3	EXISTING	178x178x6.4	4.4	1.0± L	2.0±	1.6 x 1.2
1-W-1A-1	EXISTING	203x203x6.4	7.8	1.0± R	2.0±	1.1 x 1.2
1-W-1A-2	EXISTING	203x203x6.4	6.2	2.0± R	2.0±	1.6 x 1.2
1-W-1A-3	EXISTING	178x178x6.4	4.8	1.0± R	2.0±	1.6 x 1.2
1-W-1A-4	NEW	178x178x6.4	3.7	0±	2.0±	2.7 x 1.2

SIDE VIEW:



ELEVATION:



(H)	POST TYPE			
	W 150x14 (W 6x9)	W 200x15 (W 8x10)	W 150x22 (W 6x15)	W 200x27 (W 8x18)
	1/4 AREA OF SIGN (W x h) m ²			
2.74	0.32	0.96	12.54	
3.05	5.76	8.64	11.24	
3.35	5.20	7.99	10.22	
3.66	4.83	7.25	9.38	13.47
3.96	4.46	6.69	8.64	12.36
4.27	3.99	6.22	8.08	11.43
4.57	3.81	5.76	7.62	10.69
4.88	3.53	5.39	7.15	9.94
5.18	3.34	5.11	6.69	9.29
5.49	3.16	4.83	6.32	8.64
5.79	3.07	4.55	5.95	8.27

- GENERAL NOTES:**
- ALL UNSPECIFIED DIMENSIONS ARE IN mm.
 - PERMANENT HIGHWAY SIGNS WITH SIGN FACE GREATER THAN 3m² SHALL BE INSTALLED WITH BREAKAWAY GROUND MOUNT SIGN SUPPORT ASSEMBLY.
 - S = 20% OF W FOR SIGNS LESS THAN 5.5m.
 - S = 15% OF W FOR SIGNS GREATER THAN 5.5m.
 - SIGNS GREATER THAN 6.6m WIDTH REQUIRE 3 POST MOUNTING.

ALL BOLTS SHALL BE TIGHTENED AS FOLLOWS		
BOLT SIZE	TORQUE	RESIDUAL TENSION
13mm (1/2")	138.9 N.m	5 465.8 kg
16mm (5/8")	271.2 N.m	8 708.0 kg
19mm (3/4")	482.7 N.m	12 882.0 kg

POST SIZE	BASE CONNECTION DATA				FUSE PLATE & HANGER DATA					
	BOLT SIZE	P	T	R	BOLT SIZE	E	F	G	C	D
W 150x14 (W 6x9)	13	266.7	19.05	7.14	13	101.6	6.35	57.15	22.23	14.29
W 200x15 (W 8x10)	16	317.5	19.05	8.73	16	101.6	6.35	57.15	22.23	17.46
W 150x22 (W 6x15)	16	266.7	25.4	8.73	16	152.4	9.53	89.9	31.75	17.46
W 200x27 (W 8x18)	19	317.5	26.58	10.32	19	133.35	9.53	89.9	31.75	20.64

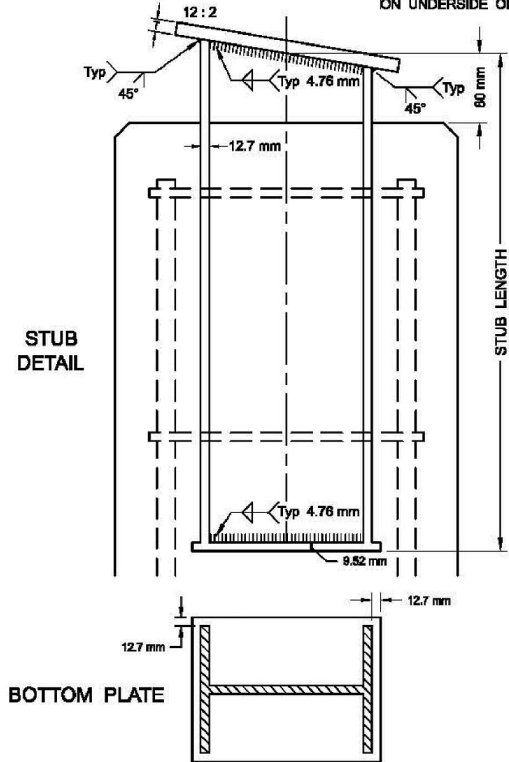
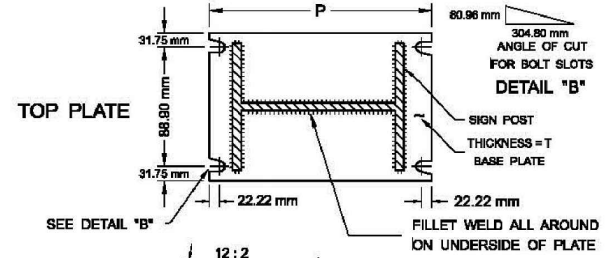
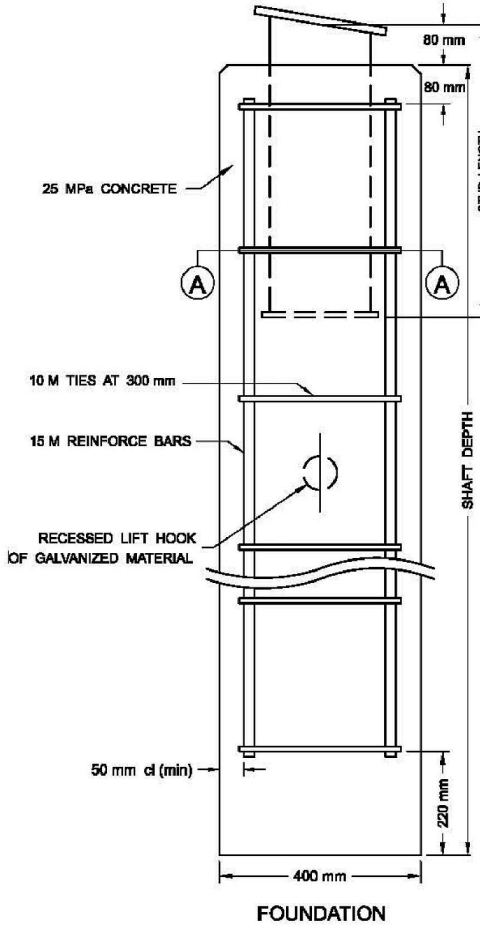
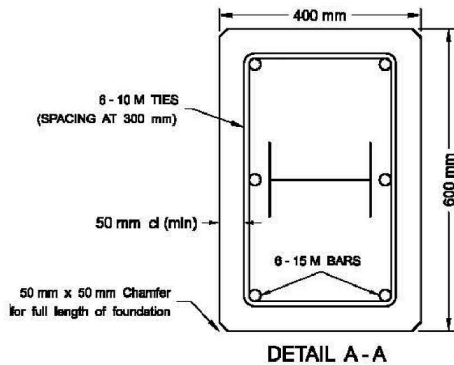
Alberta Infrastructure and Transportation

DRAWING TCS-A4-310

Date: October 2006

BREAKAWAY GROUND MOUNTED SIGNS ON I-BEAM POSTS

Prepared By: MM Checked By: SM Scale: N.T.S. SECTION A4



FOUNDATION DATA				
POST SIZE	STUB LENGTH	SHAFT DEPTH	REINF. BARS	
W150 x 14	W 6x9	800 mm	1800 mm	15 M
W200 x 15	W 8x10	600 mm	1800 mm	15 M
W150 x 22	W 6x15	800 mm	1800 mm	15 M
W200 x 27	W 8x18	800 mm	1800 mm	15 M

BASE CONNECTION DATA					
POST SIZE	BOLT SIZE	P	T	R	
W150 x 14	W 6x9	13	266.7	19.05	7.14
W200 x 15	W 8x10	16	317.5	19.05	8.73
W150 x 22	W 6x15	16	266.7	25.4	8.73
W200 x 27	W 8x18	19	317.5	26.58	10.32

Alberta Infrastructure and Transportation

DRAWING TCS-A4-315

Date: October 2006

BREAKAWAY GROUND MOUNTED BASES STEEL I-BEAM POSTS

Prepared By: MM Checked By: SM Scale: N.T.S. SECTION A4

- GENERAL NOTES:**
- DESIGN**
- AASHTO Specification for Design and Construction of Structural Supports for Highway Signs and National Building Code.
- MATERIAL**
- Structural Steel and Plates shall conform to ASTM Specification A36.
- All steel shall be Blast Cleaned after fabrication in accordance with Specification SSPC - SP - 6 - 63 of the Steel Structural Painting Council.
 - All welds shall conform to CSA Specification W - 59.
 - Fabricators shall be approved by the Canadian Welding Bureau.
 - Fabricator shall submit a weld procedure, listing all parameters for approval.
 - Provide weld all around, on both sides, to avoid a zipper failure and provide a safety factor.
 - Welding to be inspected during fabrication, at random, by a qualified inspector.
 - Stubs shall be galvanized and conform to CSA G164.
 - All footings to have a recessed lift hook.

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Client/Client: Parks Canada Agency Western and Northern Region / L'Agence Parcs Canada Ouest et Nord Région

McElhanney

Project title/Titre du projet: LONG TERM SIGN PLAN FOR BOW VALLEY PARKWAY TRAVEL RESTRICTIONS

Guide Sign Plan WITH SOLAR PANEL ARRAY REFERENCE DRAWING 1

Surveyed by/Arpenté par	Drawn by/Dessiné par	Date/Date
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2511-00512-00		S02
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