ALASKA RAILROAD CORPORATION

BALD MOUNTAIN

TELECOMMUNICATION SITE WORK

SITE COORDINATES: 62° 18' 28.2" N 149° 45' 15.9" W

The ALASKA RAILROAD CORPORATION
SIGNAL ENGINEERING — P.O. BOX 107500 , ANCHORAGE , ALASKA 99510-7500

BALD MOUNTAIN
TELECOMMUNICATION SITE WORK
TITLE SHEET

REVISIONS

				AS DESIGNED 03-18-16 100% BALD MT. REV. 1 DES: KMT CHK: EMS	AS DESIGNED 02-10-16 100% BALD MT. REV. 0 DES: KMT CHK: EMS

DRAWN: *J. W. A.*
DATE: 02-05-16

DWG NO. 0621828-1494516

00 SHEET OF 32

BURNS ENG. REVISIONS

100% (REV.0) HW DESIGN	SCALE: NONE		
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BALD MOUNTAIN

Burns

SHEET NUMBER REF. 00
DRAWING NUMBER REF. 0621828-1494516
BURNS PROJECT REF. 2015-228

DRAWING NO.	DESCRIPTION	REVISION DATE										
		REV. 0	REV. 1									
0621828-00	TITLE SHEET	02-12-16	03-18-16									
0621828-01	INDEX	02-12-16	03-18-16									
0621828-02	GENERAL NOTES	02-12-16	03-18-16									
0621828-03	ABBREVIATIONS AND LEGEND	02-12-16										
0621828-04	SITE LAYOUT	02-12-16	03-18-16									
0621828-05	SITE GROUNDING, WIRING AND PIPING PLAN	02-12-16	03-18-16									
0621828-06	SHELTER FLOOR PLAN	02-12-16	03-18-16									
0621828-07	PROPANE ONE-LINE DIAGRAM	02-12-16	03-18-16									
0621828-08	ELECTRICAL ONE-LINE - BATTERY CHARGER AC SUPPLY	02-12-16										
0621828-09	ELECTRICAL ONE-LINE - DC POWER DISTRIBUTION	02-12-16										
0621828-10	ELECTRICAL ONE-LINE - NEG 48 V DISTRIBUTION	02-12-16	03-18-16									
0621828-11	ELECTRICAL ONE-LINE - 12 V DISTRIBUTION	02-12-16	03-18-16									
0621828-12	ELECTRICAL ONE-LINE - G5 CONTROLLER	02-12-16	03-18-16									
0621828-13	ELECTRICAL ONE-LINE - LPG CONTROLLER	02-12-16	03-18-16									
0621828-14	ELECTRICAL ONE-LINE - G5 CONTROLLER EXTENSION	02-12-16	03-18-16									
0621828-15	ELECTRICAL ONE-LINE - REL-TEK GAS CALIBRATION	02-12-16										
0621828-16	ELECTRICAL ONE-LINE - COMMUNICATIONS	02-12-16	03-18-16									
0621828-17	ELECTRICAL ONE-LINE - GROUNDING	02-12-16	03-18-16									
0621828-18	EXTERNAL DETAILS 1 - TOWER DETAILS	02-12-16	03-18-16									
0621828-19	EXTERNAL DETAILS 2 - ANTENNA ALIGNMENT AND GPS MOUNT	02-12-16	03-18-16									
0621828-20	EXTERNAL DETAILS 3 - GROUNDING AND TRENCH DETAILS	02-12-16	03-18-16									
0621828-21	FLOOR PLAN DETAILS 1 - RACK #1 ELEVATION	02-12-16	03-18-16									
0621828-22	FLOOR PLAN DETAILS 2 - RACK #2 ELEVATION	02-12-16										
0621828-23	FLOOR PLAN DETAILS 3 - RACK #3 ELEVATION	02-12-16	03-18-16									
0621828-24	FLOOR PLAN DETAILS 4 - RACK #4 ELEVATION	02-12-16										
0621828-25	FLOOR PLAN DETAILS 5 - RACK #5 ELEVATION	02-12-16										
0621828-26	INTERIOR DETAILS 1 - AC SUPPLY PHOTOS	02-12-16										
0621828-27	PANEL AND DISTRIBUTION SCHEDULES	02-12-16	03-18-16									
0621828-28	BOM 1 - STRUCTURE	02-12-16	03-18-16									
0621828-29	BOM 2 - SOFC AND PROPANE PIPING	02-12-16	03-18-16									
0621828-30	BOM 3 - ELECTRICAL, CONTROL & TELEMETRY	02-12-16	03-18-16									
0621828-31	BOM 4 - NETWORK AND COMMUNICATIONS 1	02-12-16	03-18-16									
0621828-32	BOM 5 - NETWORK AND COMMUNICATIONS 2	02-12-16	03-18-16									

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SHEET NUMBER REF. 01

DRAWING NUMBER REF. 0621828-1494516

BURNS PROJECT REF. 2015-228

GENERAL NOTES

1. OWNER/CONTRACTING AUTHORITY: ALASKA RAILROAD CORPORATION (ARRC)
2. PRIOR TO STARTING WORK, CONTRACTOR SHALL VISIT THE SITE AND CONVENE A COORDINATION MEETING WITH ARRC. THE CONTRACTOR SHALL PROVIDE A SCHEDULE OF ACTIVITIES WITH DURATION AND PHASING OF CONSTRUCTION TO ARRC FOR APPROVAL.
3. REFER TO CONTRACT DOCUMENTS FOR GENERAL REQUIREMENTS, DESCRIPTION OF WORK, MATERIALS AND EQUIPMENT. CONTRACTOR SHALL NOTIFY ARRC OF ANY DISCREPANCIES IN THE CONTRACT DOCUMENTS PRIOR TO PROCEEDING WITH ANY WORK.
4. CONTRACTOR TO PROVIDE LABOR, MATERIAL, EQUIPMENT, INCIDENTALS, METHODS AND SERVICES REQUIRED TO INSTALL ALL WORK INDICATED ON DRAWINGS.
5. CONTRACTOR SHALL APPLY FOR, SECURE AND PAY FOR ALL PERMITS AND/OR CERTIFICATES OF INSPECTION REQUIRED IN THE PERFORMANCE OF THE WORK BY ALL AUTHORITIES HAVING JURISDICTION.
6. ALL WORK SHALL BE SCHEDULED AND COORDINATED WITH ARRC.
7. IN ADDITION TO SPECIFICS AS MAY BE DEFINED HEREINAFTER, THE CONTRACTOR SHALL PROTECT THE WORK SITE AND ALL WORK AGAINST DAMAGE FROM ANY SOURCE (INCLUDING BUT NOT LIMITED TO WATER, DUST, HEAT, FREEZING, ETC.) UNTIL FINAL COMPLETION AND ACCEPTANCE OF WORK.
8. CONTRACTOR SHALL PROVIDE UPDATED PANEL SCHEDULES ON ALL EXISTING AND NEW PANELS AND PANEL BOARDS. SCHEDULE SHALL BE PRINTED AND PLACED ON INTERIOR OF PANELS AND PANELBOARDS.
9. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH FEDERAL, STATE AND CITY REGULATIONS AND THE OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970 AND ALL AMENDMENTS THERETO. ALL WORK SHALL BE IN ACCORDANCE WITH APPLICATION SECTIONS OF THE CODE OF FEDERAL REGULATIONS, 29CFR, 40 CFR AND EQUIVALENT STATE REGULATIONS
10. ALL ELEVATIONS AND DIMENSIONS INDICATED ON DRAWINGS ARE APPROXIMATE AND FOR REFERENCE ONLY. CONTRACTOR SHALL COORDINATE WITH WORK PERFORMED BY OTHERS AND SHALL VERIFY FIELD CONDITIONS PRIOR TO FABRICATION AND INSTALLATION. EXISTING CONDITIONS ARE SHOWN AS NEARLY AS POSSIBLE TO THE KNOWN ARRANGEMENTS. CONTRACTOR SHALL PROVIDE ALL WORK REQUIRED FOR TEMPORARY OR PERMANENT RELOCATION OF THEIR WORK AS A RESULT OF INTERFERENCES WITH OTHER WORK OR INFRASTRUCTURE WHICH IS REQUIRED TO REMAIN IN SERVICE.
11. DRAWINGS FOR THIS WORK ARE DIAGRAMMATIC IN NATURE AND INTENDED TO CONVEY THE EXTENT, GENERAL ARRANGEMENT AND LOCATIONS OF THE WORK. DUE TO THE SCALE OF THE DRAWINGS, CERTAIN BASIC ITEMS SUCH AS ACCESS PANELS, CONDUITS, CABINET SIZES, PENETRATION SLEEVES, PULLBOXES, BACKBOXES AND JUNCTION BOXES MAY NOT BE SHOWN. INCLUDE ALL ITEMS WHERE REQUIRED BY CODE, MANUFACTURER AND RELATED SPECIFICATION SECTIONS FOR THE PROPER INSTALLATION OF ALL WORK.
12. DUE TO THE SCALE OF THE DRAWINGS, ALL DEVICE SYMBOLS ARE SHOWN ON DRAWINGS AS CLOSE AS POSSIBLE TO THEIR INTENDED LOCATION. CONTRACTOR SHALL COORDINATE THE PROPER INSTALLATION OF ALL EQUIPMENT, DEVICES, CONTROLS AND CABLING IN THE FIELD. REFER TO RELATED SPECIFICATION SECTIONS FOR ADDITIONAL REQUIREMENTS.
13. ALL HORIZONTAL CATEGORY 6 UTP CABLE SHALL BE PLENUM RATED CABLE AND SHALL BE BUNDLED AND ROUTED THROUGH THE FACILITY, TERMINATING AT THE SPECIFIED EQUIPMENT RACKS. ALL HORIZONTAL CABLE BUNDLES SHALL NOT CONTAIN ANY ELECTRICAL POWER CONDUCTORS CARRYING ALTERNATING CURRENT (AC). ALL CATEGORY 6 UTP CABLE RUNS SHALL NOT EXCEED 294' FEET, INCLUDING LENGTH OF PATCH CABLE(S) CONNECTED AT THE PATCH PANEL AND WORK AREA OUTLET.
14. ALL HORIZONTAL COMMUNICATIONS CABLING SHALL BE TESTED AND CERTIFIED IN ACCORDANCE WITH ALL REQUIREMENTS OF THE CONTRACT DOCUMENTS. REFER TO RELATED SPECIFICATION SECTIONS FOR ADDITIONAL INFORMATION.
15. ALL CONDUITS SHALL BE SIZED AND INSTALLED IN ACCORDANCE WITH NFPA 70, TIA-569, AND PROJECT DOCUMENTS. ALL CONDUITS SHALL BE A MINIMUM OF 1" UNLESS OTHERWISE NOTED.
16. ALL WIRING, CONDUITS AND EQUIPMENT SHALL BE INSTALLED AND CONFIGURED IN ACCORDANCE WITH GOOD ENGINEERING PRACTICES AND ALL IEEE, EIA/TIA, ANSI, NFPA, NEC AND MANUFACTURER'S REQUIREMENTS. ALL WIRING SHALL COMPLY WITH ALL STATE AND LOCAL CODES AND SHALL TEST FREE FROM ALL GROUNDS, SHORTS, STRAY VOLTAGES AND ELECTROMAGNETIC INTERFERENCE (EMI).
17. INSTALL ALL EQUIPMENT WITH CLEARANCES IN ACCORDANCE WITH NEC REQUIREMENTS. ARRANGE EQUIPMENT AND EQUIPMENT ENCLOSURES/CABINETS TO FACILITATE UNRESTRICTED ACCESS FOR MAINTENANCE AND SERVICE.
18. PROPERLY GROUND ALL EQUIPMENT, RACKS, CABINETS, ENCLOSURES, CONDUITS AND CABLE SHIELDS IN ACCORDANCE WITH THE NEC AND MANUFACTURER'S RECOMMENDATIONS. ALL EQUIPMENT AND COMMUNICATIONS CIRCUITS SHALL BE SURGE PROTECTED AND GROUNDED TO MINIMIZE DAMAGE DUE TO LIGHTNING EVENTS AND TRANSIENT VOLTAGE SPIKES. ALL SURGE PROTECTION AND GROUNDING SHALL BE IN ACCORDANCE WITH ALL REQUIREMENTS OF THE EQUIPMENT MANUFACTURER AND APPLICABLE ANSI AND EIA/TIA STANDARDS.
19. ALL PENETRATIONS OF WALLS AND/OR FLOORS SHALL BE FIRESTOPPED IN ACCORDANCE WITH ASTM AND NFPA REQUIREMENTS. FIRESTOPPING PROVISIONS SHALL MAINTAIN THE FIRE RATING OF THE PENETRATED WALL, CEILING OR PARTITION. REFER TO RELATED SPECIFICATION SECTIONS FOR ADDITIONAL INFORMATION. FIRESTOPPING SHALL BE PERFORMED BY AN APPLICATOR/INSTALLER QUALIFIED AND TRAINED BY THE MANUFACTURER. INSTALLATION SHALL BE PERFORMED IN STRICT ACCORDANCE WITH MANUFACTURER'S DETAILED INSTALLATION PROCEDURES.
20. CONTRACTOR SHALL PROVIDE AS BUILT DRAWINGS AND PANEL SCHEDULES UPON COMPLETION OF EQUIPMENT INSTALLATION AND WIRING AND PRIOR TO CONTRACT CLOSEOUT.
21. ALL ITEMS THAT HAVE A CHASSIS GROUND CONNECTION WILL BE EARTH GROUNDED WITH SIX AWG STRANDED WIRE. ALL POLLYPHASERS AND PROTECTION DEVICES WILL BE BONDED TO EARTH GROUND IAW IN ACCORDANCE WITH R56 STANDARDS.
22. COMPLETE AVIAT PATH STUDY WILL BE PROVIDED TO THE CONTRACTOR UPON CONTRACT AWARD
23. INSTALL SOFC, PROPANE PIPING, PROPANE SAFETY EQUIPMENT, TANKS, ETC. IN ACCORDANCE WITH NFPA 58 AND NFPA 853.

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BALD MOUNTAIN

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BURNS PROJECT REF. 2015-228

ABBREVIATIONS

(E)	EXISTING
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
ACS	ACCESS CONTROL SYSTEM
ADJ	ADJUSTABLE
AC	ALTERNATING CURRENT
AL	ALUMINUM
AWG	AMERICAN WIRE GAUGE
A/AMP	AMPERE
ANT	ANTENNA
APPROX	APPROXIMATE(LY)
ATS	AUTOMATIC TRANSFER SWITCH
AZ	AZIMUTH
BATT	BATTERY
BI	BLACK IRON
BFC	BELOW FINISHED CEILING
BKR	BREAKER
BOM	BILL OF MATERIALS
BRKT	BRACKET
CAB	CABINET
CLG	CEILING
CIR/CKT	CIRCUIT
CB	CIRCUIT BREAKER
CLR	CLEAR
COL	COLUMN
COMM	COMMUNICATION(S)
C	CONDUIT
CU	COPPER
CT	CURRENT TRANSFORMER
CTRL	CONTROL
DB	DECIBEL
DED	DEDICATED
DIA	DIAMETER
DC	DIRECT CURRENT
DISC	DISCONNECT
DP	DISTRIBUTION PANEL
DPS	DOOR POSITION SWITCH
DWG	DRAWING
EA	EACH
ELEC	ELECTRICAL
EC	ELECTRICAL CONTRACTOR
EGB	EXTERIOR GROUND BAR
EQUIP	EQUIPMENT
EIA	ELECTRONICS INDUSTRY ASSOCIATION
EL	ELEVATION
EXT	EXTERIOR
FIXT	FIXTURE
FL	FLOOR
FOPP	FIBER OPTIC PATCH PANEL
GBB	GROUND BUS BAR
GC	GENERAL CONTRACTOR
GEN	GENERATOR
G/GND	GROUND
GFI	GROUND FAULT INTERRUPTER
HH	HANDHOLE
HVAC	HEATING, VENTILATION AND AIR CONDITIONING
HZ	HERTZ
HV	HIGH VOLTAGE
IG	ISOLATED GROUND
J,JB	JUNCTION BOX
KW	KILOWATT
LA	LIGHTNING ARRESTER
LAN	LOCAL AREA NETWORK
LV	LOW VOLTAGE
LED	LIGHT EMITTING DIODE
LPG	LIQUID PROPANE GAS
MAX	MAXIMUM
MCB	MAIN CIRCUIT BREAKER
MDP	MAIN DISTRIBUTION PANEL
MGB	MAIN GROUND BAR
MLO	MAIN LUGS ONLY
MFR	MANUFACTURER
MIN	MINIMUM
MISC	MISCELLANEOUS
MTD	MOUNTED
MTG HT	MOUNTING HEIGHT
MM	MILLIMETER
NC	NORMALLY CLOSED
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
NEC	NATIONAL ELECTRIC CODE
NEG	NEGATIVE
NEU	NEUTRAL
NO	NORMALLY OPEN
N/A	NOT APPLICABLE/AVAILABLE
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
OC	ON CENTER
OH	OVERHEAD
O/P	OUTPUT
PE	POLYETHYLENE
PEN	PENETRATING
PNL	PANEL
PLY	PLYWOOD
P	POLE
PVC	POLYVINYL CHLORIDE
PDU	POWER DISTRIBUTION UNIT
PSI	POUNDS PER SQUARE INCH
PWR	POWER
RBB	RETURN BUS BAR
RD	RAPID DEPLOYABLE
REC	RECEPTACLE
REQ'D	REQUIRED
RGS	RIGID GALVANIZED STEEL CONDUIT
RM	ROOM
RTN	RETURN
RU	RACK UNIT
SCHED	SCHEDULE
SOFC	SOLID OXIDE FUEL CELL
SPST	SINGLE POLE SINGLE THROW
SPDT	SINGLE POLE DOUBLE THROW
SW	SWITCH
TELE	TELEPHONE
TYP	TYPICAL
TIA	TELECOMMUNICATIONS INDUSTRY ASSOCIATION
TSB	TECHNICAL SERVICE BULLETIN
TSP	TWISTED SHIELDED PAIR
UTP	UNSHIELDED TWISTED PAIR
UL	UNDERWRITERS LABORATORIES
UPS	UNINTERRUPTIBLE POWER SUPPLY
UON	UNLESS OTHERWISE NOTED
V	VOLT
VA	VOLT-AMPERE
VP	VAPORPROOF
W	WATT
WP	WEATHERPROOF
W/	WITH
W/I	WITHIN
W/O	WITHOUT

LEGEND:

- EXISTING OR BACKGROUND
- NEW WORK
- CHAIN LINK FENCE
- RAILROAD
- TWISTED WIRE TWO TURNS PER FOOT
- (#) MATERIAL REFERENCE IDENTIFICATION NUMBER
- <#> NOTE REFERENCE IDENTIFICATION NUMBER

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SIGNAL ENGINEERING — P.O. BOX 107500 , ANCHORAGE , ALASKA 99510-7500

BALD MOUNTAIN

TELECOMMUNICATION SITE WORK

ABBREVIATIONS AND LEGEND

REVISIONS

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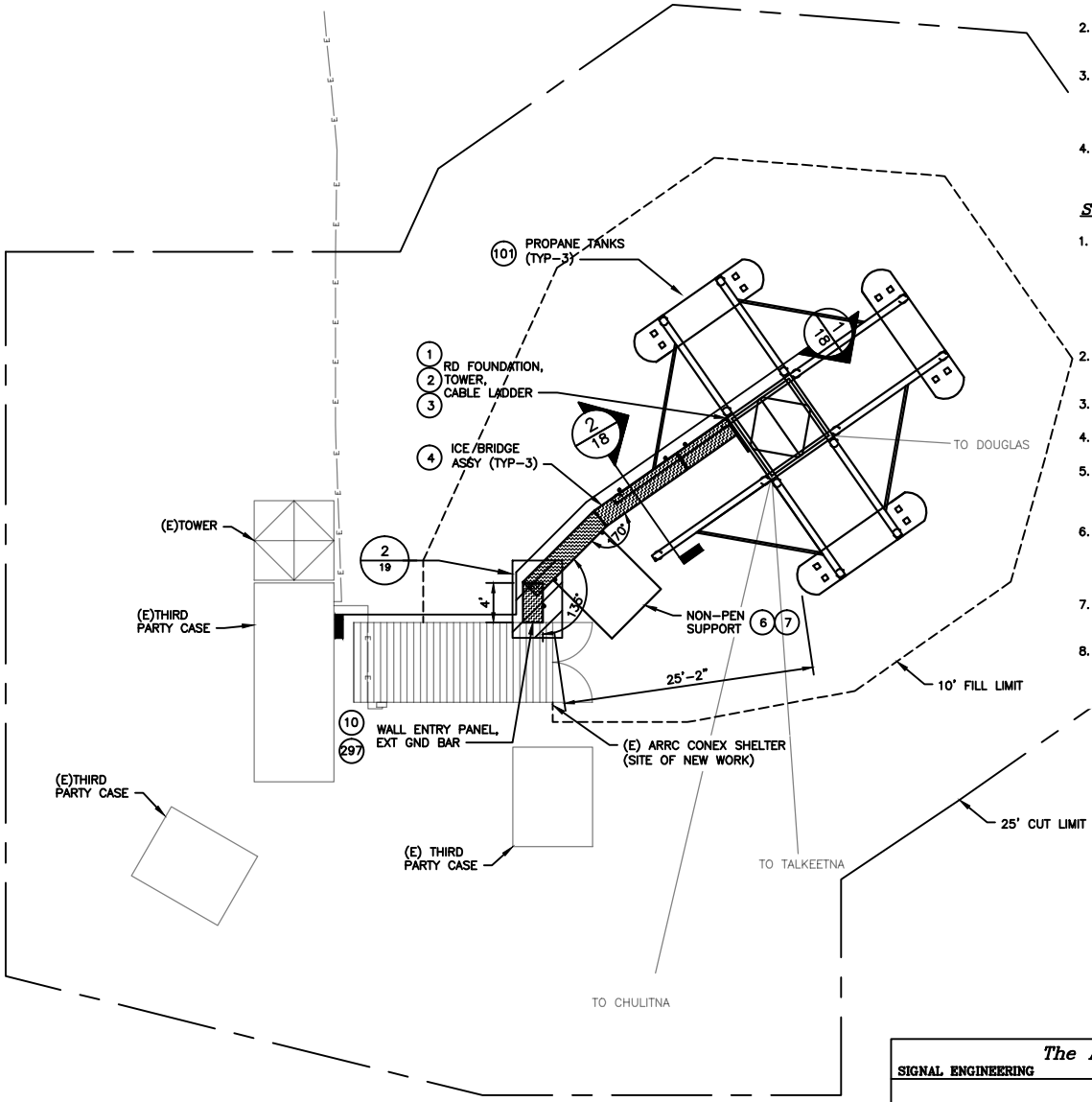

NOTES:

1. INSTALL TOWER FOUNDATION AND NON-PENETRATING ICE BRIDGE SUPPORTS ON LEVEL COMPACTED GROUND PER MANUFACTURER INSTRUCTIONS
2. MOUNT 1000 GAL. PROPANE TANKS TO TOWER FOUNDATION, TANKS SHALL BE NO LESS THAN 25' FROM ENCLOSURE
3. CONSULT TOWER FOUNDATION AND NON-PENETRATING SUPPORT MANUFACTURERS TO ENSURE SUFFICIENT BALLAST IS ADDED TO SUPPORT THE TOWER, ICE BRIDGE ASSEMBLIES AND PAYLOADS PRIOR TO INSTALLATION.
4. INSTALL TOWER, CABLE LADDER AND ICE BRIDGE ASSEMBLIES PER MANUFACTURER INSTRUCTIONS

SURFACE PREPARATION NOTES:

1. BALANCE CUT/FILL EARTHWORK. FILL SHALL COVER THE ENTIRE FOUNDATION FOOTPRINT AREA. THE AMOUNT OF FILL PLACED WITHIN THE FOUNDATION FOOTPRINT, AND AN ADDITIONAL 10 FT. BEYOND IN EACH DIRECTION, SHALL NOT EXCEED 2 FT. IN DEPTH. FILL MATERIAL (BORROW) SHALL NOT BE REMOVED FROM ANY AREAS WITHIN 25 FT. OF THE TELECOMMUNICATION SITE, OR ANY OTHER EXISTING STRUCTURES.
2. GRADE SURFACE AREA AS PER ICE BRIDGE AND FOUNDATION SYSTEM MANUFACTURER'S SPECIFICATIONS.
3. ENSURE POSITIVE DRAINAGE ACROSS SITE.
4. REMOVE BOULDERS OF 8 IN. OR GREATER IN DIAMETER.
5. NATIVE SOIL MATERIAL SHALL USED AS FILL. ROCK/RUBBLE FILL SHOULD BE WELL GRADATED TO LIMIT VOID SPACE TO 6 IN. MAXIMUM.
6. BACKFILL IN 12 IN. MINIMUM LIFTS. COMPACT BY TRACKING EQUIPMENT OVER FILL AREA UNTIL A FIRM, UNIFORM GRADE IS ACHIEVED. MECHANICAL HAND COMPACTION EQUIPMENT IS ALSO ACCEPTABLE.
7. RETAIN THE SERVICES OF A QUALIFIED GEOTECHNICAL ENGINEER TO OBSERVE THE GRADING ACTIVITIES.
8. GEOTECHNICAL ENGINEERING REPORT TITLED ARRC TELECOMMUNICATION SITE 12 MILES EAST OF TALKEETNA, AK, BY SHANNON AND WILSON, INC., DATED NOVEMBER 2014, IS AVAILABLE UPON REQUEST.

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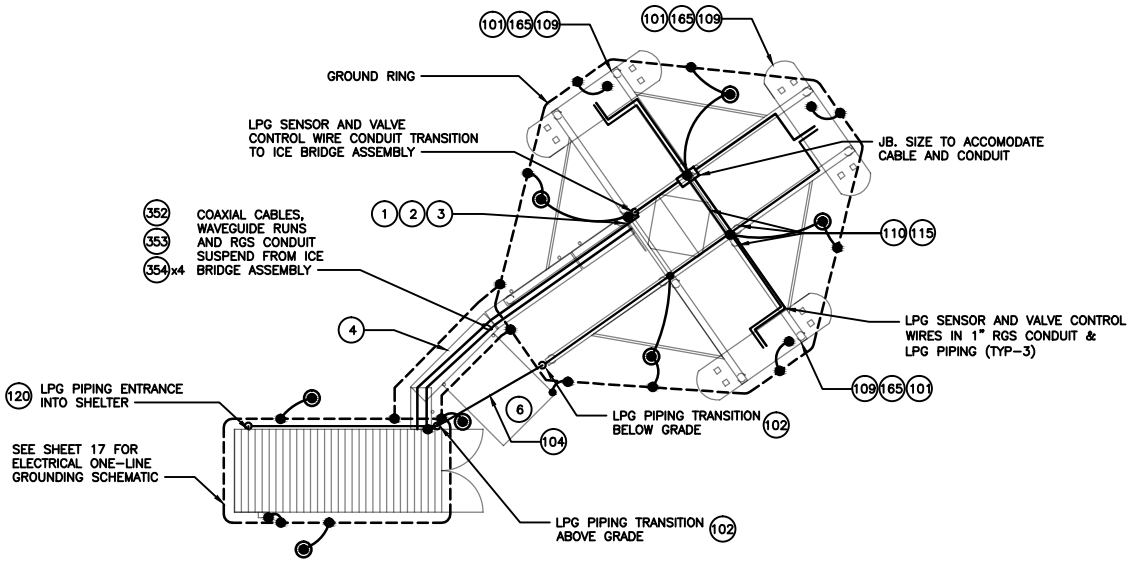
BURNS PROJECT REF. 2015-228

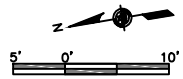
LEGEND:

- EXOTHERMIC WELD
- EXOTHERMIC WELD LUG
- GROUND ROD/ELECTRODE (299)



NOTES:

1. INSTALL GROUND RODS, GROUND RINGS AND BONDING WIRE AS SHOWN PER NEC AND NFPA.
2. GROUND RINGS AND BONDING WIRES SHALL BE #2 AWG TINNED SOLID COPPER UNLESS SPECIFIED OTHERWISE
3. GROUND RINGS SHALL BE BURIED AS DEEP AS POSSIBLE, BY HAND TO A MAX. DEPTH OF 30".
4. IF SOLID ROCK IS ENCOUNTERED AND DRIVING THE GROUND ELECTRODE VERTICALLY IS NOT POSSIBLE, DRILL 6 INCH O.D. HOLE TO ACHIEVE DEPTH OF 9' 6". COVER BOTTOM OF HOLE WITH BETONITE, INSTALL GROUND ROD AND BACKFILL WITH BETONITE TO WITHIN 6 INCHES OF TOP OF GROUND ROD.
5. GROUND RODS SHALL ACHIEVE GROUND RESISTANCE OF 300 OHMS OR LESS. IF REQUIRED RESISTANCE CANNOT BE ACHIEVED USING GROUND RODS, GROUND RING RADIALS SHALL BE INSTALLED IN 25 FOOT SEGMENTS.
6. BOND ALL FOUR LEGS OF THE TOWER AT THE BASE TO THE GROUNDING SYSTEM AS SHOWN.
7. BOND THE TOWER GROUND BAR AND EXTERIOR GROUND BAR TO THE GROUNDING SYSTEM AS SHOWN.
8. BOND NON-PENETRATING FOUNDATION METALLIC FRAMES AND PROPANE TANKS TO THE GROUND SYSTEM AS SHOWN.
9. ROUTE LPG PIPING FROM TANKS ALONG TOWER FOUNDATION BEAMS TO MANIFOLD AND TOWARD CONEX SHELTER, SECURING THE PIPING TO FOUNDATION USING UNISTRUT AND CLAMPS A MINIMUM OF EVERY 4 FEET.
10. INSTALL LPG VALVE CONTROL AND SENSOR WIRING IN CONDUIT AND ROUTE FROM TANKS TO JUNCTION BOX ON TOWER FOUNDATION. USE SINGLE CONDUIT FOR ALL WIRES FROM JUNCTION BOX TO CONEX SHELTER. ROUTE CONDUIT FROM TOWER TO SHELTER VIA ICE BRIDGE AND ENTRY PORT.
11. TRANSITION LPG PIPING TO BELOW GRADE AT EDGE OF TOWER FOUNDATION AND ROUTE TO CONEX SHELTER AS SHOWN. ABOVE GROUND LPG PIPING SHALL BE BLACK IRON PIPE, UNDERGROUND LPG PIPING SHALL BE YELLOW PE PIPE.
12. TRANSITION LPG PIPING ABOVE GRADE WHERE ICE BRIDGE MEETS SHELTER, PIN PIPE TO EXTERNAL WALL OF SHELTER A MINIMUM OF EVERY FOUR FEET TO ENTRANCE INTO SHELTER.



The ALASKA RAILROAD CORPORATION

SIGNAL ENGINEERING — P.O. BOX 107500 , ANCHORAGE , ALASKA 99510-7500

BALD MOUNTAIN

TELECOMMUNICATION SITE WORK

SITE GROUNDING, WIRING AND PIPING PLAN

REVISIONS

				AS DESIGNED 03-18-16 100% BALD MT. REV. 1 DES: KMT CHK: EMS	AS DESIGNED 02-10-16 100% BALD MT. REV. 0 DES: KMT CHK: EMS

DRAWN: J. W. A.
DATE: 02-05-16

DWG NO. 0621828-1494516

SHEET 05 OF 32

BURNS ENG. REVISIONS

100% (REV.0) HW DESIGN — SCALE: NONE

	INITIAL	DATE
DESIGNED:	KMT	2-10-16
CHECKED:	EMS	2-10-16
BACK-CHECKED:	KMT	2-10-16
CORRECTED:	KMT	2-12-16
VERIFIED:	EMS	2-12-16

100% (REV.1) HW DESIGN — SCALE: NONE

	INITIAL	DATE
DESIGNED:	KMT	03-18-16
CHECKED:	EMS	03-21-16
BACK-CHECKED:	KMT	03-21-16
CORRECTED:	J.W.A.	03-22-16
VERIFIED:	KMT	03-23-16

BALD MOUNTAIN

Burns

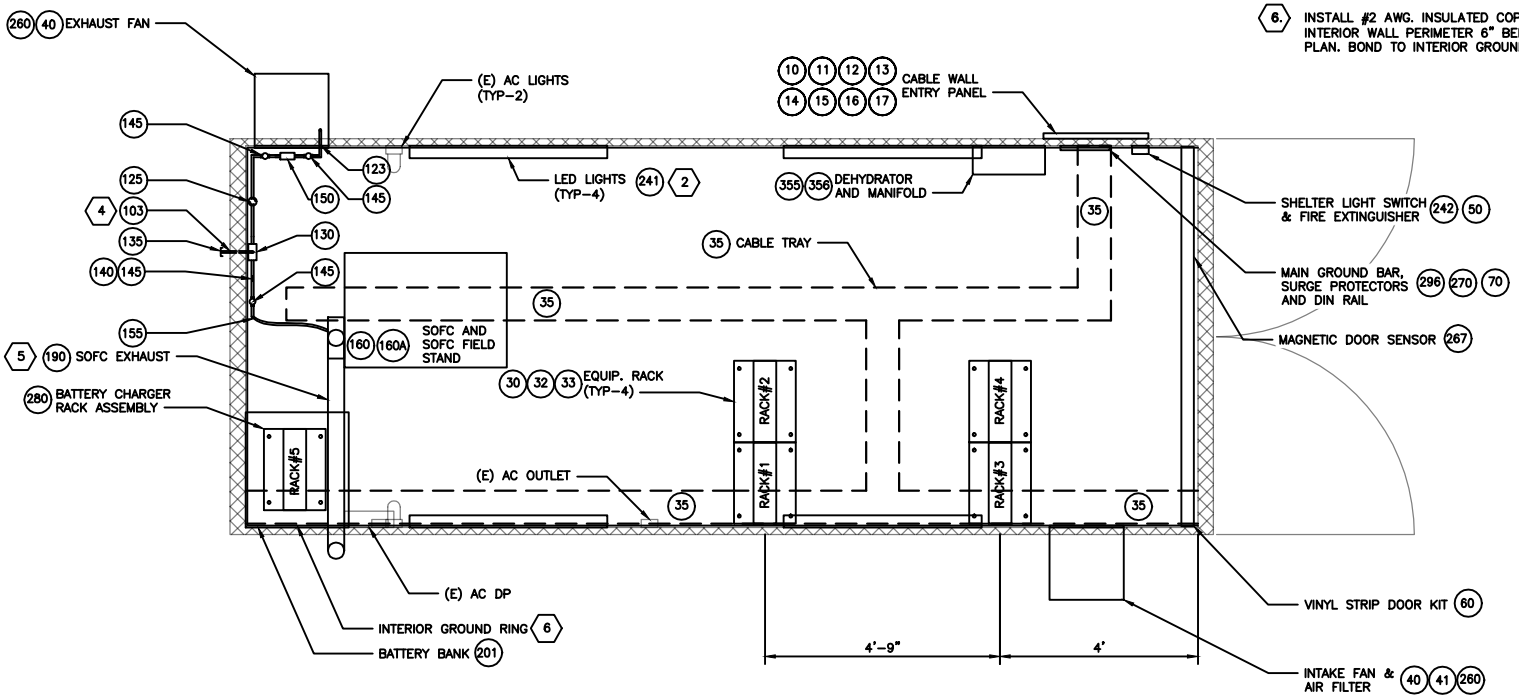
SHEET NUMBER REF. 05

DRAWING NUMBER REF. 0621828-1494516

BURNS PROJECT REF. 2015-228

NOTES:

1. INSTALL ALL NEW EQUIPMENT IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. USE VIBRATION ISOLATORS FOR ALL 45 RU RACKS FOR EARTHQUAKE PROTECTION WHEN BOLTING TO THE FLOOR AND SUPPORT OF TOP OF RACKS AS SHOWN IN THE RACK ELEVATION DRAWINGS ATTACHED.
2. MOUNT 4' LED LIGHTS AT WALL–CIELING JUNCTION AT 45° ANGLE
3. ROUTE ALL DC POWER WIRING THROUGH 1" RED EMT CONDUIT
4. INSTALL 1" COPPER VENT LINE FROM SECOND STAGE REGULATOR EXITING EXTERIOR WALL AS HIGH AS POSSIBLE WITH SCREEN END CAP
5. INSTALL 4" METAL DUCT FOR SOFC EXHAUST TO EXTERIOR OF SHELTER, ENSURE EXHAUST EXTENDS A MINIMUM OF 6" ABOVE SHELTER ROOF AND IS SUPPORTED TO SURVIVE RATED WIND GUSTS. INCLUDE BIRD SCREEN CAP AND DRIP TUBE OR HOLE FOR CONDENSATION
6. INSTALL #2 AWG. INSULATED COPPER GROUND RING AROUND INTERIOR WALL PERIMETER 6" BELOW SHELTER CEILING AS SHOWN ON PLAN. BOND TO INTERIOR GROUND BAR PER NFPA STANDARDS.



1' 0' 5'

The ALASKA RAILROAD CORPORATION

SIGNAL ENGINEERING — P.O. BOX 107500 , ANCHORAGE , ALASKA 99510–7500

BALD MOUNTAIN

TELECOMMUNICATION SITE WORK

SHELTER FLOOR PLAN

REVISIONS

		AS DESIGNED 03–18–16 100% BALD MT. REV. 1 DES: KMT CHK: EMS	AS DESIGNED 02–10–16 100% BALD MT. REV. 0 DES: KMT CHK: EMS

DRAWN: *J. W. A.*
DATE: 02–05–16

DWG NO. 0621828–1494516

SHEET 06 OF 32

BURNS ENG. REVISIONS

100% (REV.0) HW DESIGN — SCALE: NONE

	INITIAL	DATE
DESIGNED:	KMT	2–10–16
CHECKED:	EMS	2–10–16
BACK–CHECKED:	KMT	2–10–16
CORRECTED:	KMT	2–12–16
VERIFIED:	EMS	2–12–16

100% (REV.1) HW DESIGN — SCALE: NONE

	INITIAL	DATE
DESIGNED:	KMT	03–18–16
CHECKED:	EMS	03–21–16
BACK–CHECKED:	KMT	03–21–16
CORRECTED:	J.W.A.	03–22–16
VERIFIED:	KMT	03–23–16

BALD MOUNTAIN

Burns

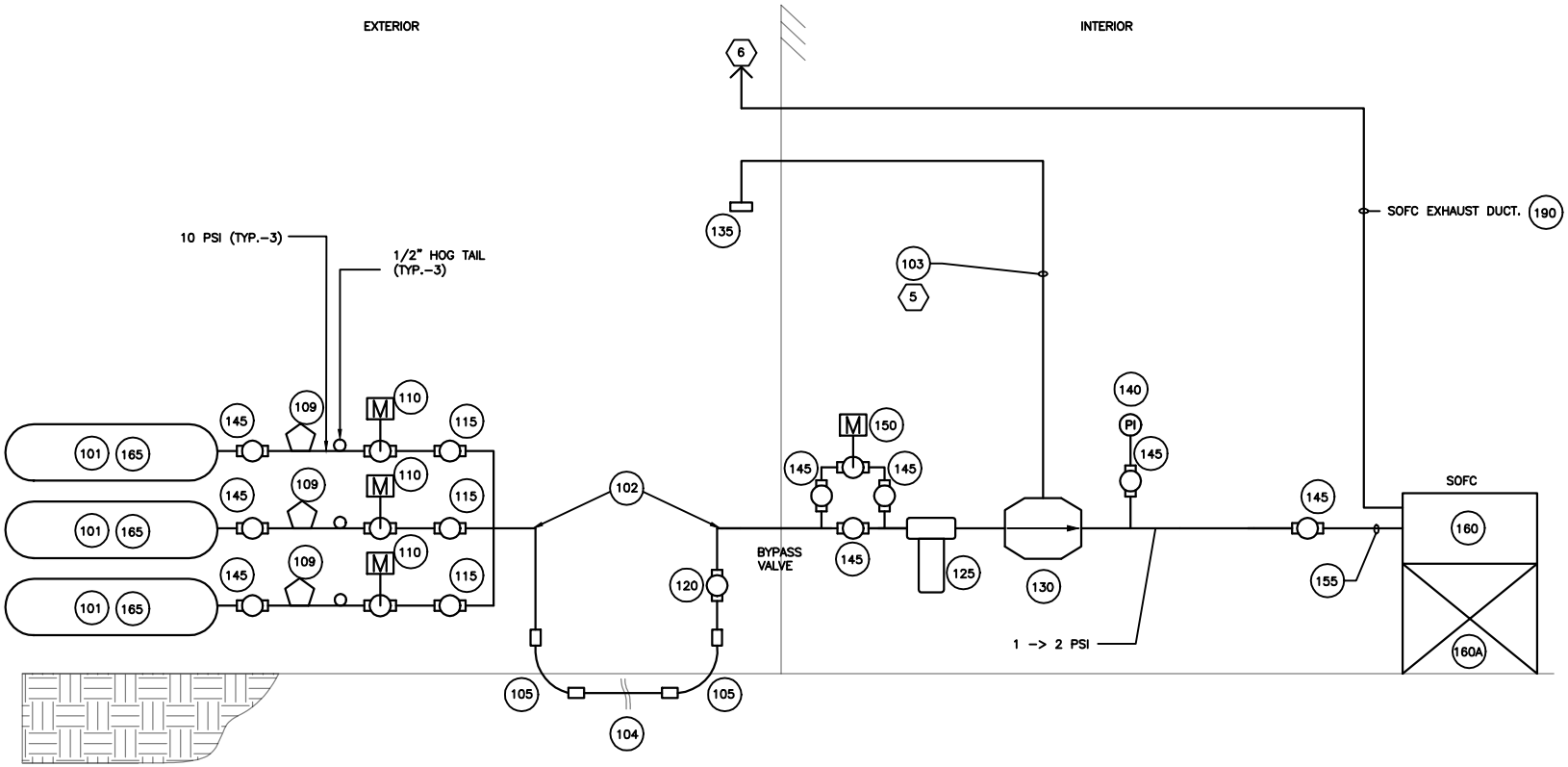
SHEET NUMBER REF. 06

DRAWING NUMBER REF. 0621828–1494516

BURNS PROJECT REF. 2015–228

NOTES:

1. PIPING SHALL BEL 1#2" BLACK IRON (B.I.) (B.O.M #102) UNLESS NOTED OTHERWISE
2. ALL VALVES SHALL BE BRASS BALL TYPE
3. ALL B.I. PIPE SHALL BE PAINTED YELLOW
4. PROVIDE ADEQUATE PIPE SUPPORT IN FACILITY
5. 1" COPPER VENT LINE SHALL EXIT EXTERIOR WALL AS HIGH AS POSSIBLE WITH SCREEN END CAP.
6. SOFC EXHAUST WILL HAVE SCREEN, RAIN CAP AND DRIP HOLE FOR CONDENSATION.



The ALASKA RAILROAD CORPORATION

SIGNAL ENGINEERING — P.O. BOX 107500 , ANCHORAGE , ALASKA 99510-7500

BALD MOUNTAIN

TELECOMMUNICATION SITE WORK

PROPANE ONE-LINE DIAGRAM

REVISIONS

AS DESIGNED 03-18-16 100% BALD MT. REV. 1 DES:KMT CHK:EMS	AS DESIGNED 02-10-16 100% BALD MT. REV. 0 DES:KMT CHK:EMS

DRAWN: *J. W. A.* DATE: 02-05-16

DWG NO. 0621828-1494516

SHEET 07 OF 32

BURNS ENG. REVISIONS

100% (REV.0) HW DESIGN — SCALE: NONE

	INITIAL	DATE
DESIGNED:	KMT	2-10-16
CHECKED:	EMS	2-10-16
BACK-CHECKED:	KMT	2-10-16
CORRECTED:	KMT	2-12-16
VERIFIED:	EMS	2-12-16

100% (REV.1) HW DESIGN — SCALE: NONE

	INITIAL	DATE
DESIGNED:	KMT	03-18-16
CHECKED:	EMS	03-21-16
BACK-CHECKED:	KMT	03-21-16
CORRECTED:	J.W.A.	03-22-16
VERIFIED:	KMT	03-23-16

BALD MOUNTAIN

SHEET NUMBER REF. 07

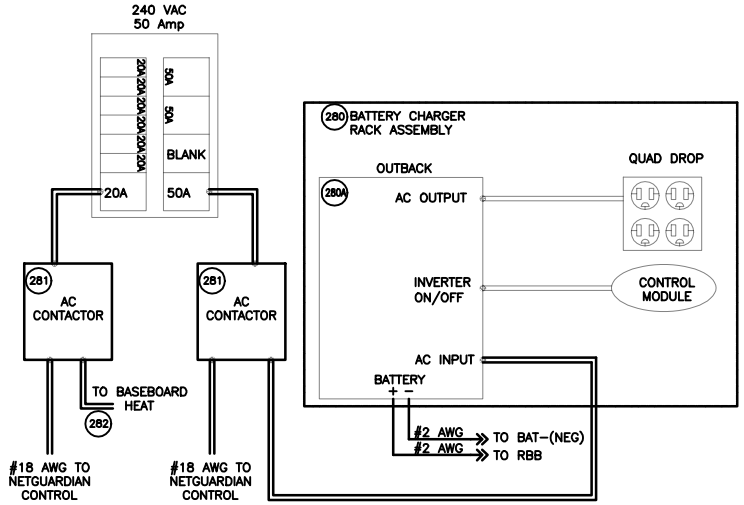
DRAWING NUMBER REF. 0621828-1494516

BURNS PROJECT REF. 2015-228

Burns

NOTES:

1. ALL WIRING #6 AWG DLO UNLESS NOTED OTHERWISE



The ALASKA RAILROAD CORPORATION

SIGNAL ENGINEERING — P.O. BOX 107500 , ANCHORAGE , ALASKA 99510−7500

BALD MOUNTAIN

TELECOMMUNICATION SITE WORK

ELECTRICAL ONE−LINE − BATTERY CHARGER AC SUPPLY

REVISIONS

					AS DESIGNED 02−10−16 100% BALD MT. REV. 0 DES:KMT CHK:EMS	DRAWN: *J. W. A.* DATE: 02−05−16	DWG NO. 0621828−1494516	SHEET 08 OF 32

BURNS ENG. REVISIONS

100% (REV.0) HW DESIGN

SCALE: NONE		
	INITIAL	DATE
DESIGNED:	KMT	2−10−16
CHECKED:	EMS	2−10−16
BACK−CHECKED:	KMT	2−10−16
CORRECTED:	KMT	2−12−16
VERIFIED:	EMS	2−12−16

BALD MOUNTAIN

Burns

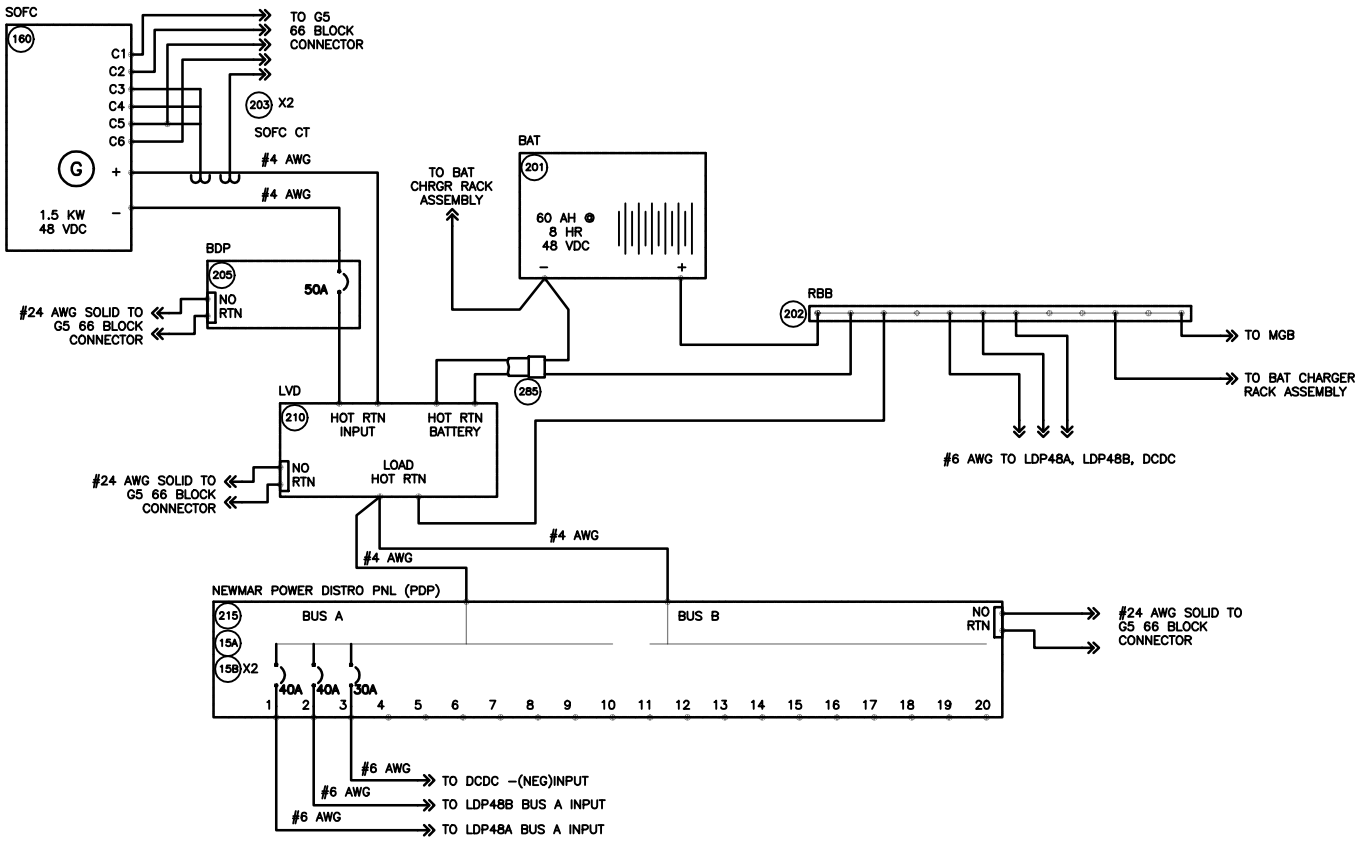
SHEET NUMBER REF. 08

DRAWING NUMBER REF. 0621828−1494516

BURNS PROJECT REF. 2015−228

NOTES:

1. ALL WIRING #2 AWG DLO UNLESS NOTED OTHERWISE



The ALASKA RAILROAD CORPORATION

SIGNAL ENGINEERING — P.O. BOX 107500 , ANCHORAGE , ALASKA 99510–7500

BALD MOUNTAIN

TELECOMMUNICATION SITE WORK

ELECTRICAL ONE–LINE – DC POWER DISTRIBUTION

REVISIONS

				AS DESIGNED 02–10–16 100% BALD MT. REV. 0 DES:KMT CHK:EMS	DRAWN: *J. W. A.* DATE: 02–05–16

DWG NO. 0621828–1494516 | SHEET 09 OF 32

BURNS ENG. REVISIONS

100% (REV.0) HW DESIGN

SCALE: NONE

	INITIAL	DATE
DESIGNED:	KMT	2–10–16
CHECKED:	EMS	2–10–16
BACK–CHECKED:	KMT	2–10–16
CORRECTED:	KMT	2–12–16
VERIFIED:	EMS	2–12–16

BALD MOUNTAIN

Burns

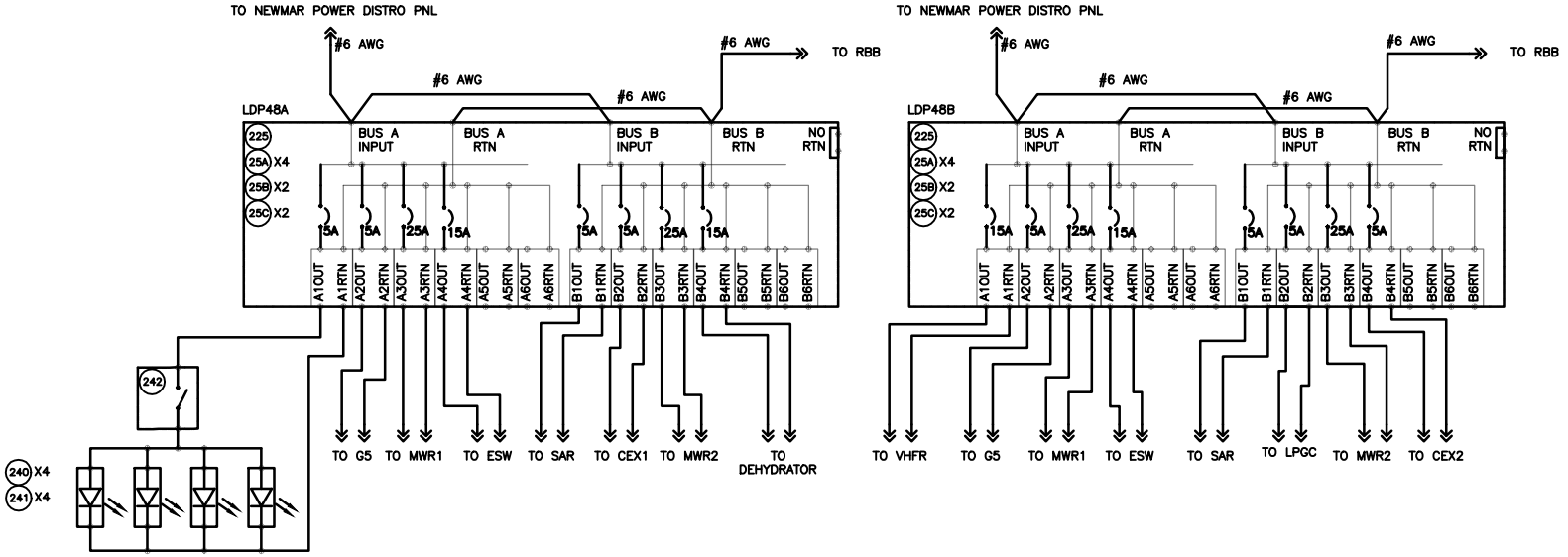
SHEET NUMBER REF. 09

DRAWING NUMBER REF. 0621828–1494516

BURNS PROJECT REF. 2015–228

NOTES:

1. ALL WIRING #10 AWG DLO UNLESS NOTED OTHERWISE



The ALASKA RAILROAD CORPORATION

SIGNAL ENGINEERING — P.O. BOX 107500 , ANCHORAGE , ALASKA 99510-7500

BALD MOUNTAIN

TELECOMMUNICATION SITE WORK

ELECTRICAL ONE-LINE – NEG 48 V DISTRIBUTION

REVISIONS

				AS DESIGNED 03-18-16 100% BALD MT. REV. 1 DES:KMT CHK:EMS	AS DESIGNED 02-10-16 100% BALD MT. REV. 0 DES:KMT CHK:EMS

DRAWN: *J.W.A.*
DATE: 02-05-16

DWG NO. 0621828-1494516

SHEET 10 OF 32

BURNS ENG. REVISIONS

100% (REV.0) HW DESIGN

SCALE: NONE

	INITIAL	DATE
DESIGNED:	KMT	2-10-16
CHECKED:	EMS	2-10-16
BACK-CHECKED:	KMT	2-10-16
CORRECTED:	KMT	2-12-16
VERIFIED:	EMS	2-12-16

100% (REV.1) HW DESIGN

SCALE: NONE

	INITIAL	DATE
DESIGNED:	KMT	03-18-16
CHECKED:	EMS	03-21-16
BACK-CHECKED:	KMT	03-21-16
CORRECTED:	J.W.A.	03-22-16
VERIFIED:	KMT	03-23-16

BALD MOUNTAIN

Burns

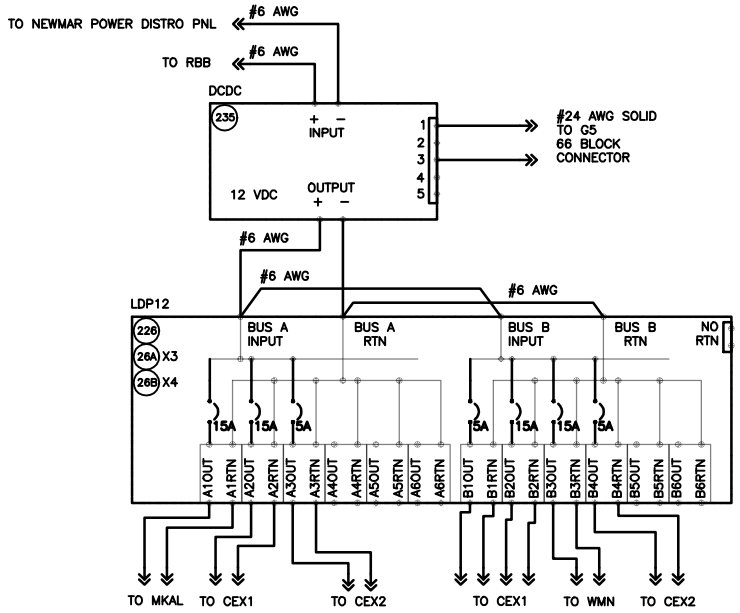
SHEET NUMBER REF. 10

DRAWING NUMBER REF. 0621828-1494516

BURNS PROJECT REF. 2015-228

NOTES:

1. ALL WIRING #10 AWG DLO UNLESS NOTED OTHERWISE



The ALASKA RAILROAD CORPORATION

SIGNAL ENGINEERING — P.O. BOX 107500 , ANCHORAGE , ALASKA 99510-7500

BALD MOUNTAIN

TELECOMMUNICATION SITE WORK

ELECTRICAL ONE-LINE – 12 V DISTRIBUTION

REVISIONS

			AS DESIGNED 03-18-16 100% BALD MT. REV. 1 DES:KMT CHK:EMS	AS DESIGNED 02-10-16 100% BALD MT. REV. 0 DES:KMT CHK:EMS

DRAWN: *J. W. A.*
DATE: 02-05-16

DWG NO. 0621828-1494516

SHEET 11 OF 32

BURNS ENG. REVISIONS

100% (REV.0) HW DESIGN

SCALE: NONE	INITIAL	DATE
DESIGNED:	KMT	2-10-16
CHECKED:	EMS	2-10-16
BACK-CHECKED:	KMT	2-10-16
CORRECTED:	KMT	2-12-16
VERIFIED:	EMS	2-12-16

100% (REV.1) HW DESIGN

SCALE: NONE	INITIAL	DATE
DESIGNED:	KMT	03-18-16
CHECKED:	EMS	03-21-16
BACK-CHECKED:	KMT	03-21-16
CORRECTED:	J.W.A.	03-22-16
VERIFIED:	KMT	03-23-16

BALD MOUNTAIN

Burns

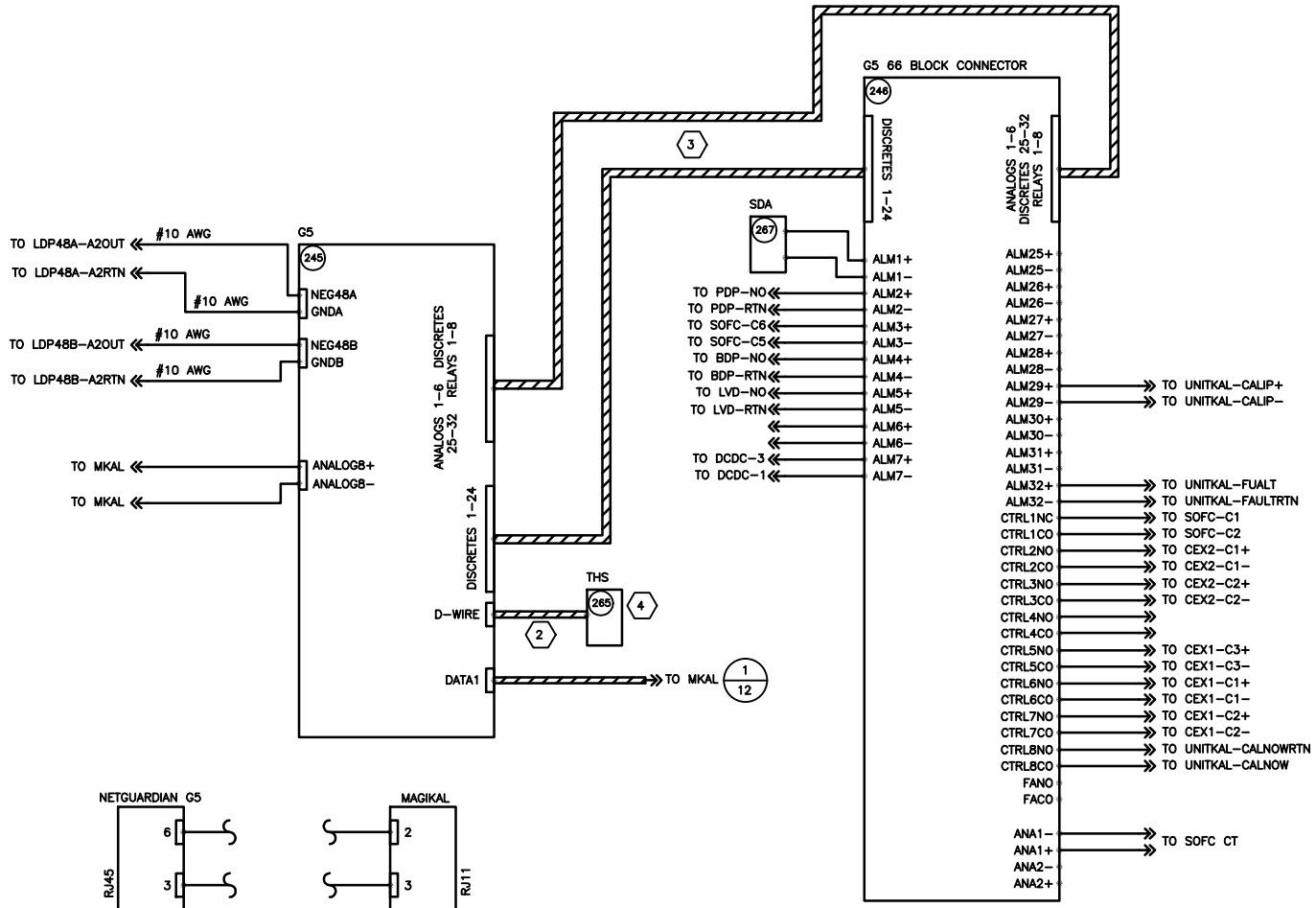
SHEET NUMBER REF. 11

DRAWING NUMBER REF. 0621828-1494516

BURNS PROJECT REF. 2015-228

NOTES:

1. ALL WIRING #24 AWG SOLID UNLESS NOTED OTHERWISE
2. D-WIRE SENSOR IS 6P4C CABLE WITH RJ-11 CONNECTORS
3. 50 WIRE CABLES PROVIDED WITH G5 AS AN OPTION
4. MOUNT TEMPERATURE AND HUMIDITY SENSOR (THS) TO RACK



1/12 NETGUARDIAN G5 TO MAGIKAL WIRE PINOUT DETAIL
NTS

The ALASKA RAILROAD CORPORATION
SIGNAL ENGINEERING — P.O. BOX 107500 , ANCHORAGE , ALASKA 99510-7500

BALD MOUNTAIN
TELECOMMUNICATION SITE WORK
ELECTRICAL ONE-LINE – G5 CONTROLLER

REVISIONS

AS DESIGNED 03-18-16 100% BALD MT. REV. 1 DES:KMT CHK:EMS	AS DESIGNED 02-10-16 100% BALD MT. REV. 0 DES:KMT CHK:EMS

DRAWN: J.W.A.
DATE: 02-05-16
DWG NO. 0621828-1494516
SHEET 12 OF 32

BURNS ENG. REVISIONS

100% (REV.0) HW DESIGN — SCALE: NONE

	INITIAL	DATE
DESIGNED:	KMT	2-10-16
CHECKED:	EMS	2-10-16
BACK-CHECKED:	KMT	2-10-16
CORRECTED:	KMT	2-12-16
VERIFIED:	EMS	2-12-16

100% (REV.1) HW DESIGN — SCALE: NONE

	INITIAL	DATE
DESIGNED:	KMT	03-18-16
CHECKED:	EMS	03-21-16
BACK-CHECKED:	KMT	03-21-16
CORRECTED:	J.W.A.	03-22-16
VERIFIED:	KMT	03-23-16

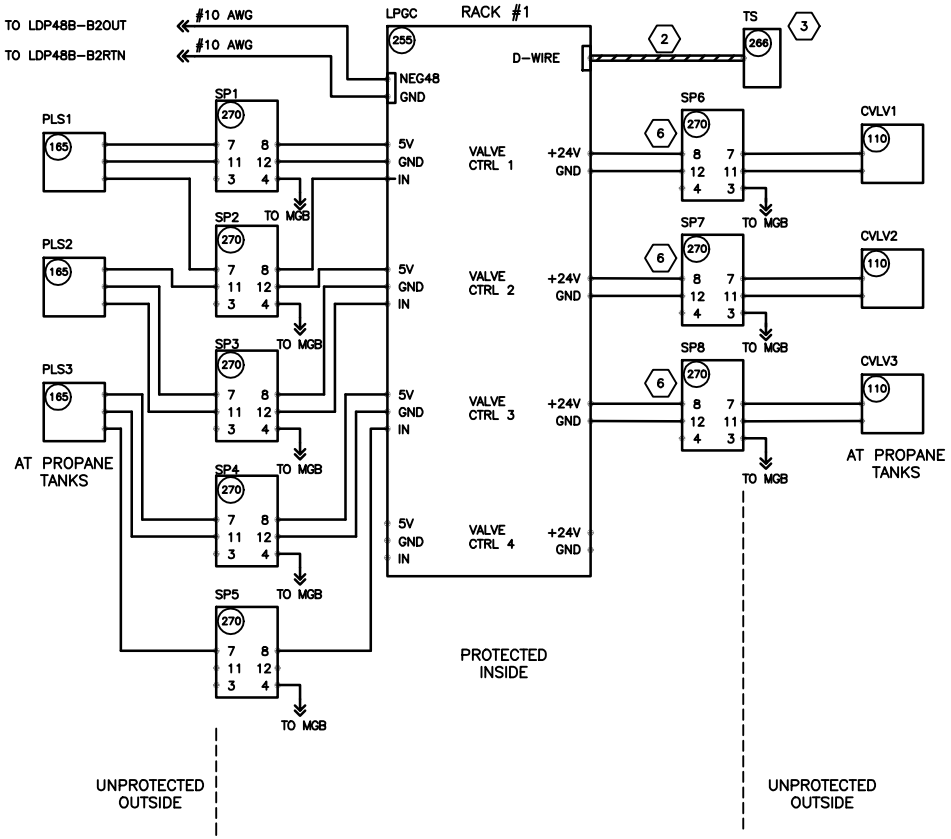
BALD MOUNTAIN

Burns

SHEET NUMBER REF. 12
DRAWING NUMBER REF. 0621828-1494516
BURNS PROJECT REF. 2015-228

NOTES:

1. ALL WIRING #24 AWG SOLID UNLESS NOTED OTHERWISE
2. D-WIRE SENSOR IS 6P4C CABLE WITH RJ-11 CONNECTORS
3. INSTALL TEMPERATURE SENSOR (TS) TO EXTERNAL WALL OF THE SHELTER
4. #18 AWG SOLID WIRE SHALL BE USED FOR VALVE CONTROL LINES
5. INSTALL PROPANE LEVEL SENSORS WITHIN TANKS PER MANUFACTURER INSTRUCTIONS
6. INSTALL DIN RAIL AND SURGE PROTECTORS (SP) BENEATH CABLE ENTRY PORT WITHIN SHELTER
7. ALL LEVEL SENSOR AND VALVE CONTROL WIRING SHALL BE ROUTED FROM THE SHELTER TO THE DEVICE VIA CONDUIT AS SPECIFIED WITHIN



The ALASKA RAILROAD CORPORATION

SIGNAL ENGINEERING — P.O. BOX 107500 , ANCHORAGE , ALASKA 99510-7500

BALD MOUNTAIN

TELECOMMUNICATION SITE WORK

ELECTRICAL ONE-LINE - LPG CONTROLLER

REVISIONS

			AS DESIGNED 03-18-16 100% BALD MT. REV. 1 DES:KMT CHK:EMS	AS DESIGNED 02-10-16 100% BALD MT. REV. 0 DES:KMT CHK:EMS

DRAWN: *J. W. A.*
DATE: 02-05-16

DWG NO. 0621828-1494516

SHEET 13 OF 32

BURNS ENG. REVISIONS

100% (REV.0) HW DESIGN — SCALE: NONE

	INITIAL	DATE
DESIGNED:	KMT	2-10-16
CHECKED:	EMS	2-10-16
BACK-CHECKED:	KMT	2-10-16
CORRECTED:	KMT	2-12-16
VERIFIED:	EMS	2-12-16

100% (REV.1) HW DESIGN — SCALE: NONE

	INITIAL	DATE
DESIGNED:	KMT	03-18-16
CHECKED:	EMS	03-21-16
BACK-CHECKED:	KMT	03-21-16
CORRECTED:	J.W.A.	03-22-16
VERIFIED:	KMT	03-23-16

BALD MOUNTAIN

SHEET NUMBER REF. 13

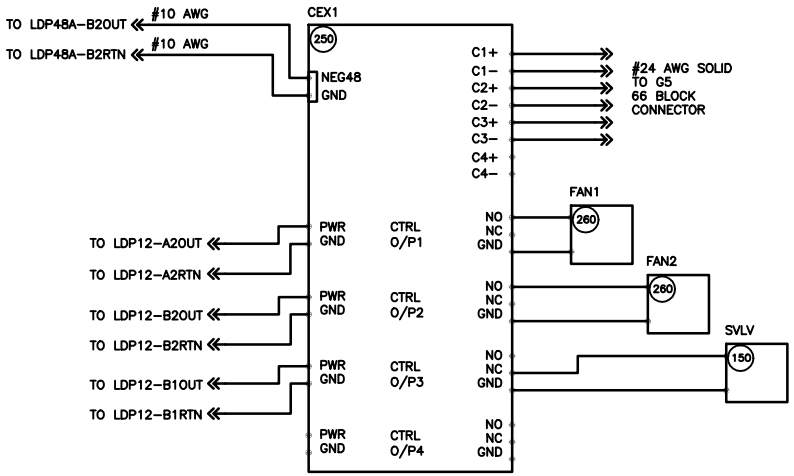
DRAWING NUMBER REF. 0621828-1494516

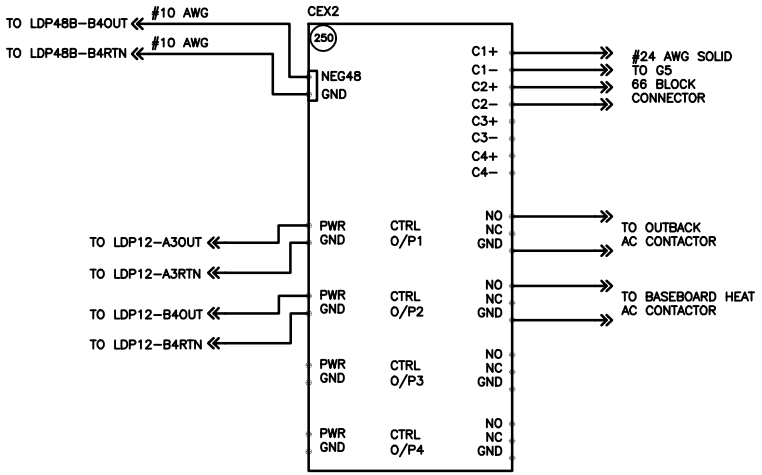
BURNS PROJECT REF. 2015-228

Burns

NOTES:

1. ALL WIRING #18 AWG DLO UNLESS NOTED OTHERWISE





The ALASKA RAILROAD CORPORATION

SIGNAL ENGINEERING — P.O. BOX 107500 , ANCHORAGE , ALASKA 99510-7500

BALD MOUNTAIN

TELECOMMUNICATION SITE WORK

ELECTRICAL ONE-LINE - G5 CONTROLLER EXTENSION

REVISIONS

AS DESIGNED 100% BALD MT. REV. 1 DES:KMT CHK:EMS	03-18-16	AS DESIGNED 100% BALD MT. REV. 0 DES:KMT CHK:EMS	02-10-16

DRAWN: *J. W. A.*
DATE: 02-05-16

DWG NO. 0621828-1494516

SHEET 14 OF 32

BURNS ENG. REVISIONS

100% (REV.0) HW DESIGN

SCALE: NONE	INITIAL	DATE
DESIGNED:	KMT	2-10-16
CHECKED:	EMS	2-10-16
BACK-CHECKED:	KMT	2-10-16
CORRECTED:	KMT	2-12-16
VERIFIED:	EMS	2-12-16

100% (REV.1) HW DESIGN

SCALE: NONE	INITIAL	DATE
DESIGNED:	KMT	03-18-16
CHECKED:	EMS	03-21-16
BACK-CHECKED:	KMT	03-21-16
CORRECTED:	J.W.A.	03-22-16
VERIFIED:	KMT	03-23-16

BALD MOUNTAIN

Burns

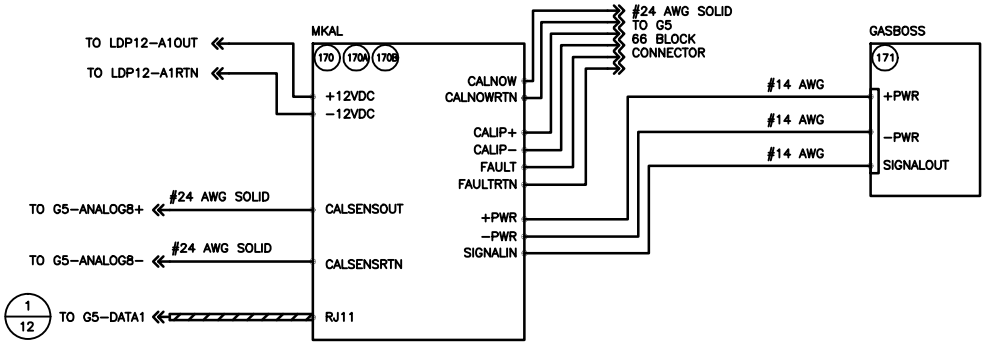
SHEET NUMBER REF. 14

DRAWING NUMBER REF. 0621828-1494516

BURNS PROJECT REF. 2015-228

NOTES:

1. ALL WIRING #10 AWG DLO UNLESS NOTED OTHERWISE
2. MOUNT GASBOSS DEVICE 6" FROM SHELTER FLOOR ON SOFC FIELD STAND OR WALL CONTAINING PROPANE PIPING



The ALASKA RAILROAD CORPORATION

SIGNAL ENGINEERING — P.O. BOX 107500 , ANCHORAGE , ALASKA 99510-7500

BALD MOUNTAIN

TELECOMMUNICATION SITE WORK

ELECTRICAL ONE-LINE - REL-TEK GAS CALIBRATION

REVISIONS

AS DESIGNED 02-10-16
100% BALD MT.
REV. 0
DES:KMT CHK:EMS

DRAWN: *J. W. A.*
DATE: 02-05-16

DWG NO. 0621828-1494516

SHEET 15 OF 32

BURNS ENG. REVISIONS

100% (REV.0) HW DESIGN

SCALE: NONE

	INITIAL	DATE
DESIGNED:	KMT	2-10-16
CHECKED:	EMS	2-10-16
BACK-CHECKED:	KMT	2-10-16
CORRECTED:	KMT	2-12-16
VERIFIED:	EMS	2-12-16

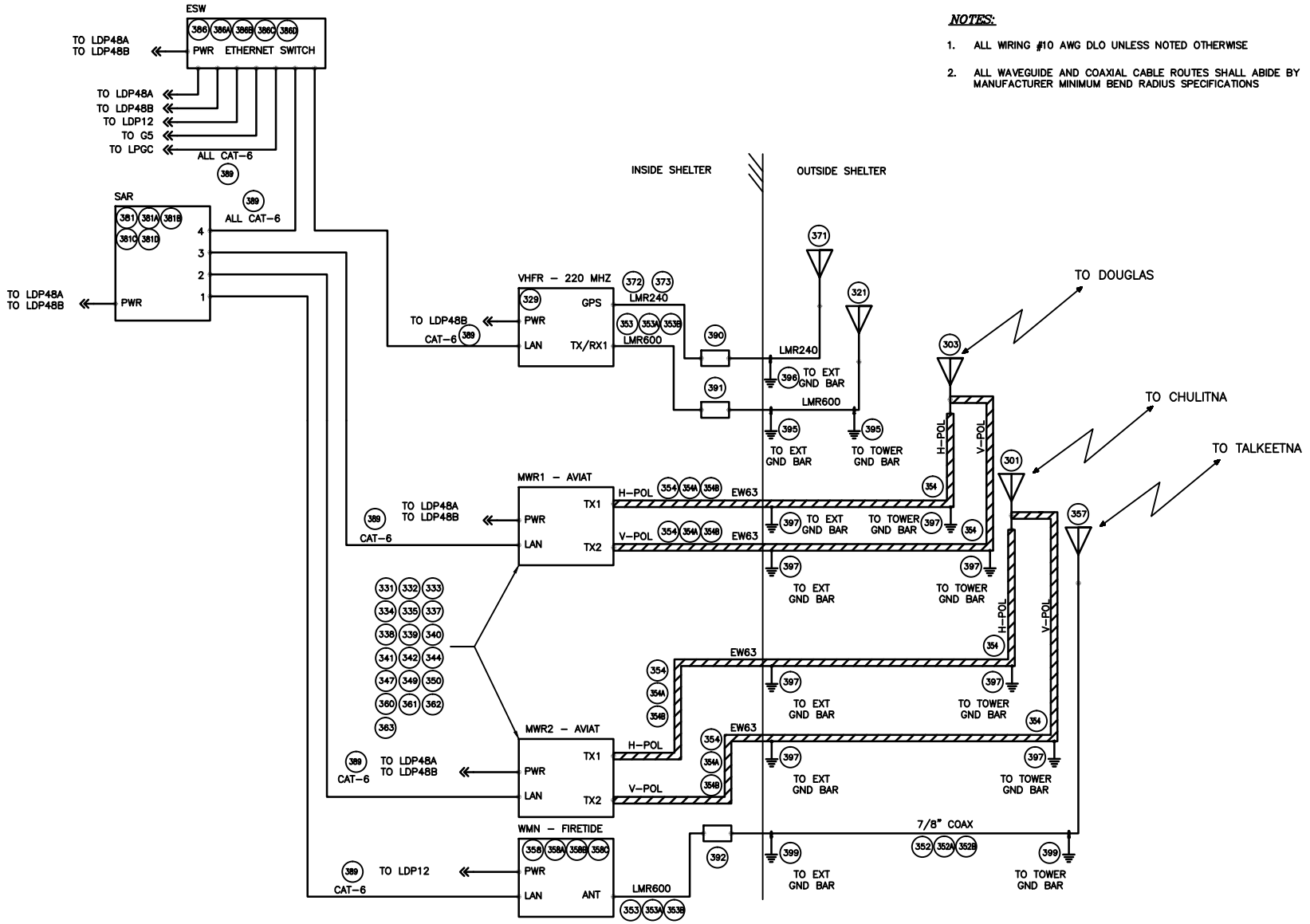
BALD MOUNTAIN

Burns

SHEET NUMBER REF. 15

DRAWING NUMBER REF. 0621828-1494516

BURNS PROJECT REF. 2015-228



NOTES:

1. ALL WIRING #10 AWG DLO UNLESS NOTED OTHERWISE
2. ALL WAVEGUIDE AND COAXIAL CABLE ROUTES SHALL ABIDE BY MANUFACTURER MINIMUM BEND RADIUS SPECIFICATIONS

The ALASKA RAILROAD CORPORATION

SIGNAL ENGINEERING — P.O. BOX 107500 , ANCHORAGE , ALASKA 99510-7500

BALD MOUNTAIN

TELECOMMUNICATION SITE WORK

ELECTRICAL ONE-LINE - COMMUNICATIONS

REVISIONS

AS DESIGNED 03-18-16 100% BALD MT. REV. 1 DES:KMT CHK:EMS	AS DESIGNED 02-10-16 100% BALD MT. REV. 0 DES:KMT CHK:EMS

DRAWN: *J.W.A.* DATE: 02-05-16

DWG NO. 0621828-1494516

SHEET 16 OF 32

BURNS ENG. REVISIONS

100% HW DESIGN (REV.0)	SCALE: NONE		
		INITIAL	DATE
	DESIGNED:	KMT	2-10-16
	CHECKED:	EMS	2-10-16
	BACK-CHECKED:	KMT	2-10-16
	CORRECTED:	KMT	2-12-16
	VERIFIED:	EMS	2-12-16

100% HW DESIGN (REV.1)	SCALE: NONE		
		INITIAL	DATE
	DESIGNED:	KMT	03-18-16
	CHECKED:	EMS	03-21-16
	BACK-CHECKED:	KMT	03-21-16
	CORRECTED:	J.W.A.	03-22-16
	VERIFIED:	KMT	03-23-16

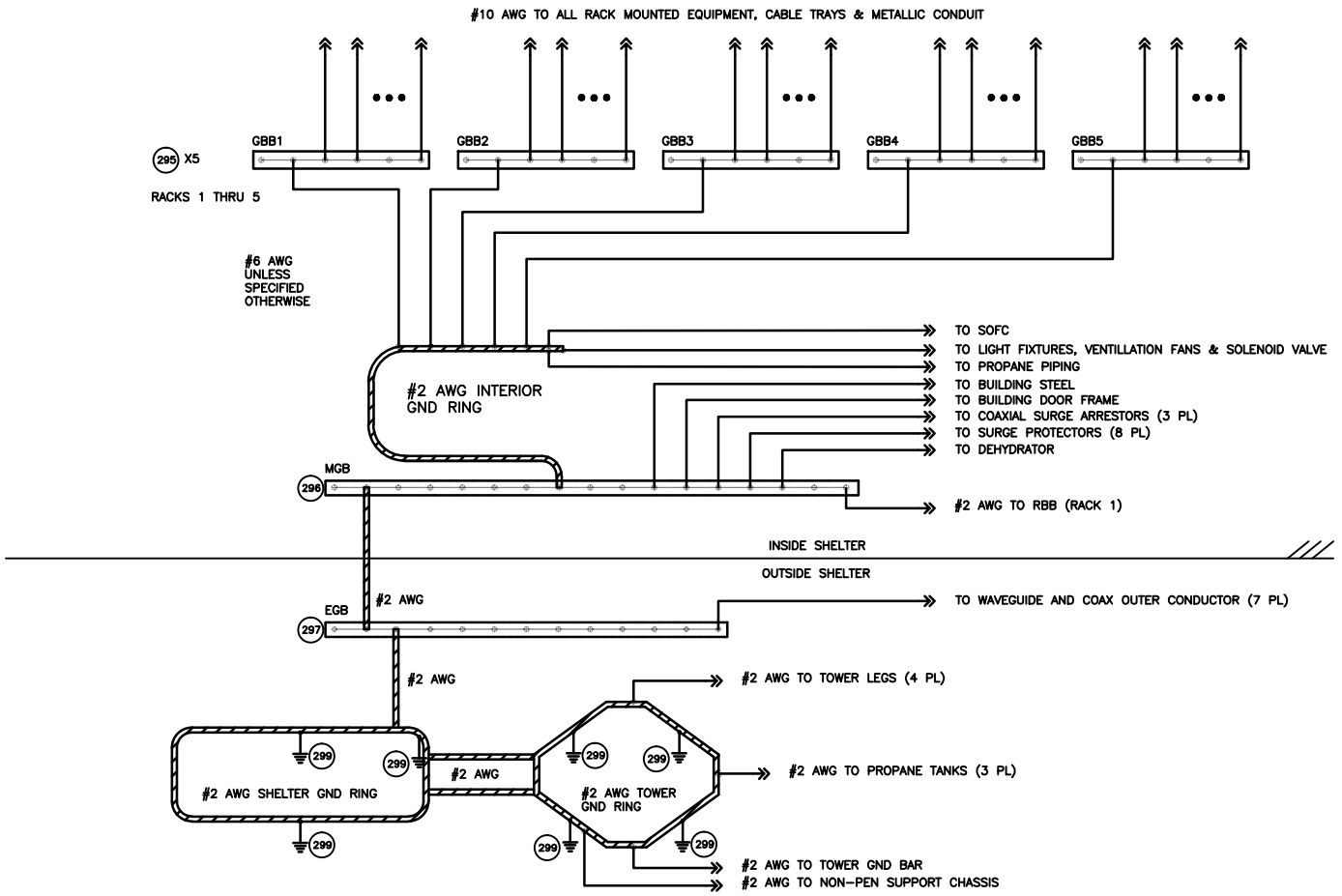
BALD MOUNTAIN

Burns

SHEET NUMBER REF. 16

DRAWING NUMBER REF. 0621828-1494516

BURNS PROJECT REF. 2015-228



The ALASKA RAILROAD CORPORATION

SIGNAL ENGINEERING — P.O. BOX 107500 , ANCHORAGE , ALASKA 99510-7500

BALD MOUNTAIN

TELECOMMUNICATION SITE WORK

ELECTRICAL ONE-LINE – GROUNDING

REVISIONS

AS DESIGNED 03-18-16 100% BALD MT. REV. 1 DES:KMT CHK:EMS	AS DESIGNED 02-10-16 100% BALD MT. REV. 0 DES:KMT CHK:EMS	DRAWN: J. W. A. DATE: 02-05-16	DWG NO. 0621828-1494516	SHEET 17 OF 32

BURNS ENG. REVISIONS

100% (REV.0) HW DESIGN — SCALE: NONE

	INITIAL	DATE
DESIGNED:	KMT	2-10-16
CHECKED:	EMS	2-10-16
BACK-CHECKED:	KMT	2-10-16
CORRECTED:	KMT	2-12-16
VERIFIED:	EMS	2-12-16

100% (REV.1) HW DESIGN — SCALE: NONE

	INITIAL	DATE
DESIGNED:	KMT	03-18-16
CHECKED:	EMS	03-21-16
BACK-CHECKED:	KMT	03-21-16
CORRECTED:	J.W.A.	03-22-16
VERIFIED:	KMT	03-23-16

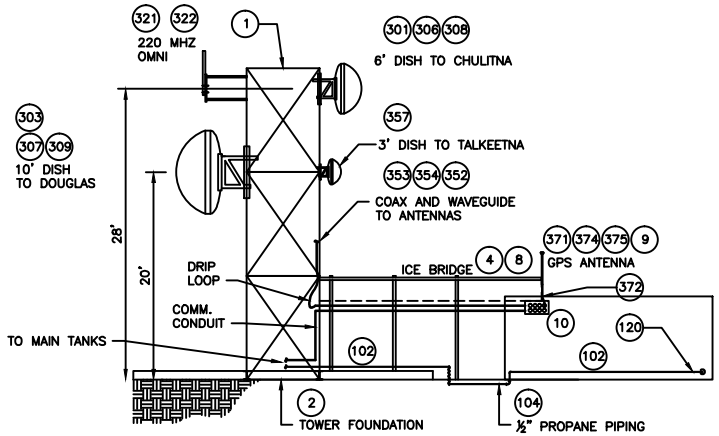
BALD MOUNTAIN

Burns

SHEET NUMBER REF. 17

DRAWING NUMBER REF. 0621828-1494516

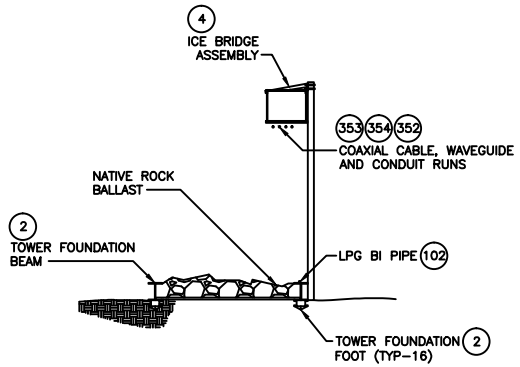
BURNS PROJECT REF. 2015-228



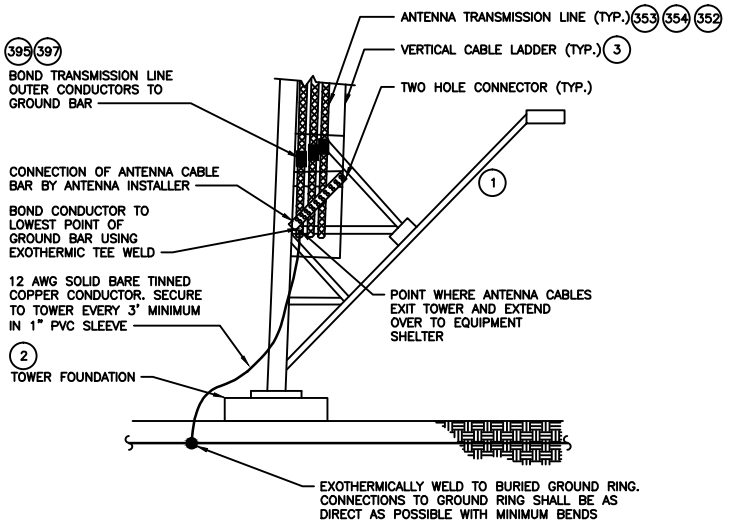
1 / 18 SITE ELEVATION
NTS

NOTES:

1. INSTALL TOWER GROUND BAR ON LEG OF TOWER WHERE TOWER MEETS ICE BRIDGE ASSEMBLY. BOND TOWER GROUND BAR TO GROUNDING SYSTEM USING #2 AWG WIRE.
2. BOND TRANSMISSION LINE OUTER CONDUCTORS AT THE ANTENNA TO THE TOWER STEEL, AND AT TOWER GROUND BAR WHERE ICE BRIDGE MEETS THE TOWER
3. BOND WAVEGUIDE CONDUCTOR TO EXTERIOR GROUND BAR AT SHELTER CABLE ENTRY PORT
4. MOUNT GPS ANTENNA AND CONDUIT TO ICE BRIDGE ASSEMBLY SUPPORT POLE NEAREST TO CABLE ENTRY PORT



2 / 18 TOWER FOUNDATION AND ICE BRIDGE ELEVATION
NTS



3 / 18 TYPICAL TOWER GROUND BAR MOUNTING DETAIL
NTS

The ALASKA RAILROAD CORPORATION
SIGNAL ENGINEERING — P.O. BOX 107500 , ANCHORAGE , ALASKA 99510-7500

BALD MOUNTAIN
TELECOMMUNICATION SITE WORK
EXTERNAL DETAILS 1 – TOWER DETAILS

REVISIONS

				AS DESIGNED 03-18-16 100% BALD MT. REV. 1 DES:KMT CHK:EMS	AS DESIGNED 02-10-16 100% BALD MT. REV. 0 DES:KMT CHK:EMS

DRAWN: *J.W.A.*
DATE: 02-05-16
DWG NO. 0621828-1494516
SHEET 18 OF 32

BURNS ENG. REVISIONS

100% (REV.0) HW DESIGN — SCALE: NONE

	INITIAL	DATE
DESIGNED:	KMT	2-10-16
CHECKED:	EMS	2-10-16
BACK-CHECKED:	KMT	2-10-16
CORRECTED:	KMT	2-12-16
VERIFIED:	EMS	2-12-16

100% (REV.1) HW DESIGN — SCALE: NONE

	INITIAL	DATE
DESIGNED:	KMT	03-18-16
CHECKED:	EMS	03-21-16
BACK-CHECKED:	KMT	03-21-16
CORRECTED:	J.W.A.	03-22-16
VERIFIED:	KMT	03-23-16

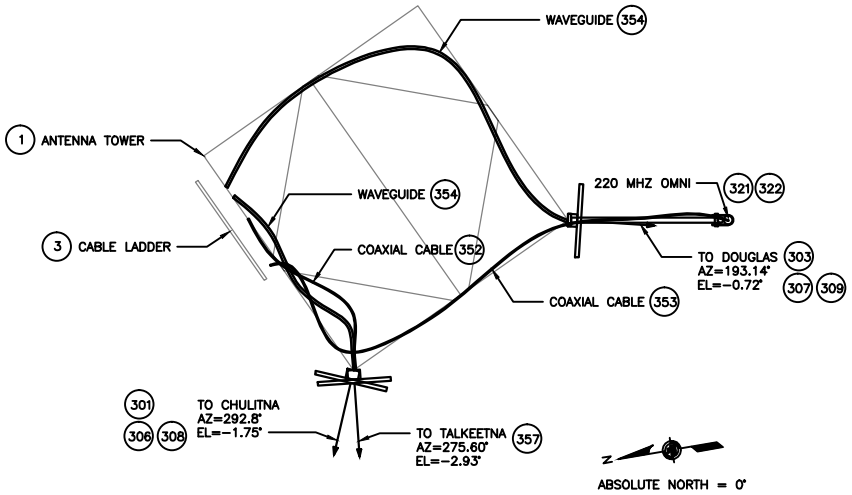
BALD MOUNTAIN

Burns

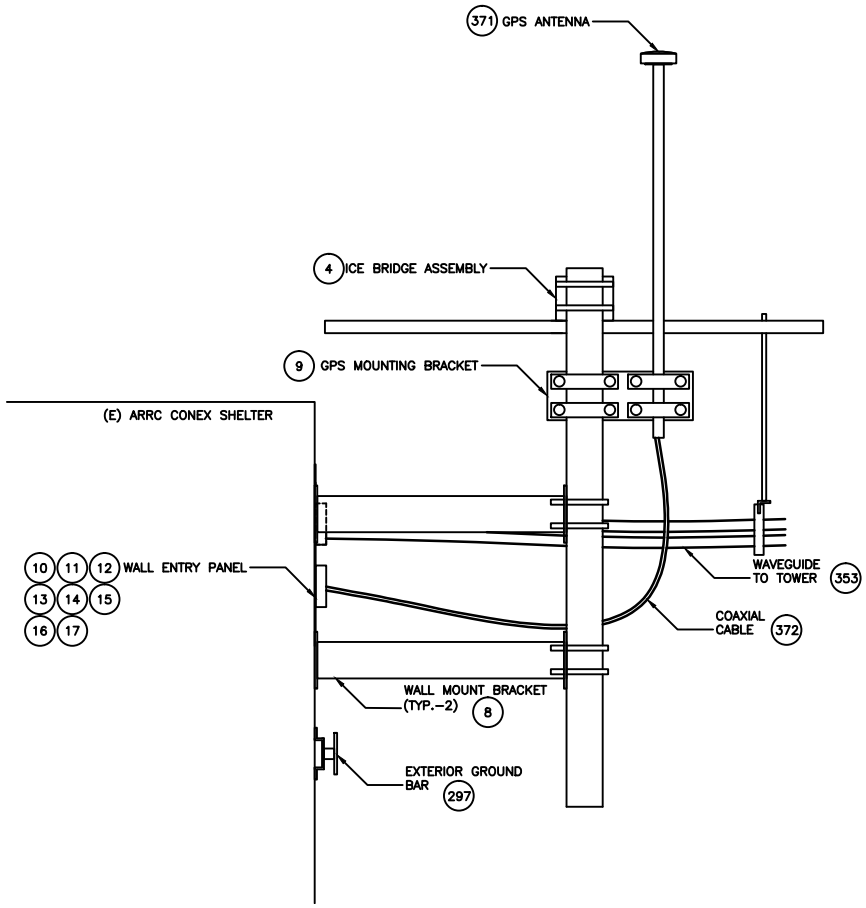
SHEET NUMBER REF. 18
DRAWING NUMBER REF. 0621828-1494516
BURNS PROJECT REF. 2015-228

NOTES:

1. ANTENNA ALIGNMENT TO BE FINE TUNED TO MAXIMIZE RECEIVE SIGNAL STRENGTH FROM TRANSMITTER AT OPPOSITE END OF LINK



1/19 TOWER ANTENNA ALIGNMENT DETAIL
NTS



2/19 GPS ANTENNA MOUNTING DETAIL
NTS

The ALASKA RAILROAD CORPORATION
SIGNAL ENGINEERING — P.O. BOX 107500 , ANCHORAGE , ALASKA 99510-7500

BALD MOUNTAIN
TELECOMMUNICATION SITE WORK
EXTERNAL DETAILS 2 – ANTENNA ALIGNMENT AND GPS MOUNT

REVISIONS

				AS DESIGNED 03-18-16 100% BALD MT. REV. 1 DES:KMT CHK:EMS	AS DESIGNED 02-10-16 100% BALD MT. REV. 0 DES:KMT CHK:EMS

DRAWN: J.W.A.
DATE: 02-05-16
DWG NO. 0621828-1494516
SHEET 19 OF 32

BURNS ENG. REVISIONS

100% (REV.0) HW DESIGN — SCALE: NONE

	INITIAL	DATE
DESIGNED:	KMT	2-10-16
CHECKED:	EMS	2-10-16
BACK-CHECKED:	KMT	2-10-16
CORRECTED:	KMT	2-12-16
VERIFIED:	EMS	2-12-16

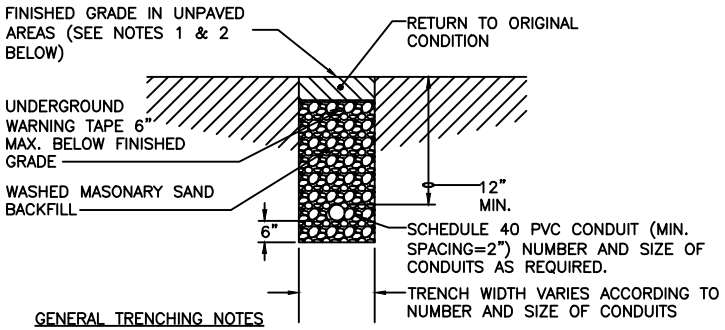
100% (REV.1) HW DESIGN — SCALE: NONE

	INITIAL	DATE
DESIGNED:	KMT	03-18-16
CHECKED:	EMS	03-21-16
BACK-CHECKED:	KMT	03-21-16
CORRECTED:	J.W.A.	03-22-16
VERIFIED:	KMT	03-23-16

BALD MOUNTAIN

Burns

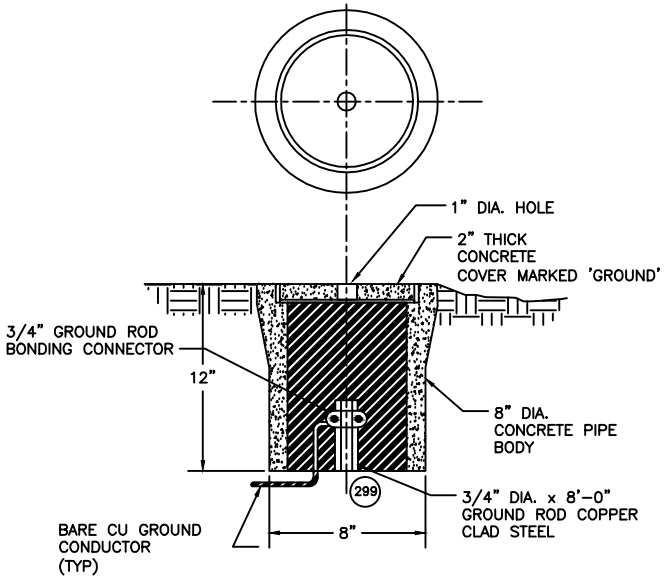
SHEET NUMBER REF. 19
DRAWING NUMBER REF. 0621828-1494516
BURNS PROJECT REF. 2015-228



GENERAL TRENCHING NOTES

1. BACKFILL SHALL BE COMPACTED IN LAYERS NOT EXCEEDING 6-INCHES.
2. COMPACT EACH 6-INCH LAYER OF BACKFILL TO 95% OF MAXIMUM DRY DENSITY.
3. BACKFILL MATERIAL SHALL BE LOOSE EARTH FREE FROM ROCKS, FROZEN MATERIAL, BROKEN CONCRETE, AND OTHER RUBBLE THAT MAY DAMAGE THE CONDUITS.
4. UNDERGROUND WARNING TAPE SHALL READ "CAUTION GAS LINE BELOW" REPETITIVELY PRINTED ALONG THE ENTIRE LENGTH OF CONDUIT INSTALLATION.
5. ALL SURFACES SHALL BE RESTORED TO ORIGINAL CONDITIONS AFTER WORK IS COMPLETED.

1/20 TYPICAL UNPAVED AREA LPG PIPE BURIAL SECTION
NTS



2/20 TYPICAL GROUND ROD SECTION
NTS

The ALASKA RAILROAD CORPORATION
SIGNAL ENGINEERING — P.O. BOX 107500 , ANCHORAGE , ALASKA 99510-7500

BALD MOUNTAIN
TELECOMMUNICATION SITE WORK
EXTERNAL DETAILS 3 – GROUNDING AND TRENCH DETAILS

REVISIONS

				AS DESIGNED 03-18-16 100% BALD MT. REV. 1 DES:KMT CHK:EMS	AS DESIGNED 02-10-16 100% BALD MT. REV. 0 DES:KMT CHK:EMS

DRAWN: J. W. A.
DATE: 02-05-16
DWG NO. 0621828-1494516
SHEET 20 OF 32

BURNS ENG. REVISIONS

100% (REV.0) HW DESIGN — SCALE: NONE

	INITIAL	DATE
DESIGNED:	KMT	2-10-16
CHECKED:	EMS	2-10-16
BACK-CHECKED:	KMT	2-10-16
CORRECTED:	KMT	2-12-16
VERIFIED:	EMS	2-12-16

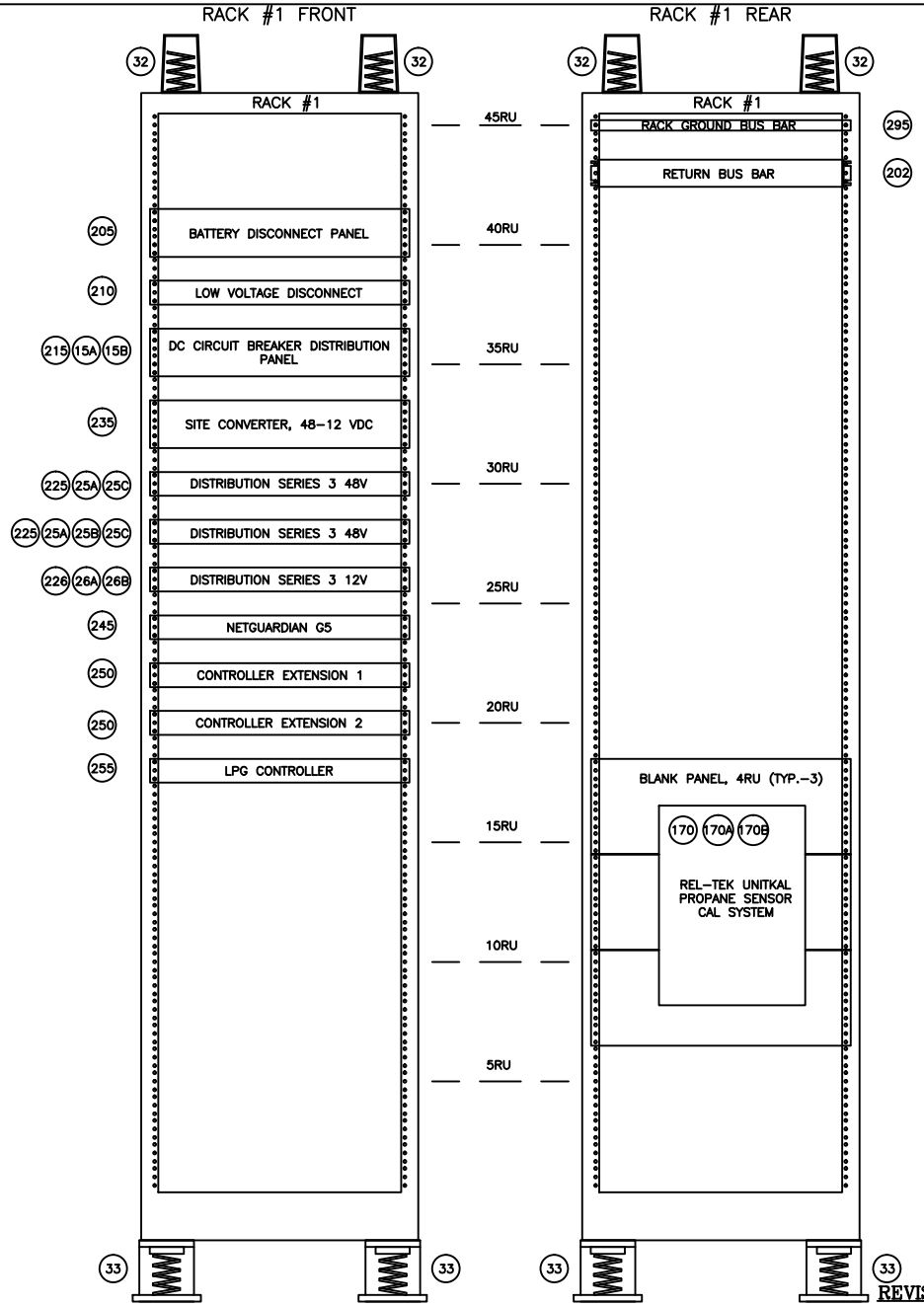
100% (REV.1) HW DESIGN — SCALE: NONE

	INITIAL	DATE
DESIGNED:	KMT	03-18-16
CHECKED:	EMS	03-21-16
BACK-CHECKED:	KMT	03-21-16
CORRECTED:	J.W.A.	03-22-16
VERIFIED:	KMT	03-23-16

BALD MOUNTAIN

Burns

SHEET NUMBER REF. 20
DRAWING NUMBER REF. 0621828-1494516
BURNS PROJECT REF. 2015-228



NOTES:

1. SECURE RACK TO SHELTER FLOOR AND CEILING USING VIBRATION ISOLATORS AS SHOWN
2. INSTALL ALL EQUIPMENT IN EQUIPMENT RACK IN THE LOCATIONS AS SHOWN
3. INSTALL NON-CONDUCTIVE SHIELD AROUND RETURN BUS BAR
4. MOUNT REL-TEK PROPANE CALIBRATION SYSTEM TO BLANK PANELS AS SHOWN
5. INSTALL ALL WIRING AND CABLES AS SHOWN IN THE ELECTRICAL ONE-LINE DIAGRAMS WITHIN

REVISIONS

AS DESIGNED 100% BALD MT. REV. 1 DES:KMT CHK:EMS	03-18-16	AS DESIGNED 100% BALD MT. REV. 0 DES:KMT CHK:EMS	02-10-16

The ALASKA RAILROAD CORPORATION

SIGNAL ENGINEERING — P.O. BOX 107500 , ANCHORAGE , ALASKA 99510-7500

BALD MOUNTAIN

TELECOMMUNICATION SITE WORK

FLOOR PLAN DETAILS 1 – RACK #1 ELEVATION

DRAWN: *J. W. A.* DATE: 02-05-16

DWG NO. 0621828-1494516

SHEET 21 OF 32

BURNS ENG. REVISIONS

100% (REV.0) HW DESIGN

SCALE: NONE

	INITIAL	DATE
DESIGNED:	KMT	2-10-16
CHECKED:	EMS	2-10-16
BACK-CHECKED:	KMT	2-10-16
CORRECTED:	KMT	2-12-16
VERIFIED:	EMS	2-12-16

100% (REV.1) HW DESIGN

SCALE: NONE

	INITIAL	DATE
DESIGNED:	KMT	03-18-16
CHECKED:	EMS	03-21-16
BACK-CHECKED:	KMT	03-21-16
CORRECTED:	J.W.A.	03-22-16
VERIFIED:	KMT	03-23-16

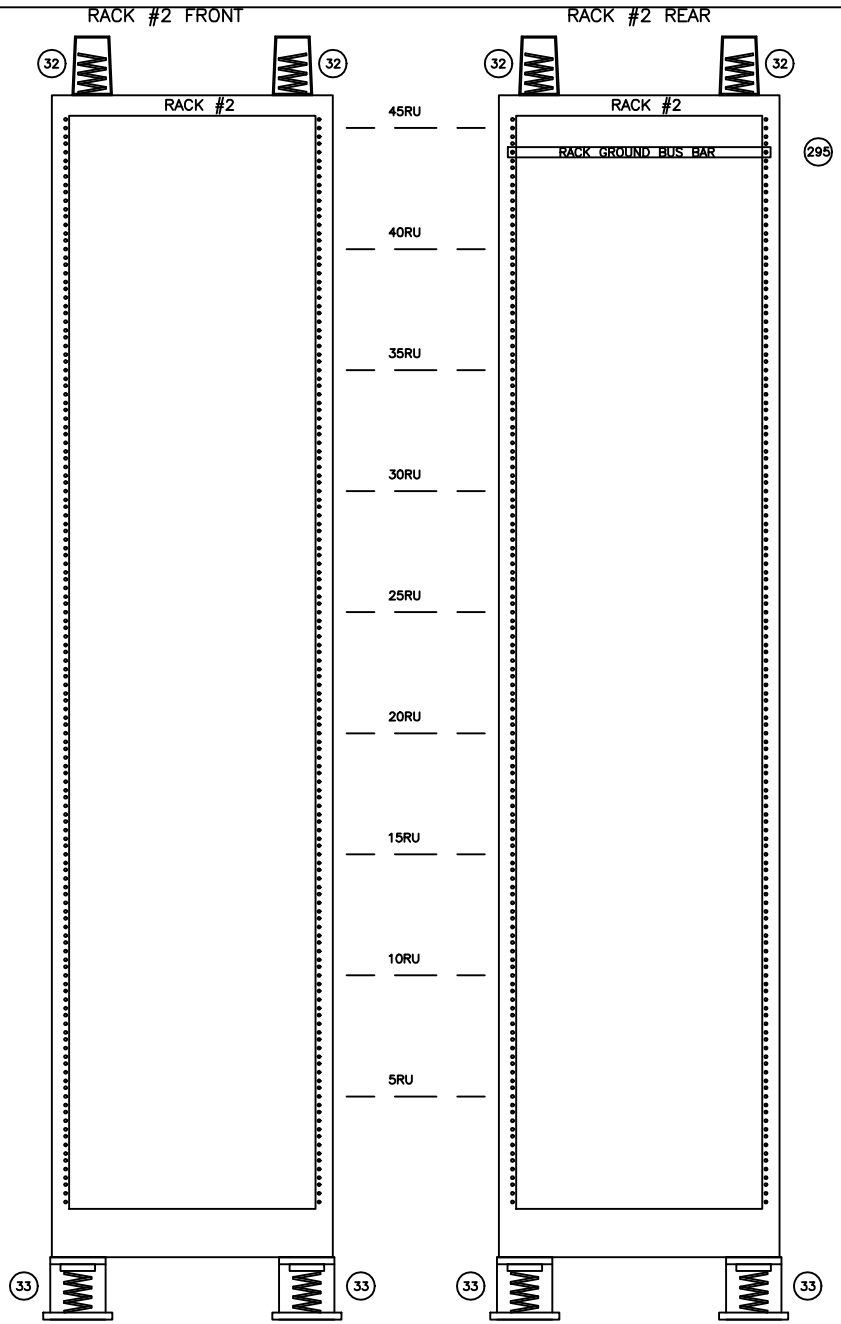
BALD MOUNTAIN

Burns

SHEET NUMBER REF. 21

DRAWING NUMBER REF. 0621828-1494516

BURNS PROJECT REF. 2015-228



NOTES:

1. SECURE RACK TO SHELTER FLOOR AND CEILING USING VIBRATION ISOLATORS AS SHOWN
2. INSTALL ALL EQUIPMENT IN EQUIPMENT RACK IN THE LOCATIONS AS SHOWN
3. INSTALL ALL WIRING AND CABLES AS SHOWN IN THE ELECTRICAL ONE-LINE DIAGRAMS WITHIN

The ALASKA RAILROAD CORPORATION

SIGNAL ENGINEERING — P.O. BOX 107500 , ANCHORAGE , ALASKA 99510-7500

BALD MOUNTAIN

TELECOMMUNICATION SITE WORK

FLOOR PLAN DETAILS 2 – RACK #2 ELEVATION

REVISIONS					AS DESIGNED 02-10-16 100% BALD MT. REV. 0 DES:KMT CHK:EMS	DRAWN: *J. W. A.* DATE: 02-05-16	DWG NO. 0621828-1494516	SHEET 22 OF 32

BURNS ENG. REVISIONS

100% (REV.0) HW DESIGN

SCALE: NONE		
	INITIAL	DATE
DESIGNED:	KMT	2-10-16
CHECKED:	EMS	2-10-16
BACK-CHECKED:	KMT	2-10-16
CORRECTED:	KMT	2-12-16
VERIFIED:	EMS	2-12-16

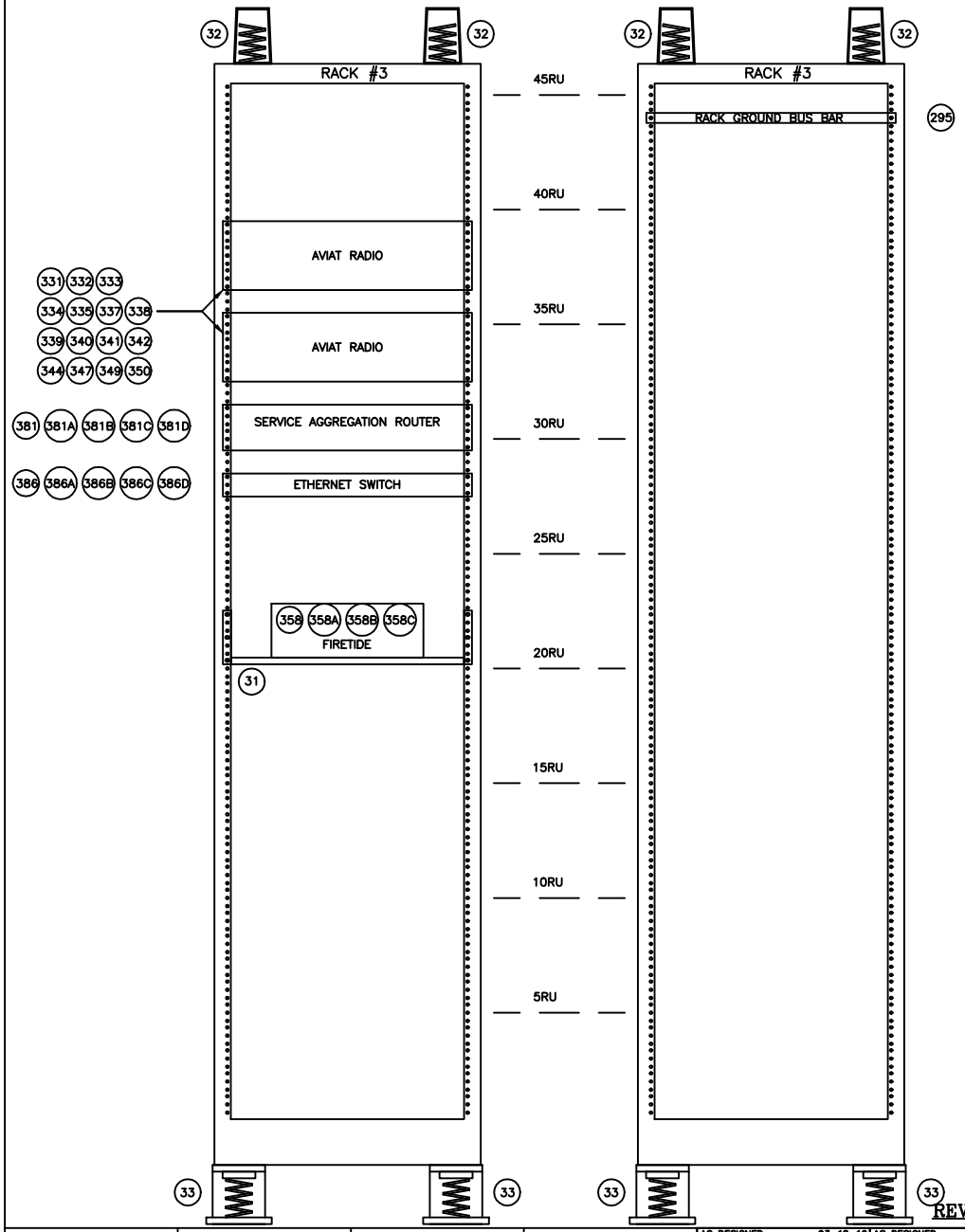
BALD MOUNTAIN

Burns

SHEET NUMBER REF. 22

DRAWING NUMBER REF. 0621828-1494516

BURNS PROJECT REF. 2015-228



NOTES:

1. SECURE RACK TO SHELTER FLOOR AND CEILING USING VIBRATION ISOLATORS AS SHOWN
2. INSTALL ALL EQUIPMENT IN EQUIPMENT RACK IN THE LOCATIONS AS SHOWN
3. MOUNT FIRETIDE RADIO TO RACK SHELF
4. INSTALL ALL WIRING AND CABLES AS SHOWN IN THE ELECTRICAL ONE-LINE DIAGRAMS WITHIN

REVISIONS

AS DESIGNED 100% BALD MT. REV. 1 DES: KMT CHK: EMS	03-18-16	AS DESIGNED 100% BALD MT. REV. 0 DES: KMT CHK: EMS	02-10-16

The ALASKA RAILROAD CORPORATION

SIGNAL ENGINEERING — P.O. BOX 107500 , ANCHORAGE , ALASKA 99510-7500

BALD MOUNTAIN

TELECOMMUNICATION SITE WORK

FLOOR PLAN DETAILS 3 – RACK #3 ELEVATION

DRAWN: *J. W. A.*
DATE: 02-05-16

DWG NO. 0621828-1494516

SHEET 23 OF 32

BURNS ENG. REVISIONS

100% (REV.0) HW DESIGN

SCALE: NONE	INITIAL	DATE
DESIGNED:	KMT	2-10-16
CHECKED:	EMS	2-10-16
BACK-CHECKED:	KMT	2-10-16
CORRECTED:	KMT	2-12-16
VERIFIED:	EMS	2-12-16

100% (REV.1) HW DESIGN

SCALE: NONE	INITIAL	DATE
DESIGNED:	KMT	03-18-16
CHECKED:	EMS	03-21-16
BACK-CHECKED:	KMT	03-21-16
CORRECTED:	J.W.A.	03-22-16
VERIFIED:	KMT	03-23-16

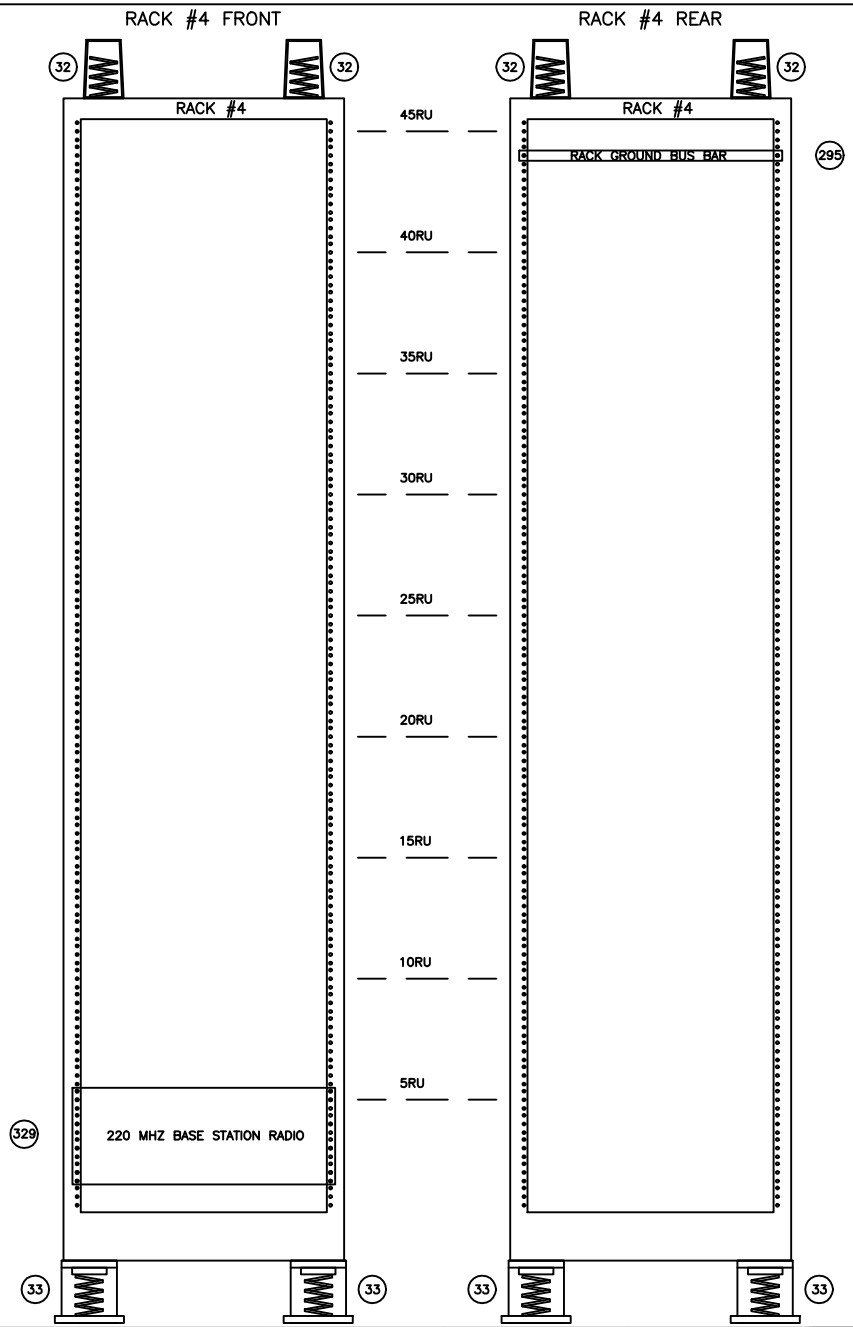
BALD MOUNTAIN

Burns

SHEET NUMBER REF. 23

DRAWING NUMBER REF. 0621828-1494516

BURNS PROJECT REF. 2015-228



NOTES:

1. SECURE RACK TO SHELTER FLOOR AND CEILING USING VIBRATION ISOLATORS AS SHOWN
2. INSTALL ALL EQUIPMENT IN EQUIPMENT RACK IN THE LOCATIONS AS SHOWN
3. INSTALL ALL WIRING AND CABLES AS SHOWN IN THE ELECTRICAL ONE-LINE DIAGRAMS WITHIN

The ALASKA RAILROAD CORPORATION

SIGNAL ENGINEERING — P.O. BOX 107500 , ANCHORAGE , ALASKA 99510-7500

BALD MOUNTAIN

TELECOMMUNICATION SITE WORK

FLOOR PLAN DETAILS 4 – RACK #4 ELEVATION

REVISIONS		
AS DESIGNED	02-10-16	
100% BALD MT. REV. 0		
DES:KMT	CHK:EMS	

DRAWN: *J. W. A.*
DATE: 02-05-16

DWG NO. 0621828-1494516

SHEET 24 OF 32

BURNS ENG. REVISIONS

100% (REV.0) HW DESIGN

SCALE: NONE

	INITIAL	DATE
DESIGNED:	KMT	2-10-16
CHECKED:	EMS	2-10-16
BACK-CHECKED:	KMT	2-10-16
CORRECTED:	KMT	2-12-16
VERIFIED:	EMS	2-12-16

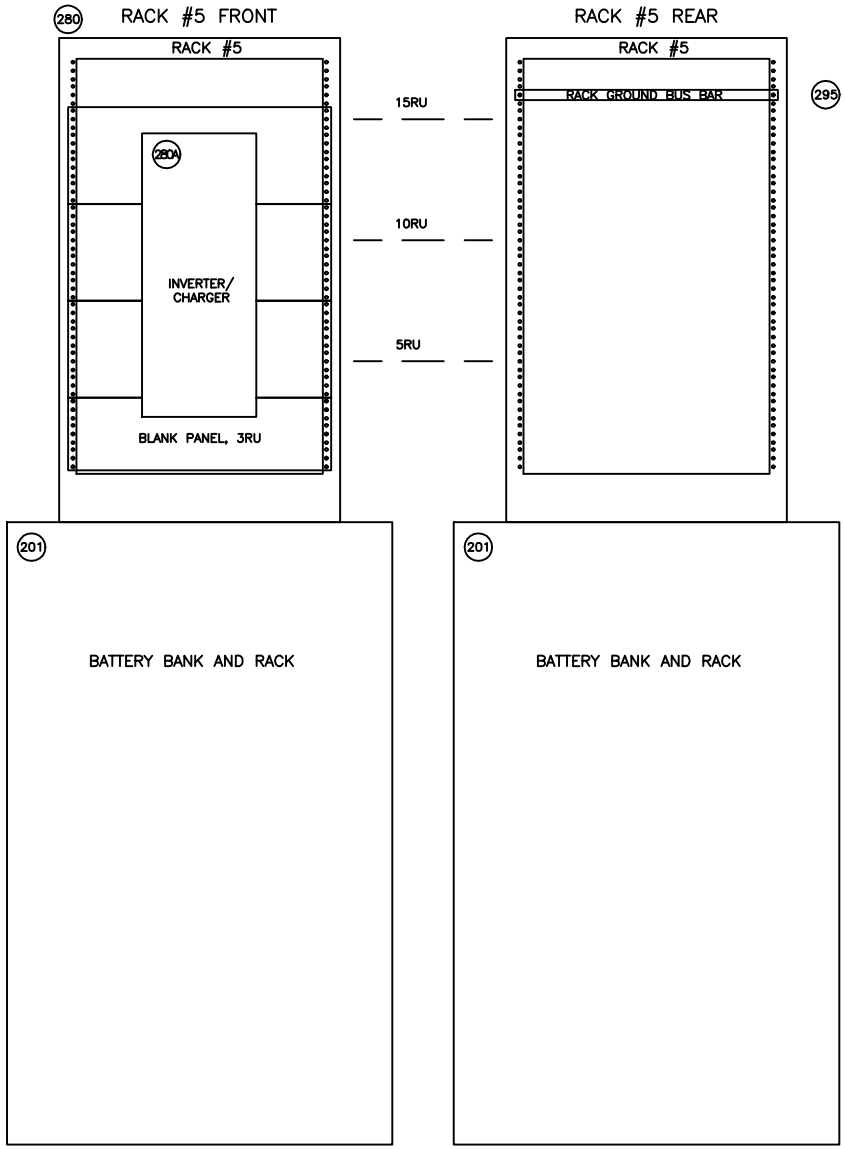
BALD MOUNTAIN

Burns

SHEET NUMBER REF. 24

DRAWING NUMBER REF. 0621828-1494516

BURNS PROJECT REF. 2015-228



NOTES:

1. MOUNT BATTERY CHARGER RACK ASSEMBLY TO TOP OF BATTERY BANK RACK.
2. INSTALL ALL WIRING AND CABLES AS SHOWN IN THE ELECTRICAL ONE-LINE DIAGRAMS WITHIN.

The ALASKA RAILROAD CORPORATION

SIGNAL ENGINEERING — P.O. BOX 107500 , ANCHORAGE , ALASKA 99510-7500

BALD MOUNTAIN

TELECOMMUNICATION SITE WORK

FLOOR PLAN DETAILS 5 – RACK #5 ELEVATION

REVISIONS

AS DESIGNED 02-10-16
100% BALD MT.
REV. 0
DES:KMT CHK:EMS

DRAWN: *J. W. A.*
DATE: 02-05-16

DWG NO. 0621828-1494516

SHEET 25 OF 32

BURNS ENG. REVISIONS

100% (REV.0) HW DESIGN

SCALE: NONE

	INITIAL	DATE
DESIGNED:	KMT	2-10-16
CHECKED:	EMS	2-10-16
BACK-CHECKED:	KMT	2-10-16
CORRECTED:	KMT	2-12-16
VERIFIED:	EMS	2-12-16

BALD MOUNTAIN

Burns

SHEET NUMBER REF. 25

DRAWING NUMBER REF. 0621828-1494516

BURNS PROJECT REF. 2015-228

1/26 BATTERY CHARGE RACK ASSEMBLY
NTS

2/26 AC DP ASSEMBLY DISTRIBUTION POWER
NTS

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SIGNAL ENGINEERING — P.O. BOX 107500 , ANCHORAGE , ALASKA 99510-7500

BALD MOUNTAIN
TELECOMMUNICATION SITE WORK
INTERIOR DETAILS 1 – AC SUPPLY PHOTOS

REVISIONS

					AS DESIGNED 02-10-16 100% BALD MT. REV. 0 DES:KMT CHK:EMS	DRAWN: J. W. A. DATE: 02-05-16	DWG NO. 0621828-1494516	SHEET 26 OF 32

BURNS ENG. REVISIONS

100% (REV.0) HW DESIGN

SCALE: NONE

	INITIAL	DATE
DESIGNED:	KMT	2-10-16
CHECKED:	EMS	2-10-16
BACK-CHECKED:	KMT	2-10-16
CORRECTED:	KMT	2-12-16
VERIFIED:	EMS	2-12-16

BALD MOUNTAIN

Burns

SHEET NUMBER REF. 26
DRAWING NUMBER REF. 0621828-1494516
BURNS PROJECT REF. 2015-228

BALD MOUNTAIN NEWMAR DST-20A					
-48 VDC A		BREAKER	-48 VDC B		BREAKER
1	-48 VDC ICD #1	40 A	1		
2	-48 VDC ICD #2	40 A	2		
3	ICT SITE CONVERTER	30 A	3		
4			4		
5			5		
6			6		
7			7		
8			8		
9			9		
10			10		

BALD MOUNTAIN ICT #1					
-48 VDC A		BREAKER	-48 VDC B		BREAKER
1	LIGHTS	5 A	1	ALCATEL A	5 A
2	NETGUARDIAN A	5 A	2	CONTROLLER EXTENSION	5 A
3	AVIAT #1 A	25 A	3	AVIAT #2 A	25 A
4	ETHERNET SWITCH A	15 A	4	DEHYDRATOR	15 A
5			5		
6			6		

BALD MOUNTAIN ICT #2					
-48 VDC A		BREAKER	-48 VDC B		BREAKER
1	MCC 220 BASE STATION	15 A	1	ALCATEL B	5 A
2	NETGUARDIAN B	5 A	2	LPG CONTROLLER	5 A
3	AVIAT #1 B	25 A	3	AVIAT #2 B	25 A
4	ETHERNET SWITCH B	15 A	4	CONTROLLER EX2	5 A
5			5		
6			6		

BALD MOUNTAIN ICT #3					
12 VDC A		BREAKER	12 VDC B		BREAKER
1	REL-TEK DETECTOR	15 A	1	ASCO EMERGENCY CUTOFF	5 A
2	INTAKE FAN	15 A	2	EXHAUST FAN	15 A
3	OUTBACK	5 A	3	FIRETIDE MESH RADIO	15 A
4			4	HEATER	5 A
5			5		
6			6		

The ALASKA RAILROAD CORPORATION

SIGNAL ENGINEERING — P.O. BOX 107500 , ANCHORAGE , ALASKA 99510-7500

BALD MOUNTAIN

TELECOMMUNICATION SITE WORK

PANEL AND DISTRIBUTION SCHEDULES

REVISIONS

				AS DESIGNED 03-18-16 100% BALD MT. REV. 1 DES: KMT CHK: EMS	AS DESIGNED 02-10-16 100% BALD MT. REV. 0 DES: KMT CHK: EMS	DRAWN: J. W. A. DATE: 02-05-16	DWG NO. 0621828-1494516	SHEET 27 OF 32

BURNS ENG. REVISIONS

100% (REV.0) HW DESIGN	SCALE: NONE		
		INITIAL	DATE
	DESIGNED:	KMT	2-10-16
	CHECKED:	EMS	2-10-16
	BACK-CHECKED:	KMT	2-10-16
	CORRECTED:	KMT	2-12-16
	VERIFIED:	EMS	2-12-16

100% (REV.1) HW DESIGN	SCALE: NONE		
		INITIAL	DATE
	DESIGNED:	KMT	03-18-16
	CHECKED:	EMS	03-21-16
	BACK-CHECKED:	KMT	03-21-16
	CORRECTED:	J.W.A.	03-22-16
	VERIFIED:	KMT	03-23-16

BALD MOUNTAIN

Burns

SHEET NUMBER REF. 27

DRAWING NUMBER REF. 0621828-1494516

BURNS PROJECT REF. 2015-228

MAT. REF. NO.	MANUFACTURERS PART NO.	DESCRIPTION	MANUFACTURER	QTY	REMARKS
1	QH30	ANTENNA TOWER, 30'	VALMONT	1	
2	AKCS-RDCS-36.32F	TOWER FOUNDATION, RAPID DEPLOYABLE	AK SUPPLY	1	INCLUDES PROPANE TANK MOUNTING SUPPORT
3	WCL12	CABLE LADDER	VALMONT	2	
4	IB24B-A	ICE BRIDGE KIT, 24"X10', 3.5" OD W/ 6" BASE SHOE	VALMONT	3	
6	RTW-7	NON-PENETRATING SUPPORT, 2X 3.5" OD	VALMONT	1	
7	UPA-K	UNIVERSAL PIPE MOUNT KIT	VALMONT	1	
8	WWM-02	WALL MOUNT BRACKET, 2' STANDOFF	VALMONT	2	PURCHASE 3.5 IN O.D. U-BOLTS AND WALL MOUNT KIT SEPERATELY
9	GPSP	UNIVERSAL GPS MOUNTING BRACKET	VALMONT	1	
10	E576	CABLE WALL ENTRY PANEL, 4", 2X4	VALMONT	1	
11	LOC-BAEW632	VAL EW63 X2 HOLE BOOT KIT (BAEW632)	AVIAT	2	
12	BA12FLX	BOOT ASSEMBLY KIT, 4 IN., LMR-600	VALMONT	1	
13	BALR24	BOOT ASSEMBLY KIT, 4 IN., LMR-240	VALMONT	1	
14	BA34	BOOT ASSEMBLY KIT, 4 IN., 3/4" HOLE	VALMONT	1	
15	BA78	BOOT ASSEMBLY KIT, 4 IN., 7/8" COAX	VALMONT	1	
16	BAZERO	BOOT ASSEMBLY KIT, 4 IN., BLANK, NO HOLES	VALMONT	2	
17	LOC-SREW632-K	EW63 X2 HOLES CUSHION (BAG OF 5 KITS) (SREW632-K)	AVIAT	10	
30	55053-503	RACK, 7'X19", 45U	CHATSWORTH	4	
31	40750-719	RACK SHELF ASSEMBLY	CHATSWORTH	1	
32	5C141	ISOLATOR, VIBRATION, SPRING HANGER MOUNT	MASON	8	
33	5C129	ISOLATOR, VIBRATION, SPRING FLOOR MOUNT	MASON	16	
35		CABLE TRAY, 6"			
40		EXHAUST INTAKE HOOD		2	
41		AIR FILTER ASSEMLBY		1	
50		FIRE EXTINGUISHER, CLASS 2-A; 10-B:C MIN, WALL MOUNT		2	
60		VINYL STRIP DOOR KIT		1	SIZED TO SPAN OPENING OF SHELTER DOOR
70		DIN RAIL 24 IN.		1	

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The ALASKA RAILROAD CORPORATION

SIGNAL ENGINEERING — P.O. BOX 107500 , ANCHORAGE , ALASKA 99510-7500

BALD MOUNTAIN

TELECOMMUNICATION SITE WORK

BOM 1 – STRUCTURE

REVISIONS

				AS DESIGNED 03-18-16 100% BALD MT. REV. 1 DES:KMT CHK:EMS	AS DESIGNED 02-10-16 100% BALD MT. REV. 0 DES:KMT CHK:EMS	DRAWN: J.W.A. DATE: 02-05-16	DWG NO. 0621828-1494516	SHEET 28 OF 32

BURNS ENG. REVISIONS

100% (REV.0) HW DESIGN — SCALE: NONE

	INITIAL	DATE
DESIGNED:	KMT	2-10-16
CHECKED:	EMS	2-10-16
BACK-CHECKED:	KMT	2-10-16
CORRECTED:	KMT	2-12-16
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100% (REV.1) HW DESIGN — SCALE: NONE

	INITIAL	DATE
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BACK-CHECKED:	KMT	03-21-16
CORRECTED:	J.W.A.	03-22-16
VERIFIED:	KMT	03-23-16

BALD MOUNTAIN

Burns

SHEET NUMBER REF. 28

DRAWING NUMBER REF. 0621828-1494516

BURNS PROJECT REF. 2015-228

MAT. REF. NO.	MANUFACTURERS PART NO.	DESCRIPTION	MANUFACTURER	QTY	REMARKS
101		PROPANE TANK, 1000 GAL		3	PROVIDED BY ARRC, INSTALLED BY THE CONTRACTOR
102		PROPANE PIPING, 1/2 IN. BLACK IRON (BI)			
103		1 IN. COPPER VENT LINE			
104		POLYETHYLENE (PE) PIPE, 1/2 IN., YELLOW			
105		FLEX RISER, 1/2 IN. BI TO 1/2 IN. PE, 36 IN.		2	
109		FIRST STAGE REGULATOR, 10 PSI		3	
110 (CLV#)	E14LR42-H	CONTROL VALVE, 24 VDC, (NO) 110 PSI	MAGNETROL	3	PROVIDED BY ARRC, INSTALLED BY THE CONTRACTOR
115		MAINTENANCE ISOLATION VALVE		3	
120		SHELTER SHUT OFF VALVE		1	
123		4 X 4 X 1/4 IN. METAL SUPPORT PLATE		1	
125	MN2S-6CN	COALESING FILTER	PARKER	1	
130	MODEL 496	2ND STAGE REGULATOR (1-2 PSIG)	SENSUS	1	
135		SCREEN END CAP		1	
140	760B2502LT685	PRESSURE GAUGE (0-5 PSIG)	TRERICE	1	
145		SHUT-OFF VALVE		8	
150 (SVLV)	8210	SOLENOID VALVE, 12 VDC	ASCO	1	PROVIDED BY ARRC, INSTALLED BY THE CONTRACTOR
155	HG-4C-48SK	CVR FLEXIBLE GAS HOSE, 1/2 X 48 IN., W/ QD SW KIT	SAFE-T-LINK	1	
160 (SOFC)	RP1500P-V48CS	SOFC, 1500 W, 48 VDC	ACUMENTRICS	1	
160A		SOFC FIELD STAND	ACUMENTRICS	1	
165 (PLS#)	D-PK-SENSR-12009	PROPANE LEVEL SENSOR	DPS TELECOM	3	PROVIDED BY ARRC, INSTALLED BY THE CONTRACTOR
170 (MKAL)	D-PK-SNSR-12106	REL-TEK UNITKAL PROPANE SENSOR CAL SYSTEM	DPS TELECOM	1	PROVIDED BY ARRC, INSTALLED BY THE CONTRACTOR
170A		KAL-GAS (ZERO AIR)	REL-TEK	1	PROVIDED BY ARRC, INSTALLED BY THE CONTRACTOR
170B		KAL-GAS (1.06% PROPANE, 50 PPM CO BAL AIR)	REL-TEK	1	PROVIDED BY ARRC, INSTALLED BY THE CONTRACTOR
171	D-PK-SNSR-12090	GAS BOSS PROPANE LEAK SENSOR	DPS TELECOM	1	PROVIDED BY ARRC, INSTALLED BY THE CONTRACTOR
190		EXHAUST DUCT 4"Ø METALLIC			

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The ALASKA RAILROAD CORPORATION

SIGNAL ENGINEERING — P.O. BOX 107500 , ANCHORAGE , ALASKA 99510-7500

BALD MOUNTAIN

TELECOMMUNICATION SITE WORK

BOM 2 – SOFC AND PROPANE PIPING

REVISIONS

				AS DESIGNED 03-18-16, 100% BALD MT. REV. 1, DES:KMT CHK:EMS	AS DESIGNED 02-10-16, 100% BALD MT. REV. 0, DES:KMT CHK:EMS

DRAWN: J. W. A.
DATE: 02-05-16

DWG NO. 0621828-1494516

SHEET 29 OF 32

BURNS ENG. REVISIONS

100% (REV.0) HW DESIGN — SCALE: NONE

	INITIAL	DATE
DESIGNED:	KMT	2-10-16
CHECKED:	EMS	2-10-16
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VERIFIED:	EMS	2-12-16

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BALD MOUNTAIN

Burns

SHEET NUMBER REF. 29

DRAWING NUMBER REF. 0621828-1494516

BURNS PROJECT REF. 2015-228

MAT. REF. NO.	MANUFACTURERS PART NO.	DESCRIPTION	MANUFACTURER	QTY	REMARKS
201 (BAT)	AT-09P	BATTERY BANK, 48 VDC, WITH RACK	C&D TECHNOLOGIES	1	PROVIDED BY ARRC, INSTALLED BY THE CONTRACTOR
202 (RBB)	BBA-800	RETURN BUS BAR ASSEMBLY, RACK MOUNT	NEWMAR	1	REQUIRES PLEXIGLASS SHIELDING THAT MAY NOT BE INCLUDED
203		CURRENT TRANSDUCER		2	
205 (BDP)	BDP-1	BATTERY DISCONNECT PANEL	NEWMAR	1	
210 (LVD)	ULM-100	LOW VOLTAGE DISCONNECT	NEWMAR	1	
215 (PDP)	DST-20A	DC CIRCUIT BREAKER DISTRIBUTION PANEL	NEWMAR	1	
15A	PBA-30	30 AMP, MIDTRIP, SINGLE POLE, ALARM CONTACTS	NEWMAR	4	QTY INCLUDES SPARES NOT SHOWN IN DRAWINGS
15B	PBA-40	40 AMP, MIDTRIP, SINGLE POLE, ALARM CONTACTS	NEWMAR	4	QTY INCLUDES SPARES NOT SHOWN IN DRAWINGS
15C	PBA-50	50 AMP, MIDTRIP, SINGLE POLE, ALARM CONTACTS	NEWMAR	4	QTY INCLUDES SPARES NOT SHOWN IN DRAWINGS
225 (LDP48#)	ICT200DB-12IRC	DISTRIBUTION SERIES 3, NEG 48 VDC	INNOVATIVE CIRCUIT	2	
25A	ICT-CB5	CIRCUIT BREAKER, 5A	INNOVATIVE CIRCUIT	14	QTY INCLUDES SPARES NOT SHOWN IN DRAWINGS
25B	ICT-CB15	CIRCUIT BREAKER, 15A	INNOVATIVE CIRCUIT	9	QTY INCLUDES SPARES NOT SHOWN IN DRAWINGS
25C	ICT-CB25	CIRCUIT BREAKER, 25A	INNOVATIVE CIRCUIT	9	QTY INCLUDES SPARES NOT SHOWN IN DRAWINGS
226 (LDP12)	ICT200DB-12IRC	DISTRIBUTION SERIES 3, 12 VDC	INNOVATIVE CIRCUIT	1	
26A	ICT-CB5	CIRCUIT BREAKER, 5A	INNOVATIVE CIRCUIT	6	QTY INCLUDES SPARES NOT SHOWN IN DRAWINGS
26B	ICT-CB15	CIRCUIT BREAKER, 15A	INNOVATIVE CIRCUIT	8	QTY INCLUDES SPARES NOT SHOWN IN DRAWINGS
26C	ICT-CB25	CIRCUIT BREAKER, 25A	INNOVATIVE CIRCUIT	2	QTY INCLUDES SPARES NOT SHOWN IN DRAWINGS
235 (DDC)	ICT206012-100AI2	SITE CONVERTER, 48-12 VDC	INNOVATIVE CIRCUIT	1	
240		OVERHEAD LIGHT FIXTURE, 4', 48 VDC, LED, 25 W MAX		4	
241		LED LIGHT, 4', 48 VDC		4	
242		LIGHT SWITCH, 6 HR TIMER		1	
245 (G5)	D-PK-NETG5-12210	NETGUARDIAN G5, 66 BLOCK CONNECTOR OPTION	DPS TELECOM	1	PROVIDED BY ARRC, INSTALLED BY THE CONTRACTOR
246	D-PR-966-10A-00	66 BLOCK CONNECTOR	DPS TELECOM	1	PROVIDED BY ARRC, INSTALLED BY THE CONTRACTOR
250 (CEX)	D-PK-CTLEX-12003	CONTROLLER EXTENSION	DPS TELECOM	2	PROVIDED BY ARRC, INSTALLED BY THE CONTRACTOR
255 (LPGC)	D-PK-NGLPG-12002	LPG CONTROLLER	DPS TELECOM	1	PROVIDED BY ARRC, INSTALLED BY THE CONTRACTOR
260 (FAN)		EXHAUST FAN, 12 VDC, 150 W MAX		2	
265 (THS)	D-PK-DSNSR-12002	TEMPERATURE AND HUMIDITY SENSOR	DPS TELECOM	1	PROVIDED BY ARRC, INSTALLED BY THE CONTRACTOR
266 (TS)		TEMPERATURE SENSOR, OUTDOOR		1	
267 (SDA)		SHELTER DOOR ALARM MAGNETIC SENSOR		1	
270 (SP#)	PT-IQ-1X2-24DC-UT-2800976	SURGE PROTECTION DEVICE, DIN MOUNT, 24 VDC, 1 A	PHOENIX CONTACT	8	
280		BATTERY CHARGER RACK ASSEMBLY	ARRC	1	PROVIDED BY ARRC, INSTALLED BY THE CONTRACTOR
280A (ACS)	GVFX3648	INVERTER/CHARGER	OUTBACK POWER	1	PROVIDED BY ARRC, COMPONENT OF BATTERY CHARGER RACK ASSEMBLY
281 (RLY#)		AC CONTACTOR, 2 POLE		2	
282 (HTR)		BASEBOARD HEATER, W/ THERMOSTAT, 240 VAC, 1500 W		1	
285		BATTERY DISCONNECT PLUG		1	
295 (GBB#)	GB-19	RACK GROUND BUS BAR, RACK MOUNT	NEWMAR	5	
296 (MGB)	MG42488-K	MAIN GROUND BUS BAR, WALL MOUNT, 24"	VALMONT	1	
297 (EGB)	MG41227-K	EXTERIOR GROUND BUS BAR, WALL MOUNT, 12"	VALMONT	1	
299		GROUND ROD, COPPER, 8', 3/4" DIA		7	

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The ALASKA RAILROAD CORPORATION

SIGNAL ENGINEERING — P.O. BOX 107500 , ANCHORAGE , ALASKA 99510-7500

BALD MOUNTAIN

TELECOMMUNICATION SITE WORK

BOM 3 – ELECTRICAL, CONTROL & TELEMETRY

REVISIONS

				AS DESIGNED 03-18-16 100% BALD MT. REV. 1 DES: KMT CHK: EMS	AS DESIGNED 02-10-16 100% BALD MT. REV. 0 DES: KMT CHK: EMS

DRAWN: J. W. A.
DATE: 02-05-16

DWG NO. 0621828-1494516

SHEET 30 OF 32

BURNS ENG. REVISIONS

100% (REV.0) HW DESIGN — SCALE: NONE

	INITIAL	DATE
DESIGNED:	KMT	2-10-16
CHECKED:	EMS	2-10-16
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100% (REV.1) HW DESIGN — SCALE: NONE

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VERIFIED:	KMT	03-23-16

BALD MOUNTAIN

Burns

SHEET NUMBER REF. 30

DRAWING NUMBER REF. 0621828-1494516

BURNS PROJECT REF. 2015-228

MAT. REF. NO.	MANUFACTURERS PART NO.	DESCRIPTION	MANUFACTURER	QTY	REMARKS
301	AND-HPX6-59-P1A/K	ANTENNA, 5.925-6.425GHZ, 1.8M/6FT, HP, DUAL POL, CPR137G, WHT HYP RAD	AVIAT	1	
303	AND-HPX10-59-P1A	ANTENNA, 5.925-6.425GHZ, 3.0M/10FT, HP, DUAL POL, CPR137G, WHT HYP RAD	AVIAT	1	
306	AND-520570-10	INBOARD SIDE STRUT KIT FOR 6FT MICROWAVE ANTENNAS; 10.5 FT (520570-10)	AVIAT	1	
307	AND-520570-4	OUTBOARD SIDE STRUT KIT FOR 8/10/12FT MICROWAVE ANTENNAS (520570-4)	AVIAT	1	
308	179-530147-001	TOWER LEG MOUNT KIT, SUPPORTS UP TO 8" DIA LEG & UP TO 6' ANTENNA	AVIAT	1	
309	179-530145-001	FACE MOUNT/ICE SHIELD KIT UP TO 14' FACE & 8" DIA LEG (MTC3513FMS)	AVIAT	1	
321	ANT 220 F2	220 MHZ OMNI ANTENNA	TELEWAVE	1	
322	WS-S400	STANDOFF BRACKET, 4FT	VENTEV	1	
329 (VHFR)	630030002	220 MHZ BASE STATION RADIO	METEORCOMM	1	PROVIDED BY ARRC, INSTALLED BY THE CONTRACTOR
331	EV105-M5-M5-300	IRU600 V3 RFSEC ASSY 1+0 REPEATER, 2RU, U5/U5 GHZ	AVIAT	2	
332	179-530135-AA101	WG EXT KIT IRU600 V3 6GHZ SH1-PO1, 1+0/MHSB 1ANT, RPTR(MAIN)	AVIAT	1	
333	179-530135-AA102	WG EXT KIT IRU600 V3 6GHZ SH1-PO1, 2+0/FD, RPTR (RPTR)	AVIAT	1	
334	179-530135-BB202	WG EXT KIT IRU600 V3 6GHZ SH2-PO2, 2+0/FD, RPTR (RPTR)	AVIAT	1	
335	179-530089-001	EXT BRKT KIT IRU600 2 SHELF	AVIAT	1	
337	EXX-000-204	ECLIPSE, INTELLIGENT NODE UNIT 2RU, INC IDCE, FAN, NCCV2, HIGH OUTPUT	AVIAT	1	
338	179-530064-001	KIT BRACKET 2RU (179-530064-001_R001)	AVIAT	1	
339	EXS-002	NODE PROTECTION CARD, HIGH OUTPUT	AVIAT	1	
340	EXA-001	AUX, ALARM I/O CARD	AVIAT	1	
341	EXR-660-002	RAC 60E, QPSK-256 QAM, HIGH GAIN, NO XPIC, ACM AND SYNC-E	AVIAT	4	
342	EXD-181-002	DAC GE3 GIGABIT ETHERNET SWITCH CARD	AVIAT	4	
344	EZE-08007	NODE SW LICENSE, 800 MBPS TOTAL RADIO PAYLOAD CAPACITY	AVIAT	1	
347	EZF-64	IRU600 600 NODAL HIGH POWER OPTION 4 X RFU	AVIAT	1	
349	EZF-01	LAYER 1 LINK AGGREGATION NODAL ON DAC GE / DAC GE3	AVIAT	1	
350	179-530135-BB201	WG EXT KIT IRU600 V3 6GHZ SH2-PO2, 1+0/MHSB 1ANT, RPTR (MAIN)	AVIAT	1	
352	LCF78-50JAA7	COAXIAL CABLE, 50 OHM, 7/8" FOAM CELLFLEX CABLE	RFS		
352A	15571155	COAXIAL CONNECTORS, OMNI FIT PREMIUM N FEMALE LCF78-50	RFS	4	
352B	15571055	COAXIAL CONNECTORS, OMNI FIT PREMIUM N MALE LCF78-50	RFS	4	
353	LMR600	COAXIAL CABLE, 50 OHM	TIMES MICROWAVE		
353A	EZ-600-NMH-X	COAXIAL CONNECTORS, N-MALE, STRAIGHT PLUG, LMR600	TIMES MICROWAVE	18	
353B	EZ-600-NMH-RA-X	COAXIAL CONNECTORS, N-MALE, 90 DEG, LMR600	TIMES MICROWAVE	16	
354	AND-EW63-F	ELIPTICAL WAVEGUIDE, EW63, 5.925-7.125 GHZ	AVIAT	290	ESTIMATED QUANTITY PROVIDED, IN FEET
354A	AND-EW63INSTALL-KIT	EW63INSTALL-KIT (ONE KIT PER WAVEGUIDE RUN)	AVIAT	4	
354B	AND-HARDWARE-KIT	HARDWARE-KIT (ONE KIT PER 100FT) (HARDWARE-KIT)	AVIAT	3	
355	AND-PMT200B-81315	DEHYDRATOR, LOW-PRESS MEM, WALL MNTBL, 3.0-5.0 PSIG, W/DSC ALRM, 115 VAC, 50/60 HZ, 4 SEP-VLVD PRTS	AVIAT	1	
356	AND-6600D-4	DISTRIBUTION MANIFOLD,4-PORT,0-15.0 PSIG,25 FEET OF TUBING PER PORT,WALL MOUNTABLE	AVIAT	1	
357	HPD4-4.7NS	4.4-5.0 GHZ 32.4DBI 4' PARABOLIC DISH, N FEMALE	RADIOWAVES	1	
358 (WMN)	7020	FIRETIDE | 7020 | HOTPORT 7020, OUTDOOR WIRELESSMESH NODE, TRI BAND SPECTRUM 2.4/4.9/5 GHZ, 400MW	FIRETIDE	1	
358A	SW-7000-MIMO-1	7000 SERIES MIMO LICENSE ELECTRONIC, ENABLES MIMO FOR 7000 SERIES NODE	FIRETIDE	1	
358B	SW-7000-RADIO-1	FIRETIDE | SW-7000-RADIO-1 | 7000 SERIES RADIO LICENSE ALLOWS USERS TO ENABLE/USE A SECOND RADIO	FIRETIDE	1	
358C	ANM-TERM1	0-6 GHZ TYPE N MALE TERMINATOR 50 OHM	L-COM	6	
360	037-579461-500	CABLE PROT / BRIDGEING GE3, DIRECT FIT, 500MM (747420016)	AVIAT	2	
361	037-579124-002	ETHERNET CABLE, RJ45 CAT 5/CAT 5E, 2M (6.5') (037-579124-002V_REVA)	AVIAT	1	
362	LOC-C6APC80S-GY-07	TAA GIGATRUE 3 CAT6A 650MHZ PATCH CABLE,F/UTP,SLIMLINE,LOCKABLE,GRAY,2.1M/7FT	AVIAT	4	
363	037-579315-001	ALARM I/O HD15 10M WIREWRAP (037-579315-001V)	AVIAT	1	

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The ALASKA RAILROAD CORPORATION

SIGNAL ENGINEERING — P.O. BOX 107500 , ANCHORAGE , ALASKA 99510-7500

BALD MOUNTAIN

TELECOMMUNICATION SITE WORK

BOM 4 – NETWORK AND COMMUNICATIONS 1

REVISIONS

				AS DESIGNED 03-18-16 100% BALD MT. REV. 1 DES:KMT CHK:EMS	AS DESIGNED 02-10-16 100% BALD MT. REV. 0 DES:KMT CHK:EMS

DRAWN: *J. W. A.*
DATE: 02-05-16

DWG NO. 0621828-1494516

SHEET 31 OF 32

BURNS ENG. REVISIONS

100% (REV.0) HW DESIGN	SCALE: NONE	INITIAL	DATE
	DESIGNED:	KMT	2-10-16
	CHECKED:	EMS	2-10-16
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BALD MOUNTAIN

Burns

SHEET NUMBER REF. 31

DRAWING NUMBER REF. 0621828-1494516

BURNS PROJECT REF. 2015-228

MAT. REF. NO.	MANUFACTURERS PART NO.	DESCRIPTION	MANUFACTURER	QTY	REMARKS	
371	SSA-5	ANTENNA, GPS PUCK, TNC-F	SYNERGY SYSTEMS	1		
372	LMR240	COAXIAL CABLE, 50 OHM	TIMES MICROWAVE			
373	CON-05-240	COAXIAL CONNECTORS, TNC-MALE	TIMES MICROWAVE	2		
374		3/4" EMT CONDUIT COLLAR		1		
375		3' EMT CONDUIT		1		
381 (SAR)	3HE06791AAAA	SERVICE AGGREGATION ROUTER, 7705 SAR-8	ALCATEL	1		
381A	3HE06792AA	FAN MODULE, -48 VDC	ALCATEL	1		
381B	3HE02774ABBC	CONTROL SWITCH MODULE, V2	ALCATEL	2		
381C	3HE06151ACAA	8 PORT GE SFP V3	ALCATEL	2		
381D	3HE00062CBAA	SFP-GIGE BASE T RJ45	ALCATEL	10		
386 (ESW)	IE-3010-24TC	RACK MOUNT SWITCH 24 10/100B-T, 2 GEUPLINKS. NO PS	CISCO	1		
386A	PWR-RGD-LOW-DC/IA	IE 3010 LOW DC POWER SUPPLY	CISCO	1		
386B	PWR-RGD-LOW-DC/IAR	IE 3010 LOW DC POWER SUPPLY	CISCO	1		
386C	SIEISK9T-15002SE	CISCO IE 3010 IP SERVICES WITH EXPRESS SETUP	CISCO	1		
386D	RM-RGD-19IN	SPARE 19 IN RACK-MOUNT KIT FOR THE CGS 2520	CISCO	1		
389		CAT-6 SHIELDED CABLE	BELDEN			
390	DGXZ+15TFTF-A	SURGE ARRESTOR, HYBRID +15VDC PASS, 800 MHZ TO 2.5 GHZ, TNC-F TNC-F	POLYPHASOR	1		
391	IS-50NX-C2	SURGE ARRESTOR, DC BLOCKED, 125 MHZ TO 1 GHZ, N-F N-F	POLYPHASOR	1		
392	LP-WBX-NFF	SURGE ARRESTOR, 2-6 GHZ ARRESTOR, NF/NF	TIMES MICROWAVE	2		
395	GK-S600TT	GROUNDING KIT, STANDARD LMR600	TIMES MICROWAVE	4		
396	GK-S240TT	GROUNDING KIT, STANDARD LMR240	TIMES MICROWAVE	2		
397	220498	GROUNDING KIT, STANDARD EW63	COMMSCOPE	8	OR EQUIVALENT	
398	CSG12-12B2U	GROUNDING KIT, 1/2" COMPACT SUREGROUND TINNED	COMMSCOPE	2		
399	CSG78-12B2U	GROUNDING KIT, 7/8" COMPACT SUREGROUND TINNED	COMMSCOPE	2		

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The ALASKA RAILROAD CORPORATION

SIGNAL ENGINEERING — P.O. BOX 107500 , ANCHORAGE , ALASKA 99510-7500

BALD MOUNTAIN

TELECOMMUNICATION SITE WORK

BOM 5 – NETWORK AND COMMUNICATIONS 2

REVISIONS

				AS DESIGNED 03-18-16 100% BALD MT. REV. 1 DES: KMT CHK: EMS	AS DESIGNED 02-10-16 100% BALD MT. REV. 0 DES: KMT CHK: EMS

DRAWN: *J. W. A.*
DATE: 02-05-16

DWG NO. 0621828-1494516

SHEET 32 OF 32

BURNS ENG. REVISIONS

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BALD MOUNTAIN

Burns

SHEET NUMBER REF. 32

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BURNS PROJECT REF. 2015-228