

ALASKA RAILROAD CORPORATION



FAIRVIEW LOOP RD

M.P. 156.19

DOT 868315D



LEGEND:

- △ EQUALIZER
- ∠ LINE ARRESTER
- △ NO 6 AWG THNN/THWN FLEX WIRE WITH RED SHEATH (B12)
- △ NO 6 AWG THNN/THWN FLEX WIRE WITH BLACK SHEATH (N12)
- △ NO 6 AWG THNN/THWN FLEX WIRE WITH GREEN SHEATH (SAFETY GROUND)
- ⊕ TWISTED WIRE TWO TURNS PER FOOT
- # MATERIAL REFERENCE IDENTIFICATION NUMBER

FIELD CONSTRUCTION COPY
 BID PURPOSES ONLY
 Dated: 06-29-21

COLORED PLANS

AS DESIGNED-00 06-08-21
 NEW XING BUNGALOW
 & FLGS UPGRADE
 DES: SMI/JTB CHK: SMI/DAD

REVISIONS

<i>The ALASKA RAILROAD CORPORATION</i>		P.O. BOX 107500 , ANCHORAGE , ALASKA 99510-7500	
SIGNAL ENGINEERING		FAIRVIEW LOOP RD	
LAT: 61.563	DOT 868315D	MP 156.19	
LONG: -149.351	RAILROAD-HIGHWAY GRADE CROSSING WARNING SYSTEM		
DRAWN: SMI	DWG NO: 868315D	0 SHEET OF 19	
DATE: 06-08-21			

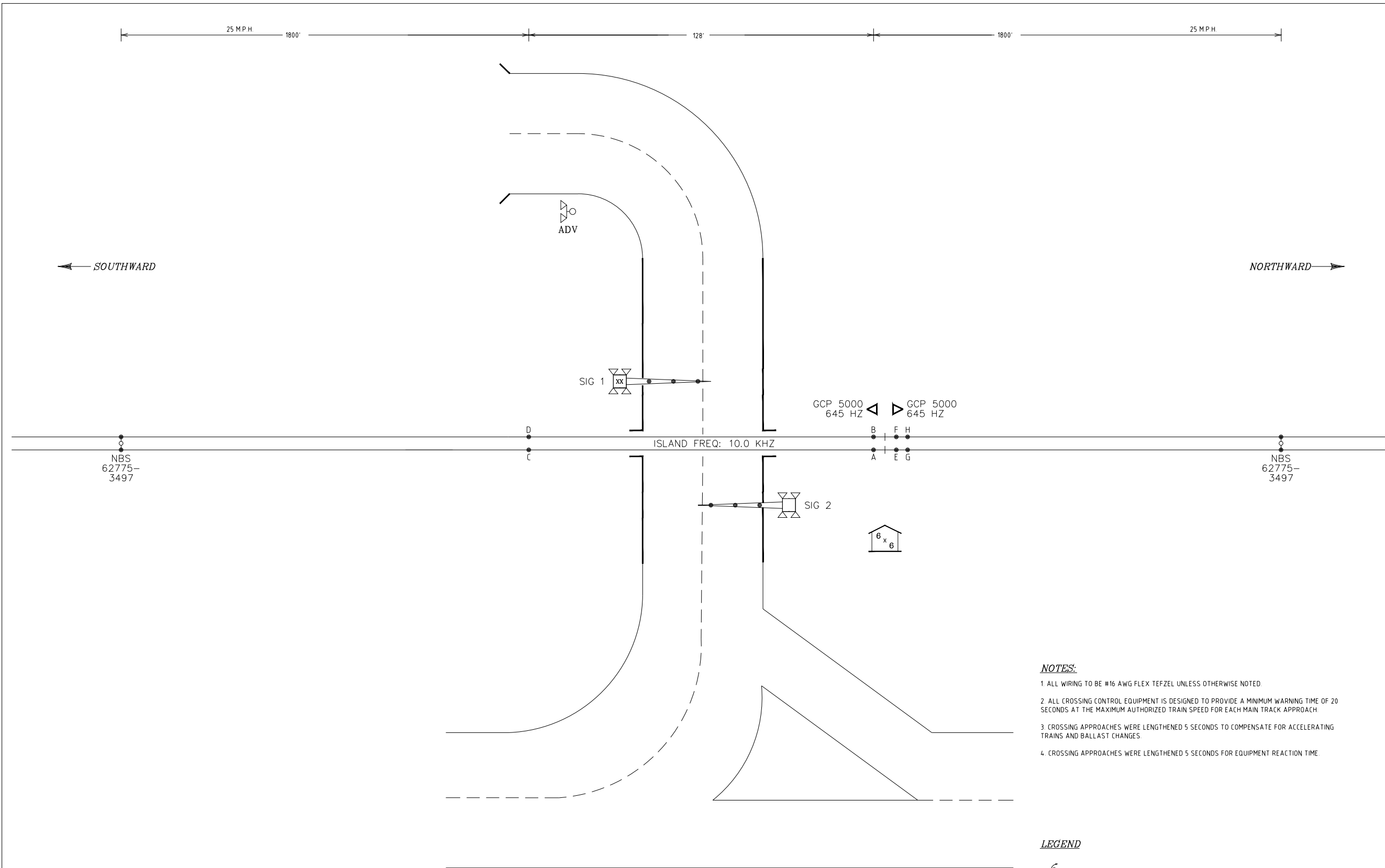
DRAWING NO.	DESCRIPTION	REVISION DATE							
868315D-00	TITLE SHEET								
868315D-01	INDEX								
868315D-02	CROSSING LAYOUT								
868315D-03	GCP 5000 LAYOUT								
868315D-04	GCP 5000 PROGRAMMING								
868315D-05	GCP 5000 TRACK 1, 2 TRACK & CPU BOARDS								
868315D-06	GCP 5000 SSCC-1, SSCC-2, ILOD-1 & ILOD-2 CIRCUITS								
868315D-07	LIGHTING SURGE PANELS DETAIL - 91170-1 & 91170-2								
868315D-08	XING GATES #1 & #2 MECHANISM WIRING								
868315D-09	XING GATES 1, 2 & ADVANCED SIGNAL LIGHTING CIRCUITS								
868315D-10	SEAR III EVENT RECORDER & GROUND FAULT TESTER								
868315D-11	SEAR III PROGRAMMING								
868315D-12	ATOM/RAILFUSION LAYOUT								
868315D-13	BLANK SHEET FOR FUTURE USE								
868315D-14	MB12 & XB14 BATTERY CIRCUITS								
868315D-15	BUNGALOW SIDE "D" LAYOUT								
868315D-16	BUNGALOW SIDE "A" LAYOUT								
868315D-17	BUNGALOW SIDE "C" LAYOUT								
868315D-18	RACK 1 LAYOUT								
868315D-19	UNDERGROUND CABLE LAYOUT								

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SIGNAL ENGINEERING		FAIRVIEW LOOP RD	
LAT: 61.563	DOT 868315D	MP 156.19	
LONG: -149.351		RAILROAD-HIGHWAY GRADE CROSSING WARNING SYSTEM	
AS DESIGNED-00 NEW XING BUNGALOW & FLGS UPGRADE DES: SMI/JTB	06-08-21 CHK: SMI/DAD	DRAWN: <i>SMI</i> DATE: 06-08-21	DWG NO: 868315D

REVISIONS

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- NOTES:**
1. ALL WIRING TO BE #16 AWG FLEX TEFLON UNLESS OTHERWISE NOTED.
 2. ALL CROSSING CONTROL EQUIPMENT IS DESIGNED TO PROVIDE A MINIMUM WARNING TIME OF 20 SECONDS AT THE MAXIMUM AUTHORIZED TRAIN SPEED FOR EACH MAIN TRACK APPROACH.
 3. CROSSING APPROACHES WERE LENGTHENED 5 SECONDS TO COMPENSATE FOR ACCELERATING TRAINS AND BALLAST CHANGES.
 4. CROSSING APPROACHES WERE LENGTHENED 5 SECONDS FOR EQUIPMENT REACTION TIME.

LEGEND

⊕ TWISTED WIRE TWO TURNS PER FOOT

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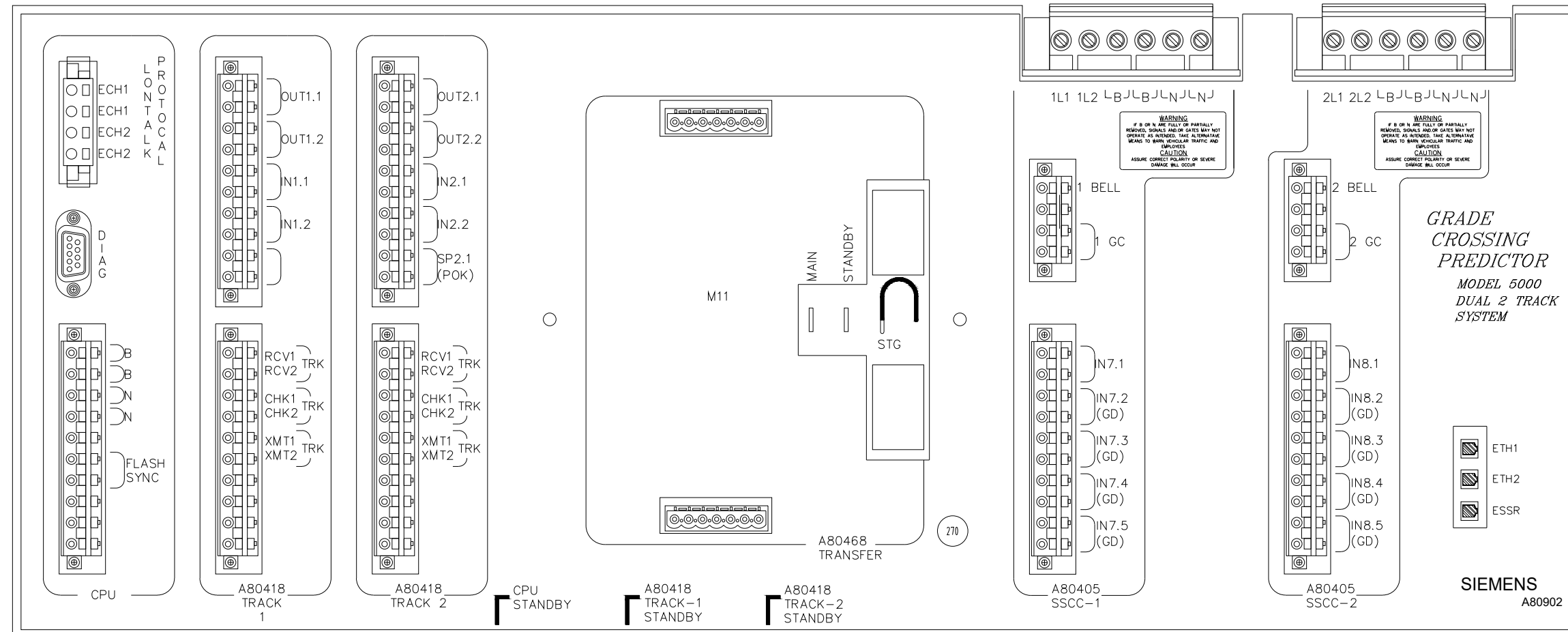
FAIRVIEW LOOP RD

DOT 868 315D
MP 156.19

REVISIONS

AS DESIGNED-0.00	06-08-21
NEW XING BUNGALOW & FLGS UPGRADE	
DES: SMI/JTB	CHK: SMI/DAD

SIGNAL ENGINEERING		<i>The ALASKA RAILROAD CORPORATION</i>	
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LAT:	61.563	DOT 868315D	FAIRVIEW LOOP RD
			MP 156.19
LONG:	-149.351	RAILROAD-HIGHWAY GRADE CROSSING WARNING SYSTEM	
DRAWN:	<i>SMI</i>	DWG NO.	868315D
DATE:	06-08-21		2 SHEET OF 19



Minimum Program Steps Report

Creation Date: Thursday June 17 2021
 Creation Time: 23:41:28 Alaska

Location and SIN

=====
 Site Name : Fairview_Loop_Rd
 DOT Number : 868315D
 Milepost Number : 156.19

SIN : 7.005.100.315.16 *
 * Parameter is part of office configuration check number calculation.

MCF and Template Selection

=====
 MCF Name : gcp5k-02-3.mcf
 MCF Revision : 023
 MCFCRC : OEA1F809
 Template = 1D:3 Uni pairs (OCCN) *
 * Parameter is part of office configuration check number calculation

Minimum Program Steps

=====
 (1.2) Module Selection
 Chassis Type = Dual Two Track (Set in Field)

(1.6) Out of Service
 OOS Timeout = No (OCCN) *

(2.1.1) Trk 1: GCP Frequency
 Track 1 : GCP Frequency = 645 Hz (OCCN,TCN) *
 Track 1 : GCP Transmit Level = High (Set in Field ,TCN)
 Track 1 : Approach Distance = 1800 ft (OCCN,TCN) *

(2.1.2) Trk 1: Island Frequency
 Track 1 : Isl Frequency = 10.0 kHz (OCCN) *
 Track 1 : Island Distance = 128 ft (Set in Field ,TCN)

(2.1.8) Trk 1: GCP Miscellaneous
 Track 1 : Train Line Speed = 25 mph (OCCN) *

(2.2.1) Trk 2: GCP Frequency
 Track 2 : GCP Frequency = 645 Hz (OCCN,TCN) *
 Track 2 : GCP Transmit Level = High (Set in Field ,TCN)
 Track 2 : Approach Distance = 1800 ft (OCCN,TCN) *

(2.2.8) Trk 2: GCP Miscellaneous
 Track 2 : Train Line Speed = 25 mph (OCCN) *

(4.1) SSSC Configuration
 Bell On Gate Rising = Yes (OCCN) *

(5.2.4) I/O: Input Slot SSSC 1
 IN 7.2 = Not Used (OCCN) *
 IN 7.4 = Not Used (OCCN) *
 * Parameter is part of office configuration check number calculation

Check Numbers:
 Office Configuration Check Number: 16943E21
 Config. Check Number: 480E851C

Parameters not part of office configuration check number calculation:
 Chassis Type = Dual Two Track (Set in Field)
 Track 1 : GCP Transmit Level = High (Set in Field ,TCN)
 Track 1 : Island Distance = 128 ft (Set in Field ,TCN)
 Track 2 : GCP Transmit Level = High (Set in Field ,TCN)

Non Vital Configuration

Site Information

Site Name : Fairview_Loop_Rd
 DOT Number : 868315D
 Mile Post : 156.19
 Time Zone : Alaska (GMT-9:00)
 ATCS - Railroad : 5
 ATCS - Group : 315

SEAR Configuration

SEAR Programming - IO Assignment

Digital Inputs:

SEAR Digital Input SP 2.1
 Name : POK1
 Tag : POK1
 Off State Name : Deenergized
 On State Name : Energized

SEAR Digital Input IN 7.2
 Name : TSS 1
 Algorithm : MTSS
 Tag : TSS1

SEAR Digital Input IN 7.4
 Name : TSS 2
 Algorithm : MTSS
 Tag : TSS2

SEAR Digital Input IN 7.5
 Name : GP 1.1
 Tag : i_gp1_1
 Off State Name : Deenergized
 On State Name : Energized

SEAR Digital Input Extern DI1
 Name : Gnd Flt Testr 1
 Algorithm : GFT
 Tag : GFT1

Non-Vital Outputs:

SEAR Output 7
 Name : Ground Flt Test
 Tag : GndFltTest
 Off State Name : Deenergized
 On State Name : Energized

SEAR Programming - Echelon Modules

SEAR Module 1
 Type : iLOD
 SEAR Module 2
 Type : iLOD

SEAR Programming - Communication

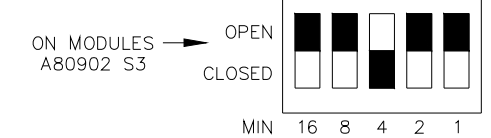
Site Type : Collector
 Office (WAMS) ATCS Addr : 2.005.00.0000
 WAMS XID Enabled : Yes
 Radio ATCS Addr : 7.005.100.100.00.01

SEAR Programming - Serial Ports

SEAR Aux Port Settings:
 Baud Rate : 38400
 SEAR User Port Settings:
 Baud Rate : 57600

NOTES:

- FOR ISLAND DISTANCE MEASURE THE DISTANCE BETWEEN THE TRANSMITTER AND RECEIVER LEADS - MUST BE 128' MINIMUM
- SET TRANSFER JUMPER TO STG SET TRANSFER SWITCH TO AUTO SET TIME FOR 4 MIN



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Milepost Number : 156.19

SIN : 7.005.100.315.16

MCF and Template Selection

MCF Name : gcp5k-02-3.mcf
MCF Revision : 023
MCFCRC : OEA1F809
Template = 1D:3 Uni pairs (OCCN)

Check Numbers:
Office Configuration Check Number: 16943E21
Config. Check Number: 480E851C

Program

(1.1) Set Template
Template = 1D:3 Uni pairs (OCCN)

(1.2) Module Selection
Track 1 Slot = Track (OCCN)
Track 2/RIO 1 Slot = Track (OCCN)
SSCC-1 Slot = SSCC3i (OCCN)
SSCC-2 Slot = SSCC3i (OCCN)
SEAR Used = Yes (OCCN)
Chassis Type = Dual Two Track (Field)

(1.3) Preemption
Preempt Logic = No (OCCN)
Second Trn Logic Used = No (OCCN)

(1.4) MS/Restart
MS/GCP Restart Used = No (OCCN)

(1.5) Vital Comms Links
Vital Comms link 1 Used = No (OCCN)
Vital Comms link 2 Used = No (OCCN)
Vital Comms link 3 Used = No (OCCN)
Vital Comms link 4 Used = No (OCCN)

(1.6) Out of Service
OOS Control = Display (OCCN)
OOS Timeout = No (OCCN)

(2.1.1) Trk 1: GCP Frequency
Track 1 : MS/GCP Operation = Yes (OCCN)
Track 1 : GCP Freq Category = Standard (Field)
Track 1 : GCP Frequency = 645 Hz (OCCN,TCN)
Track 1 : GCP Transmit Level = High (Field,TCN)
Track 1 : Uni/Bi/Sim-Bidirnl = Unidirnl (OCCN,TCN)
Track 1 : Approach Distance = 1800 ft (OCCN,TCN)
Track 1 : Directionally Wired = No (OCCN)
Track 1 : Island Connection = Isl 1 (OCCN)
Track 1 : Computed Distance = 9999 ft (Field,TCN)
Track 1 : Linearization Steps = 100 (Field,TCN)

(2.1.2) Trk 1: Island Frequency
Track 1 : Island Used = Internal (OCCN)
Track 1 : Isl Frequency = 10.0 kHz (OCCN)
Track 1 : Pickup Delay (2s +) = 0 sec (OCCN)
Track 1 : Isl Enable IP Used = No (OCCN)
Track 1 : Island Distance = 128 ft (Field,TCN)

(2.1.3) Trk 1: Predictors
Track 1 : Prime Used = Yes (OCCN)
Track 1 : Dax A Used = No (OCCN)
Track 1 : Dax B Used = No (OCCN)
Track 1 : Dax C Used = No (OCCN)
Track 1 : Dax D Used = No (OCCN)
Track 1 : Dax E Used = No (OCCN)
Track 1 : Dax F Used = No (OCCN)
Track 1 : Dax G Used = No (OCCN)

(2.1.3.1) Trk 1 Predictor: Prime
Track 1 : Prime Used = Yes (OCCN)
Track 1 : Prime Warning Time = 35 sec (OCCN)
Track 1 : Prime Offset Distance = 0 ft (OCCN)
Track 1 : Switch MS EZ Level = 10 (OCCN)
Track 1 : Prime MS/GCP Mode = Pred (OCCN)
Track 1 : Prime Pickup Delay = 15 sec (OCCN)
Track 1 : Prime UAX = No (OCCN)

(2.1.4) Trk 1: Enhanced Detection
Track 1 : Inbound PS Sensitivity = High (Field)
Track 1 : Speed Limiting Used = Yes (Field)
Track 1 : Outbound False Act Lvl = Normal (Field)
Track 1 : Outbound PS Timer = 20 sec (Field)
Track 1 : Trailing Switch Logic = On (Field)
Track 1 : Post Joint Detn Time = 15 sec (OCCN)
Track 1 : Cancel Pickup Delay = This Isl (OCCN)
Track 1 : Adv Appr Predictn = No (OCCN)

(2.1.5) Trk 1: Positive Start, Low EZ
Track 1 : Positive Start = Off (OCCN)
Track 1 : Sudden Shnt Det Used = No (OCCN)
Track 1 : Low EZ Detection Used = No (OCCN)

(2.1.6) Trk 1: MS Control
Track 1 : MS/GCP Ctrl IP Used = No (OCCN)
Track 1 : MS Sensitivity Level = 0 (Field)
Track 1 : MS/GCP Restart EZ Level = 80 (Field)

(2.1.7) Trk 1: Wraps and Overrides
Track 1 : Wrap Used = No (OCCN)
Track 1 : All Predictors Override Used = No (OCCN)

(2.1.8) Trk 1: GCP Miscellaneous
Track 1 : Low EX Adjustment = 39 (Field)
Track 1 : False Act on Train Stop = No (Field)
Track 1 : EX Limiting Used = Yes (Field)
Track 1 : EZ Correction Used = Yes (Field)
Track 1 : Compensation Level = 1300 (Field,TCN)
Track 1 : Warn Time-Ballast Comp = High (Field,TCN)
Track 1 : Train Line Speed = 25 mph (OCCN)

(2.2.1) Trk 2: GCP Frequency
Track 2 : MS/GCP Operation = Yes (OCCN)
Track 2 : GCP Freq Category = Standard (Field)
Track 2 : GCP Frequency = 645 Hz (OCCN,TCN)
Track 2 : GCP Transmit Level = High (Field,TCN)
Track 2 : Uni/Bi/Sim-Bidirnl = Unidirnl (OCCN,TCN)
Track 2 : Approach Distance = 1800 ft (OCCN,TCN)
Track 2 : Directionally Wired = No (OCCN)
Track 2 : Island Connection = Isl 1 (OCCN)
Track 2 : Computed Distance = 9999 ft (Field,TCN)
Track 2 : Linearization Steps = 100 (Field,TCN)

(2.2.2) Trk 2: Island Frequency
Track 2 : Island Used = No (OCCN)
Track 2 : Island Distance = 0 ft (Field,TCN)

(2.2.3) Trk 2: Predictors
Track 2 : Prime Used = Yes (OCCN)
Track 2 : Dax A Used = No (OCCN)
Track 2 : Dax B Used = No (OCCN)
Track 2 : Dax C Used = No (OCCN)
Track 2 : Dax D Used = No (OCCN)
Track 2 : Dax E Used = No (OCCN)
Track 2 : Dax F Used = No (OCCN)
Track 2 : Dax G Used = No (OCCN)

(2.2.3.1) Trk 2 Predictor: Prime
Track 2 : Prime Used = Yes (OCCN)
Track 2 : Prime Warning Time = 35 sec (OCCN)
Track 2 : Prime Offset Distance = 0 ft (OCCN)
Track 2 : Switch MS EZ Level = 10 (OCCN)
Track 2 : Prime MS/GCP Mode = Pred (OCCN)
Track 2 : Prime Pickup Delay = 15 sec (OCCN)
Track 2 : Prime UAX = No (OCCN)

(2.2.4) Trk 2: Enhanced Detection
Track 2 : Inbound PS Sensitivity = High (Field)
Track 2 : Speed Limiting Used = Yes (Field)
Track 2 : Outbound False Act Lvl = Normal (Field)
Track 2 : Outbound PS Timer = 20 sec (Field)
Track 2 : Trailing Switch Logic = On (Field)
Track 2 : Post Joint Detn Time = 15 sec (OCCN)
Track 2 : Cancel Pickup Delay = This Isl (OCCN)
Track 2 : Adv Appr Predictn = No (OCCN)

(2.2.5) Trk 2: Positive Start, Low EZ
Track 2 : Positive Start = Off (OCCN)
Track 2 : Sudden Shnt Det Used = No (OCCN)
Track 2 : Low EZ Detection Used = No (OCCN)

(2.2.6) Trk 2: MS Control
Track 2 : MS/GCP Ctrl IP Used = No (OCCN)
Track 2 : MS Sensitivity Level = 0 (Field)
Track 2 : MS/GCP Restart EZ Level = 80 (Field)

(2.2.7) Trk 2: Wraps and Overrides
Track 2 : Wrap Used = No (OCCN)
Track 2 : All Predictors Override Used = No (OCCN)

(2.2.8) Trk 2: GCP Miscellaneous
Track 2 : Low EX Adjustment = 39 (Field)
Track 2 : False Act on Train Stop = No (Field)
Track 2 : EX Limiting Used = Yes (Field)
Track 2 : EZ Correction Used = Yes (Field)
Track 2 : Compensation Level = 1300 (Field,TCN)
Track 2 : Warn Time-Ballast Comp = Low (Field,TCN)
Track 2 : Train Line Speed = 25 mph (OCCN)

(3.1) Logic: Track ANDing
AND 1 XR Used = Yes (OCCN)
AND 2 Used = No (OCCN)
AND 3 Used = No (OCCN)
AND 4 Used = No (OCCN)

(3.1.1) Logic: AND 1 XR
AND 1 XR Track 1 = Prime (OCCN)
AND 1 XR Track 2 = Prime (OCCN)
AND 1 Wrap Used = No (OCCN)
AND 1 Enable Used = No (OCCN)

(3.2) Logic: AND Gates
AND 5 Used = No (OCCN)
AND 6 Used = No (OCCN)
AND 7 Used = No (OCCN)
AND 8 Used = No (OCCN)
AND 9 Used = No (OCCN)
AND 10 Used = No (OCCN)
AND 11 Used = No (OCCN)
AND 12 Used = No (OCCN)

(3.3) Logic: OR Gates
OR 1 Used = No (OCCN)
OR 2 Used = No (OCCN)
OR 3 Used = No (OCCN)
OR 4 Used = No (OCCN)

(3.4) Logic: Controls
Emergency Activate IP = No (OCCN)
Maint Call Rpt IP Used = No (OCCN)
Pass Thrus = No (OCCN)

(3.5.1) Internal I/O 1-4
Int.1 Sets = Not Used (OCCN)
Int.1 Set by = Not Used (OCCN)
Int.2 Sets = Not Used (OCCN)
Int.2 Set by = Not Used (OCCN)
Int.3 Sets = Not Used (OCCN)
Int.3 Set by = Not Used (OCCN)
Int.4 Sets = Not Used (OCCN)
Int.4 Set by = Not Used (OCCN)

(3.5.2) Internal I/O 5-8
Int.5 Sets = Not Used (OCCN)
Int.5 Set by = Not Used (OCCN)
Int.6 Sets = Not Used (OCCN)
Int.6 Set by = Not Used (OCCN)
Int.7 Sets = Not Used (OCCN)
Int.7 Set by = Not Used (OCCN)
Int.8 Sets = Not Used (OCCN)
Int.8 Set by = Not Used (OCCN)

(3.5.3) Internal I/O 9-12
Int.9 Sets = Not Used (OCCN)
Int.9 Set by = Not Used (OCCN)
Int.10 Sets = Not Used (OCCN)
Int.10 Set by = Not Used (OCCN)
Int.11 Sets = Not Used (OCCN)
Int.11 Set by = Not Used (OCCN)
Int.12 Sets = Not Used (OCCN)
Int.12 Set by = Not Used (OCCN)

(3.5.4) Internal I/O 13-16
Int.13 Sets = Not Used (OCCN)
Int.13 Set by = Not Used (OCCN)
Int.14 Sets = Not Used (OCCN)
Int.14 Set by = Not Used (OCCN)
Int.15 Sets = Not Used (OCCN)
Int.15 Set by = Not Used (OCCN)
Int.16 Sets = Not Used (OCCN)
Int.16 Set by = Not Used (OCCN)

(4.1) SSCC Configuration
Gates Used = Yes (OCCN)
SSCC1+2 GPs Coupled = Yes (OCCN)
Min Activation = 0 sec (OCCN)
Rmt Activation Cancel = 2 min (OCCN)
Bell On Gate Rising = Yes (OCCN)
Mute Bell On Gate Down = No (OCCN)
SSCCIV Controller Used = No (OCCN)

(4.3) SSCC 1 Configuration
SSCC-1 Activation = AND 1 XR (OCCN)
SSCC-1 Gate Delay = 4 sec (OCCN)
SSCC-1 Number of GPs = 1 (OCCN)
SSCC-1 Number of GDs = 2 (OCCN)

(4.3.1) SSCC 1 Extended Parameters
SSCC 1 : Flash Rate = 50 (OCCN)
SSCC 1 : Flash Sync = master (OCCN)
SSCC 1 : Invert Gate Output = No (OCCN)
SSCC 1 : Lamp Neutral Test = Off (Field)
SSCC 1 : Lamp 1 Voltage = 100 dV (Field)
SSCC 1 : Lamp 2 Voltage = 100 dV (Field)
Aux-1 Xng Ctrl Used = No (OCCN)

(4.4) SSCC 2 Configuration
SSCC-2 Activation = AND 1 XR (OCCN)
SSCC-2 Gate Delay = 4 sec (OCCN)
SSCC-2 Number of GPs = 0 (OCCN)
SSCC-2 Number of GDs = 0 (OCCN)

(4.4.1) SSCC 2 Extended Parameters
SSCC 2 : Flash Rate = 50 (OCCN)
SSCC 2 : Flash Sync = slave (OCCN)
SSCC 2 : Invert Gate Output = No (OCCN)
SSCC 2 : Lamp Neutral Test = Off (Field)
SSCC 2 : Lamp 1 Voltage = 100 dV (Field)
SSCC 2 : Lamp 2 Voltage = 100 dV (Field)
Aux-2 Xng Ctrl Used = No (OCCN)

(5.1.1) I/O: Output Slot 1-2
OUT 1.1 = Not Used (OCCN)
OUT 1.2 = Not Used (OCCN)
OUT 2.1 = Not Used (OCCN)
OUT 2.2 = Not Used (OCCN)

(5.1.4) I/O: Output Slot SSCC
OUT GC 1 = Gate Output 1 (OCCN)
OUT GC 2 = Gate Output 2 (OCCN)

(5.2.1) I/O: Input Slot 1-2
IN 1.1 = Not Used (OCCN)
IN 1.2 = Not Used (OCCN)
IN 2.1 = Not Used (OCCN)
IN 2.2 = Not Used (OCCN)

(5.2.4) I/O: Input Slot SSCC 1
IN 7.1 = Not Used (OCCN)
IN 7.2 = Not Used (OCCN)
IN 7.3 = Not Used (OCCN)
IN 7.4 = Not Used (OCCN)
IN 7.5 = GP 1.1 (OCCN)

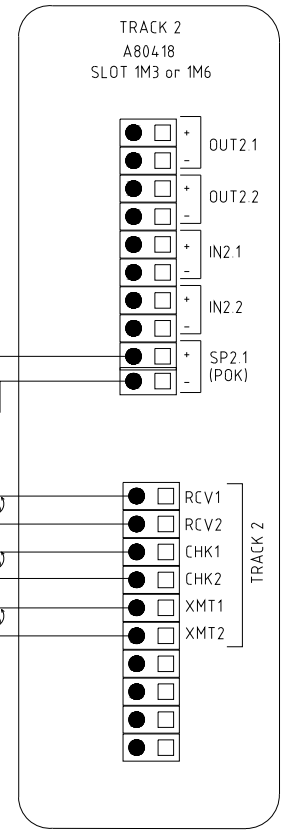
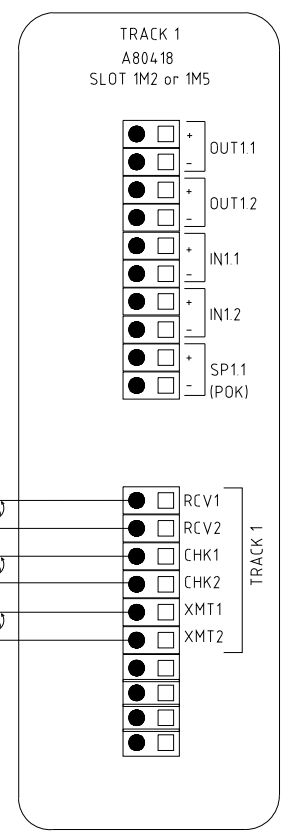
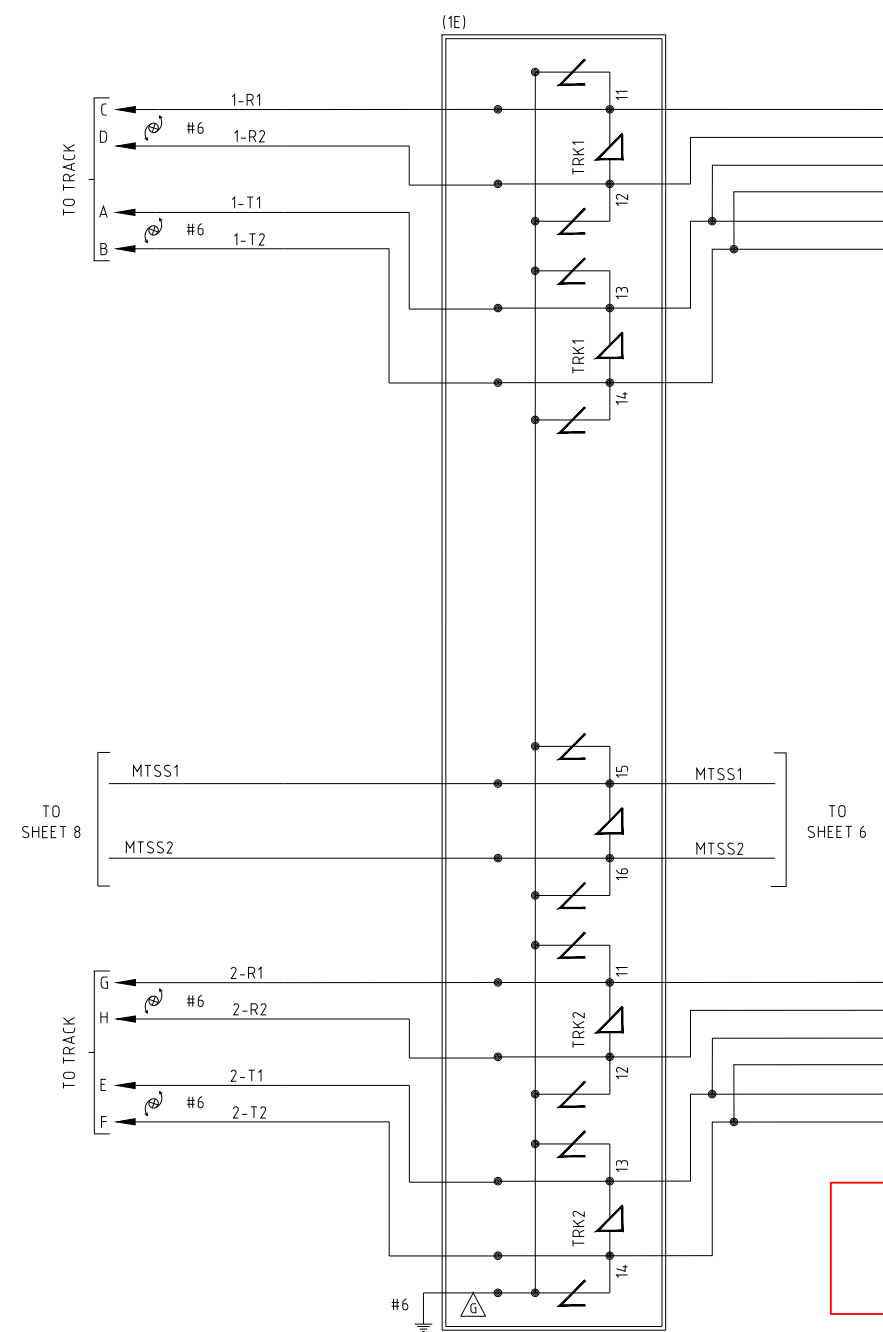
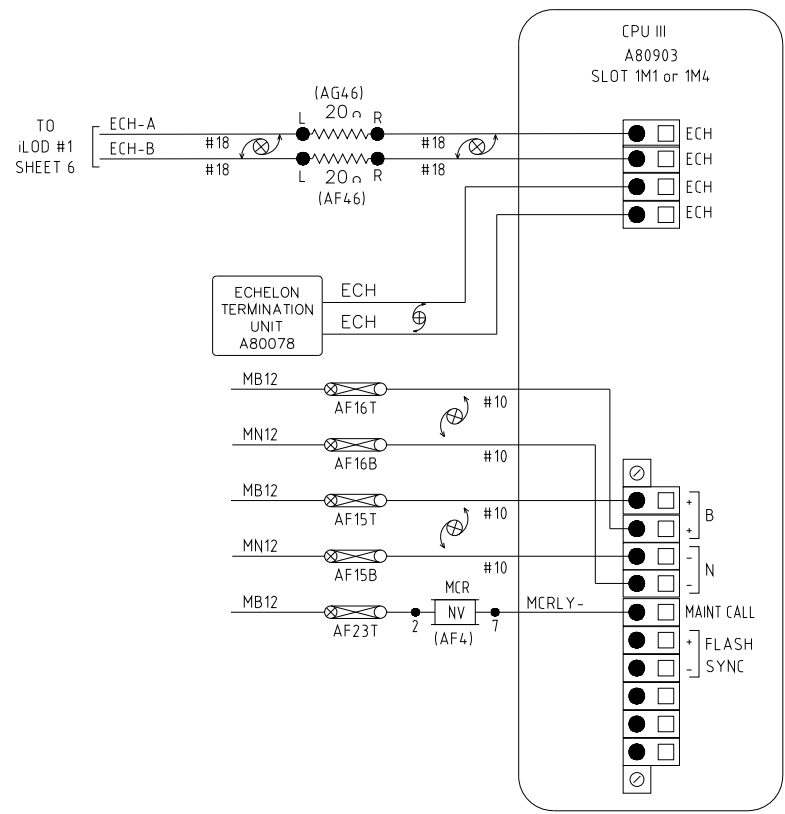
(5.2.5) I/O: Input Slot SSCC 2
IN 8.1 = Not Used (OCCN)
IN 8.2 = Not Used (OCCN)
IN 8.3 = Not Used (OCCN)
IN 8.4 = Not Used (OCCN)
IN 8.5 = Not Used (OCCN)

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Table with project information including SIGNAL ENGINEERING, The ALASKA RAILROAD CORPORATION, P.O. BOX 107500, ANCHORAGE, ALASKA 99510-7500, LAT: 61.563, DOT 868315D, FAIRVIEW LOOP RD, MP 156.19, RAILROAD-HIGHWAY GRADE CROSSING WARNING SYSTEM, DRAWN: SMI, DATE: 06-08-21, DWG NO: 868315D, SHEET 4 OF 19.

AS DESIGNED-000 06-08-21
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& FLGS UPGRADE
DES: SMI/JTB CHK: SMI/DAD

REVISIONS



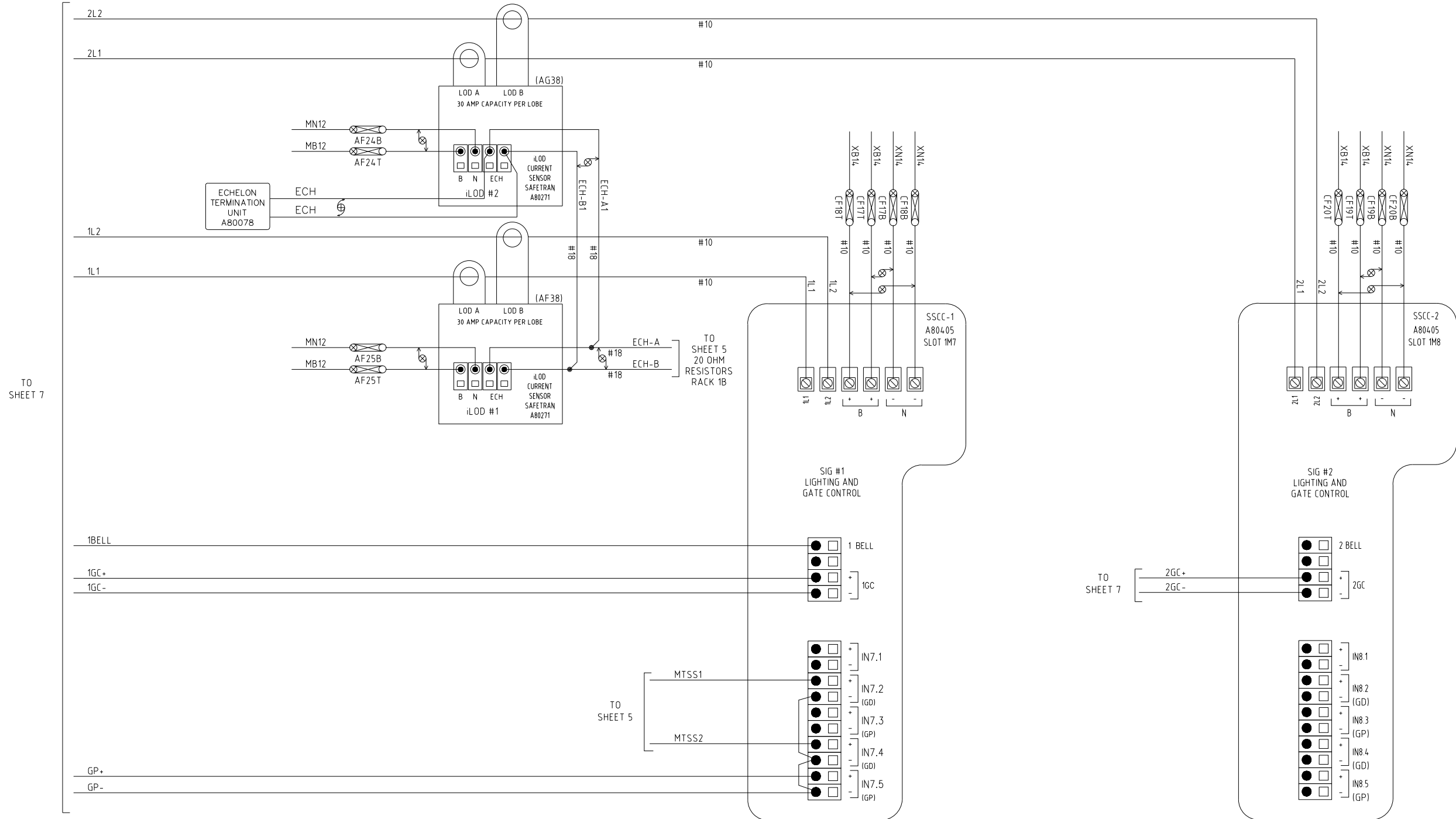
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 1. ALL WIRING TO BE #16 AWG FLEX TEFLON UNLESS OTHERWISE NOTED.
 TWISTED WIRE TWO TURNS PER FOOT

REVISIONS

AS DESIGNED-00	06-08-21
NEW XING BUNGALOW & FLGS UPGRADE	
DES: SMI/JTB	CHK: SMI/DAD

The ALASKA RAILROAD CORPORATION		P.O. BOX 107500 , ANCHORAGE , ALASKA 99510-7500	
SIGNAL ENGINEERING		FAIRVIEW LOOP RD	
LAT: 61.563	DOT 868315D	MP 156.19	
LONG: -149.351		RAILROAD-HIGHWAY GRADE CROSSING WARNING SYSTEM	
DRAWN: SMI	DWG NO: 868315D	5 SHEET OF 19	
DATE: 06-08-21			



TO SHEET 7

TO SHEET 5

TO SHEET 7

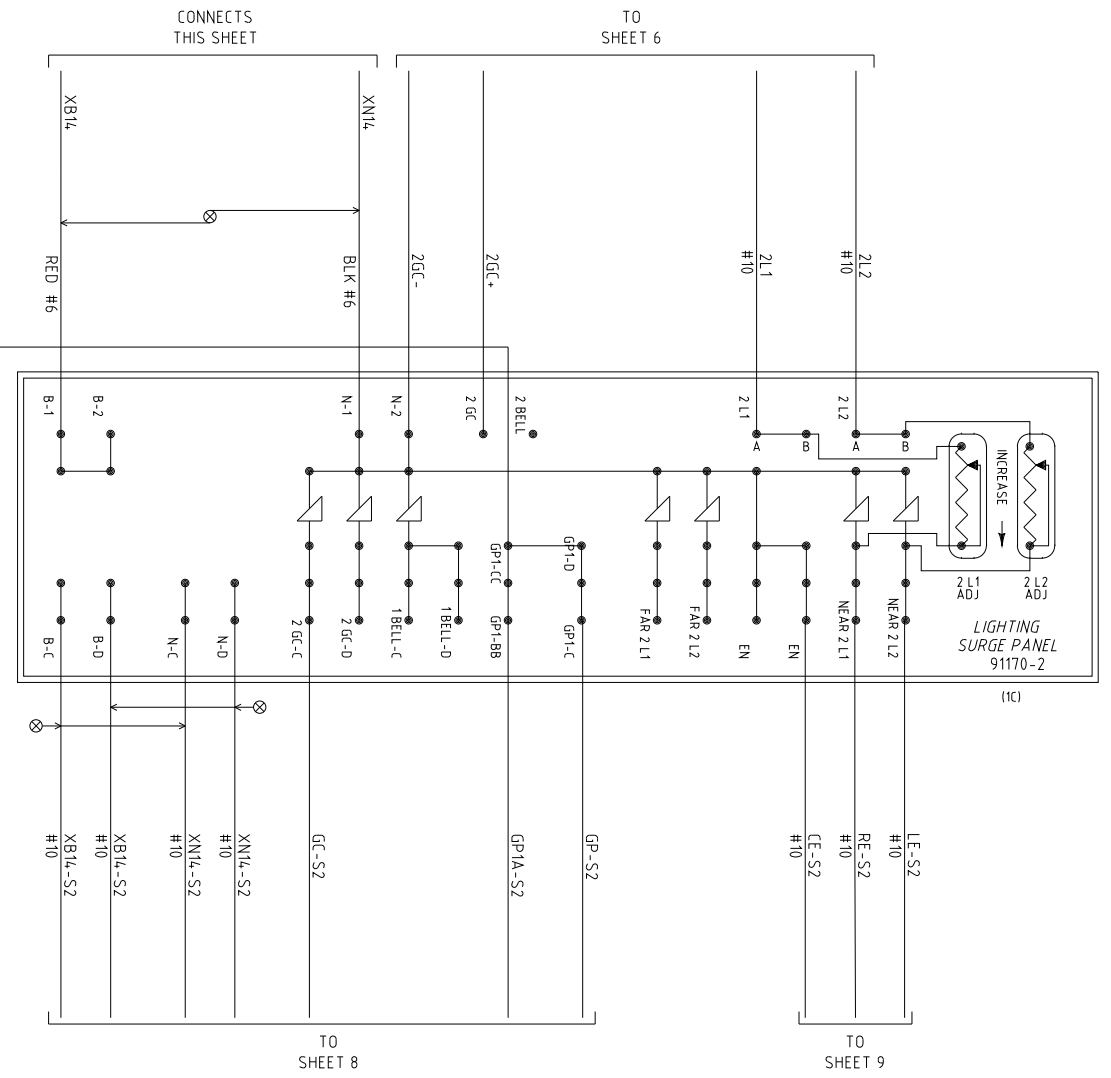
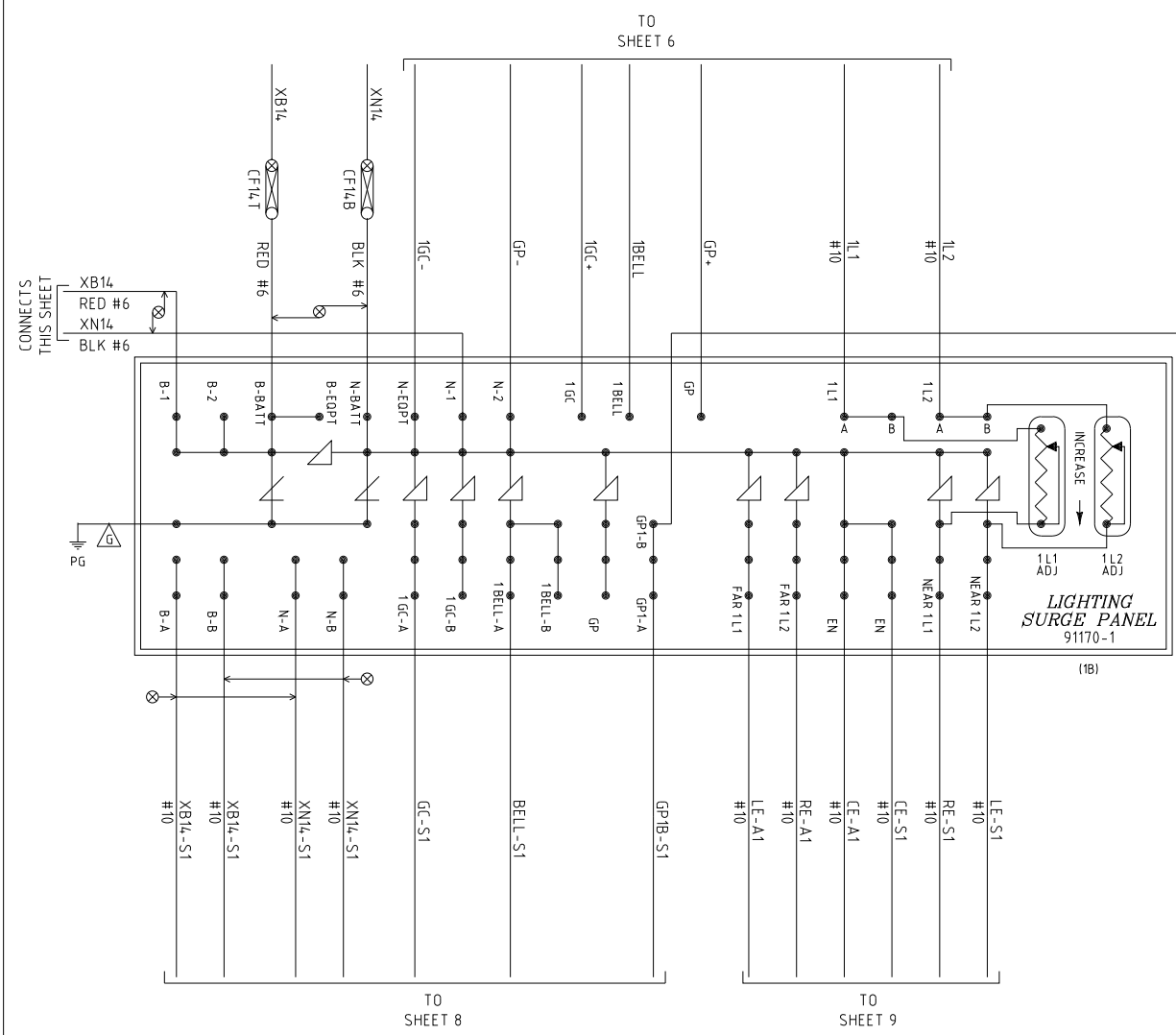
FIELD CONSTRUCTION COPY
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 Dated: 06-29-21

NOTES:
 1. ALL WIRING TO BE #16 AWG FLEX TEFLON UNLESS OTHERWISE NOTED.
 TWISTED WIRE TWO TURNS PER FOOT

REVISIONS

AS DESIGNED-00	06-08-21
NEW XING BUNGALOW & FLGS UPGRADE	
DES. SMI/JTB	CHK. SMI/DAD

The ALASKA RAILROAD CORPORATION		P.O. BOX 107500 , ANCHORAGE , ALASKA 99510-7500	
SIGNAL ENGINEERING		FAIRVIEW LOOP RD	
LAT: 61.563	DOT 868315D	MP 156.19	
LONG: -149.351		RAILROAD-HIGHWAY GRADE CROSSING WARNING SYSTEM	
DRAWN: SMI	DWG NO: 868315D	6 SHEET OF 19	
DATE: 06-08-21			



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 Dated: 06-29-21

- NOTES:**
1. ALL WIRING TO BE #16 AWG FLEX TEFLON UNLESS OTHERWISE NOTED.
 2. ALL GROUND WIRES TO BE #6 AWG GREEN TEFLON UNLESS OTHERWISE NOTED.
- ⊕ TWISTED WIRE TWO TURNS PER FOOT

The ALASKA RAILROAD CORPORATION		P.O. BOX 107500 , ANCHORAGE , ALASKA 99510-7500	
SIGNAL ENGINEERING		FAIRVIEW LOOP RD	
LAT: 61.563	DOT 868315D	MP 156.19	
		RAILROAD-HIGHWAY GRADE CROSSING WARNING SYSTEM	

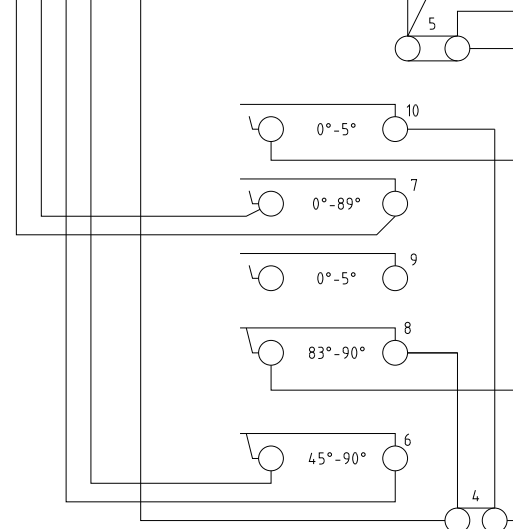
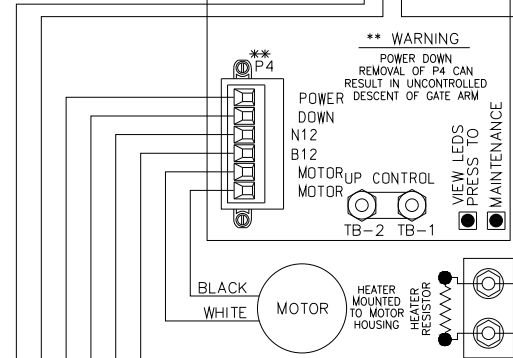
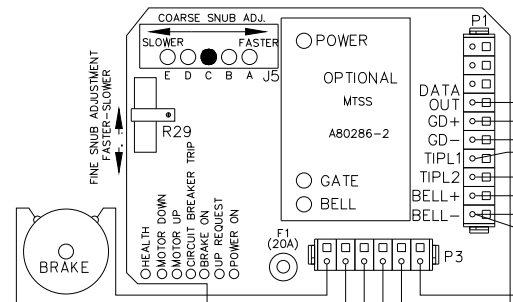
REVISIONS

AS DESIGNED-00	06-08-21
NEW XING BUNGALOW	INSTALLTION
DES: SMI/JTB	CHK: SMI/DAD

DRAWN: SMI	DWG NO:
DATE: 06-08-21	868315D

GATE 1

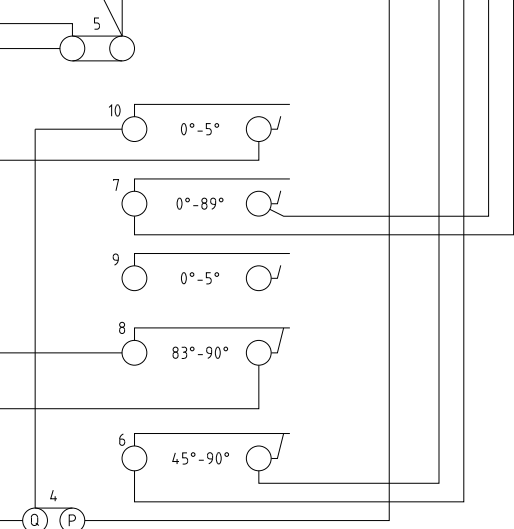
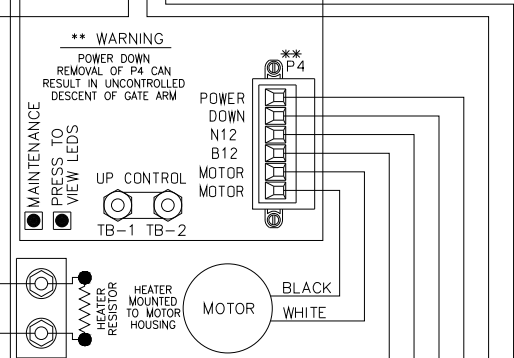
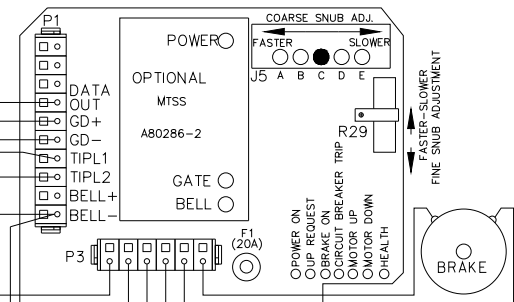
SNUBBING ADJUSTMENT INSTRUCTIONS:
 MOVE JUMPER ON J5 TO "C" AND ADJUST R29 TO FASTER. CHECK
 DECENT TIME. MOVE JUMPER ON J5 FIRST, BEFORE MAKING "SLOWER"
 ADJUSTMENT ON R29. AVOID ADJUSTING R29 TO END OF "SLOWER" POSITION.
WARNING
 AFTER REPEATED OPERATIONS
 R29 MAYBE HOT.
WARNING
 HOT SURFACE AT HEAT SINK.



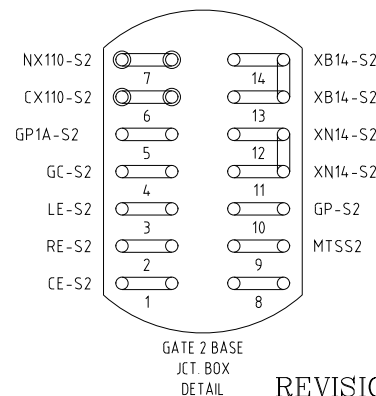
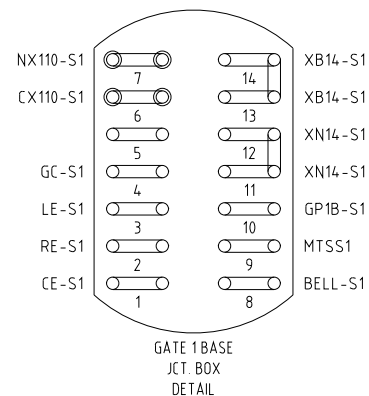
SAFETRAN MODEL "S-60"

GATE 2

SNUBBING ADJUSTMENT INSTRUCTIONS:
 MOVE JUMPER ON J5 TO "C" AND ADJUST R29 TO FASTER. CHECK
 DECENT TIME. MOVE JUMPER ON J5 FIRST, BEFORE MAKING "SLOWER"
 ADJUSTMENT ON R29. AVOID ADJUSTING R29 TO END OF "SLOWER" POSITION.
WARNING
 AFTER REPEATED OPERATIONS
 R29 MAYBE HOT.
WARNING
 HOT SURFACE AT HEAT SINK.



SAFETRAN MODEL "S-60"



REVISIONS

AS DESIGNED-00 06-08-21
 NEW XING BUNGALOW
 & FLGS UPGRADE
 DES: SMI/JTB CHK: SMI/DAD

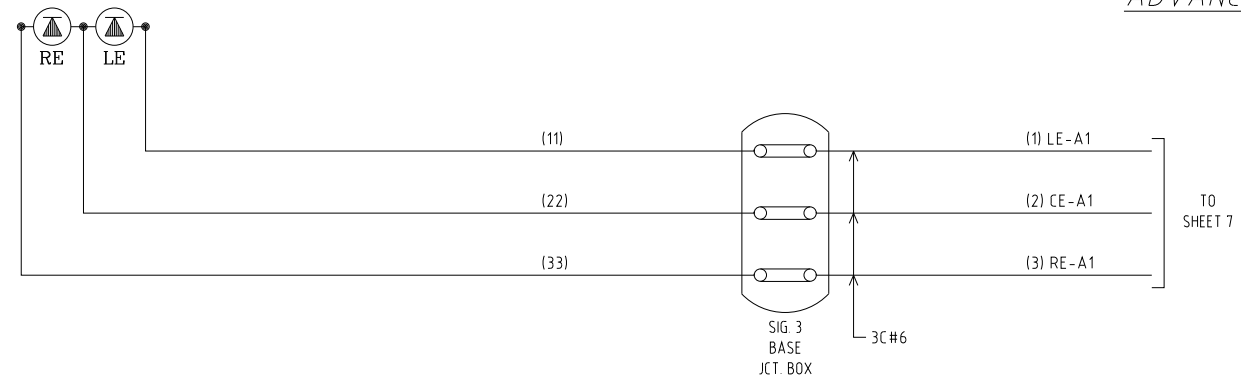
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 Dated: 06-29-21**

SIGNAL ENGINEERING		The ALASKA RAILROAD CORPORATION	
LAT: 61.563		P.O. BOX 107500, ANCHORAGE, ALASKA 99510-7500	
LONG: -149.351		FAIRVIEW LOOP RD	
		MP 156.19	
		RAILROAD-HIGHWAY GRADE CROSSING WARNING SYSTEM	
DRAWN: SMI	DWG NO: 868315D	SHEET OF: 8 OF 19	

NOTE:
 1 ALL LIGHT WIRES THIS PAGE ARE
 TO BE #10 AWG.

SIG. 3

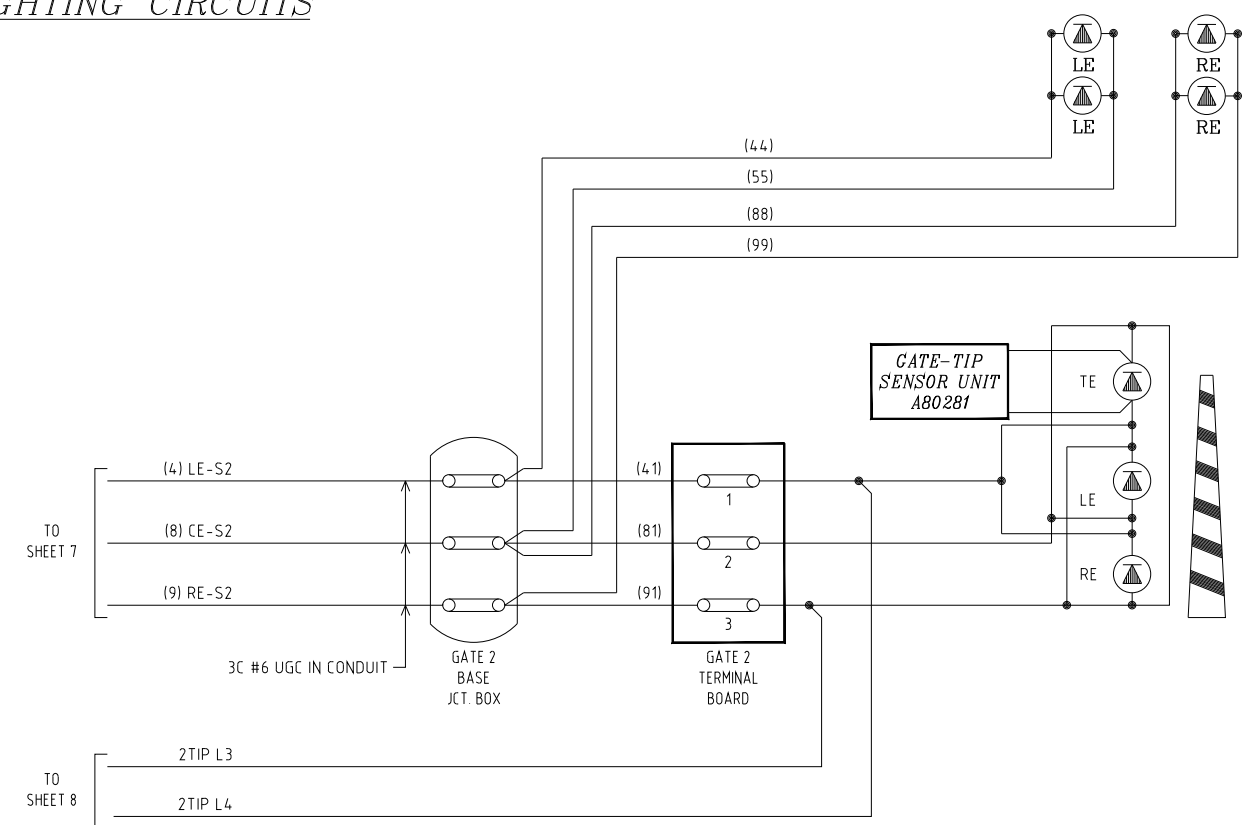
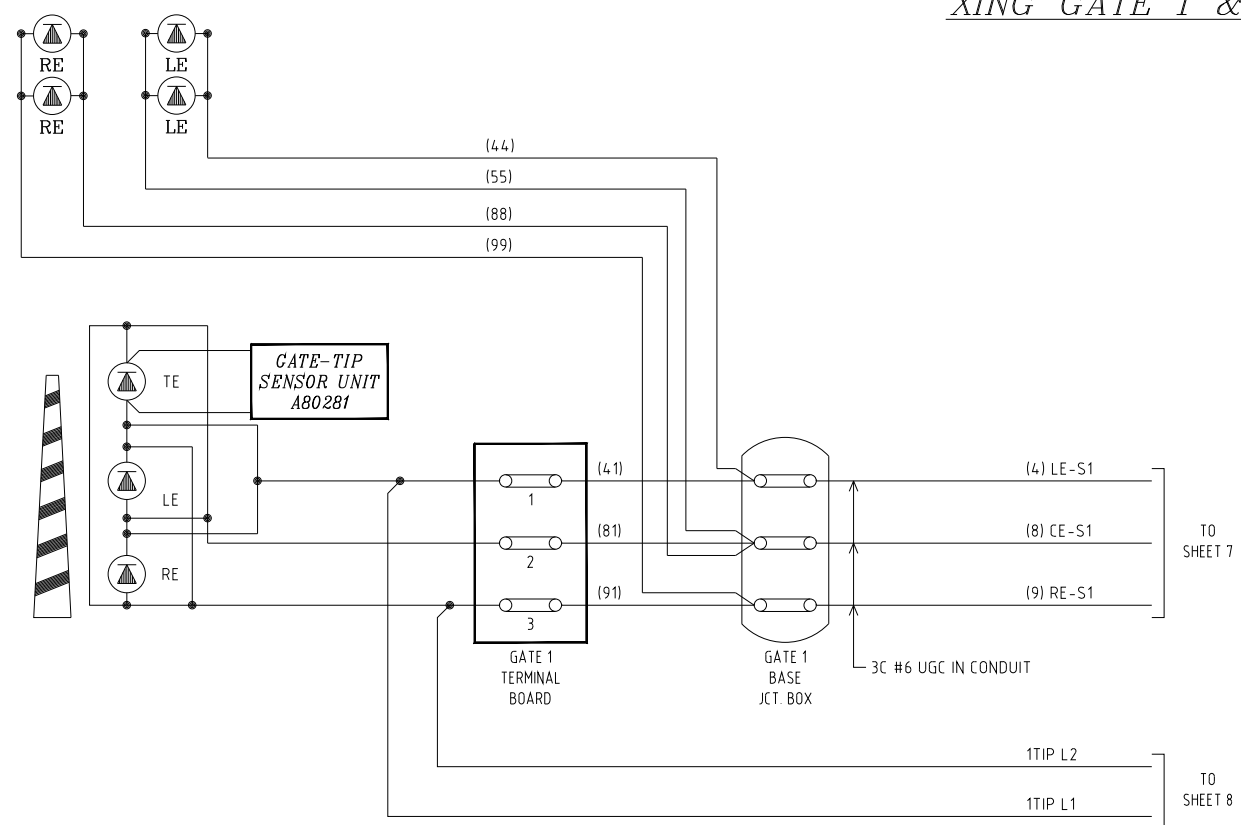
ADVANCE SIGNAL #1



GATE 1

XING GATE 1 & 2 LIGHTING CIRCUITS

GATE 2



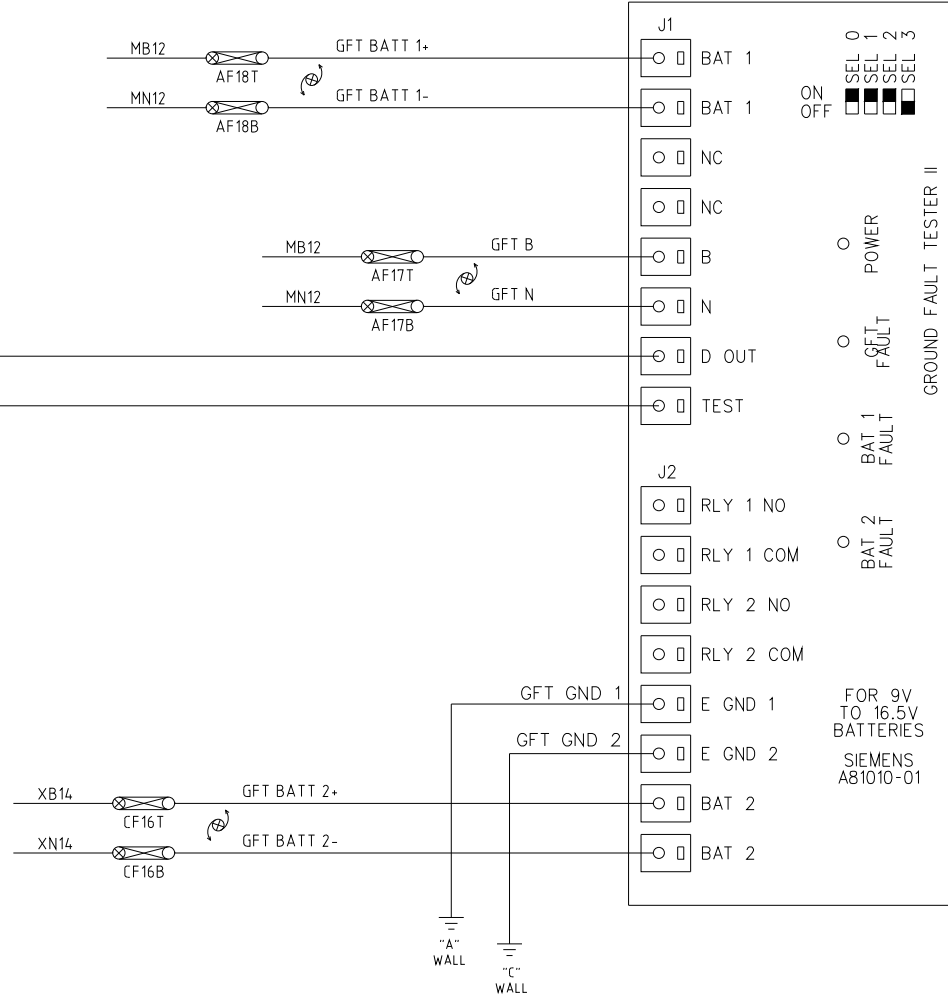
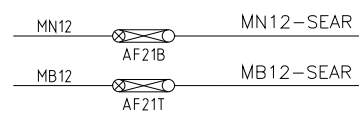
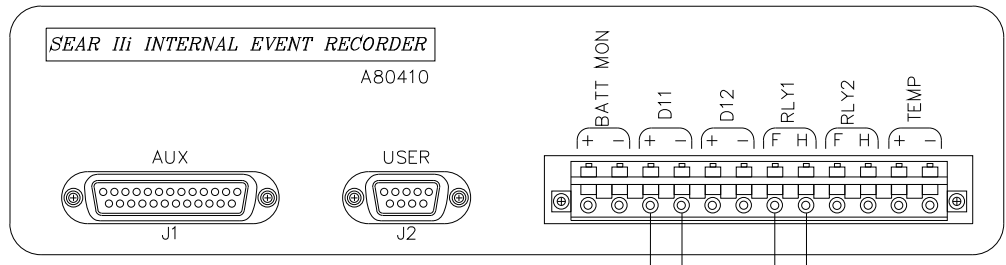
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NOTES:
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REVISIONS

AS DESIGNED-00	06-08-21
NEW XING BUNGALOW & FLGS UPGRADE	
DES: SMI/JTB	CHK: SMI/DAD

The ALASKA RAILROAD CORPORATION		P.O. BOX 107500 , ANCHORAGE , ALASKA 99510-7500	
SIGNAL ENGINEERING		FAIRVIEW LOOP RD	
LAT: 61.563	DOT 868315D	MP 156.19	
LONG: -149.351		RAILROAD-HIGHWAY GRADE CROSSING WARNING SYSTEM	
DRAWN: SMI	DWG NO: 868315D	9 SHEET OF 19	
DATE: 06-08-21			



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 Dated: 06-29-21

- NOTES:**
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 2. ALL GROUND WIRES TO BE #12 AWG GREEN TEFLON UNLESS OTHERWISE NOTED.
- TWISTED WIRE TWO TURNS PER FOOT

REVISIONS

AS DESIGNED-00	06-08-21
NEW XING BUNGALOW & FLGS UPGRADE	
DES: SMI/JTB	CHK: SMI/DAD

The ALASKA RAILROAD CORPORATION	
P.O. BOX 107500 , ANCHORAGE , ALASKA 99510-7500	
SIGNAL ENGINEERING	DOT 868315D
LAT: 61.563	FAIRVIEW LOOP RD
	MP 156.19
LONG: -149.351	RAILROAD-HIGHWAY GRADE CROSSING WARNING SYSTEM
DRAWN: SMI	DWG NO: 868315D
DATE: 06-08-21	10 SHEET OF 19

SOFTWARE REVISION	
EXECUTIVE	9V725-A01AC bin
APPLICATION	9VC45-A01C.cdl

STAGE 1	
PROGRAM MENU QUESTIONS	PROGRAM
DATE-TIME	CURRENT DATE/TIME
AUTOMATIC DST ADJUSTMENT	YES
TIME ZONE	ALASKA
SITE NAME	FAIRVIEW LOOP RD
MILE POST	156.19
DOT/CROSSING IS #	868315D
TESTER TYPE	CROSSING
DATE FORMAT	MM-DD-YYYY
TEMPERATURE FORMAT	FAHRENHEIT
INDICATE HOLD	1
INDICATE REFRESH	60
SITE ATCS ADDRESS	7.005.100.315.99.01
SITE TYPE	COLLECTOR
OFFICE ATCS ADDRESS	2.005.00.0000
PRIMARY HOP ADDR	2.005.00.0000
BACKUP HOP ADDR1	2.005.00.0000
BACKUP HOP ADDR2	2.005.00.0000
POLL ID	1
MODE	GEN/ATCS
WAMS/XID	ENABLED
OFFICE COMM DEVICE	DIRECT
RADIO ATCS ADDRESS	7.005.000.000.00.00
FIELD COMM DEVICE	NONE
USER PORT BAUD	57600
USER PORT DATA BITS	8
USER PORT PARITY	NONE
USER PORT STOP BITS	1
USER PORT FLOW CONTROL	NONE
AUX PORT BAUD	38400
AUX PORT DATA BITS	8
AUX PORT PARITY	NONE
AUX PORT STOP BITS	1
AUX PORT FLOW CONTROL	NONE
(PLEASE WAIT COMPILING STAGE 1)	

STAGE 2			
PROGRAM MENU QUESTIONS	PROGRAM	OPTIONS-RANGE	CONDITION
RESET NAMES-MODULES	NO	YES-NO	ALWAYS
CONFIGURATION	NORMAL	NORMAL-SPLIT GATE-NOTE 1	ALWAYS
AND1 USED AS XR	YES	YES-NO	ALWAYS
AND2 USED AS XR	NO	YES-NO	ALWAYS
AND3 USED AS XR	NO	YES-NO	ALWAYS
AND4 USED AS XR	NO	YES-NO	ALWAYS
AND5 USED AS XR	NO	YES-NO	ALWAYS
AND6 USED AS XR	NO	YES-NO	ALWAYS
AND7 USED AS XR	NO	YES-NO	ALWAYS
AND8 USED AS XR	NO	YES-NO	ALWAYS
XR CONTROLLED BY FOREIGN RR	N/A	AND1-AND8	CONFIG-SPLIT GATE
ENTRANCE GATES	2	0-8	ALWAYS
GATE CONTROLLED BY FOREIGN RR	N/A	NONE-TSS4	CONFIG-SPLIT GATE
GATE DESCENT TIME (SECONDS)	7	7-30	GATES > 0
GATE POSITION FAIL TIME (SECONDS)	16	10-60	GATES > 0
GATES NOT UP TIME (SECONDS)	20	10-60	GATES > 0
CROSSING ACTIVE TIME (MINUTES)	10	10-30	ALWAYS
MINIMUM NORMAL WARNING TIME (SECONDS)	20	20-94	ALWAYS
POWER OUT ALARM TIME (MINUTES)	60	10-60	ALWAYS
BATTERY BANKS	2	1-3	ALWAYS
BATT MON USED	NO	YES-NO	ALWAYS
INTERNAL CROSSING CONTROLLERS	2	0-2	ALWAYS
EXTERNAL CROSSING CONTROLLERS	0	0-2	ALWAYS
ALLOW DTMF CONTROL	NO	YES-NO	ALWAYS
COUNTRY	N/A	CANADA-US	DTMF CONTROL=YES
DTMF CONTROL WITH PRE-EMPTION	N/A	YES-NO	DTMF CONTROL=YES
POK ANNOUNCEMENT TO VHF	N/A	YES-NO	DTMF CONTROL=YES
VHF VOICE CHANNEL	N/A	1-8	DTMF CONTROL=YES
VHF DATA CHANNEL	N/A	1-8	DTMF CONTROL=YES
DIGIT #1	N/A	0-9	DTMF CONTROL=YES
DIGIT #2	N/A	0-9	DTMF CONTROL=YES
DIGIT #3	N/A	0-9	DTMF CONTROL=YES
DIGIT #4	N/A	0-9	DTMF CONTROL=YES
DIGIT #5	N/A	0-9	DTMF CONTROL=YES
TIME-OUT FOR DTMF REQUEST #1	N/A	0-240	DTMF CONTROL=YES
TIME-OUT FOR DTMF REQUEST #2	N/A	0-240	DTMF CONTROL=YES
TIME-OUT FOR DTMF REQUEST #3	N/A	0-240	DTMF CONTROL=YES
TIME-OUT FOR DTMF REQUEST #4	N/A	0-240	DTMF CONTROL=YES
TIME-OUT FOR DTMF REQUEST #5	N/A	0-240	DTMF CONTROL=YES
TIME-OUT FOR DTMF REQUEST #6	N/A	0-240	DTMF CONTROL=YES
TIME-OUT FOR DTMF REQUEST #7	N/A	0-240	DTMF CONTROL=YES
ISLAND RELEASE DTMF REQUEST #1	N/A	0-6	DTMF TIME-OUT#1>0
ISLAND RELEASE DTMF REQUEST #2	N/A	0-6	DTMF TIME-OUT#2>0
ISLAND RELEASE DTMF REQUEST #3	N/A	0-6	DTMF TIME-OUT#3>0
ISLAND RELEASE DTMF REQUEST #4	N/A	0-6	DTMF TIME-OUT#4>0
ISLAND RELEASE DTMF REQUEST #5	N/A	0-6	DTMF TIME-OUT#5>0
ISLAND RELEASE DTMF REQUEST #6	N/A	0-6	DTMF TIME-OUT#6>0
ISLAND RELEASE DTMF REQUEST #7	N/A	0-6	DTMF TIME-OUT#7>0
ILOD MODULES	2	0-4	ALWAYS

STAGE 2 CONT'D			
PROGRAM MENU QUESTIONS	PROGRAM	OPTIONS-RANGE	CONDITION
MONITOR ILOD1 WITH	AND1	AND1-AND8	ILOD MODULES > 0
MONITOR ILOD2 WITH	AND1	AND1-AND8	ILOD MODULES > 1
MONITOR ILOD3 WITH	N/A	AND1-AND8	ILOD MODULES > 2
MONITOR ILOD4 WITH	N/A	AND1-AND8	ILOD MODULES > 3
ANY LED BULBS USED	YES	YES-NO	ILOD MODULES > 0
AUTO INSPECTION	NO	YES-NO	ALWAYS
BELL SENSORS	1	0-8	ALWAYS
BELL SENSORS TSS1	YES	YES-NO	BELL SENSOR > 0
BELL SENSORS TSS2	NO	YES-NO	BELL SENSOR > 0
BELL SENSORS TSS3	NO	YES-NO	BELL SENSOR > 0
BELL SENSORS TSS4	NO	YES-NO	BELL SENSOR > 0
BELL SENSORS TSS5	NO	YES-NO	BELL SENSOR > 0
BELL SENSORS TSS6	NO	YES-NO	BELL SENSOR > 0
BELL SENSORS TSS7	NO	YES-NO	BELL SENSOR > 0
BELL SENSORS TSS8	NO	YES-NO	BELL SENSOR > 0
BELL ON	ALWAYS	GATES LOWERING-MOVING-ALWAYS	BELL SENSOR > 0
BATTERY PERCENT FOR ALARM	85	0-100	ALWAYS
GFT'S	YES	YES-NO	ALWAYS
BATTERIES ON GFT1	2	1-2	GFT'S = YES
GATE UP SOURCE	GP	TSS-GP	GATES > 0
GATE DOWN SOURCE	TSS	TIP-TSS-GD	GATES > 0
USE CELL MODEM NON-CRITICAL FEATURE	NO	YES-NO	ALWAYS
FULL APPROACH MOVE ALARMS	DO NOT ACTIVATE	ACTIVATE-DO NOT ACTIVATE	ALWAYS
TEST SWITCH INPUT	UNUSED	UNUSED-AND 1 XR ENABLE	TEST SW <-> UNUSED
USER TEST MODE ENABLED BY TEST SWITCH	NO	YES-NO	ALWAYS
SEND STB ALARM MESSAGE	YES	YES-NO	ALWAYS
DISABLE LOG TRACK INPUTS	0	0-7	ALWAYS
DISABLE LOG TRACK 3 INPUTS	0	0-7	ALWAYS
DISABLE LOG TRACK 4 INPUTS	0	0-7	ALWAYS
DISABLE LOG TRACK 5 INPUTS	0	0-7	ALWAYS
DISABLE LOG TRACK 6 INPUTS	0	0-7	ALWAYS
(PLEASE WAIT COMPILING STAGE 2)			

STAGE 3		
PROGRAM MENU QUESTIONS	PROGRAM	OPTIONS-RANGE
EDIT DIGITAL INPUTS	NO	YES-NO
EDIT BATTERIES	NO	YES-NO
EDIT RELAYS	NO	YES-NO
EDIT TEST LEDS	NO	YES-NO
EDIT ILOD SENSORS	NO	YES-NO
EDIT VHF SETTINGS	NO	YES-NO
GCP4K ATCS SUBNODE?	16	1-16
SAVE CONFIGURATION		

ILOD LAMPS		
PROGRAM MENU QUESTIONS	PROGRAM	CONDITION
EB1 FLASHING LAMPS	5	ILOD > 0
EN1 FLASHING LAMPS	5	ILOD > 0
EB2 FLASHING LAMPS	4	ILOD > 1
EN2 FLASHING LAMPS	4	ILOD > 1
EB3 FLASHING LAMPS	N/A	ILOD > 2
EN3 FLASHING LAMPS	N/A	ILOD > 2
EB4 FLASHING LAMPS	N/A	ILOD > 3
EN4 FLASHING LAMPS	N/A	ILOD > 3

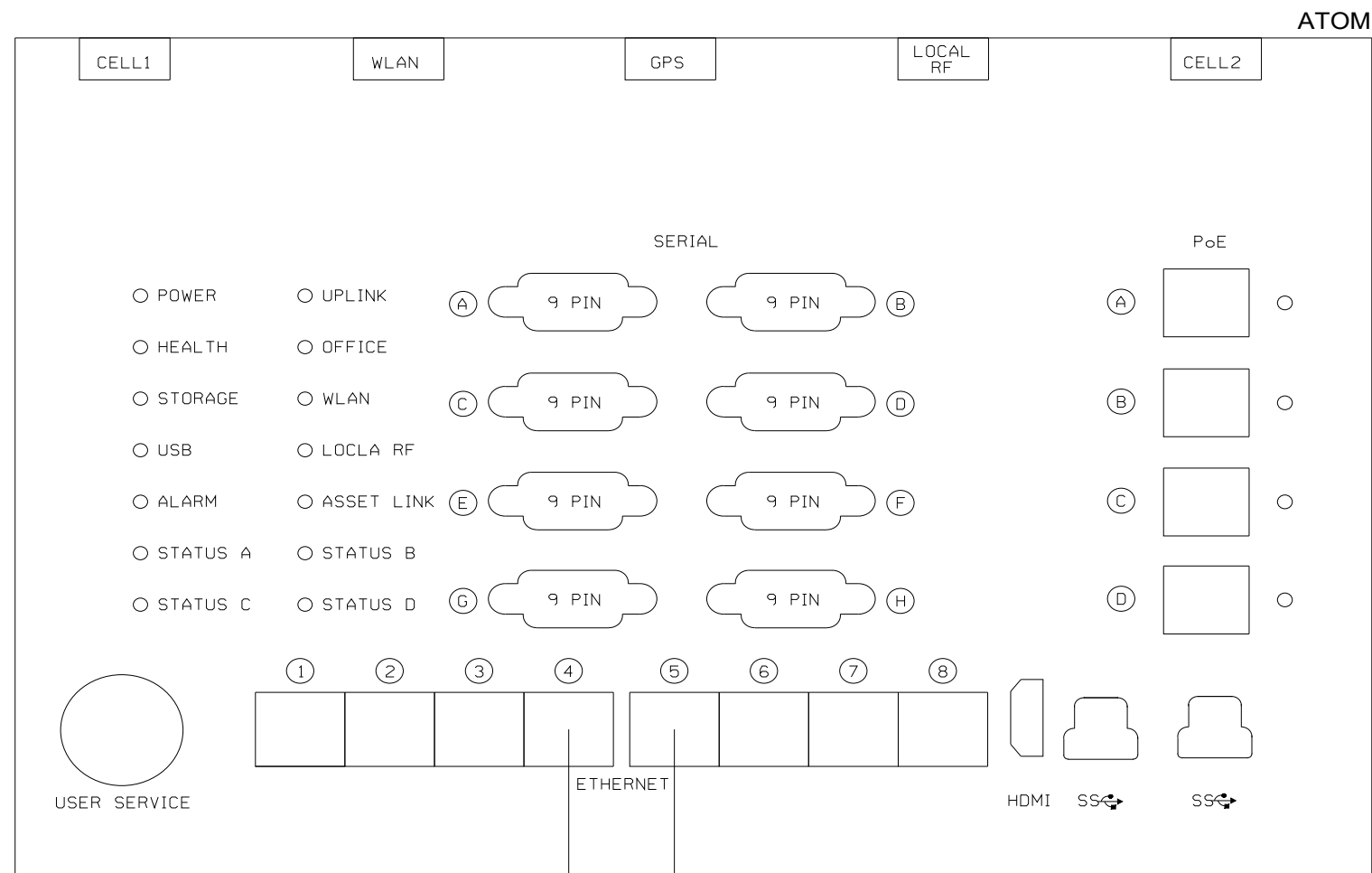
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NOTES
 1) ADDITIONAL OPTIONS: DUAL CROSSING, EXTERNAL ENTRANCE GATE CONTROLLERS

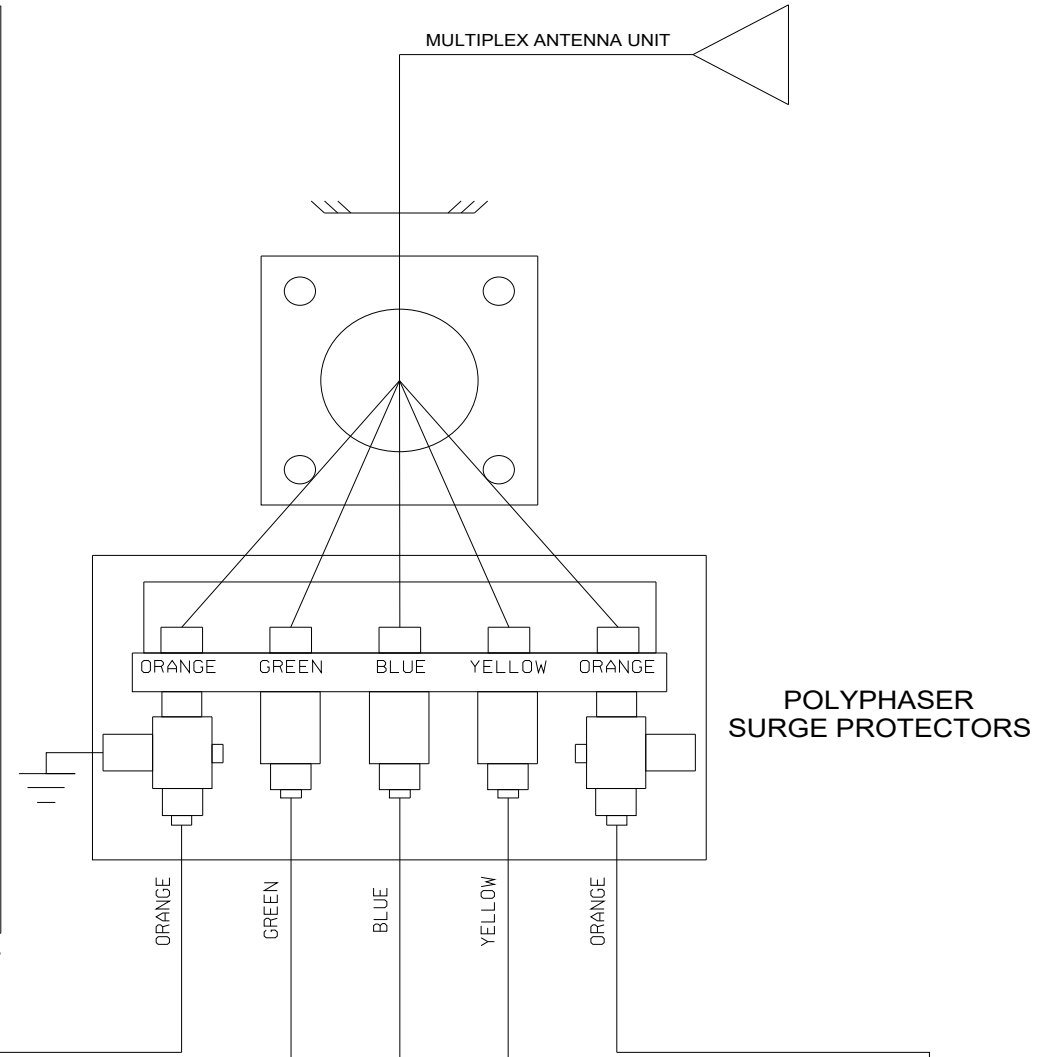
REVISIONS

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 & FLGS UPGRADE
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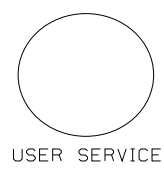
<i>The ALASKA RAILROAD CORPORATION</i>		P.O. BOX 107500, ANCHORAGE, ALASKA 99510-7500	
SIGNAL ENGINEERING		FAIRVIEW LOOP RD	
LAT: 61.563	DOT 868315D	MP 156.19	
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DRAWN: SMI	DWG NO: 868315D	11 SHEET OF 19	
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FRONT VIEW



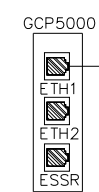
REAR VIEW



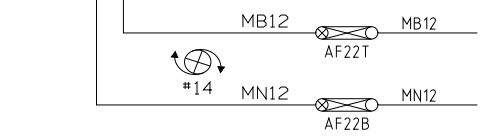
USER SERVICE

GCP5000 COMM CAT5 W/ RJ45 CONNECTORS

SEAR COMM CAT5 W/ RJ45 CONNECTORS TO SEAR ETHERNET PORT



GCP5000



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REVISIONS

AS DESIGNED-00 NEW XING BUNGALOW & FLGS UPGRADE DES: SMI/JTB	06-08-21 CHK: SMI/DAD
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DRAWN: SMI	DWG NO:
DATE: 06-08-21	868315D

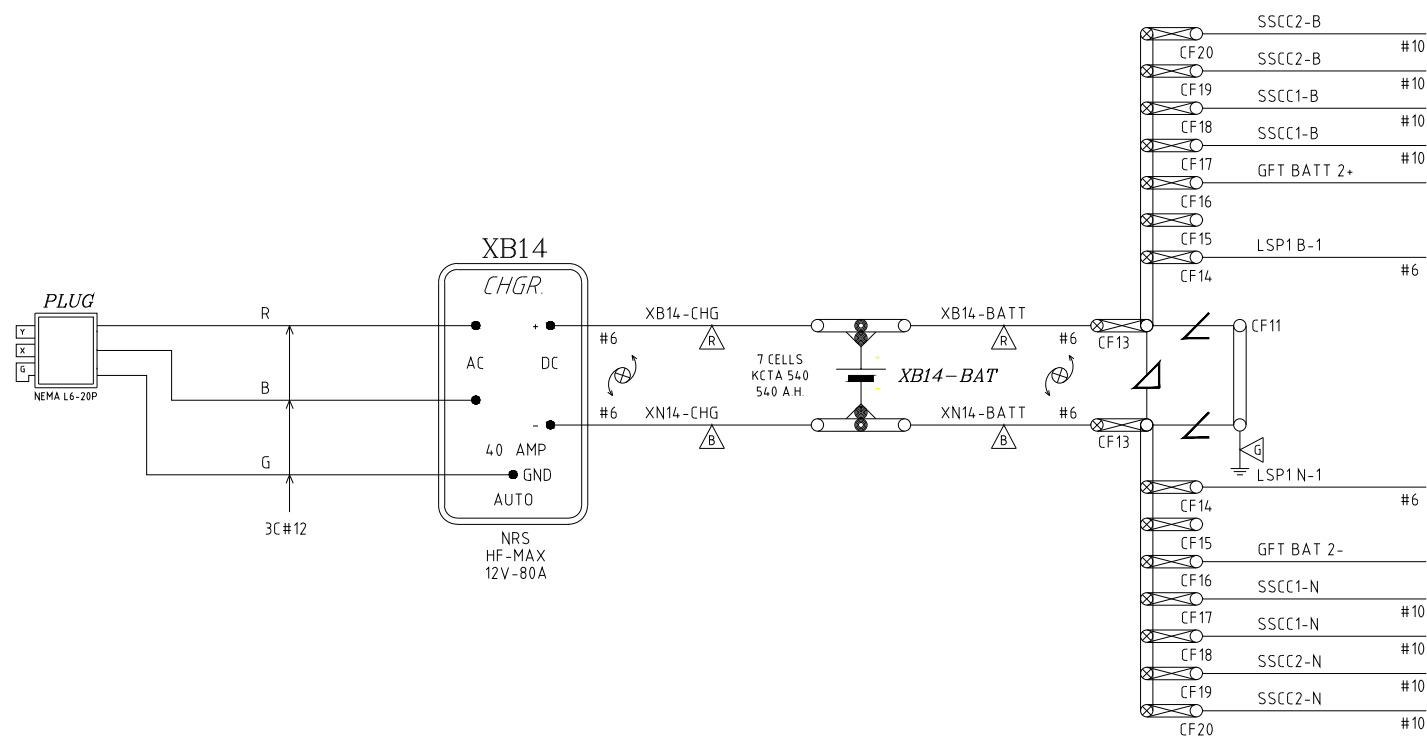
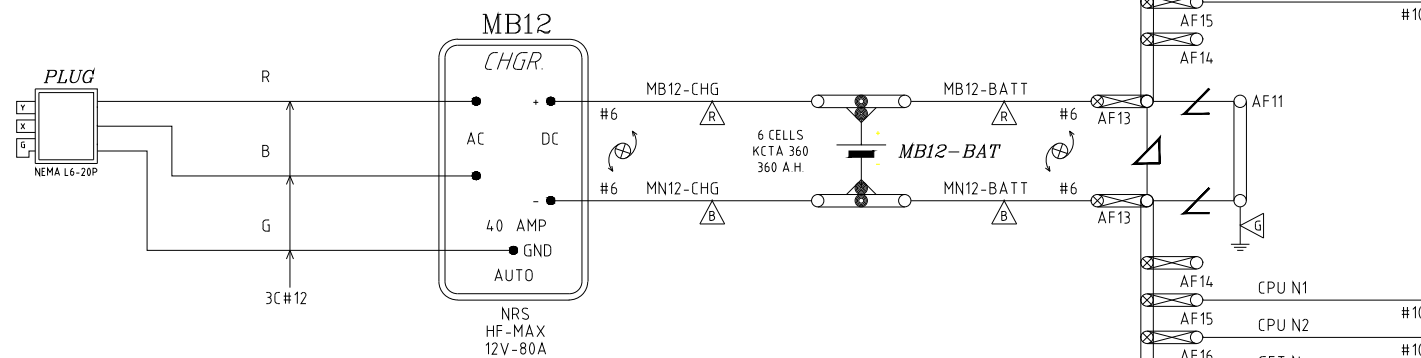
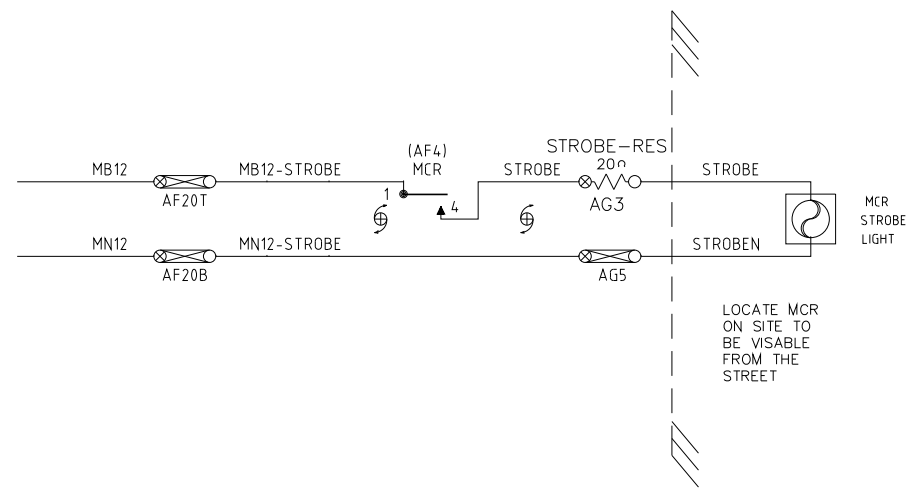
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SIGNAL ENGINEERING		The ALASKA RAILROAD CORPORATION P.O. BOX 107500 , ANCHORAGE , ALASKA 99510-7500	
LAT: 61.563	DOT 868315D	FAIRVIEW LOOP RD MP 156.19	
LONG: -149.351	RAILROAD-HIGHWAY GRADE CROSSING WARNING SYSTEM		
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REVISIONS

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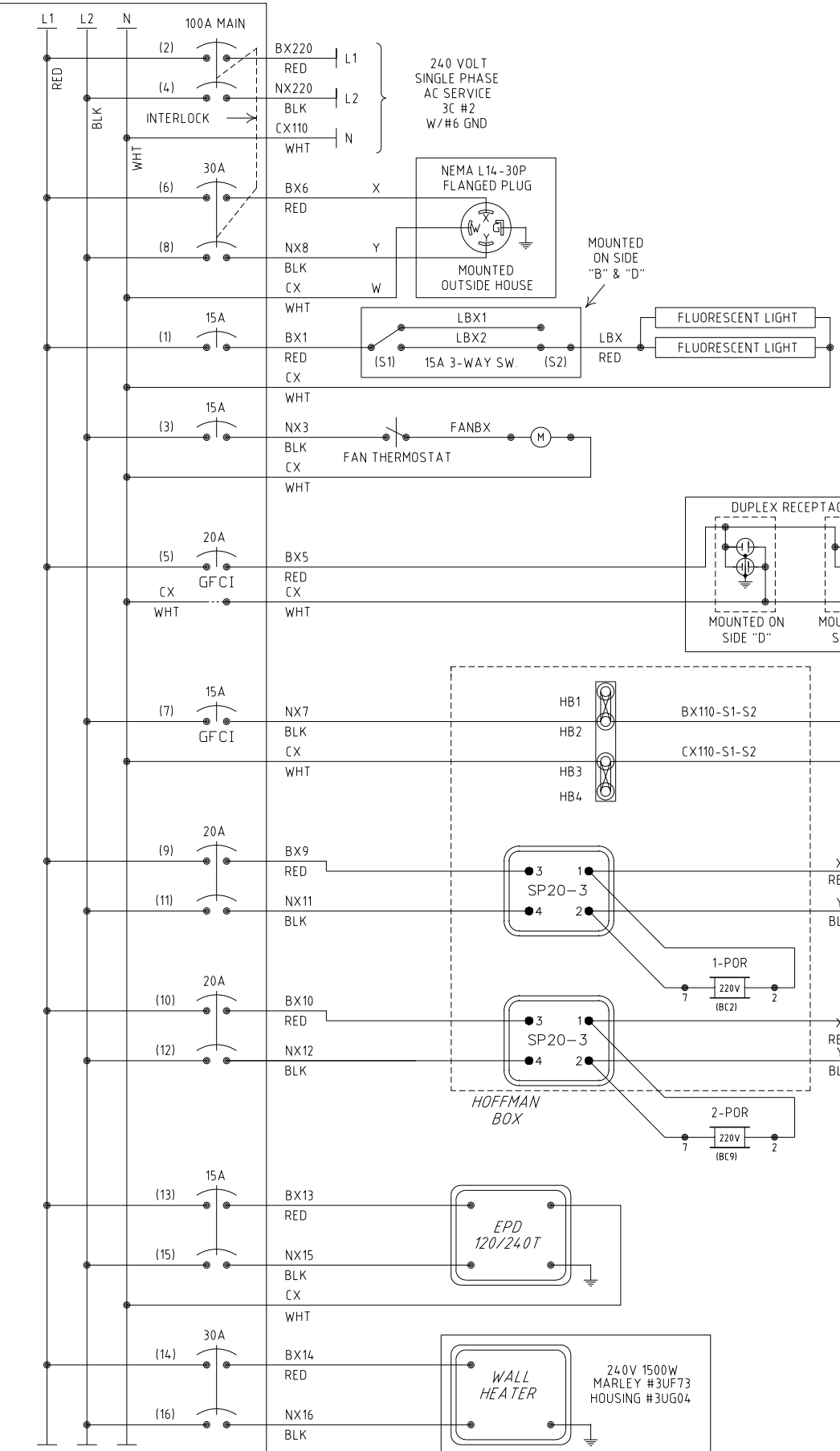
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NOTES:
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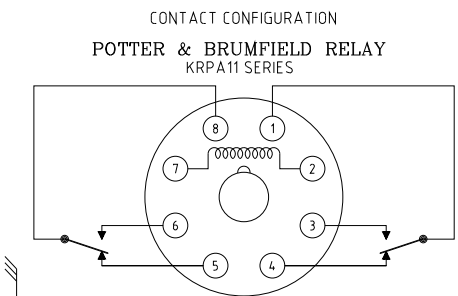
REVISIONS

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NEW XING BUNGALOW & FLGS UPGRADE	
DES: SMI/JTB	CHK: SMI/DAD

The ALASKA RAILROAD CORPORATION		P.O. BOX 107500 , ANCHORAGE , ALASKA 99510-7500	
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LAT: 61.563	DOT 868315D	MP 156.19	
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DRAWN: SMI	DWG NO: 868315D	14 SHEET OF 19	
DATE: 06-08-21			



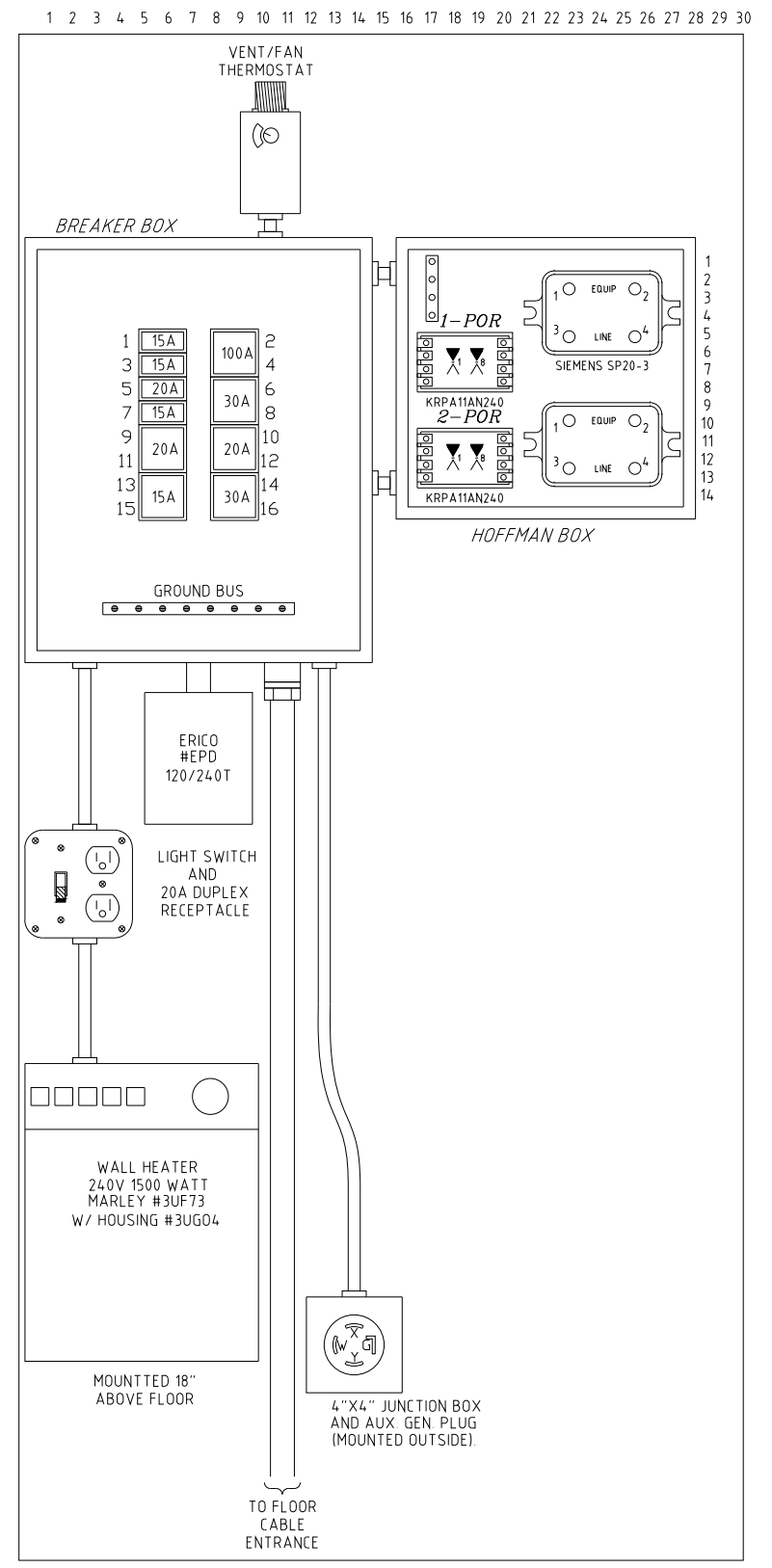
- NOTES:
- USE THE FOLLOWING COLOR CODE:
GRN - GREEN - SAFETY EQUIPMENT GROUND
WHT - WHITE - CX110 (NEUTRAL)
BLK - BLACK - NX220 (L2)
RED - RED - BX220 (L1)
EXCEPTIONS TO THE ABOVE COLOR CODE ARE THE PRE-WIRED, SEALED ARRESTOR UNITS MOUNTED ON THE BREAKER BOX WHICH HAVE TWO BLACK AND ONE WHITE WIRE EACH.
 - WIRE NUT
 - MINIMUM WIRE SIZE:
10 AMP - NO. 14 AWG THHN OR THWN SOLID
20 AMP - NO. 12 AWG THHN OR THWN SOLID
30 AMP - NO. 10 AWG THHN OR THWN SOLID
 - GROUND FAULT INTERRUPT (GFCI) MUST BE USED ON ALL CIRCUITS SERVING CONVENIENCE OUTLETS AND ANY EQUIPMENT OUTSIDE THE BUNGALOW. RECEPTACLE MOUNTED GFCI MAY BE USED INSTEAD OF BREAKER TYPE.
 - ALL GROUND WIRES RUN TO BREAKER BOX GROUND BUS.



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 Dated: 06-29-21

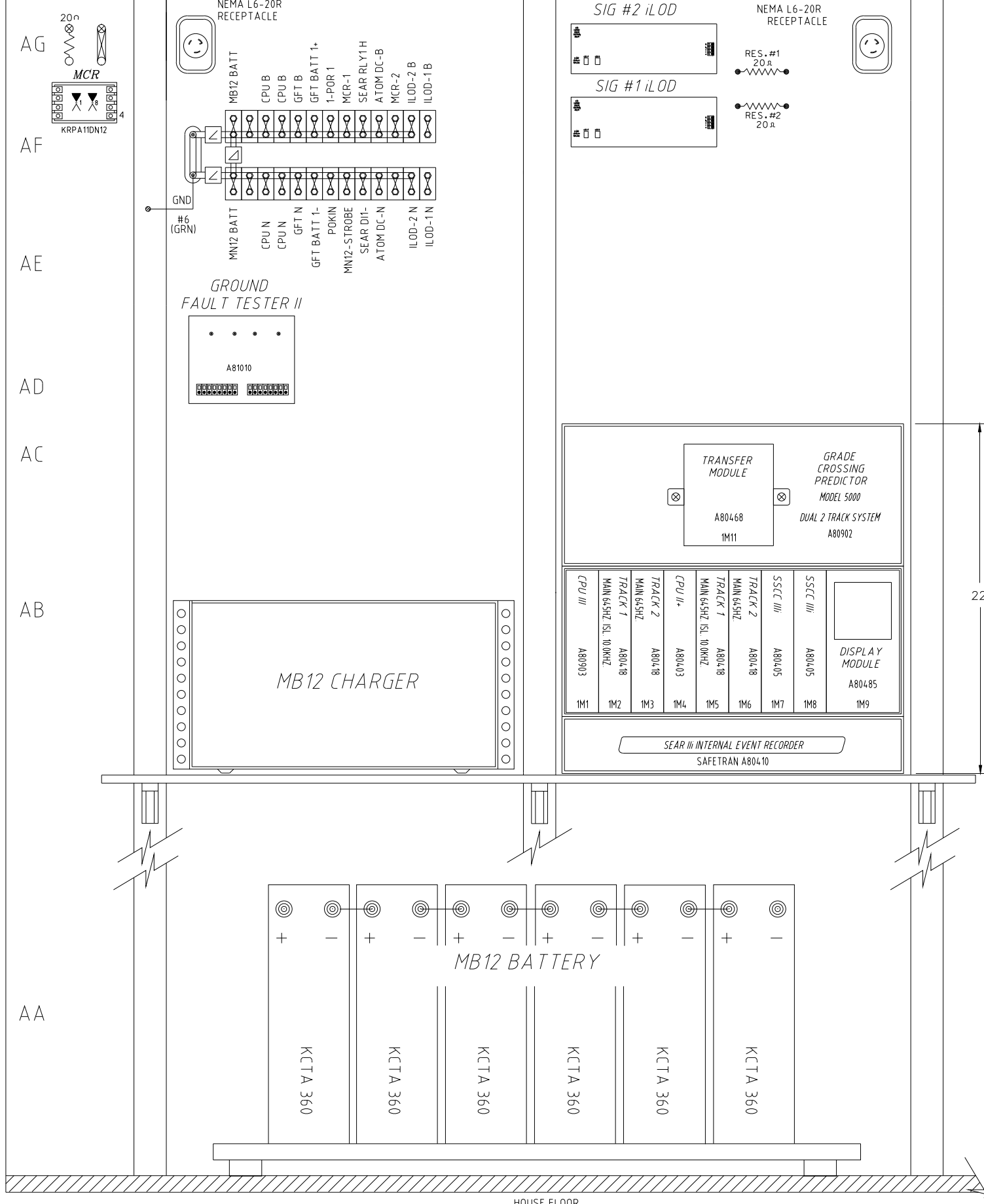
SQUARE D PART NUMBERS
 BREAKER BOX: Q0120L125G
 SURFACE KIT: Q0C24US
 GROUND KIT: PK12GTA
 INTERLOCK: Q02DT1

SIDE D



The ALASKA RAILROAD CORPORATION		P.O. BOX 107500, ANCHORAGE, ALASKA 99510-7500	
SIGNAL ENGINEERING		FAIRVIEW LOOP RD	
LAT: 61.563	DOT: 868315D	MP 156.19	
LONG: -149.351		RAILROAD-HIGHWAY GRADE CROSSING WARNING SYSTEM	
REVISIONS		868315D	
AS DESIGNED-00 06-08-21	NEW XING BUNGALOW & FLGS UPGRADE	DRAWN: SMI	DWG NO: 868315D
DES: SMI/JTB	CHK: SMI/DAD	DATE: 06-08-21	15 OF 19

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64



22"

FIELD CONSTRUCTION COPY
BID PURPOSES ONLY
 Dated: 06-29-21

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

SIGNAL ENGINEERING DOT 868315D FAIRVIEW LOOP RD
 MP 156.19

RAILROAD-HIGHWAY GRADE CROSSING WARNING SYSTEM

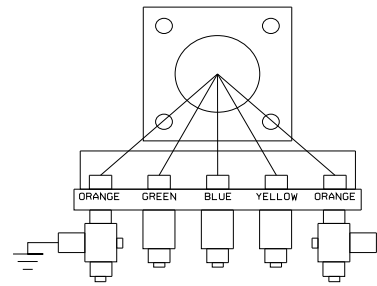
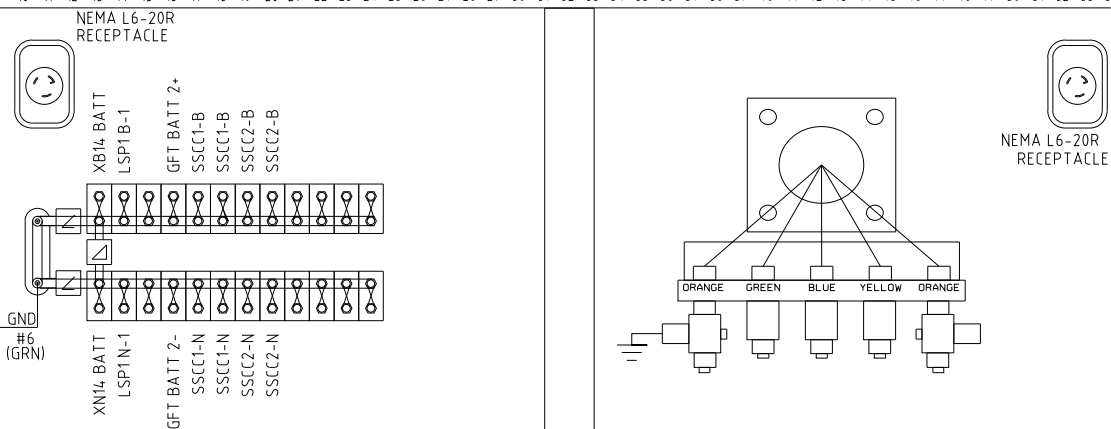
DRAWN: SMI	DATE: 06-08-21	DWG NO: 868315D	16 SHEET OF 19
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REVISIONS

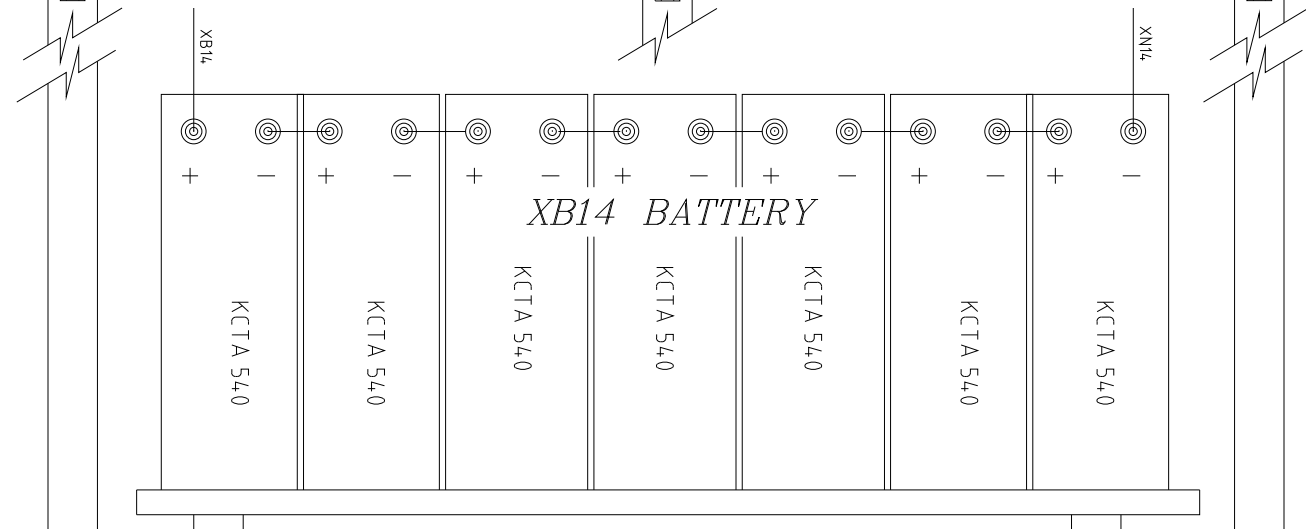
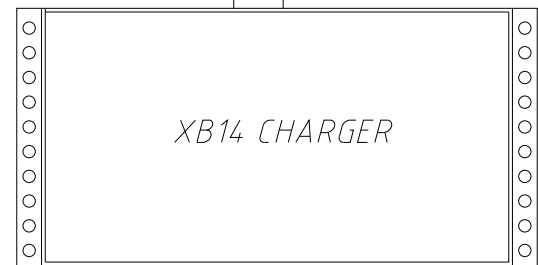
AS DESIGNED-00 06-08-21
 NEW XING BUNGALOW & FLGS UPGRADE
 DES: SMI/JTB CHK: SMI/DAD

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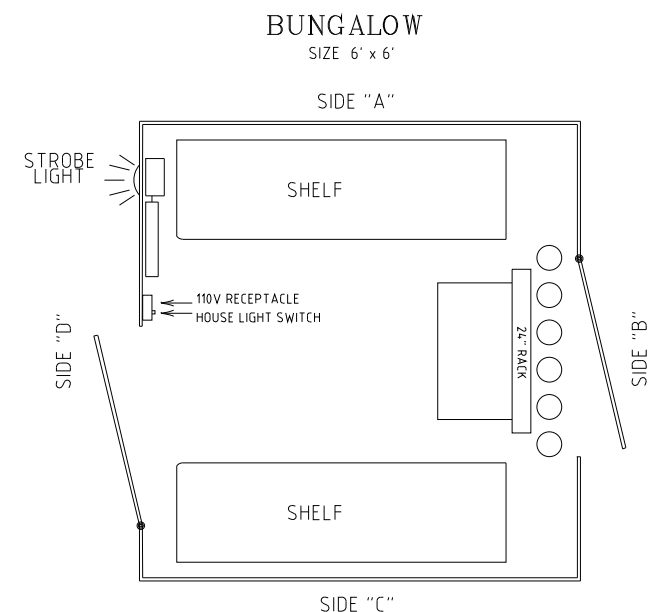
CF
CE
CD
CC
CB
CA



RAIL FUSION
ATOM



HOUSE FLOOR
SIDE C



**FIELD CONSTRUCTION COPY
BID PURPOSES ONLY
Dated: 06-29-21**

REVISIONS

AS DESIGNED-00	06-08-21
NEW XING BUNGALOW & FLGS UPGRADE	
DES: SMI/JTB	CHK: SMI/DAD

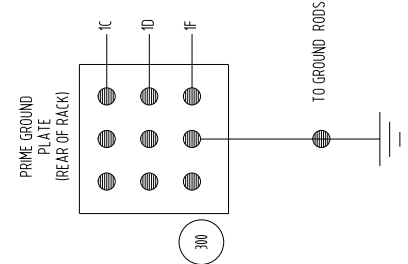
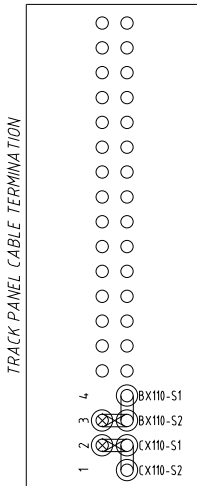
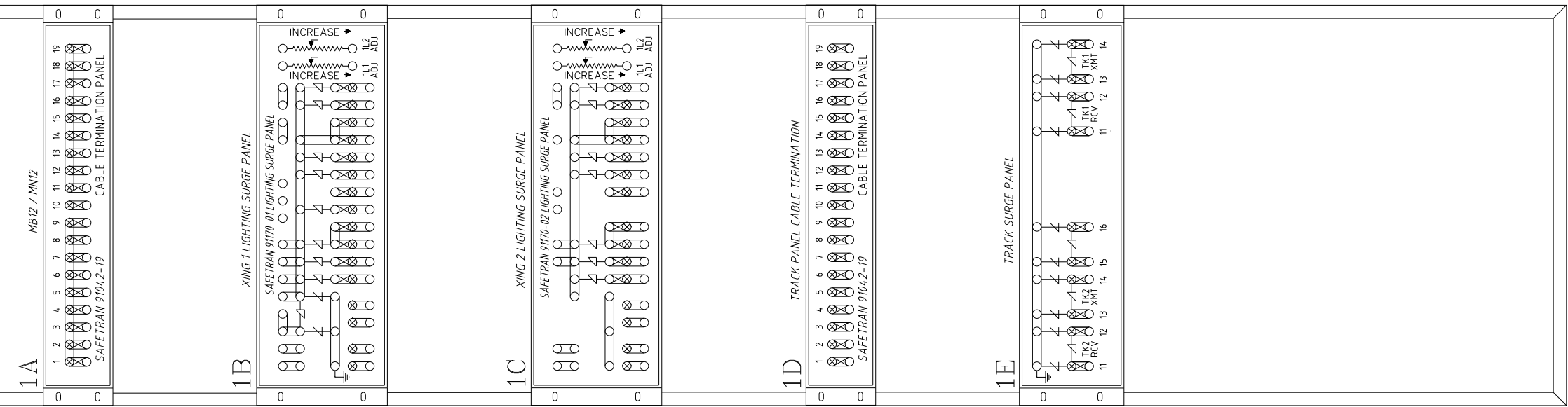
SIGNAL ENGINEERING		The ALASKA RAILROAD CORPORATION	
LAT: 61.563		P.O. BOX 107500, ANCHORAGE, ALASKA 99510-7500	
LONG: -149.351		FAIRVIEW LOOP RD	
		MP 156.19	
		RAILROAD-HIGHWAY GRADE CROSSING WARNING SYSTEM	
DRAWN: SMI	DWG NO: 868315D		
DATE: 06-08-21		17 SHEET OF 19	

RACK 1 BACK

84"

RACK 1 FRONT

3" 4" 8" 7" 8" 7" 8" 4" 8" 5" 22"

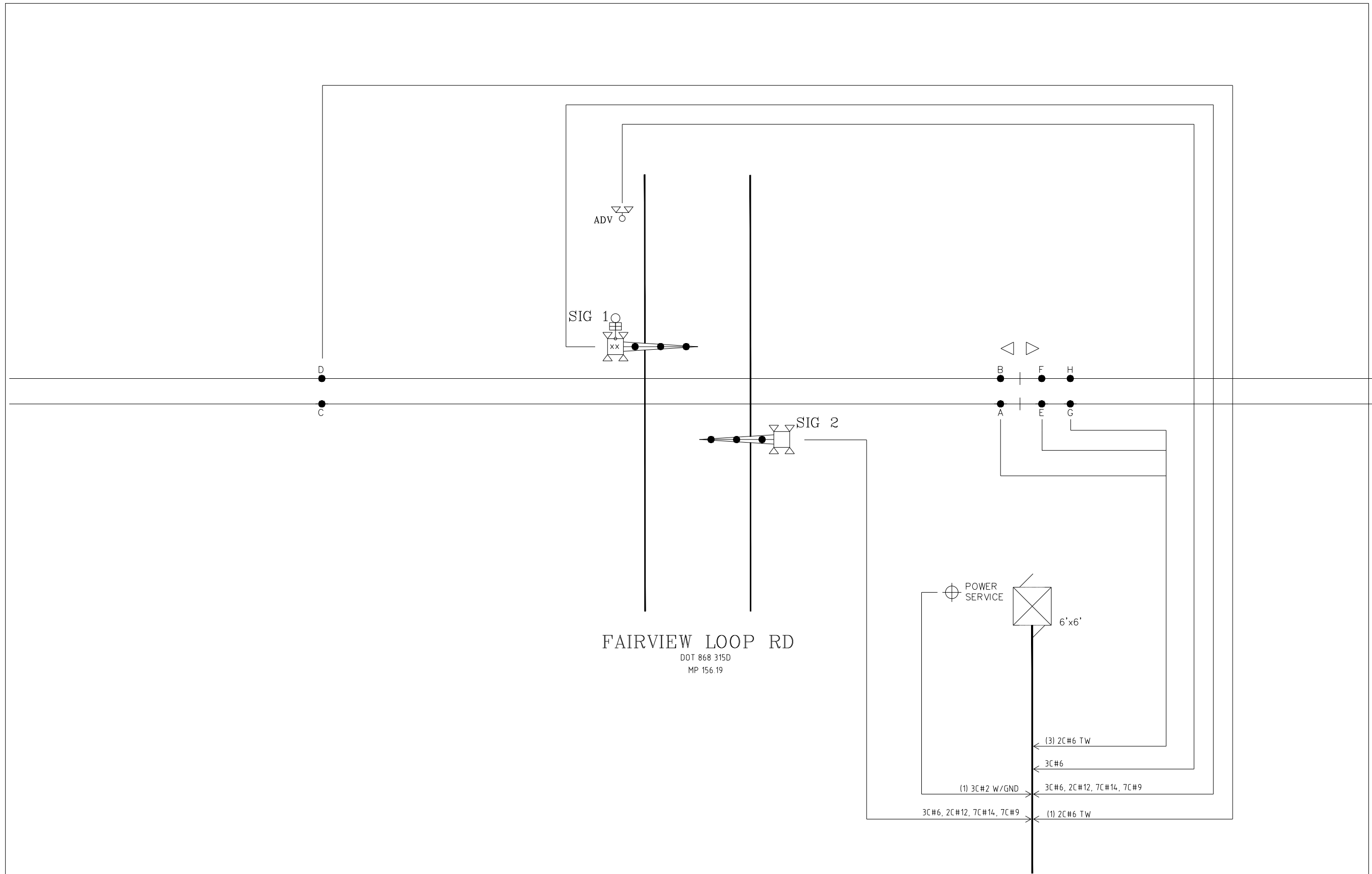


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REVISIONS

AS DESIGNED-00 06-08-21
 NEW XING BUNGALOW
 & FLGS UPGRADE
 DES: SMI/JTB CHK: SMI/DAD

SIGNAL ENGINEERING		The ALASKA RAILROAD CORPORATION P.O. BOX 107500 , ANCHORAGE , ALASKA 99510-7500	
LAT: 61.563	DOT 868315D	FAIRVIEW LOOP RD MP 156.19	
LONG: -149.351		RAILROAD-HIGHWAY GRADE CROSSING WARNING SYSTEM	
DRAWN: SMI	DWG NO: 868315D		
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DRAWN: SMI	DWG NO: 868315D		
DATE: 06-08-21			

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