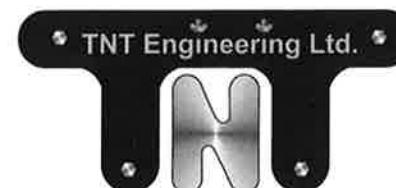




PEMBINA
2-13-48-8 W5M
2-13 SATELLITE
ELECTRICAL DRAWINGS
PROJECT # 2136



TNT ENGINEERING LTD.
SUITE 600, 639 - 5TH AVE SW
CALGARY, AB, T2P 0M9
PHONE (403) 387-2500
FAX (403) 387-2535

DRAWING INDEX

STRIKE AREA	SURFACE LOCATION	BOTTOM HOLE LOCATION	DRAWING	DRAWING TYPE	COMMENTS	REV.
PEMBINA	2-13-48-8 W5M		0213048085.8000	ELECTRICAL	TITLE PAGE	0
PEMBINA	2-13-48-8 W5M		0213048085.8002	ELECTRICAL	ELECTRICAL SYMBOL LEGEND	0
PEMBINA	2-13-48-8 W5M		0213048085.8010	ELECTRICAL	SITE PLAN - ELECTRICAL LAYOUT	0
PEMBINA	2-13-48-8 W5M		0213048085.8020	ELECTRICAL	SITE PLAN - AREA CLASSIFICATION AND GROUNDING	0
PEMBINA	2-13-48-8 W5M		0213048085.8600	ELECTRICAL	CONTROL SYSTEM ARCHITECTURE BLOCK DIAGRAM	0
PEMBINA	2-13-48-8 W5M		0213048085.8700	ELECTRICAL	RTU CONTROL PANEL - LAYOUT	A
PEMBINA	2-13-48-8 W5M		0213048085.8705	ELECTRICAL	RTU CONTROL PANEL - POWER DISTRIBUTION	A
PEMBINA	2-13-48-8 W5M		0213048085.8710	ELECTRICAL	RTU CONTROL PANEL - SCADAPack 334 LAYOUT	A
PEMBINA	2-13-48-8 W5M		0213048085.8711	ELECTRICAL	RTU CONTROL PANEL - DIGITAL INPUTS	A
PEMBINA	2-13-48-8 W5M		0213048085.8712	ELECTRICAL	RTU CONTROL PANEL - DIGITAL OUTPUTS	A
PEMBINA	2-13-48-8 W5M		0213048085.8713	ELECTRICAL	RTU CONTROL PANEL - ANALOG INPUTS	A
PEMBINA	2-13-48-8 W5M		0213048085.8714	ELECTRICAL	RTU CONTROL PANEL - ANALOG OUTPUTS/COUNTERS	A
PEMBINA	2-13-48-8 W5M		0213048085.8715	ELECTRICAL	RTU CONTROL PANEL - COMMUNICATION SCHEMATICS	A
PEMBINA	100/10-12-48-5 W5M		100/1012048085.8700	ELECTRICAL	RTU CONTROL PANEL 1 - LAYOUT	A
PEMBINA	100/10-12-48-5 W5M		100/1012048085.8705	ELECTRICAL	RTU CONTROL PANEL 1 - POWER DISTRIBUTION	0
PEMBINA	100/10-12-48-5 W5M		100/1012048085.8712	ELECTRICAL	RTU CONTROL PANEL 1 - COUNTER INPUTS	0
PEMBINA	100/10-12-48-5 W5M		100/1012048085.8713	ELECTRICAL	RTU CONTROL PANEL 1 - ANALOG INPUTS/OUTPUTS	0
PEMBINA	100/10-12-48-5 W5M		100/1012048085.8714	ELECTRICAL	RTU CONTROL PANEL 1 - HART MODULE	0
PEMBINA	100/14-12-48-5 W5M		100/1412048085.8700	ELECTRICAL	RTU CONTROL PANEL 1 - LAYOUT	0
PEMBINA	100/14-12-48-5 W5M		100/1412048085.8705	ELECTRICAL	RTU CONTROL PANEL 1 - POWER DISTRIBUTION	0
PEMBINA	100/14-12-48-5 W5M		100/1412048085.8712	ELECTRICAL	RTU CONTROL PANEL 1 - COUNTER INPUTS	0
PEMBINA	100/14-12-48-5 W5M		100/1412048085.8713	ELECTRICAL	RTU CONTROL PANEL 1 - ANALOG INPUTS/OUTPUTS	0
PEMBINA	100/14-12-48-5 W5M		100/1412048085.8714	ELECTRICAL	RTU CONTROL PANEL 1 - HART MODULE	0
PEMBINA	100/16-12-48-5 W5M		100/1612048085.8700	ELECTRICAL	RTU CONTROL PANEL 1 - LAYOUT	0
PEMBINA	100/16-12-48-5 W5M		100/1612048085.8705	ELECTRICAL	RTU CONTROL PANEL 1 - POWER DISTRIBUTION	0
PEMBINA	100/16-12-48-5 W5M		100/1612048085.8712	ELECTRICAL	RTU CONTROL PANEL 1 - COUNTER INPUTS	0
PEMBINA	100/16-12-48-5 W5M		100/1612048085.8713	ELECTRICAL	RTU CONTROL PANEL 1 - ANALOG INPUTS/OUTPUTS	0
PEMBINA	100/16-12-48-5 W5M		100/1612048085.8714	ELECTRICAL	RTU CONTROL PANEL 1 - HART MODULE	0
PEMBINA	100/4-13-48-5 W5M		100/0413048085.8700	ELECTRICAL	RTU CONTROL PANEL 1 - LAYOUT	0
PEMBINA	100/4-13-48-5 W5M		100/0413048085.8705	ELECTRICAL	RTU CONTROL PANEL 1 - POWER DISTRIBUTION	0
PEMBINA	100/4-13-48-5 W5M		100/0413048085.8712	ELECTRICAL	RTU CONTROL PANEL 1 - COUNTER INPUTS	0
PEMBINA	100/4-13-48-5 W5M		100/0413048085.8713	ELECTRICAL	RTU CONTROL PANEL 1 - ANALOG INPUTS/OUTPUTS	0
PEMBINA	100/4-13-48-5 W5M		100/0413048085.8714	ELECTRICAL	RTU CONTROL PANEL 1 - HART MODULE	0
PEMBINA	100/6-13-48-5 W5M		100/0613048085.8700	ELECTRICAL	RTU CONTROL PANEL 1 - LAYOUT	0
PEMBINA	100/6-13-48-5 W5M		100/0613048085.8705	ELECTRICAL	RTU CONTROL PANEL 1 - POWER DISTRIBUTION	0
PEMBINA	100/6-13-48-5 W5M		100/0613048085.8712	ELECTRICAL	RTU CONTROL PANEL 1 - COUNTER INPUTS	0
PEMBINA	100/6-13-48-5 W5M		100/0613048085.8713	ELECTRICAL	RTU CONTROL PANEL 1 - ANALOG INPUTS/OUTPUTS	0
PEMBINA	100/6-13-48-5 W5M		100/0613048085.8714	ELECTRICAL	RTU CONTROL PANEL 1 - HART MODULE	0
PEMBINA	100/8-14-48-5 W5M		100/0814048085.8700	ELECTRICAL	RTU CONTROL PANEL 1 - LAYOUT	0
PEMBINA	100/8-14-48-5 W5M		100/0814048085.8705	ELECTRICAL	RTU CONTROL PANEL 1 - POWER DISTRIBUTION	0
PEMBINA	100/8-14-48-5 W5M		100/0814048085.8712	ELECTRICAL	RTU CONTROL PANEL 1 - COUNTER INPUTS	0
PEMBINA	100/8-14-48-5 W5M		100/0814048085.8713	ELECTRICAL	RTU CONTROL PANEL 1 - ANALOG INPUTS/OUTPUTS	0
PEMBINA	100/8-14-48-5 W5M		100/0814048085.8714	ELECTRICAL	RTU CONTROL PANEL 1 - HART MODULE	0
PEMBINA	2-13-48-8 W5M		0213048085.8901	ELECTRICAL	ELECTRICAL INSTALLATION DETAILS SHEET 1 OF 6	0
PEMBINA	2-13-48-8 W5M		0213048085.8902	ELECTRICAL	ELECTRICAL INSTALLATION DETAILS SHEET 2 OF 6	0
PEMBINA	2-13-48-8 W5M		0213048085.8903	ELECTRICAL	ELECTRICAL INSTALLATION DETAILS SHEET 3 OF 6	0
PEMBINA	2-13-48-8 W5M		0213048085.8904	ELECTRICAL	ELECTRICAL INSTALLATION DETAILS SHEET 4 OF 6	0
PEMBINA	2-13-48-8 W5M		0213048085.8905	ELECTRICAL	ELECTRICAL INSTALLATION DETAILS SHEET 5 OF 6	0
PEMBINA	2-13-48-8 W5M		0213048085.8906	ELECTRICAL	ELECTRICAL INSTALLATION DETAILS SHEET 6 OF 6	0
PEMBINA	2-13-48-8 W5M		0213048085.8920	ELECTRICAL	ELECTRICAL INSTALLATION AND AREA CLASSIFICATION DETAILS	0
PEMBINA	2-13-48-8 W5M		0213048085.8921	ELECTRICAL	FORTIS ALBERTA SERVICE AND METERING GUIDE	0
PEMBINA	2-13-48-8 W5M		0213048085.8922	ELECTRICAL	TRANSFORMER PAD DETAILS - SHEET 1	0

DRAWING INDEX

STRIKE AREA	SURFACE LOCATION	BOTTOM HOLE LOCATION	DRAWING	DRAWING TYPE	COMMENTS	REV.
PEMBINA	2-13-48-8 W5M		0213048085.8923	ELECTRICAL	TRANSFORMER PAD DETAILS - SHEET 2	0
PEMBINA	2-13-48-8 W5M		0213048085.8924	ELECTRICAL	ELECTRICAL INSTALLATION DETAILS	0
PEMBINA	2-13-48-8 W5M		D-29548	VENDOR - AUTOMATION & ELECTRONICS, INC.	POWER ONE-LINE DIAGRAM	C
PEMBINA	2-13-48-8 W5M		D-29894 SHEET 1 OF 12	VENDOR - AUTOMATION & ELECTRONICS, INC.	ARC POLYMER PLANT - BILL OF MATERIALS, NOTES AND LEGEND REMOTE I/O PANEL	0
PEMBINA	2-13-48-8 W5M		D-29894 SHEET 2 OF 12	VENDOR - AUTOMATION & ELECTRONICS, INC.	ARC POLYMER PLANT - PANEL LAYOUT REMOTE I/O PANEL	0
PEMBINA	2-13-48-8 W5M		D-29894 SHEET 3 OF 12	VENDOR - AUTOMATION & ELECTRONICS, INC.	ARC POLYMER PLANT - COMMUNICATION ARCHITECTURE REMOTE I/O PANEL	0
PEMBINA	2-13-48-8 W5M		D-29894 SHEET 4 OF 12	VENDOR - AUTOMATION & ELECTRONICS, INC.	ARC POLYMER PLANT - POWER REMOTE I/O PANEL	0
PEMBINA	2-13-48-8 W5M		D-29894 SHEET 5 OF 12	VENDOR - AUTOMATION & ELECTRONICS, INC.	ARC POLYMER PLANT - POWER REMOTE I/O PANEL	0
PEMBINA	2-13-48-8 W5M		D-29894 SHEET 6 OF 12	VENDOR - AUTOMATION & ELECTRONICS, INC.	ARC POLYMER PLANT - DIGITAL INPUTS - PAGE 1 OF 2 REMOTE I/O PANEL	0
PEMBINA	2-13-48-8 W5M		D-29894 SHEET 7 OF 12	VENDOR - AUTOMATION & ELECTRONICS, INC.	ARC POLYMER PLANT - DIGITAL INPUTS - PAGE 2 OF 2 REMOTE I/O PANEL	0
PEMBINA	2-13-48-8 W5M		D-29894 SHEET 8 OF 12	VENDOR - AUTOMATION & ELECTRONICS, INC.	ARC POLYMER PLANT - DIGITAL OUTPUTS - REMOTE I/O PANEL	0
PEMBINA	2-13-48-8 W5M		D-29894 SHEET 9 OF 12	VENDOR - AUTOMATION & ELECTRONICS, INC.	ARC POLYMER PLANT - ANALOG INPUTS REMOTE I/O PANEL	0
PEMBINA	2-13-48-8 W5M		D-29894 SHEET 10 OF 12	VENDOR - AUTOMATION & ELECTRONICS, INC.	ARC POLYMER PLANT - ANALOG INPUTS REMOTE I/O PANEL	0
PEMBINA	2-13-48-8 W5M		D-29894 SHEET 11 OF 12	VENDOR - AUTOMATION & ELECTRONICS, INC.	ARC POLYMER PLANT - ANALOG INPUTS REMOTE I/O PANEL	0
PEMBINA	2-13-48-8 W5M		D-29894 SHEET 12 OF 12	VENDOR - AUTOMATION & ELECTRONICS, INC.	ARC POLYMER PLANT - FUSE LIST REMOTE I/O PANEL	0
PEMBINA	2-13-48-8 W5M		D-29895 SHEET 1 OF 6	VENDOR - AUTOMATION & ELECTRONICS, INC.	ARC POLYMER PLANT - BILL OF MATERIALS, NOTES, AND LEGEND	0
PEMBINA	2-13-48-8 W5M		D-29895 SHEET 2 OF 6	VENDOR - AUTOMATION & ELECTRONICS, INC.	ARC POLYMER PLANT - MAIN PLC PANEL LAYOUT	0
PEMBINA	2-13-48-8 W5M		D-29895 SHEET 3 OF 6	VENDOR - AUTOMATION & ELECTRONICS, INC.	ARC POLYMER PLANT - MAIN PLC COMMUNICATIONS ARCHITECTURE	0
PEMBINA	2-13-48-8 W5M		D-29895 SHEET 4 OF 6	VENDOR - AUTOMATION & ELECTRONICS, INC.	ARC POLYMER PLANT - MAIN PLC POWER	0
PEMBINA	2-13-48-8 W5M		D-29895 SHEET 5 OF 6	VENDOR - AUTOMATION & ELECTRONICS, INC.	ARC POLYMER PLANT - MAIN PLC DIGITAL INPUTS	0
PEMBINA	2-13-48-8 W5M		D-29895 SHEET 6 OF 6	VENDOR - AUTOMATION & ELECTRONICS, INC.	ARC POLYMER PLANT - MAIN PLC FUSE LIST	0
PEMBINA	2-13-48-8 W5M		D-30222 SHEET 1 OF 14	VENDOR - AUTOMATION & ELECTRONICS, INC.	ARC POLYMER PLANT - MIXER R10 BILL OF MATERIALS, NOTES AND LEGEND	A
PEMBINA	2-13-48-8 W5M		D-30222 SHEET 2 OF 14	VENDOR - AUTOMATION & ELECTRONICS, INC.	ARC POLYMER PLANT - MIXER R10 PANEL LAYOUT	A
PEMBINA	2-13-48-8 W5M		D-30222 SHEET 3 OF 14	VENDOR - AUTOMATION & ELECTRONICS, INC.	ARC POLYMER PLANT - MIXER R10 COMMUNICATIONS ARCHITECTURE	A
PEMBINA	2-13-48-8 W5M		D-30222 SHEET 4 OF 14	VENDOR - AUTOMATION & ELECTRONICS, INC.	ARC POLYMER PLANT - MIXER R10 POWER WIRING DIAGRAM	A
PEMBINA	2-13-48-8 W5M		D-30222 SHEET 5 OF 14	VENDOR - AUTOMATION & ELECTRONICS, INC.	ARC POLYMER PLANT - MIXER R10 DIGITAL INPUTS PAGE 1 OF 2	A
PEMBINA	2-13-48-8 W5M		D-30222 SHEET 6 OF 14	VENDOR - AUTOMATION & ELECTRONICS, INC.	ARC POLYMER PLANT - MIXER R10 DIGITAL INPUTS PAGE 2 OF 2	A
PEMBINA	2-13-48-8 W5M		D-30222 SHEET 7 OF 14	VENDOR - AUTOMATION & ELECTRONICS, INC.	ARC POLYMER PLANT - MIXER R10 DIGITAL OUTPUTS PAGE 1 OF 2	A
PEMBINA	2-13-48-8 W5M		D-30222 SHEET 8 OF 14	VENDOR - AUTOMATION & ELECTRONICS, INC.	ARC POLYMER PLANT - MIXER R10 DIGITAL OUTPUTS PAGE 2 OF 2	A
PEMBINA	2-13-48-8 W5M		D-30222 SHEET 9 OF 14	VENDOR - AUTOMATION & ELECTRONICS, INC.	ARC POLYMER PLANT - MIXER R10 ANALOG INPUTS PAGE 1 OF 4	A
PEMBINA	2-13-48-8 W5M		D-30222 SHEET 10 OF 14	VENDOR - AUTOMATION & ELECTRONICS, INC.	ARC POLYMER PLANT - MIXER R10 ANALOG INPUTS PAGE 2 OF 4	A
PEMBINA	2-13-48-8 W5M		D-30222 SHEET 11 OF 14	VENDOR - AUTOMATION & ELECTRONICS, INC.	ARC POLYMER PLANT - MIXER R10 ANALOG INPUTS PAGE 3 OF 4	A
PEMBINA	2-13-48-8 W5M		D-30222 SHEET 12 OF 14	VENDOR - AUTOMATION & ELECTRONICS, INC.	ARC POLYMER PLANT - MIXER R10 ANALOG INPUTS PAGE 4 OF 4	A
PEMBINA	2-13-48-8 W5M		D-30222 SHEET 13 OF 14	VENDOR - AUTOMATION & ELECTRONICS, INC.	ARC POLYMER PLANT - MIXER R10 ANALOG OUTPUTS	A
PEMBINA	2-13-48-8 W5M		D-30222 SHEET 14 OF 14	VENDOR - AUTOMATION & ELECTRONICS, INC.	ARC POLYMER PLANT - MIXER R10 FUSE LIST	A
PEMBINA	2-13-48-8 W5M		NF14-103	VENDOR - FAB TECH	POYMER PILOT INJECTION PLANT OVERALL LAYOUT	J

\\INTSERVER\COMPANY SHARED FOLDER\DRAWING\JOBS\ARC RESOURCES LTD\PEMBINA\W5M\ELECTRICAL\0213048085.8002.DWG PLOT BY: CPERKINS, 10/17/2014 1:51 PM DRAWING SHEET SIZE: 11" x 17"

SINGLE LINE DIAGRAM SYMBOLS

POWER OR CONTROL CONDUCTOR

CONTROL INTERLOCK

FIELD WIRING OR EXTERNAL TO MCC OR MCC BLDG.

CIRCUIT BREAKER

DISCONNECT SWITCH

TRANSFER SWITCH

CONTACTS

STAB TYPE DISCONNECT

THERMAL OVERLOAD

RESISTER

MAGNETIC OVERLOAD

FUSE

DELTA

WYE WITH GROUNDED NEUTRAL

GROUND

LIGHTNING ARRESTOR

SURGE CAPACITOR

GROUND BLOCK

POWER TRANSFORMER

CONTROL TRANSFORMER

POTENTIAL TRANSFORMER

CURRENT TRANSFORMER

HAND/OFF/AUTO CONTROL STATION

ON/OFF CONTROL STATION

RESISTIVE TEMPERATURE DEVICE

VIBRATION PROBE SWITCH

DIGITAL METER

AMMETER

VOLTMETER

GENERATOR

XX
HP

ELECTRIC MOTOR

225A, 42cct
3Ø, 4W
120/208V

LIGHTING PANEL

15 kW

HEATER OR HVAC UNIT

CONTROLLER INPUT OR OUTPUT

R

MONITORING RELAY

R

PILOT LIGHT

WIRING AND SCHEMATIC DIAGRAM SYMBOLS

POWER OR CONTROL CONDUCTOR

FIELD WIRING OR EXTERNAL TO PANEL

BEACON COLOR AS INDICATED

STROBE COLOR AS INDICATED

PHOTOCCELL

HORN

LIGHT/PILOT LIGHT

MOTOR

RECTIFIER OR DIODE

SURGE CAPACITOR

XX
HP

MOTOR

CONTROL TRANSFORMER

RELAY, CONTACTOR OR MOTOR STARTER

x x

TRANSMITTERS AND ANALOG END DEVICES

PLC CONTROL PANEL FUSED DISCONNECT

PLC CONTROL PANEL DISCONNECT TERMINAL

PLC CONTROL PANEL TERMINAL (24VDC)

PLC CONTROL PANEL TERMINAL (120VAC)

VENDOR PANEL TERMINAL (24VDC)

VENDOR PANEL TERMINAL (120VAC)

MCC/STARTER/VFD TERMINAL

CONTACTOR PANEL TERMINAL (24VDC)

CONTACTOR PANEL TERMINAL (120VAC)

FIELD JUNCTION BOX TERMINAL

BREAKER

SOLENOID

THREE POSITION SELECTOR SWITCH

TWO POSITION SELECTOR SWITCH

ON/OFF SELECTOR SWITCH

SPST SWITCH

SPDT SWITCH

MUSHROOM HEAD PUSHBUTTON

NORMALLY CLOSED PUSHBUTTON

NORMALLY OPEN PUSHBUTTON

NORMALLY CLOSED CONTACT

NORMALLY OPEN CONTACT

NORMALLY CLOSED FLOW SWITCH

NORMALLY OPEN FLOW SWITCH

NORMALLY CLOSED LEVEL SWITCH

NORMALLY OPEN LEVEL SWITCH

NORMALLY CLOSED PRESSURE SWITCH

NORMALLY OPEN PRESSURE SWITCH

NORMALLY CLOSED DIFFERENTIAL PRESSURE SWITCH

NORMALLY OPEN DIFFERENTIAL PRESSURE SWITCH

NORMALLY CLOSED TEMPERATURE SWITCH

NORMALLY OPEN TEMPERATURE SWITCH

NORMALLY CLOSED LIMIT SWITCH

NORMALLY OPEN LIMIT SWITCH

NORMALLY CLOSED VIBRATION SWITCH

ELECTRICAL LAYOUT SYMBOLS

ABOVE GROUND CONDUIT OR CABLE

BELOW GROUND CONDUIT OR CABLE

CONDUIT OR CABLE DROPPING DOWN

CONDUIT OR CABLE RISING UP OR PULLBOX

FLEXIBLE CONDUIT CONNECTION

CONDUIT SEAL

GROUND OR BONDING CONDUCTOR

GROUND ELECTRODE WITH WELL

GROUND OR BONDING CONDUCTOR TAP

EQUIPMENT GROUNDING CONNECTOR

BEACON COLOR AS INDICATED

STROBE COLOR AS INDICATED

ALARM HORN

COMBUSTIBLE GAS DETECTION HEAD

H2S DETECTION HEAD

FIRE DETECTION HEAD

EMERGENCY SHUTDOWN BUTTON

HAND/OFF/AUTO SELECTOR SWITCH

STOP/START PUSHBUTTON

ON/OFF SWITCH

ON/OFF SPST SWITCH

SPDT 3-WAY SWITCH

MANUAL MOTOR STARTING SWITCH

RECEPTACLE

THERMOSTAT

ELECTRICAL INSTRUMENT, TRANSMITTER, SWITCH ETC.

PHOTOCCELL

CEILING OR PENDANT MOUNTED LIGHT FIXTURE

WALL MOUNTED LIGHT FIXTURE

POLE MOUNTED FLOOD LIGHT FIXTURE

WALL MOUNTED EXHAUST FAN

UNIT HEATER

ELECTRIC HORIZONTAL MOTOR

HEAT TRACE TEE CONNECTION

HEAT TRACE END SEAL

HEAT TRACE TERMINATION KIT

HEAT TRACE CABLE

LS
XXX

INSTRUMENT TAG

1

MATERIAL TAG

A

LAMACOID LABEL TAG

A

CABLE LIST TAG

P-

CABLE TAG

REV	DESCRIPTION	BY	MM/DD/YYYY	CHKD	APPD	JOB No.
A	ISSUED FOR APPROVAL FOR FORTIS CONSTRUCTION (AFC)	WAP	05/30/2014	JD	JD	2136
0	ISSUED FOR CONSTRUCTION	WAP	10/10/2014	JD	JD	2136

PERMIT

STAMP

ARC RESOURCES LTD.

TNT Engineering Ltd. SUITE 600, 639 - 5TH AVE SW
CALGARY, AB, T2P 0M9
(403) 387-2500 PHONE
(403) 387-2535 FAX

ENGINEERING RECORD

DRAWN: A. PERKINS

CHECKED: J. DECK

APPROVED: J. DECK

ENGINEER: J. DECK

DATE: 05/21/2014

DATE: 05/21/2014

DATE: 05/21/2014

DATE: 05/21/2014

SCALE NTS

DWG 0213048085.8002

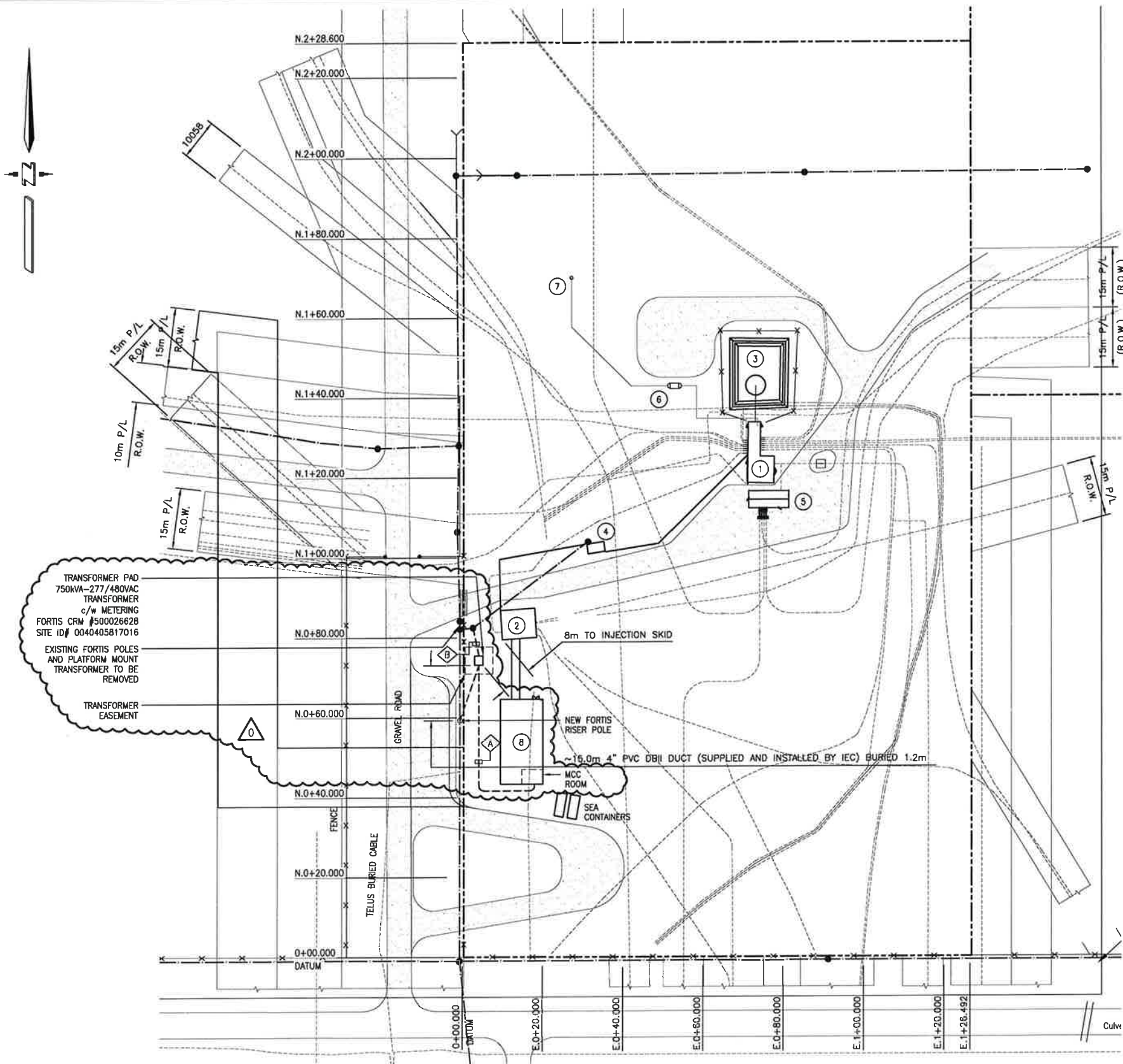
REV. 0

PEMBINA

02-13-048-08 W5M

2-13 SATELLITE

ELECTRICAL SYMBOL LEGEND

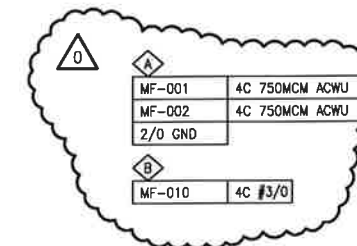


LEGEND

- ① TEST/GROUP SEPARATOR BUILDING
- ② WATER INJECTION BUILDING
- ③ STORAGE TANK
- ④ MCC BUILDING
- ⑤ NEW TEST/GROUP SEPARATOR BUILDING
- ⑥ NEW FLARE KNOCK OUT TANK
- ⑦ NEW FLARE STACK
- ⑧ POLYMER HYDRATION SKID (NEW)

TRANSFORMER CONSTRUCTION NOTES:

1. INDEPENDENT ELECTRIC TO INSTALL TRANSFORMER PAD AND 3 RING GROUND CRID FOR 750KVA TRANSFORMER PAD-MOUNT METERING.
2. GUARD POSTS REQUIRED (4)
3. NO BLAST WALL REQUIRED.
4. PROPERTY IS TO FINAL GRADE.
5. TRANSFORMER DOOR DIRECTION FACES WEST. 4 METER CLEARANCE REQUIRED IN FRONT OF DOORS.
6. INDEPENDENT ELECTRIC TO INSTALL 15m DBH DUCT FROM TRANSFORMER PAD TO RISER POLE.

[illegible]

PERMIT

STAMP

Permit 11113

October 31, 2019

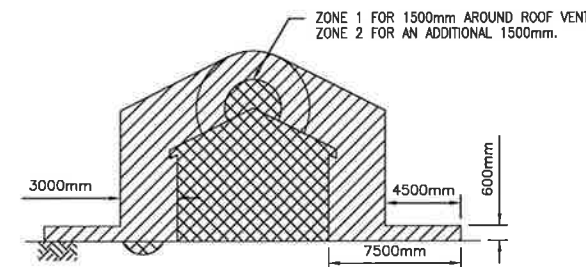
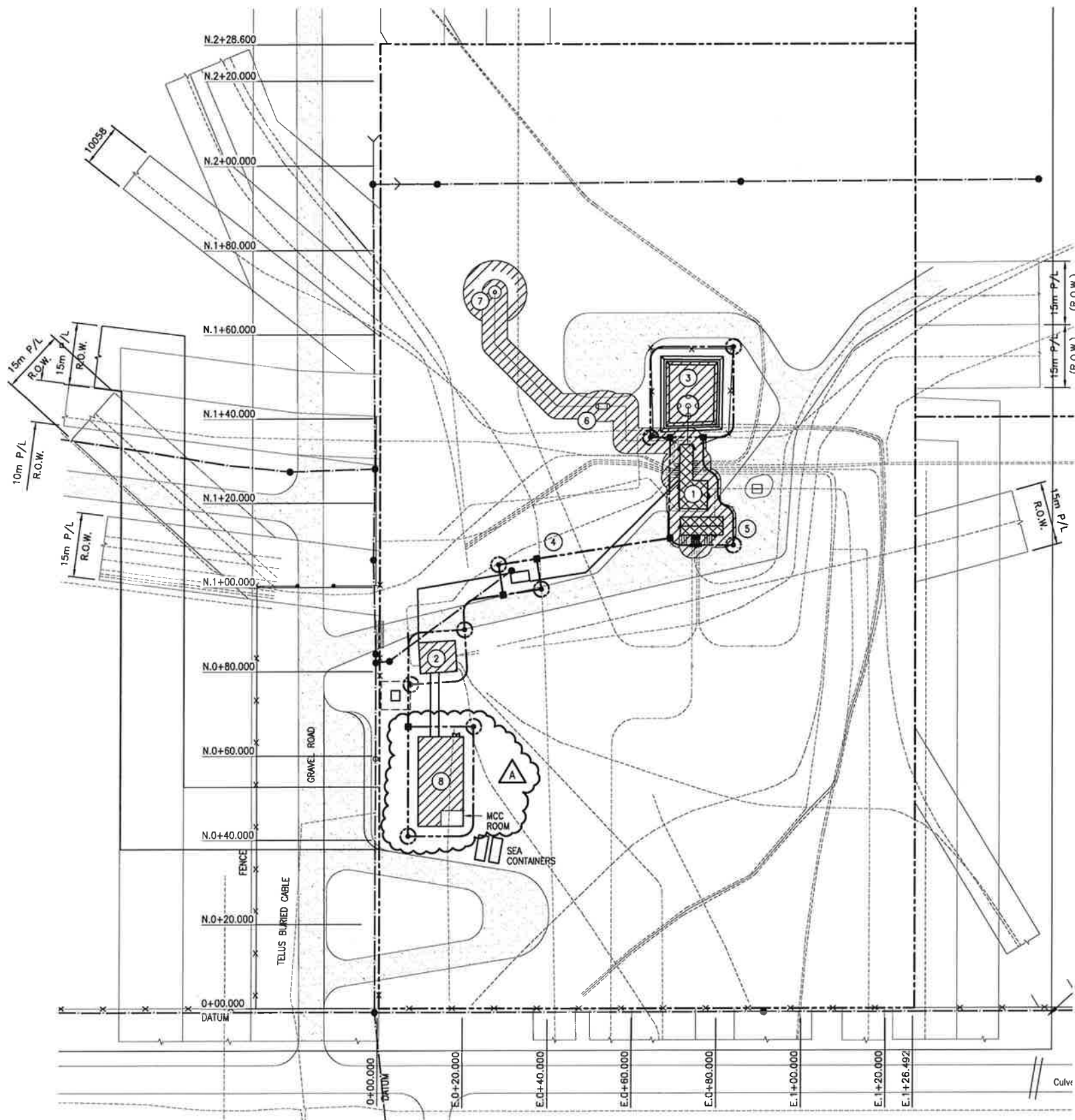
ARC RESOURCES LTD.

TNT Engineering Ltd.
SUITE 600, 639 - 5TH AVE SW
CALGARY, AB, T2P 0M9
(403) 387-2500 PHONE
(403) 387-2535 FAX

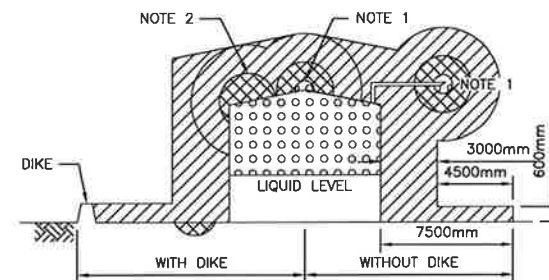
ENGINEERING RECORD

DRAWN:	A. PERKINS	DATE:	05/21/2014
CHECKED:	J. DECK	DATE:	05/21/2014
APPROVED:	J. DECK	DATE:	05/21/2014
ENGINEER:	J. DECK	DATE:	05/21/2014

SCALE	1:600	DWG	0213048085.8010	REV.	0
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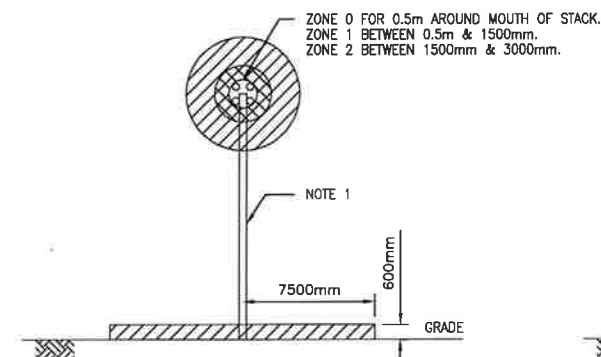


CLASS I, ZONE 1 BUILDING



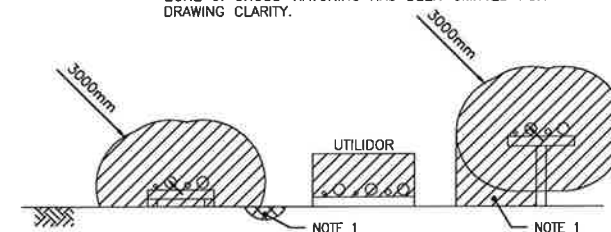
STORAGE TANK FOR FLAMMABLE LIQUID

- NOTES:
1. ZONE 0 FOR 500mm AROUND VENT.
ZONE 1 BETWEEN 500mm AND 1500mm.
ZONE 2 FOR AN ADDITIONAL 1500mm.
 2. ZONE 1 FOR 1500mm AROUND THIEF HATCH.
ZONE 2 FOR AN ADDITIONAL 1500mm.



FLARE STACK

- NOTES:
1. THE INTERIOR OF THE VENT PIPING BELOW RELIEF VALVE IS ZONE 0. CROSS-HATCHING HAS BEEN OMITTED FOR DRAWING CLARITY.

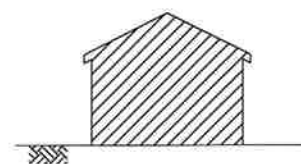


PROCESS PIPERACK / UTILIDOR

- NOTES:
1. ADDITIONAL BELOW GRADE WHEN HEAVIER THAN AIR VAPOURS MAY BE PRESENT.

LEGEND:

- CLASS I ZONE 0
- CLASS I ZONE 1
- CLASS I ZONE 2
- CLASS I ZONE 2
450mm ABOVE GRADE
(UNLESS OTHERWISE NOTED)
- NONCLASSIFIED
- #2/0 AWG GREEN INSULATED
GROUND WIRE
- GROUND CONNECTOR
- GROUND WELL
- VEHICLE GROUND CONNECTOR



CLASS I DIVISION 2 BUILDING

LEGEND

- ① TEST/GROUP SEPARATOR BUILDING
- ② WATER INJECTION BUILDING
- ③ STORAGE TANK
- ④ MCC BUILDING
- ⑤ NEW TEST/GROUP SEPARATOR BUILDING
- ⑥ NEW FLARE KNOCK OUT TANK
- ⑦ NEW FLARE STACK
- ⑧ POLYMER HYDRATION SKID (NEW)

REV	DESCRIPTION	BY	MM/DD/YYYY	CHKD	APPD	JOB No.
A	ISSUED FOR INFORMATION	WAP	10/10/2014	JD	JD	2136

PERMIT	STAMP

ARC RESOURCES LTD.

TNT Engineering Ltd.

SUITE 600, 639 - 5TH AVE SW
CALGARY, AB, T2P 0M9
(403) 387-2500 PHONE
(403) 387-2535 FAX

ENGINEERING RECORD	
DRAWN: A. PERKINS	DATE: 05/21/2014
CHECKED: J. DECK	DATE: 05/21/2014
APPROVED: J. DECK	DATE: 05/21/2014
ENGINEER: J. DECK	DATE: 05/21/2014

PEMBINA
02-13-048-08 W5M
2-13 SATELLITE

SITE PLAN - AREA CLASSIFICATION AND GROUNDING

SCALE: 1:600

DWG: 0213048085.8020

REV: A

25kV-480VAC
750KVA, 3Ø, 60Hz
PADMOUNT XFMR
C/W PADMOUNT METERING
(FORTIS CRM#500026628)
(SITE ID #0040405817016)

NOTE 1

MF-001	4C 750MCM ACWU
MF-002	4C 750MCM ACWU
2/O GND	

NOTE 2

MF-010	4C #3/O
2/O GND	

125A
200AF

TO POLYMER SKID MCC LINEUP
REFER TO DRAWING #D-29548

SITE OVERHEAD SERVICE
TO SITE EXISTING MCC LINEUP

NOTES:

1. NEW CABLES TO NEW POLYMER SKID MCC.
2. NEW CABLE TO EXISTING MAIN BREAKER, MAIN BREAKER FEEDS EXISTING O/H SERVICE. (RE-USE EXISTING CABLE IF AVAILABLE).
3. FIELD CONTRACTOR TO VERIFY MAIN BREAKER SIZE.

REV	DESCRIPTION	BY	MM/DD/YYYY	CHKD	APPD	JOB No.
0	ISSUED FOR CONSTRUCTION	CM	10/10/2014	JD	JD	2136

PERMIT

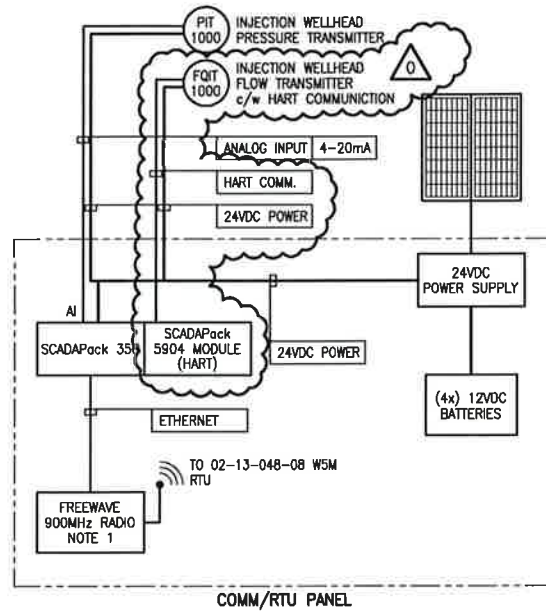
Permit 11113

STAMP

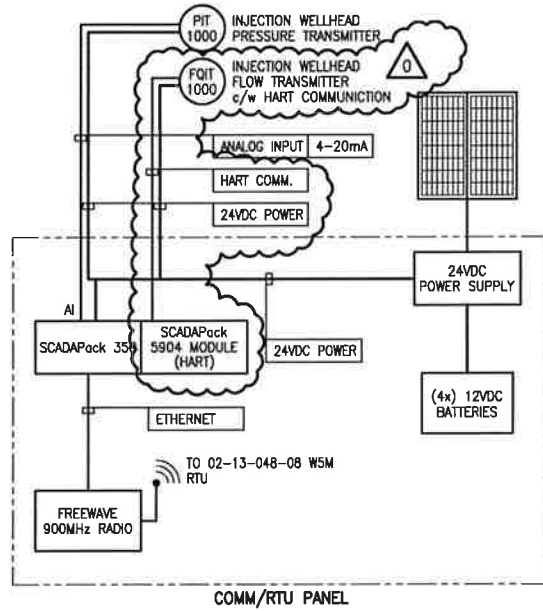
October 31, 2014

ARC RESOURCES LTD.		
ENGINEERING RECORD		
DRAWN:	A. PERKINS	DATE: 05/21/2014
CHECKED:	J. DECK	DATE: 05/21/2014
APPROVED:	J. DECK	DATE: 05/21/2014
ENGINEER:	J. DECK	DATE: 05/21/2014

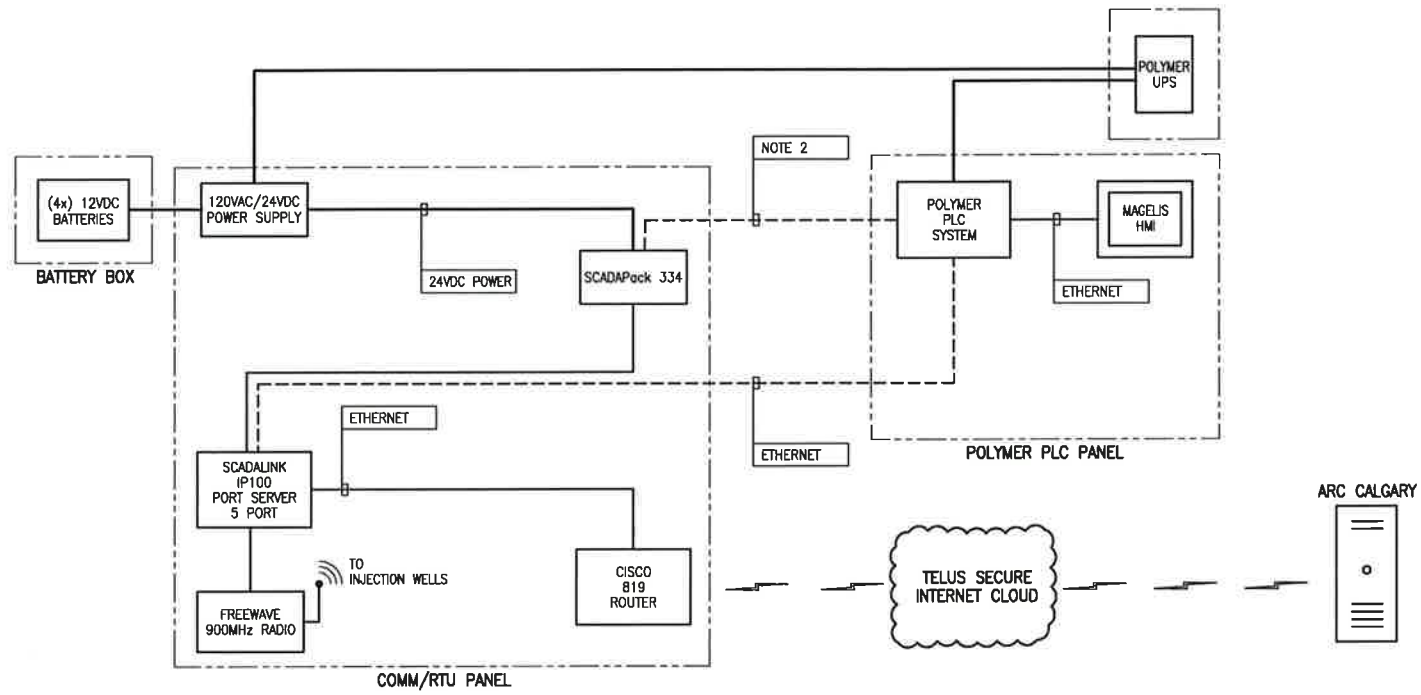
TNT Engineering Ltd.		SUITE 600, 639 - 5TH AVE SW CALGARY, AB, T2P 0M9 (403) 387-2500 PHONE (403) 387-2535 FAX	
PEMBINA 02-13-048-08 W5M 2-13 SATELLITE SINGLE LINE DIAGRAM			
SCALE	NTS	DWG	0213048085.8050
REV.	0		



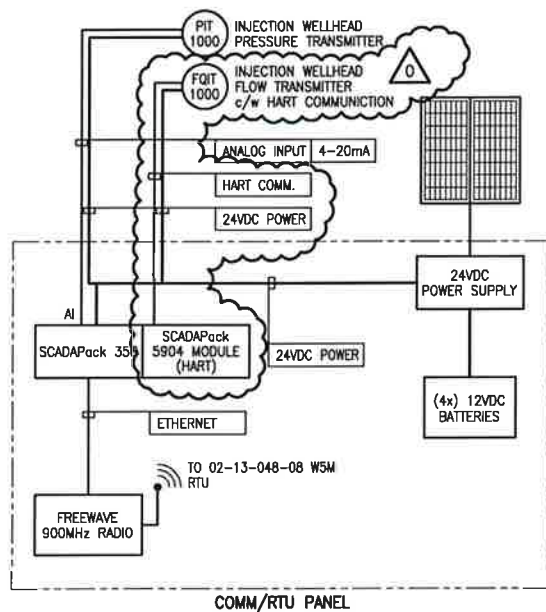
ARC RESOURCES 100/10-12-048-08 W5M



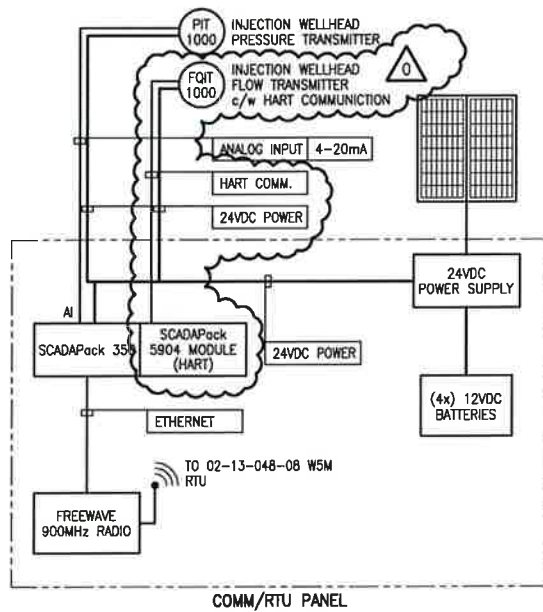
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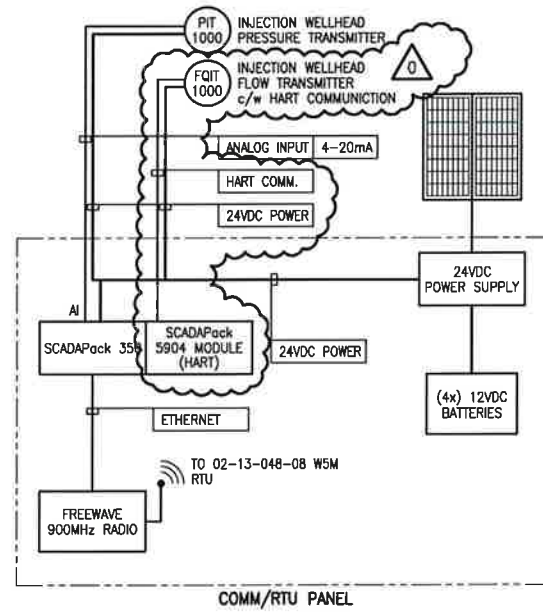
ARC RESOURCES 02-13-048-08 W5M



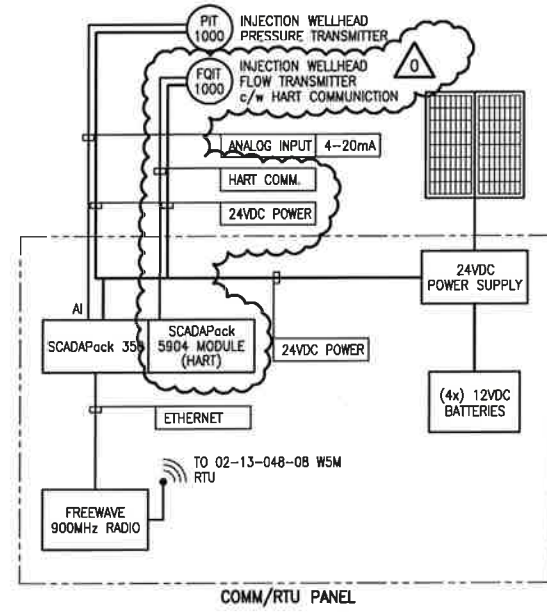
ARC RESOURCES 100/16-12-048-08 W5M



ARC RESOURCES 100/04-13-048-08 W5M



ARC RESOURCES 100/06-13-048-08 W5M



ARC RESOURCES 100/08-14-048-08 W5M

NOTES:

- EXISTING FREEWAVE RADIO TO BE USED AS REPEATER. NEW FREEWAVE RADIO REQUIRED FOR COMMS TO 02-13.
- SHUTDOWNS (6 DO's) FOR SHUTDOWN OF EACH WELL SYSTEM. [OTHER HARDWIRED STATUSES OR SHUTDOWNS?]

REV	DESCRIPTION	BY	MM/DD/YYYY	CHKD	APPD	JOB No.
0	ISSUED FOR CONSTRUCTION	WAP	10/07/2014	CM	JD	2136

PERMIT

Permit 1M3

STAMP

October 31, 2014

ENGINEERING RECORD			
DRAWN:	A. PERKINS	DATE:	08/11/2014
CHECKED:	C. McLAREN	DATE:	08/11/2014
APPROVED:	J. DECK	DATE:	08/11/2014
ENGINEER:	J. DECK	DATE:	08/11/2014

ARC RESOURCES LTD.

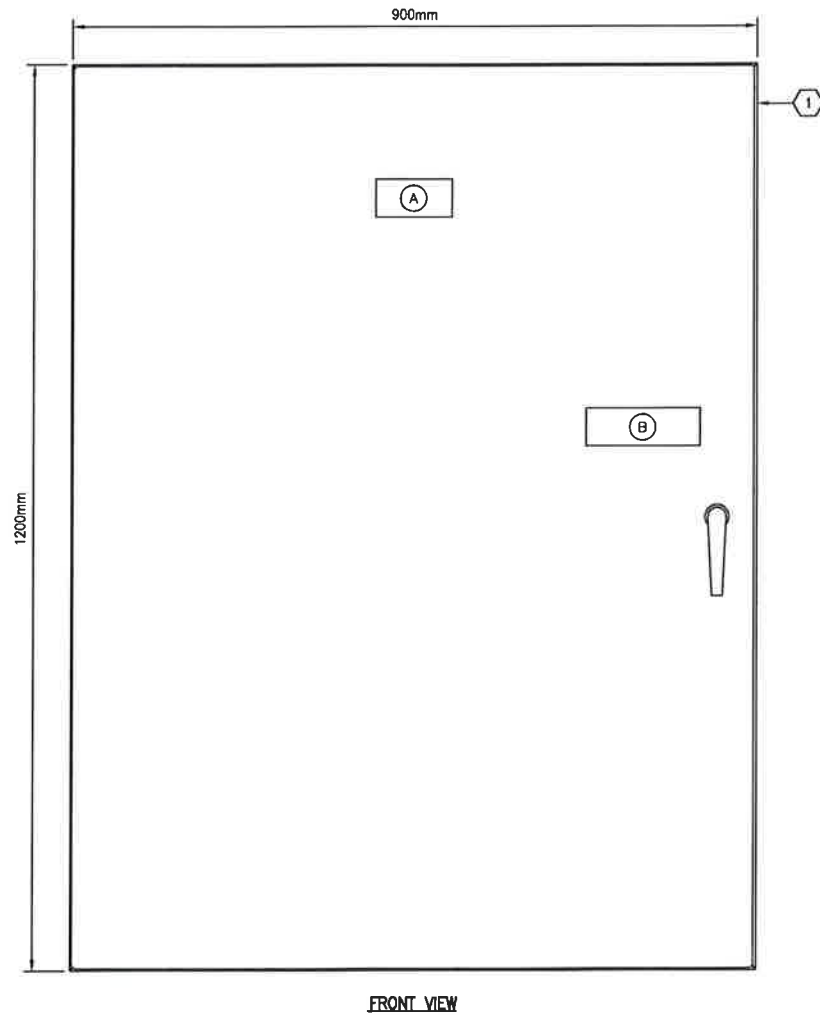
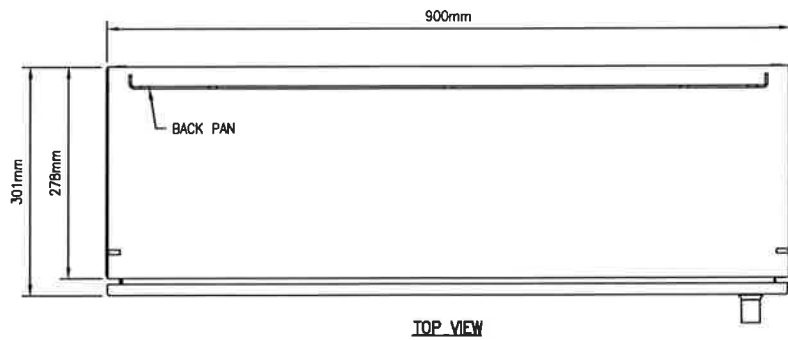
TNT Engineering Ltd.

SUITE 600, 639 - 5TH AVE SW
CALGARY, AB, T2P 0M9
(403) 387-2500 PHONE
(403) 387-2535 FAX

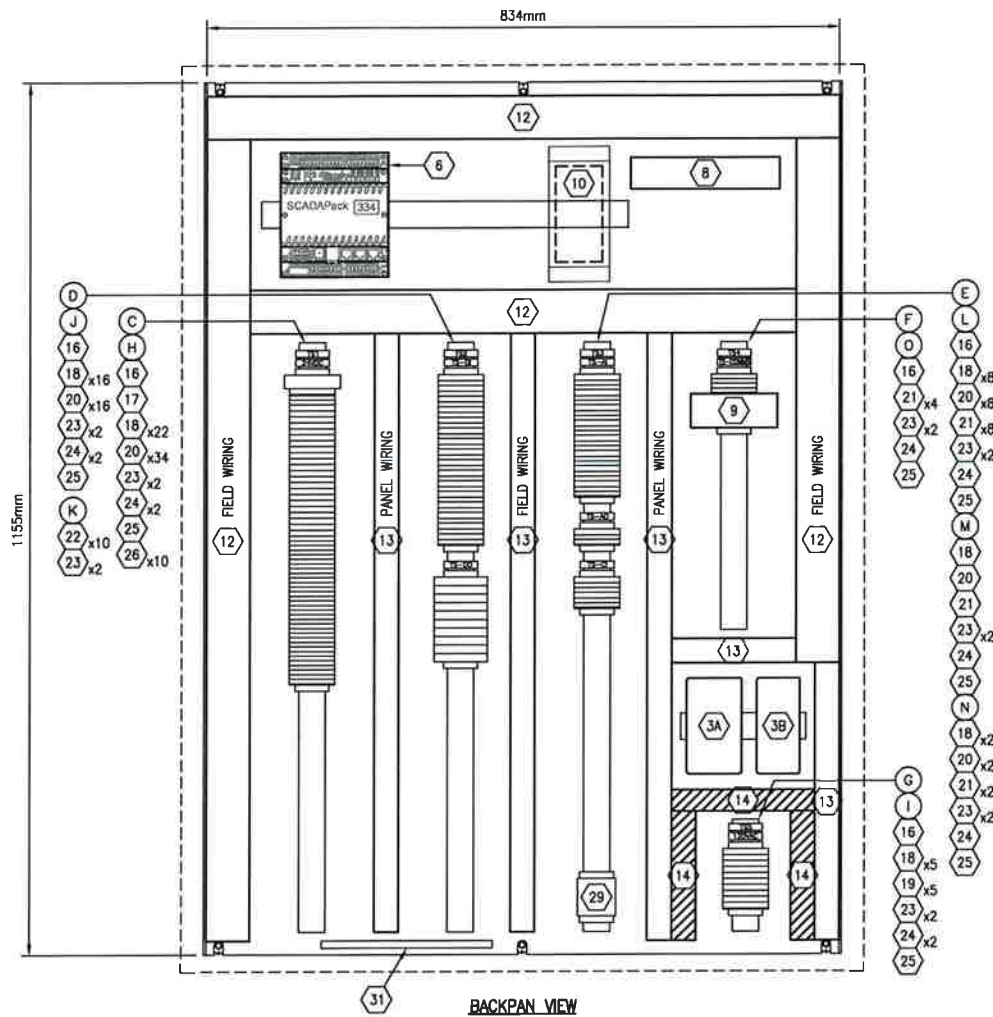
PEMBINA
02-13-048-08 W5M
2-13 SATELLITE
CONTROL SYSTEM ARCHITECTURE BLOCK DIAGRAM

SCALE NTS DWG 0213048085.8600 REV. 0

Z:\DRAFTING\JOBS\ARC RESOURCES LTD\PEMBINA\MPA 8\02-13-048-08 W5M\ELECTRICAL\0213048085.8700.DWG
 PLOT BY: APERKINS, 10/31/2014, 10:27 AM
 DRAWING SHEET SIZE: 11" x 17"



LAMACOID NAMEPLATE LIST				
ITEM	QTY.	ENGRAVING	COLOUR	SIZE
A	1	RTU CONTROL PANEL	WHITE WITH BLACK LETTERING	50mm X 100mm
B	1	WARNING! THIS ENCLOSURE CONTAINS VOLTAGES FROM DIFFERENT SOURCES	RED WITH WHITE LETTERING	50mm X 150mm
C	1	TS1	WHITE WITH BLACK LETTERING	8mm X 40mm
D	1	TS2	WHITE WITH BLACK LETTERING	8mm X 40mm
E	1	TS3	WHITE WITH BLACK LETTERING	8mm X 40mm
F	1	TS4	WHITE WITH BLACK LETTERING	8mm X 40mm
G	1	TS5	WHITE WITH BLACK LETTERING	8mm X 40mm
H	1	24VDC	WHITE WITH BLACK LETTERING	8mm X 40mm
I	1	120VAC	WHITE WITH BLACK LETTERING	8mm X 40mm
J	1	TS-DI	WHITE WITH BLACK LETTERING	8mm X 40mm
K	1	TS-DO	WHITE WITH BLACK LETTERING	8mm X 40mm
L	1	TS-AI	WHITE WITH BLACK LETTERING	8mm X 40mm
M	1	TS-AO	WHITE WITH BLACK LETTERING	8mm X 40mm
N	1	TS-CI	WHITE WITH BLACK LETTERING	8mm X 40mm
O	1	TS-COMMS	WHITE WITH BLACK LETTERING	8mm X 40mm



X		MATERIAL LIST				
ITEM	QTY.	DESCRIPTION	MANUFACTURER	CATALOG NO.	SIZE	SUPPLIER
1	1	CARBON STEEL ENCLOSURE (TYPE 1, 12, 3R, 4)	RITTAL	8017.570 (WM483612NC)	800x1200x300	VENDOR
2						
3A	1	WEIDMULLER POWER SUPPLY, 120VAC/24VDC	WEIDMULLER	9925340024	6.5A	VENDOR
3B	1	WEIDMULLER BATTERY BACKUP UNIT	WEIDMULLER	9916280024	-	VENDOR
4						
5						
6	1	SCADAPACK RTU TOP ROW: BOTTOM ROW:	CONTROL MICROSYSTEMS CONTROL MICROSYSTEMS CONTROL MICROSYSTEMS	SCADAPACK 334 5210 5607		VENDOR VENDOR VENDOR
7						
8	1	ROUTER	CISCO	819	4 PORT	ARC
9	1	SCADALINK PORT SERVER	BENTEC	IP100	5 PORT	VENDOR
10	1	900MHz INDUSTRIAL RADIO	FREEWAVE	FGR2-C-U	900MHz	-
11						
12	AS REQ'D	WIREWAY & COVER (WHITE)	PANDUIT	F2X3WH6	57 x 79	VENDOR
13	AS REQ'D	WIREWAY & COVER (WHITE)	PANDUIT	F1X3WH6	32 x 79	VENDOR
14	AS REQ'D	WIREWAY & COVER (GRAY)	PANDUIT	F1X3LG6	32 x 79	VENDOR
15						
16	AS REQ'D	MOUNTING RAIL	WEIDMULLER	0383400000	TS 35	VENDOR
17	1	FUSED DISCONNECT TERMINAL	COOPER BUSSMAN	-	-	VENDOR
18	19	FUSED DISCONNECT TERMINAL	WEIDMULLER	101420	WSI 6/2 LD	VENDOR
19	8	TERMINAL	WEIDMULLER	102020	WDU 6	VENDOR
20	63	TERMINAL	WEIDMULLER	102010	WDU 4	VENDOR
21	13	DISCONNECT TERMINAL	WEIDMULLER	791018	WTR 4	VENDOR
22	10	24VDC RELAY c/w N.O./N.C CONTACTS	WEIDMULLER	1100210000	RS 30	VENDOR
23	18	END BRACKET	WEIDMULLER	0383560000	EW 35	VENDOR
24	14	LABEL HOLDER	WEIDMULLER	0292460000	SchT 5s	VENDOR
25	8	END PLATE	WEIDMULLER	-	WAP	VENDOR
26	0	DIODE	OPEN			VENDOR
27						
28						
29	1	RAIL-MOUNTED DRAWER	WEIDMULLER	791476001	-	VENDOR
30	1	GROUND LUG	BLACKBURN	ADR2		VENDOR
31	1	GROUND BUS	OPEN			VENDOR
32						
33						
34						
35	1	INSULATED BATTERY BOX (SHIP LOOSE)	OPEN	-		VENDOR
36	4	12VDC 100AMP HOUR BATTERY	EAST PENN	8A27	-	VENDOR
37						
38						
39						
40						
41						
42						
43						
44						
45						
46						
47						
48						
49						
50						

CLASS 1, DIVISION 2
 GROUPS C,D T3C ENCLOSURE

REV	DESCRIPTION	BY	MM/DD/YYYY	CHKD	APPD	JOB No.
A	ISSUED FOR PANEL CONSTRUCTION	WAP	10/08/2014	CM	JD	2136
O	ISSUED FOR CONSTRUCTION	WAP	10/07/2014	CM	JD	2136

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 Permit 11113

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SUITE 600, 639 - 5TH AVE SW
 CALGARY, AB, T2P 0M9
 (403) 387-2500 PHONE
 (403) 387-2535 FAX

ENGINEERING RECORD
 DRAWN: A. PERKINS DATE: 08/11/2014
 CHECKED: C. McLAREN DATE: 08/11/2014
 APPROVED: J. DECK DATE: 08/11/2014
 ENGINEER: J. DECK DATE: 08/11/2014

SCALE 1:5 DWG 0213048085.8700 REV. 0

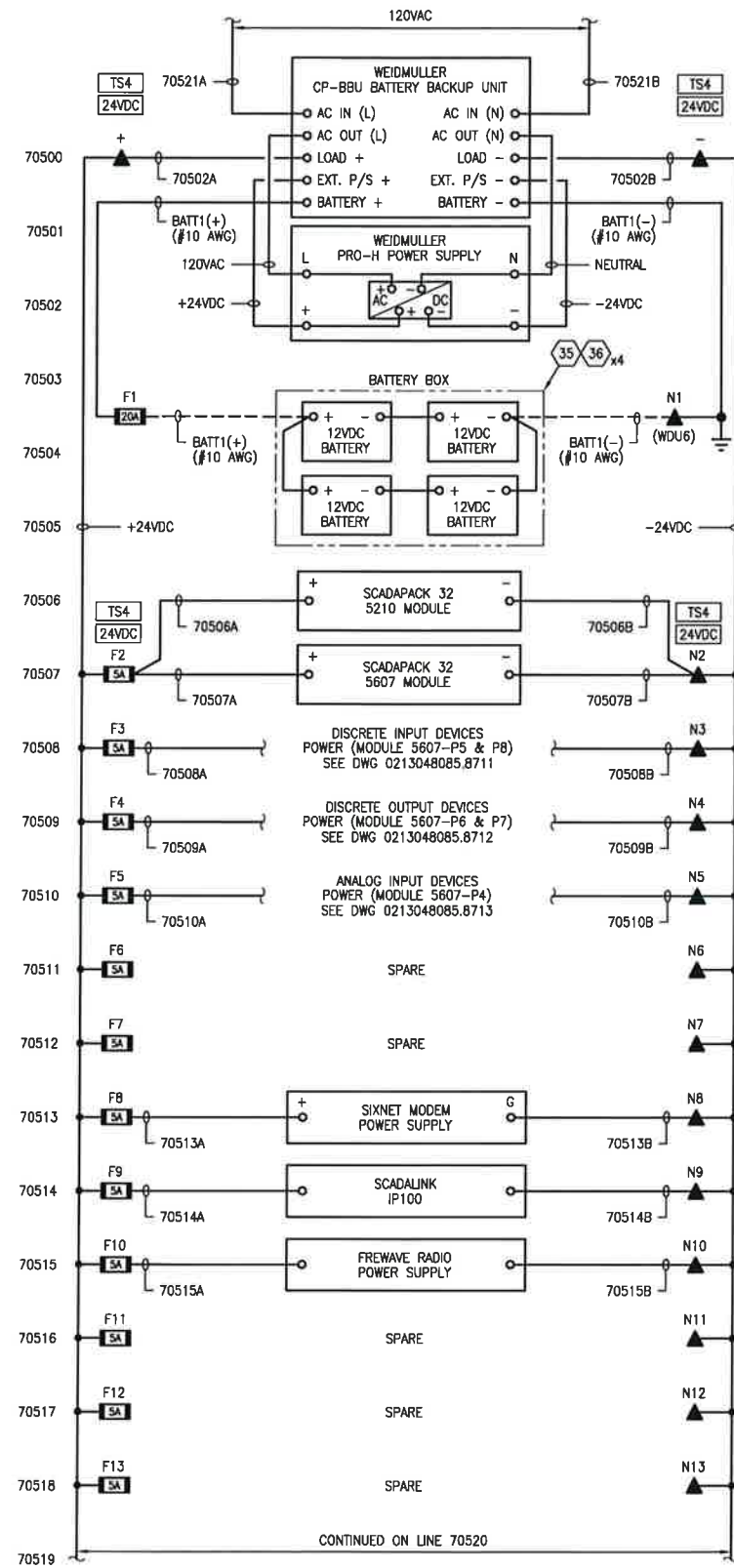
PEMBINA
 02-13-048-08 W5M
 2-13 SATELLITE
 RTU CONTROL PANEL 1 - LAYOUT

PLOT BY: APERKINS, 10/10/2014 9:18 AM

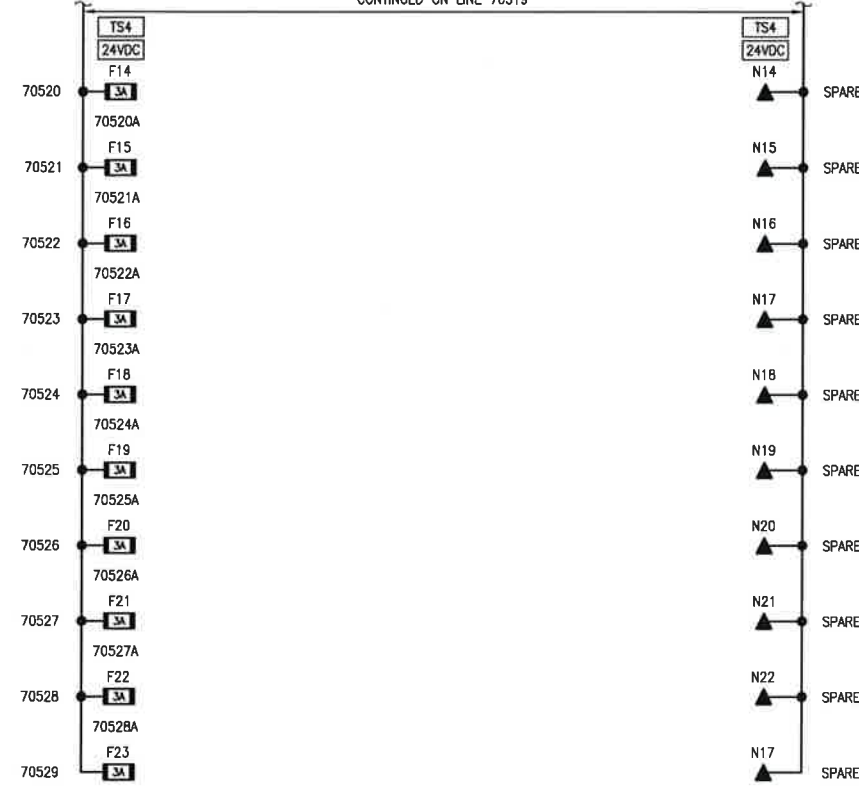
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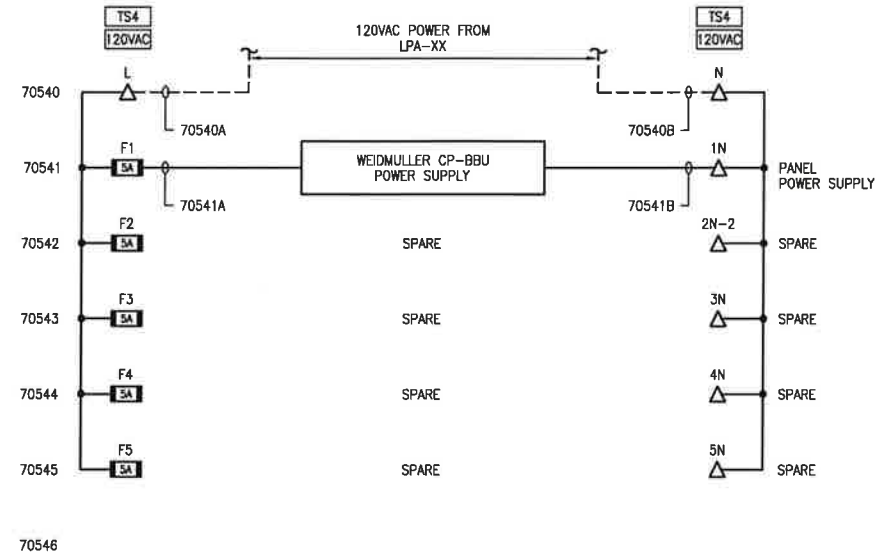
DC POWER DISTRIBUTION



CONTINUED ON LINE 70519



AC POWER DISTRIBUTION



LEGEND:

- PLC CONTROL PANEL FUSED DISCONNECT
- PLC CONTROL PANEL DISCONNECT TERMINAL
- PLC CONTROL PANEL TERMINAL (24VDC)
- PLC CONTROL PANEL TERMINAL (120VAC)
- VENDOR PANEL TERMINAL (24VDC)
- VENDOR PANEL TERMINAL (120VAC)
- MCC/STARTER/VFD TERMINAL
- CONTACTOR PANEL TERMINAL (24VDC)
- CONTACTOR PANEL TERMINAL (120VAC)
- JB
- TS
- FIELD JUNCTION BOX TERMINAL

REV	DESCRIPTION	BY	MM/DD/YYYY	CHKD	APPD	JOB No.
A	ISSUED FOR PANEL CONSTRUCTION	WAP	10/08/2014	CM	JD	2136
0	ISSUED FOR CONSTRUCTION	WAP	10/07/2014	CM	JD	2136

PERMIT

Permit 1113

STAMP

Stamp area with signature and date: October 31, 2014

ARC RESOURCES LTD.

ENGINEERING RECORD			
DRAWN:	A. PERKINS	DATE:	08/11/2014
CHECKED:	C. McLAREN	DATE:	08/11/2014
APPROVED:	J. DECK	DATE:	08/11/2014
ENGINEER:	J. DECK	DATE:	08/11/2014

SCALE: NTS DWG: 0213048085.8705 REV: 0

PEMBINA
02-13-048-08 W5M
2-13 SATELLITE
RTU CONTROL PANEL - POWER DISTRIBUTION

TNT Engineering Ltd. SUITE 600, 639 - 5TH AVE SW
CALGARY, AB, T2P 0M9
(403) 387-2500 PHONE
(403) 387-2535 FAX

DRAWING SHEET SIZE: 11" x 17"

Z:\DRAFTING\JOBS\ARC RESOURCES LTD\PEMBINA\MPA 8\02-13-048-08 WSM\ELECTRICAL\0213048085.8710.DWG

PLOT BY: APERKINS, 10/10/2014 9:19 AM

REV	DESCRIPTION	BY	MM/DD/YYYY	CHKD	APPD	JOB No.
A	ISSUED FOR PANEL CONSTRUCTION	WAP	10/08/2014	CM	JD	2136
0	ISSUED FOR CONSTRUCTION	WAP	10/07/2014	CM	JD	2136

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STAMP

October 31, 2014

ARC RESOURCES LTD.

ENGINEERING RECORD

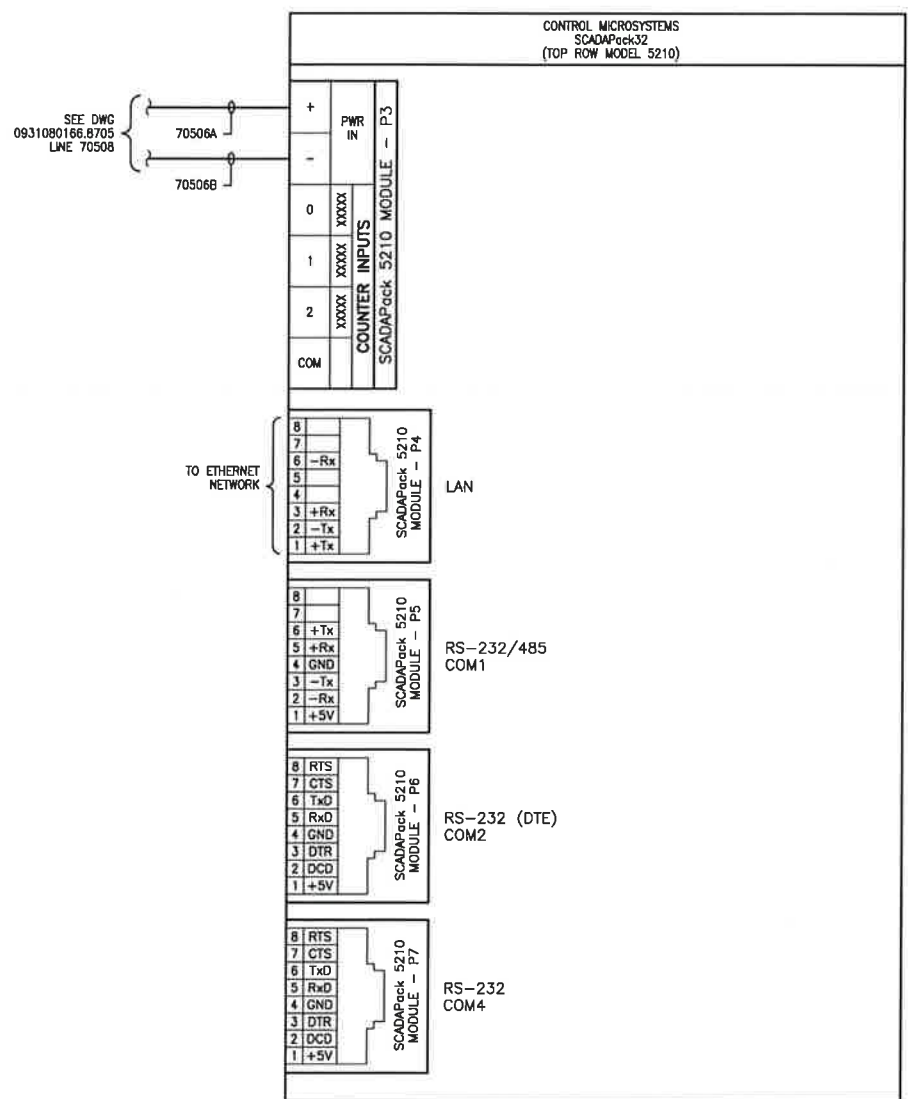
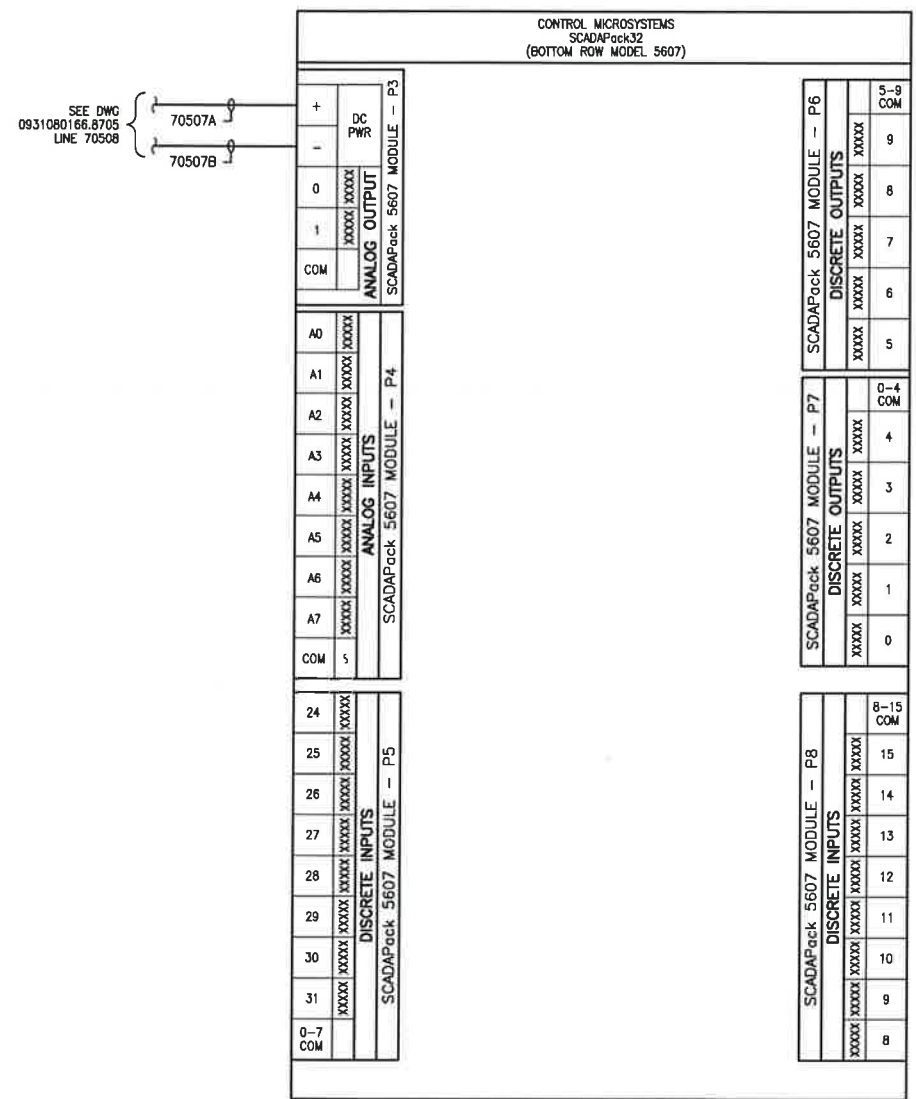
DRAWN:	A. PERKINS	DATE:	08/11/2014
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ENGINEER:	J. DECK	DATE:	08/11/2014

TNT Engineering Ltd.

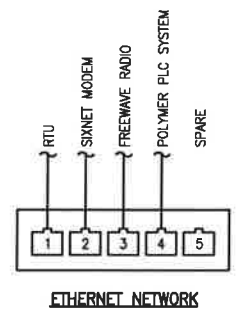
SUITE 600, 639 - 5TH AVE SW
CALGARY, AB, T2P 0M9
(403) 387-2500 PHONE
(403) 387-2535 FAX

PEMBINA
02-13-048-08 WSM
2-13 SATELLITE
RTU CONTROL PANEL - SCADAPack 334 LAYOUT

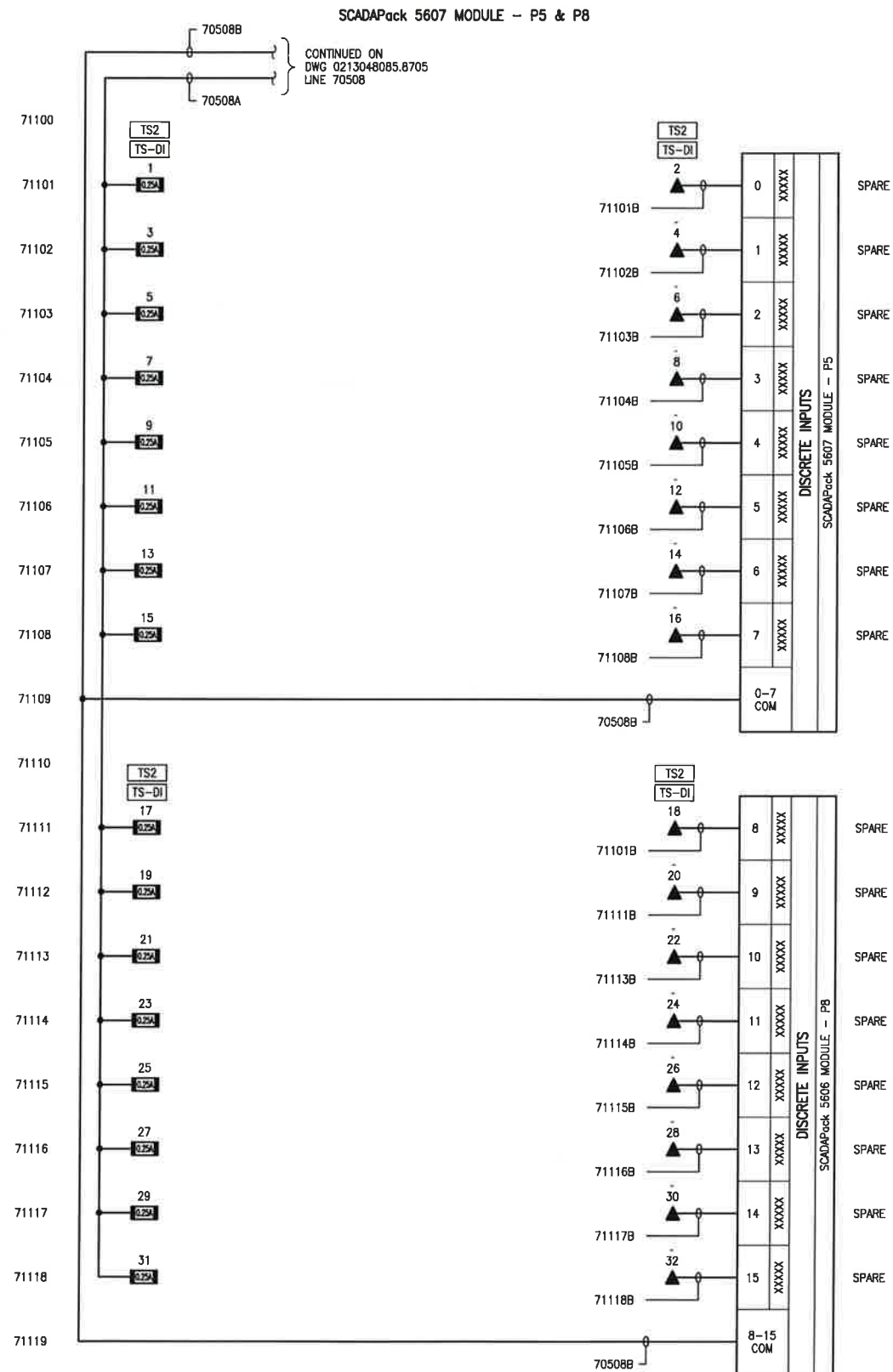
SCALE NTS DWG 0213048085.8710 REV. 0



- LEGEND:
- PLC CONTROL PANEL FUSED DISCONNECT
 - PLC CONTROL PANEL DISCONNECT TERMINAL
 - PLC CONTROL PANEL TERMINAL (24VDC)
 - PLC CONTROL PANEL TERMINAL (120VAC)
 - VENDOR PANEL TERMINAL (24VDC)
 - VENDOR PANEL TERMINAL (120VAC)
 - MCC/STARTER/VFD TERMINAL
 - CONTACTOR PANEL TERMINAL (24VDC)
 - CONTACTOR PANEL TERMINAL (120VAC)
 - JB
 - TS
 - FIELD JUNCTION BOX TERMINAL

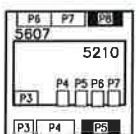


PLOT BY: APERKINS, 10/10/2014 9:17 AM



LEGEND:

- | | |
|---|---------------------------------------|
|  | PLC CONTROL PANEL FUSED DISCONNECT |
|  | PLC CONTROL PANEL DISCONNECT TERMINAL |
|  | PLC CONTROL PANEL TERMINAL (24VDC) |
|  | PLC CONTROL PANEL TERMINAL (120VAC) |
|  | VENDOR PANEL TERMINAL (24VDC) |
|  | VENDOR PANEL TERMINAL (120VAC) |
|  | MCC/STARTER/VFD TERMINAL |
|  | CONTACTOR PANEL TERMINAL (24VDC) |
|  | CONTACTOR PANEL TERMINAL (120VAC) |
| JB
TS | |
|  | FIELD JUNCTION BOX TERMINAL |



RTU LAYOUT

[illegible]

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Sayan Del
October 31, 2019

ARC RESOURCES LTD.

TNT Engineering Ltd.
SUITE 600, 639 - 5TH AVE SW
CALGARY, AB, T2P 0M9
(403) 387-2500 PHONE
(403) 387-2535 FAX

PEMBINA
02-13-048-08 W5M
2-13 SATELLITE
RTU CONTROL PANEL - DIGITAL INPUTS

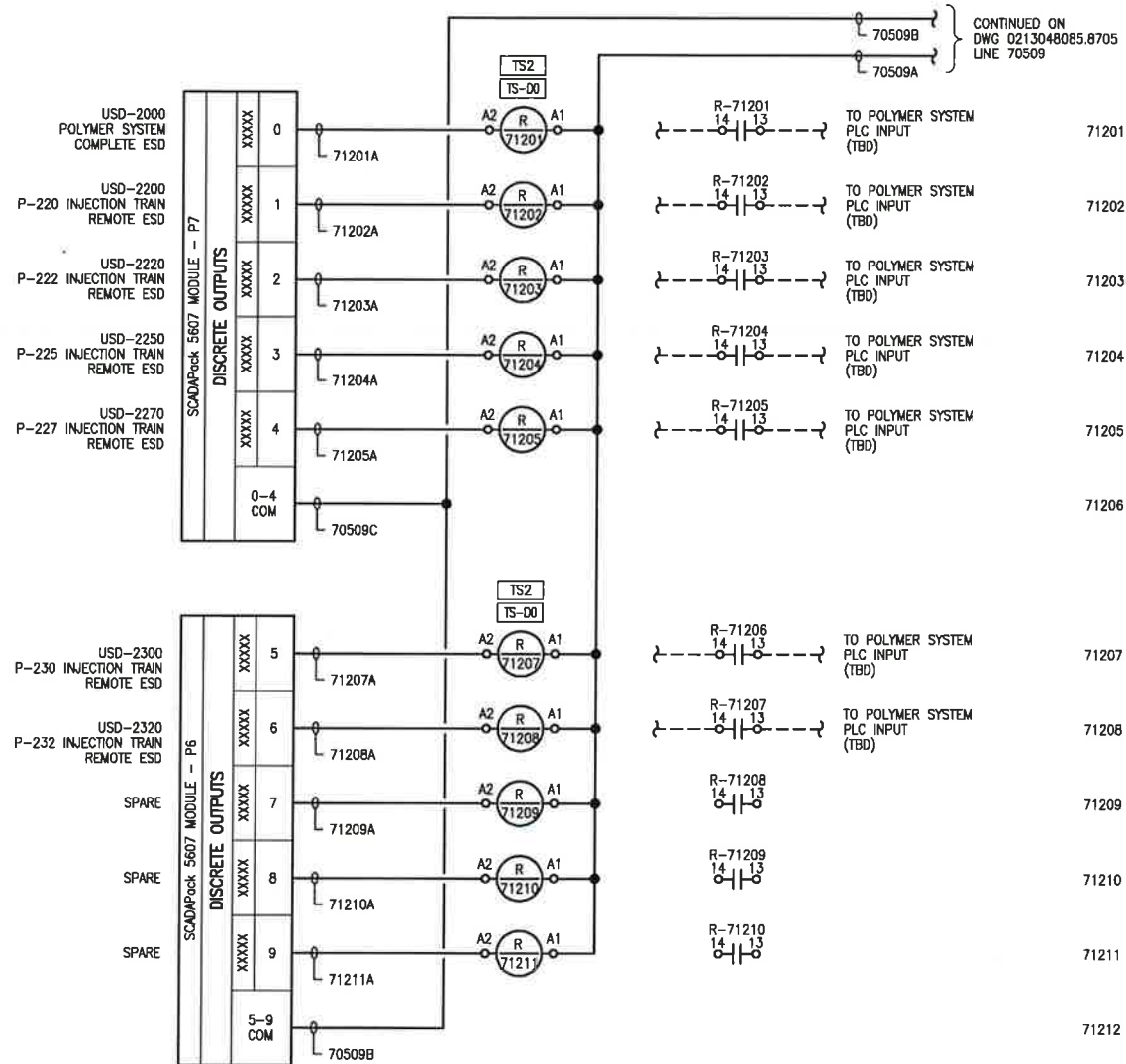
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PLOT BY: APERKINS, 10/10/2014 9:19 AM

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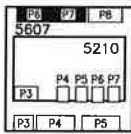
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SCADAPack 5607 MODULE - P6 & P7



LEGEND:

- PLC CONTROL PANEL FUSED DISCONNECT
- PLC CONTROL PANEL DISCONNECT TERMINAL
- PLC CONTROL PANEL TERMINAL (24VDC)
- PLC CONTROL PANEL TERMINAL (120VAC)
- VENDOR PANEL TERMINAL (24VDC)
- VENDOR PANEL TERMINAL (120VAC)
- MCC/STARTER/VFD TERMINAL
- CONTACTOR PANEL TERMINAL (24VDC)
- CONTACTOR PANEL TERMINAL (120VAC)
- JB TS
- FIELD JUNCTION BOX TERMINAL



RTU LAYOUT

REV	DESCRIPTION	BY	MM/DD/YYYY	CHKD	APPD	JOB No.
A	ISSUED FOR PANEL CONSTRUCTION	WAP	10/07/2014	CM	JD	2136
0	ISSUED FOR CONSTRUCTION	WAP	10/07/2014	CM	JD	2136

PERMIT

Permit 11113

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ARC RESOURCES LTD.

ENGINEERING RECORD			
DRAWN:	A. PERKINS	DATE:	08/11/2014
CHECKED:	C. McLAREN	DATE:	08/11/2014
APPROVED:	J. DECK	DATE:	08/11/2014
ENGINEER:	J. DECK	DATE:	08/11/2014

PEMBINA
02-13-048-08 W5M
2-13 SATELLITE
RTU CONTROL PANEL - DIGITAL OUTPUTS

SCALE	NTS	DWG	0213048085.8712	REV.	0
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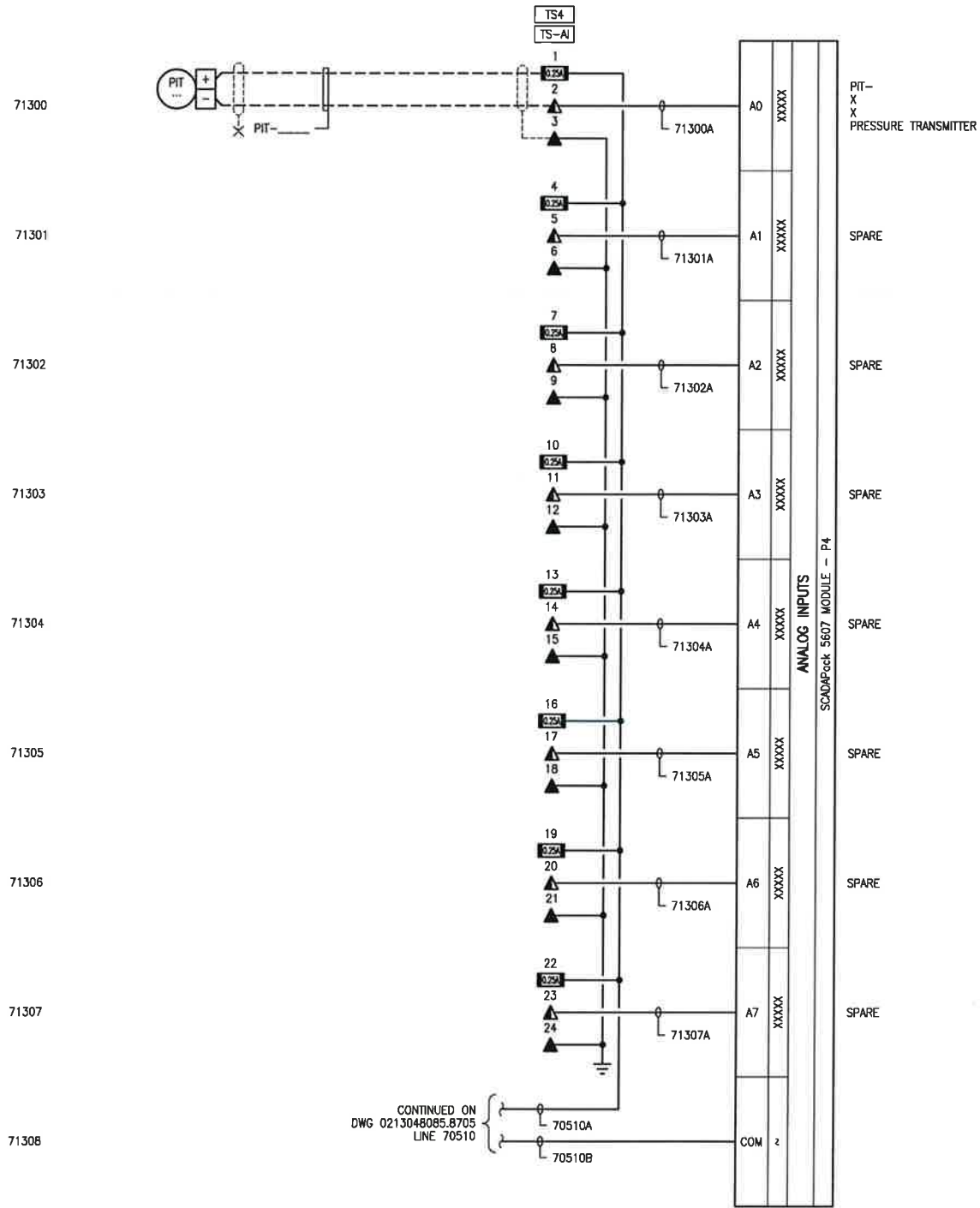
TNT Engineering Ltd.
SUITE 600, 639 - 5TH AVE SW
CALGARY, AB, T2P 0M9
(403) 387-2500 PHONE
(403) 387-2535 FAX

PLOT BY: APERKINS, 10/10/2014 9:19 AM

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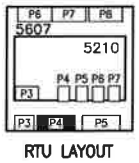
DRAWING SHEET SIZE: 11" x 17"

SCADAPack 5607 MODULE - P4



LEGEND:

- PLC CONTROL PANEL FUSED DISCONNECT
- PLC CONTROL PANEL DISCONNECT TERMINAL
- PLC CONTROL PANEL TERMINAL (24VDC)
- PLC CONTROL PANEL TERMINAL (120VAC)
- VENDOR PANEL TERMINAL (24VDC)
- VENDOR PANEL TERMINAL (120VAC)
- MCC/STARTER/VFD TERMINAL
- CONTACTOR PANEL TERMINAL (24VDC)
- CONTACTOR PANEL TERMINAL (120VAC)
- JB
TS
FIELD JUNCTION BOX TERMINAL



REV	DESCRIPTION	BY	MM/DD/YYYY	CHKD	APPD	JOB No.
A	ISSUED FOR PANEL CONSTRUCTION	WAP	10/08/2014	CM	JD	2136
0	ISSUED FOR CONSTRUCTION	WAP	10/07/2014	CM	JD	2136

PERMIT

Permit 1143

STAMP

October 31, 2014

ARC RESOURCES LTD.

ENGINEERING RECORD			
DRAWN:	A. PERKINS	DATE:	08/11/2014
CHECKED:	C. McLAREN	DATE:	08/11/2014
APPROVED:	J. DECK	DATE:	08/11/2014
ENGINEER:	J. DECK	DATE:	08/11/2014

SCALE	DWG	REV.
NTS	0213048085.8713	0

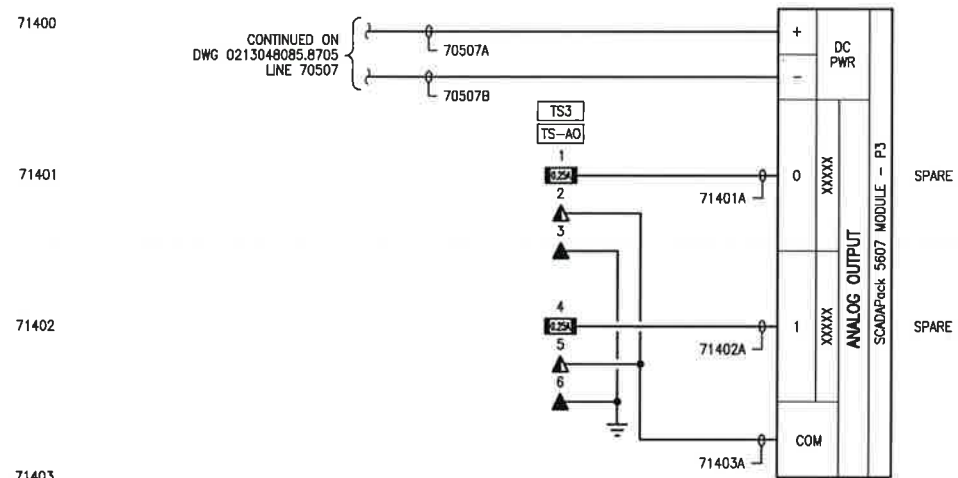
TNT Engineering Ltd.
SUITE 600, 639 - 5TH AVE SW
CALGARY, AB, T2P 0M9
(403) 387-2500 PHONE
(403) 387-2535 FAX

PEMBINA
02-13-048-08 W5M
2-13 SATELLITE
RTU CONTROL PANEL - ANALOG INPUTS

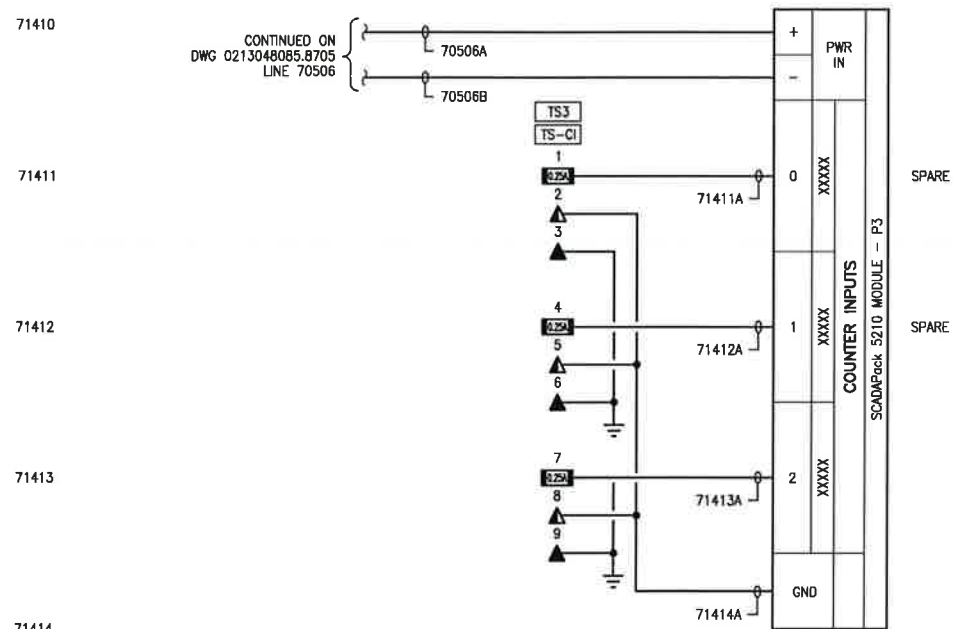
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SCADAPack 5607 MODULE - P3

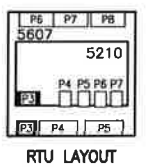


SCADAPack 5210 MODULE - P3



LEGEND:

- 6.25A
- PLC CONTROL PANEL FUSED DISCONNECT
- ▲
- PLC CONTROL PANEL DISCONNECT TERMINAL
- ▲
- PLC CONTROL PANEL TERMINAL (24VDC)
- △
- PLC CONTROL PANEL TERMINAL (120VAC)
-
- VENDOR PANEL TERMINAL (24VDC)
-
- VENDOR PANEL TERMINAL (120VAC)
- ◇
- MCC/STARTER/VFD TERMINAL
-
- CONTACTOR PANEL TERMINAL (24VDC)
-
- CONTACTOR PANEL TERMINAL (120VAC)
- JB
- TS
- 100
- FIELD JUNCTION BOX TERMINAL



REV	DESCRIPTION	BY	MM/DD/YYYY	CHKD	APPD	JOB No.
A	ISSUED FOR PANEL CONSTRUCTION	WAP	10/08/2014	CM	JD	2136
0	ISSUED FOR CONSTRUCTION	WAP	10/07/2014	CM	JD	2136

PERMIT

Permit 1143



ARC RESOURCES LTD.

ENGINEERING RECORD			
DRAWN:	A. PERKINS	DATE:	08/11/2014
CHECKED:	C. McLAREN	DATE:	08/11/2014
APPROVED:	J. DECK	DATE:	08/11/2014
ENGINEER:	J. DECK	DATE:	08/11/2014

S LTD.		SUITE 600, 639 - 5TH AVE SW CALGARY, AB, T2P 0M9 (403) 387-2500 PHONE (403) 387-2535 FAX
PEMBINA 02-13-048-08 W5M 2-13 SATELLITE RTU CONTROL PANEL - ANALOG OUTPUTS/COUNTERS		
SCALE	NTS	DWG 0213048085.8714
		REV. 0

REV	DESCRIPTION	BY	MM/DD/YYYY	CHKD	APPD	JOB No.
A	ISSUED FOR PANEL CONSTRUCTION	WAP	10/08/2014	CM	JD	2136
0	ISSUED FOR CONSTRUCTION	WAP	10/07/2014	CM	JD	2136

PERMIT
Permit 1113

STAMP

October 31, 2014

ARC RESOURCES LTD.

ENGINEERING RECORD

DRAWN:	A. PERKINS	DATE:	08/11/2014
CHECKED:	C. McLAREN	DATE:	08/11/2014
APPROVED:	J. DECK	DATE:	08/11/2014
ENGINEER:	J. DECK	DATE:	08/11/2014

TNT Engineering Ltd.

SUITE 600, 639 - 5TH AVE SW
CALGARY, AB, T2P 0M9
(403) 387-2500 PHONE
(403) 387-2535 FAX

PEMBINA
02-13-048-08 W5M
2-13 SATELLITE
RTU CONTROL PANEL - COMMUNICATION SCHEMATICS

SCALE	NTS	DWG	0213048085.8715	REV.	0
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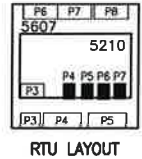
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	PLC CONTROL PANEL DISCONNECT TERMINAL
	PLC CONTROL PANEL TERMINAL (12VDC)
	PLC CONTROL PANEL TERMINAL (120VAC)
	VENDOR PANEL TERMINAL (12VDC)
	VENDOR PANEL TERMINAL (120VAC)
	MCC/STARTER/VFD TERMINAL
	CONTACTOR PANEL TERMINAL (12VDC)
	CONTACTOR PANEL TERMINAL (120VAC)
JB	FIELD JUNCTION BOX
TS	TERMINAL STRIP
	FIELD JUNCTION BOX TERMINAL

TYPICAL PANEL WIRING COLOUR CODES:

• AC HOT:	BLACK
• AC NEUTRAL:	WHITE
• AC GROUND:	GREEN/YELLOW TRACE
• AC LOGIC:	BROWN
• DC POSITIVE:	RED
• DC NEGATIVE:	BLUE
• DC LOGIC:	**SEE BELOW**
• AC INVERTER:	BLACK
• IS (INTRINSICALLY SAFE):	LIGHT BLUE
• ANALOG INPUT:	PURPLE
• ANALOG OUTPUT:	GREY
• DIGITAL INPUT:	YELLOW
• DIGITAL OUTPUT:	ORANGE

TYPICAL PANEL WIRE GAUGE SIZING:

• POWER CONDUCTORS:	14 AWG TINNED TEW STRANDED COPPER RATED 105° C, 600V
• DISCRETE LOGIC:	16 AWG TINNED TEW STRANDED COPPER RATED 105° C, 600V
• ANALOG LOGIC:	18 AWG TINNED TEW STRANDED COPPER RATED 105° C, 600V

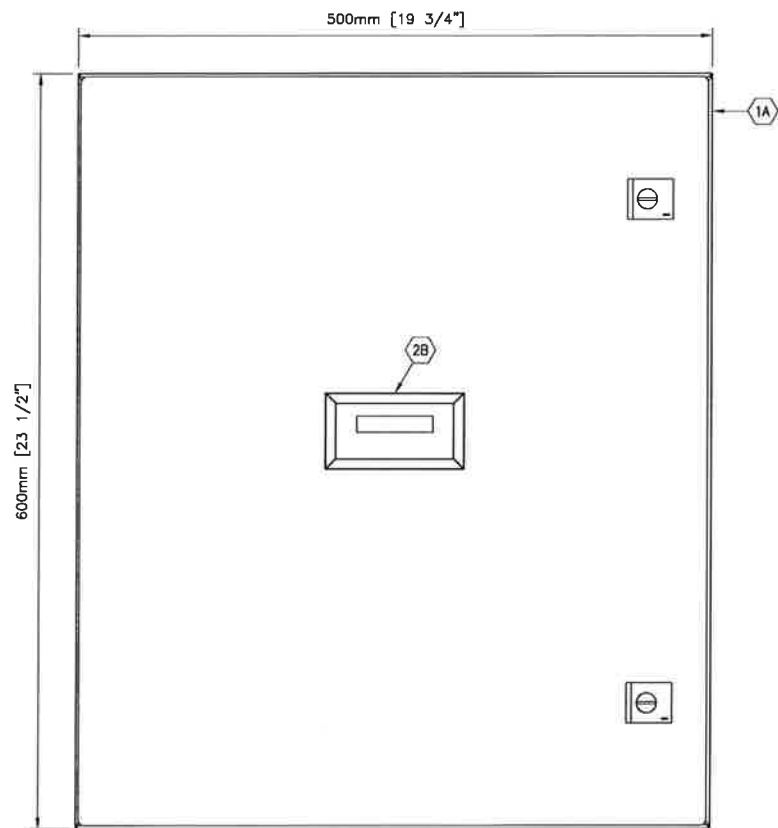


PLOT BY: CPERKINS, 10/8/2014 10:29 AM

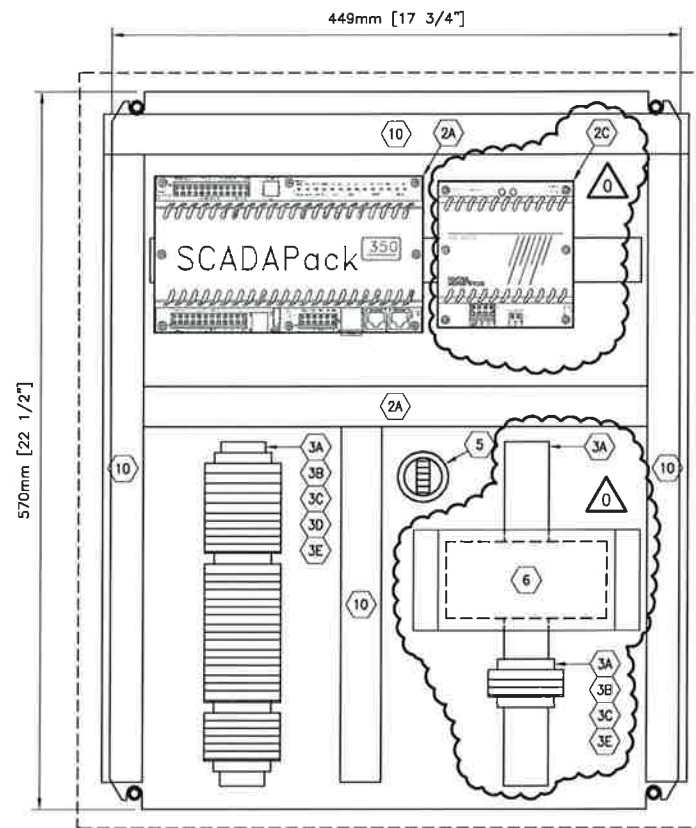
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DRAWING SHEET SIZE: 11" x 17"

GENERAL PURPOSE ENCLOSURE



FRONT VIEW



BACKPAN LAYOUT

(X)		MATERIAL LIST				
ITEM	QTY.	DESCRIPTION	MANUFACTURER	CATALOG NO.	SIZE	SUPPLIER
1A	1	CARBON STEEL ENCLOSURE (NEMA 4)	RIITAL	8017.546	500x600x210	-
1B	4	MOUNTING FEET	-	-	-	-
2A	1	SCADAPACK 350 RTU	CONTROL MICROSYSTEMS	SCADAPACK 350	-	-
2B	1	SCADAPACK VISION 10 HMI	CONTROL MICROSYSTEMS	VISION 10	-	-
2C	1	SCADAPACK HART MODULE	CONTROL MICROSYSTEMS	5904	-	OWNER
3A	AS REQ'D	MOUNTING RAIL	WEIDMULLER	-	TS 35	-
3B	12	FUSED DISCONNECT TERMINAL	WEIDMULLER	-	WSI 6	-
3C	18	TERMINAL	WEIDMULLER	-	WDU 4	-
3D	16	TERMINAL	WEIDMULLER	-	WPE 4	-
3E	6	END BRACKET	WEIDMULLER	0383560000	EW 35	-
4A	5	GMA GLASS FUSE (2 SPARES)	BUSSMAN	GMA 5A	5 AMP	-
4B	7	GMA GLASS FUSE (2 SPARES)	BUSSMAN	GMA 250mA	250mA	-
5	-	TURBINE PRE-AMPLIFIER	-	-	-	-
6	1	900MHz INDUSTRIAL RADIO	FREEMAN	FGR2-C-U	900MHz	-
7						
8						
9						
10	AS REQ'D	WIREWAY & COVER (WHITE)	PANDUIT	F1X3WH6	32 x 79	VENDOR

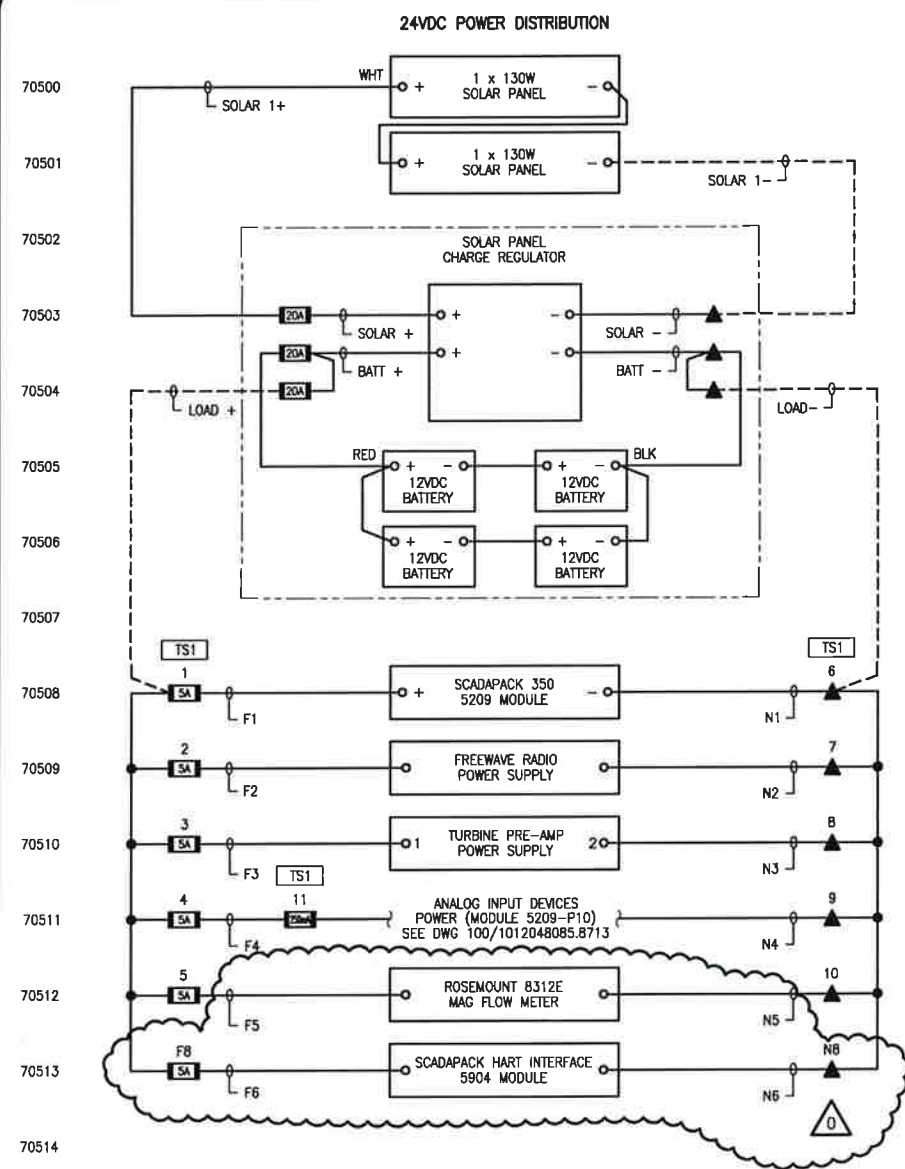
REV	DESCRIPTION	BY	MM/DD/YYYY	CHKD	APPD	JOB No.
0	ISSUED FOR CONSTRUCTION	WAP	10/10/2014	CM	JD	2136

PERMIT
Permit 1113

STAMP
Stamp: J. Deck, October 31, 2014

				SUITE 600, 639 - 5TH AVE SW CALGARY, AB, T2P 0M9 (403) 387-2500 PHONE (403) 387-2535 FAX	
ENGINEERING RECORD			PEMBINA		
DRAWN:	A. PERKINS	DATE:	08/11/2014	100/10-12-48-08 W5M CDG WATER INJECTION AREA RTU CONTROL PANEL 1 - LAYOUT	
CHECKED:	C. McLAREN	DATE:	08/11/2014		
APPROVED:	J. DECK	DATE:	08/11/2014		
ENGINEER:	J. DECK	DATE:	08/11/2014		
SCALE		1:3	DWG	100/1012048085.8700	REV. 0

PLOT BY: APERKINS, 10/31/2014 10:25 AM
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DRAWING SHEET SIZE: 11" x 17"



LEGEND:

- PLC CONTROL PANEL FUSED DISCONNECT
- PLC CONTROL PANEL DISCONNECT TERMINAL
- PLC CONTROL PANEL TERMINAL (24VDC)
- PLC CONTROL PANEL TERMINAL (120VAC)
- VENDOR PANEL TERMINAL (24VDC)
- VENDOR PANEL TERMINAL (120VAC)
- MCC/STARTER/VFD TERMINAL
- CONTACTOR PANEL TERMINAL (24VDC)
- CONTACTOR PANEL TERMINAL (120VAC)
- JB TS
- FIELD JUNCTION BOX TERMINAL

REV	DESCRIPTION	BY	MM/DD/YYYY	CHKD	APPD	JOB No.
0	ISSUED FOR CONSTRUCTION	WAP	10/10/2014	CM	JD	2136

PERMIT
Permit 1113



ENGINEERING RECORD		
DRAWN:	A. PERKINS	DATE: 08/11/2014
CHECKED:	C. McLAREN	DATE: 08/11/2014
APPROVED:	J. DECK	DATE: 08/11/2014
ENGINEER:	J. DECK	DATE: 08/11/2014

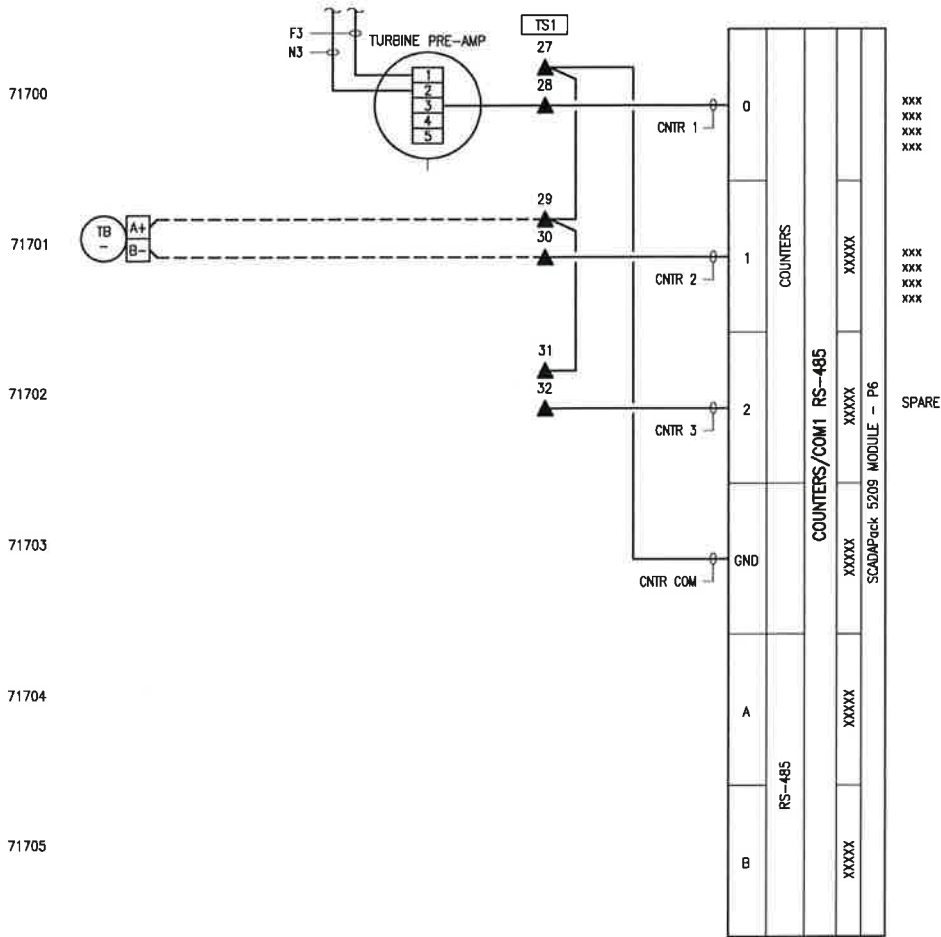
ARC RESOURCES LTD.		TNT Engineering Ltd.		SUITE 600, 639 - 5TH AVE SW CALGARY, AB, T2P 0M9 (403) 387-2500 PHONE (403) 387-2535 FAX	
PEMBINA 100/10-12-48-08 W5M CDG WATER INJECTION AREA RTU CONTROL PANEL 1 - POWER DISTRIBUTION					
SCALE	NTS	DWG	100/1012048085.8705	REV.	0

PLOT BY: CPERKINS, 10/8/2014 10:29 AM

Z:\DRAFTING\JOBS\ARC RESOURCES LTD\PEMBINA\W5M\ELECTRICAL\100~1012048085.8712.DWG

DRAWING SHEET SIZE: 11" x 17"

SCADAPack 5209 MODULE - P6



REV	DESCRIPTION	BY	MM/DD/YYYY	CHKD	APPD	JOB No.
0	ISSUED FOR CONSTRUCTION	WAP	10/10/2014	CM	JD	2136

PERMIT
Permit 1143



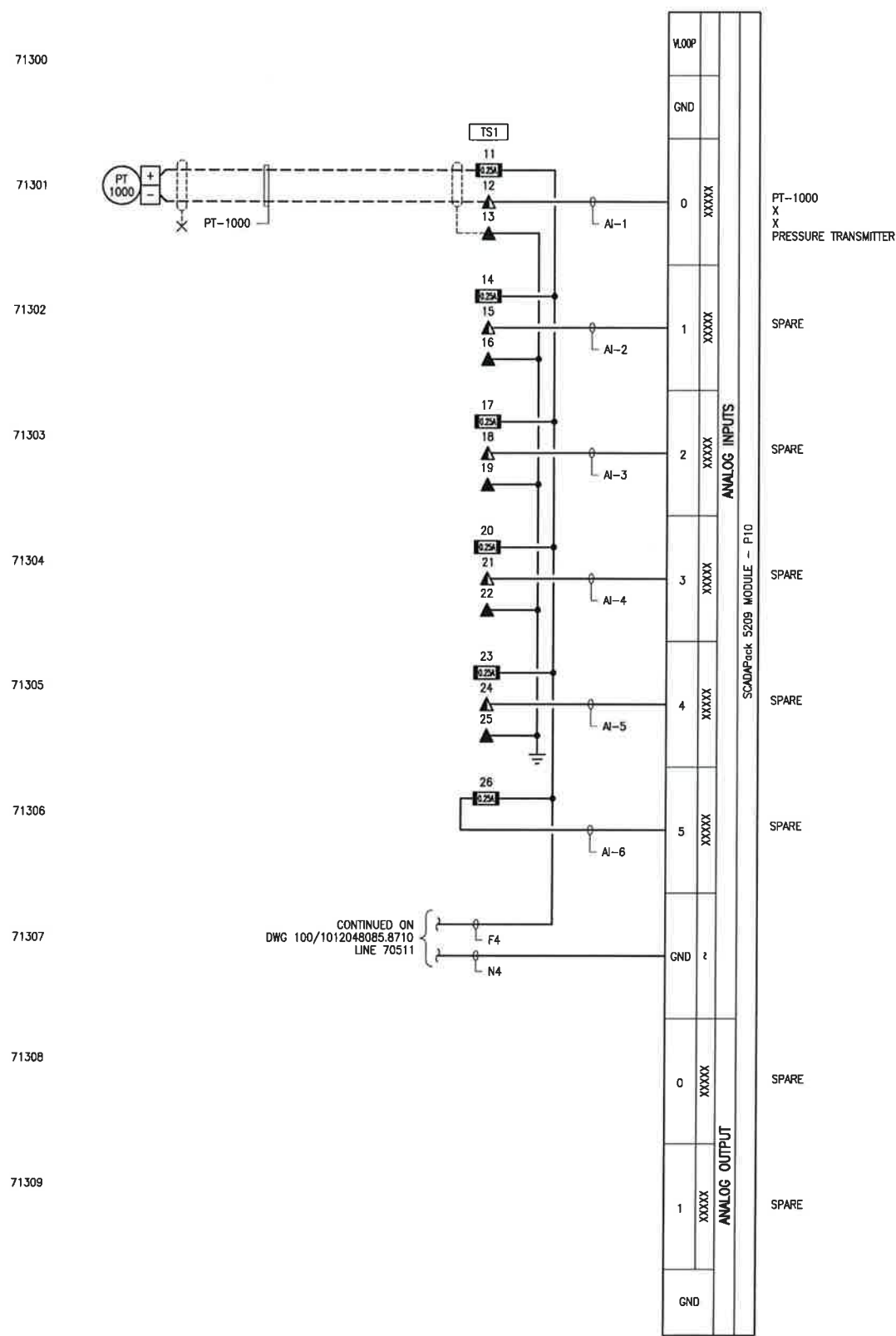
ENGINEERING RECORD				PEMBINA			
DRAWN:	A. PERKINS	DATE:	08/11/2014	100/10-12-48-08 W5M CDG WATER INJECTION AREA RTU CONTROL PANEL 1 - COUNTER INPUTS			
CHECKED:	C. McLAREN	DATE:	08/11/2014				
APPROVED:	J. DECK	DATE:	08/11/2014				
ENGINEER:	J. DECK	DATE:	08/11/2014				
SCALE		NTS	DWG	100/1012048085.8712		REV:	0

\\INTSERVER\COMPANY SHARED FOLDER\DRAWING\JOBS\ARC RESOURCES LTD\PEMBINA\W5M\ELECTRICAL\100-1012048085.8713.DWG

PLT BY: CPERKINS, 10/17/2014 1:59 PM

DRAWING SHEET SIZE: 11" x 17"

SCADAPack 5209 MODULE - P10



CONTINUED ON
DWG 100/1012048085.8710
LINE 70511

LEGEND:

- PLC CONTROL PANEL FUSED DISCONNECT
- PLC CONTROL PANEL DISCONNECT TERMINAL
- PLC CONTROL PANEL TERMINAL (24VDC)
- PLC CONTROL PANEL TERMINAL (120VAC)
- VENDOR PANEL TERMINAL (24VDC)
- VENDOR PANEL TERMINAL (120VAC)
- MCC/STARTER/VFD TERMINAL
- CONTACTOR PANEL TERMINAL (24VDC)
- CONTACTOR PANEL TERMINAL (120VAC)
- JB
- TS
- FIELD JUNCTION BOX TERMINAL

REV	DESCRIPTION	BY	MM/DD/YYYY	CHKD	APPD	JOB No.
0	ISSUED FOR CONSTRUCTION	WAP	10/10/2014	CM	JD	2136

PERMIT

Permit 1443

STAMP

October 31, 2014

ARC RESOURCES LTD.

ENGINEERING RECORD		
DRAWN:	A. PERKINS	DATE: 08/11/2014
CHECKED:	C. McLAREN	DATE: 08/11/2014
APPROVED:	J. DECK	DATE: 08/11/2014
ENGINEER:	J. DECK	DATE: 08/11/2014

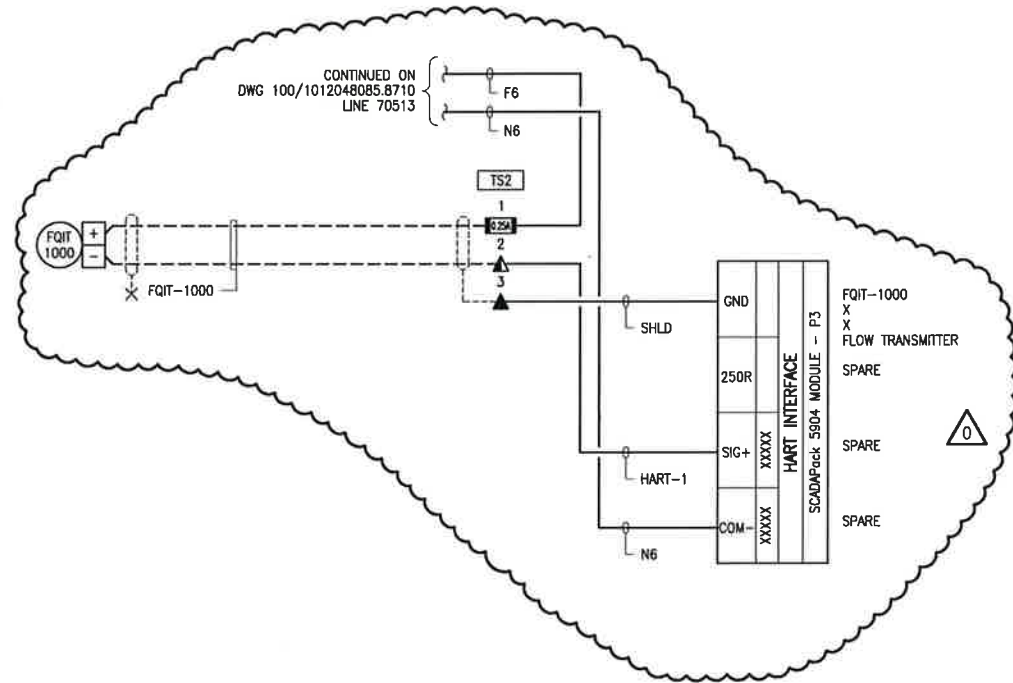
TNT Engineering Ltd.

SUITE 600, 639 - 5TH AVE SW
CALGARY, AB, T2P 0M9
(403) 387-2500 PHONE
(403) 387-2535 FAX

PEMBINA
100/10-12-48-08 W5M
CDG WATER INJECTION AREA
RTU CONTROL PANEL 1 ANALOG INPUTS/OUTPUTS

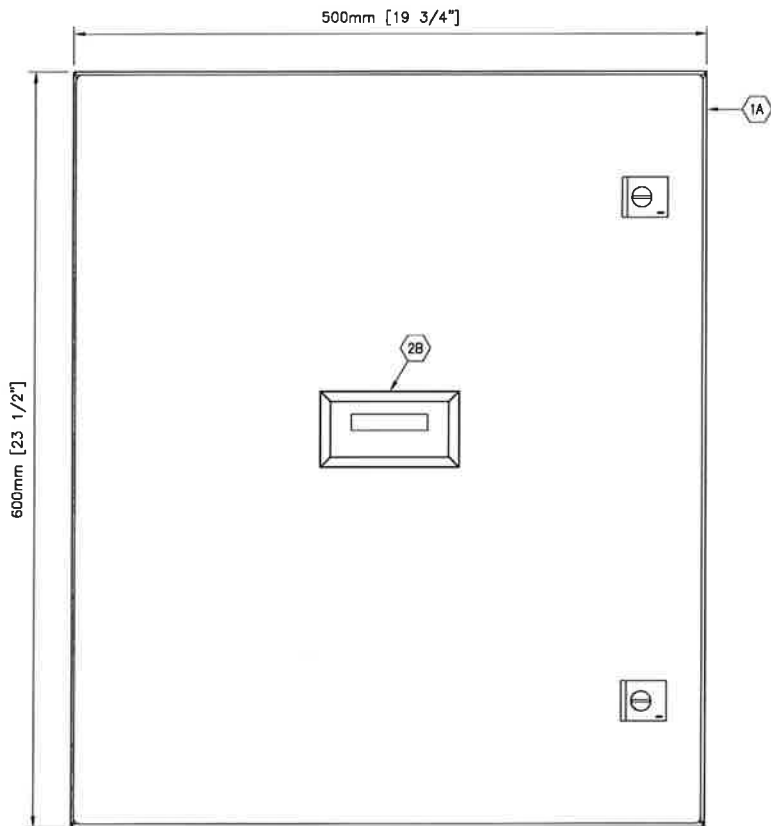
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71409

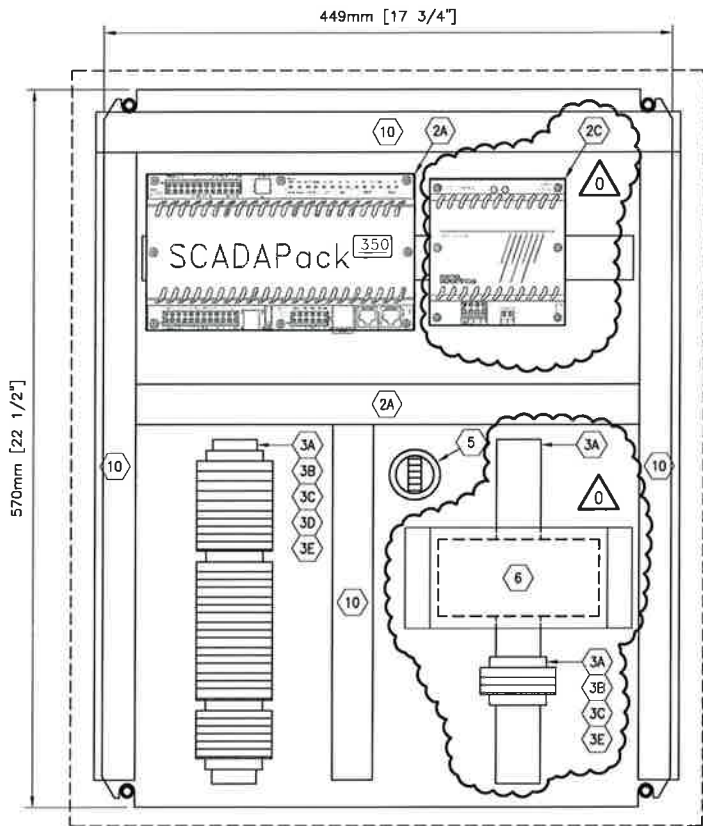


REV	DESCRIPTION	BY	MM/DD/YYYY	CHKD	APPD	JOB No.	PERMIT	STAMP	ARC RESOURCES LTD.		TNT Engineering Ltd. SUITE 600, 639 - 5TH AVE SW CALGARY, AB, T2P 0M9 (403) 387-2500 PHONE (403) 387-2535 FAX				
0	ISSUED FOR CONSTRUCTION	WAP	10/10/2014	CM	JD	2136	Permit 11113		ENGINEERING RECORD		PEMBINA 100/10-12-48-08 W5M CDG WATER INJECTION AREA RTU CONTROL PANEL 1 - HART MODULE				
									DRAWN:	A. PERKINS	DATE:	08/11/2014	SCALE NTS	DWG 100/1012048085.8714	REV. 0
									CHECKED:	C. McLAREN	DATE:	08/11/2014			
									APPROVED:	J. DECK	DATE:	08/11/2014			
									ENGINEER:	J. DECK	DATE:	08/11/2014			

GENERAL PURPOSE ENCLOSURE



FRONT VIEW



BACKPAN LAYOUT

MATERIAL LIST						
ITEM	QTY.	DESCRIPTION	MANUFACTURER	CATALOG NO.	SIZE	SUPPLIER
1A	1	CARBON STEEL ENCLOSURE (NEMA 4)	RITTAL	8017.546	500x600x210	-
1B	4	MOUNTING FEET	-	-	-	-
2A	1	SCADAPACK 350 RTU	CONTROL MICROSYSTEMS	SCADAPACK 350	-	-
2B	1	SCADAPACK VISION 10 HMI	CONTROL MICROSYSTEMS	VISION 10	-	-
2C	1	SCADAPACK HART MODULE	CONTROL MICROSYSTEMS	5904	-	OWNER
3A	AS REQ'D	MOUNTING RAIL	WEIDMULLER	-	TS 35	-
3B	12	FUSED DISCONNECT TERMINAL	WEIDMULLER	-	WSI 6	-
3C	18	TERMINAL	WEIDMULLER	-	WOU 4	-
3D	15	TERMINAL	WEIDMULLER	-	WPE 4	-
3E	6	END BRACKET	WEIDMULLER	0383560000	EW 35	-
4A	5	GMA GLASS FUSE (2 SPARES)	BUSSMAN	GMA 5A	5 AMP	-
4B	7	GMA GLASS FUSE (2 SPARES)	BUSSMAN	GMA 250mA	250mA	-
5	-	TURBINE PRE-AMPLIFIER	-	-	-	-
6	1	900MHZ INDUSTRIAL RADIO	FREEWAVE	FGR2-C-U	900MHz	-
7	-	-	-	-	-	-
8	-	-	-	-	-	-
9	-	-	-	-	-	-
10	AS REQ'D	WIREWAY & COVER (WHITE)	PANDUIT	F1X3WH6	32 x 79	VENDOR

REV	DESCRIPTION	BY	MM/DD/YYYY	CHKD	APPD	JOB No.
0	ISSUED FOR CONSTRUCTION	WAP	10/10/2014	CM	JD	2136

PERMIT
Permit 11143

STAMP

Signature: Jayson Red

October 31, 2014

ENGINEERING RECORD			
DRAWN:	A. PERKINS	DATE:	08/11/2014
CHECKED:	C. McLAREN	DATE:	08/11/2014
APPROVED:	J. DECK	DATE:	08/11/2014
ENGINEER:	J. DECK	DATE:	08/11/2014

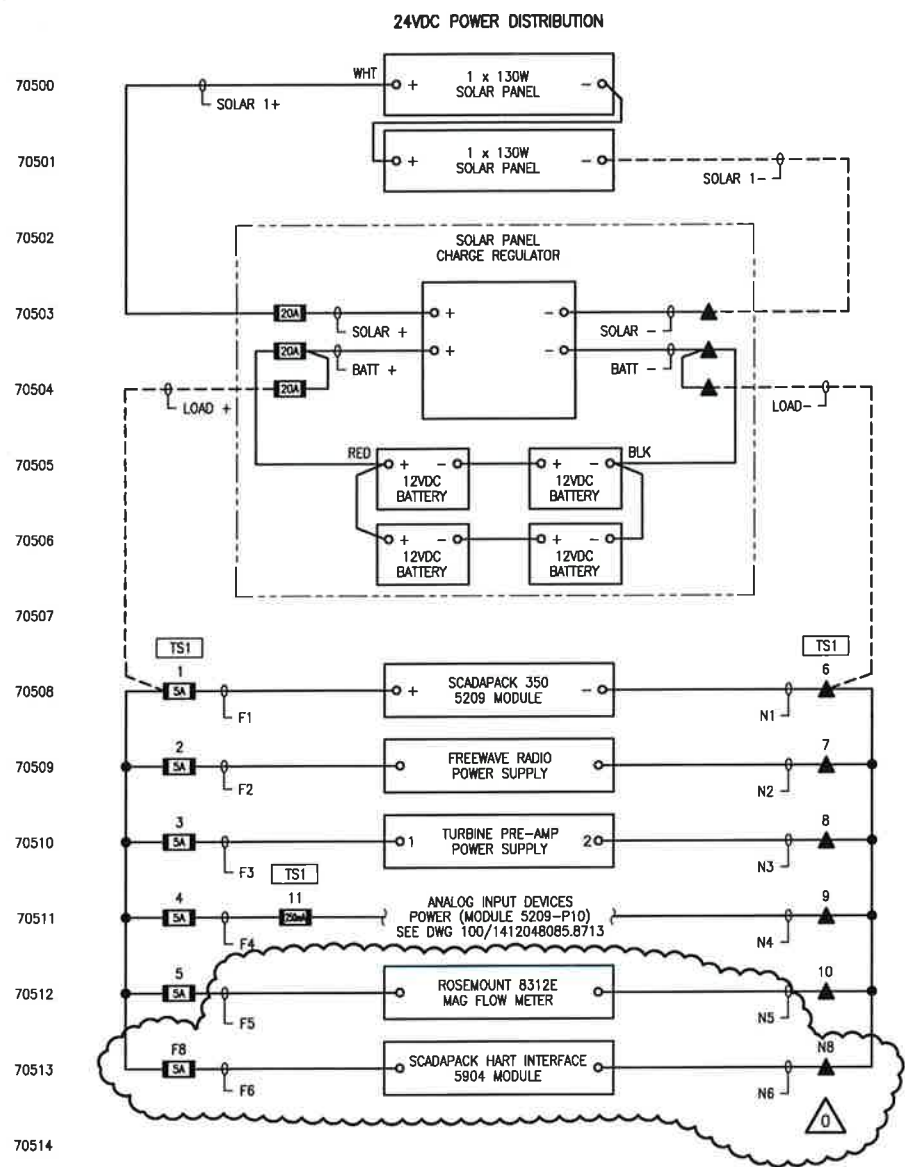
TNT Engineering Ltd.

SUITE 600, 639 - 5TH AVE SW
CALGARY, AB, T2P 0M9
(403) 387-2500 PHONE
(403) 387-2535 FAX

PEMBINA
100/14-12-48-08 W5M
CDG WATER INJECTION AREA
RTU CONTROL PANEL 1 - LAYOUT

SCALE 1:3
DWG 100/1412048085.8700
REV. 0

PLOT BY: APERKINS, 10/31/2014, 10:25 AM
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DRAWING SHEET SIZE: 11" x 17"



LEGEND:

- PLC CONTROL PANEL FUSED DISCONNECT
- PLC CONTROL PANEL DISCONNECT TERMINAL
- PLC CONTROL PANEL TERMINAL (24VDC)
- PLC CONTROL PANEL TERMINAL (120VAC)
- VENDOR PANEL TERMINAL (24VDC)
- VENDOR PANEL TERMINAL (120VAC)
- MCC/STARTER/VFD TERMINAL
- CONTACTOR PANEL TERMINAL (24VDC)
- CONTACTOR PANEL TERMINAL (120VAC)
- JB
- TS
- FIELD JUNCTION BOX TERMINAL

REV	DESCRIPTION	BY	MM/DD/YYYY	CHKD	APPD	JOB No.
0	ISSUED FOR CONSTRUCTION	WAP	10/10/2014	CM	JD	2136

PERMIT

Permit 1113

STAMP

October 31, 2014

ENGINEERING RECORD			
DRAWN:	A. PERKINS	DATE:	08/11/2014
CHECKED:	C. McLAREN	DATE:	08/11/2014
APPROVED:	J. DECK	DATE:	08/11/2014
ENGINEER:	J. DECK	DATE:	08/11/2014

ARC RESOURCES LTD.

TNT Engineering Ltd.

SUITE 600, 639 - 5TH AVE SW
CALGARY, AB, T2P 0M9
(403) 387-2500 PHONE
(403) 387-2535 FAX

PEMBINA
100/14-12-48-08 WSM
CDG WATER INJECTION AREA
RTU CONTROL PANEL 1 - POWER DISTRIBUTION

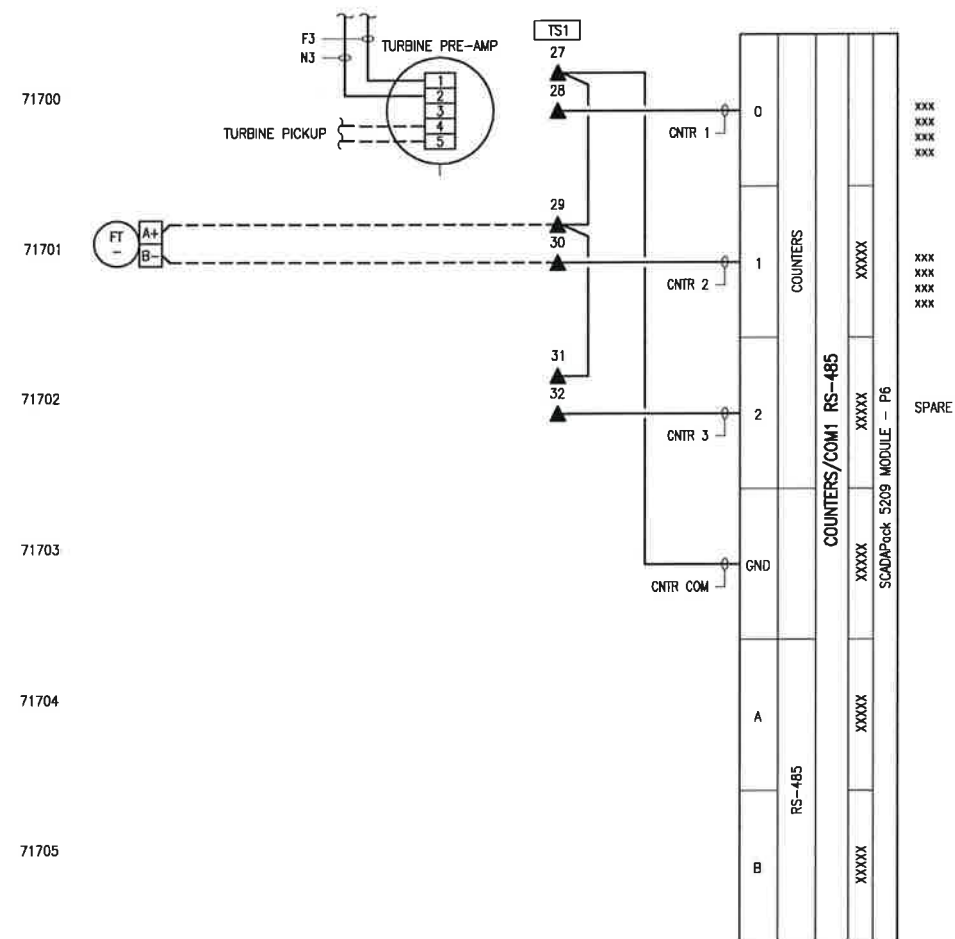
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DWG: 100/1412048085.8705

REV: 0

PLOT BY: CPERKINS, 10/8/2014, 10:09 AM
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DRAWING SHEET SIZE: 11" x 17"

SCADAPack 5209 MODULE - P6



REV	DESCRIPTION	BY	MM/DD/YYYY	CHKD	APPD	JOB No.
0	ISSUED FOR CONSTRUCTION	WAP	10/10/2014	CM	JD	2136

PERMIT
Permit 1113



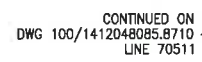
ENGINEERING RECORD	
DRAWN:	A. PERKINS
CHECKED:	C. McLAREN
APPROVED:	J. DECK
ENGINEER:	J. DECK

SUITE 600, 639 - 5TH AVE SW
CALGARY, AB, T2P 0M9
(403) 387-2500 PHONE
(403) 387-2535 FAX

PEMBINA
100/14-12-48-08 W5M
CDG WATER INJECTION AREA
RTU CONTROL PANEL 1 - COUNTER INPUTS

SCALE	NTS	DWG	100/1412048085.8712	REV.	0
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71309



PERMIT

Permit 11113

 ARC RESOURCES LTD.		RTU CO SCALE
ENGINEERING RECORD		
DRAWN: A. PERKINS	DATE: 08/11/2014	
CHECKED: C. McLAREN	DATE: 08/11/2014	
APPROVED: J. DECK	DATE: 08/11/2014	
ENGINEER: J. DECK	DATE: 08/11/2014	

		SUITE 600, 639 - 5TH AVE SW CALGARY, AB, T2P 0M9 (403) 387-2500 PHONE (403) 387-2535 FAX	
PEMBINA 100/14-12-48-08 W5M CDG WATER INJECTION AREA CONTROL PANEL 1 - ANALOG INPUTS/OUTPUTS			
NTS	DWG	100/1412048085.8713	REV. 0

71409



		SUITE 600, 639 - 5TH AVE SW CALGARY, AB, T2P 0M9 (403) 387-2500 PHONE (403) 387-2535 FAX	
PEMBINA 100/14-12-48-08 W5M CDG WATER INJECTION AREA TU CONTROL PANEL 1 - HART MODULE			
NTS	DWG	100/1412048085.8714	REV. 0

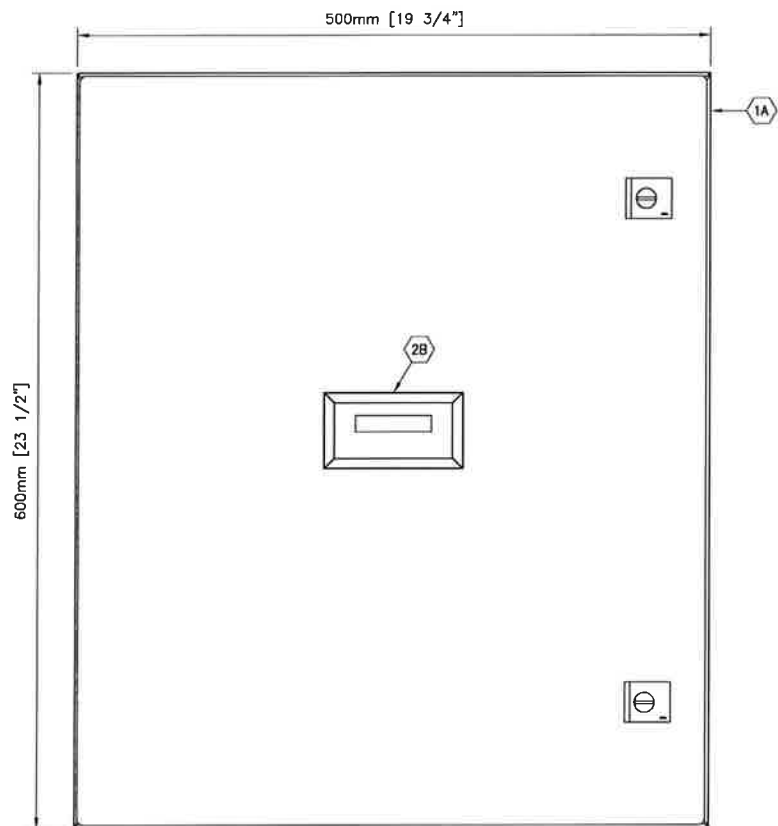
PLOT BY: CPERKINS, 10/8/2014 10:07 AM

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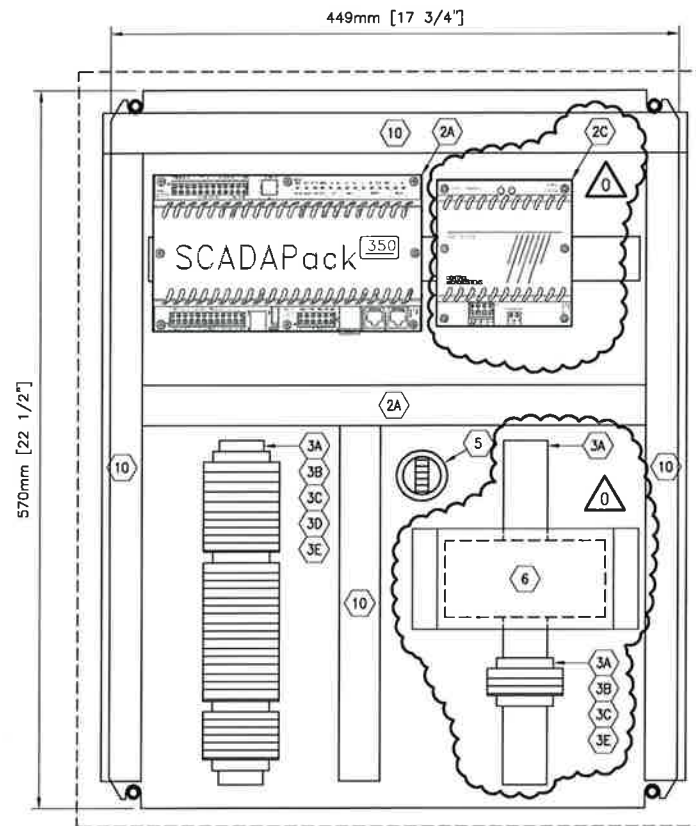
DRAWING SHEET SIZE: 11" x 17"

GENERAL PURPOSE ENCLOSURE

MATERIAL LIST						
ITEM	QTY.	DESCRIPTION	MANUFACTURER	CATALOG NO.	SIZE	SUPPLIER
1A	1	CARBON STEEL ENCLOSURE (NEMA 4)	RIITAL	8017.546	500x600x210	—
1B	4	MOUNTING FEET	—	—	—	—
2A	1	SCADAPACK 350 RTU	CONTROL MICROSYSTEMS	SCADAPACK 350	—	—
2B	1	SCADAPACK VISION 10 HMI	CONTROL MICROSYSTEMS	VISION 10	—	—
2C	1	SCADAPACK HART MODULE	CONTROL MICROSYSTEMS	5904	—	OWNER
3A	AS REQ'D	MOUNTING RAIL	WEIDMULLER	—	TS 35	—
3B	12	FUSED DISCONNECT TERMINAL	WEIDMULLER	—	WSI 6	—
3C	18	TERMINAL	WEIDMULLER	—	WDU 4	—
3D	16	TERMINAL	WEIDMULLER	—	WPE 4	—
3E	6	END BRACKET	WEIDMULLER	0383560000	EW 35	—
4A	5	GMA GLASS FUSE (2 SPARES)	BUSSMAN	GMA 5A	5 AMP	—
4B	7	GMA GLASS FUSE (2 SPARES)	BUSSMAN	GMA 250mA	250mA	—
5	—	TURBINE PRE-AMPLIFIER	—	—	—	—
6	1	900MHz INDUSTRIAL RADIO	FREEWAVE	FGR2-C-U	900MHz	—
7	—	—	—	—	—	—
8	—	—	—	—	—	—
9	—	—	—	—	—	—
10	AS REQ'D	WIREWAY & COVER (WHITE)	PANDUIT	F1X3WH6	32 x 79	VENDOR



FRONT VIEW



BACKPAN LAYOUT

REV	DESCRIPTION	BY	MM/DD/YYYY	CHKD	APPD	JOB No.
0	ISSUED FOR CONSTRUCTION	WAP	10/10/2014	CM	JD	2136

PERMIT

Permit 1163

STAMP

October 31, 2014

ENGINEERING RECORD			
DRAWN:	A. PERKINS	DATE:	08/11/2014
CHECKED:	C. McLAREN	DATE:	08/11/2014
APPROVED:	J. DECK	DATE:	08/11/2014
ENGINEER:	J. DECK	DATE:	08/11/2014

TNT Engineering Ltd.

SUITE 600, 639 - 5TH AVE SW
CALGARY, AB, T2P 0M9
(403) 387-2500 PHONE
(403) 387-2535 FAX

PEMBINA

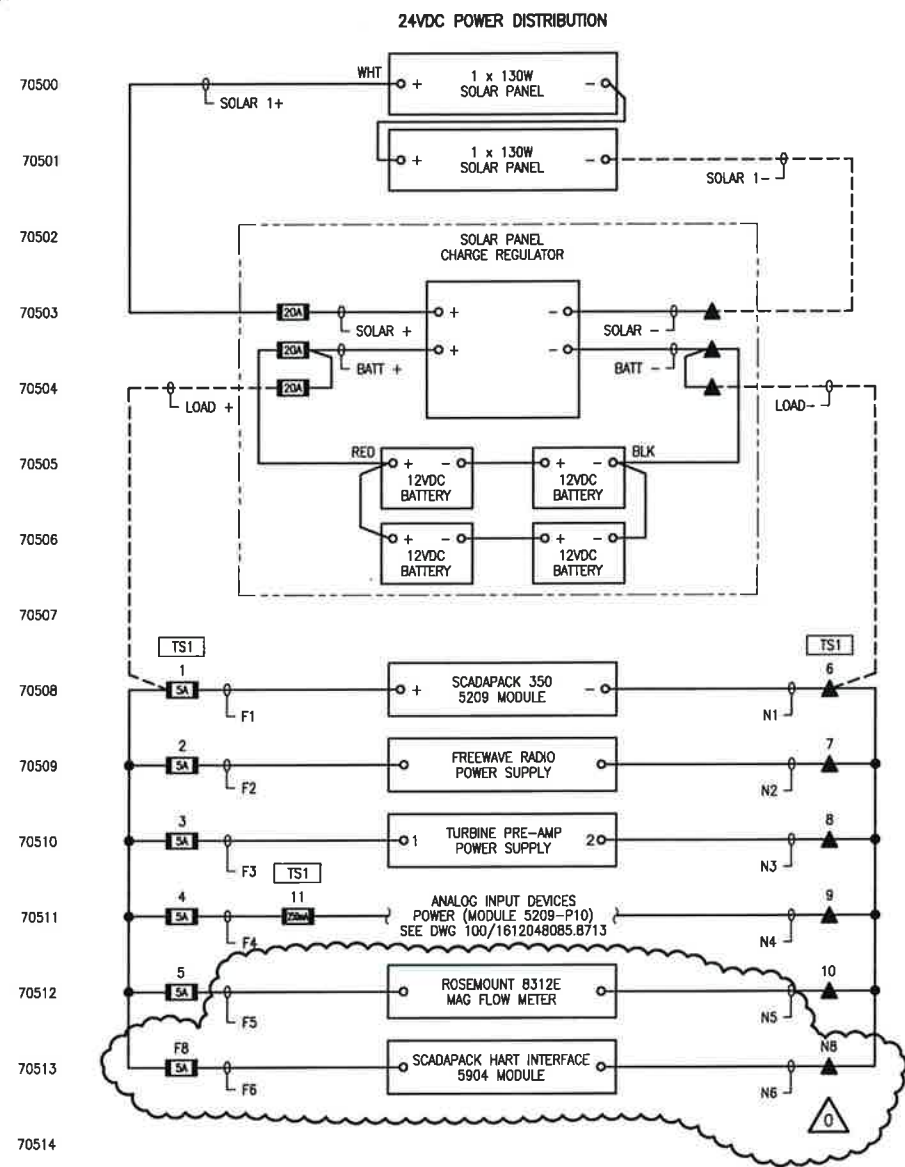
100/16-12-48-08 W5M
CDG WATER INJECTION AREA
RTU CONTROL PANEL 1 - LAYOUT

SCALE 1:3

DWG 100/1612048085.8700

REV. 0

PLOT BY: APERKINS, 10/31/2014, 10:26 AM
Z:\DRAFTING\JOBS\ARC RESOURCES LTD\PEMBINA\MPA 8\02-13-048-08 WSM\ELECTRICAL\100-1612048085.8705.DWG
DRAWING SHEET SIZE: 11" x 17"



LEGEND:

- PLC CONTROL PANEL FUSED DISCONNECT
- PLC CONTROL PANEL DISCONNECT TERMINAL
- PLC CONTROL PANEL TERMINAL (24VDC)
- PLC CONTROL PANEL TERMINAL (120VAC)
- VENDOR PANEL TERMINAL (24VDC)
- VENDOR PANEL TERMINAL (120VAC)
- MCC/STARTER/VFD TERMINAL
- CONTACTOR PANEL TERMINAL (24VDC)
- CONTACTOR PANEL TERMINAL (120VAC)
- JB
- TS
- FIELD JUNCTION BOX TERMINAL

REV	DESCRIPTION	BY	MM/DD/YYYY	CHKD	APPD	JOB No.
0	ISSUED FOR CONSTRUCTION	WAP	10/10/2014	CM	JD	2136

PERMIT

Permit 1111

STAMP

October 31, 2014

ENGINEERING RECORD			
DRAWN:	A. PERKINS	DATE:	08/11/2014
CHECKED:	C. McLAREN	DATE:	08/11/2014
APPROVED:	J. DECK	DATE:	08/11/2014
ENGINEER:	J. DECK	DATE:	08/11/2014

ARC RESOURCES LTD.

TNT Engineering Ltd.

SUITE 600, 639 - 5TH AVE SW
CALGARY, AB, T2P 0M9
(403) 387-2500 PHONE
(403) 387-2535 FAX

PEMBINA
100/16-12-48-08 WSM
CDG WATER INJECTION AREA
RTU CONTROL PANEL 1 - POWER DISTRIBUTION

SCALE NTS

DWG 100/1612048085.8705

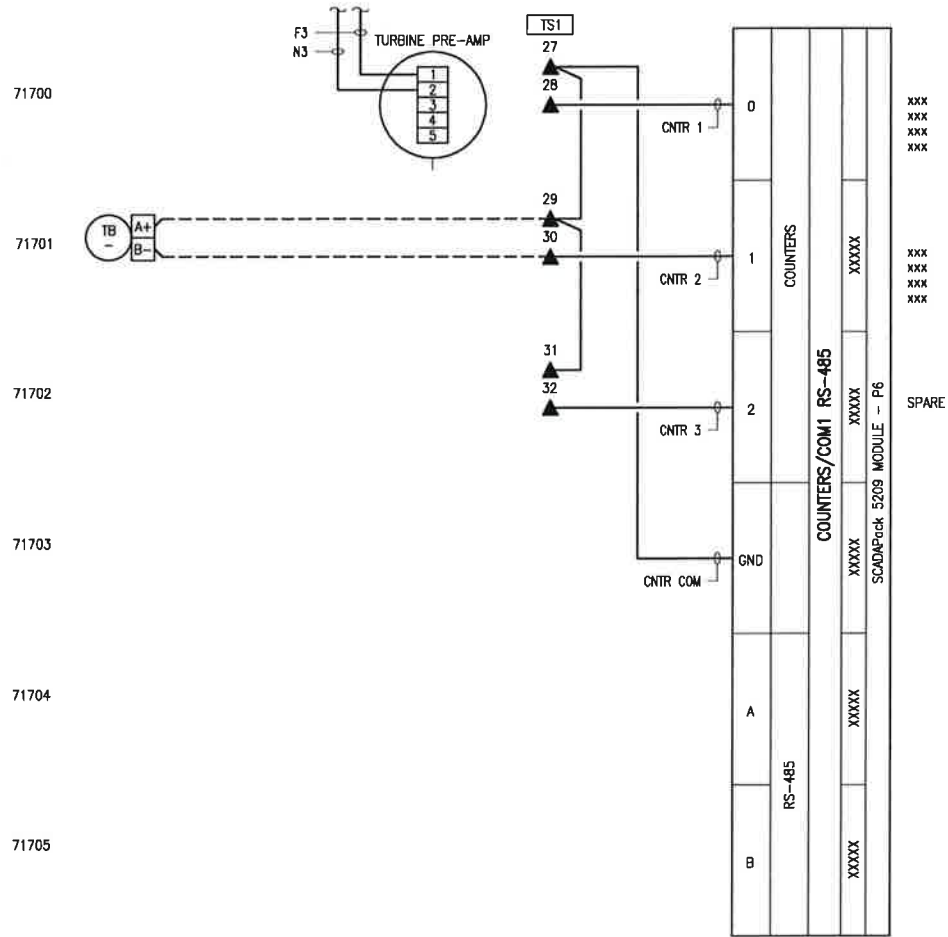
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PLOT BY: CPERKINS, 10/8/2014 10:07 AM

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DRAWING SHEET SIZE: 11" x 17"

SCADAPack 5209 MODULE - P6

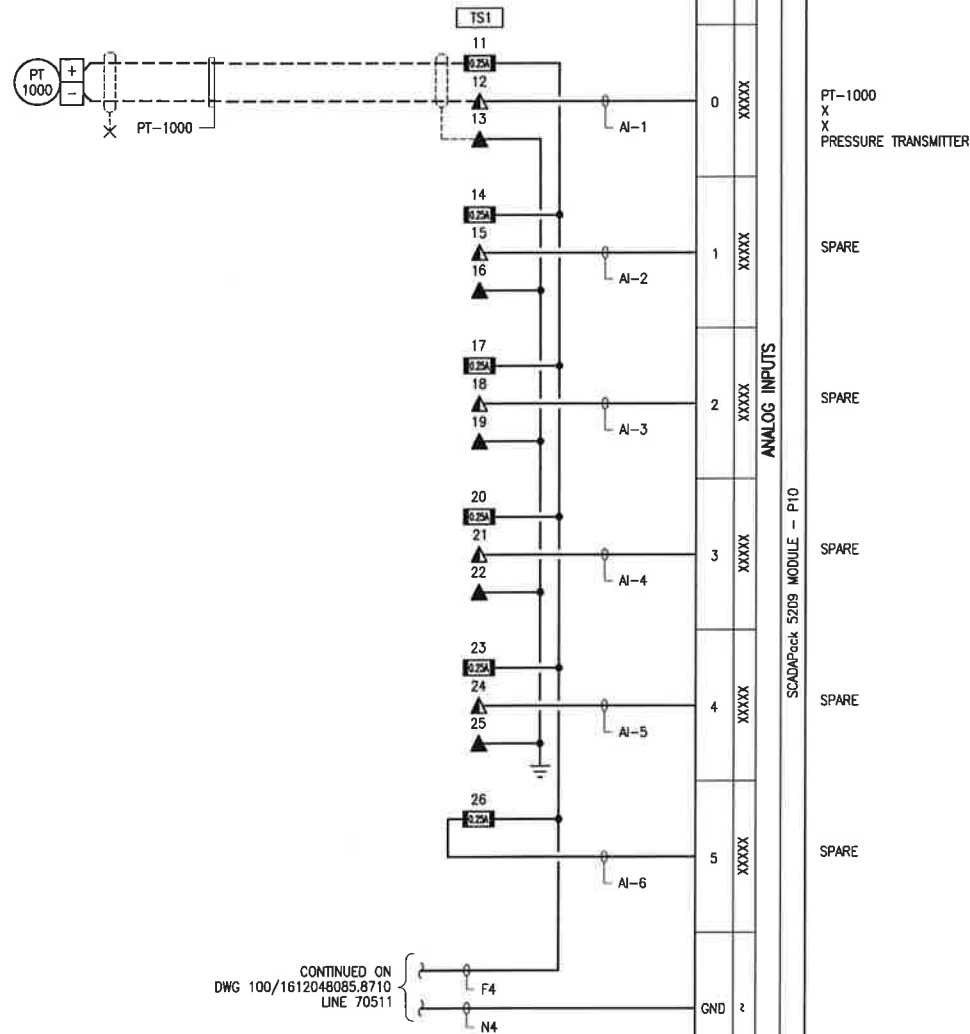


REV	DESCRIPTION	BY	MM/DD/YYYY	CHKD	APPD	JOB No.
0	ISSUED FOR CONSTRUCTION	WAP	10/10/2014	CM	JD	2136

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Permit 1143



 ARC RESOURCES LTD.			 SUITE 600, 639 - 5TH AVE SW CALGARY, AB, T2P 0M9 (403) 387-2500 PHONE (403) 387-2535 FAX			
ENGINEERING RECORD			PEMBINA 100/16-12-48-08 W5M CDG WATER INJECTION AREA RTU CONTROL PANEL 1 – COUNTER INPUTS			
DRAWN:	A. PERKINS	DATE:				08/11/2014
CHECKED:	C. McLAREN	DATE:				08/11/2014
APPROVED:	J. DECK	DATE:				08/11/2014
ENGINEER:	J. DECK	DATE:				08/11/2014
SCALE		NTS	DWG		100/1612048085.8712	
			REV.		0	



CONTINUED ON
DWG 100/1612048085.8710
LINE 70511

[illegible]

Permit 1113

Angela Red
October 31, 2014

ARC RESOURCES LTD.

JB TS 100	FIELD JUNCTION BOX TERMINAL
------------------------	-----------------------------

TNT Engineering Ltd.
SUITE 600, 639 - 5TH AVE SW
CALGARY, AB, T2P 0M9
(403) 387-2500 PHONE
(403) 387-2535 FAX

ENGINEERING RECORD			PEMBINA					
DRAWN:	A. PERKINS	DATE: 08/11/2014	100/16-12-48-08 W5M					
CHECKED:	C. McLAREN	DATE: 08/11/2014	CDG WATER INJECTION AREA					
APPROVED:	J. DECK	DATE: 08/11/2014	RTU CONTROL PANEL 1 - ANALOG INPUTS/OUTPUTS					
ENGINEER:	J. DECK	DATE: 08/11/2014	SCALE	NTS	DWG	100/1612048085.8713	REV.	0

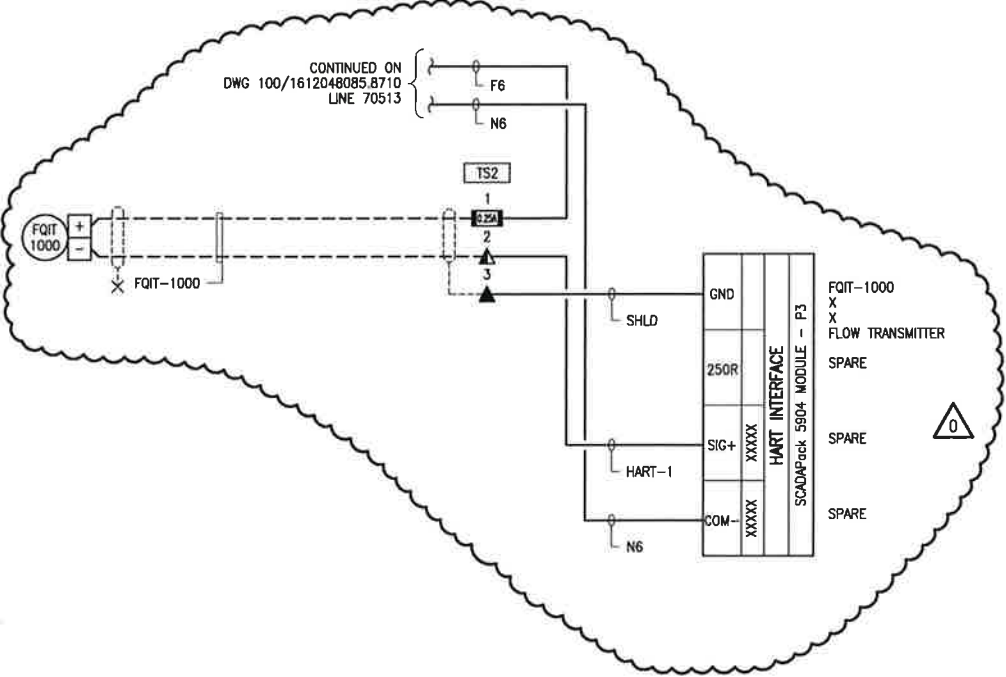
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DRAWING SHEET SIZE: 11" x 17"

SCADAPack 5904 MODULE - P3

71400
71401
71402
71403
71404
71405
71406
71407
71408
71409



REV	DESCRIPTION	BY	MM/DD/YYYY	CHKD	APPD	JOB No.
0	ISSUED FOR CONSTRUCTION	WAP	10/10/2014	CM	JD	2136

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Signature: J. Deck

October 31, 2014

ARC RESOURCES LTD.

ENGINEERING RECORD	
DRAWN:	A. PERKINS
CHECKED:	C. McLAREN
APPROVED:	J. DECK
ENGINEER:	J. DECK

TNT Engineering Ltd.

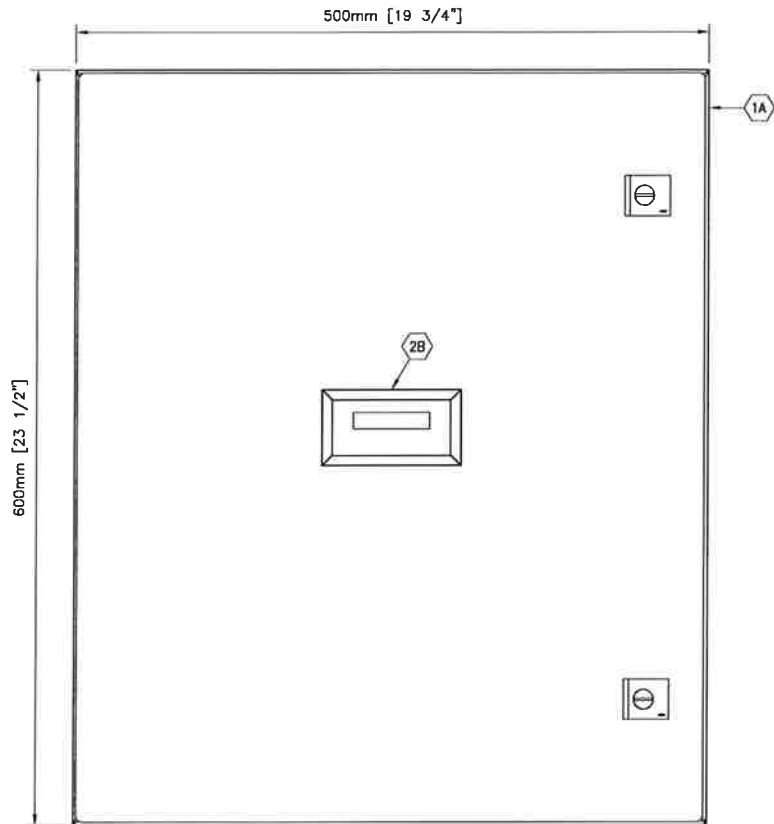
SUITE 600, 639 - 5TH AVE SW
CALGARY, AB, T2P 0M9
(403) 387-2500 PHONE
(403) 387-2535 FAX

PEMBINA
100/16-12-48-08 W5M
CDG WATER INJECTION AREA
RTU CONTROL PANEL 1 - HART MODULE

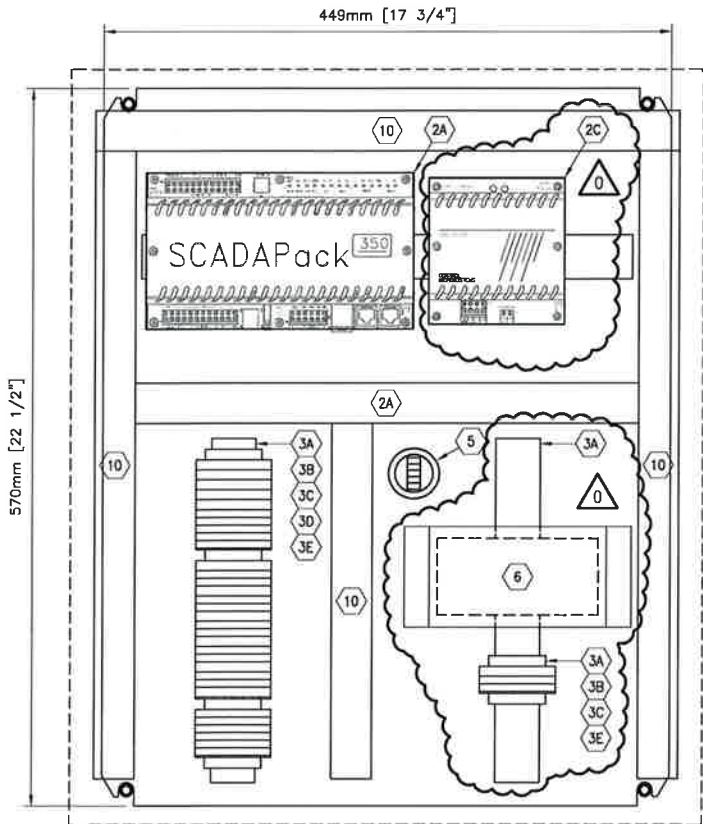
SCALE	NTS	DWG	100/1612048085.8714	REV.	0
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GENERAL PURPOSE ENCLOSURE

MATERIAL LIST						
ITEM	QTY.	DESCRIPTION	MANUFACTURER	CATALOG NO.	SIZE	SUPPLIER
1A	1	CARBON STEEL ENCLOSURE (NEMA 4)	RITTAL	8017.546	500x600x210	-
1B	4	MOUNTING FEET	-	-	-	-
2A	1	SCADAPACK 350 RTU	CONTROL MICROSYSTEMS	SCADAPACK 350	-	-
2B	1	SCADAPACK VISION 10 HMI	CONTROL MICROSYSTEMS	VISION 10	-	-
2C	1	SCADAPACK HART MODULE	CONTROL MICROSYSTEMS	5904	-	OWNER
3A	AS REQ'D	MOUNTING RAIL	WEIDMULLER	-	TS 35	-
3B	12	FUSED DISCONNECT TERMINAL	WEIDMULLER	-	WSI 6	-
3C	18	TERMINAL	WEIDMULLER	-	WDU 4	-
3D	18	TERMINAL	WEIDMULLER	-	WPE 4	-
3E	6	END BRACKET	WEIDMULLER	0383560000	EW 35	-
4A	5	GMA GLASS FUSE (2 SPARES)	BUSSMAN	GMA 5A	5 AMP	-
4B	7	GMA GLASS FUSE (2 SPARES)	BUSSMAN	GMA 250mA	250mA	-
5	-	TURBINE PRE-AMPLIFIER	-	-	-	-
6	1	900MHz INDUSTRIAL RADIO	FREEWAVE	FGR2-C-U	900MHz	-
7	-	-	-	-	-	-
8	-	-	-	-	-	-
9	-	-	-	-	-	-
10	AS REQ'D	WIREWAY & COVER (WHITE)	PANDUIT	F1X3WH6	32 x 79	VENDOR



FRONT VIEW



BACKPAN LAYOUT

REV	DESCRIPTION	BY	MM/DD/YYYY	CHKD	APPD	JOB No.
0	ISSUED FOR CONSTRUCTION	WAP	10/10/2014	CM	JD	2136

PERMIT

Permit 11413

STAMP

October 31, 2014

ENGINEERING RECORD			
DRAWN:	A. PERKINS	DATE:	08/11/2014
CHECKED:	C. McLAREN	DATE:	08/11/2014
APPROVED:	J. DECK	DATE:	08/11/2014
ENGINEER:	J. DECK	DATE:	08/11/2014

TNT Engineering Ltd.

SUITE 600, 639 - 5TH AVE SW
CALGARY, AB, T2P 0M9
(403) 387-2500 PHONE
(403) 387-2535 FAX

PEMBINA

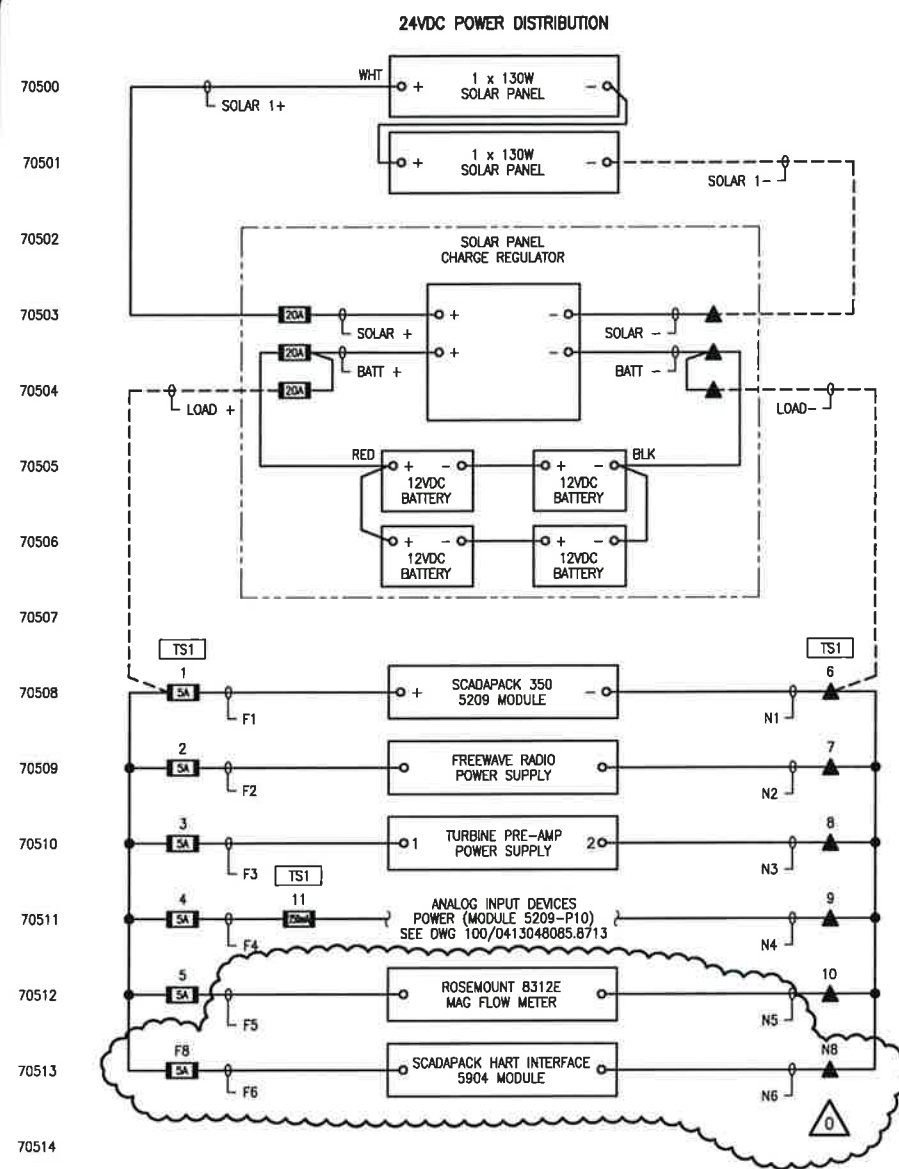
100/04-13-48-08 W5M
CDG WATER INJECTION AREA
RTU CONTROL PANEL 1 - LAYOUT

SCALE 1:3

DWG 100/0413048085.8700

REV. 0

DRAWING SHEET SIZE: 11" x 17"



LEGEND:

	PLC CONTROL PANEL FUSED DISCONNECT
	PLC CONTROL PANEL DISCONNECT TERMINAL
	PLC CONTROL PANEL TERMINAL (24VDC)
	PLC CONTROL PANEL TERMINAL (120VAC)
	VENDOR PANEL TERMINAL (24VDC)
	VENDOR PANEL TERMINAL (120VAC)
	MCC/STARTER/VFD TERMINAL
	CONTACTOR PANEL TERMINAL (24VDC)
	CONTACTOR PANEL TERMINAL (120VAC)
JB TS	
	FIELD JUNCTION BOX TERMINAL

[illegible]

PERMIT

Permit 1113

STAMP

Jayson Red

October 31, 2011

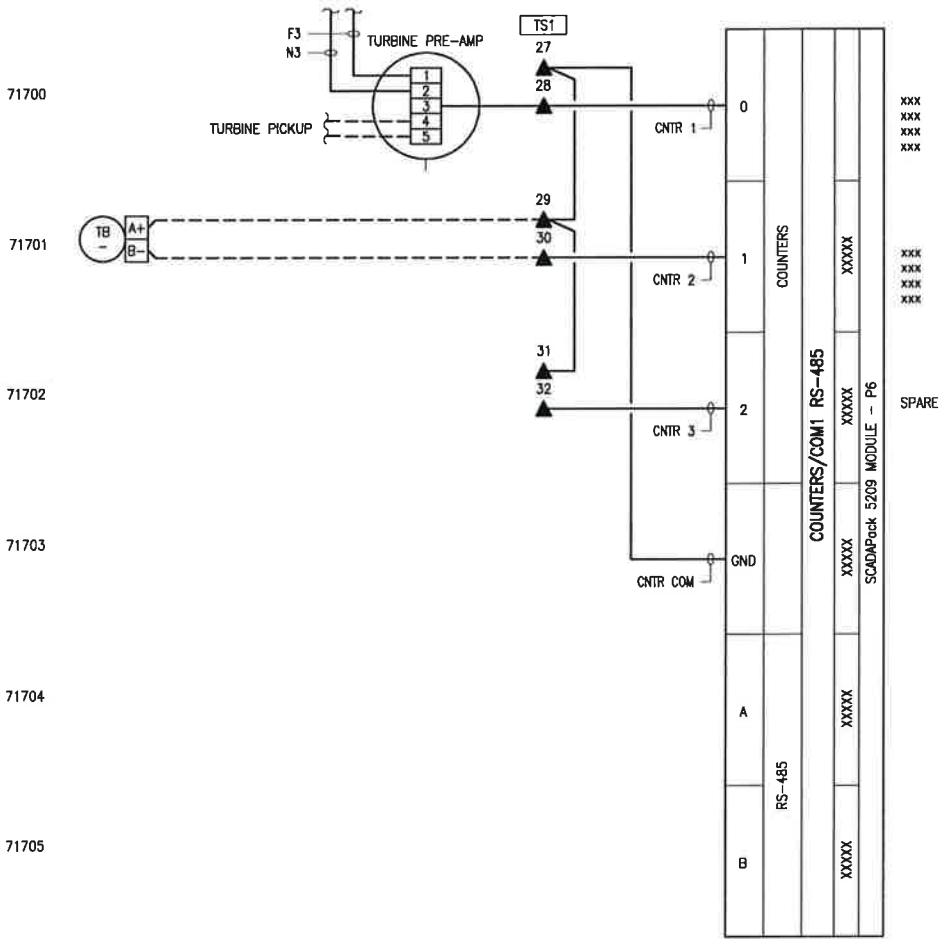
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 ARC RESOURCES LTD.	
ENGINEERING RECORD	
DRAWN: A. PERKINS	DATE: 08/11/2014
CHECKED: C. McLAREN	DATE: 08/11/2014
APPROVED: J. DECK	DATE: 08/11/2014
ENGINEER: J. DECK	DATE: 08/11/2014

	SUITE 600, 639 - 5TH AVE SW CALGARY, AB, T2P 0M9 (403) 387-2500 PHONE (403) 387-2535 FAX
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PLOT BY: CPERKINS, 10/8/2014 10:36 AM
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DRAWING SHEET SIZE: 11" x 17"

SCADAPack 5209 MODULE - P6



REV	DESCRIPTION	BY	MM/DD/YYYY	CHKD	APPD	JOB No.
0	ISSUED FOR CONSTRUCTION	WAP	10/10/2014	CM	JD	2136

PERMIT

Permit 11113

STAMP

October 31, 2014

ENGINEERING RECORD	
DRAWN:	A. PERKINS
CHECKED:	C. McLAREN
APPROVED:	J. DECK
ENGINEER:	J. DECK

SUITE 600, 639 - 5TH AVE SW
CALGARY, AB, T2P 0M9
(403) 387-2500 PHONE
(403) 387-2535 FAX

PEMBINA
100/04-13-48-08 W5M
CDG WATER INJECTION AREA
RTU CONTROL PANEL 1 - COUNTER INPUTS

SCALE NTS

DWG 100/0413048085.8712

REV. 0



CONTINUED ON
DWG 100/0413048085.8710
LINE 70511

JB TS	
100	FIELD JUNCTION BOX TERMINAL

PERMIT

Permit 1143

STAMP

Joyce Lee

October 31, 2014

ENGINEERING RECORD		
DRAWN:	A. PERKINS	DATE: 08/11/2014
CHECKED:	C. McLAREN	DATE: 08/11/2014
APPROVED:	J. DECK	DATE: 08/11/2014
ENGINEER:	J. DECK	DATE: 08/11/2014

PEMBINA			
100/04-13-48-08 W5M			
CDG WATER INJECTION AREA			
RTU CONTROL PANEL 1 - ANALOG INPUTS/OUTPUTS			
SCALE	1:3	DWG	100/0413048085.8713
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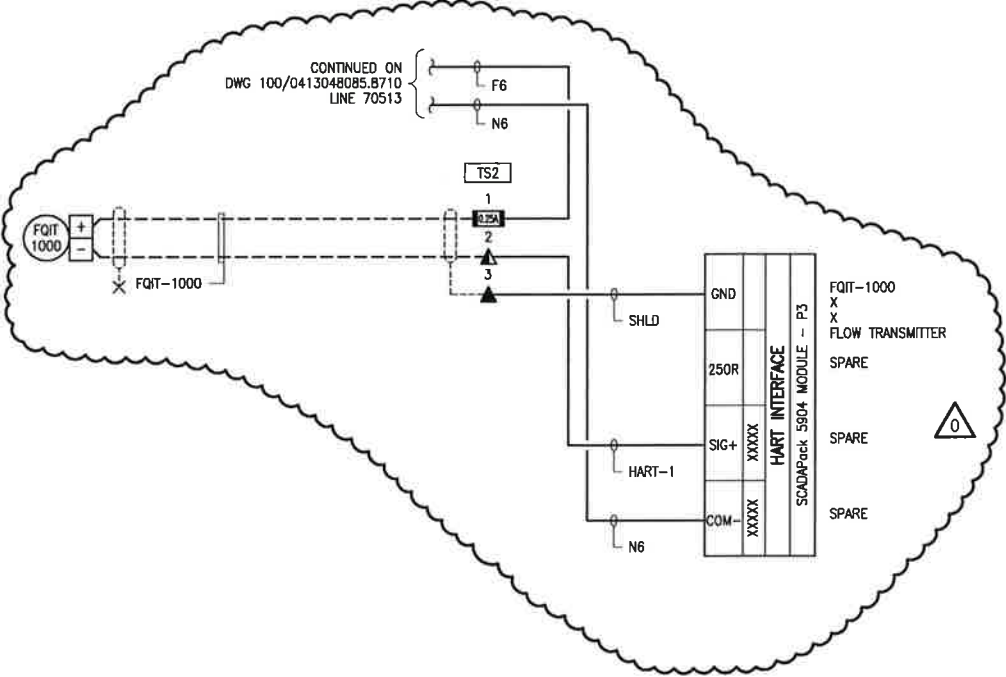
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DRAWING SHEET SIZE: 11" x 17"

SCADAPack 5904 MODULE - P3

71400
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REV	DESCRIPTION	BY	MM/DD/YYYY	CHKD	APPD	JOB No.
0	ISSUED FOR CONSTRUCTION	WAP	10/10/2014	CM	JD	2136

PERMIT
Permit 1117

STAMP

John Red

October 31, 2014

ENGINEERING RECORD	
DRAWN:	A. PERKINS
CHECKED:	C. McLAREN
APPROVED:	J. DECK
ENGINEER:	J. DECK

ARC RESOURCES LTD.

PEMBINA
100/04-13-48-08 W5M
CDG WATER INJECTION AREA
RTU CONTROL PANEL 1 - HART MODULE

SCALE NTS

DWG 100/0413048085.8714

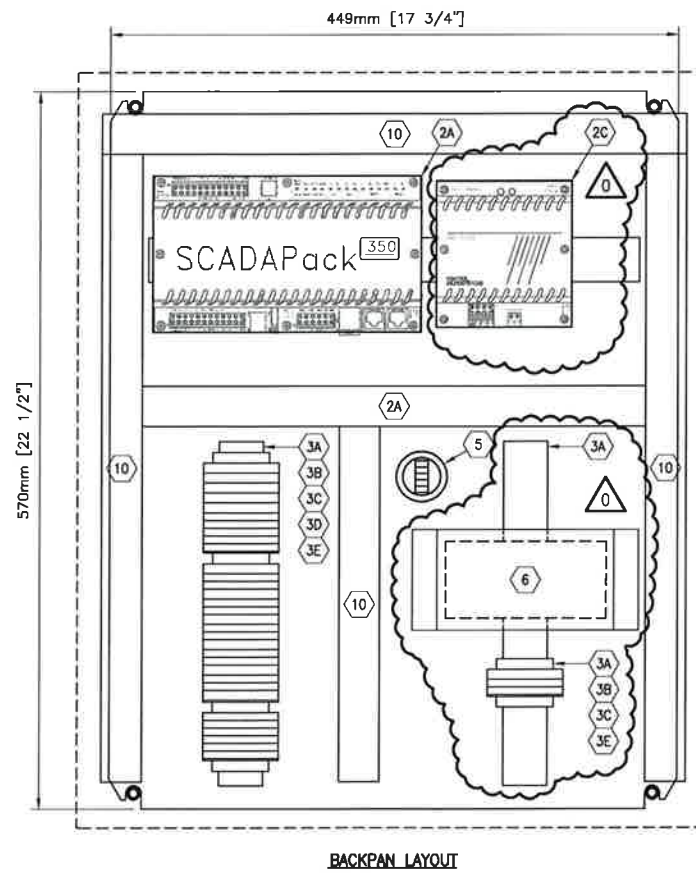
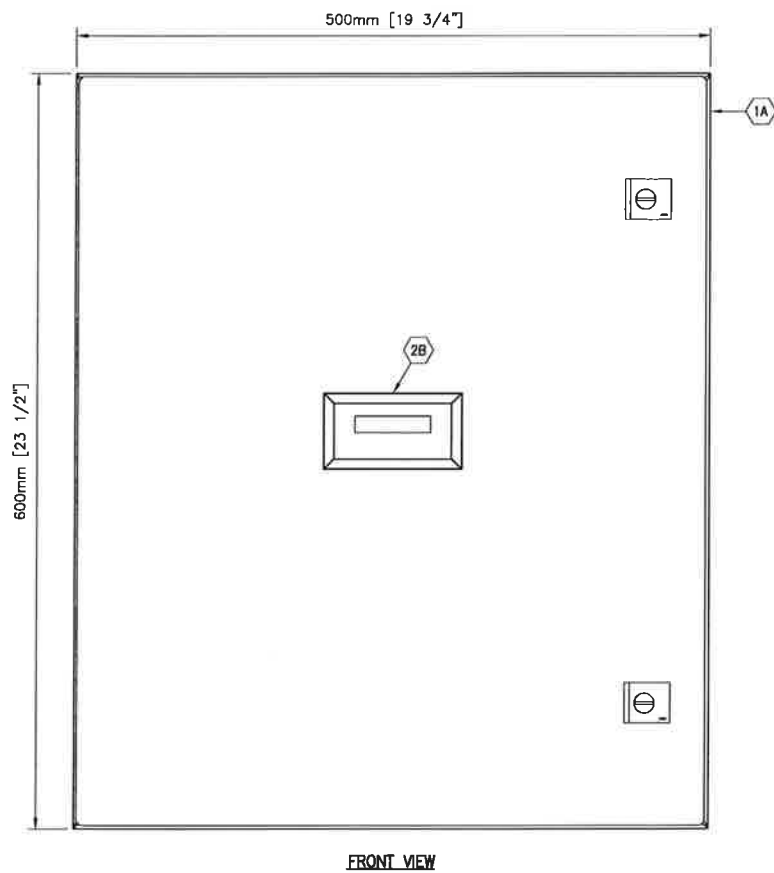
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DRAWING SHEET SIZE: 11" x 17"

GENERAL PURPOSE ENCLOSURE



MATERIAL LIST						
ITEM	QTY.	DESCRIPTION	MANUFACTURER	CATALOG NO.	SIZE	SUPPLIER
1A	1	CARBON STEEL ENCLOSURE (NEMA 4)	RITTAL	8017.546	500x600x210	-
1B	4	MOUNTING FEET	-	-	-	-
2A	1	SCADAPACK 350 RTU	CONTROL MICROSYSTEMS	SCADAPACK 350	-	-
2B	1	SCADAPACK VISION 10 HMI	CONTROL MICROSYSTEMS	VISION 10	-	-
2C	1	SCADAPACK HART MODULE	CONTROL MICROSYSTEMS	5904	-	OWNER
3A	AS REQ'D	MOUNTING RAIL	WEIDMULLER	-	TS 35	-
3B	12	FUSED DISCONNECT TERMINAL	WEIDMULLER	-	WSI 6	-
3C	18	TERMINAL	WEIDMULLER	-	WDU 4	-
3D	18	TERMINAL	WEIDMULLER	-	WPE 4	-
3E	6	END BRACKET	WEIDMULLER	0383560000	EW 35	-
4A	5	GMA GLASS FUSE (2 SPARES)	BUSSMAN	GMA 5A	5 AMP	-
4B	7	GMA GLASS FUSE (2 SPARES)	BUSSMAN	GMA 250mA	250mA	-
5	-	TURBINE PRE-AMPLIFIER	-	-	-	-
6	1	900MHz INDUSTRIAL RADIO	FREEWAVE	FGR2-C-U	900MHz	-
7	-	-	-	-	-	-
8	-	-	-	-	-	-
9	-	-	-	-	-	-
10	AS REQ'D	WIREWAY & COVER (WHITE)	PANDUIT	F1X3WH6	32 x 79	VENDOR

REV	DESCRIPTION	BY	MM/DD/YYYY	CHKD	APPD	JOB No.
0	ISSUED FOR CONSTRUCTION	WAP	10/??/2014	CM	JD	2136

PERMIT
Permit 11113

STAMP

October 31, 2014

ARC RESOURCES LTD.

ENGINEERING RECORD	
DRAWN: A. PERKINS	DATE: 08/11/2014
CHECKED: C. McLAREN	DATE: 08/11/2014
APPROVED: J. DECK	DATE: 08/11/2014
ENGINEER: J. DECK	DATE: 08/11/2014

PEMBINA

100/06-13-48-08 W5M

CDG WATER INJECTION AREA

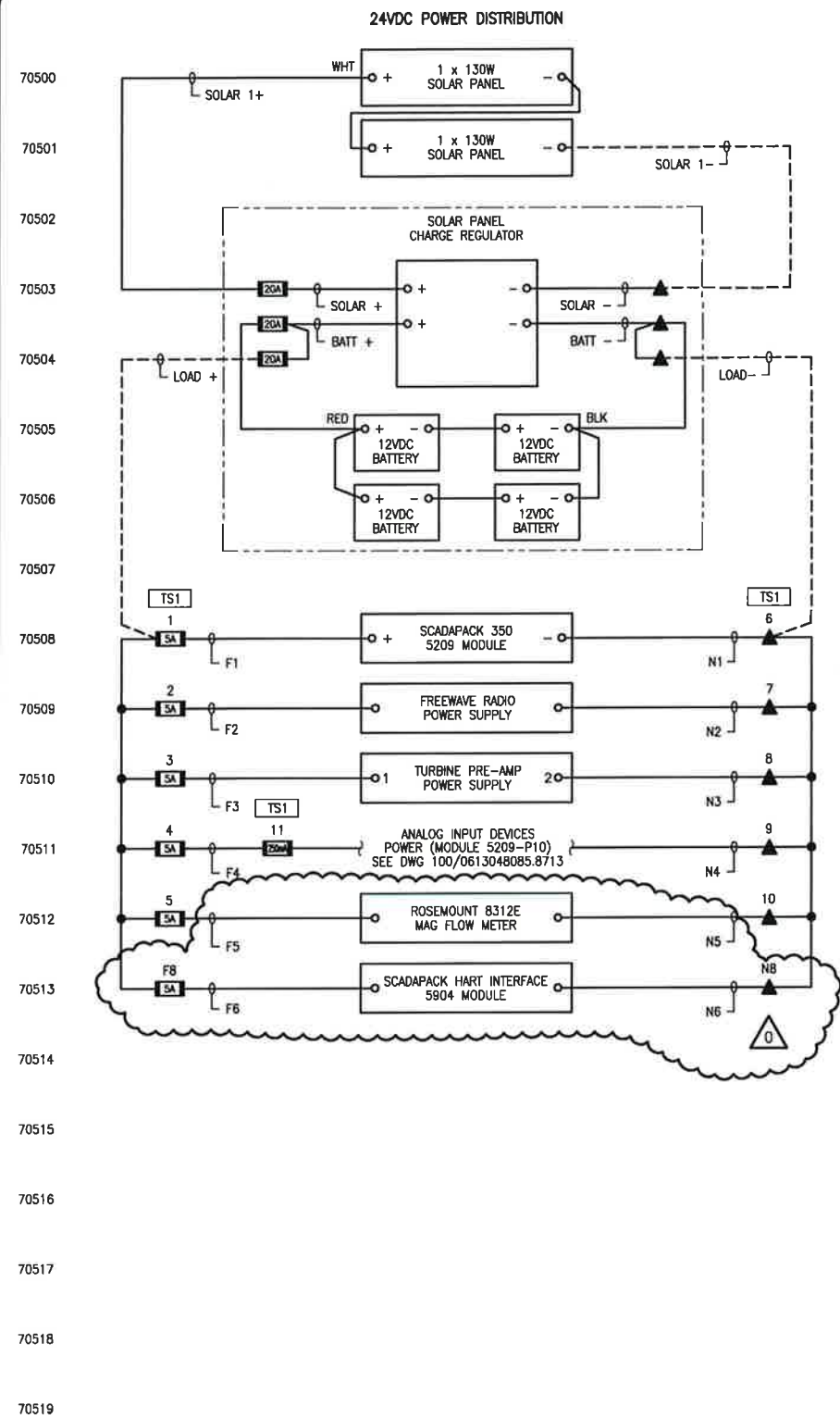
RTU CONTROL PANEL 1 - LAYOUT

SCALE 1:3

DWG 100/0613048085.8700

REV. 0

PLOT BY: APERKINS, 10/31/2014 10:26 AM
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DRAWING SHEET SIZE: 11" x 17"



LEGEND:

- PLC CONTROL PANEL FUSED DISCONNECT
- PLC CONTROL PANEL DISCONNECT TERMINAL
- PLC CONTROL PANEL TERMINAL (24VDC)
- PLC CONTROL PANEL TERMINAL (120VAC)
- VENDOR PANEL TERMINAL (24VDC)
- VENDOR PANEL TERMINAL (120VAC)
- MCC/STARTER/VFD TERMINAL
- CONTACTOR PANEL TERMINAL (24VDC)
- CONTACTOR PANEL TERMINAL (120VAC)
- JB
- TS
- FIELD JUNCTION BOX TERMINAL

REV	DESCRIPTION	BY	MM/DD/YYYY	CHKD	APPD	JOB No.
0	ISSUED FOR CONSTRUCTION	WAP	10/??/2014	CM	JD	2136

PERMIT

Permit 1113

STAMP

October 31, 2014

ENGINEERING RECORD			
DRAWN:	A. PERKINS	DATE:	08/11/2014
CHECKED:	C. McLAREN	DATE:	08/11/2014
APPROVED:	J. DECK	DATE:	08/11/2014
ENGINEER:	J. DECK	DATE:	08/11/2014

ARC RESOURCES LTD.

TNT Engineering Ltd.

SUITE 600, 639 - 5TH AVE SW
CALGARY, AB, T2P 0M9
(403) 387-2500 PHONE
(403) 387-2535 FAX

PEMBINA
100/06-13-48-08 W5M
CDG WATER INJECTION AREA
RTU CONTROL PANEL 1 - POWER DISTRIBUTION

SCALE NTS

DWG 100/0613048085.8705

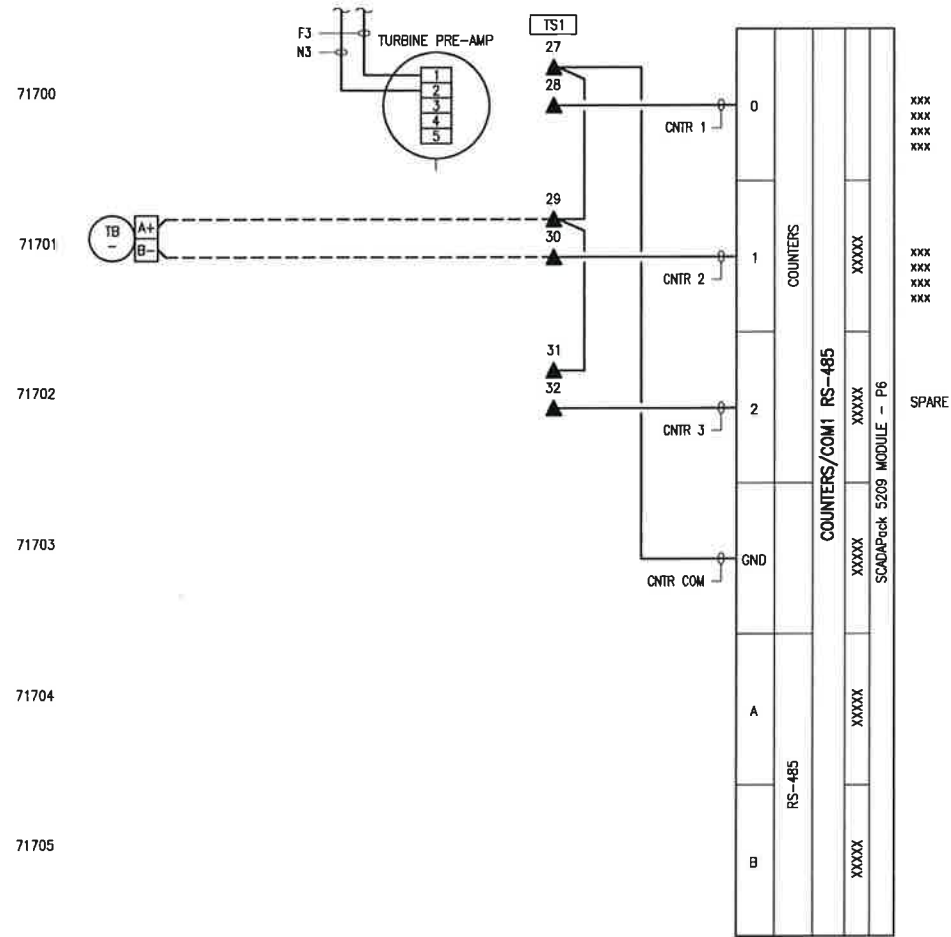
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PLOT BY: CPERKINS, 10/8/2014, 10:33 AM

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DRAWING SHEET SIZE: 11" x 17"

SCADAPack 5209 MODULE - P6



REV	DESCRIPTION	BY	MM/DD/YYYY	CHKD	APPD	JOB No.
0	ISSUED FOR CONSTRUCTION	WAP	10/??/2014	CM	JD	2136

PERMIT

Permit 1143

STAMP

John Red

October 31, 2014

ARC RESOURCES LTD.

ENGINEERING RECORD	
DRAWN:	A. PERKINS
CHECKED:	C. McLAREN
APPROVED:	J. DECK
ENGINEER:	J. DECK

TNT Engineering Ltd.

SUITE 600, 639 - 5TH AVE SW
CALGARY, AB, T2P 0M9
(403) 387-2500 PHONE
(403) 387-2535 FAX

PEMBINA

100/06-13-48-08 W5M
CDG WATER INJECTION AREA
RTU CONTROL PANEL 1 - COUNTER INPUTS

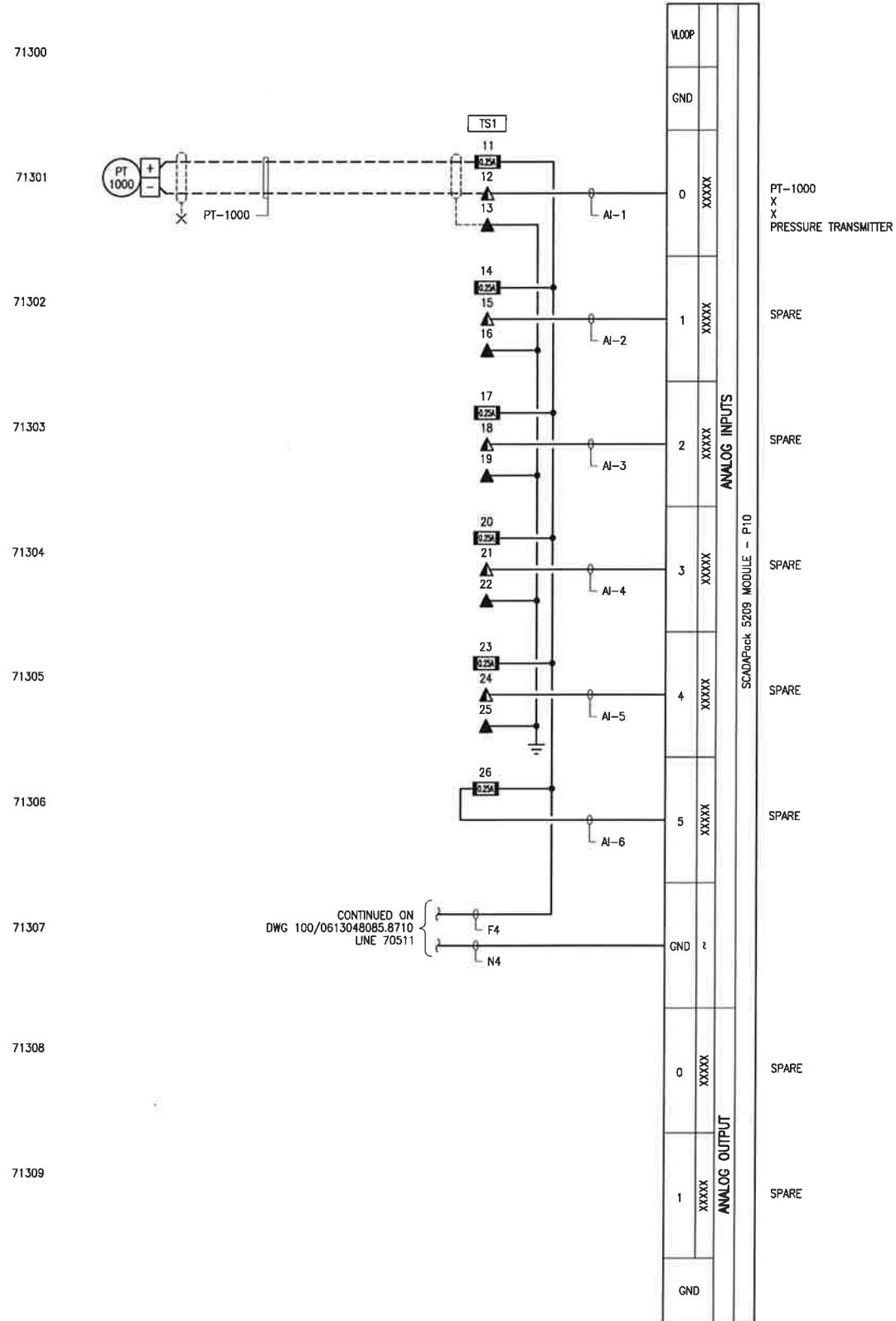
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PLOT BY: CPERKINS, 10/8/2014 10:33 AM

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DRAWING SHEET SIZE: 11" x 17"

SCADAPack 5209 MODULE - P10



LEGEND:

- PLC CONTROL PANEL FUSED DISCONNECT
- PLC CONTROL PANEL DISCONNECT TERMINAL
- PLC CONTROL PANEL TERMINAL (24VDC)
- PLC CONTROL PANEL TERMINAL (120VAC)
- VENDOR PANEL TERMINAL (24VDC)
- VENDOR PANEL TERMINAL (120VAC)
- MCC/STARTER/VFD TERMINAL
- CONTACTOR PANEL TERMINAL (24VDC)
- CONTACTOR PANEL TERMINAL (120VAC)
- JB
TS
100
- FIELD JUNCTION BOX TERMINAL

REV	DESCRIPTION	BY	MM/DD/YYYY	CHKD	APPD	JOB No.
0	ISSUED FOR CONSTRUCTION	WAP	10/10/2014	CM	JD	2136

PERMIT

Permit 11113

STAMP

Stamp: J. Deck, October 31, 2014

ARC RESOURCES LTD.

ENGINEERING RECORD			
DRAWN:	A. PERKINS	DATE:	08/11/2014
CHECKED:	C. McLAREN	DATE:	08/11/2014
APPROVED:	J. DECK	DATE:	08/11/2014
ENGINEER:	J. DECK	DATE:	08/11/2014

TNT Engineering Ltd. SUITE 600, 639 - 5TH AVE SW
CALGARY, AB, T2P 0M9
(403) 387-2500 PHONE
(403) 387-2535 FAX

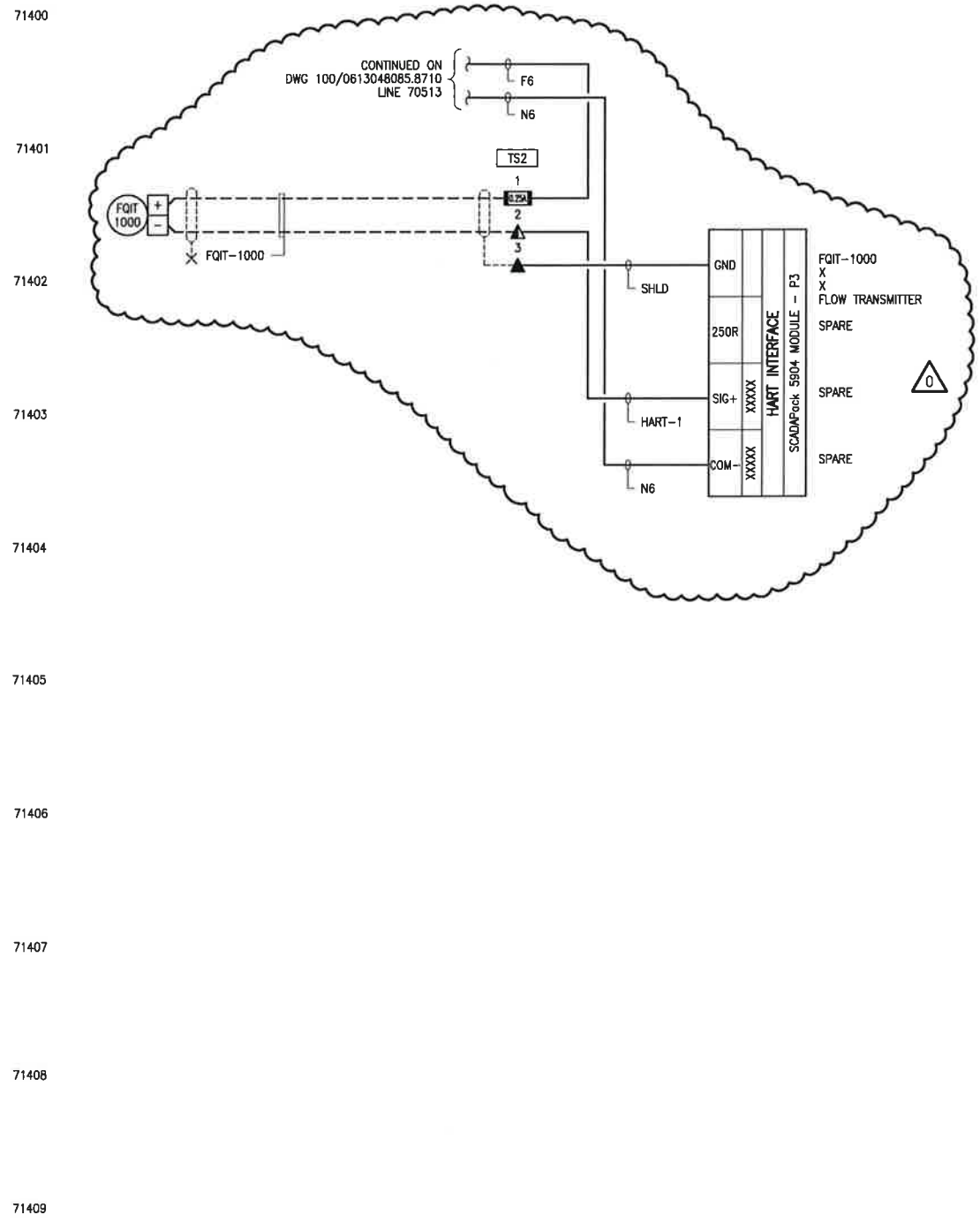
PEMBINA			
100/06-13-48-08 WSM			
CDG WATER INJECTION AREA			
RTU CONTROL PANEL 1 - ANALOG INPUTS/OUTPUTS			
SCALE	NTS	DWG	100/0613048085.8713
REV.	0		

PLOT BY: CPERKINS, 10/8/2014 10:33 AM

Z:\DRAFTING\JOBS\ARC RESOURCES LTD\PEMBINA\WPA 8\02-13-048-08 W5M\ELECTRICAL\100-0613048085.8714.DWG

DRAWING SHEET SIZE: 11" x 17"

SCADAPack 5904 MODULE - P3



REV	DESCRIPTION	BY	MM/DD/YYYY	CHKD	APPD	JOB No.
0	ISSUED FOR CONSTRUCTION	WAP	10/??/2014	CM	JD	2136

PERMIT

Permit 1143

STAMP

Signature: Jayson Red

October 31, 2014

ENGINEERING RECORD			
DRAWN:	A. PERKINS	DATE:	08/11/2014
CHECKED:	C. McLAREN	DATE:	08/11/2014
APPROVED:	J. DECK	DATE:	08/11/2014
ENGINEER:	J. DECK	DATE:	08/11/2014

SUITE 600, 639 - 5TH AVE SW
CALGARY, AB, T2P 0M9
(403) 387-2500 PHONE
(403) 387-2535 FAX

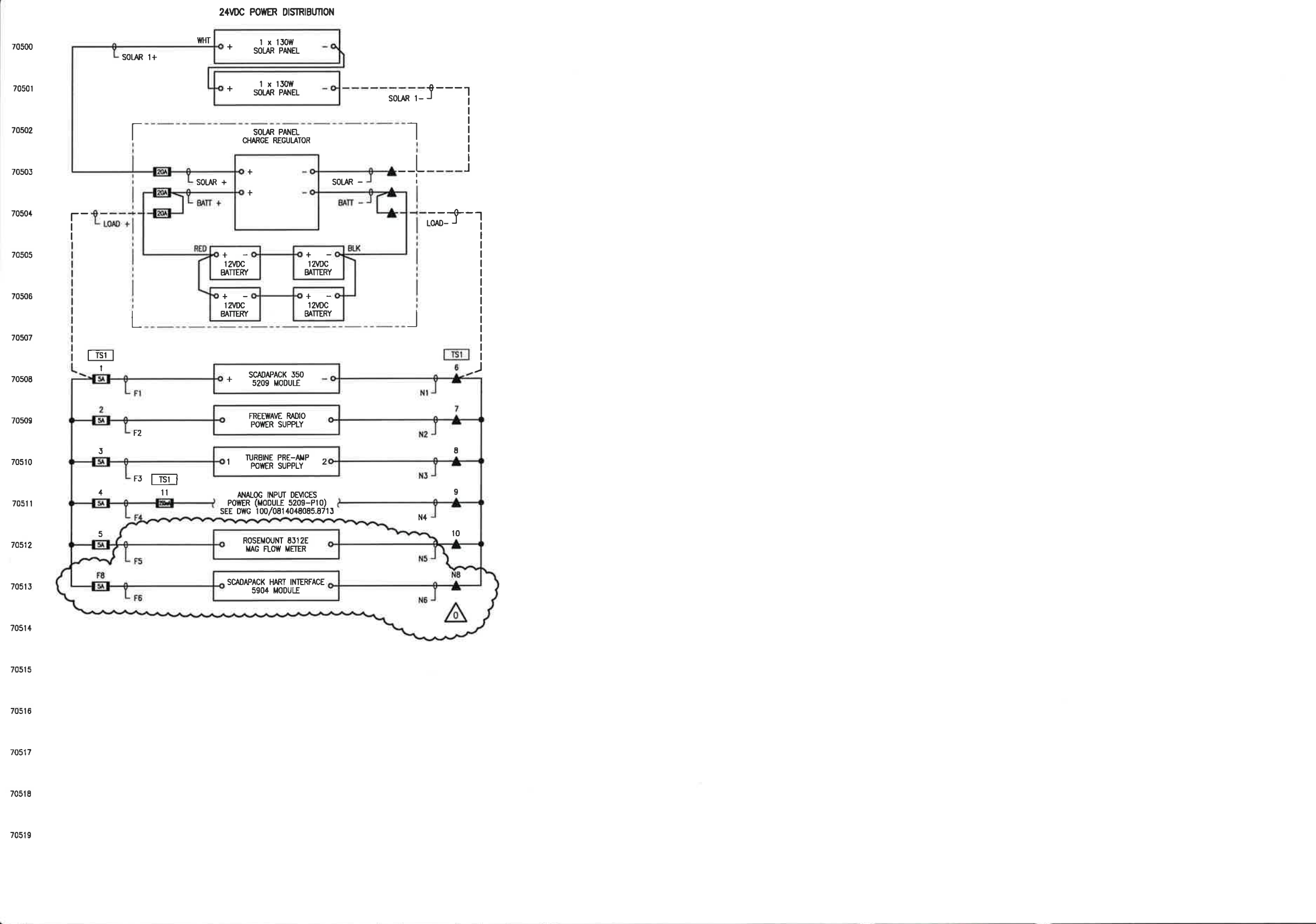
PEMBINA
100/06-13-48-08 W5M
CDG WATER INJECTION AREA
RTU CONTROL PANEL 1 - HART MODULE

SCALE NTS

DWG 100/0613048085.8714

REV. 0

PLOT BY: APERKINS, 10/31/2014 10:26 AM
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DRAWING SHEET SIZE: 11" x 17"



LEGEND:

- PLC CONTROL PANEL FUSED DISCONNECT
- PLC CONTROL PANEL DISCONNECT TERMINAL
- PLC CONTROL PANEL TERMINAL (24VDC)
- PLC CONTROL PANEL TERMINAL (120VAC)
- VENDOR PANEL TERMINAL (24VDC)
- VENDOR PANEL TERMINAL (120VAC)
- MCC/STARTER/VFD TERMINAL
- CONTACTOR PANEL TERMINAL (24VDC)
- CONTACTOR PANEL TERMINAL (120VAC)
- JB TS
- FIELD JUNCTION BOX TERMINAL

ARC RESOURCES LTD.

TNT Engineering Ltd. SUITE 600, 639 - 5TH AVE SW
CALGARY, AB, T2P 0M9
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REV	DESCRIPTION	BY	MM/DD/YYYY	CHKD	APPD	JOB No.
0	ISSUED FOR CONSTRUCTION	WAP	10/10/2014	CM	JD	2136

PERMIT

Permit 1113

STAMP

0 October 31, 2014

ENGINEERING RECORD			
DRAWN:	A. PERKINS	DATE:	08/11/2014
CHECKED:	C. McLAREN	DATE:	08/11/2014
APPROVED:	J. DECK	DATE:	08/11/2014
ENGINEER:	J. DECK	DATE:	08/11/2014

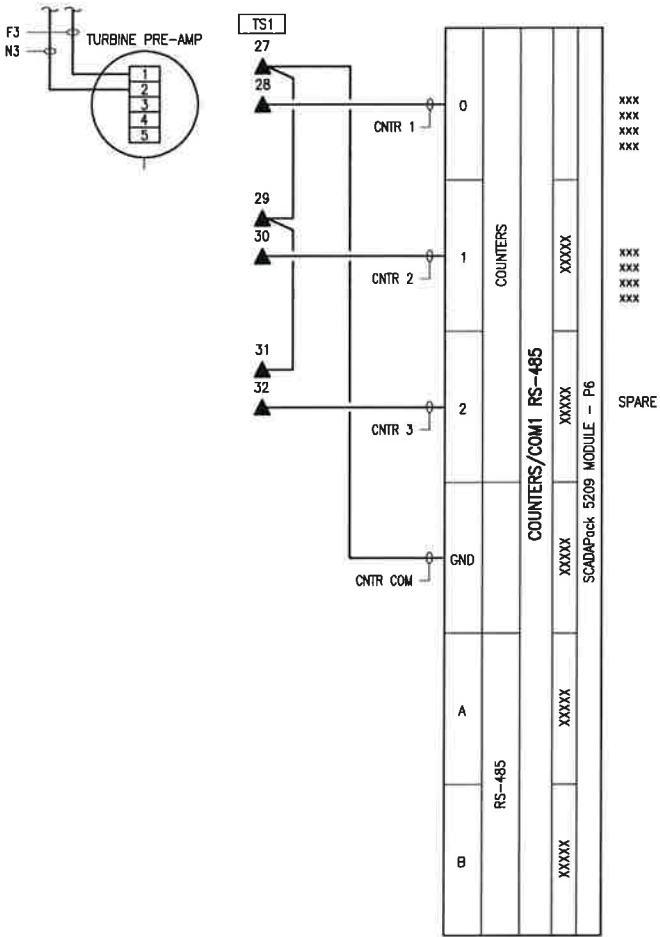
PEMBINA 100/08-14-48-08 W5M CDG WATER INJECTION AREA RTU CONTROL PANEL 1 - POWER DISTRIBUTION			
SCALE	NTS	DWG	100/0814048085.8705
REV.	0		

PLOT BY: CPERKINS, 10/8/2014 10:32 AM

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DRAWING SHEET SIZE: 11" x 17"

SCADAPack 5209 MODULE - P6



REV	DESCRIPTION	BY	MM/DD/YYYY	CHKD	APPD	JOB No.
0	ISSUED FOR CONSTRUCTION	WAP	10/10/2014	CM	JD	2136

PERMIT
Permit 1113

STAMP

Jason Aest

October 31, 2014

ARC RESOURCES LTD.

ENGINEERING RECORD	
DRAWN:	A. PERKINS
CHECKED:	C. McLAREN
APPROVED:	J. DECK
ENGINEER:	J. DECK

PEMBINA

100/08-14-48-08 W5M

CDG WATER INJECTION AREA

RTU CONTROL PANEL 1 - COUNTER INPUTS

SCALE	NTS	DWG	100/0814048085.8712	REV.	0
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TNT Engineering Ltd.

SUITE 600, 639 - 5TH AVE SW

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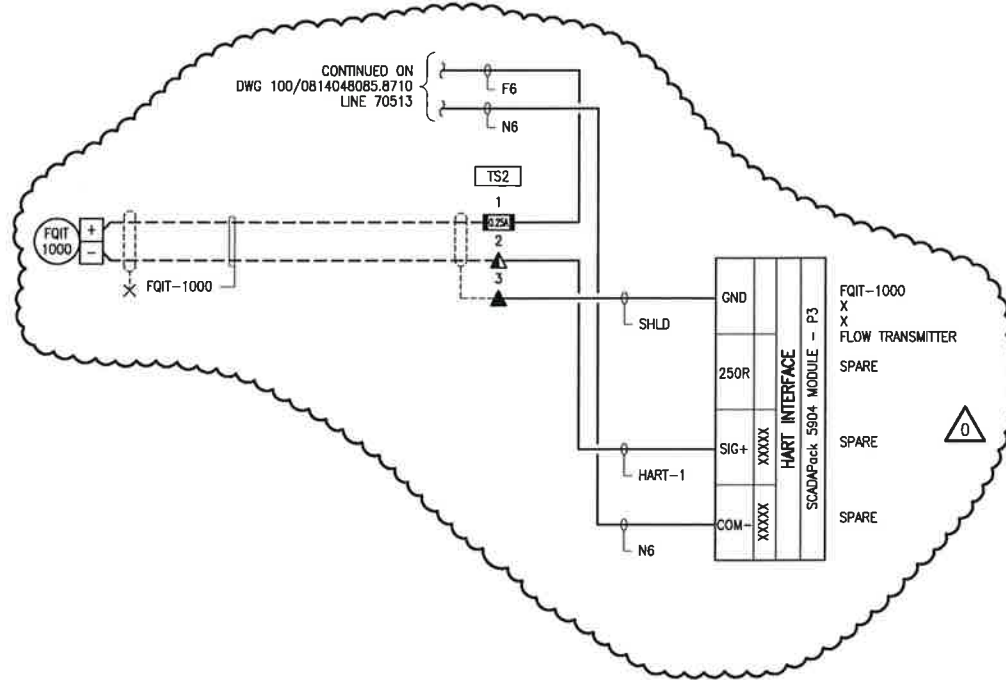
Permit 11413

STAMP

Jayson Keith

October 31, 2014

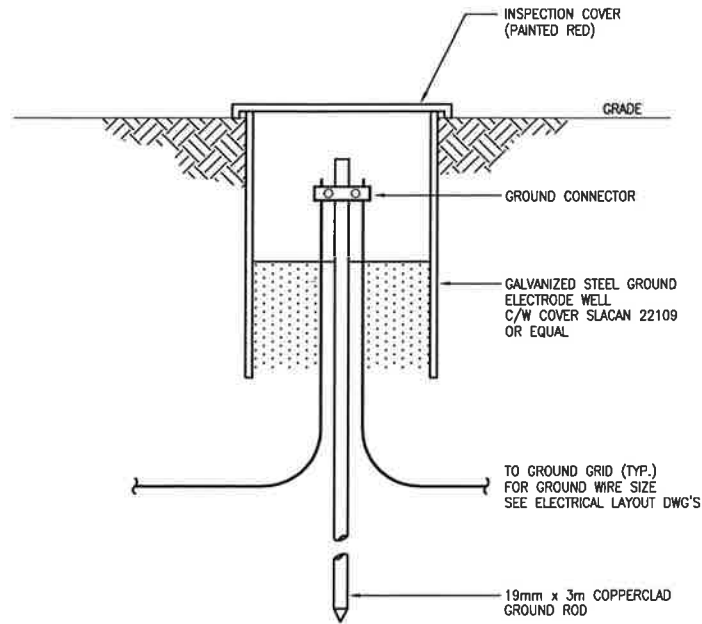
		SUITE 600, 639 - 5TH AVE SW CALGARY, AB, T2P 0M9 (403) 387-2500 PHONE (403) 387-2535 FAX	
PEMBINA 100/08-14-48-08 W5M CDG WATER INJECTION AREA CONTROL PANEL 1 - ANALOG INPUTS/OUTPUTS			
NTS	DWG	100/0814048085.8713	REV. 0



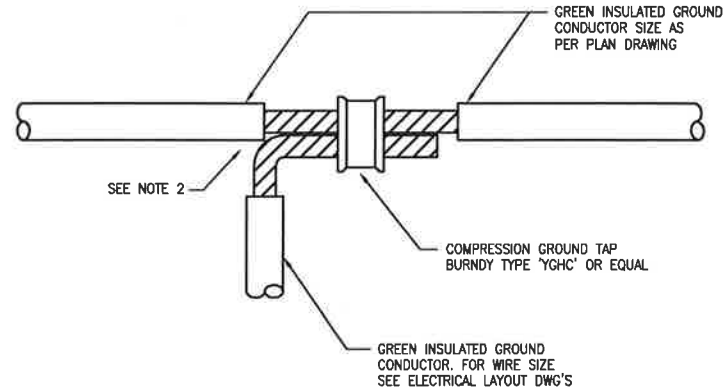
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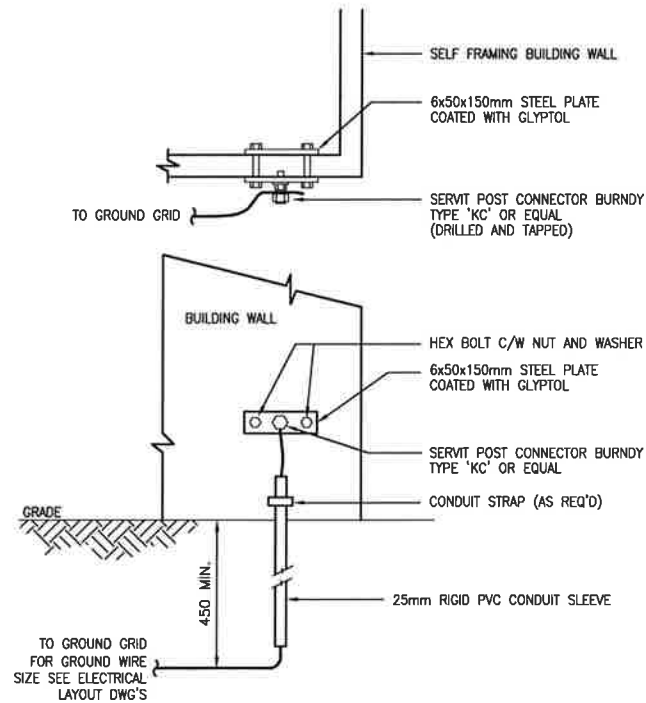


1 GROUND ROD CONNECTION

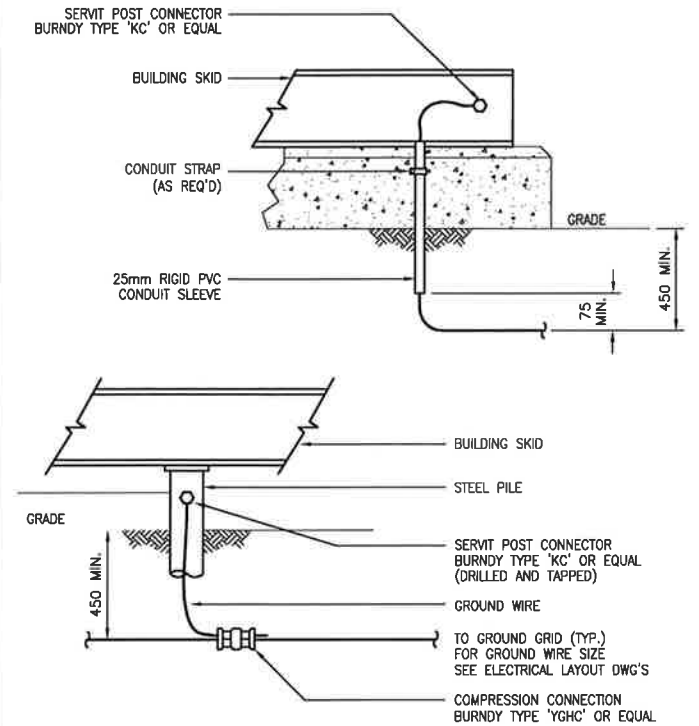


- NOTES:
1. BARE COPPER CONNECTIONS SHALL BE COATED WITH GLYPTAL.
 2. CONNECTIONS SHALL BE WRAPPED WITH ELECTRICAL TAPE.

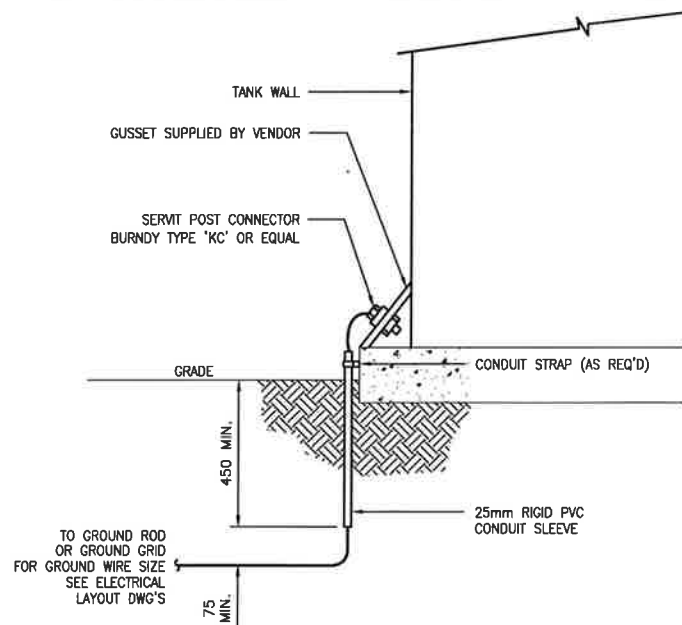
2 GROUND TAP TEE CONNECTION



3 FRAMELESS BUILDING GROUND

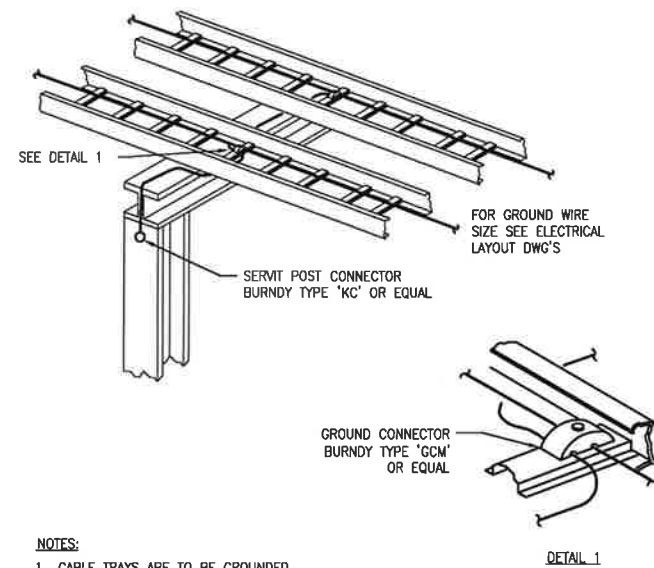


4 SKID/PILE GROUNDING



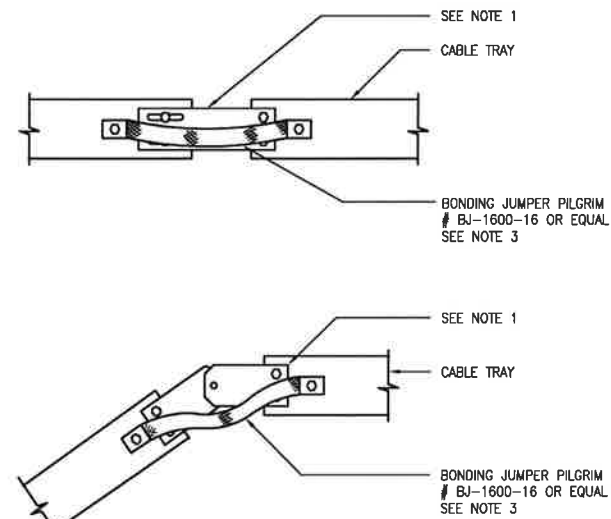
- NOTES:
1. TANKS UP TO 3m DIA. - 1 LUG.
 2. TANKS UP TO 8m DIA. - 2 LUG 180° APART.
 3. TANKS UP TO 16m DIA. - 3 LUG 120° APART.
 4. TANKS OVER 16m DIA. - 4 LUG 90° APART.

5 VERTICAL STORAGE TANK GROUNDING



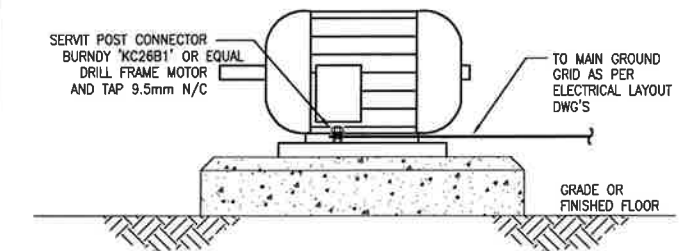
- NOTES:
1. CABLE TRAYS ARE TO BE GROUNDED AT 15m INTERVALS MIN.

6 CABLE TRAY GROUNDING



- NOTES:
1. EXPANSION JOINTS AND ADJUSTABLE ELBOWS ARE SUPPLIED WITH ALL NECESSARY HARDWARE.
 2. APPLY BURNDY PENETROX COMPOUND 'A' BETWEEN TRAY & BONDING JUMPER FOR ALUMINIUM TRAY.
 3. TYP. FOR BOTH SIDE OF TRAY.

7 CABLE TRAY JOINT ASSEMBLY GROUNDING



- NOTES:
1. BARE COPPER CONNECTIONS SHALL BE COATED WITH GLYPTAL.

8 MOTOR GROUNDING

REV	DESCRIPTION	BY	MM/DD/YYYY	CHKD	APPD	JOB No.
A	ISSUED FOR APPROVAL FOR FORTIS CONSTRUCTION (AFC)	WAP	05/30/2014	JD	JD	2136
0	ISSUED FOR CONSTRUCTION	WAP	10/10/2014	JD	JD	2136

PERMIT

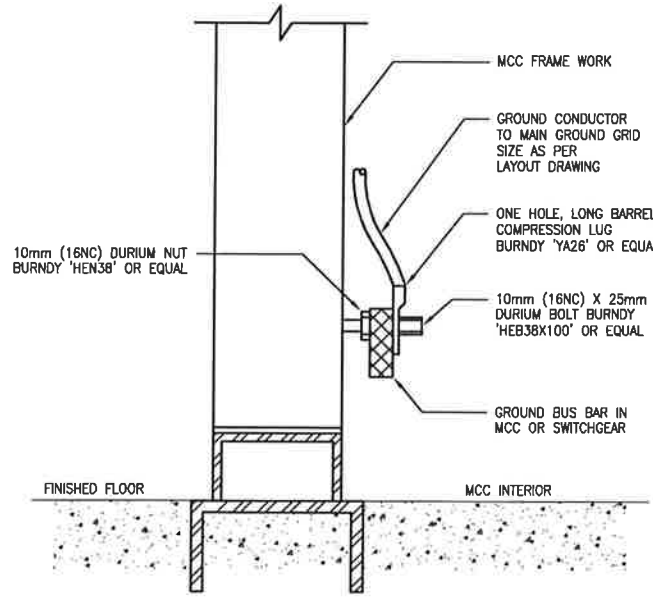
STAMP

ARC RESOURCES LTD.		TNT Engineering Ltd.		SUITE 600, 639 - 5TH AVE SW CALGARY, AB, T2P 0M9 (403) 387-2500 PHONE (403) 387-2535 FAX	
ENGINEERING RECORD		PEMBINA		02-13-048-08 W5M	
DRAWN:	A. PERKINS	DATE:	05/21/2014	2-13 SATELLITE	
CHECKED:	J. DECK	DATE:	05/21/2014	ELECTRICAL INSTALLATION DETAILS - SHEET 1 OF 6	
APPROVED:	J. DECK	DATE:	05/21/2014	SCALE	
ENGINEER:	J. DECK	DATE:	05/21/2014	NTS	
DWG		0213048085.8901		REV.	
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PLOT BY: APERKINS, 10/6/2014 4:51 PM

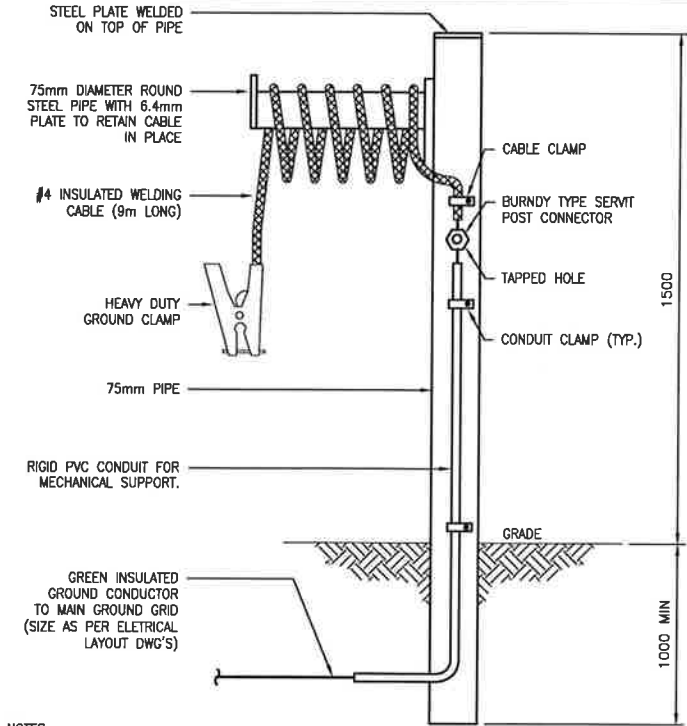
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DRAWING SHEET SIZE: 11" x 17"



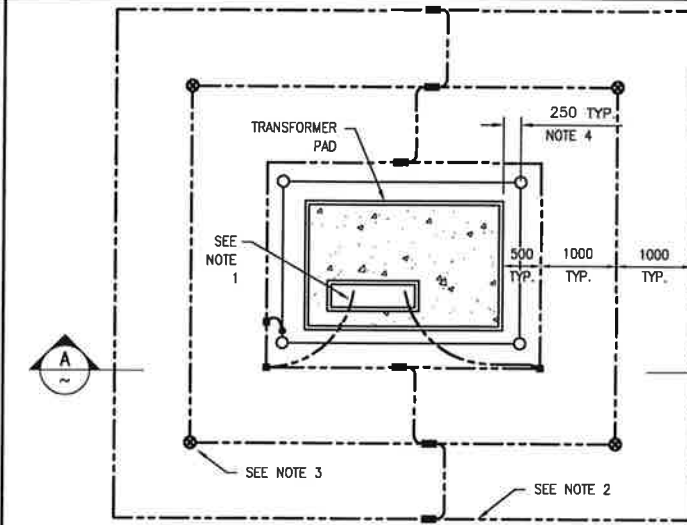
NOTES:
1. BARE COPPER CONNECTIONS SHALL BE COATED WITH GLYPHTOL

9 SWITCHGEAR/MCC GROUNDING



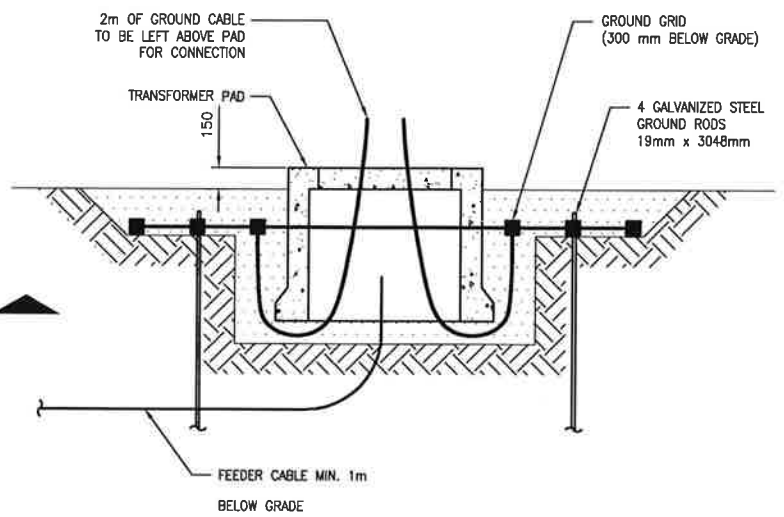
NOTES:
1. BARE COPPER CONNECTIONS SHALL BE COATED WITH GLYPHTOL

10 TANK TRUCKOUT GROUNDING

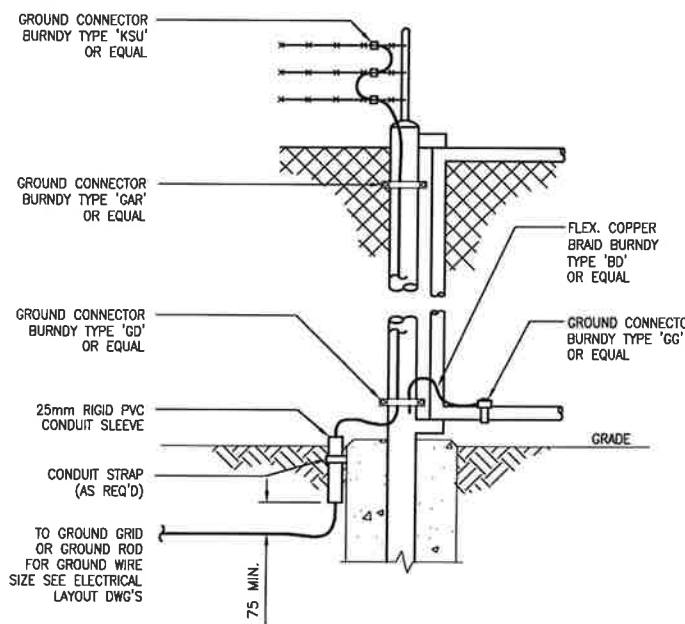


NOTES:
1. 2m. OF EACH WIRE TO BE LEFT ABOVE PAD FOR CONNECTION TO PADMOUNT CASE.
2. 2/0 AWG BARE, STRANDED COPPER
3. GALV. STEEL GROUND RODS; 19mm x 3m (x4)
4. 102 IPS GUARD POSTS TO BE INSTALLED IN CONCRETE AND CONNECTED TO TRANSFORMER GROUNDING. 51 IPS STEEL RAIL 750mm HIGH TO BE INSTALLED BETWEEN POSTS. RAIL IN FRONT OF COMPARTMENT DOORS TO BE REMOVEABLE FOR ACCESS.
5. SECONDARY SERVICE CONNECTORS ARE TO BE SUPPLIED AND INSTALLED BY FIELD CONNTRACTOR. CONNECTOR SHALL BE AS PER DETAIL #14 ON THIS DRAWING. CABLES MUST BE SUPPORTED BELOW CONNECTORS.
6. 4000mm CLEAR AREA TO BE MAINTAINED ON CABLE OPENING SIDE OF THE TRANSFORMER

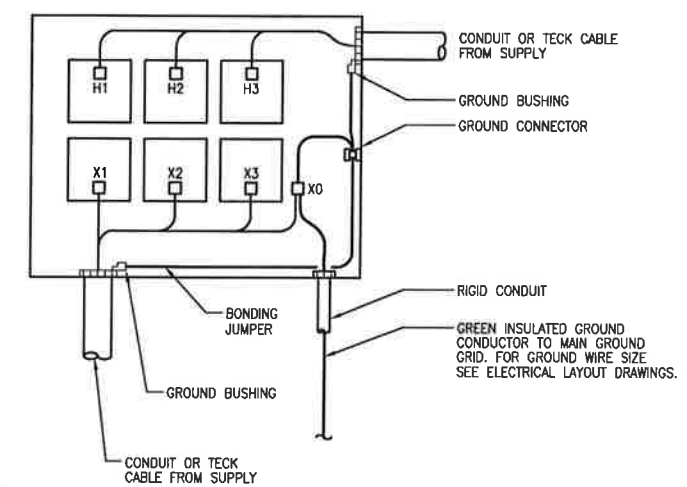
11 PAD MOUNT UTILITY TRANSFORMER GROUNDING



SECTION A
N.T.S.

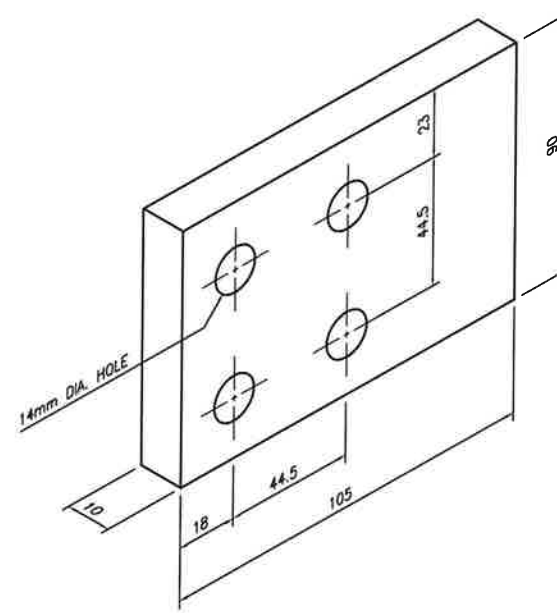


12 MAIN GATE AND FENCE GROUNDING



NOTES:
1. BOND CONDUIT OR CABLE GROUND CONDUCTOR TO GROUNDING BUSHING.

13 DISTRIBUTION TRANSFORMER GROUNDING



NOTES:
1. COPPER CONNECTOR RATED FOR UP 1000KVA AT 480VAC.

14 SERVICE TRANSFORMER SECONDARY CONNECTOR

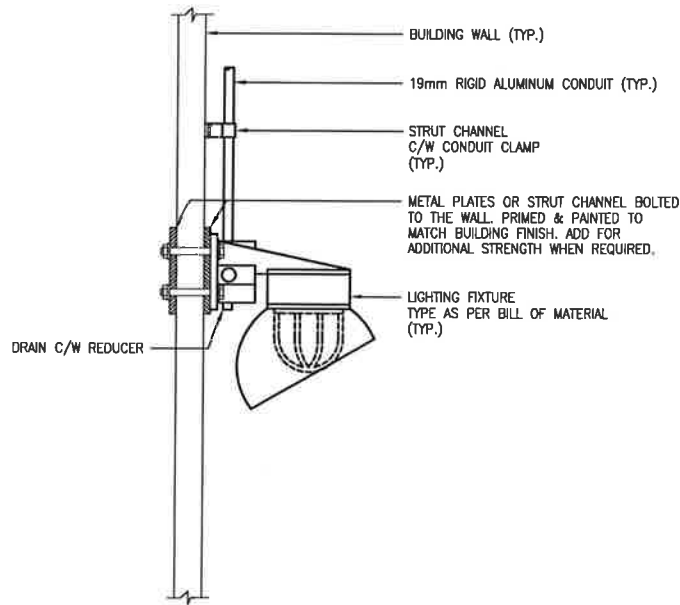
REV	DESCRIPTION	BY	MM/DD/YYYY	CHKD	APPD	JOB No.
A	ISSUED FOR APPROVAL FOR FORTIS CONSTRUCTION (AFC)	WAP	05/30/2014	JD	JD	2136
0	ISSUED FOR CONSTRUCTION	WAP	10/10/2014	JD	JD	2136

PERMIT		STAMP		ARC RESOURCES LTD.		TNT Engineering Ltd.	
						SUITE 600, 639 - 5TH AVE SW CALGARY, AB, T2P 0M9 (403) 387-2500 PHONE (403) 387-2535 FAX	
ENGINEERING RECORD				PEMBINA 02-13-048-08 W5M 2-13 SATELLITE ELECTRICAL INSTALLATION DETAILS - SHEET 2 OF 6			
DRAWN:	A. PERKINS	DATE:	05/21/2014	SCALE		NTS	
CHECKED:	J. DECK	DATE:	05/21/2014	DWG		0213048085.8902	
APPROVED:	J. DECK	DATE:	05/21/2014	REV.		0	
ENGINEER:	J. DECK	DATE:	05/21/2014				

PLOT BY: APERKINS, 10/6/2014 4:50 PM

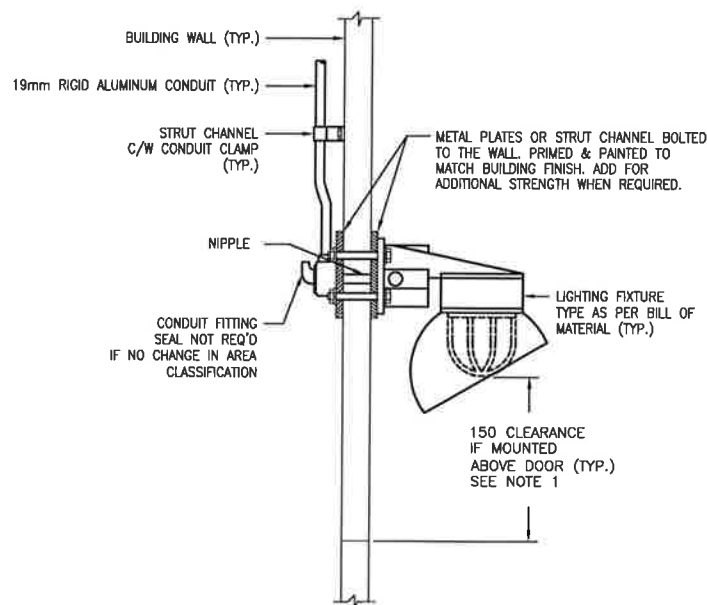
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DRAWING SHEET SIZE: 11" x 17"



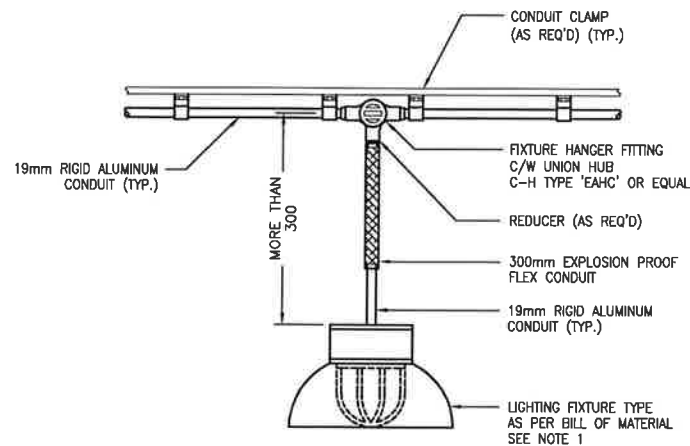
NOTES:
FOR BOTTOM OF FIXTURE MOUNTING HEIGHT SEE ELECTRICAL LAYOUT DWGS.

16 INTERIOR WALL MOUNTED LIGHT FIXTURE
CLASS 1, ZONE 1 & 2



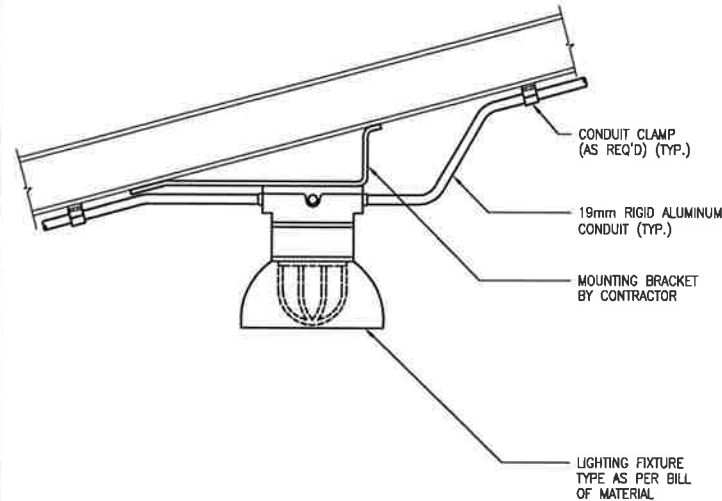
NOTES:
1. FOR BOTTOM OF FIXTURE MOUNTING HEIGHT SEE ELECTRICAL LAYOUT DWGS.

17 EXTERIOR WALL MOUNTED LIGHT FIXTURE
CLASS 1, ZONE 2

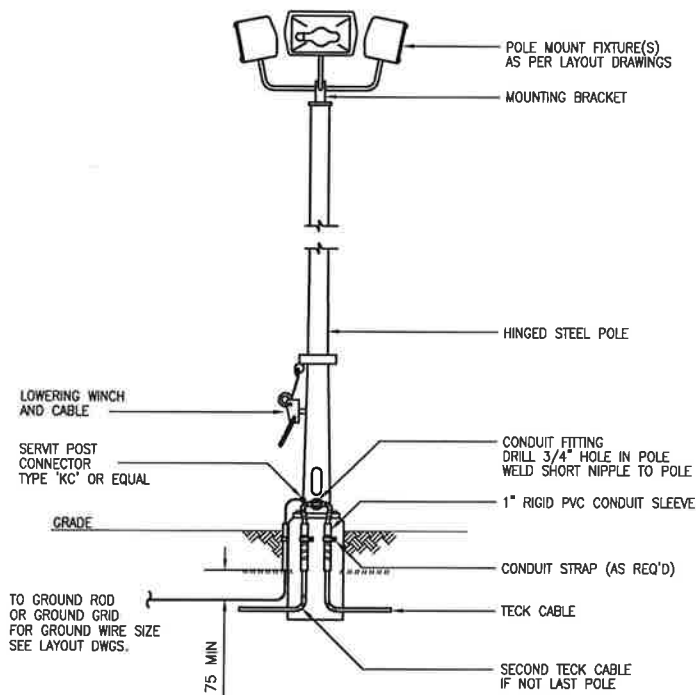


NOTES:
1. FOR BOTTOM OF FIXTURE MOUNTING HEIGHT SEE ELECTRICAL LAYOUT DWG.

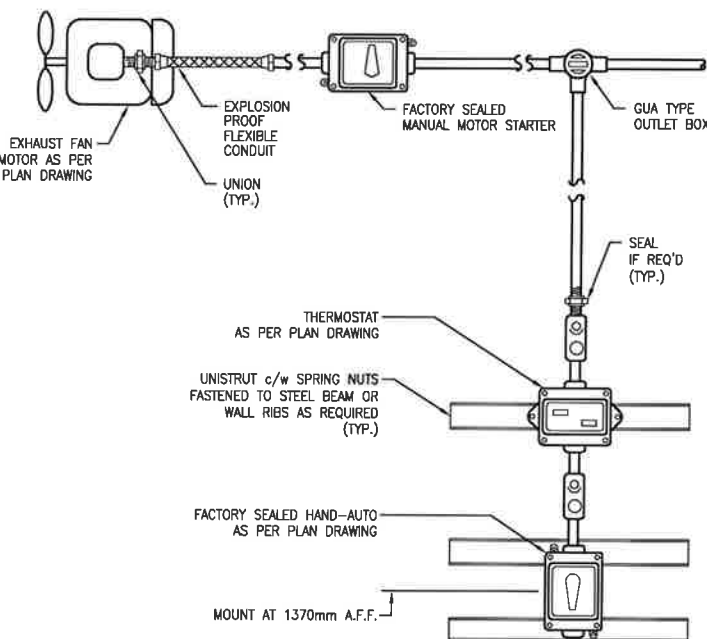
18 PENDANT MOUNTED LIGHT FIXTURE
CLASS 1, ZONE 1 & 2



19 CEILING MOUNTED LIGHT FIXTURE
CLASS 1, ZONE 1 & 2

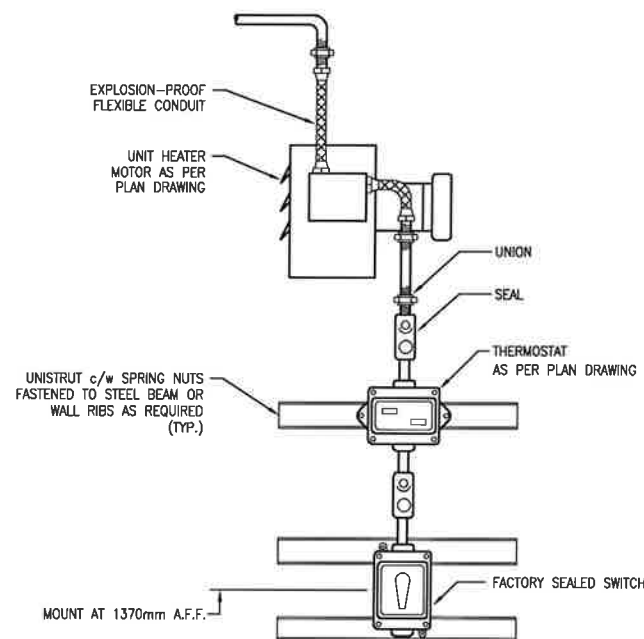


20 POLE MOUNTED FLOODLIGHT FIXTURE



NOTES:
1. THIS DETAIL IS FOR CLASS 1, ZONE 1 APPLICATION. FITTINGS AND MATERIALS FOR CLASS 1, ZONE 2 AND NON-HAZARDOUS AREAS AS PER C.E.C. REQUIREMENTS AND PROJECT AREA CLASSIFICATION.

22 EXHAUST FAN
CLASS 1, ZONE 1 & 2



NOTES:
1. THIS DETAIL IS FOR CLASS 1, ZONE 1 APPLICATION. FITTINGS AND MATERIALS FOR CLASS 1, ZONE 2 AND NON-HAZARDOUS AREAS AS PER C.E.C. REQUIREMENTS AND PROJECT AREA CLASSIFICATION.

23 UNIT HEATER
CLASS 1, ZONE 1 & 2

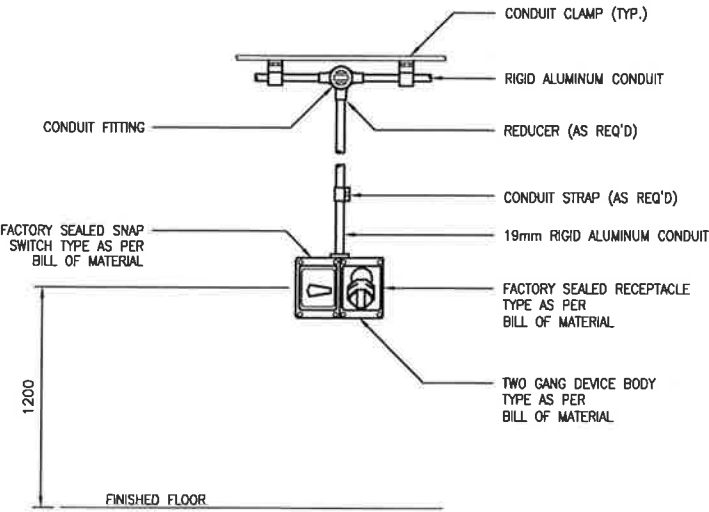
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A	ISSUED FOR APPROVAL FOR FORTIS CONSTRUCTION (AFC)	WAP	05/30/2014	JD	JD	2136
O	ISSUED FOR CONSTRUCTION	WAP	10/10/2014	JD	JD	2136

PERMIT	STAMP	ENGINEERING RECORD	PEMBINA 02-13-048-08 W5M 2-13 SATELLITE ELECTRICAL INSTALLATION DETAILS - SHEET 3 OF 6
		DRAWN: A. PERKINS CHECKED: J. DECK APPROVED: J. DECK ENGINEER: J. DECK	DATE: 05/21/2014 DATE: 05/21/2014 DATE: 05/21/2014 DATE: 05/21/2014
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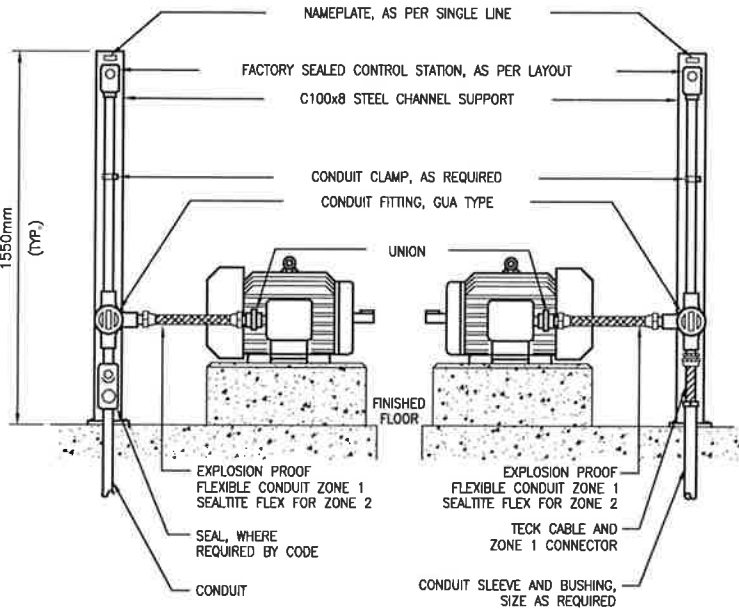
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DRAWING SHEET SIZE: 11" x 17"

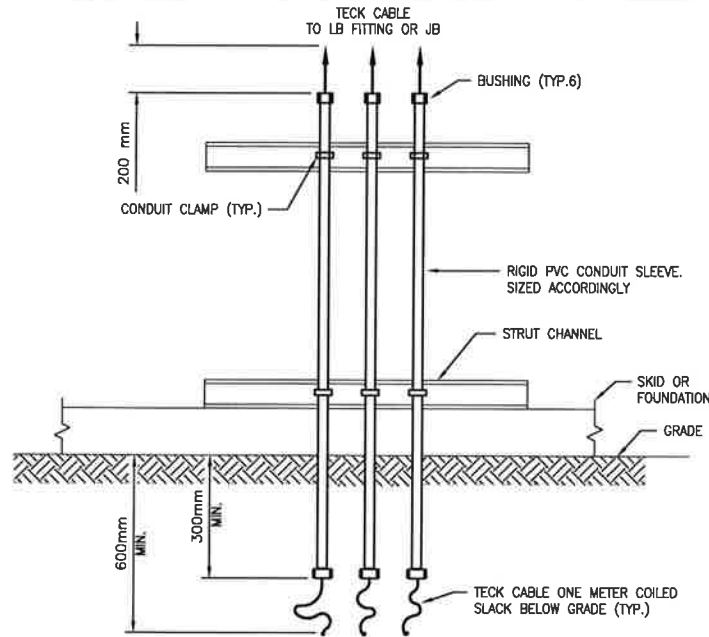


24 LIGHT SWITCH AND RECEPTACLE COMBINATION
CLASS 1, ZONE 1 & 2



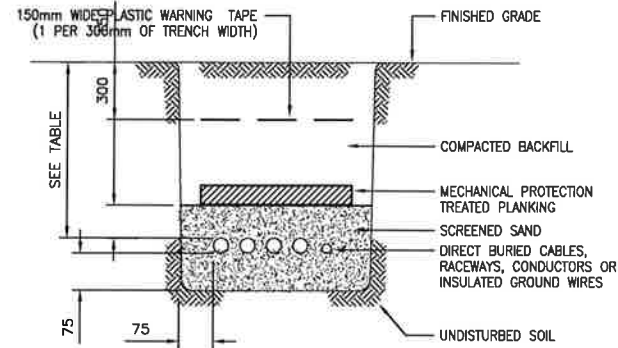
NOTES:
1. THIS DETAIL IS FOR CLASS 1, ZONE 1 APPLICATION. FITTINGS AND MATERIALS FOR CLASS 1, ZONE 2 AND NON-HAZARDOUS AREAS AS PER C.E.C. REQUIREMENTS AND PROJECT AREA CLASSIFICATION.

25 MOTOR CONNECTION WITH COMPOSITE TECK OR CONDUIT
CLASS 1, ZONE 1 & 2



NOTES:
1. TECK CABLE CONNECTORS:
CLASS 1, ZONE 1 & 2 - T & B TYPE 'STX' OR EQUAL
2. CONDUIT FITTINGS:
CLASS 1, ZONE 1 - EXPLOSION PROOF
CLASS 1, ZONE 2 - VAPOURTIGHT

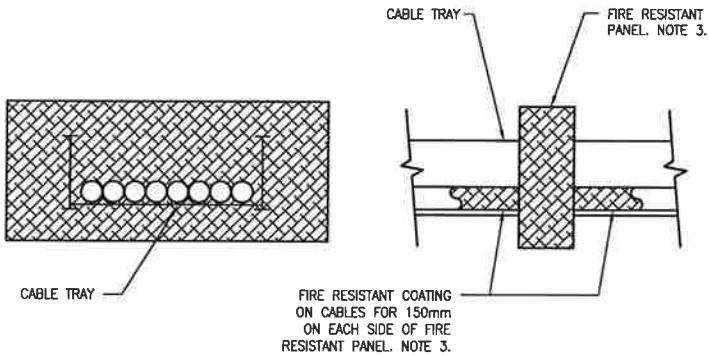
26 TYPICAL CONDUIT STUB-UP
CLASS 1, ZONE 1 & 2



WIRING METHOD	NON-VEHICULAR AREAS		VEHICULAR AREAS	
	750 V OR LESS	OVER 750 V	750 V OR LESS	OVER 750 V
CONDUCTORS OR CABLES NOT HAVING A METAL SHEATH OR ARMOUR	600mm	750mm	900mm	1000mm
RACEWAY AND CONDUCTORS OR CABLES HAVING A METAL SHEATH OR ARMOUR	450mm	750mm	600mm	1000mm

NOTES:
1. NOT TO BE USED FOR COMMUNICATION CIRCUIT APPLICATIONS AS MINIMUM COVER REQUIREMENTS ARE DIFFERENT, SEE SECTION 60-800 OF C.E.C.
2. MINIMUM COVER MAY BE REDUCED BY 150mm, SEE SECTION 12-012(2) C.E.C.

27 TRENCH DETAIL FOR DIRECT BURIED CABLES, RACEWAYS OR CONDUCTORS



NOTES:
1. APPLY FIRE RESISTANT COATING TO BOTH INSIDE AND OUTSIDE OF FIRE RESISTANT PANEL AND TO CABLES.
2. ALL COMPONENTS OF A ULC APPROVED FIRE STOP SYSTEM TO BE INSTALLED PER MANUFACTURERS' INSTRUCTIONS FOR SPECIFIED FIRE RATING.
3. IF WALL PENETRATION IS THROUGH A NON FIRE WALL THEN USE EXPANDING FOAM INSULATION TO SEAL OPENING.

28 CABLE TRAY WALL PENETRATION

REV	DESCRIPTION	BY	MM/DD/YYYY	CHKD	APPD	JOB No.
A	ISSUED FOR APPROVAL FOR FORTIS CONSTRUCTION (AFC)	WAP	05/30/2014	JD	JD	2136
0	ISSUED FOR CONSTRUCTION	WAP	10/10/2014	JD	JD	2136

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ARC RESOURCES LTD.

ENGINEERING RECORD	
DRAWN:	A. PERKINS
CHECKED:	J. DECK
APPROVED:	J. DECK
ENGINEER:	J. DECK

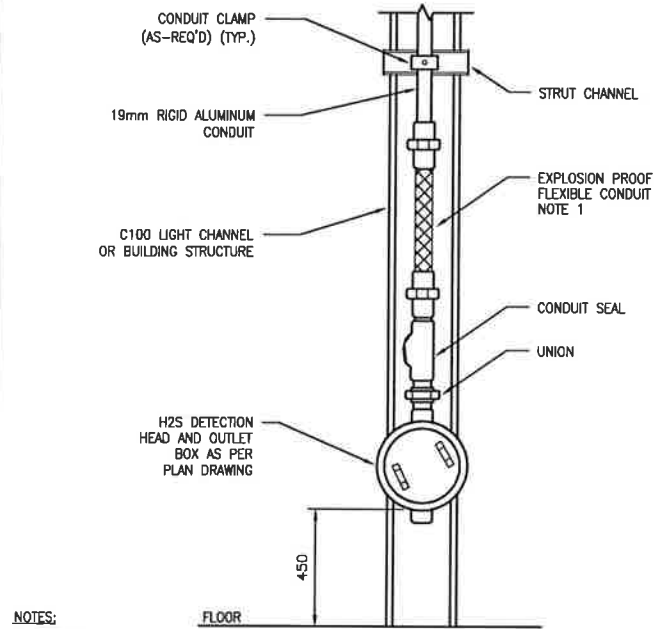
PEMBINA 02-13-048-08 W5M 2-13 SATELLITE ELECTRICAL INSTALLATION DETAILS - SHEET 4 OF 6	
SCALE	NTS
DWG	0213048085.8904
REV.	0

TNT Engineering Ltd.
SUITE 600, 639 - 5TH AVE SW
CALGARY, AB, T2P 0M9
(403) 387-2500 PHONE
(403) 387-2535 FAX

PLOT BY: APERKINS, 10/5/2014 4:43 PM

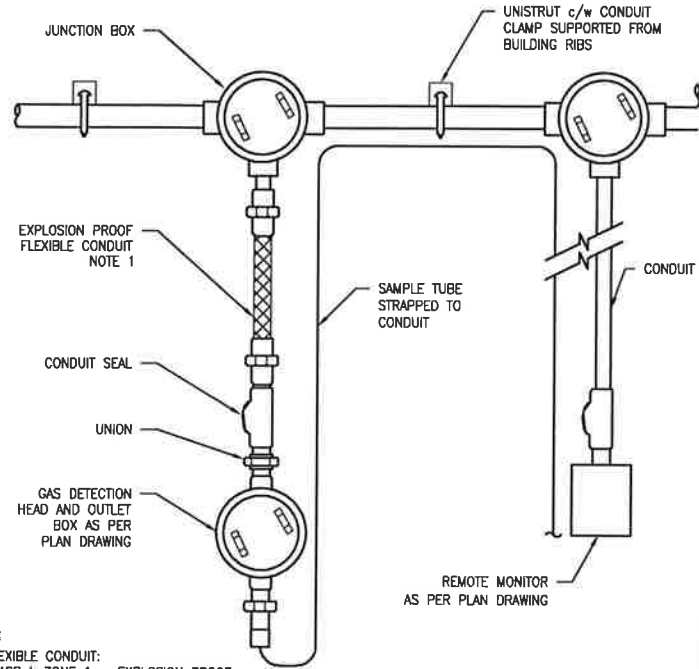
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DRAWING SHEET SIZE: 11" x 17"



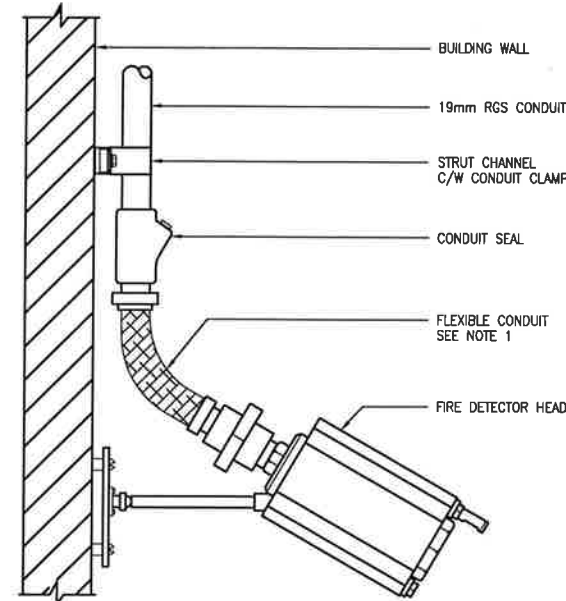
- NOTES:
1. FLEXIBLE CONDUIT:
CLASS I, ZONE 1 - EXPLOSION PROOF
CLASS I, ZONE 2 - SEALTITE FLEX

32 H2S DETECTOR HEAD
CLASS 1, ZONE 1 & 2



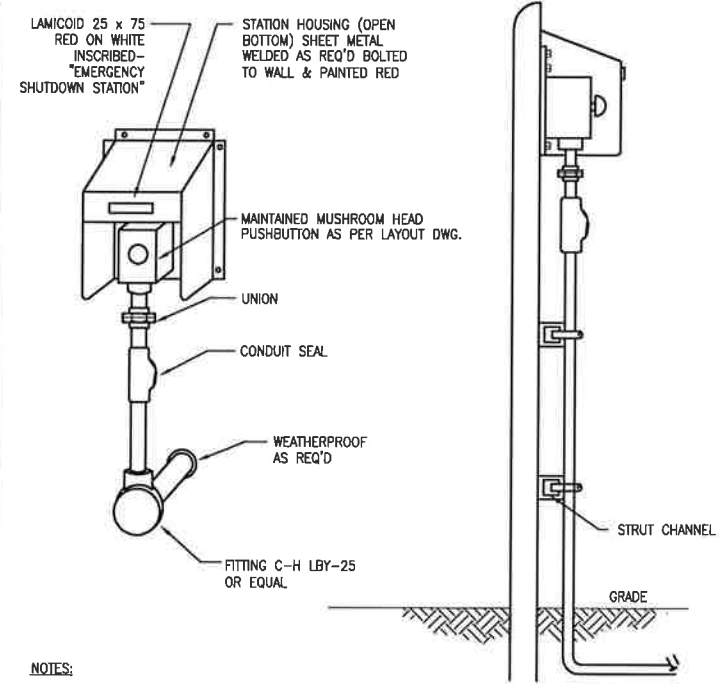
- NOTES:
1. FLEXIBLE CONDUIT:
CLASS I, ZONE 1 - EXPLOSION PROOF
CLASS I, ZONE 2 - SEALTITE FLEX

33 FLEXIBLE CEILING MOUNTED
GAS DETECTION HEAD C/W REMOTE CALIBRATION
CLASS 1, ZONE 1 & 2



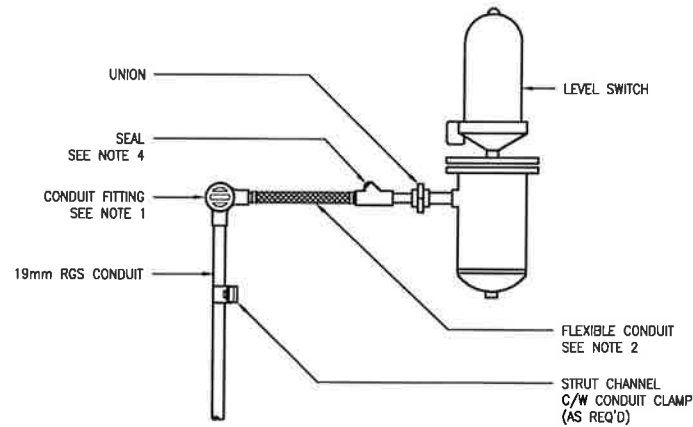
- NOTES:
1. FLEXIBLE CONDUIT:
CLASS I, ZONE 1 - EXPLOSION PROOF
CLASS I, ZONE 2 - SEALTITE FLEX
 2. HORIZONTAL AIM OF SENSOR SHALL BE AS PER ELECTRICAL LAYOUT DWGS.
 3. SENSORS SHALL BE MOUNTED AT BUILDING EAVE HEIGHT UNLESS OTHERWISE SPECIFIED ON THE ELECTRICAL LAYOUT DWG.

34 BRACKET MOUNTED FIRE DETECTOR HEAD
CLASS 1, ZONE 1 & 2



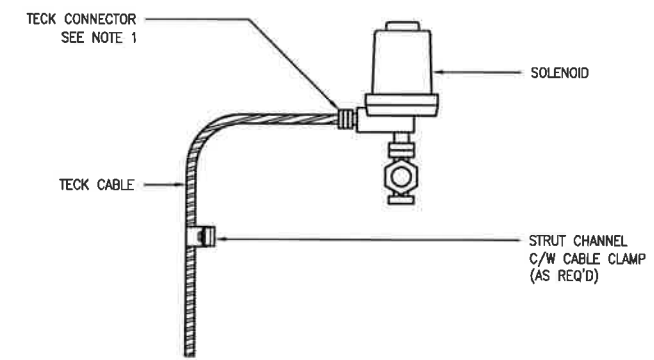
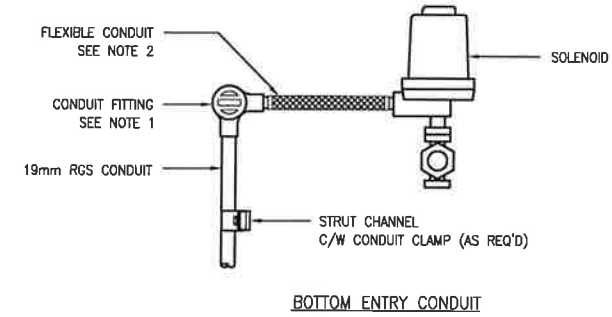
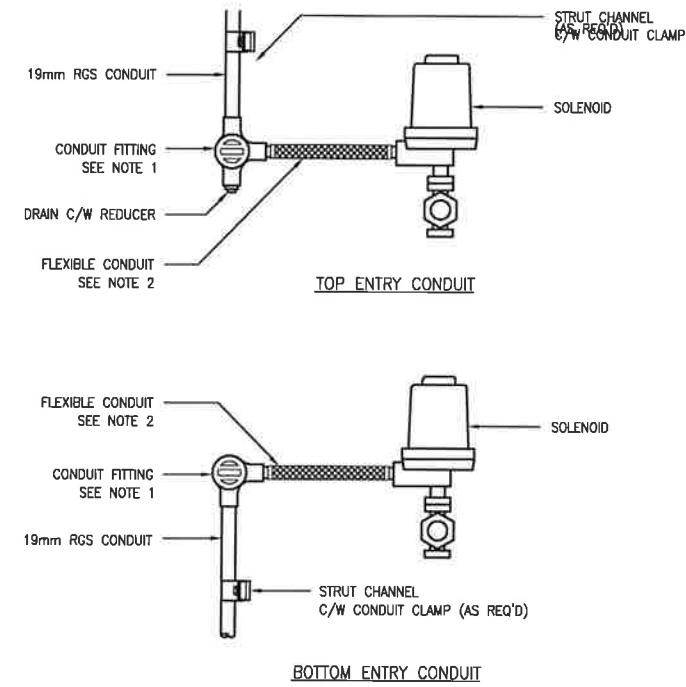
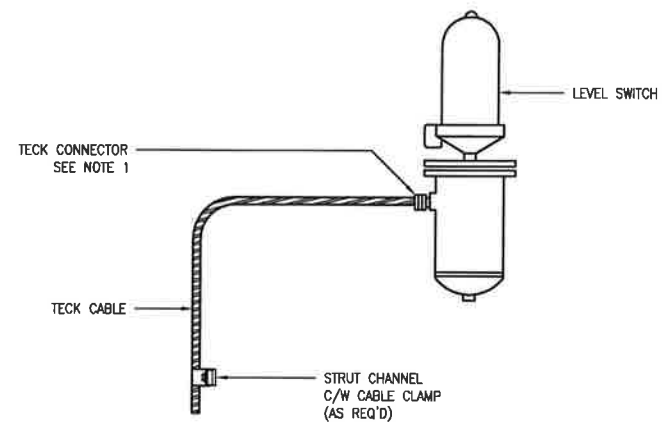
- NOTES:
1. ESD STATION SHALL BE ADEQUATELY SUPPORTED BY FIXED WALL STRUCTURE (E.G.) STUDS TO MINIMIZE EFFECTS OF VIBRATION.

35 EXTERIOR WALL & MAIN GATE ESD STATION
CLASS 1, ZONE 1 & 2



- NOTES:
1. CONDUIT FITTINGS:
CLASS I, ZONE 1 - EXPLOSION PROOF
CLASS I, ZONE 2 - VAPOURTIGHT
 2. FLEXIBLE CONDUIT:
CLASS I, ZONE 1 - EXPLOSION PROOF
CLASS I, ZONE 2 - SEALTITE FLEX
 3. TECK CABLE CONNECTORS:
CLASS 1, ZONE 1 & 2 - T&B TYPE 'STX' OR EQUAL.
 4. WHERE SPACE IS LIMITED SEAL MAY BE LOCATED AT OPPOSITE END OF FLEXIBLE CONDUIT, (IN ZONE 2 LOCATIONS THE FLEXIBLE CONDUIT MUST THEN BE EXPLOSION PROOF) THE LENGTH OF THE CONDUIT SHALL BE LESS THAN, OR EQUAL TO, C.E.C. REQUIREMENTS.
 5. NO SEAL REQUIRED IF I.S./FACTORY SEALED TRANSMITTER/SWITCH IS USED.

36 LEVEL SWITCH TECK CABLE/CONDUIT INSTALLATION
CLASS 1, ZONE 1 & 2



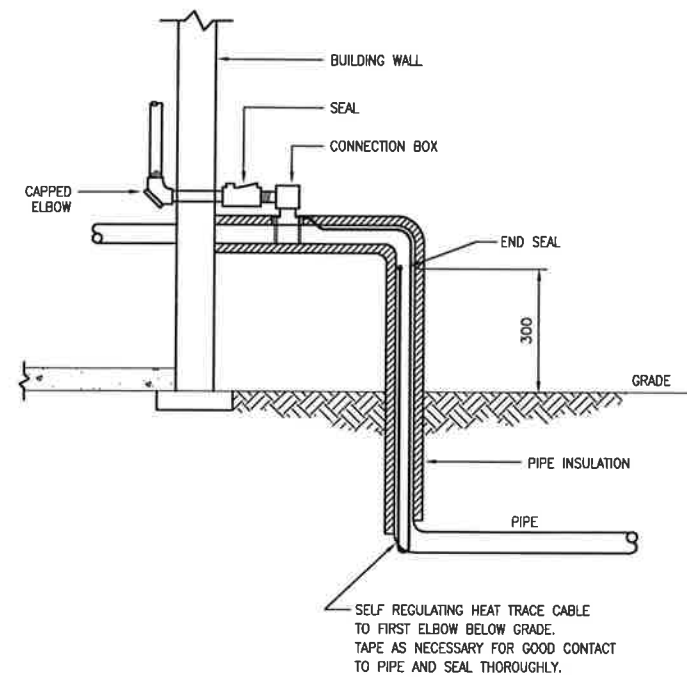
- NOTES:
- 1.) CONDUIT FITTINGS:
CLASS I, ZONE 1 - EXPLOSION PROOF
CLASS I, ZONE 2 - VAPOURTIGHT
 - 2.) FLEXIBLE CONDUIT:
CLASS I, ZONE 1 - EXPLOSION PROOF
CLASS I, ZONE 2 - SEALTITE FLEX
 - 3.) TECK CABLE CONNECTORS:
CLASS 1, ZONE 1 & 2 - T&B TYPE 'STX' OR EQUAL.

37 SOLENOID TECK CABLE/ CONDUIT INSTALLATION
CLASS 1, ZONE 1 & 2

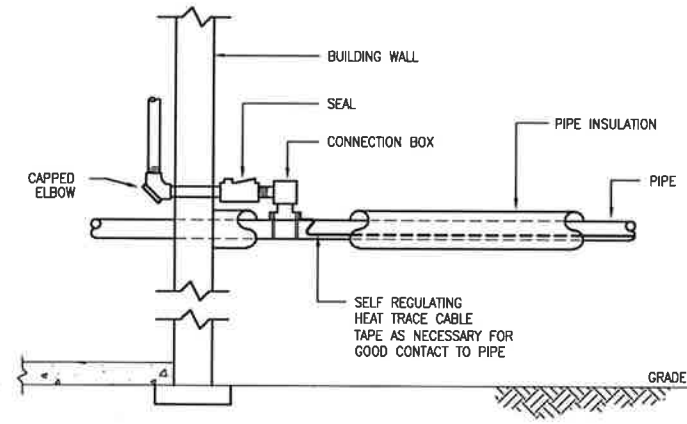
REV	DESCRIPTION	BY	MM/DD/YYYY	CHKD	APPD	JOB No.
A	ISSUED FOR APPROVAL FOR FORTIS CONSTRUCTION (AFC)	WAP	05/30/2014	JD	JD	2136
O	ISSUED FOR CONSTRUCTION	WAP	10/10/2014	JD	JD	2136

PERMIT		STAMP		ARC RESOURCES LTD.		TNT Engineering Ltd.		SUITE 600, 639 - 5TH AVE SW CALGARY, AB, T2P 0M9 (403) 387-2500 PHONE (403) 387-2535 FAX	
ENGINEERING RECORD		PEMBINA 02-13-048-08 W5M 2-13 SATELLITE ELECTRICAL INSTALLATION DETAILS - SHEET 5 OF 6		SCALE		NTS		DWG	
DRAWN: A. PERKINS		DATE: 05/21/2014		REV.		0		0213048085.8905	
CHECKED: J. DECK		DATE: 05/21/2014							
APPROVED: J. DECK		DATE: 05/21/2014							
ENGINEER: J. DECK		DATE: 05/21/2014							

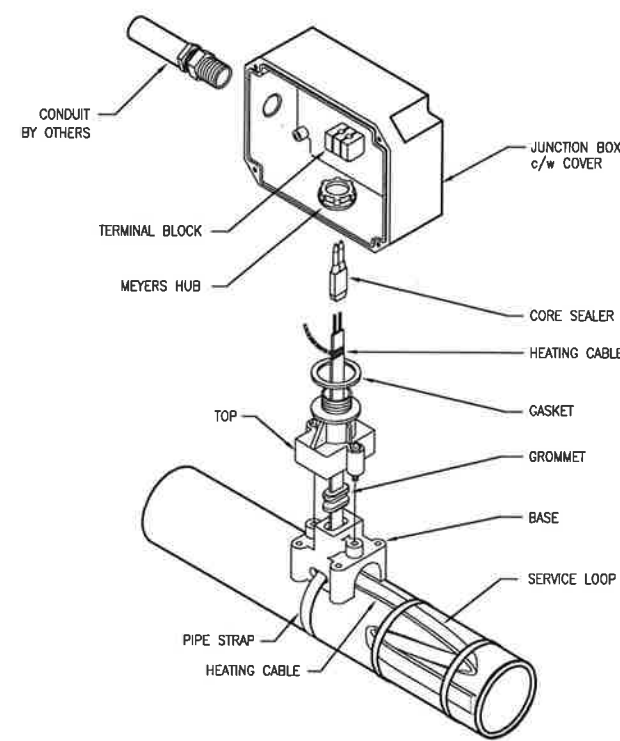
PLOT BY: APERKINS, 10/6/2014 4:41 PM
Z:\DRAFTING\JOBS\ARC RESOURCES LTD\PEMBINA\W5M 8\02-13-048-08 W5M\ELECTRICAL\0213048085.8906.DWG
DRAWING SHEET SIZE: 11" x 17"



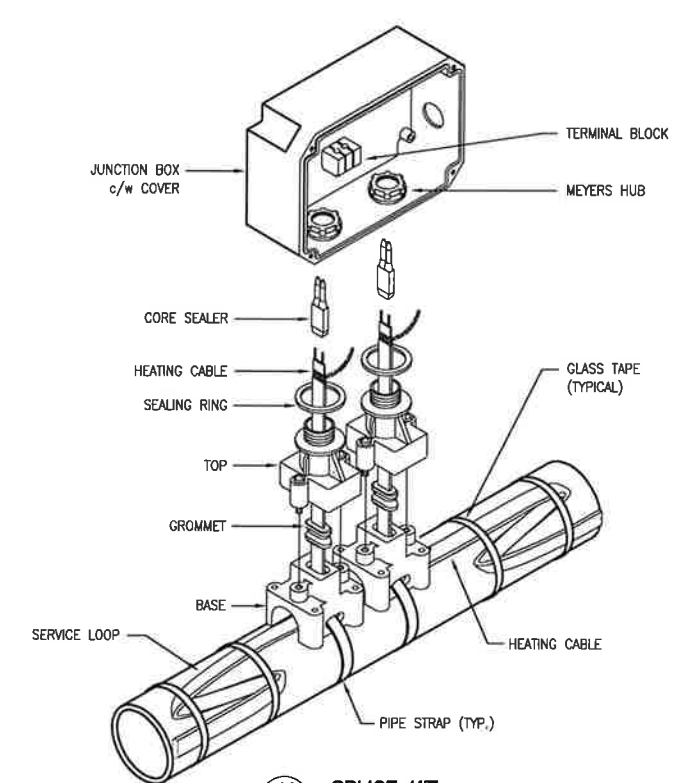
38 HEAT TRACE CABLE BELOW GRADE DETAIL



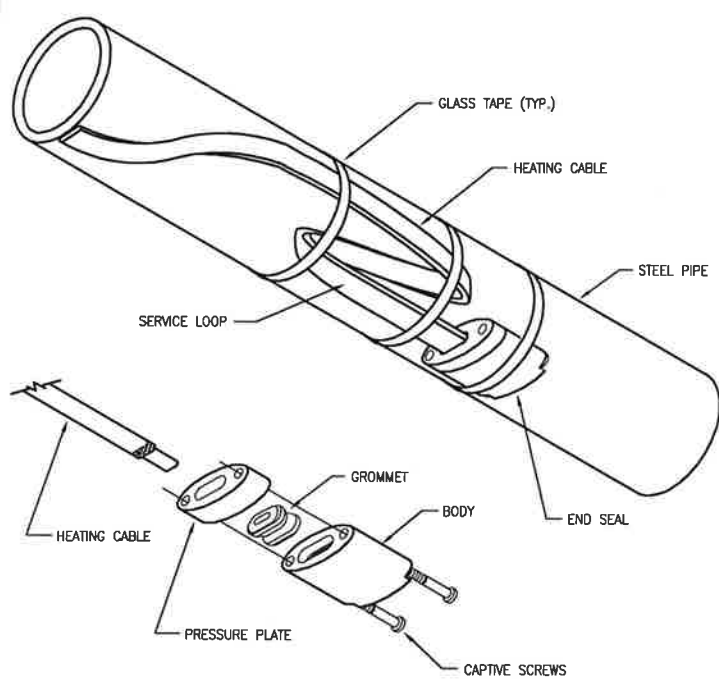
39 HEAT TRACE CABLE DETAIL



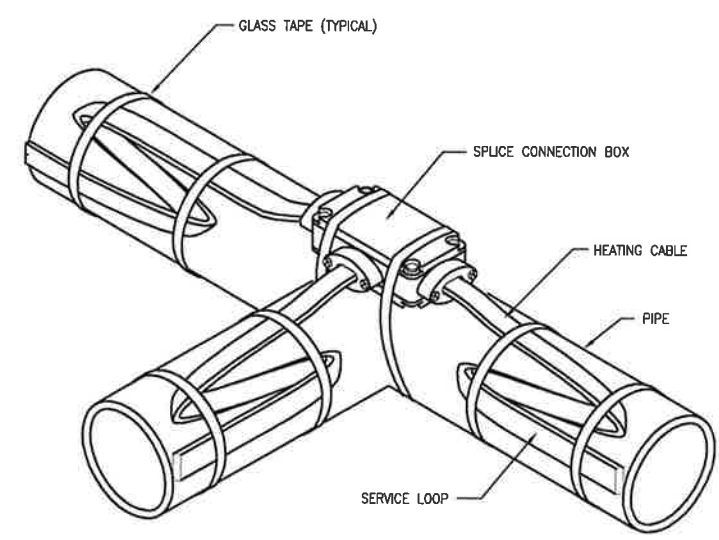
40 POWER CONNECTION KIT



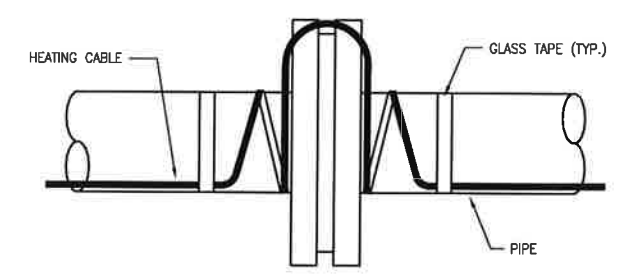
41 SPLICE KIT



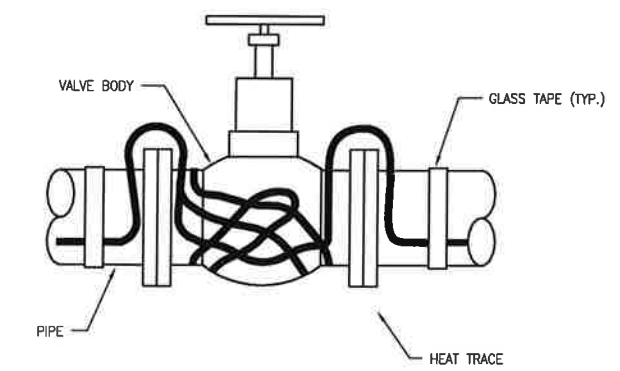
42 END SEAL KIT



43 TEE KIT



44 TYPICAL HEATING CABLE ON FLANGE



NOTE:
THE DETAIL SHOWS THE GENERAL INSTALLATION METHOD.
THE HEATER CABLE INSTALLATION WILL LOOK DIFFERENT
FOR DIFFERENT SHAPES AND VALVE LENGTHS.

45 TYPICAL HEATING CABLE ON VALVE

REV	DESCRIPTION	BY	MM/DD/YYYY	CHKD	APPD	JOB No.
A	ISSUED FOR APPROVAL FOR FORTIS CONSTRUCTION (AFC)	WAP	05/30/2014	JD	JD	2136
0	ISSUED FOR CONSTRUCTION	WAP	10/10/2014	JD	JD	2136

PERMIT	STAMP

ENGINEERING RECORD	
DRAWN: A. PERKINS	DATE: 05/21/2014
CHECKED: J. DECK	DATE: 05/21/2014
APPROVED: J. DECK	DATE: 05/21/2014
ENGINEER: J. DECK	DATE: 05/21/2014

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PEMBINA
02-13-048-08 W5M
2-13 SATELLITE
ELECTRICAL INSTALLATION DETAILS - SHEET 6 OF 6

SCALE	NTS	DWG	0213048085.8906	REV.	0
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LEGEND:

○○○○

CLASS I ZONE 0

▨

CLASS I ZONE 1

▧

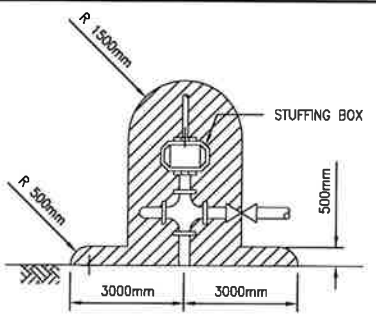
CLASS I ZONE 2

▩

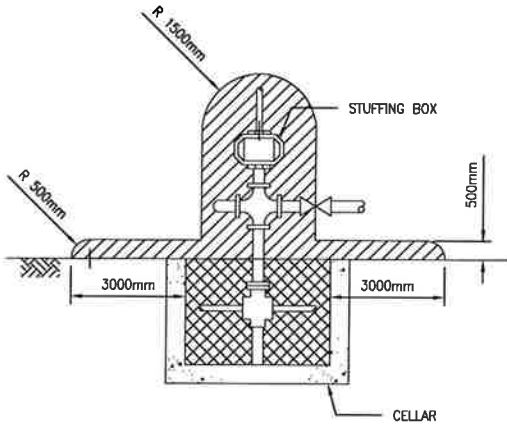
CLASS I ZONE 2
450mm ABOVE GRADE
(UNLESS OTHERWISE NOTED)

□

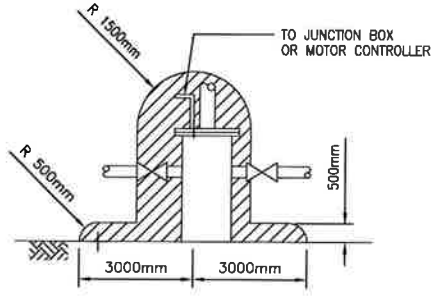
NONCLASSIFIED



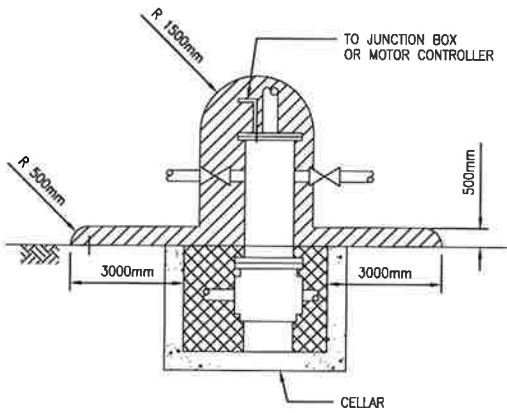
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NON-ENCLOSED BEAM PUMPING WELL IN AN ADEQUATELY VENTILATED AREA WITHOUT A CELLAR



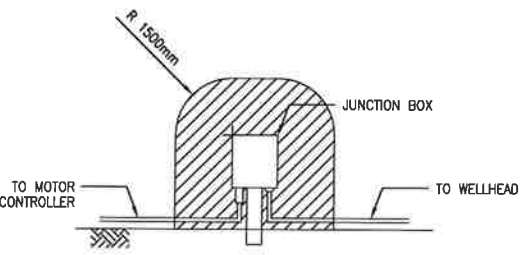
4
NON-ENCLOSED BEAM PUMPING WELL IN AN ADEQUATELY VENTILATED AREA WITH AN INADEQUATELY VENTILATED CELLAR



5
ELECTRIC SUBMERSIBLE PUMPING WELL IN A NON-ENCLOSED ADEQUATELY VENTILATED AREA WITHOUT A CELLAR



6
ELECTRIC SUBMERSIBLE PUMPING WELL IN A NON-ENCLOSED ADEQUATELY VENTILATED AREA WITH AN INADEQUATELY VENTILATED CELLAR



7
JUNCTION BOX IN A NON-ENCLOSED ADEQUATELY VENTILATED AREA CONNECTED TO AN ELECTRIC SUBMERSIBLE PUMP

REV	DESCRIPTION	BY	MM/DD/YYYY	CHKD	APPD	JOB No.
A	ISSUED FOR APPROVAL FOR FORTIS CONSTRUCTION (AFC)	WAP	05/30/2014	JD	JD	2136
0	ISSUED FOR CONSTRUCTION	WAP	10/10/2014	JD	JD	2136

PERMIT

STAMP

ARC RESOURCES LTD.

ENGINEERING RECORD

DRAWN:	A. PERKINS	DATE:	05/21/2014
CHECKED:	J. DECK	DATE:	05/21/2014
APPROVED:	J. DECK	DATE:	05/21/2014
ENGINEER:	J. DECK	DATE:	05/21/2014

TNT Engineering Ltd.

SUITE 600, 639 - 5TH AVE SW
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(403) 387-2500 PHONE
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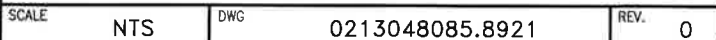
PEMBINA
02-13-048-08 W5M
2-13 SATELLITE
ELECTRICAL INSTALLATION AND
AREA CLASSIFICATION DETAILS

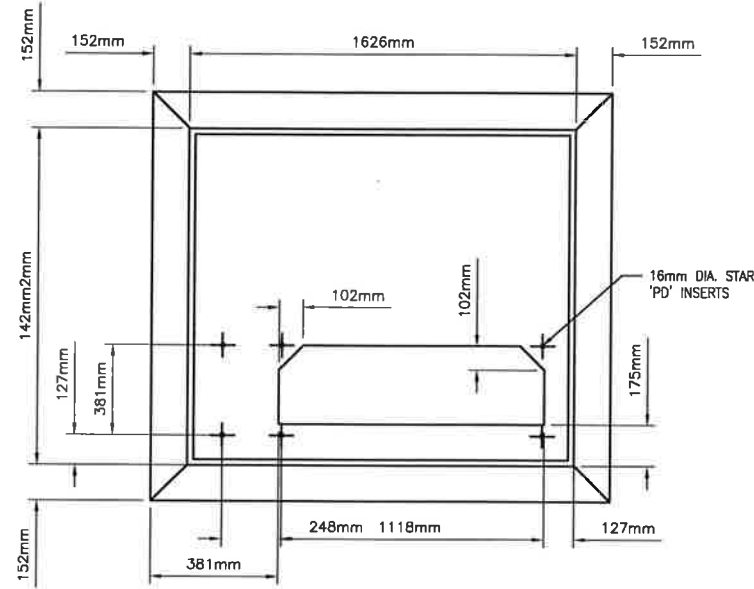
SCALE NTS DWG 0213048085.8920 REV. 0

1. THE FOLLOWING MATERIAL IS REQUIRED TO INSTALL THE GROUND GRID AROUND PADMOUNT TRANSFORMERS

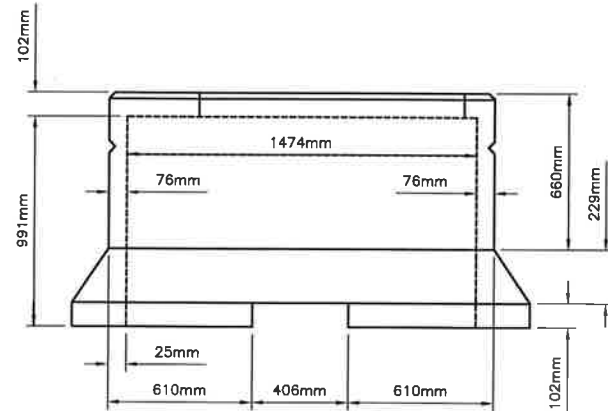
STANDARD SELF-CONTAINED SUPPLY CONFIGURATIONS						
SELF CONTAINED METERS (UP TO 200 AMPS)						
VOLTAGE	PHASE	WIRE	CONNECTION	SOCKET	FORITS METERING GUIDE	REMARKS
120	1	2	--	4 JAW	Figure 6.4.1	NEUTRAL ON RIGHT SIDE
120/240	1	3	--	4 JAW	Figure 6.4.2	--
240/480	1	3	--	4 JAW	Figure 6.4.2	--
120/208	2	3	NETWORK	5 JAW	Figure 6.4.3	5TH JAW AT 9 O'CLOCK
120/240	3	4	DELTA	7 JAW	Figure 6.4.4	"HIGHLEG" IN TOP RIGHT TERMINAL
120/208Y	3	4	STAR	7 JAW	Figure 6.4.5	--
277/480Y	3	4	STAR	7 JAW	Figure 6.4.5	--
347/600Y	3	4	STAR	7 JAW	Figure 6.4.5	--

STAMP

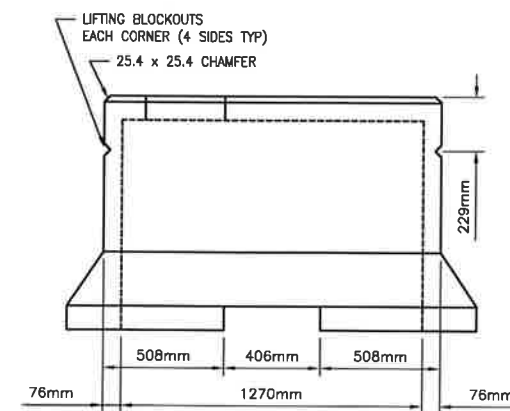




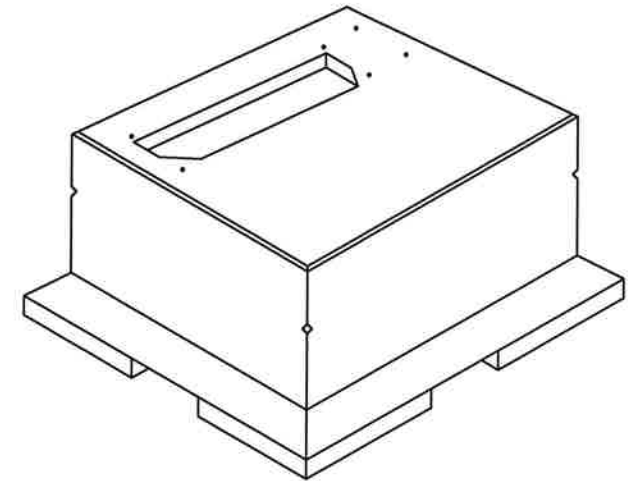
PLAN VIEW



FRONT VIEW



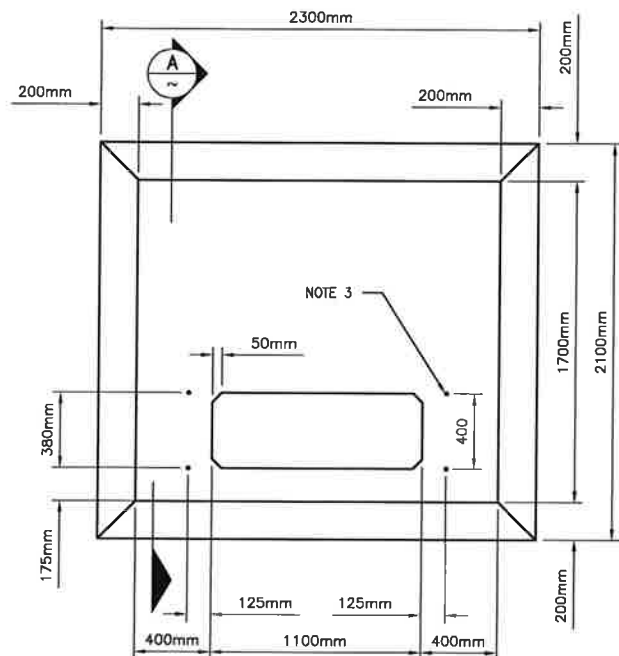
SIDE VIEW



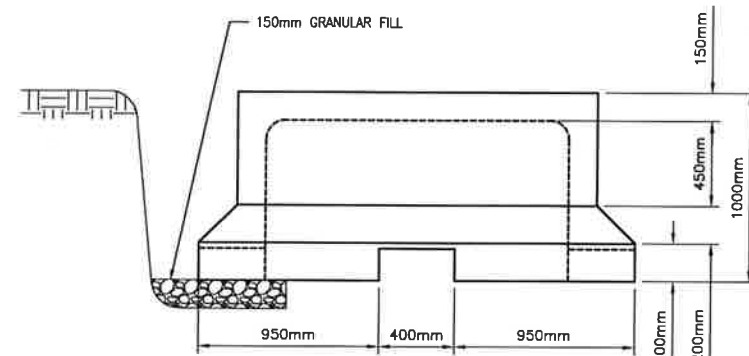
ISOMETRIC VIEW

8
PRECAST CONCRETE BASE FOR THREE PHASE TRANSFORMER
FOR ALL 500kVA & BELOW RADIAL AND LOOP FEED TRANSFORMERS

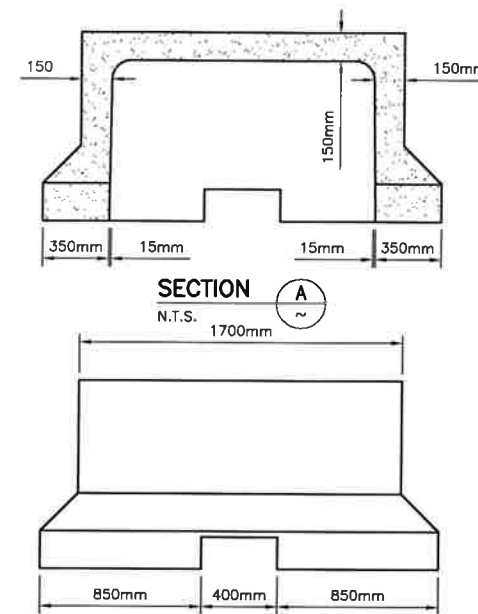
- NOTES:
1. MASS 4940 lbs/2240kg.
 2. MAXIMUM SUPERIMPOSED LOAD 3000kg.
 3. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE INDICATED.



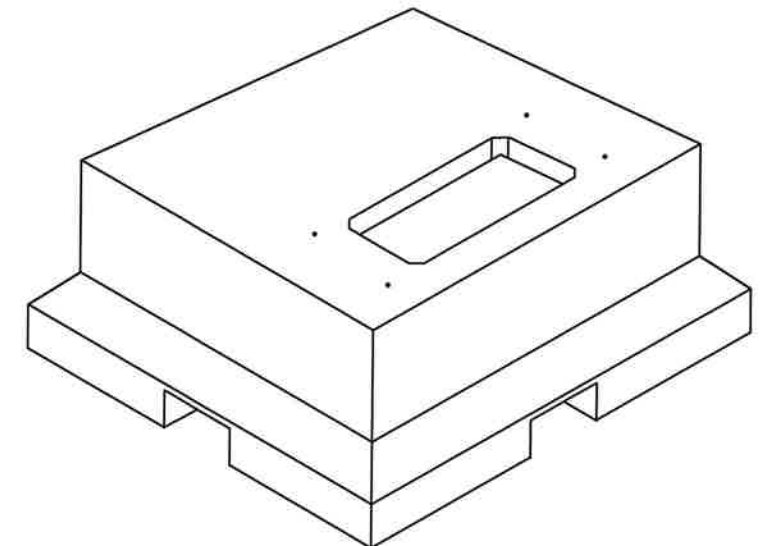
PLAN VIEW



FRONT VIEW



RIGHT VIEW



ISOMETRIC VIEW

9
PRECAST CONCRETE TRANSFORMER PAD FOR THREE PHASE
750kVA TO 3000kVA RADIAL AND LOOP FEED TRANSFORMERS

- NOTES:
1. MASS 9421 lbs/4272kg.
 2. MAXIMUM SUPERIMPOSED LOAD 6500kg.
 3. THERE ARE 4 ANCHOR BOLTS, 16mm # x 127mm, PROJ. 40.
 4. KNOCKOUTS ARE TO BE INCLUDED ON ALL FOUR SIDES.
 5. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE INDICATED.

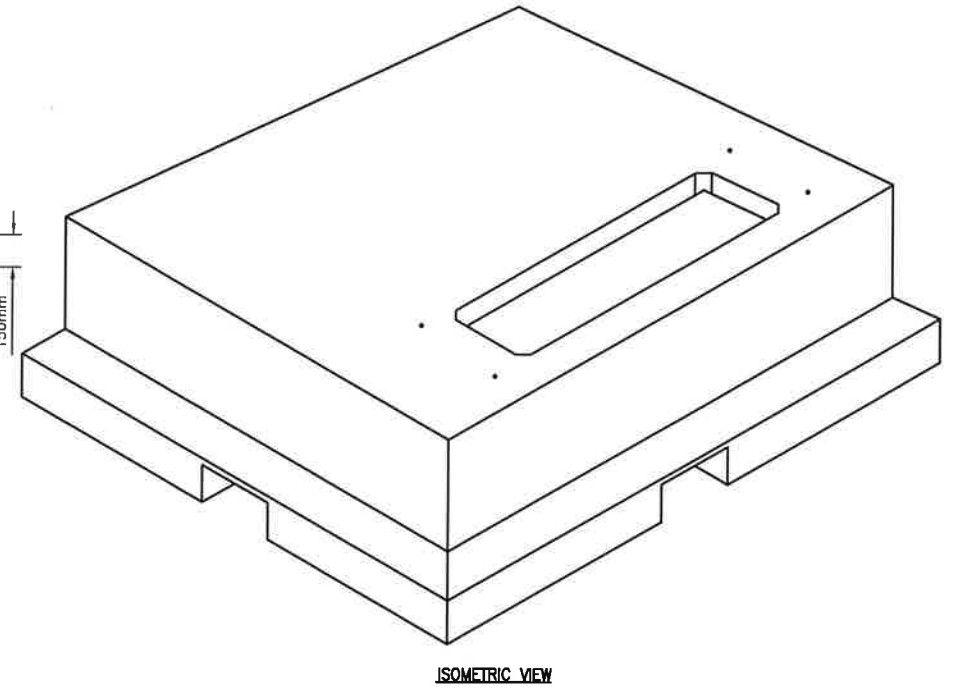
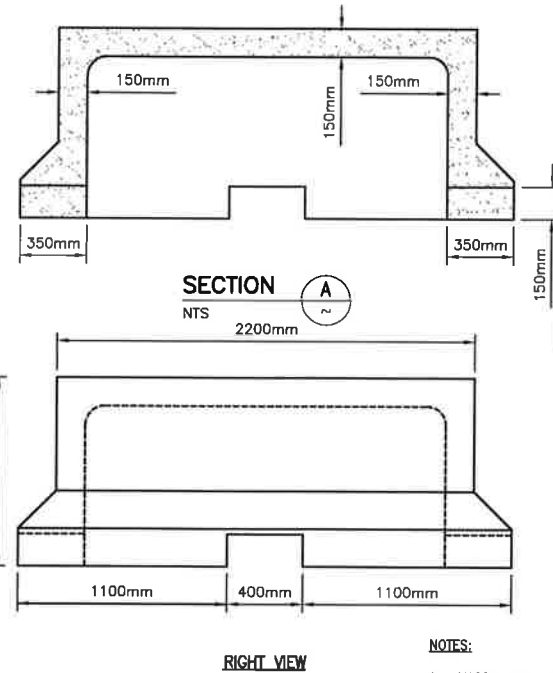
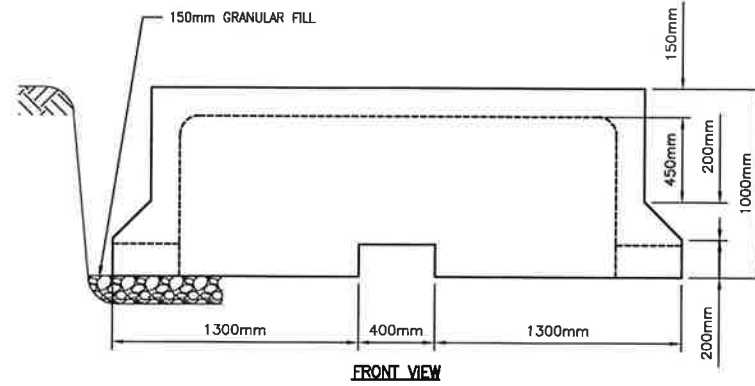
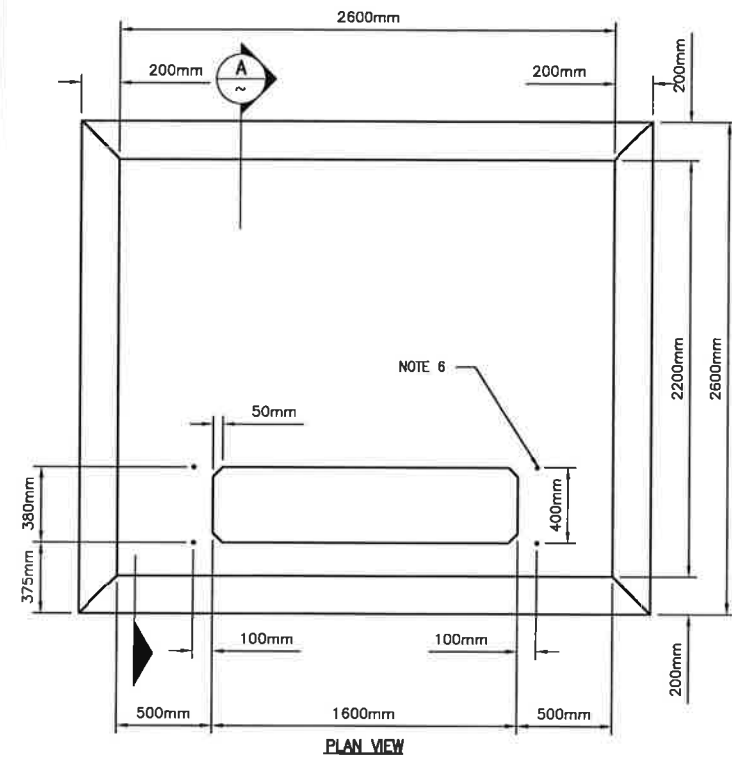
REV	DESCRIPTION	BY	MM/DD/YYYY	CHKD	APPD	JOB No.
A	ISSUED FOR APPROVAL FOR FORTIS CONSTRUCTION (AFC)	WAP	05/30/2014	JD	JD	2136
0	ISSUED FOR CONSTRUCTION	WAP	10/10/2014	JD	JD	2136

PERMIT		STAMP		ENGINEERING RECORD		PEMBINA		SUITE 600, 639 - 5TH AVE SW	
				DRAWN:	A. PERKINS	DATE:	05/21/2014	CALGARY, AB, T2P 0M9 (403) 387-2500 PHONE (403) 387-2535 FAX	
				CHECKED:	J. DECK	DATE:	05/21/2014		
				APPROVED:	J. DECK	DATE:	05/21/2014		
				ENGINEER:	J. DECK	DATE:	05/21/2014		
						02-13-048-08 W5M			
						2-13 SATELLITE			
						TRANSFORMER PAD DETAILS - SHEET 1			
						SCALE	NTS	DWG	0213048085.8922
								REV.	0

PLOT BY: APERKINS, 10/6/2014 4:33 PM

Z:\DRAFTING\JOBS\ARC RESOURCES LTD\PEMBINA\WPA 8\02-13-048-08 W5M\ELECTRICAL\0213048085.8923.DWG

DRAWING SHEET SIZE: 11" x 17"



10

PRECAST CONCRETE TRANSFORMER PAD FOR 1000KVA
TO 10,000KVA WITH 4.16KV SECONDARY TRANSFORMER

NOTES:

1. MASS 12,990 lbs/5890 kg.
2. CONCRETE VOLUME 2.45m³
3. MAXIMUM SUPERIMPOSED LOAD 6500kg.
4. KNOCKOUTS ARE TO BE INCLUDED ON ALL FOUR SIDES.
5. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE INDICATED.
6. THERE ARE 4 ANCHOR BOLTS, 16mm ϕ x 127mm, PROJ. 40.

REV	DESCRIPTION	BY	MM/DD/YYYY	CHKD	APPD	JOB No.
A	ISSUED FOR APPROVAL FOR FORTIS CONSTRUCTION (AFC)	WAP	05/30/2014	JD	JD	2136
0	ISSUED FOR CONSTRUCTION	WAP	10/07/2014	JD	JD	2136

PERMIT

STAMP

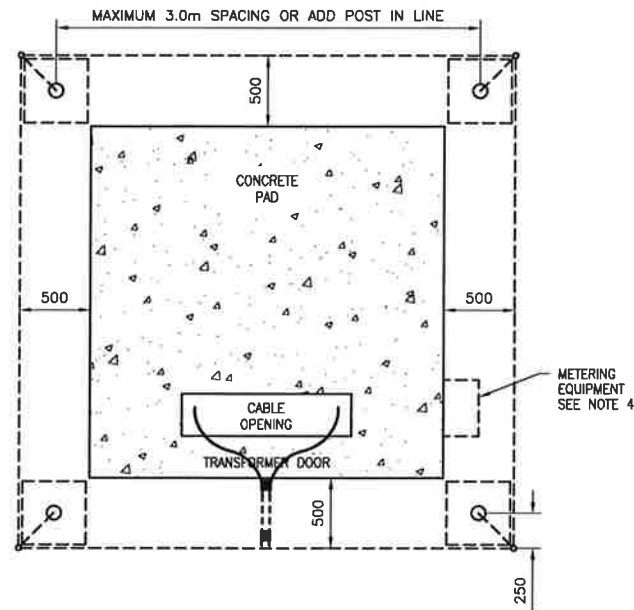
ENGINEERING RECORD		PEMBINA 02-13-048-08 W5M 2-13 SATELLITE TRANSFORMER PAD DETAILS - SHEET 2	
DRAWN:	A. PERKINS	DATE:	05/21/2014
CHECKED:	J. DECK	DATE:	05/21/2014
APPROVED:	J. DECK	DATE:	05/21/2014
ENGINEER:	J. DECK	DATE:	05/21/2014
SCALE	NTS	DWG	0213048085.8923
REV.	0		



PLOT BY: PERKINS, 10/5/2014 5:00 PM

Z:\DRAFTING\JOBS\ARC_RESOURCES LTD\PEMBINA\WPA 8'02-13-048-08 W5M\ELECTRICAL\0213048085.8924.DWG

DRAWING SHEET SIZE: 22" x 34"



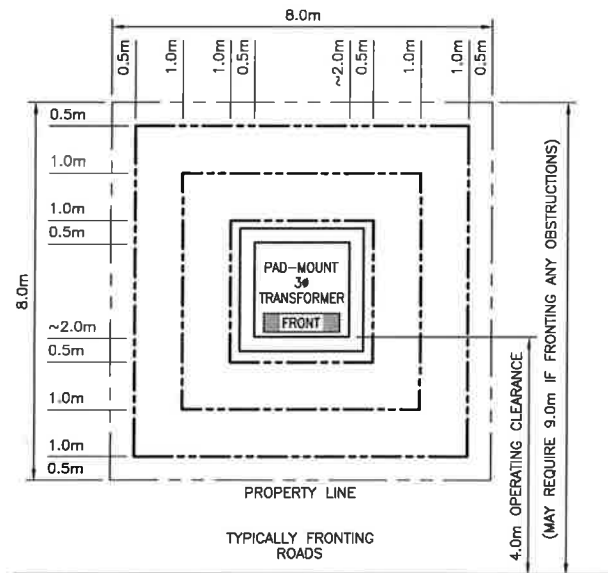
NOTES:

- WHERE THE TRANSFORMER IS LOCATED IN AN EXPOSED AREA TO VEHICLE DAMAGE, THE GUARD POST MUST BE SUPPLIED BY THE CUSTOMER.
- THE GUARD POSTS SHALL BE CONNECTED TO THE PADMOUNT TRANSFORMER GROUND SYSTEM USING:
#4 Cu FOR SINGLE PHASE AND #2/0 FOR 3 PHASE TRANSFORMER INSTALLATIONS.

FOR GROUND GRID DETAIL, SEE DRAWING 1226 FOR SINGLE PHASE OR 1315 FOR THREE PHASE TRANSFORMER APPLICATIONS

FOR GROUND GRID DETAIL, SEE DRAWING 1306, 1308, 1309 AND 1317 FOR PAD MOUNT SWITCH APPLICATIONS.
- THE REQUIREMENTS FOR GUARD POSTS, INCLUDING THE NECESSITY LOCATION AND INSTALLATION MUST BE CONFIRMED WITH FORTIS ALBERTA PRIOR TO CONSTRUCTION
- IF THERE IS A SECONDARY PEDESTAL ATTACHED TO THE EQUIPMENT/TRANSFORMER PAD, THE GUARD POST & GROUND GRID SHOULD BE EXTENDED IN SUCH A WAY TO PROTECT THE PERIPHERAL EQUIPMENT ALSO.
- POST ENCASEMENT TO BE COMPACTED ALL AROUND WITH SUITABLE BACK FILL OR GRAVEL.
- UNLESS OTHERWISE INDICATED, ALL DIMENSIONS ARE IN MILLIMETERS.

11 TRANSFORMER PAD LOCATED IN OPEN AREA

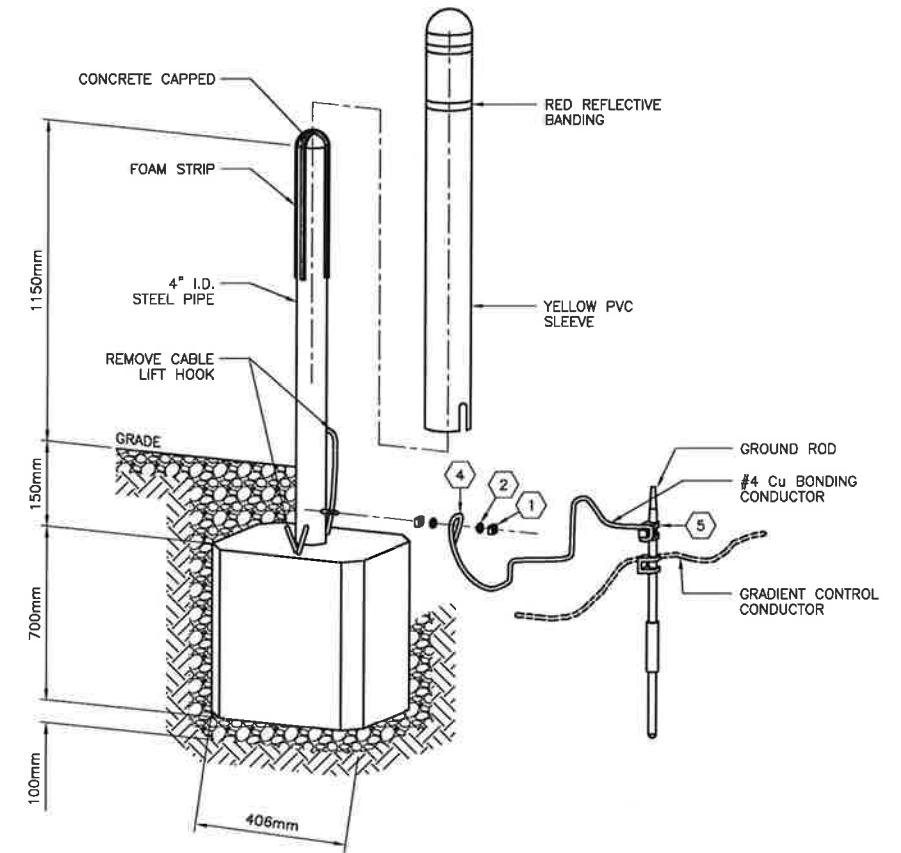


12 TYPICAL EASEMENT FOR THREE-PHASE TRANSFORMER (3 RING GROUND GRID) (UP TO 3MVA)

MATERIAL LIST					
ITEM	QTY.	DESCRIPTION	MANUFACTURER	CATALOG NO.	SUPPLIER
1	2	NUT, SQUARE, 1/2" UNC, GALV	-	5141104	-
2	2	WASHER, ROUND, 9/16" HOLE, 1-3/8" RM	-	5142102	-
3	1	POST, BUMPER, HEAVY DUTY	-	5150802	-
4	1	CONDUCTOR, STR, #4, CU	-	5310220	-
5	1	CONNECTOR, GD ROD, MAX 3/4" ROD	-	5530645	-
6					
7					
8					
9					
10					

NOTES:

- BILL OF MATERIAL IS FOR ONE GUARD POST ONLY, ORDER ADDITIONAL GUARD POSTS WHERE REQUIRED.



13 TRANSFORMER PAD LOCATED IN OPEN AREA

REV	DESCRIPTION	BY	MM/DD/YYYY	CHKD	APPD	JOB No.
A	ISSUED FOR APPROVAL FOR FORTIS CONSTRUCTION (AFC)	WAP	05/30/2014	JD	JD	2136
0	ISSUED FOR CONSTRUCTION	WAP	10/10/2014	JD	JD	2136

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ARC RESOURCES LTD.

TNT Engineering Ltd. SUITE 600, 639 - 5TH AVE SW
CALGARY, AB, T2P 0M9
(403) 387-2500 PHONE
(403) 387-2535 FAX

ENGINEERING RECORD	
DRAWN:	A. PERKINS
CHECKED:	J. DECK
ENGINEER:	J. DECK
PROJECT MANAGER:	J. DECK

DATE:	05/21/2014	SCALE	NTS	DWG	0213048085.8924	REV.	0
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PEMBINA
02-13-048-08 W5M
2-13 SATELLITE
ELECTRICAL INSTALLATION DETAILS