

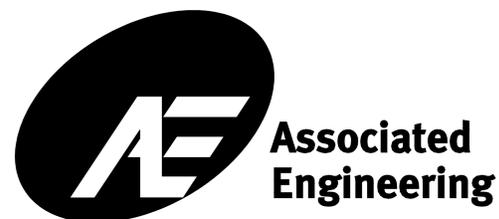
**PARKS CANADA AGENCY
WESTERN AND NORTHERN REGION**

Banff National Park Johnston Canyon Phase 2 Parking Lot Upgrade

SHEET LIST TABLE			
SHEET	DRAWING TITLE 1	DRAWING TITLE 2	DRAWING TITLE 3
G1	COVER SHEET		
E1	BOURGEAU LAKE	PARKING LOT COUNTER	ELECTRICAL PLAN
E2	CAVE & BASIN	PARKING LOT COUNTER	ELECTRICAL PLAN
E3	CASCADE PONDS	PARKING LOT COUNTER	ELECTRICAL PLAN
E4	CASCADE OVERFLOW	PARKING LOT COUNTER	ELECTRICAL PLAN
E5	LAKE MINNEWANKA	PARKING LOT COUNTER	ELECTRICAL PLAN
E6	MORAINÉ LAKE	PARKING LOT COUNTER	ELECTRICAL PLAN
E7	LAKE LOUISE	PARKING LOT COUNTER	ELECTRICAL PLAN
E8	LAKE LOUISE	PARKING LOT COUNTER	ELECTRICAL PLAN
E9	WIRING DIAGRAMS	& PANEL DETAILS	
E10	INSTALLATION DETAILS		

AE Project No. 20153475-03

ISSUED FOR TENDER
JUNE 23, 2017



*GLOBAL PERSPECTIVE.
LOCAL FOCUS.*

ASSOCIATED ENGINEERING	QUALITY MANAGER	DATE	PROJECT CAD LEAD	DATE
QUALITY MANAGEMENT				



KEY PLAN

- LEGEND:**
- TRAFFIC SIGN
 - SOLAR POWERED CONTROL PANEL
 - SAW CUT LOOP INSTALL
 - BURIED CONDUIT AND CABLE
 - DELINEATOR

- NOTE:**
1. DIMENSIONS AND ELEVATIONS ARE IN METRES UNLESS SHOWN OTHERWISE.
 2. CONTRACTOR TO VERIFY LOCATIONS AND DEPTHS OF SURFACE AND UNDERGROUND FEATURES THAT MAY AFFECT THE WORK OR RISK DAMAGE DURING CONSTRUCTION.
 3. ALL DISTURBED AREAS, STRUCTURES, AND UTILITIES TO BE REHABILITATED TO ORIGINAL CONDITION OR BETTER.
 4. ALL COORDINATES ARE IN NAD83 UTM GRID COORDINATE SYSTEM.
 5. DELINEATORS ARE TO BE SET 2.0m APART FROM CENTER TO CENTER.
 6. DELINEATOR TO BE QWICK KURB L104 MEGA MARKER.
 7. CURB SEPARATOR TO BE QWICK KURB L61 MALE END, L62 FEMALE END AND L60 SEPARATOR UNIT.
 8. FOLLOW Q-FREE STANDARD DETAIL AND INSTRUCTIONS FOR LOOP INSTALL DETAIL.
 9. REFER TO DRAWINGS E9 AND E10 FOR SOLAR INSTALLATION DETAILS.
 10. REFER TO DRAWING E10 FOR TRENCHING DETAILS.

1 PLAN 1:50
BOURGEAU LAKE SITE LAYOUT



0	2017.JUNE.01	ISSUED FOR TENDER	LT	GL
No.	Date/Date	Description/Description	Drawn by Dessiné par	Approved Approuvé
Revision / Revision				
A				A
C				B/C

Consultant's Name / Nom de l'expert-conseil: **Associated Engineering**
 APEGA Permit to Practice P 3979

Eng. Stamp / Scellé de l'ingénieur: **Associated Engineering**
 2017-Jun-01

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

Project title/Titre du projet: **JOHNSTON CANYON PHASE 2 PARKING LOT UPGRADE**
BANFF NATIONAL PARK

Drawing title/Titre du dessin: **BOURGEAU LAKE PARKING LOT COUNTER ELECTRICAL PLAN**

Surveyed by/Arpenté par: L.TRUONG	Drawn by/Dessiné par: L.TRUONG	Date/Date: 2017.JUNE.01
Designed by/Concept par: G.LAYBOURN	Reviewed by/Revisé par: R.COLBECK	Scale/Echelle: AS SHOWN

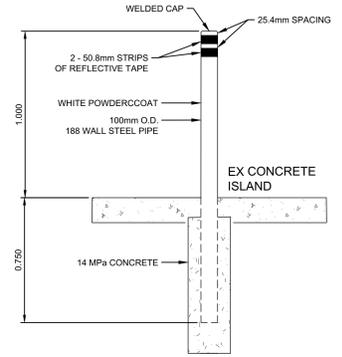
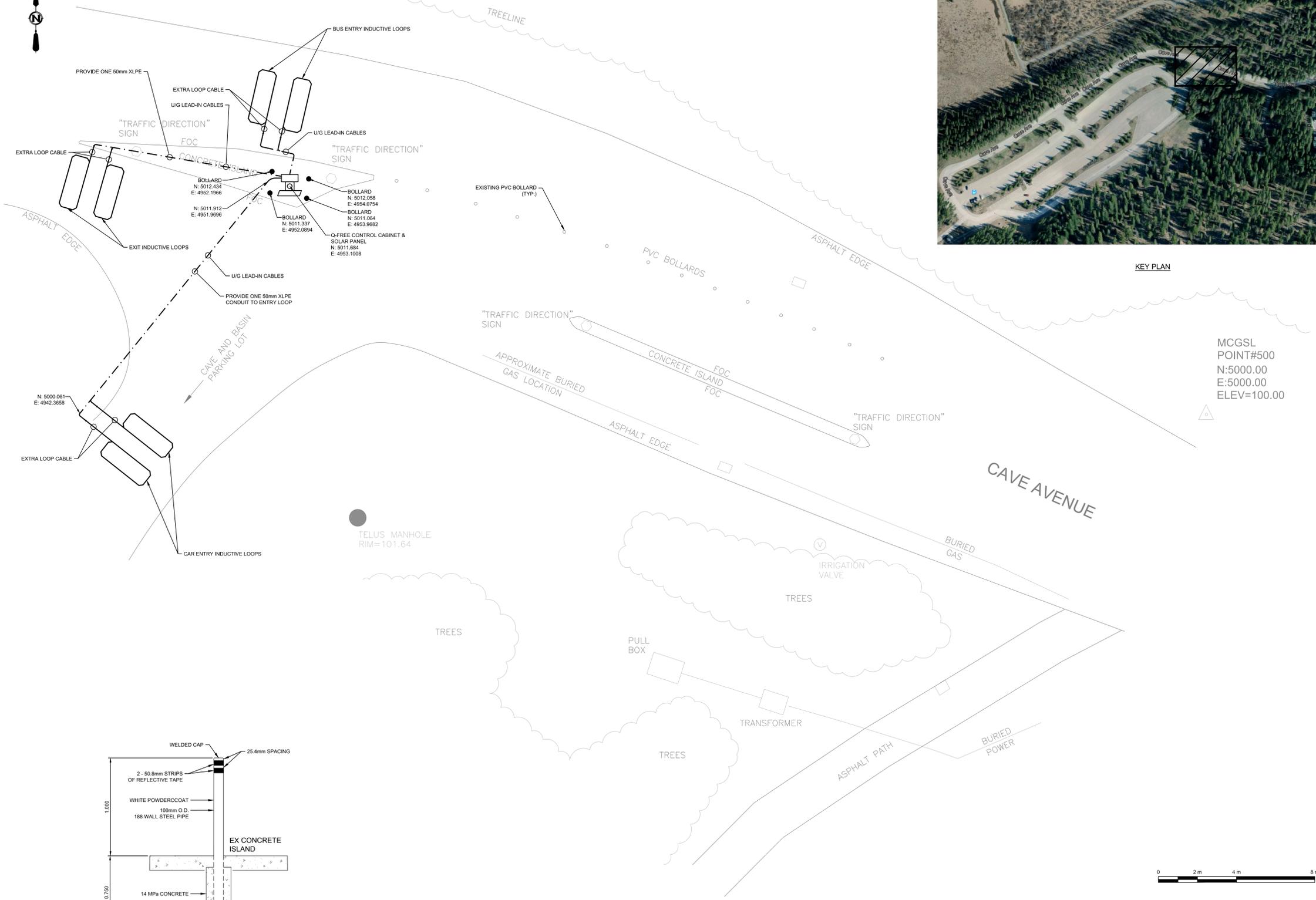
Client Acceptance/Acceptation du client: Approved by/Approuvé par	
Project No./No. du projet: 20153475-03	Sheet No./No. de la feuille: 2
Drawing Reference No./No. de référence du dessin: E 1	

- LEGEND:**
-  TRAFFIC SIGN
 -  SOLAR POWERED CONTROL PANEL
 -  SAW CUT LOOP INSTALL
 -  BURIED CONDUIT AND CABLE

- NOTE:**
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 6. REFER TO DRAWINGS E9 AND E10 FOR SOLAR INSTALLATION DETAILS.
 7. REFER TO DRAWING E10 FOR TRENCHING DETAILS.



KEY PLAN



A DETAIL TYPICAL BOLLARD N.T.S

1 PLAN CAVE & BASIN SITE LAYOUT 1:75

No.	Date/Date	Description/Description	Drawn by/Dessiné par	Approved/Approuvé
0	2017 JUNE 01	ISSUED FOR TENDER	LT	GL

Revision / Revision

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

Consultant's Name / Nom de l'expert-conseil: **Associated Engineering**
 APEGA Permit to Practice P 3979

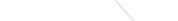
Eng. Stamp / Scellé de l'ingénieur: **Associated Engineering**
 PROFESSIONAL ENGINEER / INGÉNIEUR
 2017 JUN 01

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

Project title/Titre du projet: **JOHNSTON CANYON PHASE 2 PARKING LOT UPGRADE**
BANFF NATIONAL PARK

Drawing title/Titre du dessin: **CAVE & BASIN PARKING LOT COUNTER ELECTRICAL PLAN**

Surveyed by/Arpenté par: L. TRUONG	Drawn by/Dessiné par: L. TRUONG	Date/Date: 2017 JUNE 01
Designed by/Concept par: G. LAYBOURN	Reviewed by/Revisé par: R. COLBECK	Scale/Echelle: AS SHOWN
PWSC Project Manager/Administrateur de Projets TPSCC		
Client Acceptance/Acceptation du client:	Approved by/Approuvé par:	
Project No./No. du projet: 20153475-03	Asset No./No. du bien:	Sheet No./No. de la feuille: 3
Drawing Reference No./No. de référence du dessin: E2		

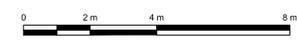
- LEGEND:**
-  TRAFFIC SIGN
 -  SOLAR POWERED CONTROL PANEL
 -  SAW CUT LOOP INSTALL
 -  BURIED CONDUIT AND CABLE
 -  DELINEATOR

- NOTE:**
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 5. DELINEATORS ARE TO BE SET 2.0m APART FROM CENTER TO CENTER.
 6. DELINEATOR TO BE QWICK KURB L104 MEGA MARKER.
 7. CURB SEPARATOR TO BE QWICK KURB L61 MALE END, L62 FEMALE END AND L60 SEPARATOR UNIT.
 8. FOLLOW Q-FREE STANDARD DETAIL AND INSTRUCTIONS FOR LOOP INSTALL DETAIL.
 9. REFER TO DRAWINGS E9 AND E10 FOR SOLAR INSTALLATION DETAILS.
 10. REFER TO DRAWING E10 FOR TRENCHING DETAILS.



KEY PLAN

1 PLAN 1:75
CASCADE POND SITE LAYOUT



No.	Date/Date	Description/Description	Drawn by Dessiné par	Approved Approuvé
0	2017 JUNE 01	ISSUED FOR TENDER	LT	GL

Revision / Revision

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

Consultant's Name / Nom de l'expert-conseil: **Associated Engineering**
 APEGA Permit to Practice P 3979

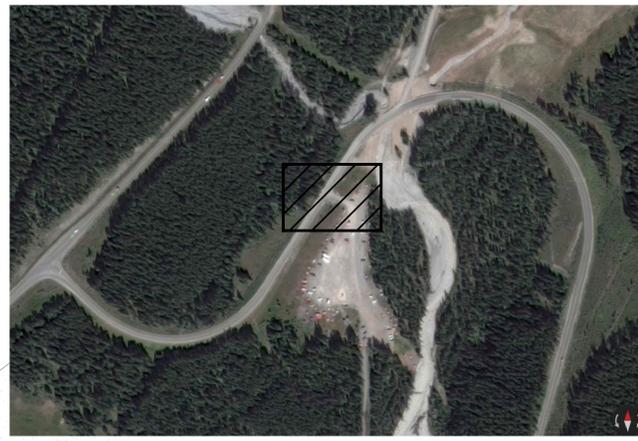
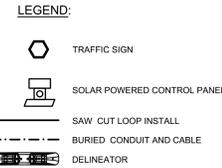
Eng. Stamp / Scellé de l'ingénieur: **Associated Engineering**
 2017-Jun-01

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

Project title/Titre du projet: **JOHNSTON CANYON PHASE 2 PARKING LOT UPGRADE**
BANFF NATIONAL PARK

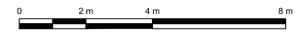
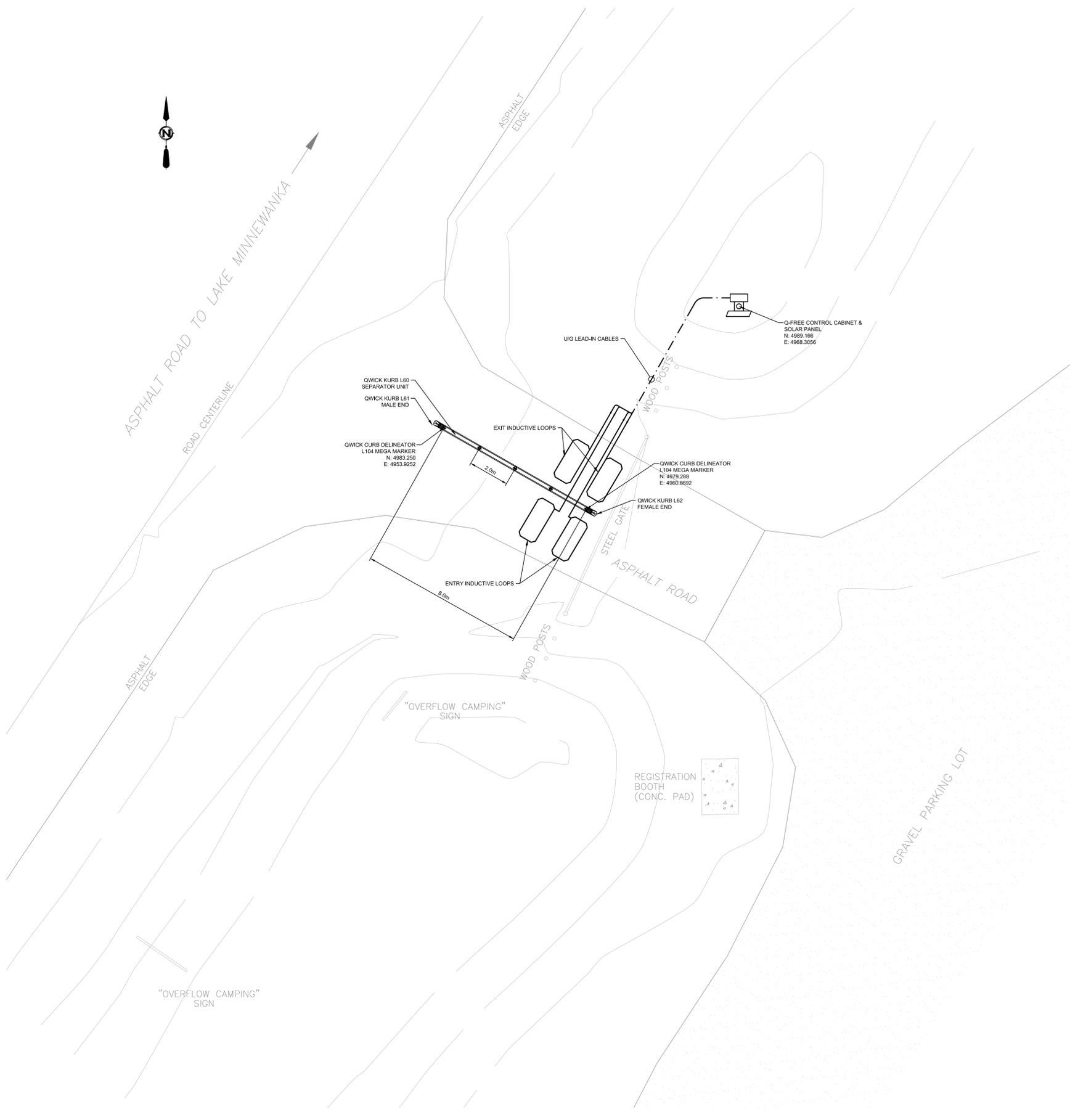
Drawing title/Titre du dessin: **CASCADE PONDS PARKING LOT COUNTER ELECTRICAL PLAN**

Surveyed by/Arpenté par: L. TRUONG	Drawn by/Dessiné par: L. TRUONG	Date/Date: 2017 JUNE 01
Designed by/Concept par: G. LAYBOURN	Reviewed by/Revisé par: R. COLBECK	Scale/Echelle: AS SHOWN
PWSC Project Manager/Administrateur de Projets TPSCC		
Client Acceptance/Acceptation du client:		Approved by/Approuvé par:
Project No./No. du projet: 20153475-03	Asset No./No. du bien: 20153475-03	Sheet No./No. de la feuille: 4
Drawing Reference No./No. de référence du dessin: E3		



KEY PLAN

- NOTE:**
1. DIMENSIONS AND ELEVATIONS ARE IN METRES UNLESS SHOWN OTHERWISE.
 2. CONTRACTOR TO VERIFY LOCATIONS AND DEPTHS OF SURFACE AND UNDERGROUND FEATURES THAT MAY AFFECT THE WORK OR RISK DAMAGE DURING CONSTRUCTION.
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 9. REFER TO DRAWINGS E9 AND E10 FOR SOLAR INSTALLATION DETAILS.
 10. REFER TO DRAWING E10 FOR TRENCHING DETAILS.



1 PLAN
CASCADE OVERFLOW SITE LAYOUT 1:75

No.	Date/Date	Description/Description	Drawn by/Dessiné par	Approved/Approuvé
0	2017 JUNE 01	ISSUED FOR TENDER	LT	GL

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 Name / Nom de l'expert-conseil: **Associated Engineering**
 APEGA Permit to Practice P 3979

Eng. Stamp / Sceau de l'ingénieur: **Associated Engineering**
 PROFESSIONAL ENGINEER / ALBERTA
 2017-Jun-01

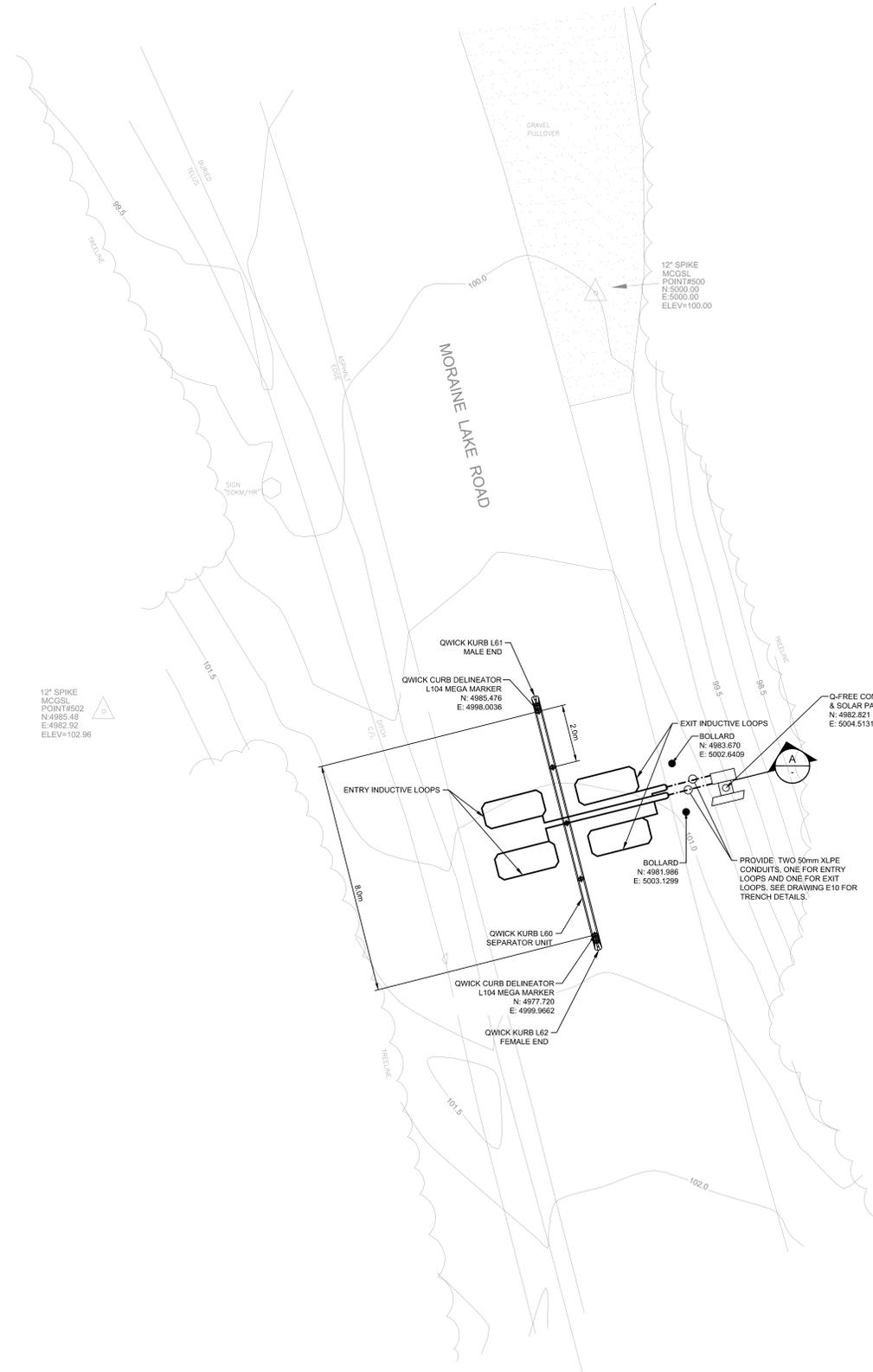
Client/client	Parks Canada Agency	L'Agence Parcs Canada
	Western and Northern Region	Ouest et Nord du Canada

Project title/Titre du projet
JOHNSTON CANYON PHASE 2 PARKING LOT UPGRADE
BANFF NATIONAL PARK

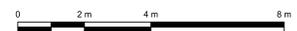
Drawing title/Titre du dessin
CASCADE OVERFLOW PARKING LOT COUNTER ELECTRICAL PLAN

Surveyed by/Arpenté par	Drawn by/Dessiné par	Date/Date
G.LAYBOURN	L.TRUONG	2017 JUNE 01
Designed by/Concept par	Reviewed by/Revisé par	Scale/Echelle
G.LAYBOURN	R.COLBECK	AS SHOWN

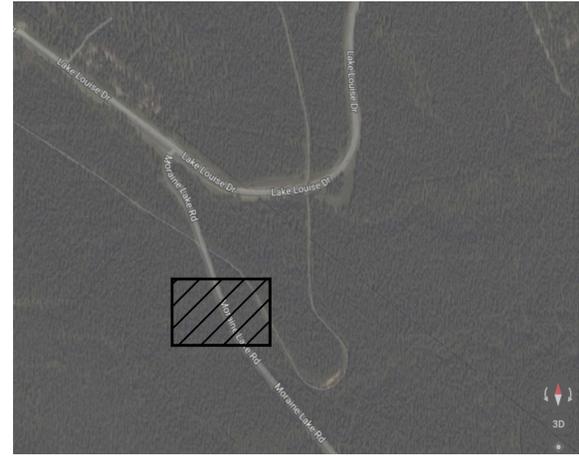
Client Acceptance/Acceptation du client		Approved by/Approuvé par	
Park Response Officer/Agent Responsabilisé		PWOSC Project Manager/Administrateur de Projets TPSCC	
Project No./No. du projet	Asset No./No. du bien	Sheet No./No. de feuille	
20153475-03		5	
Drawing Reference No./No. de référence du dessin		E4	



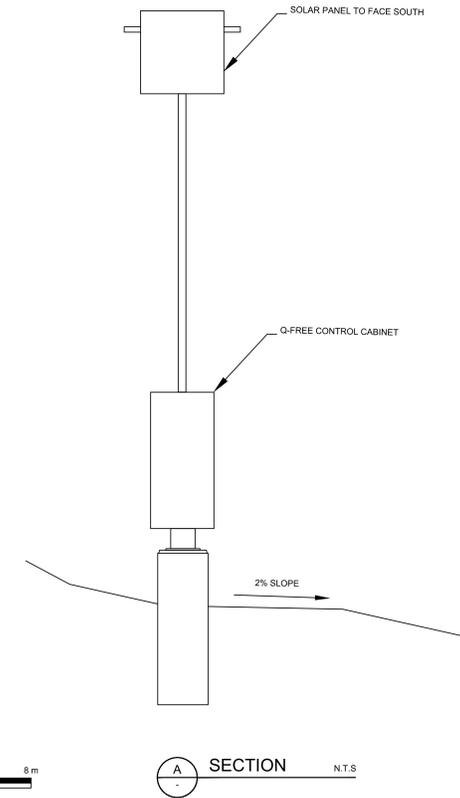
1 PLAN 1:75 mm
LAKE MORAINE



- LEGEND:**
- TRAFFIC SIGN
 - SOLAR POWERED CONTROL PANEL
 - SAW CUT LOOP INSTALL
 - BURIED CONDUIT AND CABLE
 - DELINEATOR



KEY PLAN



A SECTION N.T.S.

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 9. REFER TO DRAWINGS E9 AND E10 FOR SOLAR INSTALLATION DETAILS.
 10. REFER TO DRAWING E10 FOR TRENCHING DETAILS.
 11. FOR BOLLARD DETAIL SEE DRAWING E10.

No.	Date/Date	Description/Description	Drawn by/Dessiné par	Approved/ Approuvé
0	2017 JUNE 23	ISSUED FOR TENDER	LT	MW

Revision / Revision

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

Consultant's Name / Nom de l'expert-consultant: **Associated Engineering**
 Eng. Stamp / Scellé de l'ingénieur: [Stamp]

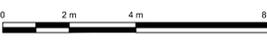
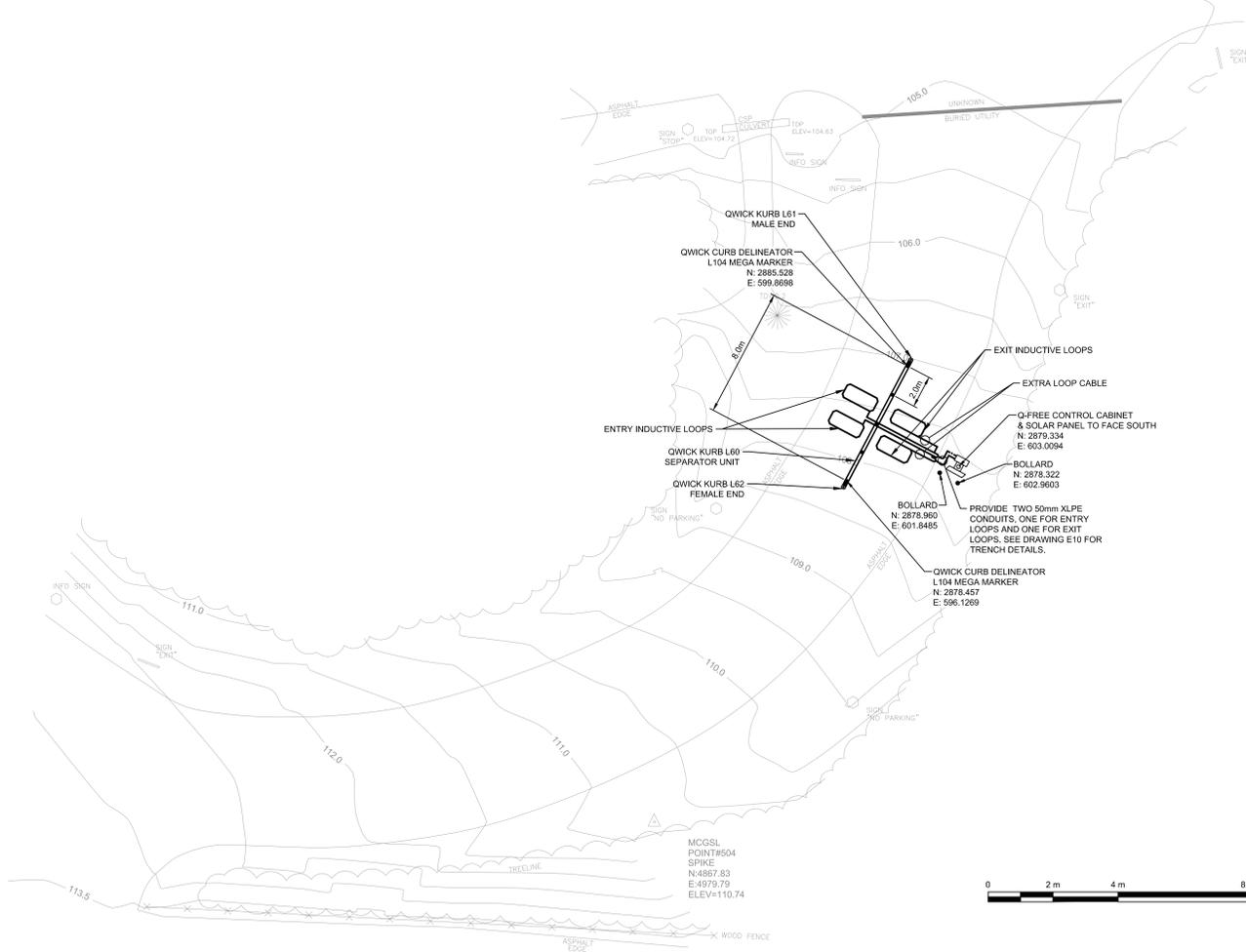
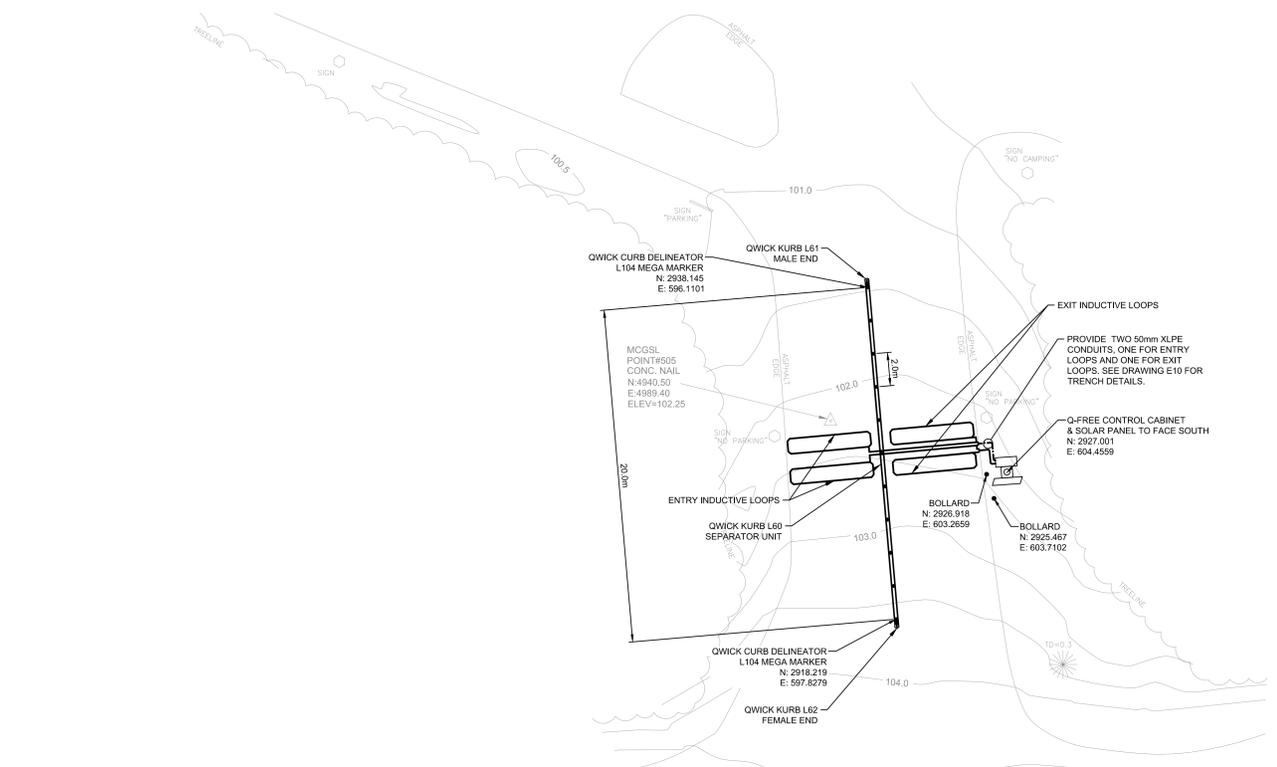
Client/client: Parks Canada Agency / L'Agence Parcs Canada	Western and Northern Region / Ouest et Nord du Canada
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Project title/Titre du projet: **JOHNSTON CANYON PHASE 2 PARKING LOT UPGRADE**
BANFF NATIONAL PARK

Drawing title/Titre du dessin: **LAKE MORAINE PARKING LOT COUNTER ELECTRICAL PLAN**

Surveyed by/Arpenté par: L. TRUONG	Drawn by/Dessiné par: L. TRUONG	Date/Date: 2017-06-21
Designed by/Concept par: M. MALJUNGAR	Reviewed by/Revisé par: R. COLBECK	Scale/Echelle: AS SHOWN

Client Acceptance/Acceptation du client: [Signature]	Approved by/Approuvé par: [Signature]
Project No./No. du projet: 20153475-03	Sheet No./No. de la feuille: 7
Drawing Reference No./No. de référence du dessin: E6	



1 PLAN 1:150 mm
LAKE LOUISE SITE LAYOUT

- LEGEND:**
- TRAFFIC SIGN
 - SOLAR POWERED CONTROL PANEL
 - SAW CUT LOOP INSTALL
 - BURIED CONDUIT AND CABLE
 - DELINEATOR

- NOTE:**
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 9. REFER TO DRAWINGS E9 AND E10 FOR SOLAR INSTALLATION DETAILS.
 10. REFER TO DRAWING E10 FOR TRENCHING DETAILS.
 11. FOR BOLLARD DETAIL SEE DRAWING E10.



KEY PLAN

No.	Date/Date	Description/Description	Drawn by/Dessiné par	Approved/Approuvé
0	2017 JUNE 23	ISSUED FOR TENDER	LT	MW

Revision / Revision

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

Consultant's Name / Nom de l'expert-conseil: **Associated Engineering**
 Eng. Stamp / Scellé de l'ingénieur: [Stamp]

APEGA Permit to Practice P 3979

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

Project title/Titre du projet: **JOHNSTON CANYON PHASE 2 PARKING LOT UPGRADE**
BANFF NATIONAL PARK

Drawing title/Titre du dessin: **LAKE LOUISE PARKING LOT COUNTER ELECTRICAL PLAN**

Surveyed by/Arpenté par: L. TRUONG	Drawn by/Dessiné par: L. TRUONG	Date/Date: 2017-06-21
Designed by/Concept par: M. MALJUNGAR	Reviewed by/Revisé par: R. COLBECK	Scale/Echelle: AS SHOWN

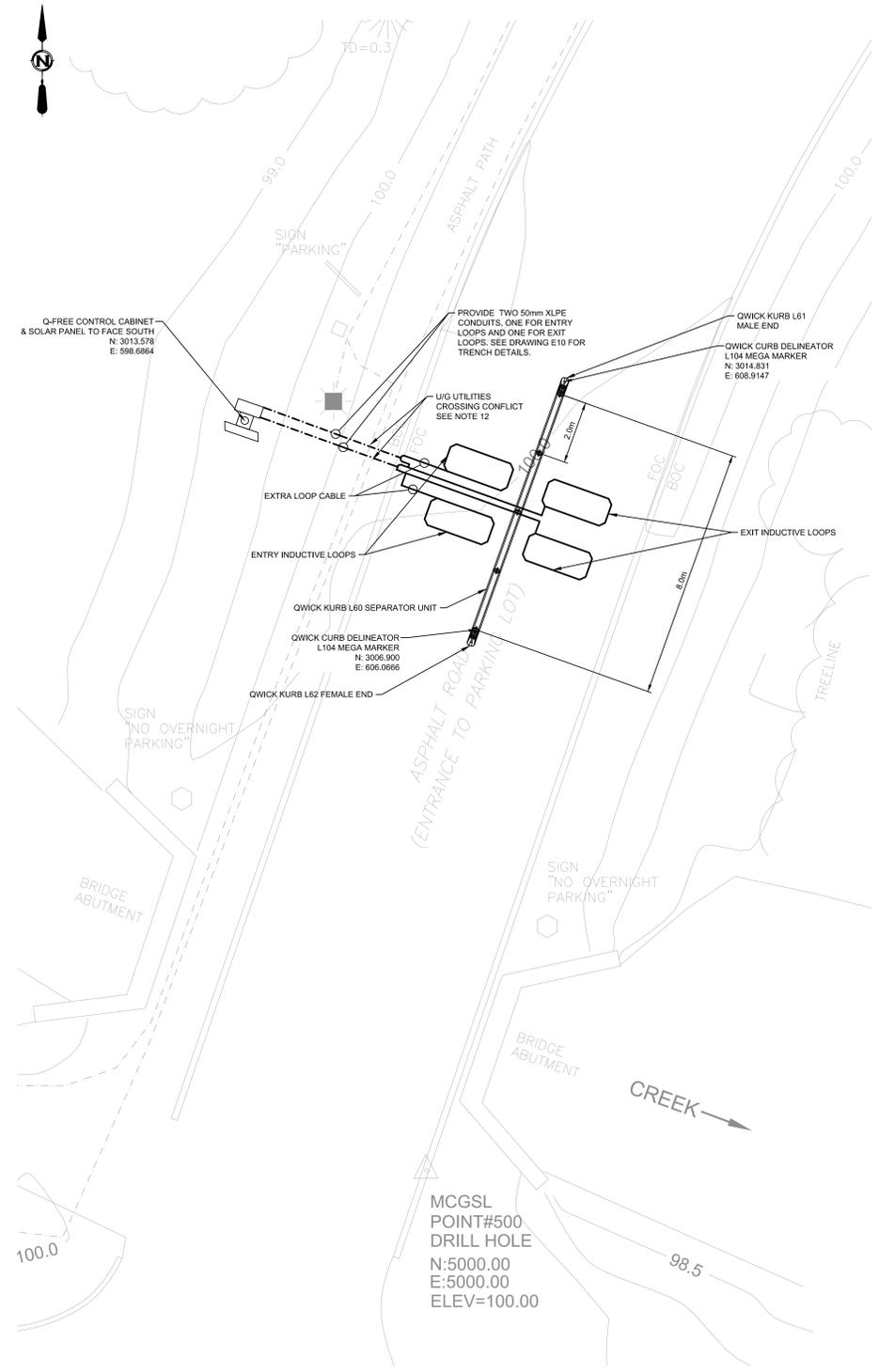
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Project No./No. du projet: 20153475-03	Sheet No./No. de feuille: 8
Drawing Reference No./No. de référence du dessin: E7	

- LEGEND:**
-  TRAFFIC SIGN
 -  SOLAR POWERED CONTROL PANEL
 -  SAW CUT LOOP INSTALL
 -  BURIED CONDUIT AND CABLE
 -  DELINEATOR

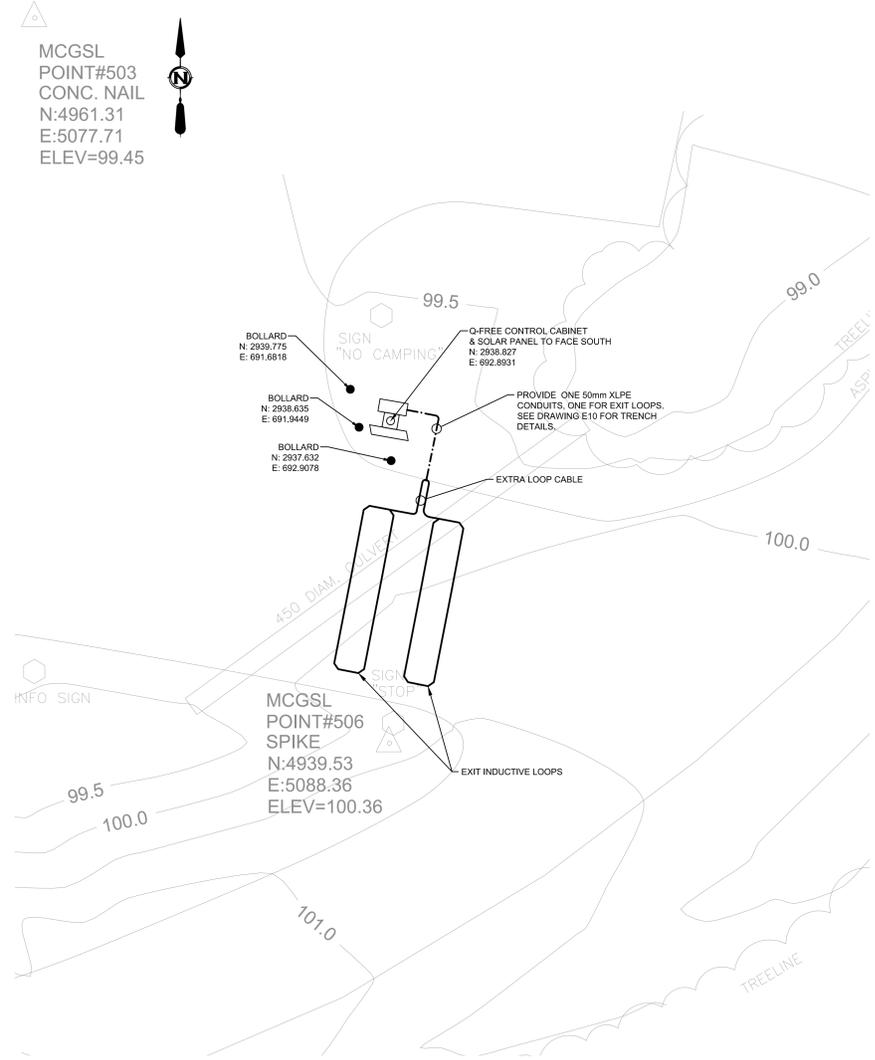
- NOTE:**
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 9. REFER TO DRAWINGS E9 AND E10 FOR SOLAR INSTALLATION DETAILS.
 10. REFER TO DRAWING E10 FOR TRENCHING DETAILS.
 11. FOR BOLLARD DETAIL SEE DRAWING E10.
 12. CONTRACTOR TO BE AWARE OF POWER CROSSING & ADVICE OF CONFLICT. PROTECT UTILITY LINES FROM DAMAGE DURING TRENCHING & CONSTRUCTION.



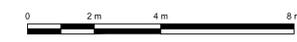
KEY PLAN



1 PLAN 1 1:75 mm LAKE LOUISE SITE LAYOUT



2 PLAN 2 1:75 mm LAKE LOUISE SITE LAYOUT



No.	Date/Date	Description/Description	Drawn by/Dessiné par	Approved/Approuvé
0	2017 JUNE 23	ISSUED FOR TENDER	LT	MW

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 Name / Nom de l'expert-conseil: **Associated Engineering**
APEGA Permit to Practice P 3979

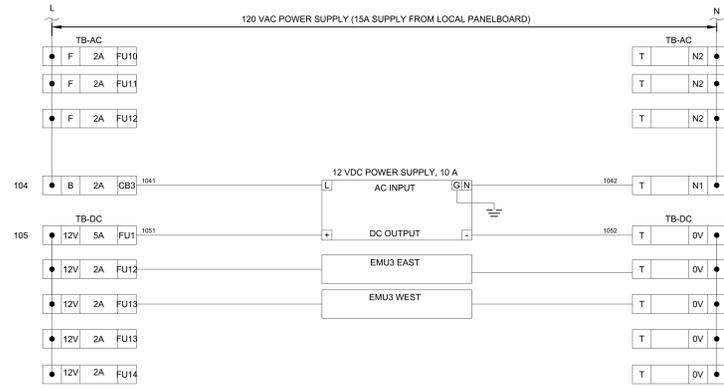
Eng. Stamp / Scellé de l'ingénieur

Client/client: Parks Canada Agency / L'Agence Parcs Canada	Western and Northern Region / Ouest et Nord du Canada
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Project title/Titre du projet: JOHNSTON CANYON PHASE 2 PARKING LOT UPGRADE
BANFF NATIONAL PARK

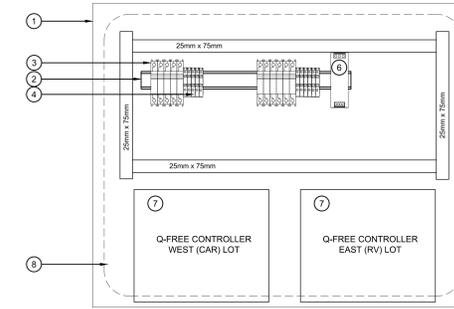
Drawing title/Titre du dessin: LAKE LOUISE PARKING LOT COUNTER ELECTRICAL PLAN

Surveyed by/Arpenté par: L. TRUONG	Drawn by/Dessiné par: L. TRUONG	Date/Date: 2017-06-21
Designed by/Concept par: M. MALJUNDAR	Reviewed by/Revisé par: R. COLBECQ	Scale/Echelle: AS SHOWN
PWSC Project Manager/Administrateur de Projets TPSCC		
Client Acceptance/Acceptation du client	Approved by/Approuvé par	
Park Response Officer/Agent Réponse	PWSC Project Manager/Administrateur de Projets TPSCC	
Project No./No. du projet: 20153475-03	Asset No./No. du bien: 20153475-03	Sheet No./No. de la feuille: 9
Drawing Reference No./No. de référence du dessin: E8		



1 DIAGRAM NTS
MINNEWANKA POWER DISTRIBUTION WIRING

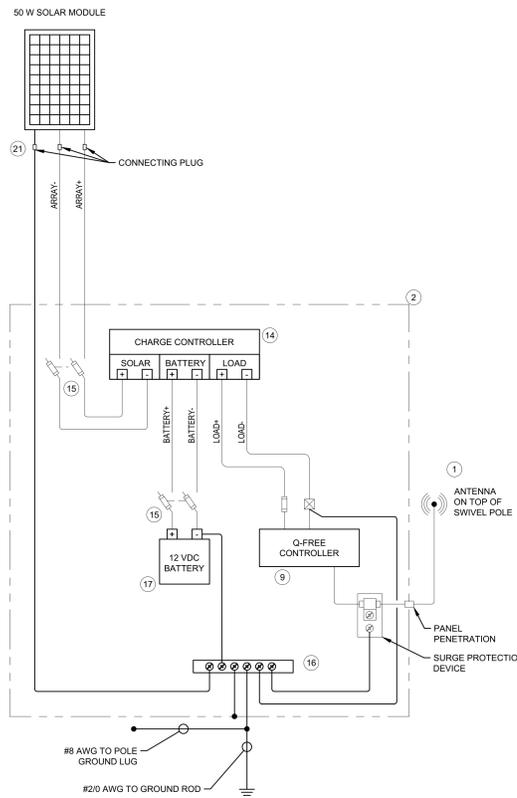
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2	AS REQ'D	TS 35 x 7.5 DIN RAIL, STEEL	WEIDMULLER	
3	AS REQ'D	FUSIBLE DISCONNECT TERMINAL c/w FUSE, SIZE AS REQUIRED	WEIDMULLER	ASK1 SERIES
4	AS REQ'D	TERMINAL BLOCKS c/w TERMINAL MARKERS, PARTITIONS, CROSS-CONNECTS, DISCONNECTS, FUSING, END PLATES, ETC. TO SUIT.	WEIDMULLER	SAK4 SERIES
5	AS REQ'D	WIRE DUCT, WHITE, METRIC SIZE AS NOTED	PANDUIT	TYPE F
6	AS REQ'D	POWER SUPPLY, 115 VAC / 12 VDC, 10A	WEIDMULLER	PRO MAX 1476230000
7	2	Q-FREE PARKING CONTROLLER EMU3	Q-FREE	EMU3
8	1	GROUND BAR		
9	2	LAIRD ANTENNA	LAIRD	TRA6927M3PWN-001



2 DETAIL 1:5
MINNEWANKA PARKING CONTROL PANEL

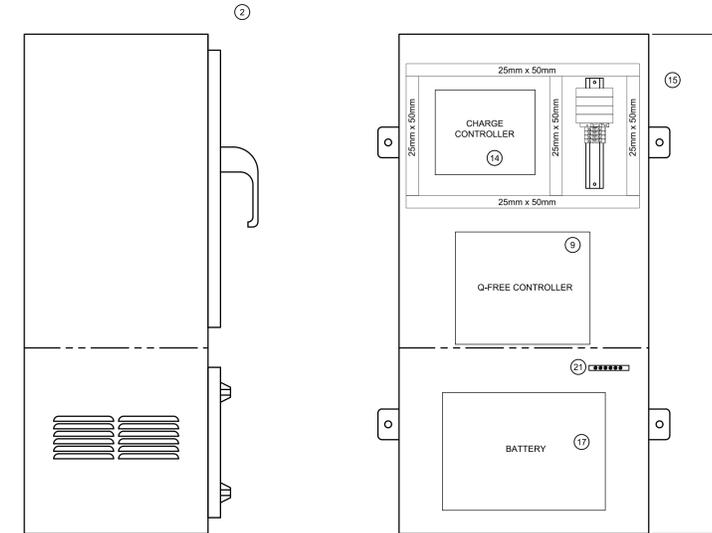
NOTES

- DETAILS 1 & 2 ARE FOR MINNEWANKA UTILITY POWERED CONTROLLERS ONLY. BOTH CONTROLLERS WILL BE INSTALLED WITHIN THE SINGLE ENCLOSURE. POWER FOR THE EQUIPMENT WILL BE PROVIDED FROM NEARBY 120VAC DISTRIBUTION PANEL. A NEW 15 AMP BREAKER AND POWER SUPPLY TO BE WIRED TO CONTROL PANEL.
- DETAILS 3 & 4 REFER TO SOLAR POWERED SITES.
- PARKS CANADA WILL FREE ISSUE Q-FREE SMART PARKING EQUIPMENT TO THE CONTRACTOR FOR ALL SITES. EQUIPMENT TO BE FREE ISSUED IS:
 - TCS GATEWAYS (SMART PARKING CONTROLLERS, MODEL EMU3)
 - INDUCTION LOOP SETS (4 SETS, 8 LOOPS IN TOTAL)
- CONTRACTOR IS TO PROVIDE ALL OTHER EQUIPMENT INCLUDING ENCLOSURE, WIRING, ELECTRICAL EQUIPMENT, GROUNDING, MAST, ANTENNA AND ALL OTHER EQUIPMENT TO MAKE A COMPLETE SYSTEM.
- AT MINNEWANKA SITE PROVIDE TWO CELLULAR ANTENNAS, ONE TO EACH EMU3 CONTROLLER. MOUNT THE ANTENNAS INTO THE TOP OF THE ENCLOSURE. CONNECT ANTENNAS TO CONTROLLERS WITH MANUFACTURERS RECOMMENDED ANTENNA CABLE. CONTROL PANEL IS TO BE INTERNALLY WALL MOUNTED WITHIN UTILITY ROOM AS DETAILED.
- ANTENNA MAST DETAILS AND ADDITIONAL CONTROLS ENCLOSURE DETAILS FOR SOLAR POWERED SITES PROVIDED ON DRAWING E10.
- REFER TO Q-FREE INSTALLATION DRAWINGS FOR EQUIPMENT CONNECTION DETAILS.
- SOLAR ENCLOSURE TO BE PURCHASED FROM ACE ENGINEERING. ENCLOSURE HAS A DIVIDER INSTALLED BETWEEN BATTERY COMPARTMENT AND ELECTRICAL SECTION. MAINTAIN THE SEAL BETWEEN THESE COMPARTMENTS TO PREVENT GASSES ENTERING ELECTRICAL SECTION. ENSURE WIRING PENETRATIONS ARE SEALED BETWEEN SECTIONS. PROVIDE BACKBOARD TO MOUNT ELECTRICAL COMPONENTS AND SECURELY ATTACH TO CHASSIS.
- PROVIDE ELECTRICAL BACK BOARDS AS NECESSARY. ELECTRICAL EQUIPMENT IS NOT TO BE MOUNTED DIRECTLY TO THE ENCLOSURE. EMU3 CONTROLLERS AND BATTERIES MAY BE PLACED LOOSE ON ENCLOSURE BOTTOM RATHER THAN WALL MOUNTED.



3 DIAGRAM NTS
SOLAR, BATTERY AND GROUNDING WIRING

ITEM	QTY.	DESCRIPTION	MANUFACTURER	PART No.
1	1	LAIRD ANTENNA	LAIRD	TRA6927M3PWN-001
2	1	ACE TYPE 4X 316SS INSULATED ENCLOSURE 1000 mm H x 508mm W x 317 mm D c/w BACKPANEL AND BATTERY DRAWER	ACE MANUFACTURING	QUOTE REF: P17C479A
3	AS REQ'D	WIRING DUCT		
4	AS REQ'D	35 mm DIN RAIL		
5	AS REQ'D	WIEDMULLER ASK1 SAK SERIES FUSED TERMINAL BLOCKS	WIEDMULLER	-
6	AS REQ'D	WIEDMULLER ASK1 SAK SERIES TERMINAL BLOCKS	WIEDMULLER	-
7	AS REQ'D	WIEDMULLER BRIDGES	WIEDMULLER	-
8	AS REQ'D	WIEDMULLER END STOPS	WIEDMULLER	-
9	1	Q-FREE TRAFFIC MONITOR	Q-FREE	EMU3
10	AS REQ'D	BUSSMAN 2 POLE PHOTOVOLTAIC MODULAR FUSE CARRIER	BUSSMAN	CHPV2U
11	AS REQ'D	BUSSMAN 4 POLE MODULAR FUSE CARRIER	BUSSMAN	CHM4DU
12	AS REQ'D	BUSSMAN PHOTOVOLTAIC DC FUSES 10 A	BUSSMAN	PVM-10
13	AS REQ'D	BUSSMAN PROTECTIVE COVER	BUSSMAN	FSCVR
14	1	MORNINGSTAR PROSTAR MPPT SOLAR CHARGE CONTROLLER	MORNINGSTAR	PS-MPPT-25
15	AS REQ'D	5 X 20 CERAMIC FUSES		
16	1	GROUND BAR		
17	1	BATTERY	MK POWERED	8A27 DEKA
18	1	PHOENIX CONTACT SURGE PROTECTION DEVICE	PHOENIX CONTACT	CN-UB-70DC-6-BB
19	1	DEI CELL SAVER BATTERY INSULATION KIT	DEI	010480
20	1	ANTENNA CABLE (OMNI PROVINCIAL ELECTRONICS) 1000 mm MALE N TO SMA MALE	OMNI	
21	2	TYCO SOLARLOK PV4 IP68 CONNECTORS AND 4.00 mm EXTENSION CABLE	TYCO	

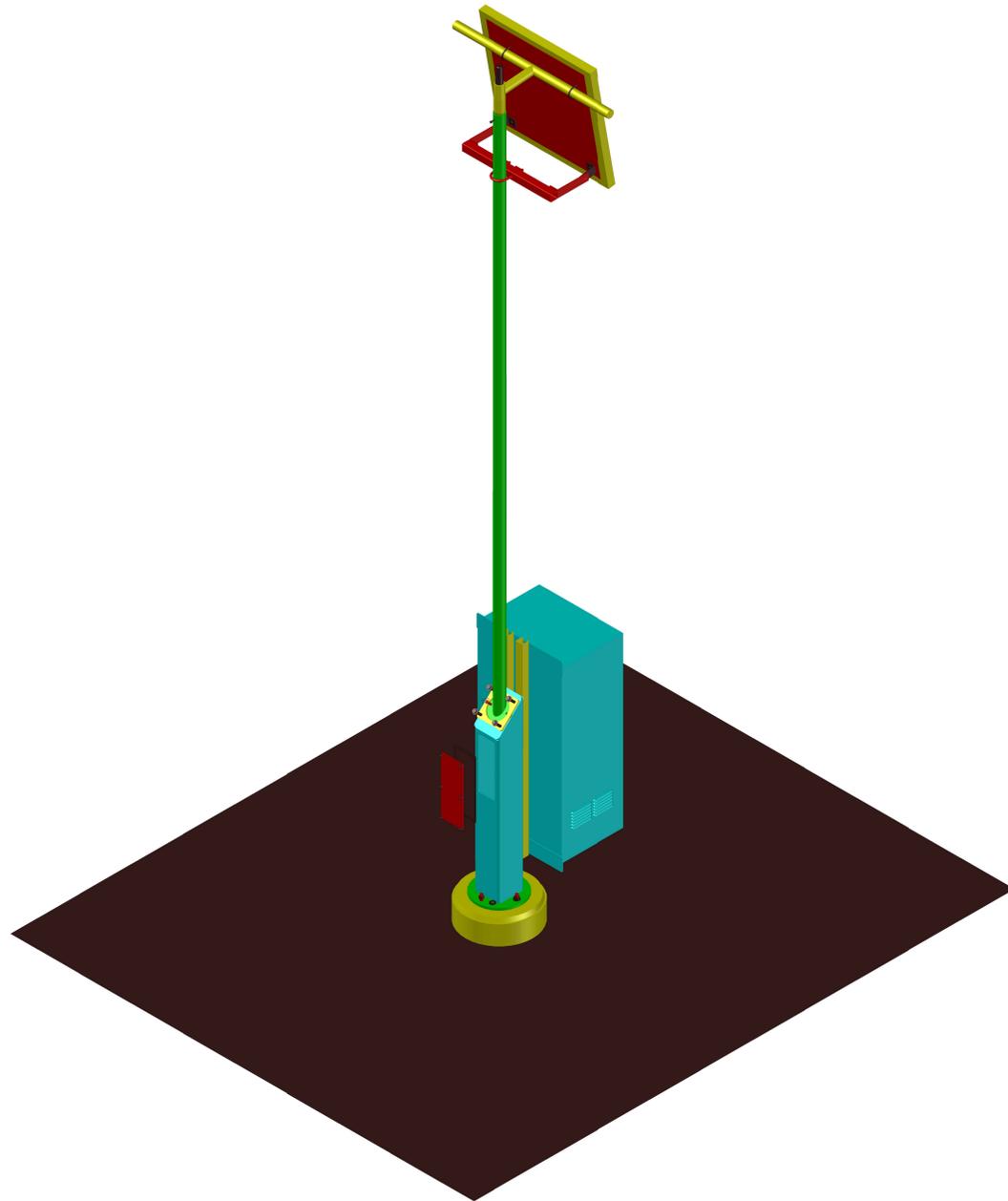


4 DETAIL 1:5
SOLAR PARKING CONTROL PANEL

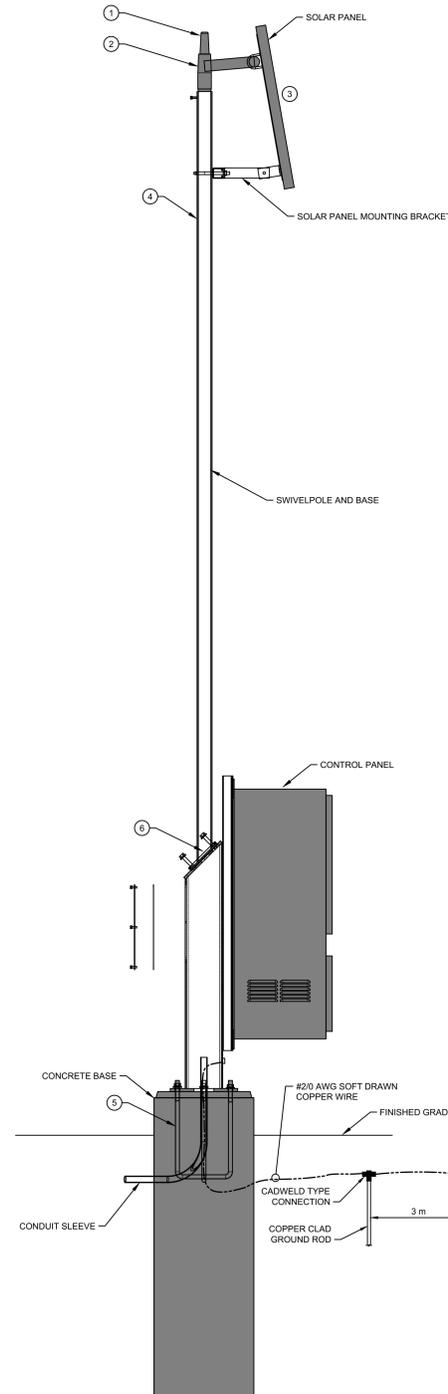
0	2017/JUNE/01	ISSUED FOR TENDER	JD	GL
No.	Date/Date	Description/Description	Drawn by Dessiné par	Approved Approuvé
Revision / Revision				
A		A detail number numero de detail		A
B		B source drawing no. de dessin no.		B/C
C		C detail on drawing no. detail sur dessin no.		
Consultant's Name Nom de l'expert-conseil		Eng. Stamp Sceau de l'ingénieur		
 Associated Engineering APEGA Permit to Practice P. 3979		 2017-Jun-01		
Client/client		L'Agence Parcs Canada		
Parks Canada Agency Western and Northern Region		L'Agence Parcs Canada Ouest et Nord du Canada		
Project title/Titre du projet				
JOHNSTON CANYON PHASE 2 PARKING LOT UPGRADE BANFF NATIONAL PARK				
Drawing title/Titre du dessin				
WIRING DIAGRAMS AND PANEL DETAILS				
Surveyed by/Arpenté par	Drawn by/Dessiné par	Date/Date		
	J.DONG	2017/JUNE/01		
Designed by/Concept par	Reviewed by/Revisé par	Scale/Echelle		
G.LAYBOURN	R.COLBECQ	AS SHOWN		
PWOSC Project Manager/Administrateur de Projets TPSCC				
Client Acceptance/Acceptation du client		Approved by/Approuvé par		
Park Response Officer/Agent Réponse		PWOSC Project Manager/Administrateur de Projets TPSCC		
Project No./No. du projet	Asset No./No. du bien	Sheet No./No. de la feuille		
20153475-03		7		
Drawing Reference No./No. de référence du dessin				
E9				

BILL OF MATERIALS				
ITEM	QTY.	DESCRIPTION	MANUFACTURER	PART No.
(1)	1	ANTENNA	LAIRD	TRA6927M3PWV-001
(2)	1	POLE MOUNT	SWIVELPOLE	LMK2304
(3)	1	SOLAR PANEL	AMERESCO SOLAR	AS450J
(4)	1	COLLAPSABLE MAST, 4 m HEIGHT.	SWIVELPOLE	F2-4000-P
(5)	1	CAGE BOLT	SWIVELPOLE	CBK150
(6)	1	SECURITY COVER	SWIVELPOLE	SC-001-HG

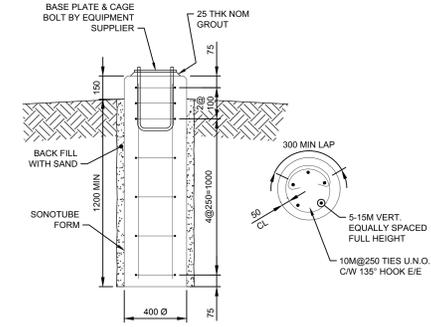
- NOTES:**
- PANEL, MAST, POLE MOUNT AND STRUTT TO BE POWDER COATED IN BLACK.
 - PROVIDE A GROUND PIT AND AT LEAST 2 ELECTRODES PER SOLAR MAST. ENSURE GROUND IS CONNECTED TO MAST AND CONTROL PANEL.
 - PROVIDE 2 MANUFACTURED GROUND RODS MINIMUM 3 METERS APART WITH INSPECTION PIT. TEST INSTALLATION AFTER COMPLETION. ENSURE A MAXIMUM GROUND READING OF 5 OHM. INSTALL ADDITIONAL GROUND RODS UNTIL RESISTANCE IS MET.
 - SOLAR PANELS ARE TO FACE SOUTH UNLESS OTHERWISE DIRECTED. PANEL IS TO BE ANGLED TO 30 DEGREES FROM VERTICAL. ADJUST THE LENGTH OF THE BOTTOM BRACKET TO SUIT.
 - ALL MOUNTING HARDWARE TO BE MADE OF NON-CORROSIVE MATERIALS OR TO BE PROTECTED FROM CORROSION.
 - CABLE ACCESS IS TO BE THROUGH REAR OF ENCLOSURE AND INTO MAST. PROVIDE CABLE PROTECTION BETWEEN PANEL AND MAST WITH CONDUIT/BUSHINGS.
 - USE MANUFACTURERS MOUNTING HARDWARE TO MOUNT ANTENNA.
 - PROVIDE A SECURITY COVER WITH EACH SWIVELPOLE AND ISSUE TO PARKS CANADA.
 - WHERE MULTIPLE DUCTS ARE IN A SINGLE TRENCH ENSURE DUCTS ARE SPACED 150mm APART HORIZONTALLY. ADJUST TRENCH WIDTH TO SUIT REQUIREMENTS.



1 VIEW
INSTALLATION DETAIL 3D VIEW NTS

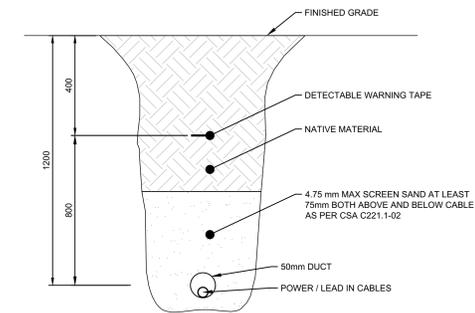


2 SECTION
INSTALLATION DETAILS 1:10

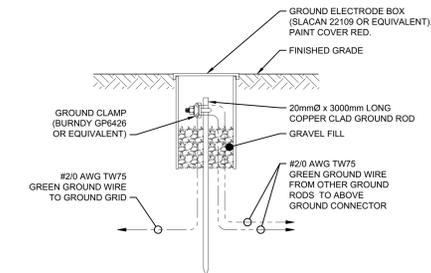


- FOUNDATION NOTES**
- ALL WORKMANSHIP, COMPONENT DESIGN & MATERIALS SHALL BE TO THE ALBERTA BUILDING CODE 2014.
 - REINFORCING STEEL - CSA G30.18 GRADE 40W CONCRETE COVER TO REINFORCING STEEL = 50mm
 - ALL CONCRETE EXPOSURE CLASS F-2 TO CAN A23.1. ALL CONCRETE TO HAVE 32 MPa MINIMUM COMPRESSIVE STRENGTH AT 56 DAYS. TYPE HS CEMENT. MAXIMUM W/C RATIO 0.45, 4-7% ENTRAINED AIR. SEE SPECIFICATION. MAXIMUM SLUMP: FOUNDATIONS - 60mm CONSOLIDATE ALL CONCRETE USING INTERNAL VIBRATORS.
 - PROVIDE 20mm CHAMFER AT ALL EXPOSED CONCRETE EDGES UNLESS NOTED OTHERWISE.
 - ALL ELECTRICAL & INSTRUMENTATION CONDUIT WITHIN PILE ARE NOT SHOWN ON THESE DRAWINGS. CO-ORDINATE LOCATIONS & DETAILS.

3 DETAIL
CONCRETE BASE NTS



4 DETAIL
DIRECT BURY DUCTS NTS



- NOTES:**
- GROUND WELLS TO BE LOCATED 600mm MINIMUM FROM BUILDINGS OR SLABS.

5 DETAIL
GROUND PIT NTS

0	2017/JUN/06	ISSUED FOR TENDER	JD	GL
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No.	Date/Date	Description/Description	Drawn by Dessiné par	Approved Approuvé
Revision / Revision				

A	B	C	A	B	C
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Consultant's Name
Nom de l'expert-conseil

Associated Engineering

APEGA Permit to Practice P 3979

Eng. Stamp
Scieu de l'ingénieur

ASSOCIATED ENGINEERS

2017-Jun-01

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

Project title/Titre du projet

JOHNSTON CANYON PHASE 2 PARKING LOT UPGRADE

BANFF NATIONAL PARK

Drawing title/Titre du dessin

INSTALLATION DETAILS

Surveyed by/Arpenté par	Drawn by/Dessiné par	Date/Date
G.LAYBOURN	J.DONG	17/11/2017
Designed by/Concept par	Reviewed by/Revisé par	Scale/Echelle
G.LAYBOURN	R.COLBECK	AS SHOWN

PMSC Project Manager/Administrateur de Projets TPSCC

Client Acceptance/Acceptation du client	Approved by/Approuvé par
Park Response Officer/Agent Responsabilisé	PMSC Project Manager/Administrateur de Projets TPSCC

Project No./No. du projet	Asset No./No. du bien	Sheet No./No. de la feuille
20153475-03		8

Drawing Reference No./No. de référence du dessin

E10