

Memo

To: Docketing Division
From: Jill Henry, Rail Specialist, Rail Division
Cc: PUCO Legal Department
Date: 12/28/16

Re: PUCO Case No. 16-2433-RR-FED- In the Matter of a Request for upgrades at the CSX Railroad Crossing, DOT# 228-627V, Kinnear Road in Franklin County, Ohio.

On June 29, 2016, the Ohio Rail Development Commission (ORDC) authorized funding for CSX Transportation to upgrade the circuitry devices and lights to LED at the Kinnear Road, DOT#228-627V, grade crossing in Franklin County, Ohio. The crossing was surveyed on November 3, 2015 and was found to warrant the upgrade. The electric utility provider for this crossing is American Electric Power Ohio.

The project will be paid for with federal funds and is actual cost. The plans and estimates for the project in the amount of \$215,242.00 have been approved. Construction may commence at once. **Staff requests a Finding & Order with completion of the project in one year.** Staff requests that the following language be incorporated in the Finding & Order:

It is expected that all work necessary for FHWA acceptance of the warning devices will be completed by the in-service due date and that the railroad will be responsible for this work. This work includes, but is not limited to:

- Any ancillary work to make the warning devices function as designed and visible to the roadway user, and
- MUTCD compliance, including minor roadway work if necessary.

Please serve the following parties of record:

CSX Transportation, Inc.
Amanda DeCesare
Project Manager
500 Meijer Drive, Suite 305
Florence, KY 41042

Ohio Rail Development Commission
Cathy Stout
1980 West Broad Street
Mail Stop #3140
Columbus, Ohio 43223

City of Columbus
Renaldo Stargell
Traffic Management
50 W. Gay Street
Columbus, Ohio 43215

Franklin County Engineer
Ted Beidler
Projects Engineer
970 Dublin Road
Columbus, Ohio 43215

AEP Ohio

**OHIO RAIL DEVELOPMENT COMMISSION
INTER-OFFICE COMMUNICATION**

TO: Jill Henry, Rail Division, PUCO
FROM: Cathy Stout, Manager, Safety Section, ORDC
BY: Joe Reinhardt, Project Manager, ORDC
SUBJECT: Franklin County, Kinnear Road, CSX
DOT 228627V, PID 102507
DATE: November 2, 2016

The Ohio Railroad Development Commission established a diagnostic survey at the subject location on Kinnear Road. The Diagnostic Team recommended the improvement of circuitry devices at the grade crossing. Copies of the diagnostic review form and the plan and estimate are attached.

PE has already been provided by the railroad. ORDC approves the site plans and estimates as provided. Please issue a construction-only order for the project outlined above for one year. This construction authorization is made with the stipulation and understanding that any field work needs prior approval before the work begins. This authorization is made with the stipulation and understanding that an approved estimate may contain entries for items or activities that may be cited and found to be ineligible for federal participation during the project audit.

It is expected that all work necessary for FHWA acceptance of the warning devices will be completed by the in-service due date and that the railroad will be responsible for this work. This work includes, but is not limited to:

- any ancillary work to make warning devices function as designed and visible to the roadway user, and
- MUTCD compliance – including minor roadway work if necessary.

Thank you for your assistance with these matters.

Attachment: Diagnostic Review
Plan & Estimate

c: Jill Henry, PUCO
ORDC Project Manager (file)



OHIO RAIL DEVELOPMENT COMMISSION

Mail Stop #3140, 1980 West Broad Street, Columbus OH 43223

John R. Kasich, Governor • Mark Policinski, ORDC Chairman

December 2, 2016

Ms. Amanda DeCesare
Project Manager
500 Meijer Drive, Suite 305
Florence, Ky 41042

RE: Franklin County, Kinnear Road
DOT 228627V, OH1113, PID 102507

Dear Ms. DeCesare:

The plan and estimate dated October 28, 2016, for the referenced project has been reviewed and is acceptable. CSX may proceed with the construction of the proposed grade crossing circuitry upgrade system in accordance with the abbreviated plan. This authorization is made with the stipulation and understanding that the approved estimate may contain entries for items or activities that may be cited and found to be ineligible for federal participation during the project audit. Reimbursement of eligible actual cost is limited to \$215,242. Additional costs must be approved in writing by the ORDC prior to being incurred. Emergency verbal authorizations by ORDC may be permitted and will be confirmed by ORDC in writing within ten (10) business days of the verbal approval.

This authorization is contingent upon CSX accepting the following instructions:

1. CSX's project foreman will furnish written notification five (5) working days prior to the date work will start at the project site to Joseph Reinhardt, ORDC, email Joe.Reinhardt@dot.state.oh.us and to the Public Utilities Commission of Ohio, at George.martin@puc.state.oh.us. CSX's project foreman will also notify the same of any stops and re-starts of the work activity and of the date work was completed for the project.
2. CSX will arrange for utilities to be located at the project site by the Ohio Utilities Protection Service (OUPS) prior to any construction activities at the site. Utilities that are not participating members of the service must be contacted directly by CSX.
3. CSX's project foremen will notify Joe Reinhardt at 614-580-7728 or Joe.Reinhardt@dot.state.oh.us of any changes in the scope of work, cost overruns, material changes, etc. which are not included in the approved plan and estimate and secure approval of same before the work is performed.
4. Open cut of roadways is not permitted except in unusual circumstances and must be coordinated with the local highway authority and preapproved by ORDC.
5. CSX will furnish two (2) copies of each partial bill to ORDC. Please find the enclosed ODOT Purchase Order to reference when billing.



www.rail.ohio.gov

phone: 614.644.0306

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6. CSX will furnish two (2) copies of the final all-inclusive bill to ORDC stating the exact dates of starting and completing work, the initial and final dates of construction and location where the accounts may be audited.
7. This installation will include any ancillary work to make the warning devices function as designed and meet MUTCD.

Thank you for your assistance with these matters.

Sincerely,



Joseph Reinhardt
Project Manager

C: Randall Schumacher, Rail Division Supervisor, PUCO
Jill Henry, Grade Crossing Planner, PUCO
Susan Arduini, ORDC
ORDC (file)

STATE OF OHIO
PURCHASE ORDER
OHIO DEPARTMENT OF TRANSPORTATION

PAGE: 1 of 1

P.O. DATE: 5/10/2016

ODOT P.O. NUMBER: 592090

DOCUMENT CNTE
TYPE:

CHANGE ORDER: RR

OAKS P.O. NUMBER:

PID NUMBER	CONTRACT/BID/OIH		CONTROL BOARD NBR.	DOC. AMOUNT	
102507	DOTC17427-7			\$250,000.00	
PROJECT NBR.	SIB LOAN NBR.	AGREEMENT NBR.	COUNTY	ROUTE	SECTION
			FRA	176	CSX

VENDOR INFORMATION:

NAME: CSX TRANSPORTATION INC

OAKS VENDOR NUMBER: 0000091362

ADDRESS: PO BOX 116651

ADDRESS CODE: 005

CITY, STATE: ATLANTA, GA

ZIP CODE: 30368-6651

DESCRIPTION:

CIRCUITRY UPGRADE OF ACTIVE WARNING DEVICES AT THE CSX TRANS
PORTATION GRADE CROSSING DOT # 228627V. INSTALLATION WILL IN

LINE NBR	FUND	FISCAL YEAR	SAC	SPRC	RCAT	ACTIVITY	ACCOUNT CODE
01	7002	2016	4FP7	0006	NOCC	0071	573067
ELIGIBILITY		FAN		STATE JOB NBR		LINE AMOUNT	
E		DOT1E160 000356		467765		\$250,000.00	

THE DIRECTOR OF BUDGET AND MANAGEMENT HEREBY CERTIFIES THAT THERE IS A BALANCE IN THE APPROPRIATION NOT ALREADY OBLIGATED TO PAY EXISTING OBLIGATIONS IN AN AMOUNT AT LEAST EQUAL TO THE PORTION OF THE CONTRACT, AGREEMENT, OBLIGATION, RESOLUTION OR ORDER TO BE PERFORMED IN THE CURRENT FISCAL YEAR.

**CSX TRANSPORTATION, INC.
FORCE ACCOUNT ESTIMATE**

Page 1

ACCT. CODE : 709 - OH1113

ESTIMATE SUBJECT TO REVISION AFTER: 4/23/2017	DOT NO.: 228627V
CITY: Columbus	COUNTY: Franklin
STATE: OH	
DESCRIPTION: Kinnear Rd. - Circuitry upgrade and 12" LED upgrade to signals.	

DIVISION: Great Lakes	SUB-DIV: Columbus	MILE POST: BED - 11.65
AGENCY PROJECT NUMBER: PID 102507		

PRELIMINARY ENGINEERING:

212 Contracted & Administrative Engineering Services	\$ 4,000
Subtotal	\$ 4,000

CONSTRUCTION ENGINEERING/INSPECTION:

212 Contracted & Administrative Engineering Services	\$ 1,500
Subtotal	\$ 1,500

FLAGGING SERVICE: (Contract Labor)

070 Labor (Conductor-Flagman)	\$ -
050 Labor (Foreman/Inspector)	\$ -
070 Additive 117.39% (Transportation Department)	\$ -
050 Additive 118.86% (Engineering Department)	\$ -
230 Per Diem (Engineering Department)	\$ -
230 Expenses	\$ -
Subtotal	\$ -

<u>SIGNAL & COMMUNICATIONS WORK:</u> (Details Attached)	\$ 209,742
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<u>TRACK WORK:</u> (Details Attached)	\$ -
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<u>PROJECT SUBTOTAL</u>	\$ 215,242
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900 <u>CONTINGENCIES:</u>	\$ -
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GRAND TOTAL *****	\$ 215,242
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DIVISION OF COST:

Agency	100.00%	\$ 215,242
Railroad		\$ -
TOTAL *****		\$ 215,242

NOTE: Estimate is based on FULL CROSSING CLOSURE during work by Railroad Forces.

This estimate has been prepared based on site conditions, anticipated work duration periods, material prices, labor rates, manpower and resource availability, and other factors known as of the date prepared. The actual cost for CSXT work may differ based upon the agency's requirements, their contractor's work procedures, and/or other conditions that become apparent once construction commences or during the progress of the work

Office of Assistant Chief Engineer Public Projects--Jacksonville, Florida

Estimated prepared by: BSE	Approved by: AJD	CSXT Public Project Group
DATE: 10/25/2016	REVISED:	DATE: 10/27/2016

Estimate No. 128619
CSX Transportation

Kinnear Rd. - Circuitry upgrade. Grade Crossing Warning Device Improvement
Columbus, OH

DOT: 228627V

OP: OH1113

CSX Project: OH2016032

Summary

Material	\$ 54,458
Sales Tax	\$ 0
Labor:	
Construction Labor (107 man-days).....	\$ 40,660
Shop Labor (7 man-days).....	\$ 2,660
Subsistence (107 man-days).....	\$ 16,050
Railroad Engineering, Preliminary	\$ 4,457
Railroad Engineering, Construction	\$ 6,099
Additives to Construction Labor	\$ 48,328
Additives to Shop Labor	\$ 3,162
Additives to Track Labor	\$ 0
Additives to Engineering	\$ 0
Equipment Expenses (0 work days).....	\$ 0
Waste Management (21 work days).....	\$ 252
Contract Engineering	\$ 18,650
Freight	\$ 4,467
Poleline Removal	\$ 0
AC Power Service	\$ 2,500
Salvage	\$ -1
VAC TRUCK	\$ 8,000
 TOTAL ESTIMATE COST	 \$ 209,742

Date: 10/11/2016

Estimated By: Michael Vorwaller

NOTE: This estimate should be considered void one year from date of estimate.

Shop Material List for CSX Project: OH2016032 (Effective: 10/11/2016)
KINNEAR RD MP CD-2.82 INSTALL GCP-4000 6X6 AND LED UPGRADE
COLUMBUS, OH - CD 2.82

Catalog Num	Cond	Unit Price	Qty	Cost	Description
020-0017120	1	11.52	6	69.12	BLOCK TERMINAL 12 POST SINGLE STRIP AAR 14.1.6 WITH 1 AAR
020-0017125	1	3.26	6	19.56	BLOCK TERMINAL 2 POST AAR 14.1.8 WITH 1 AAR 14.1.11
020-0018234	1	78.12	1	78.12	CABLE CONVERTER PROTOCOL/MEDIA WAYSIDE ACCESS
020-0021965	1	8.96	1	8.96	EXTRACTOR DWG 59688-4 TERMINAL GRS CAT P3-308 REF
020-0022651	1	106.70	1	106.70	PLUGBOARD KIT TYPE B1 OR ST1 RELAY ASSEMBLY WITH 12 EACH
020-0025595	1	20.72	1	20.72	WRENCH DWG 55393-3 GR1 "E" TERMINAL POST NUT GRS CAT
020-0053360	1	345.00	3	1035.00	CHARGER BATTERY ELC 12/20 D 20 AMP 10-19.9 VDC ROTARY SW
020-0055602	1	11.39	2	22.78	RELAY POTTER BRUMFIELD KHAU17D12-12V 160 OHMS
020-0056514	1	6.05	2	12.10	SOCKET RELAY POTTER & BRUMFIELD 27E894 NEWARK
020-0064060	1	16.12	1	16.12	PLATE RELAY MOUNTING FOR 2 EACH TYPE KHAU OR OCTAL RELAY
020-0167501	1	38.51	24	924.24	ARRESTER HYBRID LOW VOLTAGE,2, 0-30V DC OR 0-24V
020-0660077	1	603.13	1	603.13	ARRESTER GE 9L10KAC213 FOR 240 VOLT SINGLE PHASE 3 WIRE
020-0750090	1	0.11	3	0.33	NUT INSULATED USE ON AAR BINDING POST TERMINAL FOR
020-0770060	1	14.31	12	171.72	ARRESTER US&S N451552-0201 TRACK SERIES RED LABEL USGA
020-0770105	1	22.40	4	89.60	ARRESTER HARMON 202217-000 AGE-1 TRACK AIR GAP EQUALIZER
020-1000354	1	5954.25	1	5954.25	HOUSE SIGNAL 6FT X 6FT WITH PTC UPGRADE PTMW P/N 91000354
020-1940055	1	20.24	1	20.24	CONTAINER TUBE HOLDER CIRCUIT PRINT PLAN 24" SCHD 20 4" PVC
020-2503073	1	1091.71	1	1091.71	MODULE SAFETRAN VHF COMMUNICATOR (A80276-3) USED
020-2503079	1	492.48	2	984.96	MODULE SAFETRAN GROUND FAULT DETECTOR (A80297-2) USED WITH
020-2503081	1	69.04	1	69.04	MODULE SAFETRAN ECHELON TERMINATION UNIT (A80078) USE
020-2503090	1	1081.54	1	1081.54	CONVERTER PROTOCOL/MEDIA WAYSIDE ACCESS GATEWAY (WAG)
020-2503200	1	909.80	1	909.80	KIT SAFETRAN GCP-4000 ILOD PKG. FOR USE WITH SEAR-III
020-2503220	1	14073.70	1	14073.70	PREDICTOR SAFETRAN GCP-4000 2-TRACK DUAL CASE W/RECORDER
020-3430130	1	409.74	1	409.74	RELAY SAFETRAN 400023 500 OHMS CONTACTS 6FB HEAVY DUTY
020-3652615	1	61.32	1	61.32	RESISTOR ADJUSTABLE 0.340 TO 3.00 OHMS 2.24A 15W SAFETRAN

Shop Material List for CSX Project: OH2016032 (Effective: 10/11/2016)
KINNEAR RD MP CD-2.82 INSTALL GCP-4000 6X6 AND LED UPGRADE
COLUMBUS, OH - CD 2.82

Catalog Num	Cond	Unit Price	Qty	Cost	Description
020-4168917	1	0.50	2	1.00	RESISTOR, FIXED .5W, 20W OHM (REPLACEMENT FOR INVENSYS PN
020-4200340	1	1.74	12	20.88	LINK TEST ASSEMBLY 1" CENTERS YELLOW INSULATOR ON OFFSET
020-4200350	1	2.06	9	18.54	LINK TEST ASSEMBLY 2-3/8" CENTERS YELLOW INSULATOR ON
020-4201045	1	0.15	400	60.00	NUT HEX CLAMP (FLAT NUT) AAR 14.1.11-7 14-24 NS-2 THD FLAT
020-8000067	1	14.88	2	29.76	LOCK AMERICAN H10SIGRA CSX SIGNAL PADLOCK WITH BLACK
022-8005160	1	523.80	1	523.80	KIT CDMA AND VHF RADIO MATERIAL FOR USE WITH CSX
028-1120501	1	314.80	3	944.40	DEVICE, VOLTAGE MONITOR, EXTENDED TEMPERATURE RANGE OF
Total Cost: \$				29,432.88	

Field Material List for CSX Project: OH2016032 (Effective: 10/11/2016)
KINNEAR RD MP CD-2.82 INSTALL GCP-4000 6X6 AND LED UPGRADE
COLUMBUS, OH - CD 2.82

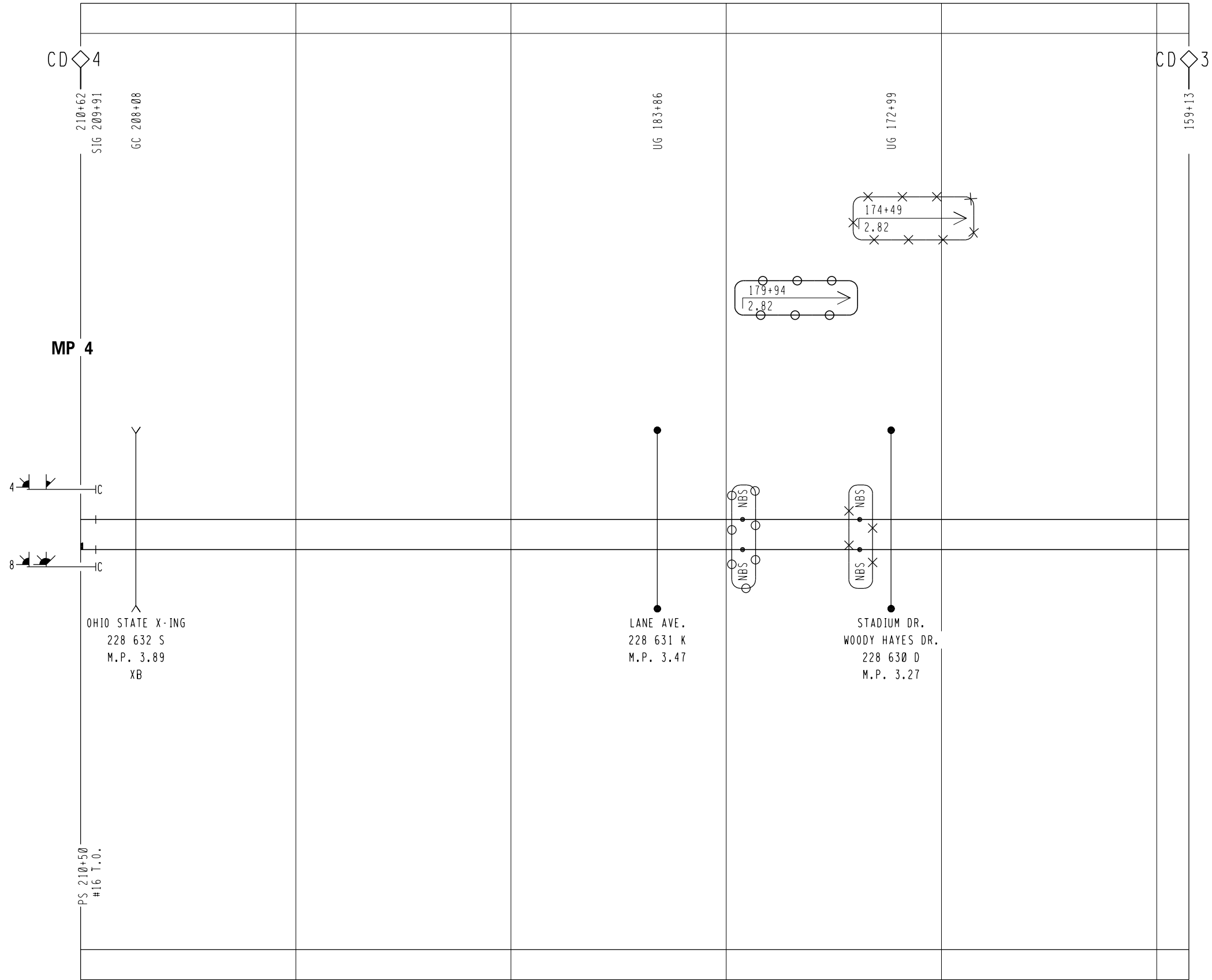
Catalog Num	Cond	Unit Price	Qty	Cost	Description
020-0010447	1	9.83	2	19.66	BOX GROUND ROD CONNECTION ENCLOSURE COMPLETE WITH 7"
020-0013475	1	2.21	16	35.36	CONNECTOR TRACK "CHICKEN HEAD" WITH 3/16" BOND STRAND
020-0013686	1	75.94	4	303.76	BOOTLEG KIT CSX RAIL CONN W/15 FT 3/16 IN BDSTRAND 6/64
020-0013908	1	6.36	600	3816.00	CABLE UG COMPOSITE 19 CONDUCTOR INCLUDES 13
020-0025145	1	395.51	4	1582.04	SHUNT ENCLOSURE WAYSIDE MOUNT ASSEMBLY COMPLETE WITH LOCK
020-0053220	1	2.48	150	372.00	CABLE POWER UG 3 COND NO 6 AWG - SHOW LENGTH ON EACH
020-0054563	1	133.79	2	267.58	GATE LIGHT KIT LED FOR 16' TO 42' GATES INCLUDES 3 EA 4"
020-0056823	1	17.77	1	17.77	TAPE UG RED CABLE MARKER IMPRINT TO READ "CAUTION
020-0057077	1	897.19	2	1794.38	SIGNAL CROSSARM FLX-4000 LED & 2-WAY JB CROSSARM NO
020-0057275	1	1.07	600	642.00	WIRE UG TRACK TWISTED PAIR NO. 6 AWG SOLID CONDUCTOR
020-1040322	1	127.92	20	2558.40	BATTERY SAFT SPL165, 165 AH POCKET PLATE NICKEL CADMIUM
020-1040324	1	186.48	9	1678.32	BATTERY SAFT SPL250, 250 AH POCKET PLATE NICKEL CADMIUM
020-1040540	1	31.36	1	31.36	TRAY BATTERY FIBER CO 82687-1-P 12" WIDTH 24" LONG
020-1040550	1	45.92	3	137.76	TRAY BATTERY FIBER CO 82687-3-P 12" WIDTH 38"
020-1150750	1	1.00	600	600.00	BOND STRAND 3/16" DIA 7 STRANDS OF 19 STR EACH 6 WITH
020-1304014	1	6.14	24	147.36	KIT BOND, CADWELD PLUS WEB OF RAIL BOND 3/16 DIA. 4" LARGE
020-1360014	1	933.66	1	933.66	PACKAGE FOREMANS CARE FOR ALUMINUM TYPICAL BOM FOR USE
020-1360016	1	22.57	1	22.57	PACKAGE SAFETY FOR BURCO CONTAINERS COMPLETE WITH ONE
020-1360104	1	1394.70	1	1394.70	LAYOUT AC METER SERVICE WITH 30' POLE CSX DWG SS351 SH 2
020-2500615	1	301.96	4	1207.84	SHUNT SAFETRAN 62775-156 NARROW BAND 156HZ
020-2530287	1	247.52	4	990.08	FILTER EPC 800-080055-103 TF-156
020-3920200	1	178.76	1	178.76	BELL GCWD ELECTRONIC 4" OR 5" MAST 8 TO 13 VOLTS DC GSI PN
020-4200340	1	1.74	25	43.50	LINK TEST ASSEMBLY 1" CENTERS YELLOW INSULATOR ON OFFSET
020-4200900	1	0.17	6	1.02	CONNECTOR SHEATHING AMP 329860 FOR NO. 14 WIRE
020-4201042	1	0.13	20	2.60	NUT HEX BINDING (RSA NUT) AAR 14.1.11-6 14-24 NS-2 THD CONE

Field Material List for CSX Project: OH2016032 (Effective: 10/11/2016)
KINNEAR RD MP CD-2.82 INSTALL GCP-4000 6X6 AND LED UPGRADE
COLUMBUS, OH - CD 2.82

Catalog Num	Cond	Unit Price	Qty	Cost	Description
020-4201043	1	0.09	150	13.50	NUT HEX CLAMP (FLAT NUT) AAR 14.1.11-7 14-24 NS-2 THD FLAT
020-4201044	1	0.08	100	8.00	WASHER AAR 14.1.11 ROUND COPPER NICKEL PLATED FOR AAR
020-7300030	1	189.28	1	189.28	BRACKET BELL FITS SAFETRAN JUNCTION BOX MOUNT, 5" BENT
020-9999991	1	100.00	1	100.00	BLOCKING AND BRACING FOR PROJECTS BURCO DIST
250-0001836	1	15.21	1	15.21	BREAKER CIRCUIT SQ D QO260
250-0012228	1	3.70	3	11.10	TAPE BLACK ELECTRIC 3/4" X 66' 3M "SUPER 33 PLUS"
360-0006100	1	35.07	1	35.07	STOOL STEP WOOD 14"X 20" SIGNAL MAINTAINERS CSXT
360-0800145	1	7.54	1	7.54	BROOM WAREHOUSE CORN HVY DUTY 1-1/8" DIA HANDLE
470-0060313	1	29.97	1	29.97	FOAM SEALANT CF812 FOR HILTI CP120-P2 DISPENSER SINGLE 23
Total Cost: \$				19,188.15	

Consumables List for CSX Project: OH2016032 (Effective: 10/11/2016)
KINNEAR RD MP CD-2.82 INSTALL GCP-4000 6X6 AND LED UPGRADE
COLUMBUS, OH - CD 2.82

Catalog Num	Cond	Unit Price	Qty	Cost Description
N/A		50.00	30	1500.00 FILL MATERIAL, 1 CUBIC YARD
N/A		500.00	1	500.00 RAVEN AIR-LINK
N/A		800.00	1	800.00 WALKWAY ROCK, 10 CUBIC YARDS
020-0017605	1	0.28	350	98.00 WIRE CASE 10 AWG FLEX CSX SPEC SS796 OKONITE P/N
020-0017607	1	0.70	500	350.00 WIRE CASE TW PR NO 10 AWG FLEX CSX SPEC SS796 TWIST 2
020-0017625	1	0.44	150	66.00 WIRE CASE TWISTED PAIR AWG #14 FLEX TWIST 2 TURNS PER FT
020-0017630	1	0.13	200	26.00 WIRE CASE NO 16 AWG FLEX CSX SPEC SS796 FURN 1000 FT SPOOL
020-0017636	1	0.77	130	100.10 WIRE SIGNAL AWG 6 STRANDED COPPER, T&C BLUE, FOR BATTERY
020-0028610	1	0.23	100	23.00 TERMINAL RING PANDUIT PN12-14HDR-D YELLOW NYLON HVY
020-0053510	1	208.13	1	208.13 KIT 240V AC EMERGENCY GENERATOR CABLE AND
020-1360540	1	71.65	1	71.65 BREAKER MAIN/GENERATOR BACKFEED RETAINING GENERATOR
020-1710045	1	2.42	800	1936.00 CONDUIT SDR 13.5 4" ORANGE POLYETHYLENE TRENCHLESS
020-3261970	1	9.41	2	18.82 DECAL (DO NOT ORDER, CALL SIGNAL SHOP) ASSY 2" BLACK
020-4200880	1	0.53	2	1.06 CONNECTOR TERMINAL 2-3/8" CENTERS AAR 14.1.15-4 NICKEL
020-4200892	1	0.44	27	11.88 CONNECTOR TERMINAL 1" CENTERS AAR 14.1.15-3 NICKEL PLATED
020-4251190	1	0.14	120	16.80 TERMINAL RING PANDUIT PV10-14RD YELLOW VINYL SIZE
020-4251290	1	0.53	30	15.90 TERMINAL RING PANDUIT PV6-14R-T BLUE VINYL SIZE 6
020-4251295	1	0.53	6	3.18 TERMINAL RING PANDUIT PV6-38R-T BLUE VINYL SIZE 6
020-9999992	1	50.00	1	50.00 HOUSE SIGNAL HANDLING CHARGE BURCO DISTRIBUTION
450-0019212	1	0.40	100	40.00 SCREW 10 X 1" SHT METAL PAN HD TYPE A COARSE THREAD
Total Cost: \$				5,836.52



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× × × = OUT

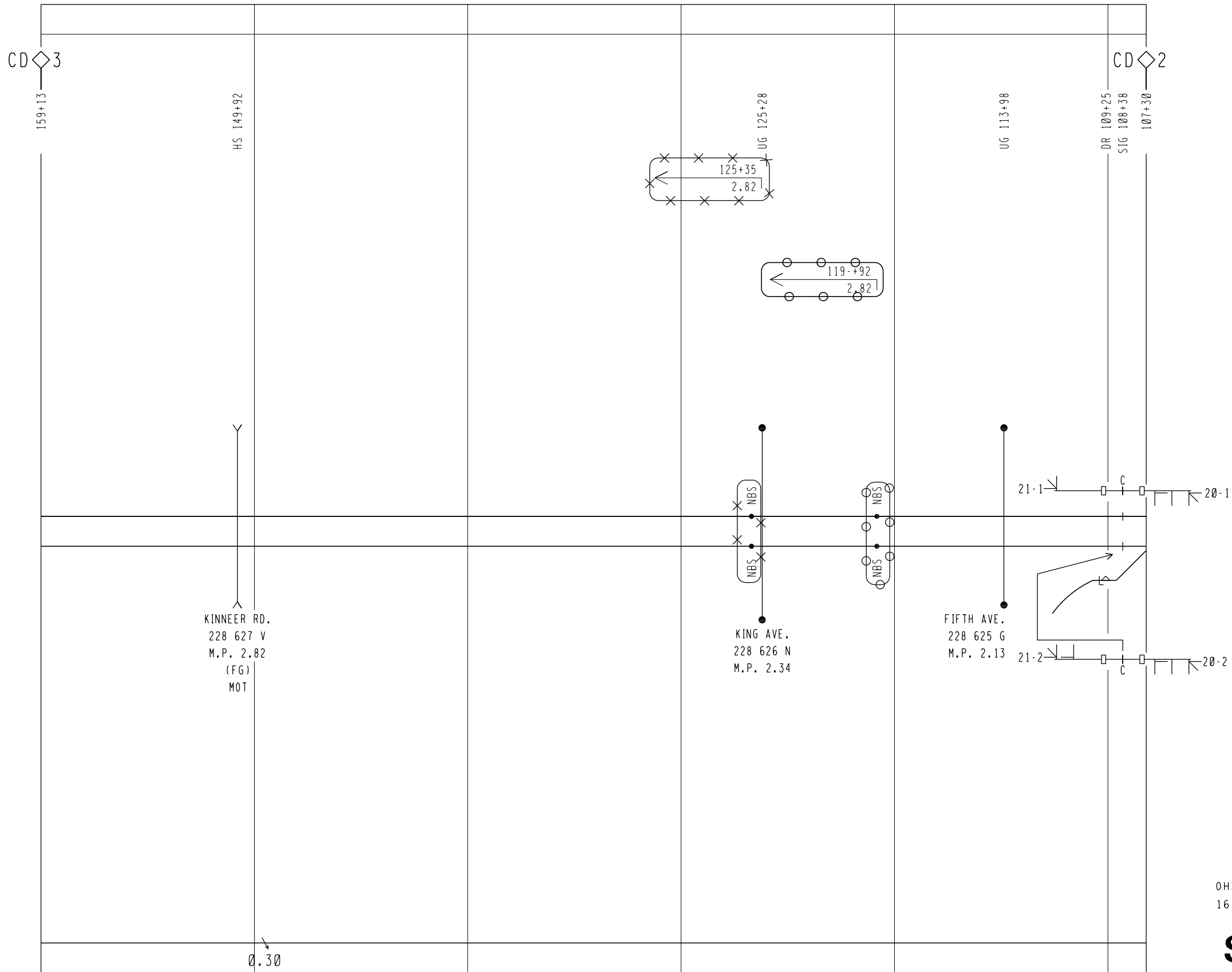
0H2016032
16-471CSX


Signal South

SSE /WGM /RCC
09-21-16

REVISIONS
07-01-16 IRS
0H2015094
0H2015017
0H2015017A

TRACK PLAN HORIZONTAL SCALE: 1 INCH = 500 FEET				 RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
DESIGNED CSX	DIGITIZED IRS/MAX	CHECKED IRS/RFC	DATE 07-01-16	NEXT FILE CD00200	NEXT SH T01	FILE CD00300	SHEET T01



○ ○ ○ = IN
× × × = OUT

0H2016032
16-471CSX

SSE /WGM/RCC
09-21-16



Signal South

REVISIONS	07-01-16 IRS 0H2012094							TRACK PLAN HORIZONTAL SCALE: 1 INCH = 500 FEET		CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
	DESIGNED	DIGITIZED	CHECKED	DATE	NEXT FILE	NEXT SH	FILE	SHEET					
	CSX	IRS/MAX	IRS/RFC	07-01-16	CD00100	T01	CD00200	T01					

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S01	TRACK AND SIGNAL PLAN	X	X	X						
P01	ELECTROLOGIXS PROGRAM	X	X	X						
E01	POWER DISTRIBUTION	X								
E02	RELAY DETAIL AND TRACK CIRCUITS	X								
E03	RACK 1 LAYOUT	X		X						
E04	ELECTROLOGIXS MODULE CONFIGURATION	X		X						
C01	ELECTROLOGIXS CIRCUITS	X								
C02	OFFICE COMMUNICATION CIRCUITS	X								
C03	ELECTROLOGIXS TRACK CIRCUITS	X	X	X	Ø					
C04	SIGNAL 2 LIGHTING CIRCUITS	X								
C05	SIGNAL 6 LIGHTING CIRCUITS	X								
C06	SIGNALS 4 AND 8 LIGHTING CIRCUITS	X								
C07	ELECTROLOGIXS I/O CIRCUITS	X		X						
C08	SWITCH 1 CIRCUITS	X		X						
C09	WAGO TERMINAL BOARDS	X		X						
C10	LOCAL CONTROL PANEL LAYOUT	X		X						
C11	LOCAL CONTROL AND EXPANSION PANELS	X	X	X						
C12	LOCAL CONTROL AND EXPANSION PANEL I/O CARDS	X		X						

= DESIGN COMPLETED

= REVISION COMPLETED

REVISIONS				
REV. NO.	PROJECT NO.	DESIGN DATE	IN SERVICE DATE	REVISION DATE
1	0H2013017	08-16-13	02-02-16	07-01-16
2	0H2012094	05-27-14	02-02-16	07-01-16
3	0H2013017A	09-01-15	02-02-16	07-01-16
4	0H2016032	09-21-16		

TO BE COMPLETED
ON A.I.S.

= NOTE

= IN

= OUT

0H2016032
16-471CSX



SSE /WGM/RCC
09-21-16

Signal South

CSXTRANSPORTATION

RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

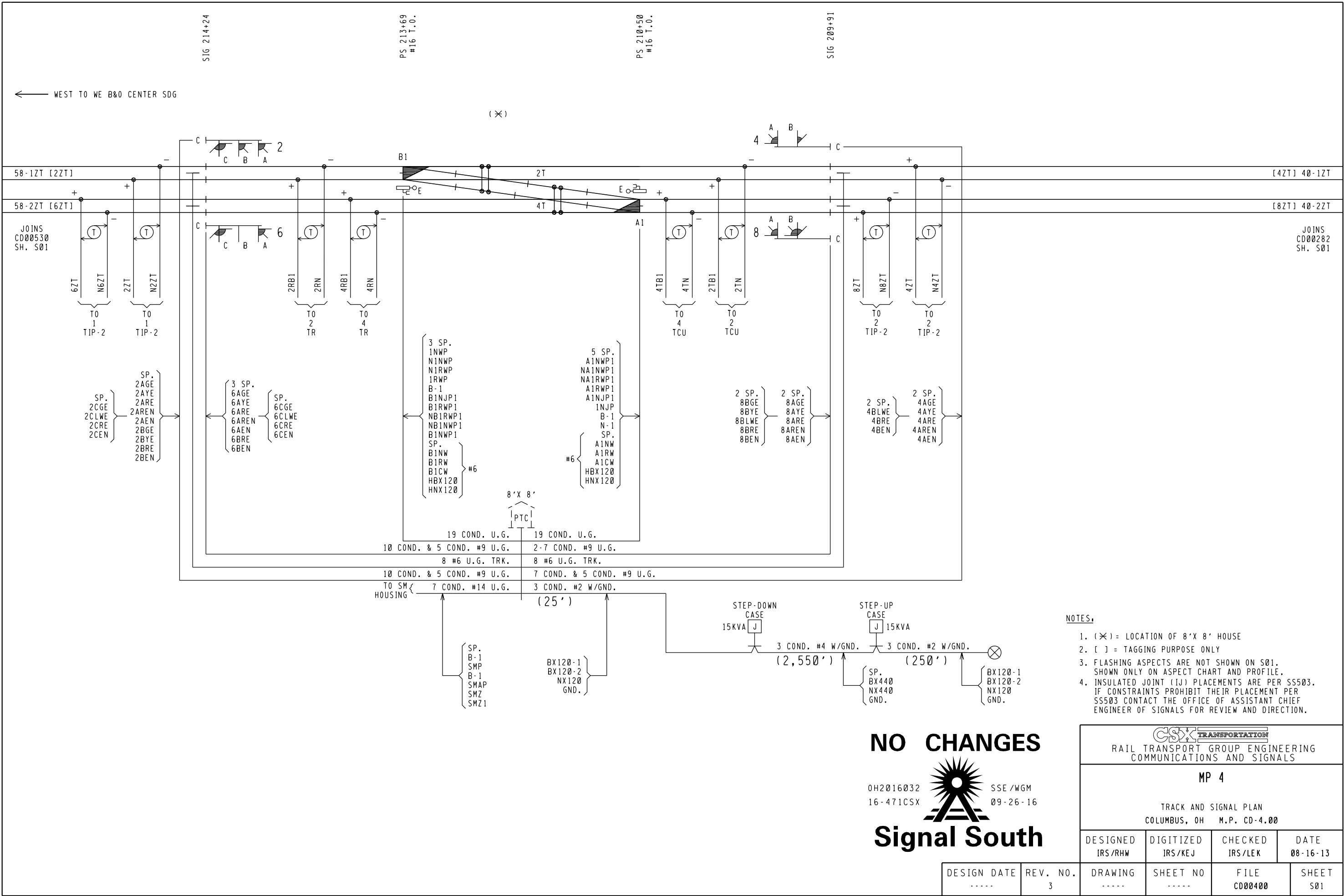
MP 4

INDEX AND REVISIONS
COLUMBUS, OH M.P. CD-4.00

DESIGNED IRS/RHW	DIGITIZED IRS/KEJ	CHECKED IRS/LEK	DATE 08-16-13
DRAWING	SHEET NO	FILE CD00400	SHEET 101

09-21-16Ø

4Ø



OFFICE SETTINGS	
ITEM	SETTING
LOCATION ID	CD-4.00 CP MP 4 GIS SITE ID 25411510
CHASSIS ID	00

VITAL APPLICATION INFORMATION	
ITEM	SETTING
NAME	mp4_9sltv
INDEX	001
EPT CRC	89E4
EPT CHECKSUM	A53F

NON-VITAL APPLICATION INFORMATION	
ITEM	SETTING
NAME	mp4_9sltnv
INDEX	001
EPT CRC	B85B
EPT CHECKSUM	B3E9

SERIAL PORT 1 OFFICE SETTINGS	
ITEM	SETTING
OFFICE PROTOCOL	GENISYS
FLOW CONTROL	DISABLED
BAUD RATE	1200
STOP BITS	1
PARITY	NONE
CONTROL LATCHING	DISABLED
CONSTANT INDICATION	DISABLED
SECURE POLL	DISABLED
INDICATION DELAY	0.0
CTS TIMEOUT	1.0
MESSAGE TIMEOUT	10
INDICATION WORDS	6
UNIT ADDRESS	36
TRANSMISSION DELAY	50
TRANSMISSION CUTOFF	20

ETHERNET SETTINGS	
ITEM	SETTING
IP ADDRESS 1	192.168.0.11
SUBNET MASK 1	255.255.255.0
IP ADDRESS 2	10.53.12.114
SUBNET MASK 2	255.255.255.224
DEFAULT GATEWAY	10.53.12.97

C10-1A DIAGNOSTIC PORT SETTINGS	
ITEM	SETTING
BAUD RATE	9600
PARITY	NONE
DATA BITS	8
STOP BITS	1
FLOW CONTROL	DISABLED

SERIAL PORT 2 LCP SETTINGS	
ITEM	SETTING
LCP ENABLE	ENABLED

VITAL TIMERS	
NAME	SETTING
2TER	6 MIN 59 SEC
4TER	4 MIN 23 SEC
6TER	6 MIN 59 SEC
8TER	4 MIN 23 SEC
2TPER	00 MIN 15 SEC
4TPER	00 MIN 15 SEC

EQUIPMENT TIMERS	
1WOTER	00 MIN 30 SEC

FIELD SELECTABLE SWITCH OVERLOAD TIMER
10 SECONDS FOR HIGH VOLTAGE MACHINE
30 SECONDS FOR LOW VOLTAGE MACHINE

ADDRESS TYPE	RAILROAD ID NUMBER				CODE LINE ADDRESS			STATION ADDRESS			SUB DEVICE		INTERNAL DEVICE	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
	7	1	2	5	1	6	4	0	3	6	0	2	0	2

GFD-1 SETTINGS	
ITEM	SETTING
BATTERY 1 NAME	B-1
BATTERY 1 FAULT STATUS	NO FAULT
BATTERY 1 CALIBRATED VOLTAGE	13.5
BATTERY 1 GROUND FAULT THRESHOLD	8
BATTERY 1 GROUND FAULT TIME	30
BATTERY 1 LOW BATTERY ALARM VOLTAGE	8.0
BATTERY 1 HIGH BATTERY ALARM VOLTAGE	16.5
BATTERY 2 NAME	B-2
BATTERY 2 FAULT STATUS	NO FAULT
BATTERY 2 CALIBRATED VOLTAGE	13.5
BATTERY 2 GROUND FAULT THRESHOLD	8
BATTERY 2 GROUND FAULT TIME	30
BATTERY 2 LOW BATTERY ALARM VOLTAGE	8.0
BATTERY 2 HIGH BATTERY ALARM VOLTAGE	16.5
BATTERY 3 NAME	BATTERY 3
BATTERY 3 FAULT STATUS	BATTERY NOT CONNECTED
BATTERY 3 CALIBRATED VOLTAGE	13.5
BATTERY 3 GROUND FAULT THRESHOLD	8
BATTERY 3 GROUND FAULT TIME	30
BATTERY 3 LOW BATTERY ALARM VOLTAGE	8.0
BATTERY 3 HIGH BATTERY ALARM VOLTAGE	16.5

NOTES,
✖ = STATUS SET/CHANGED USING THE CDU-1,
ALL OTHERS SET IN THE ACE PROGRAM.

NO CHANGES

0H2016032
16-471CSX

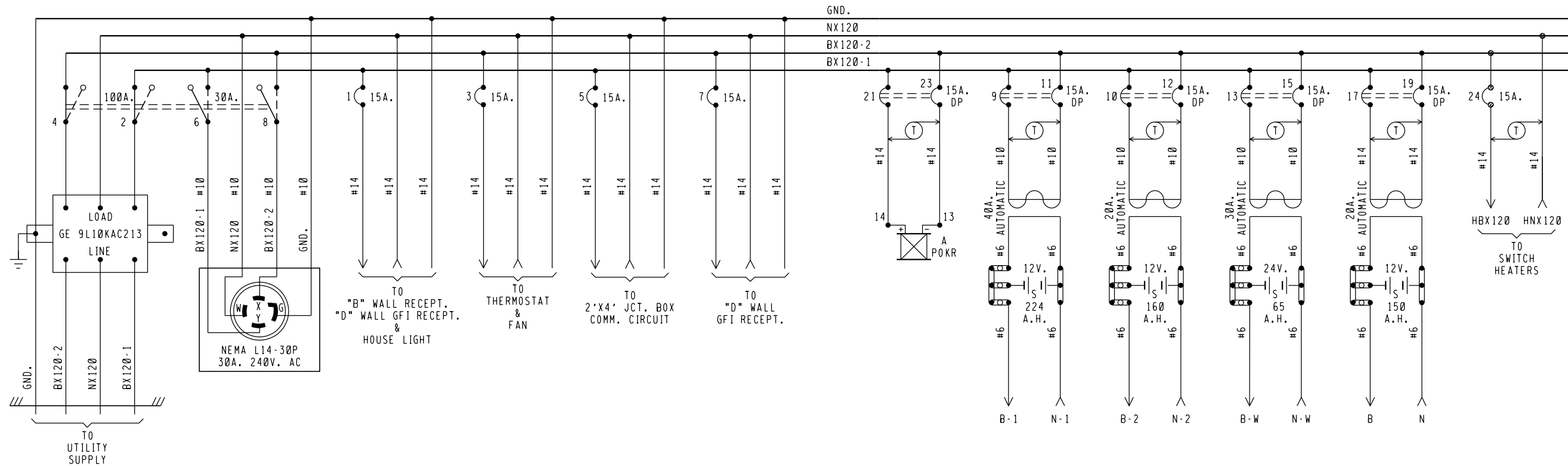
SSE /WGM
09-26-16



Signal South

8'X 8' PTC RELAY HOUSE

CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
MP 4			
ELECTROLOGIXS PROGRAM COLUMBUS, OH M.P. CD-4.00			
DESIGNED IRS/RHW	DIGITIZED IRS/KEJ	CHECKED IRS/LEK	DATE 08-16-13
DESIGN DATE -----	REV. NO. 3	DRAWING -----	SHEET NO -----
FILE CD00400		SHEET P01	



BX120-1	BX120-2
25.0 AMPS	28.0 AMPS

MAXIMUM LOAD
CALCULATED PER SS360

- NOTES.
- 1 - REFERENCES ARE PER SCMS-13.
 - 2 - ARRESTERS ARE PER SS382.
 - 3 - SHELF RELAY PLACEMENT ON CONSIST CHART HAS NO SIGNIFICANCE.
 - 4 - PLUG-IN RELAYS ARE VIEWED FROM THE FRONT OF RACK.
 - 5 - BATTERY A.H. CAPACITY SHOWN IS THE MINIMUM REQUIREMENT.
 - 6 - WIRING
 - A - FEED TO ALL BUSSES, LIGHT CIRCUITS, MOTOR CIRCUITS TO BE #10 FLEX.
 - B - 120-VOLT FEED FROM ENTRANCE TO POWER BUSS TO BE #10 FLEX.
 - C - ALL TRACK WIRES TO BE #10 FLEX.
 - D - ALL OTHERS TO BE #16 FLEX UNLESS NOTED.
 - E - ALL BATTERY OUTPUTS TO BE #6 PER SS360.
 - F - GROUND WIRE NOT NECESSARY WHEN GE ARRESTER IS MOUNTED ON GROUND PLANE OR METAL ENCLOSURE AFFIXED DIRECTLY TO BUNGALOW METALLIC STRUCTURAL MEMBER.
 - 7 - CIRCUIT INTERRUPTERS 2 & 4 ARE MECHANICALLY INTERLOCKED WITH CIRCUIT INTERRUPTERS 6 & 8.
 - 8 - CHARGERS TO BE WIRED FOR 240VAC
 - 9 - CIRCUIT BREAKER PANEL - Q0124L125G (24 SPACES)

NO CHANGES



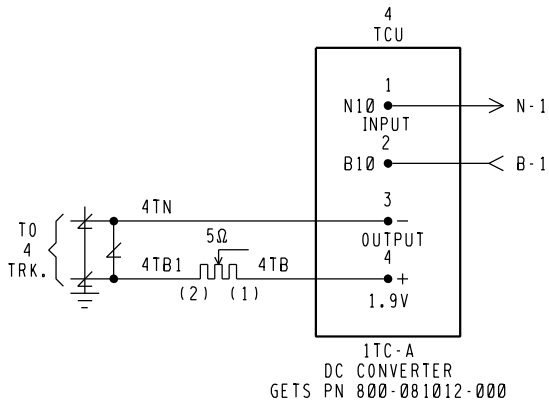
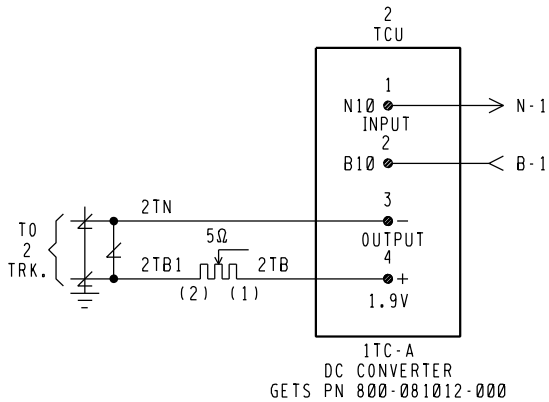
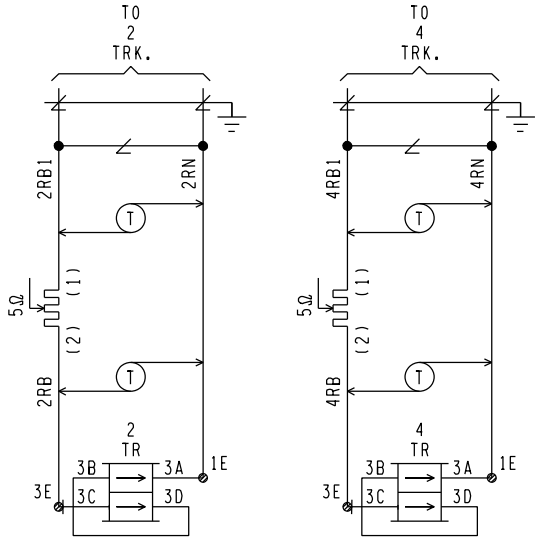
0H2016032 16-471CSX SSE /WGM 09-26-16

8'X 8' PTC RELAY HOUSE

CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
MP 4			
POWER DISTRIBUTION COLUMBUS, OH M.P. CD-4.00			
DESIGNED IRS/RHW	DIGITIZED IRS/KEJ	CHECKED IRS/LEK	DATE 08-16-13
DESIGN DATE -----	REV. NO. 1	DRAWING -----	SHEET NO -----
FILE CD00400		SHEET E01	

ELECTROLOGIXS RACK					
A1NWR	A1RWR	2VSTOP	4VSTOP	2TR	4TR
13 B B45	13 B B45	12 FB B77	12 FB B77	12 B51	12 B51
14 F C30	14 F C30	15 F C30	15 F C30	15 C30	15 C30
33 B	33 B	22 F	22 F	22 F	22 F
34 F	34 F	25	25	23 F	23 F
		32 F	32 F	25 F	25 F
		35 F	35 F	32	32
				35	35
B1NWR	B1RWR	2VSTOPP	6VSTOP	8VSTOP	
13 B B45	13 B B45	12 F B77	12 FB B77	12 FB B77	
14 F C30	14 F C30	15 C30	15 F C30	15 F C30	
33 B	33 B	22	22 F	22 F	
34 F	34 F	25	25 F	25	
		32 F	32 F	32 F	
		35 F	35 F	35 F	

P0KR			
9 F 11			
10 12	N68		
	C48		
WALL MOUNTED			



NO CHANGES

0H2016032 SSE /WGM
16-471CSX 09-26-16



8'X 8' PTC RELAY HOUSE

CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
MP 4			
RELAY DETAIL AND TRACK CIRCUITS COLUMBUS, OH M.P. CD-4.00			
DESIGNED IRS/RHW	DIGITIZED IRS/KEJ	CHECKED IRS/LEK	DATE 08-16-13
DESIGN DATE	REV. NO. 1	DRAWING	SHEET E02

A

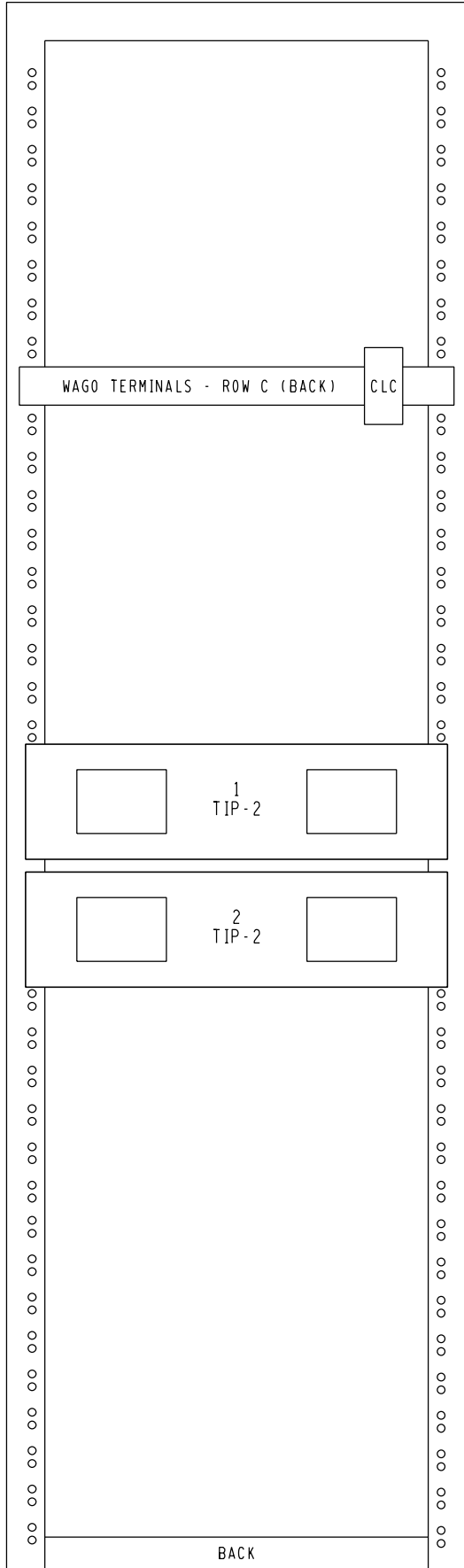
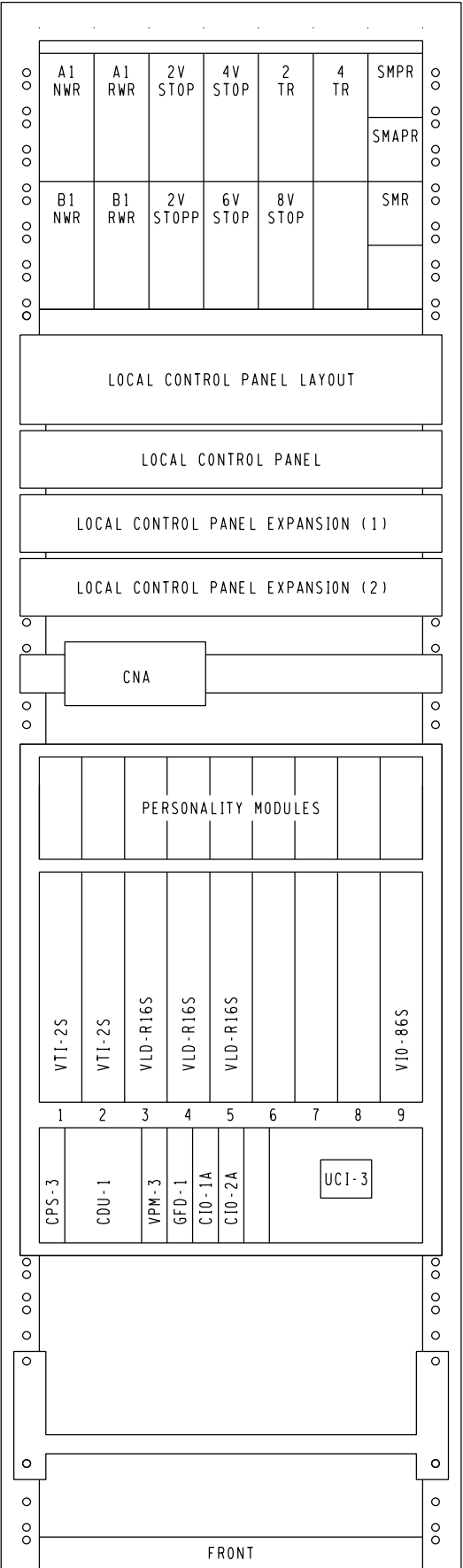
B

D

E

F

ELECTROLOGIXS RACK



C

BACK

ELECTROLOGIXS EQUIPMENT RACK 84" X 19"			
REF.	DESCRIPTION	P/N	QTY
---	ASSY RACK 19" CSX		1 EA.
A-B	RLY B1 PLBD KIT NO FLAG	007062-003	11 EA.
A-B	KIT RLY FL E-POST MOD	005634-000	11 EA.
A-B	RLY 160 OHM 4 PDT 12VDC	007103-005	3 EA.
A-B	SOCKET RLY 4 POLE SCREW	032350-4004	3 EA.
A-B	PNL B1 W/2 PB RELAY MTG	124694-000	2 EA.
A-B	BAR MTG 19" W/BLU PAINT	122272-001	3 EA.
A-B	TIE BAR RELAY 19" W/BLU PAINT	123160-002	2 EA.
(C) 1-50	WAGO TERMINALS BLOCK ASSY	202292-058	1 EA.
(C)	CURRENT LOOP CONVERTER (CLC)	203051-000	1 EA.
(C)	CABLE (CIO-2A TO CLC)	203128-101	1 EA.
(C)	CABLE (CLC TO LCP CPU)	201876-010	1 EA.
(C)	DIN RAIL 35 X 7.5 FOR 19" RACK	124422-000	1 EA.
C	TIP-2	800-096000-011	2 EA.
ROW C	TIP-2 CABLE 8'	814-096000-017	2 EA.
ROW D	SYSTEM LCP	250726-000	1 EA.
ROW D	LOCAL CONTROL PANEL EXPANSION UNIT	250726-001	2 EA.
ROW D	COMMUNICATIONS NETWORK ADAPTER (CNA)	SUPPLIED BY CSX	1 EA.
ROW E	ELECTROLOGIXS CHASSIS	300752-000	1 EA.
E1-E2	VTI-2S PERSONALITY MODULE	227442-000	2 EA.
E1-E2	VTI-2S MODULE	251123-000	2 EA.
E3-E5	VLD-R16S PERSONALITY MODULE	227539-000	3 EA.
E3-E5	VLD-R16S MODULE	251381-000	3 EA.
E9	VIO-86S PERSONALITY MODULE	227537-000	1 EA.
E9	VIO-86S MODULE	251380-000	1 EA.
ROW E	CPS-3 MODULE	251456-000	1 EA.
ROW E	CDU-1	251124-000	1 EA.
ROW E	VPM-3 MODULE	251432-100	1 EA.
ROW E	GFD-1 MODULE	251333-000	1 EA.
ROW E	CIO-1A MODULE	251329-000	1 EA.
ROW E	CIO-2A MODULE	251330-000	1 EA.
ROW E	UCI-3 MODULE	251495-000	1 EA.

NO CHANGES

0H2016032
16-471CSX



SSE /WGM
09-26-16

Signal South

8'X 8' PTC RELAY HOUSE



RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

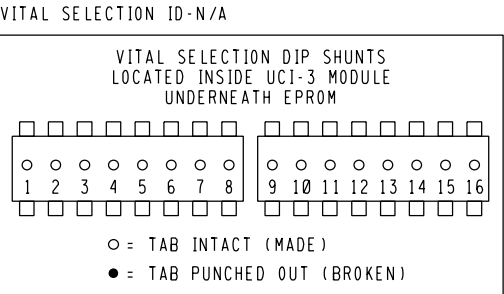
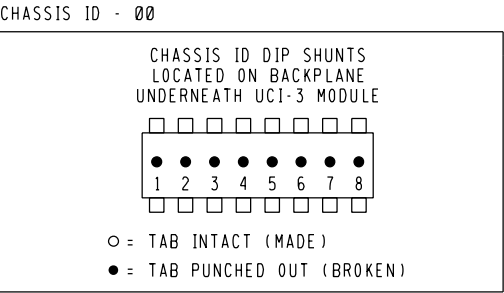
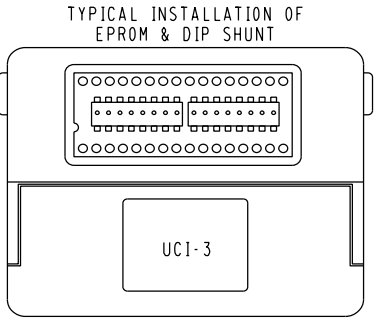
MP 4

RACK 1 LAYOUT
COLUMBUS, OH M.P. CD-4.00

DESIGNED IRS/RHW	DIGITIZED IRS/KEJ	CHECKED IRS/LEK	DATE 08-16-13
DESIGN DATE -----	REV. NO. 3	DRAWING -----	SHEET E03



C10-1A MODULE DIAGNOSTIC AND OFFICE PORT PIN ASSIGNMENT		
PIN	SIGNAL	SIGNAL NAME
1	CD	CARRIER DETECT
2	RX	RECEIVE DATA
3	TX	TRANSMIT DATA
4	DTR	DTE
5	GND	COMMON SIGNAL RETURN
6	DSR	DCE
7	RTS	REQUEST TO SEND
8	CTS	CLEAR TO SEND
9	RI	RING INDICATOR



8'X 8' PTC RELAY HOUSE



RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

MP 4

ELECTROLOGIXS MODULE CONFIGURATION
COLUMBUS, OH M.P. CD-4.00

DESIGNED IRS/RHW	DIGITIZED IRS/KEJ	CHECKED IRS/LEK	DATE 08-16-13
DESIGN DATE -----	REV. NO. 3	DRAWING -----	SHEET NO -----
FILE CD00400		SHEET E04	

MODULE LEGEND.

CDU-1 = CONTROL DISPLAY UNIT
CPS-3 = CENTRAL POWER SUPPLY
VPM-3 = VITAL PERIPHERAL MASTER
GFD-1 = GROUND FAULT DETECTOR
C10-1A = COMMUNICATION INPUT/OUTPUT
C10-2A = COMMUNICATION INPUT/OUTPUT
C10-MDA = COMMUNICATION INPUT/OUTPUT
UCI-3 = CHASSIS INFORMATION
VTI-2S = VITAL TRACK INTERFACE
VLD-R16S = VITAL LAMP DRIVER
VIO-86S = VITAL INPUTS/OUTPUTS
C10-CLA = COMMUNICATION INPUT/OUTPUT - CLA

NO CHANGES

0H2016032
16-471CSX

SSE /WGM
09-26-16



Signal South

DESIGN DATE

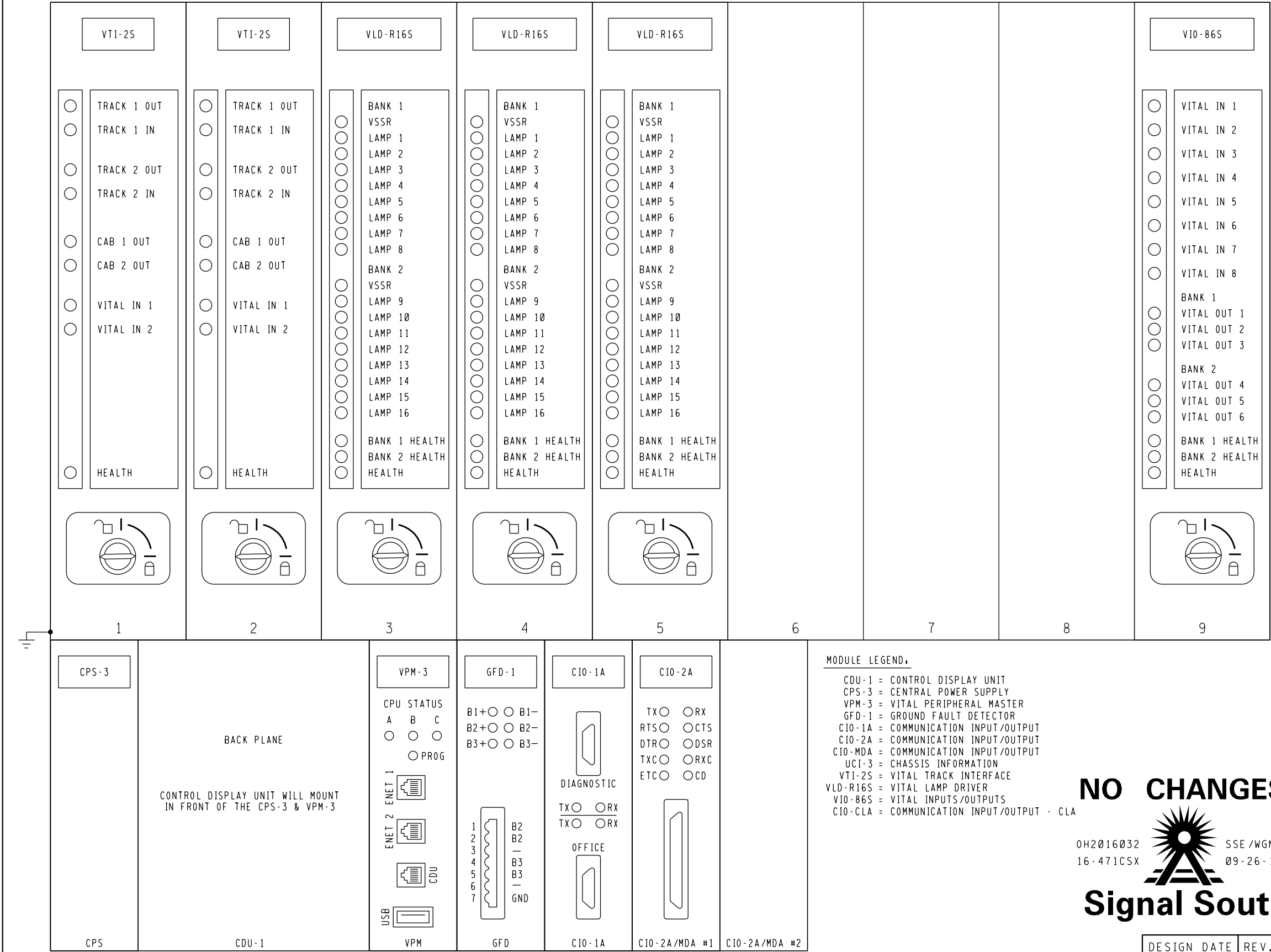
REV. NO.
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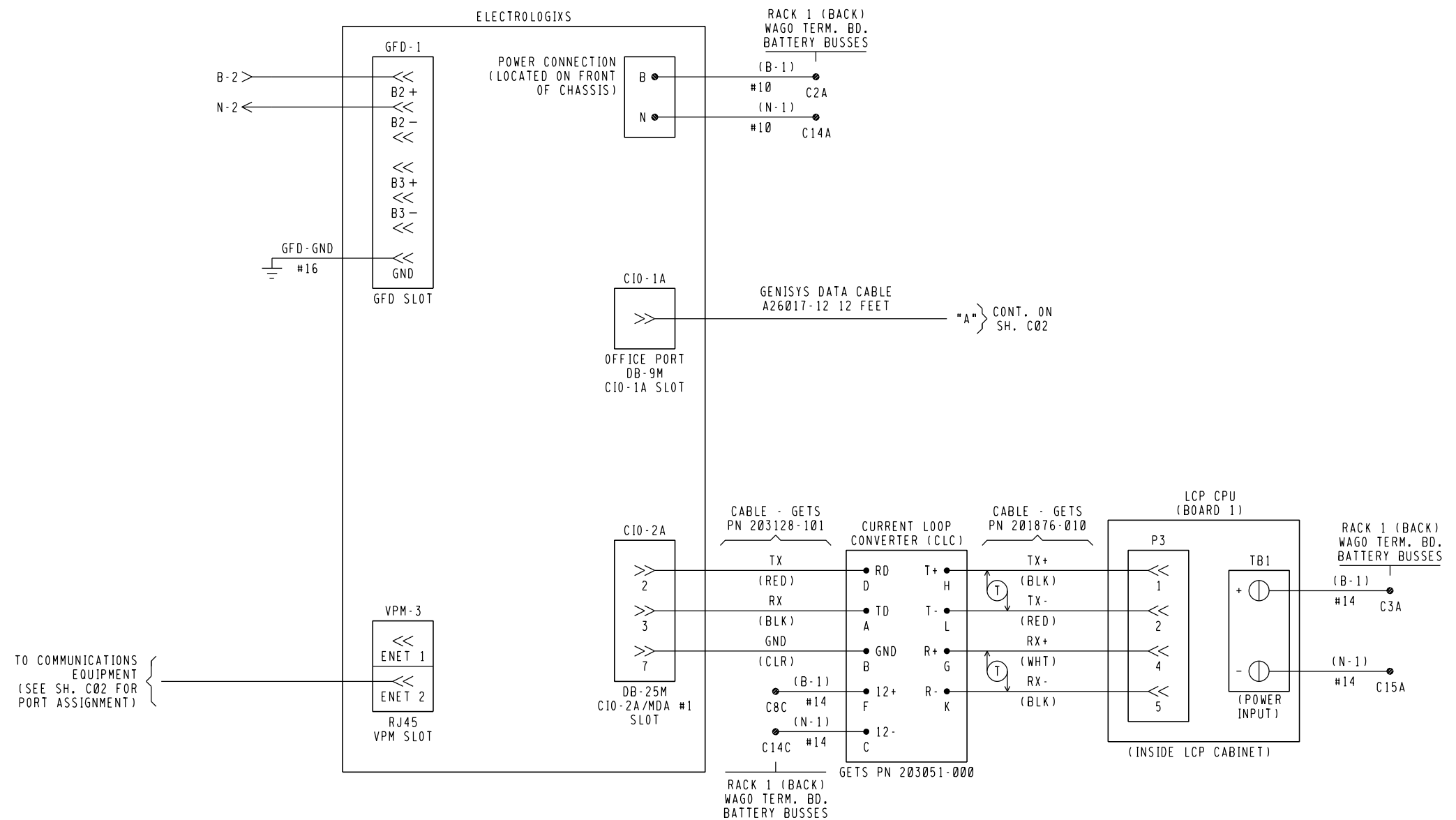
DRAWING

SHEET NO

FILE
CD00400

SHEET
E04





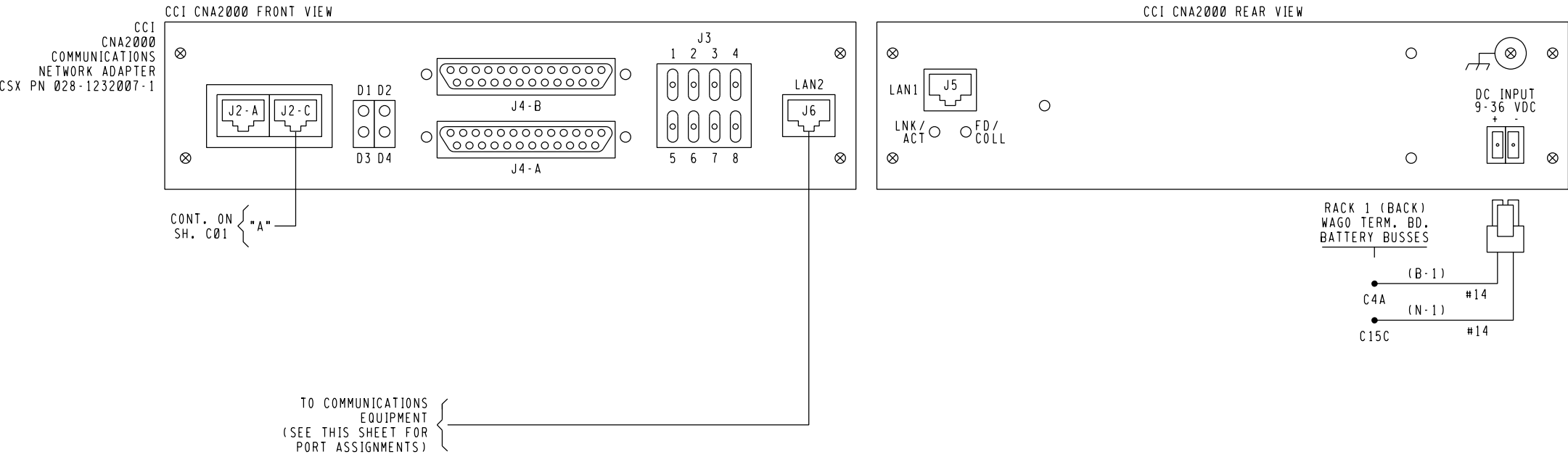
- NOTES,
- CABLE CAT 6 PATCH MOLDED SNAGLESS YELLOW 20 FEET, CSD PN 10-5075-00-20 SH (CSX PN 020-0750020-1)

NO CHANGES



0H2016032 16-471CSX SSE /WGM 09-26-16

8'X 8' PTC RELAY HOUSE					
CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS					
MP 4					
ELECTROLOGIXS CIRCUITS COLUMBUS, OH M.P. CD-4.00					
DESIGNED IRS/RHW	DIGITIZED IRS/KEJ	CHECKED IRS/LEK	DATE 08-16-13		
DESIGN DATE -----	REV. NO. 1	DRAWING -----	SHEET NO -----	FILE CD00400	SHEET C01



NOTES.

1. CABLE CAT 6 PATCH MOLDED YELLOW
20 FEET. CSD PN 10-5075-00-20 SH
(CSX PN 020-0750020-1)

8'X 8' PTC RELAY HOUSE

CSX TRANSPORTATION			
RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
MP 4			
OFFICE COMMUNICATION CIRCUITS COLUMBUS, OH M.P. CD-4.00			
DESIGNED IRS/RHW	DIGITIZED IRS/KEJ	CHECKED IRS/LEK	DATE 08-16-13
DESIGN DATE -----	REV. NO. 1	DRAWING -----	SHEET NO -----
FILE CD00400		SHEET C02	

ETHERNET SWITCH PORT ASSIGNMENTS

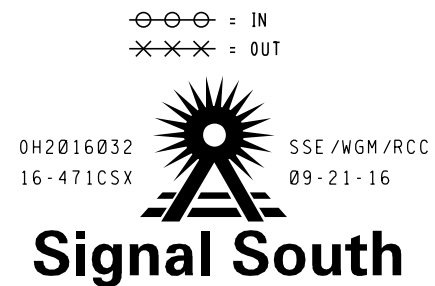
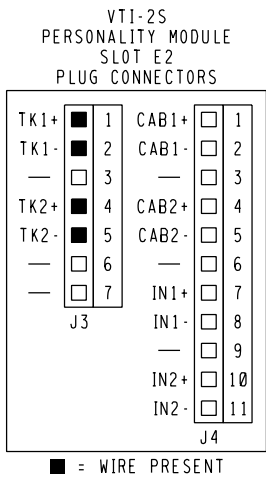
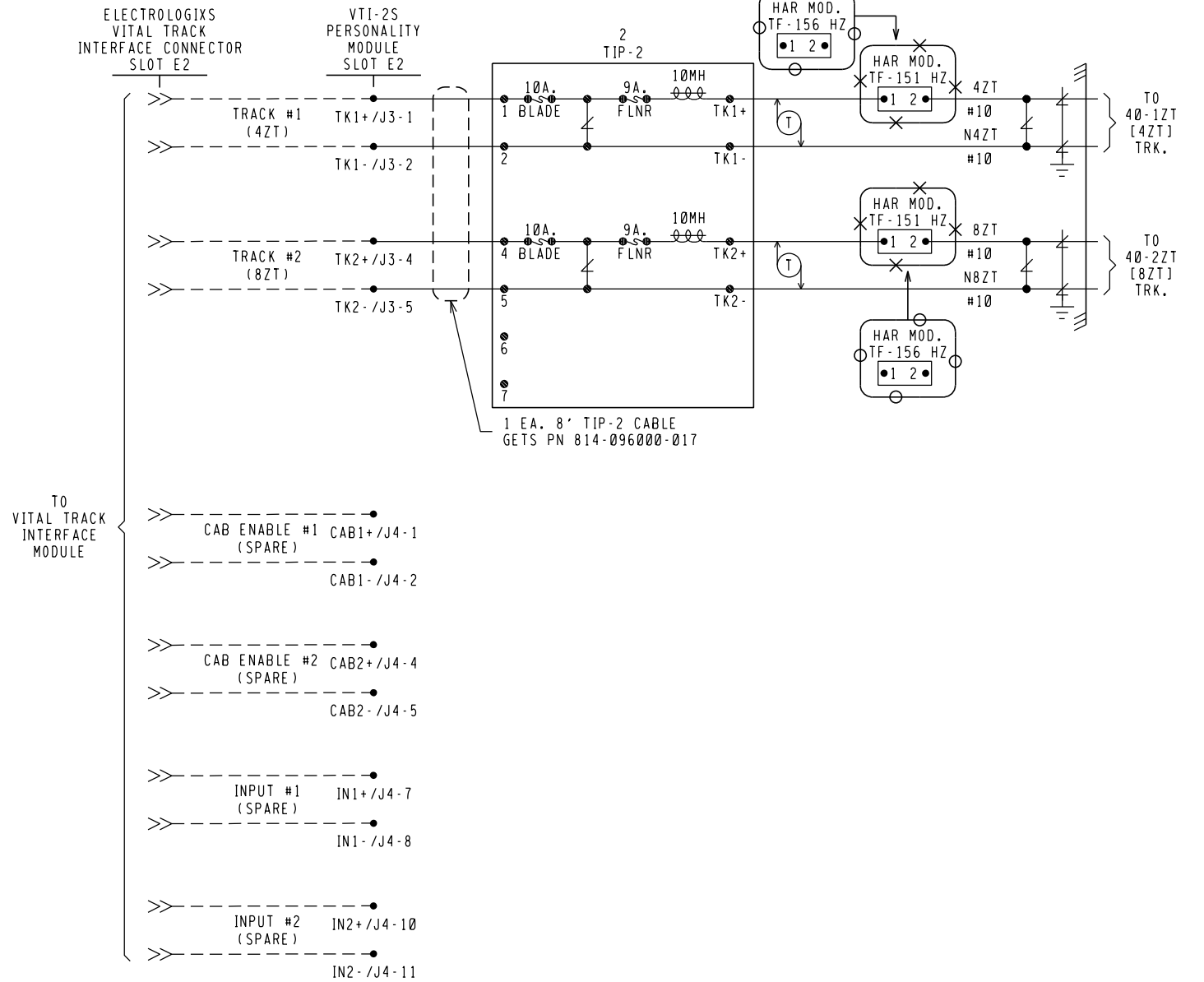
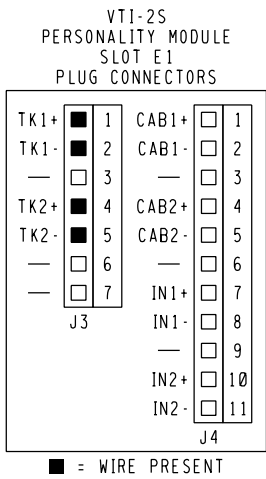
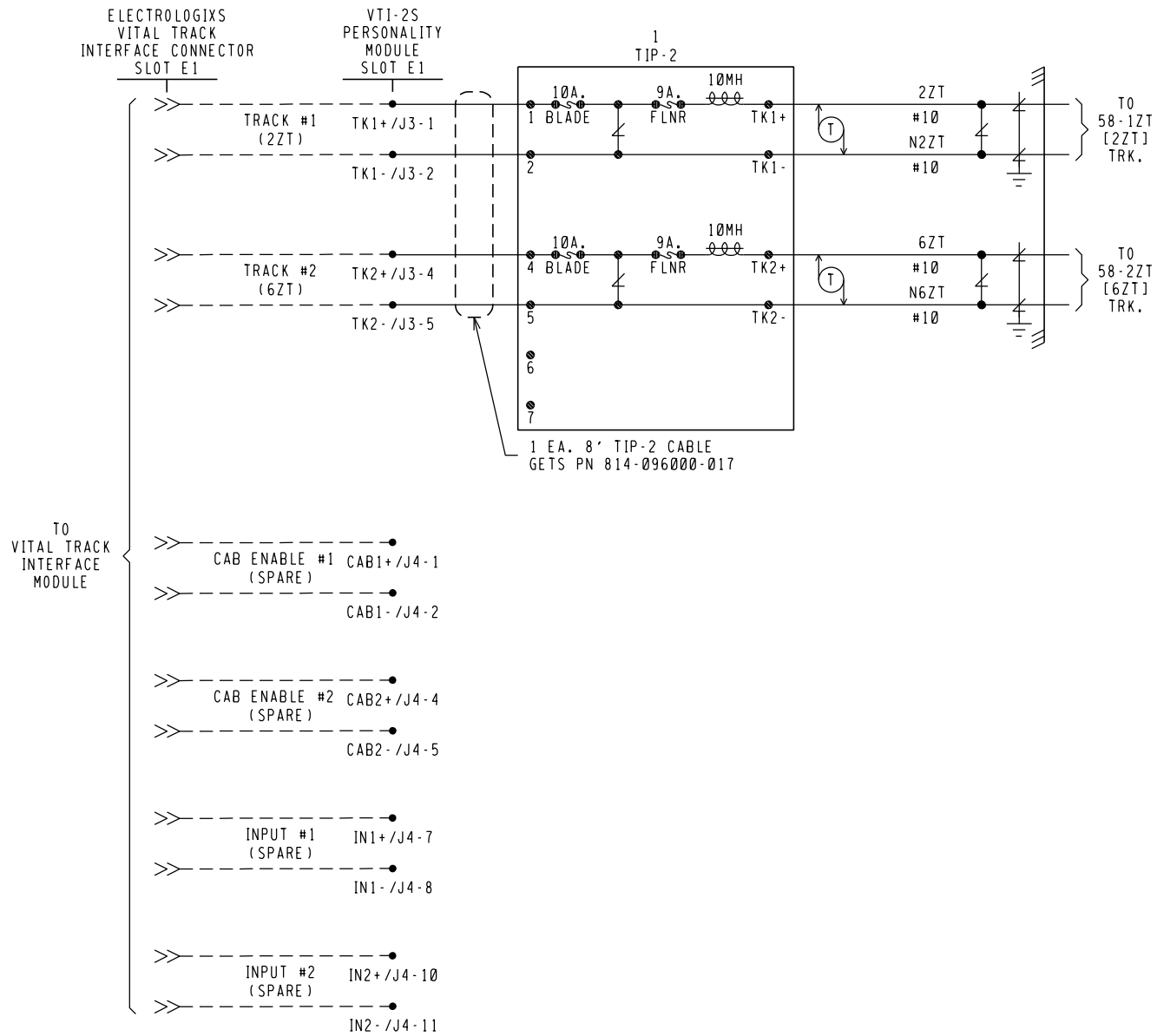
PORT #1	COMM. ROUTER
PORT #2	COMM. EQUIPMENT
PORT #3	220 MHZ RADIO / SATELLITE
PORT #4	COMMUNICATIONS NETWORK ADAPTER
PORT #5	WAYSIDE INTERFACE UNIT #3 / COMM. ETHERNET EXTENDER
PORT #6	WAYSIDE INTERFACE UNIT #2 / SIGNAL ETHERNET EXTENDER
PORT #7	WAYSIDE INTERFACE UNIT #1 / VPM
PORT #8	WAYSIDE MESSAGE SERVER

NO CHANGES

0H2016032 SSE /WGM
16-471CSX 09-26-16



DESIGN DATE -----	REV. NO. 1	DRAWING -----	SHEET NO -----	FILE CD00400	SHEET C02
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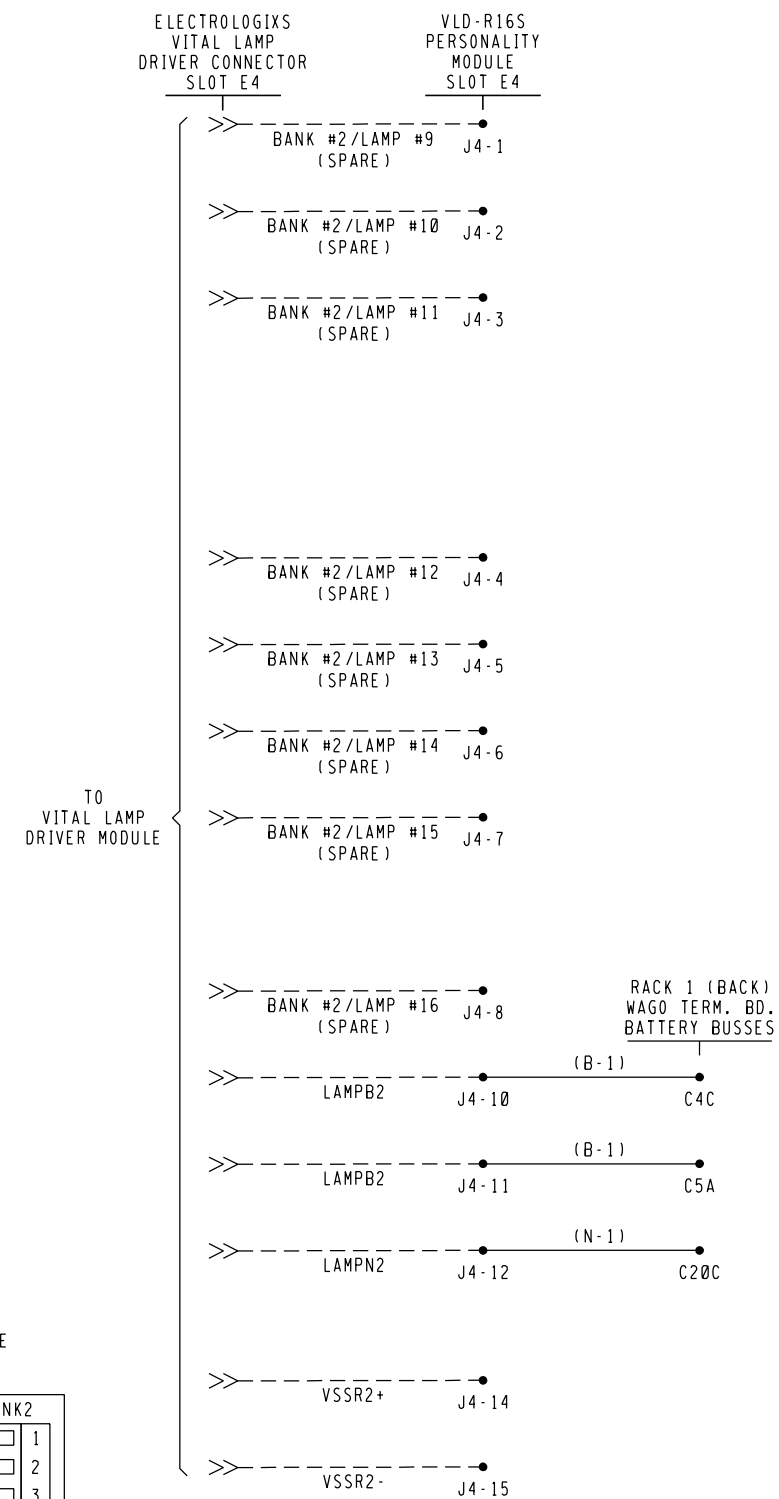


○-○-○ = IN
×-×-× = OUT

- NOTES:
- [] = TAGGING PURPOSES ONLY
 - = INTERNAL CONNECTION

8'X 8' PTC RELAY HOUSE

CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
MP 4			
ELECTROLOGIXS TRACK CIRCUITS COLUMBUS, OH M.P. CD-4.00			
DESIGNED IRS/RHW	DIGITIZED IRS/KEJ	CHECKED IRS/LEK	DATE 08-16-13
DESIGN DATE 09-21-16	REV. NO. 3	DRAWING -----	SHEET C03



1.  = LPC-10512-1 (15A, BLUE LEAD) HYBRID LOW VOLTAGE ARRESTER, UNLESS NOTED.
2. ---- = INTERNAL CONNECTION
3. ALL HOUSE WIRING THIS SHEET #14 FLEX UNLESS NOTED.
4. ALL RESISTORS ARE 3 OHM, 15 WATTS.
5. VSSR2 IS COMBINED IN THE PROGRAM WITH THE VSSR1 OUTPUT.

■ = WIRE PRESENT

SSE /WGM
09-26-16

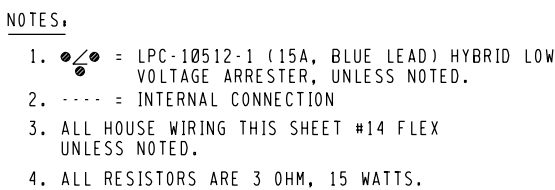


Signal South

SIGNAL 6 LIGHTING CIRCUITS
COLUMBUS, OH M.P. CD-4.00

DESIGNED IRS/RHW	DIGITIZED IRS/KEJ	CHECKED IRS/LEK	DATE 08-16-13
DRAWING -----	SHEET NO -----	FILE C000400	SHEET C05

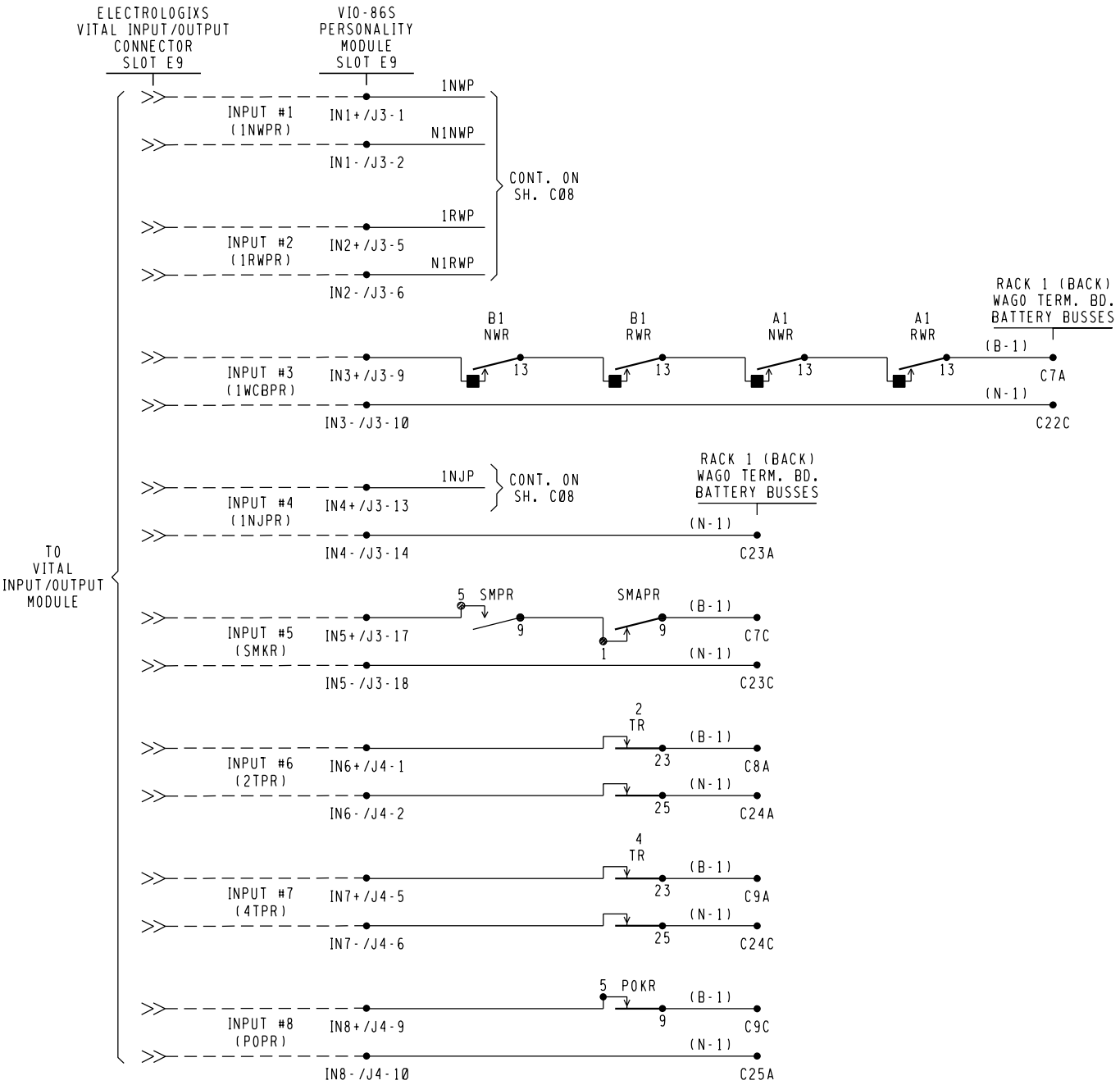
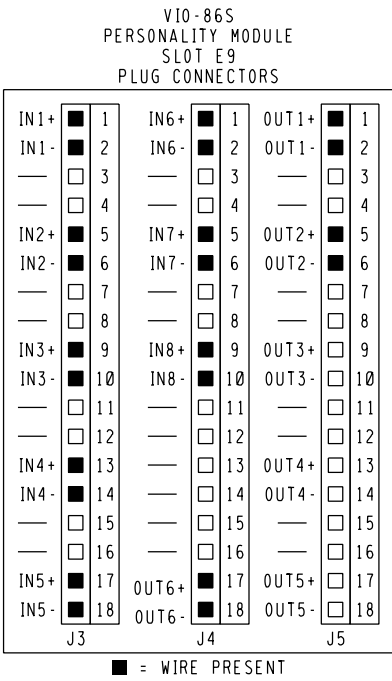
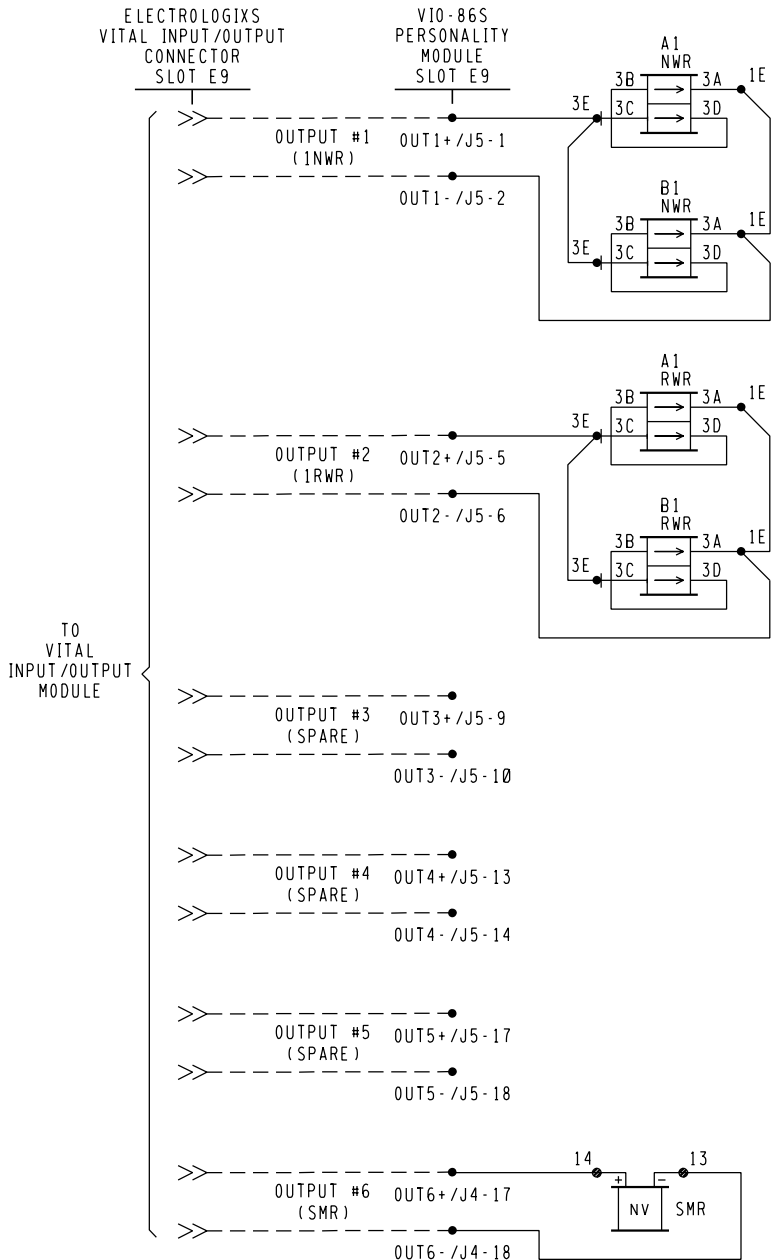
DESIGN DATE	REV. NO. 1	DRAWING	SHEET NO	FILE C000400	SHEET C05
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■ = WIRE PRESENT



 TRANSPORTATION			
RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
MP 4			
SIGNALS 4 AND 8 LIGHTING CIRCUITS COLUMBUS, OH M.P. CD-4.00			
DESIGNED IRS/RHW	DIGITIZED IRS/KEJ	CHECKED IRS/LEK	DATE 08-16-13
DRAWING -----	SHEET NO -----	FILE CD00400	SHEET C06



NOTES.

1. = INTERNAL CONNECTION

8'X 8' PTC RELAY HOUSE

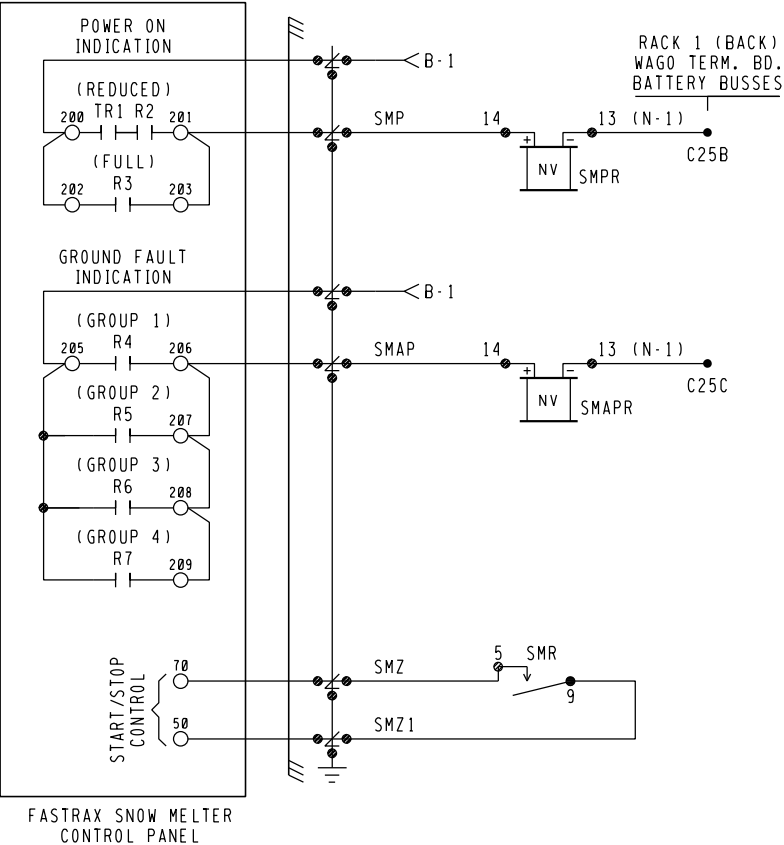
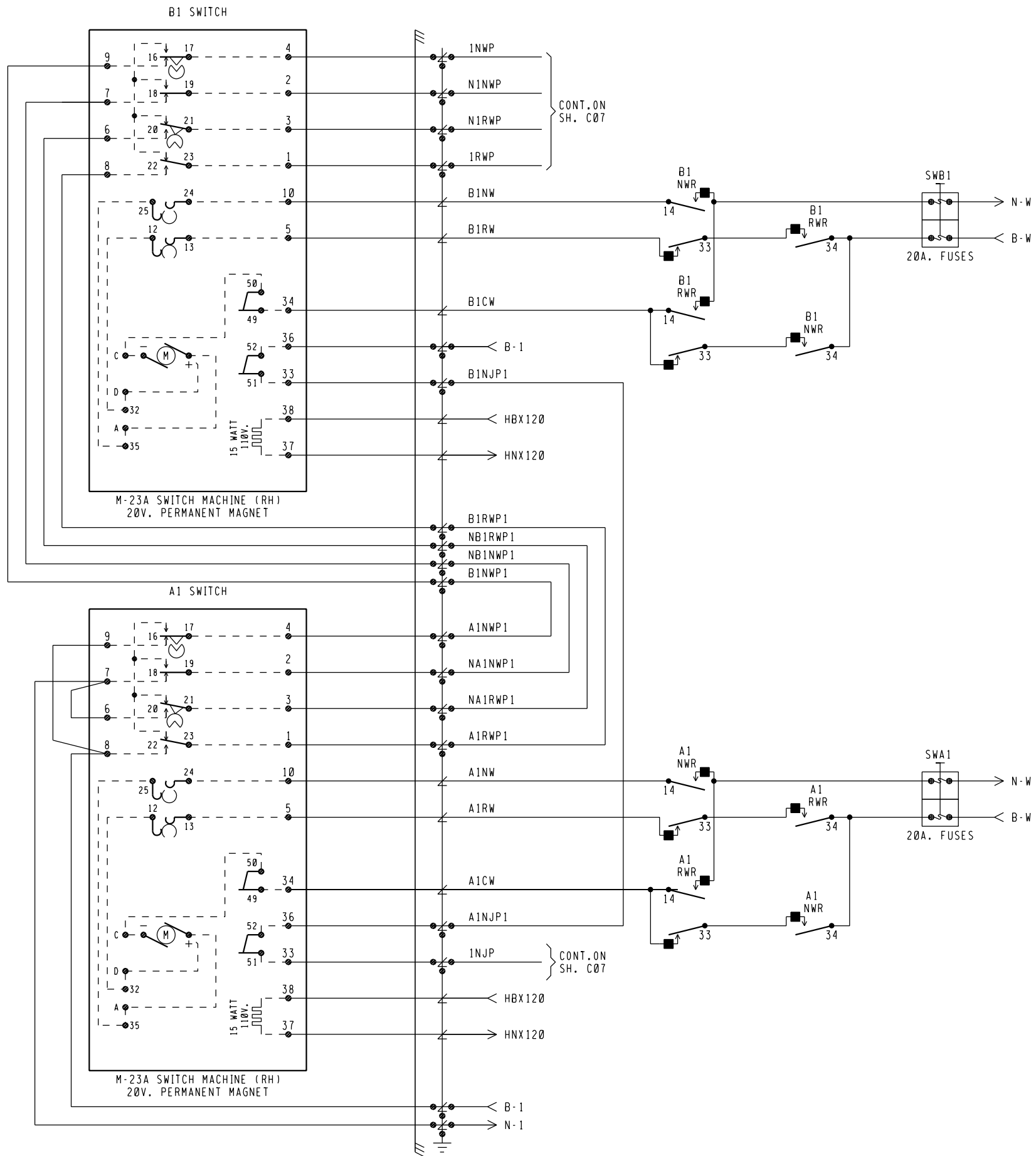
NO CHANGES



0H2016032 SSE/WGM
16-471CSX 09-26-16

DESIGN DATE	REV. NO.	DRAWING	SHEET NO	FILE	SHEET
.....	3			CD00400	C07

CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
MP 4			
ELECTROLOGIXS I/O CIRCUITS COLUMBUS, OH M.P. CD-4.00			
DESIGNED IRS/RHW	DIGITIZED IRS/KEJ	CHECKED IRS/LEK	DATE 08-16-13
DESIGN DATE	REV. NO. 3	DRAWING	SHEET C07



RIGHT HAND LAYOUTS, RIGHT HAND POINTS CLOSED.

- NOTES:
1. = LPC-10512-1 (15A, BLUE LEAD) HYBRID LOW VOLTAGE ARRESTER, UNLESS NOTED.
 2. - - - - = INTERNAL CONNECTION

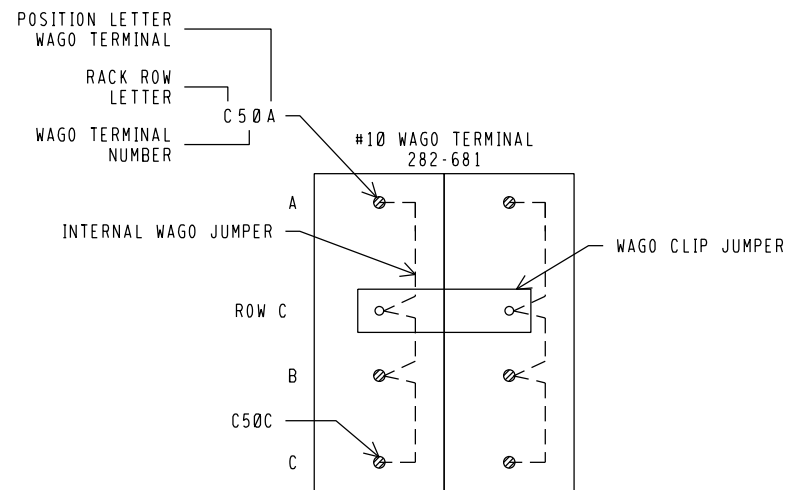
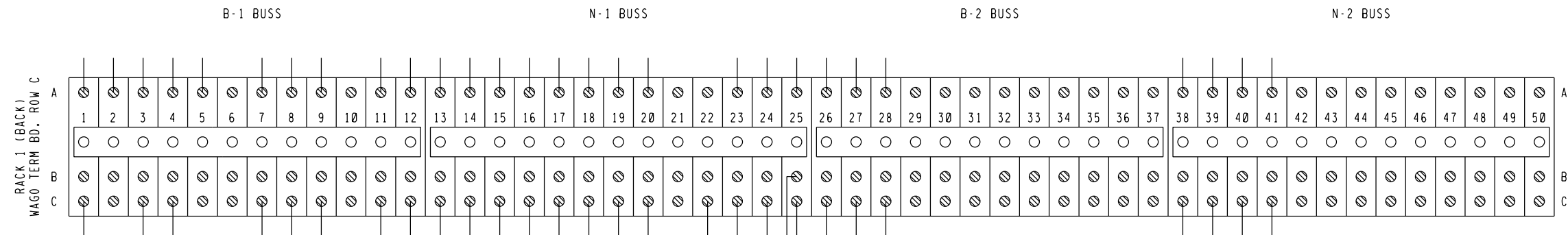
NO CHANGES



0H2016032 SSE/WGM
16-471CSX 09-26-16

8'X 8' PTC RELAY HOUSE

CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
MP 4			
SWITCH 1 CIRCUITS COLUMBUS, OH M.P. CD-4.00			
DESIGNED IRS/RHW	DIGITIZED IRS/KEJ	CHECKED IRS/LEK	DATE 08-16-13
DESIGN DATE -----	REV. NO. 3	DRAWING -----	SHEET C08



NOTES.

1. C1A & C1C TO B-1 SUPPLY.
2. C13A & C13C TO N-1 SUPPLY.
3. C26A & C26C TO B-2 SUPPLY.
4. C38A & C38C TO N-2 SUPPLY.

8'X 8' PTC RELAY HOUSE

NO CHANGES

0H2016032
16-471CSX

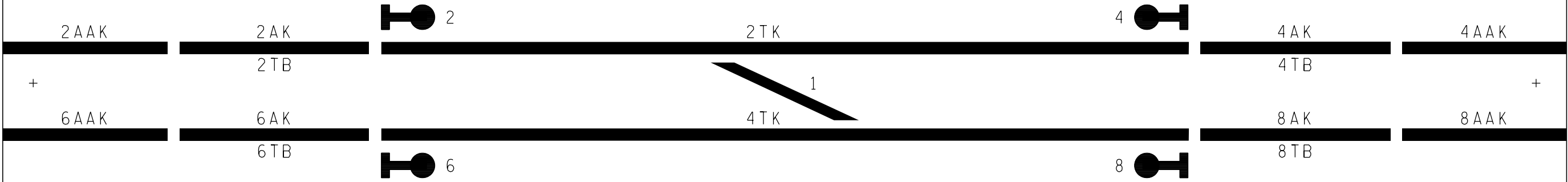


SSE /WGM
09-26-16

CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
MP 4			
WAGO TERMINAL BOARDS COLUMBUS, OH M.P. CD-4.00			
DESIGNED IRS/RHW	DIGITIZED IRS/KEJ	CHECKED IRS/LEK	DATE 08-16-13
DESIGN DATE -----	REV. NO. 3	DRAWING -----	SHEET NO -----
FILE CD00400		SHEET C09	



MP 4
MP CD-4.00



NO CHANGES

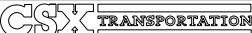
0H2016032
16-471CSX



SSE /WGM
09-26-16

Signal South

8'X 8' PTC RELAY HOUSE

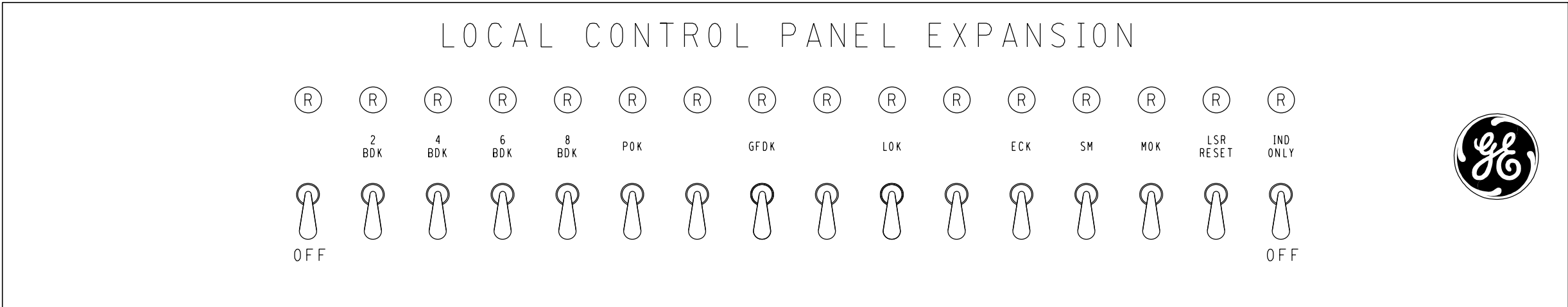
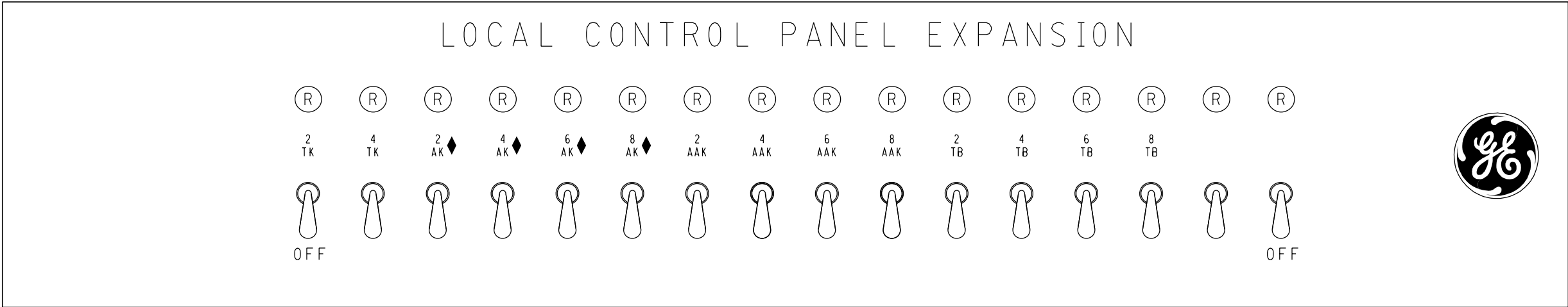
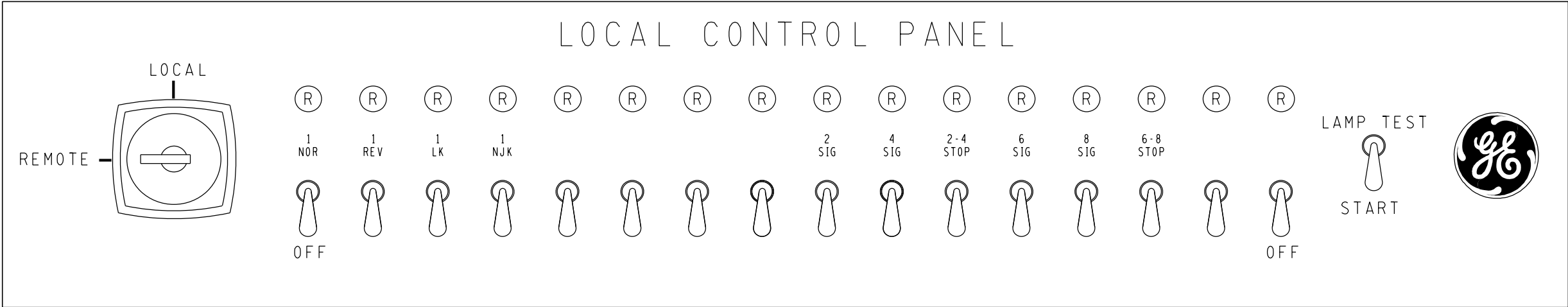


RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

MP 4

LOCAL CONTROL PANEL LAYOUT
COLUMBUS, OH M.P. CD-4.00

DESIGNED IRS/RHW	DIGITIZED IRS/KEJ	CHECKED IRS/LEK	DATE 08-16-13
DESIGN DATE -----	REV. NO. 3	DRAWING -----	SHEET NO -----
FILE CD00400		SHEET C10	



NOTE.

1. WHERE "K" APPEARS AT END OF WORD ONLY INDICATION IS OPERATIVE.

2. ♦ = LOCAL PANEL ONLY.

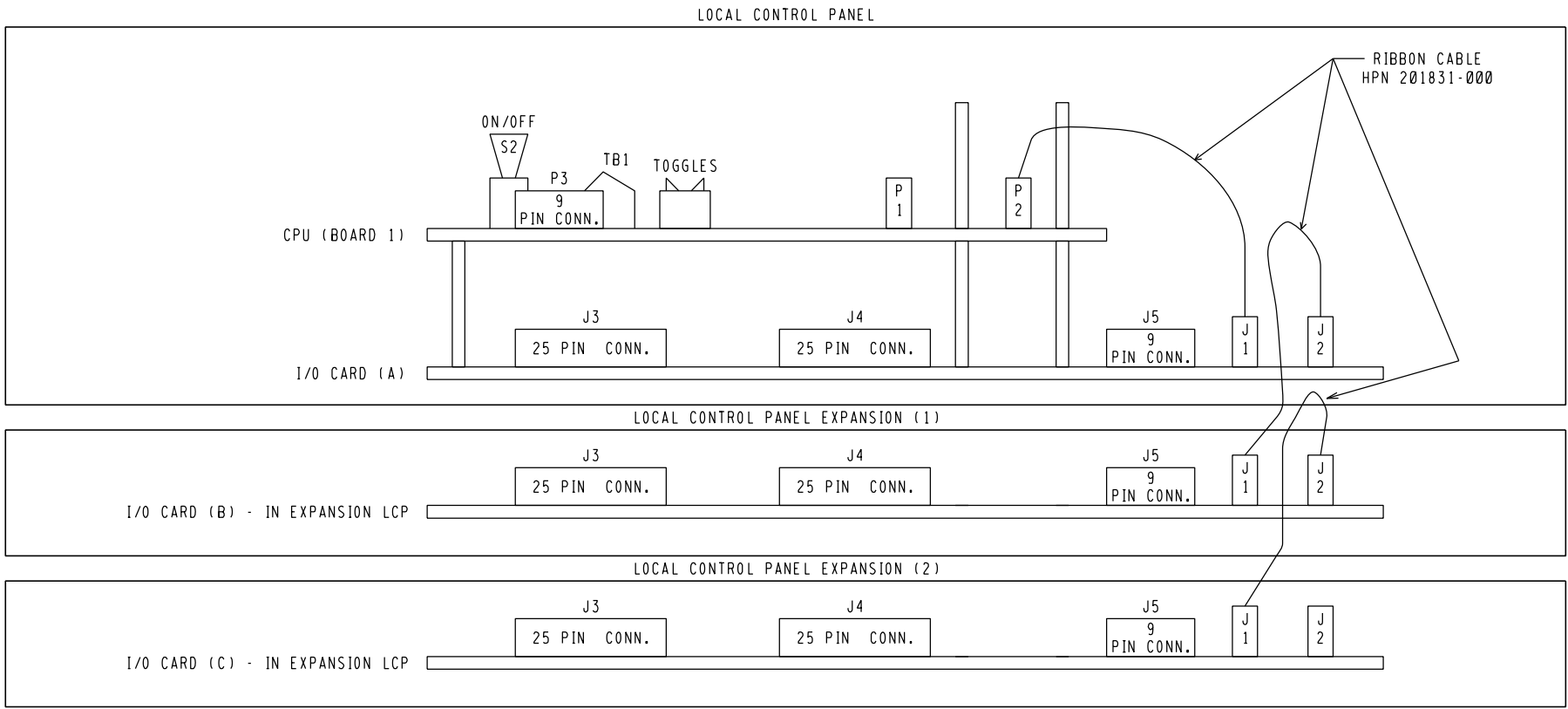
NO CHANGES



0H2016032 16-471CSX SSE /WGM 09-26-16

8'X 8' PTC RELAY HOUSE

CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
MP 4			
LOCAL CONTROL AND EXPANSION PANELS COLUMBUS, OH M.P. CD-4.00			
DESIGNED IRS/RHW	DIGITIZED IRS/KEJ	CHECKED IRS/LEK	DATE 08-16-13
DESIGN DATE -----	REV. NO. 3	DRAWING -----	SHEET NO -----
FILE CD00400		SHEET C11	



	OFF	ON	
NO START SWITCH	☒	1	START SWITCH
	☒	2	PROGRAMMABLE
	☒	3	PROGRAMMABLE
	☒	4	PROGRAMMABLE
NORMAL OUTPUTS	☒	5	RESERVED
	☒	6	INVERT OUTPUTS
NORMAL INPUTS	☒	7	INVERT INPUTS
NORMAL MODE	☒	8	SELF TEST MODE

(LOCATED ON CPU BOARD INSIDE LCP CABINET)

NO CHANGES

0H2016032
16-471CSX



SSE /WGM
09-26-16

8'X 8' PTC RELAY HOUSE

CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
MP 4			
LOCAL CONTROL AND EXPANSION PANEL I/O CARDS COLUMBUS, OH M.P. CD-4.00			
DESIGNED IRS/RHW	DIGITIZED IRS/KEJ	CHECKED IRS/LEK	DATE 08-16-13
DESIGN DATE	REV. NO. 3	DRAWING	SHEET NO
FILE CD00400		SHEET C12	

INDEX
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S01	TRACK AND SIGNAL PLAN									
P01	MINIMUM PROGRAM STEPS REPORT CWE-82									
E01	POWER DISTRIBUTION									
C01	DETECTION DEVICE CONSIST CWE-82									
C02	DETECTION CIRCUITRY CWE-82									
C03	DETECTION CIRCUITRY CWE-82									
C04	CROSSING WARNING DEVICE GATE CIRCUITRY									
C05	CROSSING WARNING DEVICE LIGHT CIRCUITRY									
C06	CROSSING WARNING DEVICE CIRCUITRY									
C07	SEAR II: CONFIGURATION & FUNCTIONS									



= PLANS SENT TO FIELD (DISTRIBUTED)
= PLANS AS-IN-SERVICED (UP TO DATE)

= NOTE

NEW WORK

0H2016032
16-471CSX



SSE /WGM/RCC
09-21-16

Signal South

40006CP.101
REV. 09-04-15

DESIGN DATE
09-21-16

REV. NO.
1

REVISIONS

REV. NO.	PROJECT NO.	DESIGN DATE	IN SERVICE DATE	REVISION DATE
1	0H2016032	09-21-16		

TO BE COMPLETED
ON A.I.S.

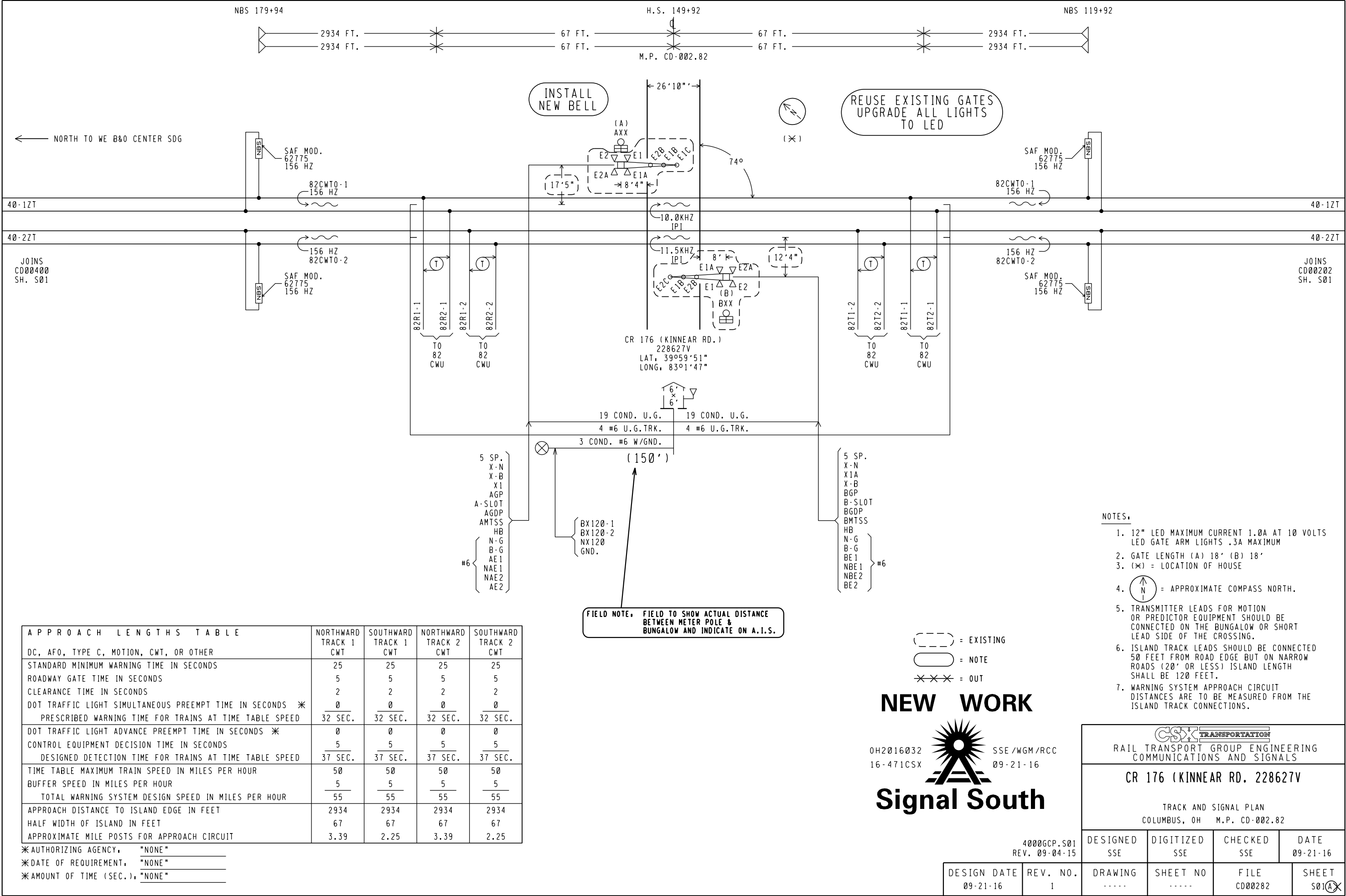


RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

CR 176 (KINNEAR RD.) 228627V

INDEX AND REVISIONS
COLUMBUS, OH M.P. CD-002.82

DESIGNED SSE	DIGITIZED SSE	CHECKED SSE	DATE 09-21-16
DRAWING	SHEET NO	FILE CD00282	SHEET 101



Minimum Program Steps Report
.....
Location and SIN
.....
DOT Number: 228627V
Milepost Number: CD-002.82
Site Name: CR 176 (KINNEAR RD)

SIN: 712535100116 *

* Parameter is part of office check number calculation.

MCF and Template Selection
.....
MCF Name: GCP-T6X-02-6.mcf
MCF Revision: 26
MCFCRC: 49402656

Template = 1A,6 Trk B1 (OCCN) *

* Parameter is part of office check number calculation.

Minimum Program Steps
.....
TEMPLATE: module configuration
Chassis Type = Dual Two Track (OCCN) *
Track 2/R10 1 Slot = Track (OCCN) *

TEMPLATE: track 1-B1, Island
Track 1 , GCP Frequency = 156 Hz (OCCN) *
Track 1 , Approach Distance = 2934 ft (OCCN) *
Track 1 , Prime Warning Time = 32 sec (OCCN) *
Track 1 , GCP Transmit Level = High (Set in Field,TCN)
Track 1 , Isl Frequency = 10.0 kHz (OCCN) *

TEMPLATE: track 2-B1, Island
Track 2 , GCP Frequency = 156 Hz (OCCN) *
Track 2 , Approach Distance = 2934 ft (OCCN) *
Track 2 , Prime Warning Time = 32 sec (OCCN) *
Track 2 , GCP Transmit Level = High (Set in Field,TCN)
Track 2 , Isl Frequency = 11.5 kHz (OCCN) *

TEMPLATE: SSCC
SSCC-1 Number of GDs = 1 (OCCN) *
SSCC-2 Number of GPs = 1 (OCCN) *
SSCC-2 Number of GDs = 1 (OCCN) *

TEMPLATE: OOS
OOS Control = Display+OOS IPs (OCCN) *
OOS Timeout = 1 hrs (Set in Field)

TEMPLATE: IP assignment SSCC
IN 7.2 = Not Used (OCCN) *
IN 8.2 = Out Of Service IP 1 (OCCN) *
IN 8.4 = GD 2.1 (OCCN) *
IN 8.5 = GP 2.1 (OCCN) *

MS4000 configuration
Track 1 , GCP Frequency = 156 Hz (OCCN,TCN) (Hidden) *
Track 1 , Isl Frequency = 10.0 kHz (OCCN) (Hidden) *

MS4000 Predictor
Track 1 , Prime Warning Time = 32 sec (OCCN) (Hidden) *

GCP: track 1
Track 1 , Island Distance = 134 ft (Set in Field,TCN)

GCP: track 2
Track 2 , Island Distance = 134 ft (Set in Field,TCN)

ADVANCED: site options
Daylight Savings = 0n (Set in Field)

SSCC: 1
SSCC-1 Gate Delay = 5 sec (OCCN) *
SSCC 1 , Flash Rate = 55 (OCCN) *

SSCC: 2
SSCC-2 Gate Delay = 5 sec (OCCN) *
SSCC 2 , Flash Rate = 55 (OCCN) *

SEAR
DI 1 = Gnd Flt Tester 1 (OCCN) *
DI 2 = Gnd Flt Tester 2 (OCCN) *
Rly 1 = Ground Fault Test (OCCN) *
Rly 2 = AC Control (OCCN) *

SEAR: slot 7-8 inputs
IN 7.1 = TSS 1 (OCCN) *
IN 8.1 = TSS 2 (OCCN) *
IN 8.3 = POK 2 (OCCN) *

Express: MS4000 configuration
Track 1 , GCP Frequency = 156 Hz (OCCN,TCN) (Hidden) *

Express: MS4000 Predictor
Track 1 , Prime Warning Time = 32 sec (OCCN) (Hidden) *

* Parameter is part of office check number calculation.

Check Numbers
.....
Office Check Number: 29024532
Config. Check Number: 4846BD19
(Based on MCF Revision 26)

Parameters not part of office check number calculation:

Track 1 , GCP Transmit Level = High (Set in Field)
Track 2 , GCP Transmit Level = High (Set in Field)
OOS Timeout = 1 hrs (Set in Field)
Track 1 , Island Distance = 134 ft (Set in Field)
Track 2 , Island Distance = 134 ft (Set in Field)
Daylight Savings = 0n (Set in Field)

NEW WORK

0H2016032 SSE/WGM/XXX
16-471CSX 09-21-16



Signal South

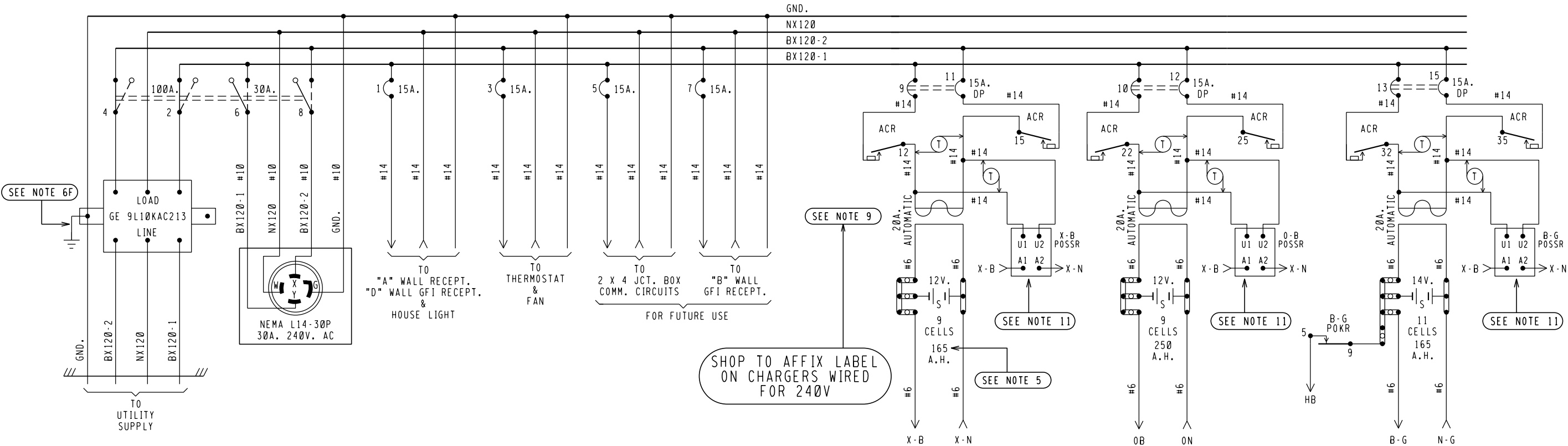
4000GCP.P01
REV. 09-04-15

DESIGN DATE
09-21-16

REV. NO.
1

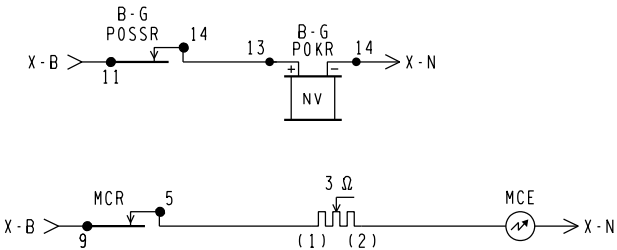
CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
CR 176 (KINNEAR RD.) 228627V			
MINIMUM PROGRAM STEPS REPORT CWE-82 COLUMBUS, OH M.P. CD-002.82			
DESIGNED SSE	DIGITIZED SSE	CHECKED SSE	DATE 09-21-16
DESIGN DATE 09-21-16	REV. NO. 1	DRAWING -----	SHEET NO -----
FILE CD00282		SHEET P01	

TOP ROW									
		ACR			MCR				
12	B			B77	9	F	11	N41	
15	B			C30	10		12	C48	
22	B							C49	
25	B								
32	B				B-G POKR				
35	B				9	F	11	N41	
					10	F	12	C48	



BX120-1	BX120-2
18.9 AMPS	11.9 AMPS
MAXIMUM LOAD CALCULATED PER SS360	

- NOTES.
- REFERENCES ARE PER SCMS-13.
 - ARRESTERS ARE PER SS302.
 - SHELF RELAY PLACEMENT ON CONSIST CHART HAS NO SIGNIFICANCE.
 - PLUG-IN RELAYS ARE VIEWED FROM THE FRONT OF RACK.
 - BATTERY A.H. CAPACITY SHOWN IS THE MINIMUM REQUIREMENT.
 - WIRING
 - FEED TO ALL BUSSES, LIGHT CIRCUITS, MOTOR CIRCUITS TO BE #10 FLEX.
 - 120-VOLT FEED FROM ENTRANCE TO POWER BUSS TO BE #10 FLEX.
 - ALL TRACK WIRES TO BE #10 FLEX.
 - ALL OTHERS TO BE #16 FLEX UNLESS NOTED.
 - ALL BATTERY OUTPUTS TO BE #6 PER SS360.
 - GROUND WIRE NOT NECESSARY WHEN GE ARRESTER IS MOUNTED ON GROUND PLANE OR METAL ENCLOSURE AFFIXED DIRECTLY TO BUNGALOW METALLIC STRUCTURAL MEMBER.
 - CIRCUIT INTERRUPTERS 2 & 4 ARE MECHANICALLY INTERLOCKED WITH CIRCUIT INTERRUPTERS 6 & 8.
 - LABEL ALL PRIMARY POWER WIRES WITH RED TAGS.
 - CHARGERS WIRED FOR 240VAC
 - CIRCUIT BREAKERS PANEL- 00124L125G (24 SPACES)
 - SOLID STATE VOLTAGE MONITOR BENDER MOD. VME 420-DW-1 DIN RAIL MOUNTED. OUTPUTS CONFIGURED NORMALLY CLOSED(NC). UNDERVOLTAGE SENSING MINIMUM OF 216 VOLTS AC.



X-B POSSR					OB POSSR					B-G POSSR				
11	F	21	F	N70	11	F	21	F	N70	11	F	21	F	N70

WALL/DIN RAIL MOUNTED

○ = NOTE

*** = OUT

NEW WORK

0H2016032
16-471CSX

SSE /WGM/RCC
09-21-16



4000GCP.E01
REV. 10-19-15

DESIGN DATE
09-21-16

REV. NO.
1

6'X 6' PTC CROSSING HOUSE

CSX TRANSPORTATION

RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

CR 176 (KINNEAR RD.) 228627V

POWER DISTRIBUTION
COLUMBUS, OH M.P. CD-002.82

DESIGNED
SSE

DIGITIZED
SSE

CHECKED
SSE

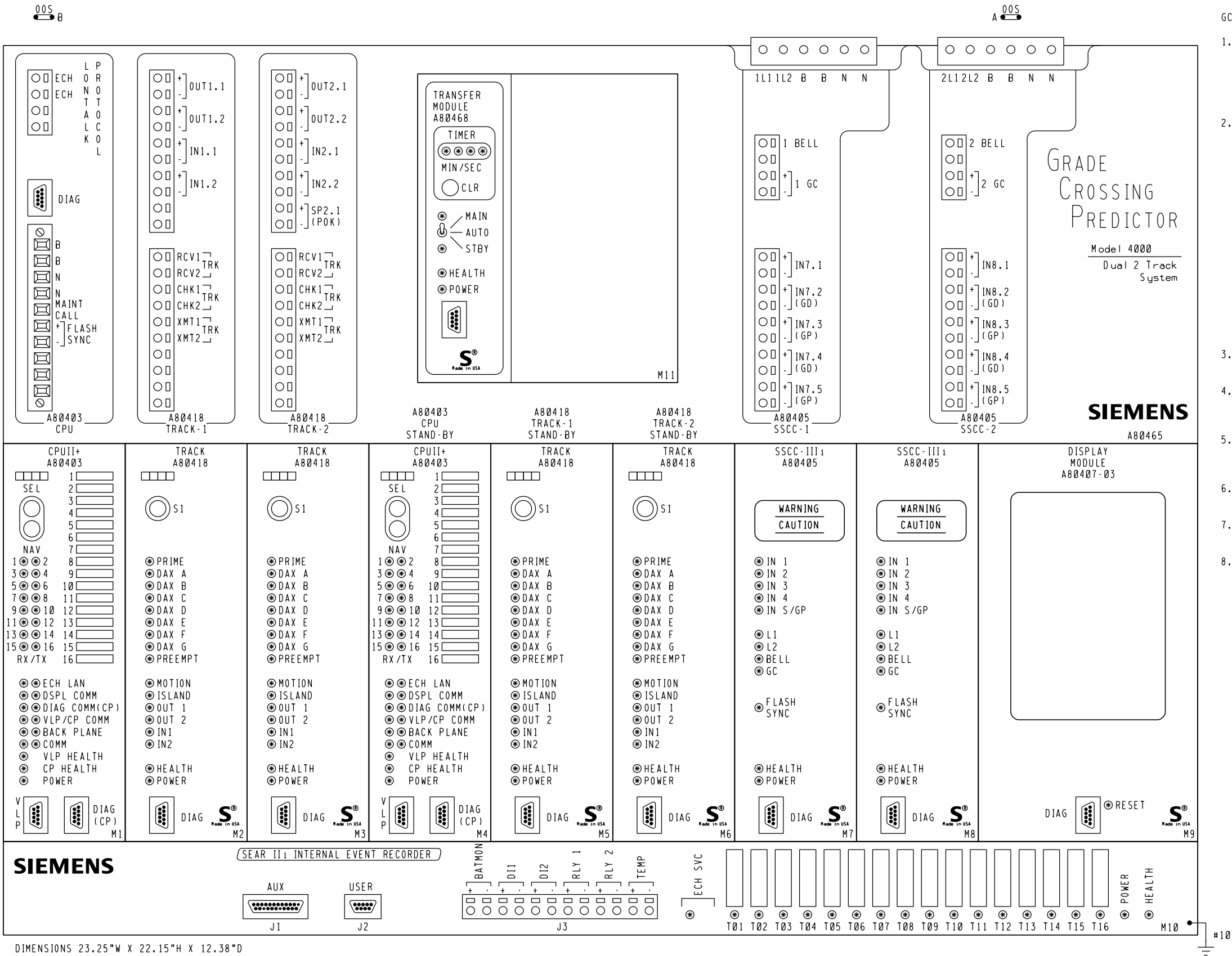
DATE
09-21-16

DRAWING
.....

SHEET NO
.....

FILE
CD00282

SHEET
E01A



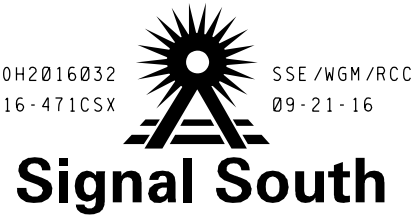
GCP 4000 APPLICATION NOTES:

- THE GRADE CROSSING PREDICTOR (GCP) IS A MODULAR MICROPROCESSOR CONTROLLED SYSTEM THAT IS DEPLOYED TO CONTINUALLY MONITOR THE APPROACHES TO RAILROAD GRADE CROSSINGS AND TO CONTROL THE LAMPS, GATES AND BELLS ASSOCIATED WITH THOSE CROSSINGS. WHEN EQUIPPED WITH THE SEAR II₁ MODULE THE GCP 4000 WILL RECORD EVENTS AND REPORT ALARMS WHEN CONNECTED TO AN OFFICE SYSTEM.
- THE GCP 4000 GCP (A80465) IS A TWO TRACK REDUNDANT UNIT CAPABLE OF DRIVING 4 INDEPENDENT FLASHER AND GATE SIGNALS AND RECORDING EVENTS AND REPORTING ALARMS. THIS A80465 INCLUDES THE FOLLOWING MODULES:

SLOT	MODULE	FUNCTION	PART NO.
M1	CPU-II+	MAIN	A80403
M2	TRACK-1	MAIN	A80418
M3	TRACK-2	MAIN	A80418
M4	CPU-II+	STANDBY	A80403
M5	TRACK-1	STANDBY	A80418
M6	TRACK-2	STANDBY	A80418
M7	SSCC-III ₁	A SIGNAL	A80405
M8	SSCC-III ₁	B SIGNAL	A80405
M9	DISPLAY MODULE		A80407-03
TOP CENTER	TRANSFER UNIT		A80468
LOWER BAY	SEAR II ₁	RECORDER	A80410
- EACH TRACK MODULE HAS TWO PROGRAMMABLE INPUTS AND TWO PROGRAMMABLE OUTPUTS.
- THE SEAR II₁ INTERNAL EVENT RECORDER HAS INPUTS FOR ONE BATTERY MONITOR, TWO NON-VITAL INPUTS AND TWO PROGRAMMABLE RELAY DRIVES (HEEL/Front).
- LOCATED ON THE FRONT OF EACH MODULE THERE ARE LED LIGHTS TO INDICATE THE ACTIVITY OF CERTAIN FUNCTIONS OCCURRING INSIDE THE GCP.
- BETWEEN SLOT 1 & 2 THERE IS A CHASSIS IDENTIFICATION CHIP (CIC) SOCKET AND AN ECD CONNECTOR (DB-25 FEMALE).
- UPON THE FAILURE OF A MODULE IN SLOTS M1-M3 THE AUTOMATIC TRANSFER UNIT SWITCHES TO THE STANDBY MODULES IN SLOTS M4-M6.
- THE GCP 4000 GCP (A80465) MAY USE RIO MODULES IN SLOTS M3 AND M6.

*** = OUT

NEW WORK



0H2016032
16-471CSX
SSE/WGM/RCC
09-21-16



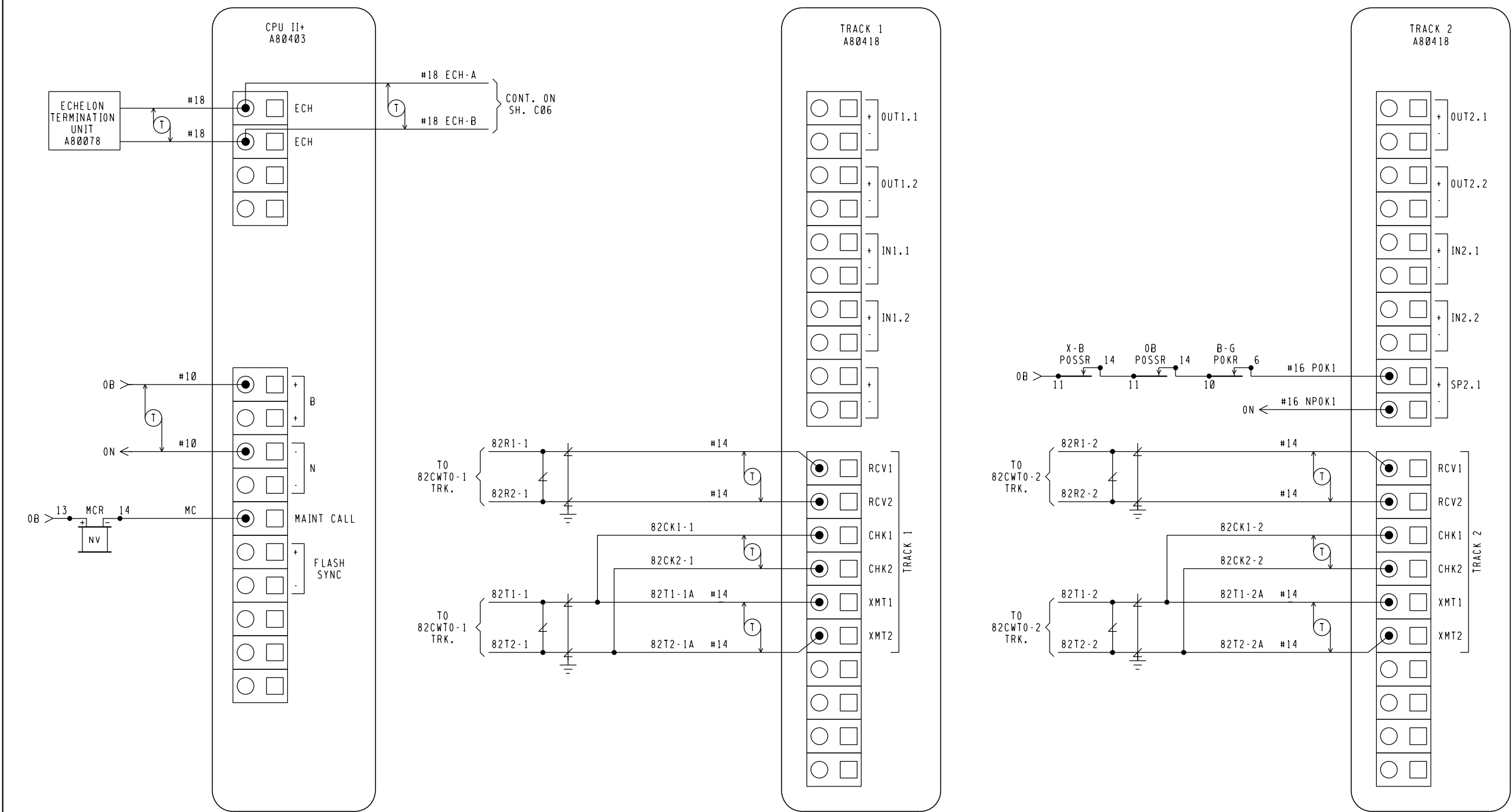
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

CR 176 (KINNEAR RD.) 228627V

DETECTION DEVICE CONSIST CWE-82
COLUMBUS, OH M.P. CD-002.82

4000GCP.C01
REV. 09-04-15

DESIGN DATE 09-21-16	REV. NO. 1	DESIGNED SSE	DIGITIZED SSE	CHECKED SSE	DATE 09-21-16
DESIGN DATE 09-21-16	REV. NO. 1	DRAWING -----	SHEET NO -----	FILE CD00282	SHEET C01A



*** = OUT

NEW WORK

0H2016032
16-471CSX

SSE/WGM/RCC
09-21-16

Signal South

NOTE,

ECHELON CONNECTIONS NOT TO EXCEED 53' IN LENGTH AND TOTAL LENGTH COMBINED NOT TO EXCEED 430' WITH A MAXIMUM OF 8 NODES. RECOMMEND USE BELDEN WIRE CABLE #8461 OR EQUIVALENT.

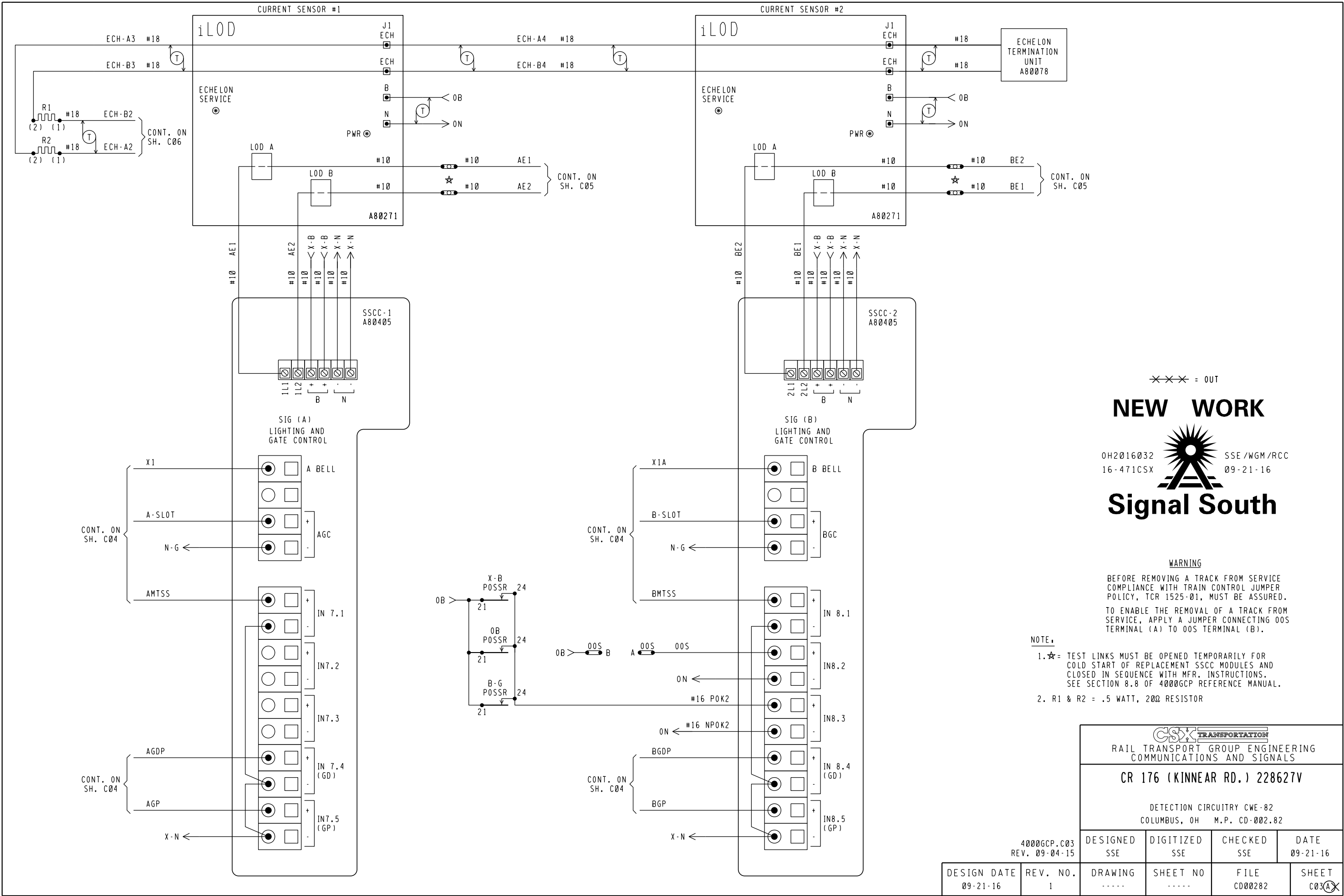
CSX TRANSPORTATION

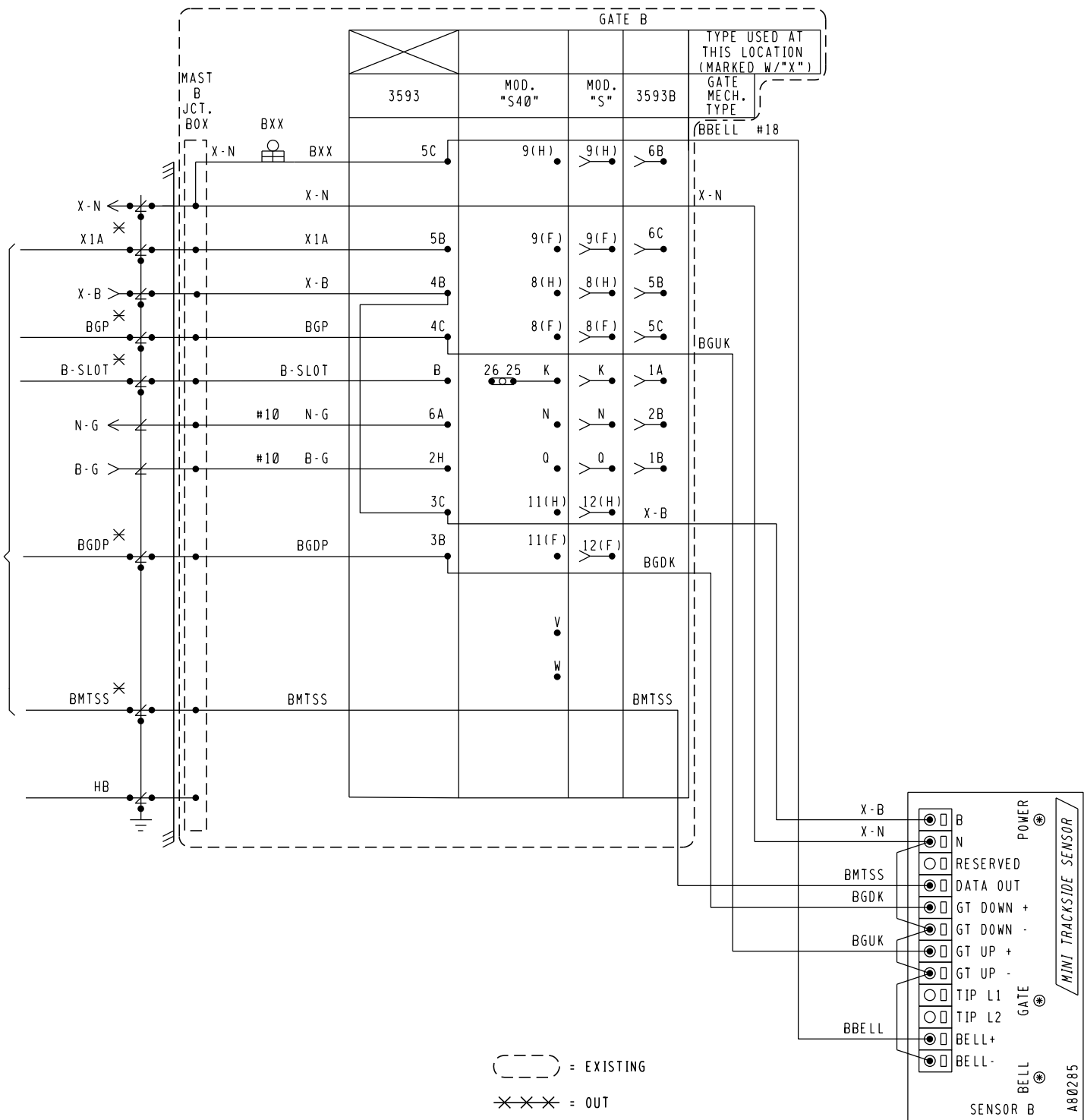
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

CR 176 (KINNEAR RD.) 228627V

DETECTION CIRCUITRY CWE-82
COLUMBUS, OH M.P. CD-002.82

DESIGNED SSE	DIGITIZED SSE	CHECKED SSE	DATE 09-21-16
DESIGN DATE 09-21-16	REV. NO. 1	DRAWING	SHEET C02A





() = EXISTING
~~---~~ = OUT

NEW WORK



SSE /WGM /RCC
09-21-16

Signal South

- NOTES:
1. ✕ = TEST LINKS MUST BE OPEN TEMPORARILY FOR COLD START OF REPLACEMENT SSCC MODULES AND CLOSED IN SEQUENCE WITH MFR. INSTRUCTIONS. SEE SECTION 8.8 OF 4000GCP REFERENCE MANUAL.
 2. —●— = TERMINAL IN JCT. BOX BASE
 3. ALL WIRING #16 UNLESS NOTED OTHERWISE.



RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

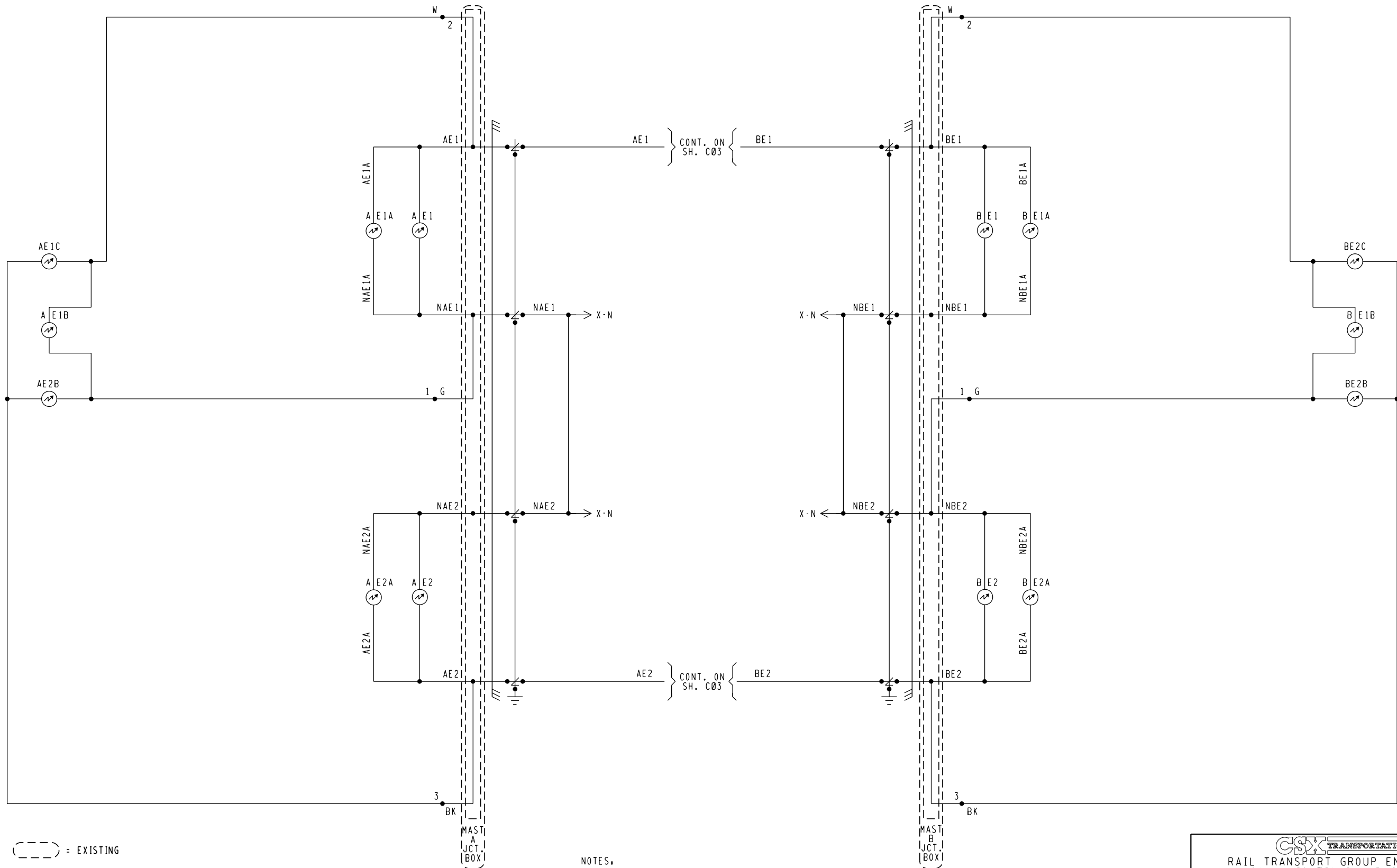
CR 176 (KINNEAR RD.) 228627V

CROSSING WARNING DEVICE GATE CIRCUITRY
COLUMBUS, OH M.P. CD-002.82

DESIGNED SSE	DIGITIZED SSE	CHECKED SSE	DATE 09-21-16
DRAWING -----	SHEET NO -----	FILE CD00282	SHEET C04 (A) 

4000GCP.C04A
REV. 09-04-15

DESIGN DATE 09-21-16	REV. NO. 1	DRAWING -----	SHEET NO -----	FILE C000282	SHEET C04(A)
-------------------------	---------------	------------------	-------------------	-----------------	-----------------



(---) = EXISTING

NEW WORK



0H2016032 SSE/WGM/RCC
16-471CSX 09-21-16

NOTES:

1. [Symbol] = TERMINAL IN JUNCTION BOX
2. WHEN 7 OR MORE LIGHTS ON A SINGLE STRUCTURE REFER TO SS382 FOR REQUIRED ARRESTERING
3. FEEDS TO ALL BUSES AND LIGHT CIRCUITS ARE #10 FLEX
4. UNLESS NOTED ALL OTHER WIRING #16
5. CABLING SPECIFICATIONS SHOWN ON SH. S01

4000GCP.C05
REV. 09-04-15

DESIGN DATE
09-21-16

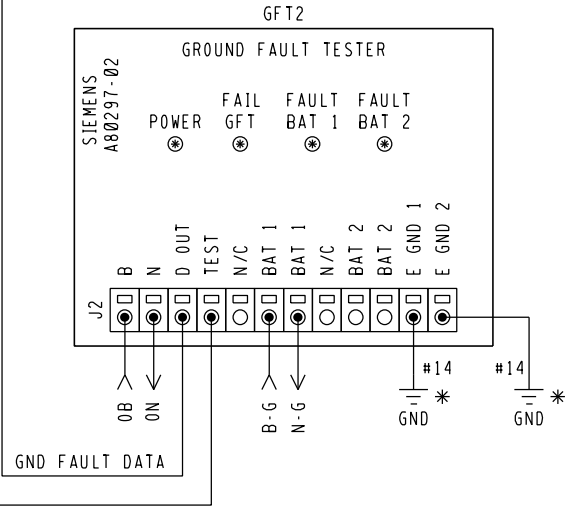
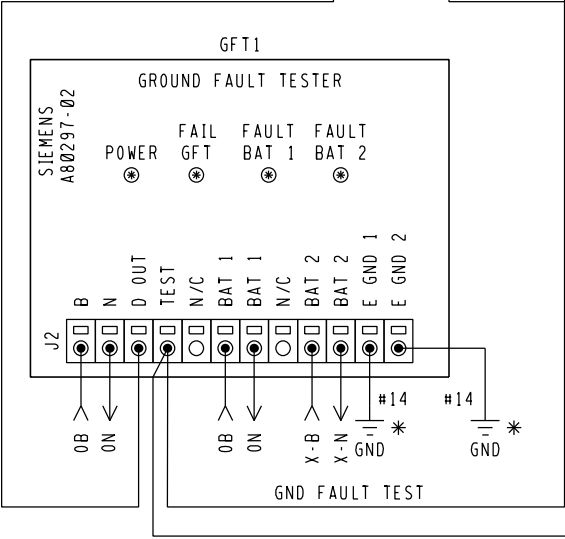
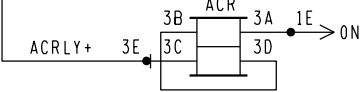
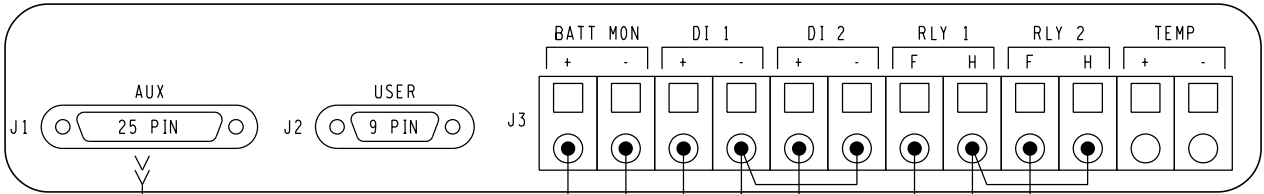
REV. NO.
1

DESIGNED SSE	DIGITIZED SSE	CHECKED SSE	DATE 09-21-16
DRAWING	SHEET NO	FILE CD00282	SHEET C05

WAYSIDE ACCESS GATEWAY CONFIGURATION	
SITE ATCS ADDRESS	7.125.351.001.07.01 7.125.LLL.GGG.SS.DD
SERIAL INTERFACE	38,400,NONE,8,1/NOFLOW
SERIAL FORMAT	RAW
WAG TEST MODE	DISABLED
ECHELON ADDRESS	01.07
UDP PORTS	5000, 5001, 5002, 5003
ROUTE TABLE EXPIRY	5400 SEC
BROADCAST MEDIUM	IP ETHERNET
TCP PORTS	23, 10023, 6001, 6002
DHCP SERVER	DISABLED
IP ADDRESS	192.168.13.1
TYPE 7 ROUTE LENGTH	12--7RRLLGGSS
IP NETWORK MASK	255.255.255.0
WAG CIRCUIT ID	DISABLE
ROUTING REGION DOMAIN 1	OCGSERVER1.JAX.COM
ATCS SERVER UDP PORT NUMBER	6001
TELNET NUMBERS	WAG 6002, SERIAL 10023
DEFAULT GATEWAY IP	192.168.013.031

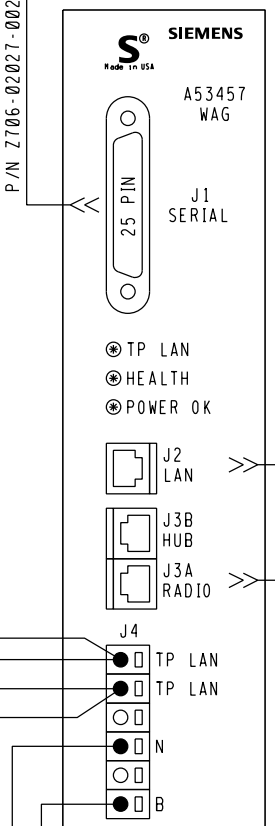
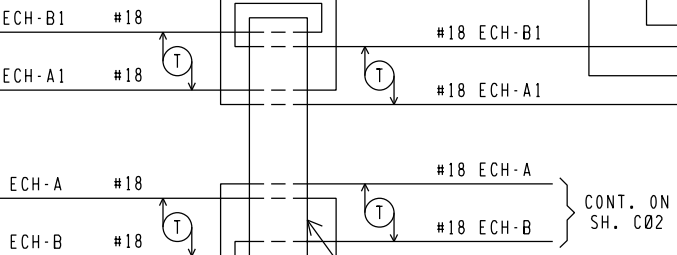
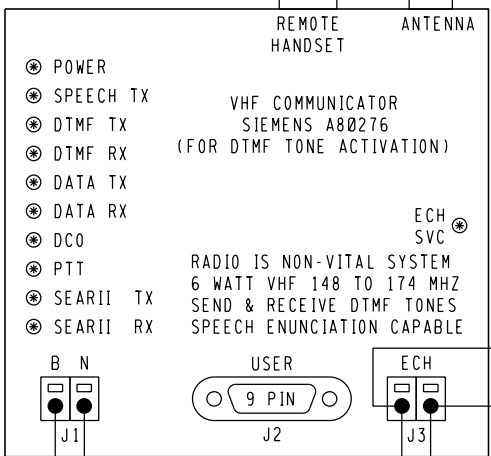
NOTE TO INSPECTOR,
AT INSTALLATION OF WAG,
OR UPDATE OF THE
CONFIGURATION, OR UPDATE
OF THE EXECUTIVE PROGRAM,
MARK-UP CONFIGURATION
TABLE FOR AS IN SERVICE
PLANS

SEAR II₁ INTERNAL EVENT RECORDER I/O



** POLYPHASE SURGE PROTECTOR
100 TO 512 MHZ
MODEL# VHF 150HN

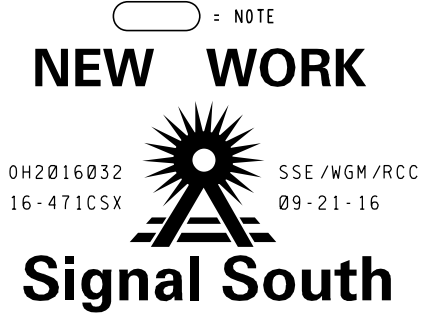
** SHIELDED COAXIAL
CABLE TO ANTENNA



** RJ45 10/100-BASE-T ETHERNET
CONNECTION TO
CSX NETWORK

** ISOLATED DC POWER
FROM RADIO PORT TO
POWER PACKET DATA
MODEM

COMM NOTES:
1. WAG J3A PINOUTS,
4 & 5 = +12VDC RADIO OUT
7 & 8 = GND RADIO RETURN
2. WAG AND SEARII₁ ECHELON COMM
THROUGH GCP4000 LONTALK
PROTOCOL CONNECTION
3. REFER TO WAG INSTALLATION AND
SETUP IN APPENDIX "A" GCP4000 SYSTEM
CUT OVER TEST PROCEDURE AND CHECK
OFF SHEET.



GCP PROGRAMMING FOR VHF RADIO

REMOTE DTMF CROSSING ACTIVATION
(ACTIVATES ENTIRE CROSSING)

TO ACTIVATE PRESS, 627#

TO DE-ACTIVATE PRESS, 627#

(ACTIVATION WILL TIME OUT AFTER 60 SEC.)

- NOTES:
1. ALL WIRING #16 UNLESS NOTED OTHERWISE.
 2. * = EARTH GROUND REF. TERMINALS REQUIRED FOR
DETECTION. DO NOT JUMPER TERMINALS. MUST BE
CONNECTED TO DIFFERENT POINTS OF BUNGALOW.
 3. ** = TO BE PROVIDED BY COMMUNICATIONS
 4. LOOP WIRE THROUGH FERRITE BEAD TWICE.

CSX TRANSPORTATION			
RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
CR 176 (KINNEAR RD.) 228627V			
CROSSING WARNING DEVICE CIRCUITRY COLUMBUS, OH M.P. CD-002.82			
DESIGNED SSE	DIGITIZED SSE	CHECKED SSE	DATE 09-21-16
DESIGN DATE 09-21-16	REV. NO. 1	DRAWING	SHEET C06

4000GCP.C06
REV. 09-04-15

DEFAULTS AND/OR STYLE		FIELD RECORD
SEAR II: EXECUTIVE PROGRAM	VERSION: 9V725A01	VERSION: _____
APPLICATION PROGRAM (IF LOADED)	VERSION: 9V864A01	VERSION: _____
SITE SET UP MENU		
FUNCTION	LED DISPLAY	
DATE /TIME	XX-XX-XXXX XX:XX:XX	
AUTOMATIC DST ADJUSTMENT	YES	
TIME ZONE	EASTERN	
SITE NAME	CR 176 (KINNEAR RD.)	
MILEPOST	CD-002.82	
DOT NUMBER	228627V	
TESTER TYPE	CROSSING	
DATE FORMAT	MM-DD-YYYY	
TEMP FORMAT	FAHRENHEIT	
INDICATE HOLD (SEC)	0	
INDICATE REFRESH (SEC)	60	
SITE ATCS ADDRESS	7.125.351.001.99.01 (7.RRR.LLL.GGG.99.01)	
SITE TYPE	COLLECTOR	
OFFICE ADDRESS	2.125.00.0000 (2.RRR.NN.DDDD)	
POLL ID	1	
MODE	GEN/ATCS	
WAMS XID	DISABLED	
OFFICE COMM. DEVICE	☒ WAG (ECHELON) ☐ DIRECT (RS232) ☐ MCM (ECHELON) ☐ MCM (RS232) ☐ DIAL MODEM ☐ S200 RADIO (RS422)	
RADIO ATCS ADDR	7.125.351.001.07.01 (7.RRR.LLL.GGG.NN.01)	
FIELD COMM. DEVICE	☐ WAG (ECHELON) ☒ NONE ☐ VHF COMM. (ECHELON) ☐ VHF COMM. (RS232) ☐ SPREAD-SPECTRUM (RS232)	
USER PORT BAUD	57,600	
USER PORT DATA BITS	8	
USER PORT PARITY	NONE	
USER PORT STOP BITS	1	
USER PORT FLOW CONTROL	NONE	
AUX PORT BAUD	38,400	
AUX PORT DATA BITS	8	
AUX PORT PARITY	NONE	
AUX PORT STOP BITS	1	
AUX PORT FLOW CONTROL	NONE	

NOTE TO INSPECTOR,
AT IN SERVICE OF SEAR II: OR UPDATE
OF ITS INTERNAL EXECUTIVE PROGRAM
OR ITS CSXT APPLICATION PROGRAM,
NOTE THE VERSION NUMBER OF EACH
PROGRAM MUST IN THE BLANK FIELDS.



INSPECTOR NOTE,
VHF RADIO CHANNEL AND DATA
CHANNEL = ENGINEERING CHANNEL.
CHOOSE PROPER FREQUENCY FROM
VHF RADIO CHANNELS.

VHF RADIO CHANNELS			
1	161.130	5	161.550
2	160.710	6	160.785
3	160.560	7	160.785
4	160.860	8	160.785

PROGRAM MENU SELECT

EDIT DIGITAL INPUTS	☒ NO ☐ YES
EDIT BATTERIES	☒ NO ☐ YES
EDIT RELAYS	☒ NO ☐ YES
EDIT TEST LED'S	☒ NO ☐ YES
EDIT IL0D1 SENSOR ☆	☒ NO ☐ YES
EDIT IL0D2 SENSOR ☆	☒ NO ☐ YES
EDIT IL0D3 SENSOR ☆	☒ NO ☐ YES
EDIT IL0D4 SENSOR ☆	☒ NO ☐ YES
EDIT VHF SETTINGS	☒ NO ☐ YES
GCP4K ATCS SUBNODE	16

☆ STAR = OPTIONS SHOWN DEPENDANT ON
NUMBER OF IL0DS SELECTED

CONTROL SYSTEM CONFIGURATION MENU QUESTIONS	
OPTION	SELECTION
RESET NAMES / MODULES	NO ☒ YES ☐
RAILROAD NUMBER	125
CROSSING CONFIGURATION	NORMAL ☒ SPLIT GATE ☐ EXTERNAL ENTRANCE GATE CONTROLLER(S) ☐
AND1 USED AS XR	NO ☐ YES ☒
AND2 USED AS XR	NO ☒ YES ☐
AND3 USED AS XR	NO ☒ YES ☐
AND4 USED AS XR	NO ☒ YES ☐
AND5 USED AS XR	NO ☒ YES ☐
AND6 USED AS XR	NO ☒ YES ☐
AND7 USED AS XR	NO ☒ YES ☐
AND8 USED AS XR	NO ☒ YES ☐
ENTRANCE GATES*	0 ☐ 1 ☐ 2 ☒ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐
GATE POSITION FAIL*	20 SECS.
BATTERY BANKS*	1 ☐ 2 ☒ 3 ☐
BATT MON USED*	NO ☐ YES ☒
OB RESOLUTION*	0.2 ☐ 0.5 ☐ 1.0 ☒
X-B RESOLUTION*	0.2 ☐ 0.5 ☐ 1.0 ☒ NOT PRESENT ☐
X-B2 RESOLUTION*	0.2 ☐ 0.5 ☐ 1.0 ☐ NOT PRESENT ☒
BATT MON RESOLUTION*	0.2 ☐ 0.5 ☐ 1.0 ☒ NOT PRESENT ☐
INTERNAL CROSSING CONTROLLERS*	0 ☐ 1 ☐ 2 ☒
EXTERNAL CROSSING CONTROLLERS*	0 ☒ 1 ☐ 2 ☐
VHF COMMUNICATOR*	YES ☒ NO ☐
DTMF ACTVATION*	YES ☒ NO ☐
ACTIVATION CODE	627
ACTIVATION TIMEOUT	(60 SEC)
IL0D MODULES*	0 ☐ 1 ☐ 2 ☒ 3 ☐ 4 ☐
ANY LED BULBS USED*	NO ☐ YES ☒
AUTO INSPECTIONS*	YES ☐ NO ☒
BELL SENSORS*	0 ☐ 1 ☐ 2 ☒ 3 ☐ 4 ☐
BELL SENSOR TSS 1*	NO ☐ YES ☒
BELL SENSOR TSS 2*	NO ☐ YES ☒
BELL SENSOR TSS 3*	NO ☒ YES ☐
BELL SENSOR TSS 4*	NO ☒ YES ☐
BELL SENSOR TSS 5*	NO ☒ YES ☐
BELL SENSOR TSS 6*	NO ☒ YES ☐
BELL SENSOR TSS 7*	NO ☒ YES ☐
BELL SENSOR TSS 8*	NO ☒ YES ☐
BELL ON*	GATES LOWERING ☒ GATES MOVING ☐ ALWAYS ☐
GFT'S	YES ☒ NO ☐
BATTERIES ON GFT1	1 ☐ 2 ☒
GATE TIP SENSORS*	YES ☐ NO ☒
RTU	NO ☒ YES ☐
VHF VOICE CHANNEL	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐
VHF DATA CHANNEL	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐
USE NON-CRITICAL FEATURE*	NO ☒ YES ☐
FULL APPROACH MOVE ALARMS*	ACTIVATE ☒ DO NOT ACTIVATE ☐
ENABLE PASSWORD	NO ☒ YES ☐

NOTES,

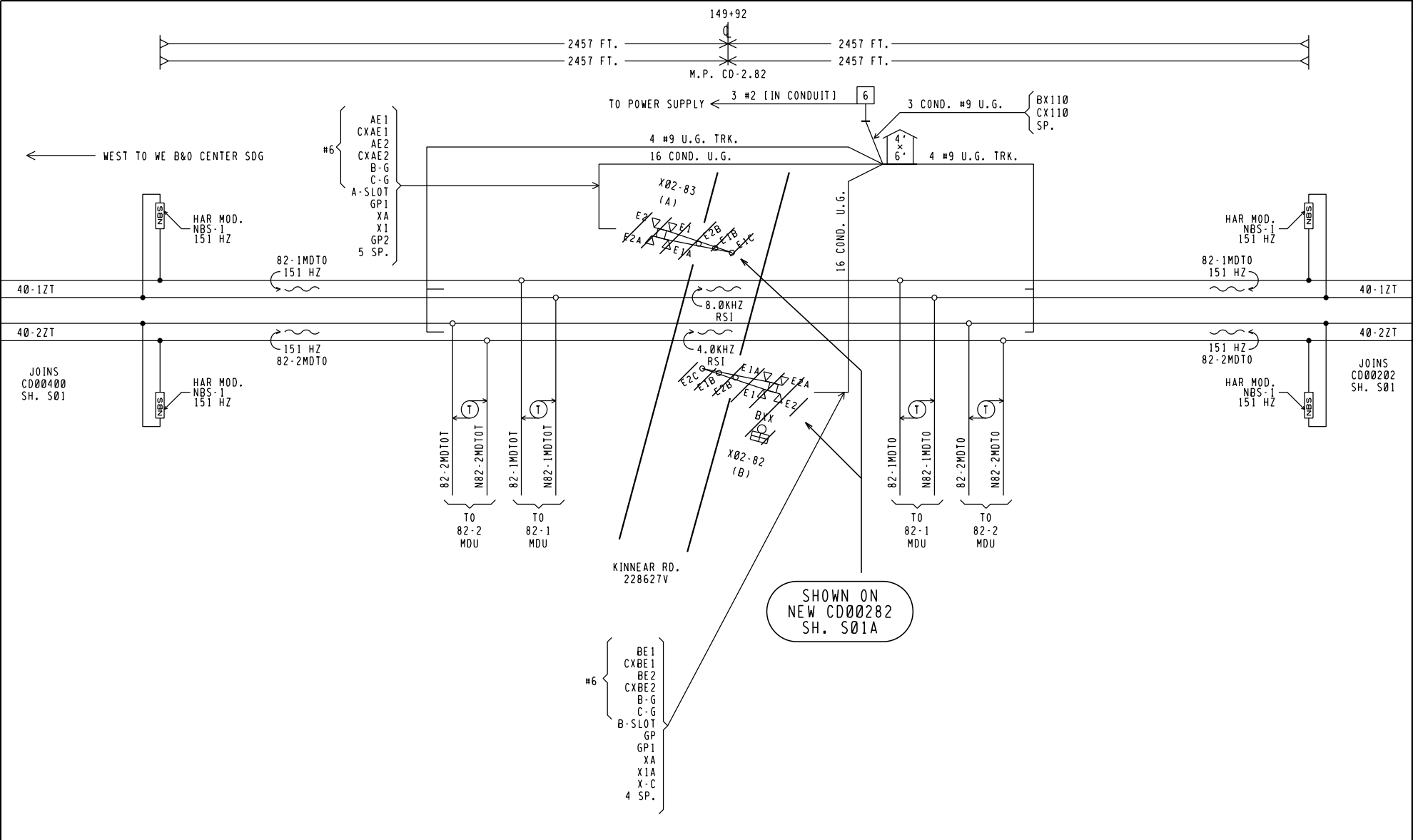
- OPTION AVAILABLE IF VHF COMMUNICATOR = YES
LAST 3 DIGITS OF DOT NUMBER.
- OPTION AVAILABLE IF IL0DS.
- OPTION AVAILABLE IF BELL SENSORS.
- OPTION AVAILABLE IF GATES.
- OPTION AVAILABLE IF VHF RADIO.
- ONLY YES IN SPECIAL CIRCUMSTANCES.
- SELECT "MENU" THEN "CONFIGURATION" FROM SEAR II
INTERFACE KEYPAD TO ACCESS MODULE CONFIGURATION
MENU.
- BATTERY BANKS* = NUMBER OF BANKS EXCLUDING
THE BANK APPLIED TO THE BAT MON SEAR INPUT
- YES ON INITIAL SETUP

4000GCP.C07
REV. 09-04-15

DESIGN DATE
09-21-16

REV. NO.
1

CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
CR 176 (KINNEAR RD.) 228627V			
SEAR II: CONFIGURATION & FUNCTIONS COLUMBUS, OH M.P. CD-002.82			
DESIGNED SSE	DIGITIZED SSE	CHECKED SSE	DATE 09-21-16
DESIGN DATE 09-21-16	REV. NO. 1	DRAWING	SHEET C07



REVISIONS			
11-22-85 REPORT W.H.K. 4-12-85			
03/18/93	(OH1992040)	ORS/JSH	
03-04-97	HAR	OH1993073	
05-21-13	IRS	OH2011068 OH2011035 OH2013026	
07-01-16	IRS	OH2012094	

○ = NOTE
//// = SHOWN ELSEWHERE

**ALL ELSE OUT
VOID ON A.I.S.**

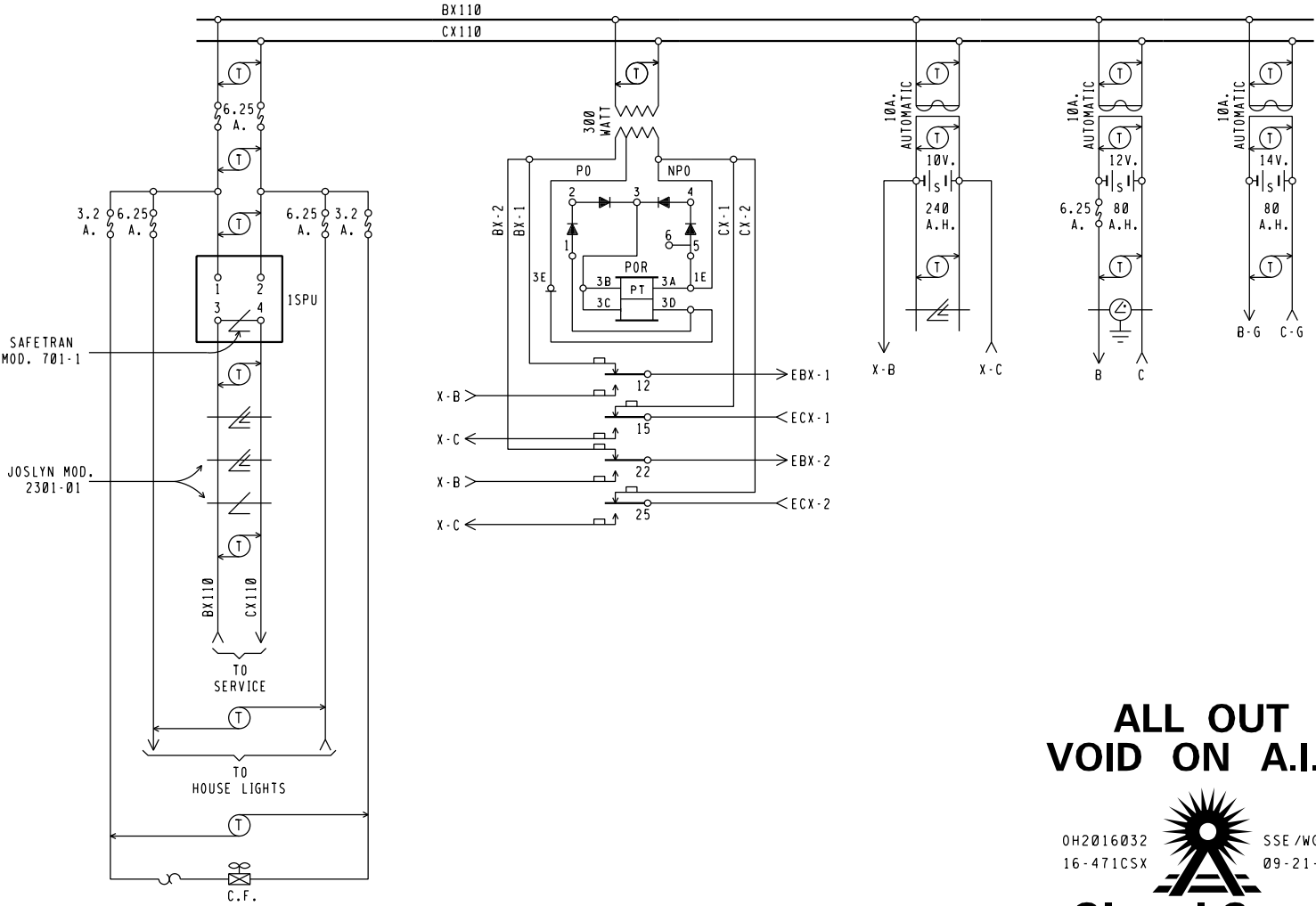
OH2016032 SSE/WGM/RCC
16-471CSX 09-21-16


Signal South

CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
KINNEAR RD. 228627V			
TRACK AND SIGNAL PLAN COLUMBUS, OH M.P. CD-2.82			
DESIGNED TMK	DIGITIZED TMK	CHECKED CEW	DATE 01-15-85
NEXT FILE CD00282	NEXT SH E01	FILE CD00282	SHEET S01

	82-1MDR				82-2MDR				XR				XPR				POR		
	12		B4		12		B4		12	FB	B4		22	F	B36		12	FB	B62
	15		C30		15		C30		15	FB	C30		25	F	C30		15	FB	C30
	22				22				22								22	FB	
	23	F			23	F			23								25	FB	
	25				25				25								32		
	32				32				32								35		
	35				35				35										
EOR				GPR															
12	FB	B48		13	B	B49													
15	FB	C30		15	B	C30													
32	FB			32	B														
35	FB			35															

EQUIPMENT		
REF.	NOMENCLATURE	TYPE
	ISPU	SURGE PROTECTOR, SAFETRAN MODEL SP20-2A
	C.F.	CIRCULATING FAN, 110V. A.C.



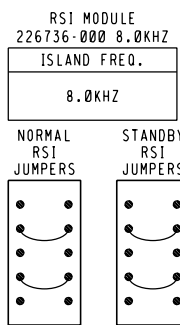
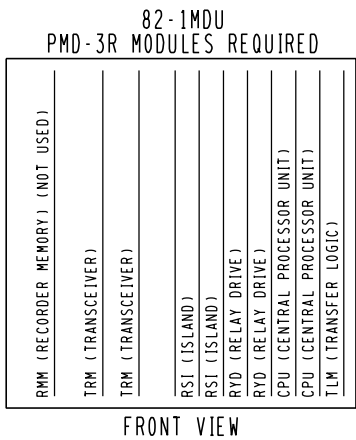
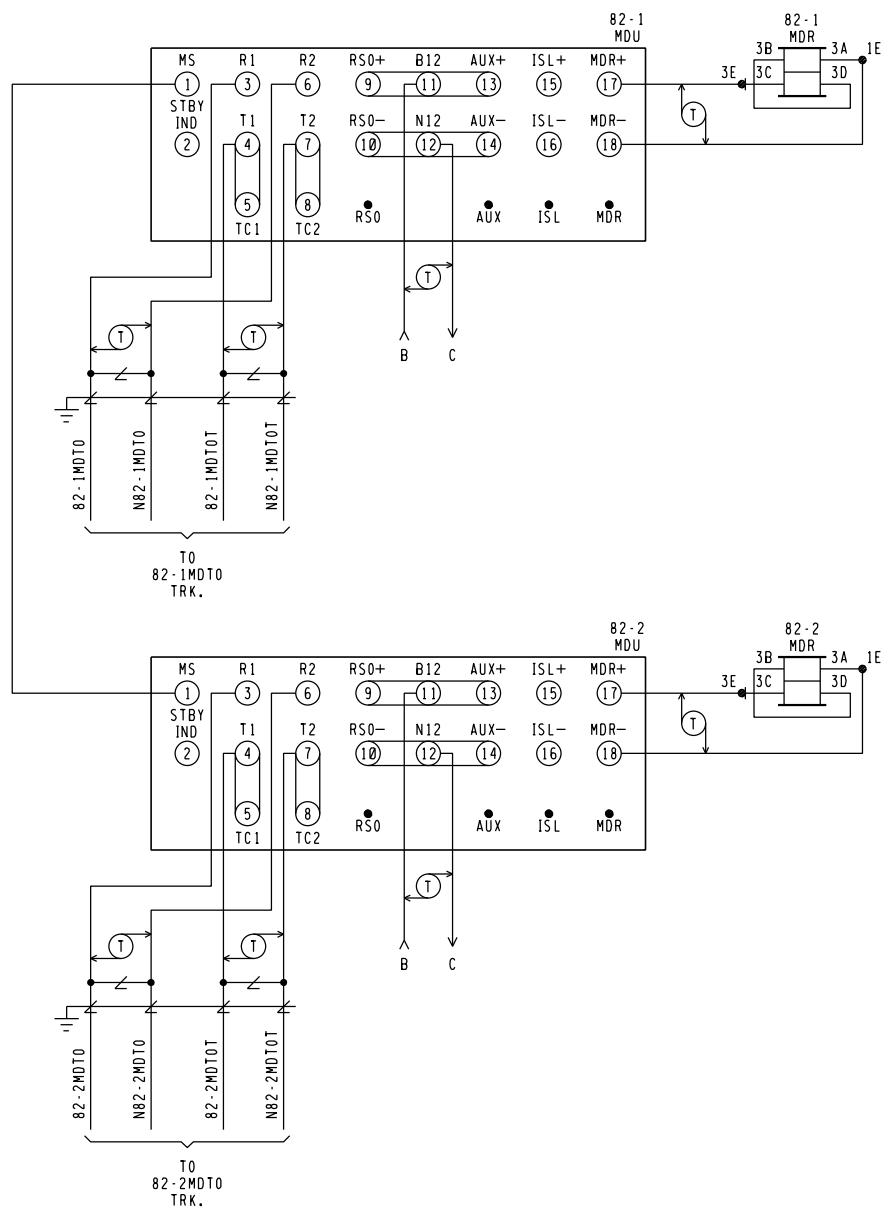
- NOTES:
- 1 - REFERENCES ARE PER SCMS-13.
 - 2 - SHELF RELAY PLACEMENT ON CONSIST CHART HAS NO SIGNIFICANCE.
 - 3 - PLUG-IN-RELAYS ARE VIEWED FROM FRONT OF RACK.

ALL OUT
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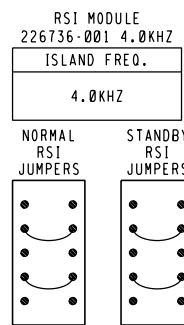
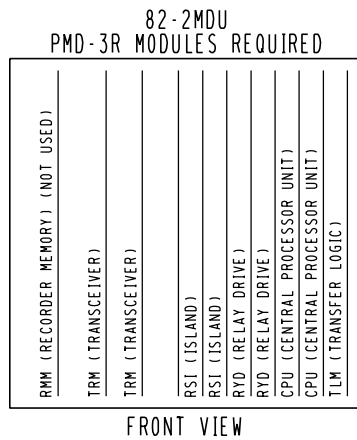


4' X 6' RELAY HOUSE

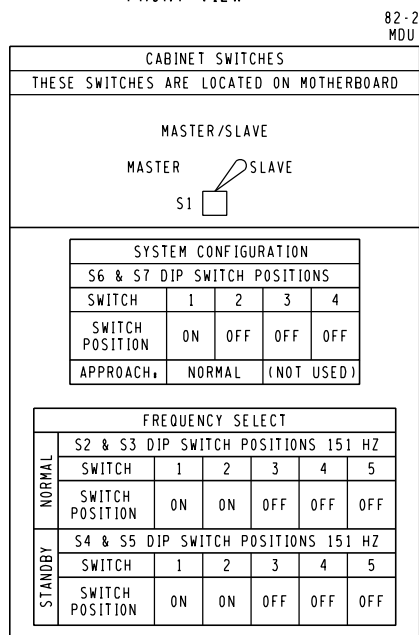
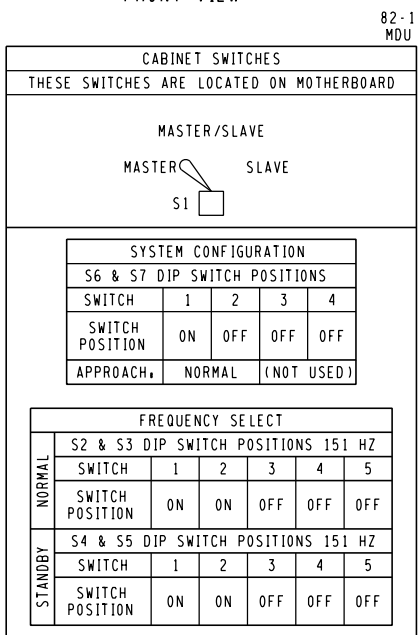
REVISIONS			CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
11-22-85	REPORT W.H.K.	4-12-85				
03-18-93	(0H92040)	ORS/JSH	KINNAR RD. 228627V			
03-04-97	HAR	0H93073				
05-21-13	IRS	0H2013026				
07-01-16	IRS	0H2012094				
			POWER DISTRIBUTION COLUMBUS, OH M.P. CD-2.82			
DESIGNED	DIGITIZED	CHECKED	DATE			
TMK	TMK	CEW	1-15-85			
DRAWING	SHEET NO	NEXT SH	NEXT FILE	NEXT SH	FILE	SHEET
.....			CD00282	C01	CD00282	E01



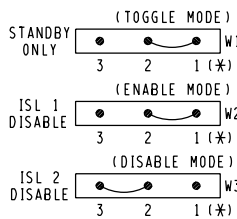
LOS 0
LOS 1
LOS 2
FAULT 0
FAULT 1



LOS 0
LOS 1
LOS 2
FAULT 0
FAULT 1

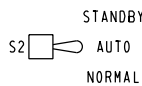


TLM MODULE
JUMPERS AND SWITCHES



NOTE.
PIN 1 IS IDENTIFIED
BY ASTERICK BELOW IT.
(*) = MAY BE SET PER
FIELD CONDITIONS.

MINUTE TIMEOUT SWITCH
SETTING (☆) 9 MINUTES



ALL OUT
VOID ON A.I.S.



REVISIONS			CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
05-21-13 IRS 0H2013026						
07-01-16 IRS 0H2012094						
			KINNEAR RD. 228627V			
			CROSSING DETECTION CIRCUITRY COLUMBUS, OH M.P. CD-2.82			
			DESIGNED CSX	DIGITIZED IRS/TLM	CHECKED IRS/LLB	DATE 05-21-13
DRAWING	SHEET NO	NEXT SH	NEXT FILE CD00282	NEXT SH C02	FILE CD00282	SHEET C01

82-1MDU			
TRM LOCAL PARAMETERS PMD-3R DESIGN CARD			
		DEFAULTS & /OR STYLE	FIELD RECORD
OPERATING PROGRAM PROG	VERSION AND COMPILE DATE	35.0 MM/DD/YY	<u> </u> <u> </u> <u> </u>
SYSTEM MONITOR PROGRAM EPRM	VERSION AND COMPILE DATE	20.2 MM/DD/YY	<u> </u> <u> </u> <u> </u>
ADJUSTMENT	RANGE	DEFAULT	TRACK 1
#1 RX	100 IS INTENDED	NA	
#2 PH (PHASE)	INTENDED ABOVE 32 (NOT ADJUSTABLE)	NA	
#3 CW / MD	CW OR MD NOT ADJUSTABLE FROM MD TOWARD CW (SEE TCR 430-01 FOR CONSTRAINTS)	MD	MD
#4 UNI/BI (IF CW IS CHOSEN IN #3)	UNI OR BI	BI	BI
#5 LIA (IF CW IS CHOSEN IN #3)	-9 TO +9	LIA=0	NA
#6 WT (IF CW IS CHOSEN IN #3)	23 TO 99	WT=99	NA
#7 TC	WHEN IN CONFORMANCE WITH PMD-3R MANUAL, ADJUST TC FOR A TRANSMITTER CHECK MONITOR VALUE LESS THAN 470	NA	
#8 B (BALLAST COMPENSATION)	50 TO 250 (FIELD ADJUSTMENT - ADJUST ONLY WHEN IN CONFORMANCE WITH DATA ACCUMULATED AT THIS SITE AND IN COMPLIANCE WITH SUPERVISOR INSTRUCTIONS & PMD-3R MANUAL)	NA	
#9 PC (PHASE COMPENSATION)	0 TO +10 (FIELD ADJUSTMENT - ADJUST ONLY WHEN IN CONFORMANCE WITH SUPERVISOR INSTRUCTIONS & PMD-3R MANUAL)	PC=0	
#10 FREQ	REFERENCE, NOT ADJUSTABLE FROM MENU	NA	151 HZ
#11 FS-T (FALSE SHUNT TIMER)	ENTRANCE TO SUDDEN FALSE SHUNT SUB-MENU	NA	NA
#12 FR (FALSE SHUNT % OF RX APPROACH)	0 TO 80 NOT ADJUSTABLE FROM ZERO UNTIL AFTER STRICT DESIGN REVIEW FOR SITE APPLICATION CONFLICTS, FR=0 MEANS DISABLED (SEE TCR 430-01 FOR CONSTRAINTS)	FR=0	FR=0
#13 FT (FAULT TIMER)	0 TO 99 MINUTES (FACTORY DEFAULT IS 10)	FT=10	NA
#14 AR-T (APPROACH RELEASE TIMER)	ENTRANCE TO SUB-MENU FOR RESIDUAL FALSE SHUNT STARTED DURING TRAIN PASSAGE	NA	NA
#15 AR (FALSE SHUNT % OF RX APPROACH)	0 TO 80 NOT ADJUSTABLE FROM ZERO UNTIL AFTER STRICT DESIGN REVIEW FOR SITE APPLICATION CONFLICTS AR=0 MEANS DISABLED (SEE TCR 430-01 FOR CONSTRAINTS)	AR=0	AR=0
#16 AT (FAULT TIMER)	0 TO 99 MINUTES (FACTORY DEFAULT IS 10)	AT=10	AT=10
#17 HS (HIGHEST STABLE R VALUE)	REFERENCE, NOT ADJUSTABLE FROM MENU	NA	NA
#18 LP (LOWEST STABLE PHASE)	REFERENCE, NOT ADJUSTABLE FROM MENU	NA	NA
#19 SD (SELF DIAGNOSTICS)	REFERENCE, NOT ADJUSTABLE FROM MENU, BUT MENU CAN REVIEW, THEN CLEAR DIAGNOSTIC CODES	NA	NA
#20 REC (TRAIN RECORD DISPLAY)	REFERENCE, SEQUENTIAL DISPLAY OF PREVIOUS WARNING TIME RECORDS (NO ADJUSTMENT)	NA	NA
#21 PRN (PRINTER/LAPTOP READY)	STARTS DOWNLOAD OF INTERNAL TRAIN EVENT LOG WHEN SERIAL PORT CABLE CONNECTED	NA	NA
#22 LSP (LOCAL SERIAL PORT)	ENTRANCE TO SUB-MENU FOR SETTING SPEED OF SERIAL PORT DOWNLOADS	NA	NA
#23 @ (BAUD RATE)	BAUD RATE OF 38,400 IS 384 AND DEFAULT	@=384	@=384
#24 DB (DATA BITS)	7 OR 8 8 IS DEFAULT	DB=8	DB=8
#25 PA (PARITY)	0, E, OR N N IS DEFAULT	PA=N	PA=N
#26 AR (AUTO RX)	UP OR DN DN IS FACTORY DEFAULT (FIELD ADJUSTMENT - ADJUST TO "UP" ONLY WHEN BC HAS BEEN PREVIOUSLY STABILIZED THROUGH ADJUSTMENT, AND ONLY WHEN IN CONFORMANCE WITH SUPERVISOR INSTRUCTIONS AND PMD-3R MANUAL)	AR=DN	AR=DN
#27 RX (POTENTIOMETER VALUE)	REFERENCE, DISPLAY ONLY	NA	NA
#28 VERS (PROGRAM VERSION)	REFERENCE, SEQUENTIAL DISPLAY OF EPROM AND SOFTWARE VERSIONS	NA	NA

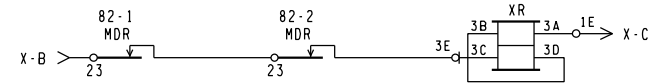
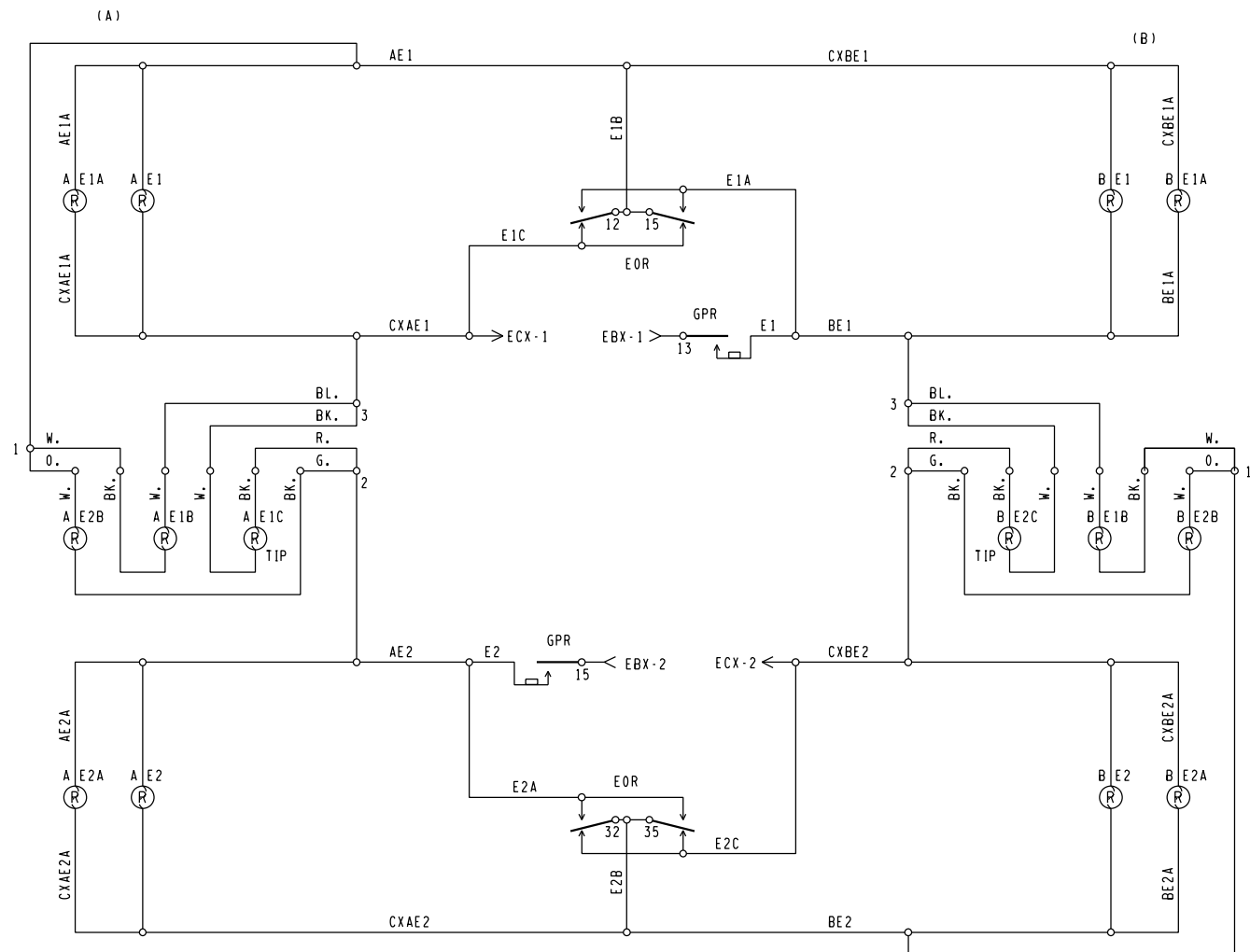
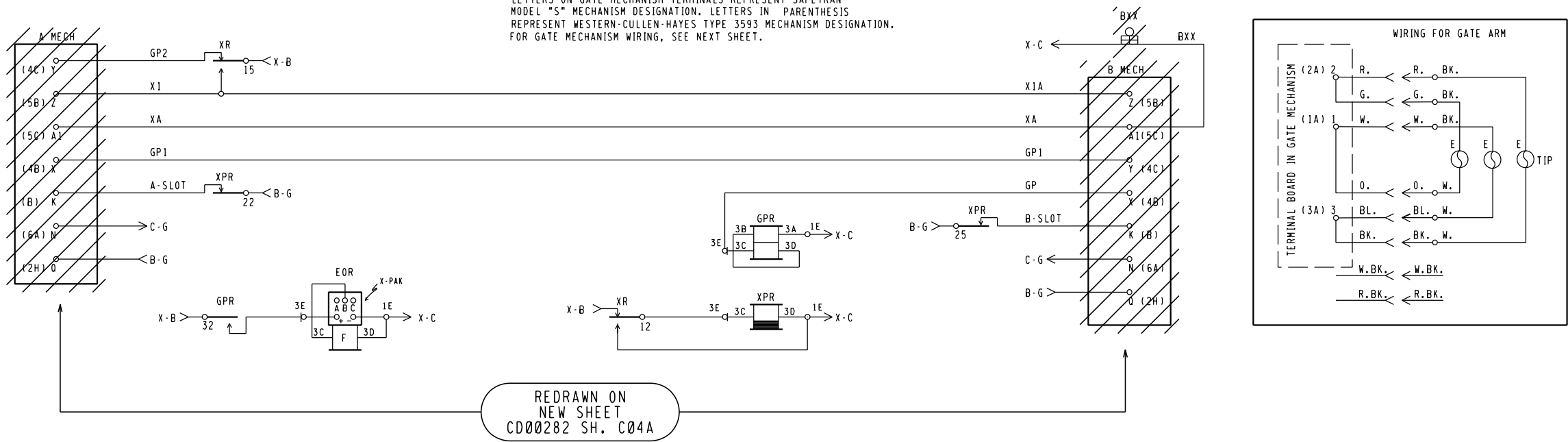
82-2MDU			
TRM LOCAL PARAMETERS PMD-3R DESIGN CARD			
		DEFAULTS & /OR STYLE	FIELD RECORD
OPERATING PROGRAM PROG	VERSION AND COMPILE DATE	35.0 MM/DD/YY	<u> </u> <u> </u> <u> </u>
SYSTEM MONITOR PROGRAM EPRM	VERSION AND COMPILE DATE	20.2 MM/DD/YY	<u> </u> <u> </u> <u> </u>
ADJUSTMENT	RANGE	DEFAULT	TRACK 1
#1 RX	100 IS INTENDED	NA	
#2 PH (PHASE)	INTENDED ABOVE 32 (NOT ADJUSTABLE)	NA	
#3 CW / MD	CW OR MD NOT ADJUSTABLE FROM MD TOWARD CW (SEE TCR 430-01 FOR CONSTRAINTS)	MD	MD
#4 UNI/BI (IF CW IS CHOSEN IN #3)	UNI OR BI	BI	BI
#5 LIA (IF CW IS CHOSEN IN #3)	-9 TO +9	LIA=0	NA
#6 WT (IF CW IS CHOSEN IN #3)	23 TO 99	WT=99	NA
#7 TC	WHEN IN CONFORMANCE WITH PMD-3R MANUAL, ADJUST TC FOR A TRANSMITTER CHECK MONITOR VALUE LESS THAN 470	NA	
#8 B (BALLAST COMPENSATION)	50 TO 250 (FIELD ADJUSTMENT - ADJUST ONLY WHEN IN CONFORMANCE WITH DATA ACCUMULATED AT THIS SITE AND IN COMPLIANCE WITH SUPERVISOR INSTRUCTIONS & PMD-3R MANUAL)	NA	
#9 PC (PHASE COMPENSATION)	0 TO +10 (FIELD ADJUSTMENT - ADJUST ONLY WHEN IN CONFORMANCE WITH SUPERVISOR INSTRUCTIONS & PMD-3R MANUAL)	PC=0	
#10 FREQ	REFERENCE, NOT ADJUSTABLE FROM MENU	NA	151 HZ
#11 FS-T (FALSE SHUNT TIMER)	ENTRANCE TO SUDDEN FALSE SHUNT SUB-MENU	NA	NA
#12 FR (FALSE SHUNT % OF RX APPROACH)	0 TO 80 NOT ADJUSTABLE FROM ZERO UNTIL AFTER STRICT DESIGN REVIEW FOR SITE APPLICATION CONFLICTS, FR=0 MEANS DISABLED (SEE TCR 430-01 FOR CONSTRAINTS)	FR=0	FR=0
#13 FT (FAULT TIMER)	0 TO 99 MINUTES (FACTORY DEFAULT IS 10)	FT=10	NA
#14 AR-T (APPROACH RELEASE TIMER)	ENTRANCE TO SUB-MENU FOR RESIDUAL FALSE SHUNT STARTED DURING TRAIN PASSAGE	NA	NA
#15 AR (FALSE SHUNT % OF RX APPROACH)	0 TO 80 NOT ADJUSTABLE FROM ZERO UNTIL AFTER STRICT DESIGN REVIEW FOR SITE APPLICATION CONFLICTS AR=0 MEANS DISABLED (SEE TCR 430-01 FOR CONSTRAINTS)	AR=0	AR=0
#16 AT (FAULT TIMER)	0 TO 99 MINUTES (FACTORY DEFAULT IS 10)	AT=10	AT=10
#17 HS (HIGHEST STABLE R VALUE)	REFERENCE, NOT ADJUSTABLE FROM MENU	NA	NA
#18 LP (LOWEST STABLE PHASE)	REFERENCE, NOT ADJUSTABLE FROM MENU	NA	NA
#19 SD (SELF DIAGNOSTICS)	REFERENCE, NOT ADJUSTABLE FROM MENU, BUT MENU CAN REVIEW, THEN CLEAR DIAGNOSTIC CODES	NA	NA
#20 REC (TRAIN RECORD DISPLAY)	REFERENCE, SEQUENTIAL DISPLAY OF PREVIOUS WARNING TIME RECORDS (NO ADJUSTMENT)	NA	NA
#21 PRN (PRINTER/LAPTOP READY)	STARTS DOWNLOAD OF INTERNAL TRAIN EVENT LOG WHEN SERIAL PORT CABLE CONNECTED	NA	NA
#22 LSP (LOCAL SERIAL PORT)	ENTRANCE TO SUB-MENU FOR SETTING SPEED OF SERIAL PORT DOWNLOADS	NA	NA
#23 @ (BAUD RATE)	BAUD RATE OF 38,400 IS 384 AND DEFAULT	@=384	@=384
#24 DB (DATA BITS)	7 OR 8 8 IS DEFAULT	DB=8	DB=8
#25 PA (PARITY)	0, E, OR N N IS DEFAULT	PA=N	PA=N
#26 AR (AUTO RX)	UP OR DN DN IS FACTORY DEFAULT (FIELD ADJUSTMENT - ADJUST TO "UP" ONLY WHEN BC HAS BEEN PREVIOUSLY STABILIZED THROUGH ADJUSTMENT, AND ONLY WHEN IN CONFORMANCE WITH SUPERVISOR INSTRUCTIONS AND PMD-3R MANUAL)	AR=DN	AR=DN
#27 RX (POTENTIOMETER VALUE)	REFERENCE, DISPLAY ONLY	NA	NA
#28 VERS (PROGRAM VERSION)	REFERENCE, SEQUENTIAL DISPLAY OF EPROM AND SOFTWARE VERSIONS	NA	NA

ALL OUT
VOID ON A.I.S.



REVISIONS			CSXTRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS KINNEAR RD. 228627V DETECTION DEVICE PROGRAM COLUMBUS, OH M.P. CD-2.82			
05-21-13 IRS 0H2013026						
07-01-16 IRS 0H2012094						

NOTE.
LETTERS ON GATE MECHANISM TERMINALS REPRESENT SAFETRAN
MODEL "S" MECHANISM DESIGNATION. LETTERS IN PARENTHESIS
REPRESENT WESTERN-CULLEN-HAYES TYPE 3593 MECHANISM DESIGNATION.
FOR GATE MECHANISM WIRING, SEE NEXT SHEET.



○ = NOTE

//// = SHOWN ELSEWHERE

**ALL ELSE OUT
VOID ON A.I.S.**



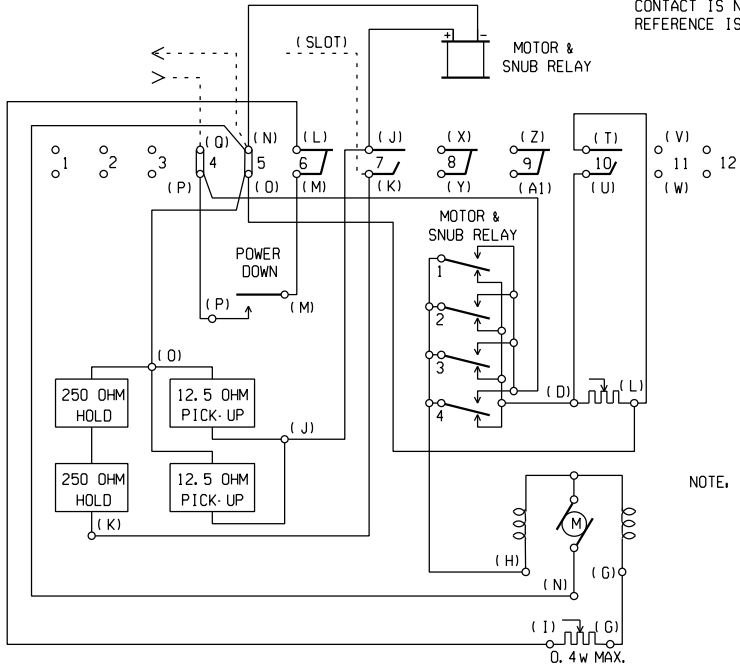
0H2016032
16-471CSX

SSE /WGM/RCC
09-21-16

REVISIONS			CSX TRANSPORTATION			
REPORT W.H.K. 4-12-85			RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
03/18/93 (0H92040) ORS/JSH			KINNEAR RD. 228627V			
08-31-00 IRS 0H2000076			CROSSING WARNING DEVICE CIRCUITRY COLUMBUS, OH M.P. CD-2.82			
05-21-13 IRS 0H2013026			DESIGNED	DIGITIZED	CHECKED	DATE
07-01-16 IRS 0H2012094			TMK	TMK	CEW	01-15-85
DRAWING	SHEET NO	NEXT SH	NEXT FILE	NEXT SH	FILE	SHEET
.....			CD00282	C04	CD00282	C03

CONTACT	CLOSED AT	CIRCUIT CONTROLLER FUNCTION
6	45-90°	POWER DOWN CONTROL
7	0-89°	POWER UP CONTROL
8	83-90°	GATE REPEATER RELAY CONTROL
9	5-90°	BELL CONTROL
10	0-5°	HORIZONTAL SNUB CONTROL
11	*	SIGNAL CONTROL

*-SEE NOTE 5



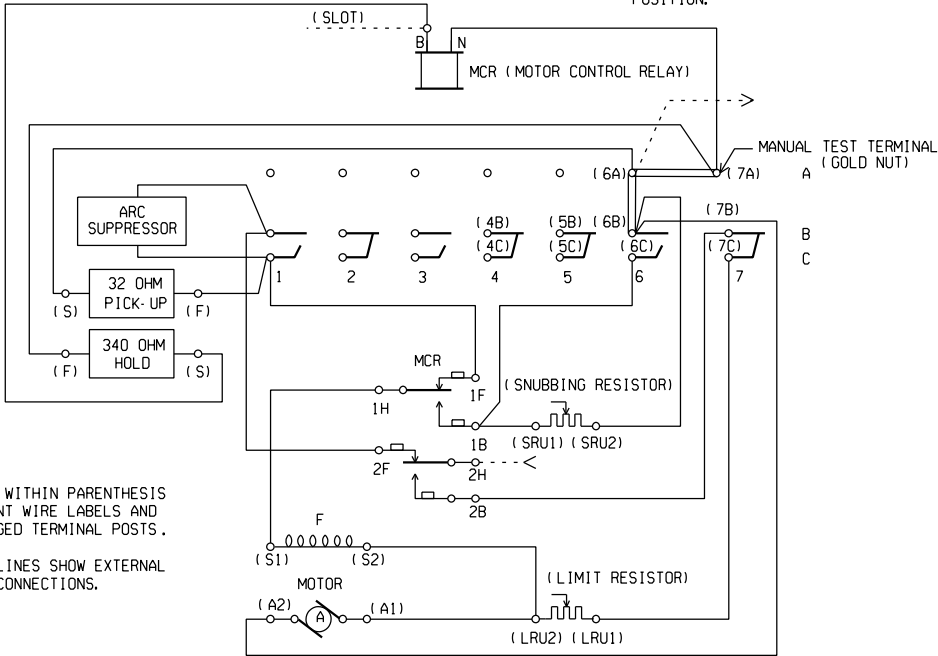
SAFETRAN SYSTEMS CORP. POWER DOWN WITH MODEL "S" MECHANISM

- NOTES: 1. ALL CAMS ARE ADJUSTABLE FOR GATE ARM POSITIONS 0° THROUGH 90°
2. WIRING BETWEEN JUNCTION BOX BASE AND CONNECTING TERMINALS IN MECHANISM HOUSING SHALL BE FURNISHED BY THE RAILROAD. WIRES TO TERMINALS "Q" AND "N" SHALL NOT BE LESS THAN INSULATED NO.10 AWG FLEX.
3. GATE LIGHT WIRING SHALL BE TERMINATED ON TERMINAL POSITIONS "1", "2", AND "3".
4. CONTACTS SHOWN WITH MECHANISM IN VERTICAL POSITION.
5. USE TERMINAL POSITION "11" WHEN ADDITIONAL CONTACT IS NECESSARY. CONTACT ASSEMBLY REFERENCE IS SAFETRAN PART NO. 070633-AX.

NOTE, LETTERS WITHIN PARENTHESIS REPRESENT WIRE LABELS AND NOT TAGGED TERMINAL POSTS.

DOTTED LINES SHOW EXTERNAL WIRING CONNECTIONS.

CONTACT	CLOSED AT	CIRCUIT CONTROLLER FUNCTION
1	0-89°	POWER UP CONTROL
2		SPARE CONTACT
3	0-5°	SPARE CONTACT (SIGNAL CONTROL)
4	86-90°	GATE REPEATER RELAY CONTROL
5	5-90°	BELL CONTROL
6	0-5°	HORIZONTAL SNUB CONTROL
7	45-90°	MOTOR DOWN CONTROL



NOTE, LETTERS WITHIN PARENTHESIS REPRESENT WIRE LABELS AND NOT TAGGED TERMINAL POSTS.

DOTTED LINES SHOW EXTERNAL WIRING CONNECTIONS.

- NOTES: 1. ALL CAMS ARE ADJUSTABLE FOR GATE ARM POSITIONS 0° THROUGH 90°
2. WIRING BETWEEN JUNCTION BOX BASE AND CONNECTING TERMINALS IN MECHANISM HOUSING SHALL BE FURNISHED BY THE RAILROAD. WIRES TO TERMINAL "6A" AND "2H" OF THE MOTOR CONTROL RELAY SHALL NOT BE LESS THAN INSULATED NO.10 AWG FLEX.
3. GATE LIGHT WIRING SHALL BE TERMINATED ON THE CIRCUIT CONTROLLER BOARD, ROW "A", TERMINAL POSITIONS "1", "2", AND "3".
4. CONTACTS SHOWN WITH MECHANISM IN VERTICAL POSITION.

WESTERN-CULLEN-HAYES, INC. MODEL 10 POWER DOWN WITH TYPE 3593 MECHANISM

ALL OUT
VOID ON A.I.S.



0H2016032
16-471CSX

SSE /WGM/RCC
09-21-16

REVISIONS			CSXTRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS KINNEAR RD. 228627V CROSSING WARNING DEVICE GATE CIRCUITRY COLUMBUS, OH M.P. CD-2.82 DESIGNED TMK DIGITIZED TMK CHECKED CEW DATE 01-15-85			
REPORT W.H.K. 4-12-85						
05-21-13 IRS 0H2013026						
07-01-16 IRS 0H2012094						
DRAWING *****	SHEET NO *****	NEXT SH *****	NEXT FILE *****	NEXT SH *****	FILE CD00282	SHEET C04

SH. NO.	INDEX CONTENTS	REVISION NO.								
		1	2	3	4	5	6	7	8	9
I01	INDEX AND REVISIONS	X	Ø							
S01	TRACK AND SIGNAL PLAN	X								
P01	ELECTROLOGIXS PROGRAM	X								
P02	ELECTROLOGIXS PROGRAM	X								
E01	POWER DISTRIBUTION	X								
E02	ELECTROLOGIXS MODULE CONFIGURATION	X								
C01	ELECTROLOGIXS CIRCUITS	X								
C02	ELECTROLOGIXS TRACK CIRCUITS (TRACK 1)	X	Ø							
C03	SIGNAL LIGHTING CIRCUITS (TRACK 1)	X								
C04	ELECTROLOGIXS TRACK CIRCUITS (TRACK 2)	X	Ø							
C05	SIGNAL LIGHTING CIRCUITS (TRACK 2)	X								
C06	ELECTROLOGIXS I/O CIRCUITS	X								
C07	ELECTROLOGIXS I/O CIRCUITS	X								
C08	ELECTROLOGIXS I/O CIRCUITS	X								
C09	ELECTROLOGIXS I/O CIRCUITS (TRACK 2)	X								

X

= DESIGN COMPLETED

X

= REVISION COMPLETED

Ø

= NOTE

Ø-Ø-Ø

= IN

X-X-X

= OUT

0H2016032
16-471CSX



SSE /WGM/RCC
09-21-16

Signal South

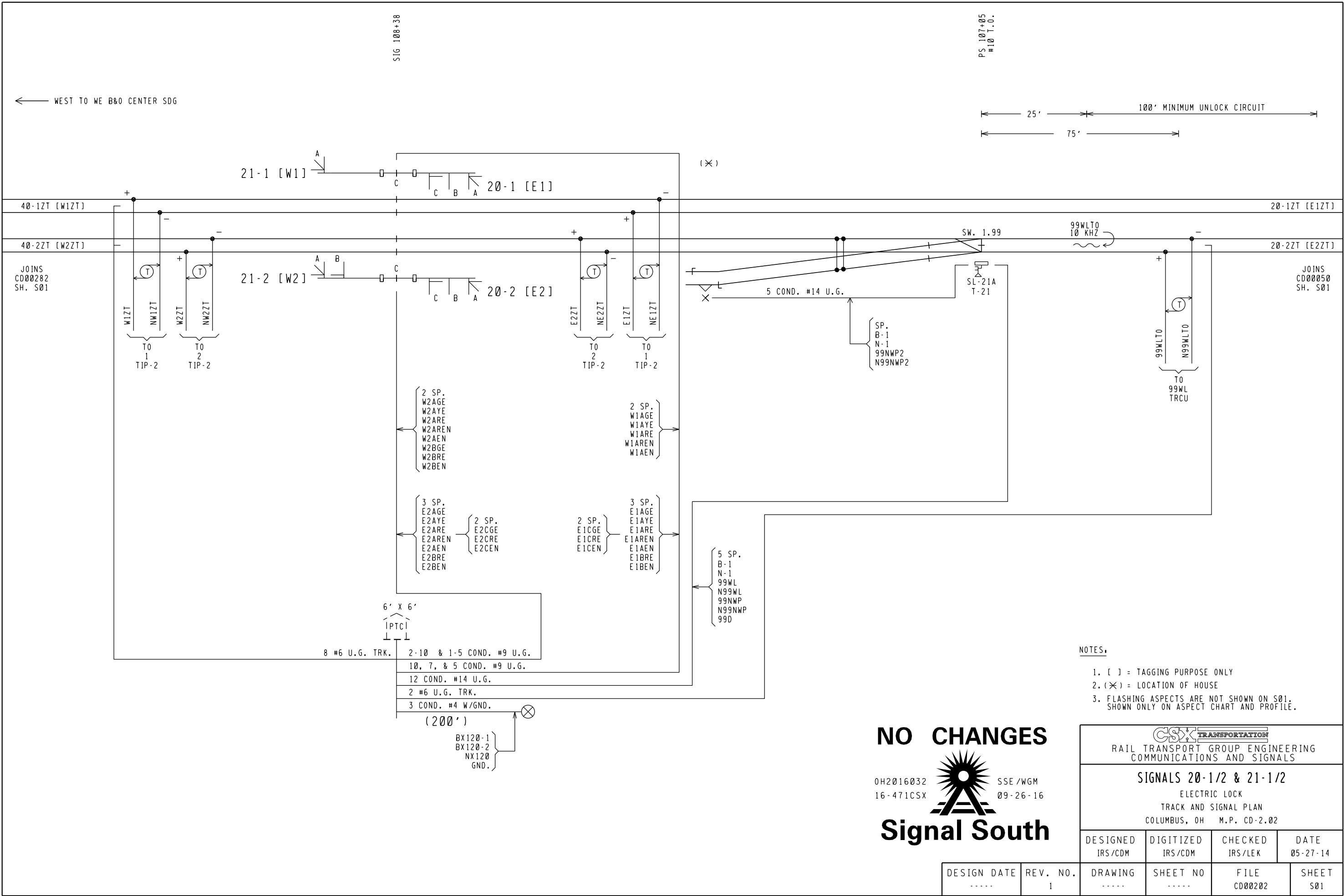
CSXTRANSPORTATION

RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

SIGNALS 20-1/2 & 21-1/2

ELECTRIC LOCK
INDEX AND REVISIONS
COLUMBUS, OH M.P. CD-2.02

DESIGNED IRS/CDM	DIGITIZED IRS/CDM	CHECKED IRS/LEK	DATE 05-27-14
DRAWING	SHEET NO	FILE CD00202	SHEET 101



VITAL SELECTION SETTINGS				
SETT.	BIT NAME	TRUE	FALSE	BIT MEANING
1	N_W1C1SW	☒	☐	(FOR SETTING, SEE CHART BELOW)
2	N_W1C5SW	☐	☒	(FOR SETTING, SEE CHART BELOW)
3	S_E1C1SW	☒	☐	(FOR SETTING, SEE CHART BELOW)
4	S_E1C5SW	☐	☒	(FOR SETTING, SEE CHART BELOW)
5	N_W2C1SW	☒	☐	(FOR SETTING, SEE CHART BELOW)
6	N_W2C5SW	☐	☒	(FOR SETTING, SEE CHART BELOW)
7	S_E2C1SW	☒	☐	(FOR SETTING, SEE CHART BELOW)
8	S_E2C5SW	☐	☒	(FOR SETTING, SEE CHART BELOW)
9	N_W1VSS1	☒	☐	N_W1 SIGNAL - ASPECT CODE OUT VITAL SELECTION SETTING #1
10	N_W1VSS2	☒	☐	N_W1 SIGNAL - ASPECT CODE OUT VITAL SELECTION SETTING #2
11	N_W1VSS3	☒	☐	N_W1 SIGNAL - ASPECT CODE OUT VITAL SELECTION SETTING #3
12	N_W1VSS4	☒	☐	N_W1 SIGNAL - ASPECT CODE OUT VITAL SELECTION SETTING #4
13	N_W1VSS5	☒	☐	N_W1 SIGNAL - ASPECT CODE OUT VITAL SELECTION SETTING #5
14	N_W1VSS6	☒	☐	N_W1 SIGNAL - ASPECT CODE OUT VITAL SELECTION SETTING #6
15	S_E1VSS1	☒	☐	S_E1 SIGNAL - ASPECT CODE OUT VITAL SELECTION SETTING #1
16	S_E1VSS2	☐	☒	S_E1 SIGNAL - ASPECT CODE OUT VITAL SELECTION SETTING #2
17	S_E1VSS3	☐	☒	S_E1 SIGNAL - ASPECT CODE OUT VITAL SELECTION SETTING #3
18	S_E1VSS4	☒	☐	S_E1 SIGNAL - ASPECT CODE OUT VITAL SELECTION SETTING #4
19	S_E1VSS5	☒	☐	S_E1 SIGNAL - ASPECT CODE OUT VITAL SELECTION SETTING #5
20	S_E1VSS6	☐	☒	S_E1 SIGNAL - ASPECT CODE OUT VITAL SELECTION SETTING #6
21	N_W2VSS1	☒	☐	N_W2 SIGNAL - ASPECT CODE OUT VITAL SELECTION SETTING #1
22	N_W2VSS2	☒	☐	N_W2 SIGNAL - ASPECT CODE OUT VITAL SELECTION SETTING #2
23	N_W2VSS3	☒	☐	N_W2 SIGNAL - ASPECT CODE OUT VITAL SELECTION SETTING #3
24	N_W2VSS4	☒	☐	N_W2 SIGNAL - ASPECT CODE OUT VITAL SELECTION SETTING #4
25	N_W2VSS5	☒	☐	N_W2 SIGNAL - ASPECT CODE OUT VITAL SELECTION SETTING #5
26	N_W2VSS6	☒	☐	N_W2 SIGNAL - ASPECT CODE OUT VITAL SELECTION SETTING #6
27	S_E2VSS1	☒	☐	S_E2 SIGNAL - ASPECT CODE OUT VITAL SELECTION SETTING #1
28	S_E2VSS2	☐	☒	S_E2 SIGNAL - ASPECT CODE OUT VITAL SELECTION SETTING #2
29	S_E2VSS3	☐	☒	S_E2 SIGNAL - ASPECT CODE OUT VITAL SELECTION SETTING #3
30	S_E2VSS4	☒	☐	S_E2 SIGNAL - ASPECT CODE OUT VITAL SELECTION SETTING #4
31	S_E2VSS5	☒	☐	S_E2 SIGNAL - ASPECT CODE OUT VITAL SELECTION SETTING #5
32	S_E2VSS6	☐	☒	S_E2 SIGNAL - ASPECT CODE OUT VITAL SELECTION SETTING #6

CHART FOR SETTING CODE 5	
SETTING COMBINATION	RESULTANT
N_WC1SW - TRUE AND N_WC5SW - FALSE	CODE 1 IN SOUTH/EAST, CODE 5 OUT NORTH/WEST
N_WC1SW - FALSE AND N_WC5SW - TRUE	CODE 5 IN SOUTH/EAST, CODE 5 OUT NORTH/WEST
N_WC1SW - FALSE AND N_WC5SW - FALSE	CODE 5 NOT TRANSMITTED NORTH/WEST
N_WC1SW - TRUE AND N_WC5SW - TRUE	CODE 5 TRANSMITTED NORTH/WEST CONTINUOUSLY
S_EC1SW - TRUE AND S_EC5SW - FALSE	CODE 1 IN NORTH/WEST, CODE 5 OUT SOUTH/EAST
S_EC1SW - FALSE AND S_EC5SW - TRUE	CODE 5 IN NORTH/WEST, CODE 5 OUT SOUTH/EAST
S_EC1SW - FALSE AND S_EC5SW - FALSE	CODE 5 NOT TRANSMITTED SOUTH/EAST
S_EC1SW - TRUE AND S_EC5SW - TRUE	CODE 5 TRANSMITTED SOUTH/EAST CONTINUOUSLY

OFFICE SETTINGS	
ITEM	SETTING
SITE ID	SIGS 20 & 21
CHASSIS ID	5

VITAL APPLICATION INFORMATION	
ITEM	SETTING
NAME	CSX21NT9_V3
INDEX	001
EPT CRC	XXXX
EPT CHECKSUM	XXXX

FIELD VERIFY
ELECTROLOGIXS PROGRAM
MARK FOR A.I.S.

GFD-1 SETTINGS	
ITEM	SETTING
BATTERY 1 NAME	B-1
BATTERY 1 FAULT STATUS	NO FAULT
BATTERY 1 CALIBRATED VOLTAGE	13.5
BATTERY 1 GROUND FAULT THRESHOLD	8
BATTERY 1 GROUND FAULT TIME	30
BATTERY 1 LOW BATTERY ALARM VOLTAGE	8.0
BATTERY 1 HIGH BATTERY ALARM VOLTAGE	16.5
BATTERY 2 NAME	B-2
BATTERY 2 FAULT STATUS	NO FAULT
BATTERY 2 CALIBRATED VOLTAGE	13.5
BATTERY 2 GROUND FAULT THRESHOLD	8
BATTERY 2 GROUND FAULT TIME	30
BATTERY 2 LOW BATTERY ALARM VOLTAGE	8.0
BATTERY 2 HIGH BATTERY ALARM VOLTAGE	16.5
BATTERY 3 NAME	NONE
BATTERY 3 FAULT STATUS	NO FAULT
BATTERY 3 CALIBRATED VOLTAGE	13.5
BATTERY 3 GROUND FAULT THRESHOLD	8
BATTERY 3 GROUND FAULT TIME	30
BATTERY 3 LOW BATTERY ALARM VOLTAGE	8.0
BATTERY 3 HIGH BATTERY ALARM VOLTAGE	16.5

LOCK RELEASE TIME	
10 MIN. 0 SEC.	LONG TIME
0 MIN. 20 SEC.	SHORT TIME

- NOTES:
- ✕ = STATUS SET/CHANGED USING THE CDU-1, ALL OTHERS SET IN THE ACE PROGRAM.
 - VPM-3 ETHERNET PORT ENET1 IP ADDRESS IS 192.168.0.11. ENET2 IP ADDRESS IS AVAILABLE FROM A CSX ELECTRONIC SIGNAL SPECIALIST.

NO CHANGES



0H2016032 16-471CSX SSE /WGM 09-26-16

CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
SIGNALS 20-1/2 & 21-1/2 ELECTRIC LOCK ELECTROLOGIXS PROGRAM COLUMBUS, OH M.P. CD-2.02			
DESIGNED IRS/CDM	DIGITIZED IRS/CDM	CHECKED IRS/LEK	DATE 05-27-14
DESIGN DATE -----	REV. NO. 1	DRAWING -----	SHEET P01

CHASSIS ID SETTINGS				
DIP SHUNT	BIT NAME	TRUE	FALSE	BIT MEANING
1	N_W1C9AA			TRUE IF CODE 9 IN FOR ADV. APP. ASPECT ON SIG N_W1 FALSE IF CODE 8 IN FOR ADV. APP. ASPECT ON SIG N_W1
2	S_E1C9AA			TRUE IF CODE 9 IN FOR ADV. APP. ASPECT ON SIG S_E1 FALSE IF CODE 8 IN FOR ADV. APP. ASPECT ON SIG S_E1
3	N_W2C9AA			TRUE IF CODE 9 IN FOR ADV. APP. ASPECT ON SIG N_W2 FALSE IF CODE 8 IN FOR ADV. APP. ASPECT ON SIG N_W2
4	S_E2C9AA			TRUE IF CODE 9 IN FOR ADV. APP. ASPECT ON SIG S_E2 FALSE IF CODE 8 IN FOR ADV. APP. ASPECT ON SIG S_E2
5	BDE0_MODE1			TRUE WHEN LIMITED TUMBLEDOWN (BDE0) MODE REQUIRED ON TRACK 1. FALSE WHEN TRADITIONAL TUMBLEDOWN (TMDAT) MODE REQUIRED ON TRACK 1.
6	BDE0_MODE2			TRUE WHEN LIMITED TUMBLEDOWN (BDE0) MODE REQUIRED ON TRACK 2. FALSE WHEN TRADITIONAL TUMBLEDOWN (TMDAT) MODE REQUIRED ON TRACK 2.
7	SLOT8_ON			TRUE IF SLOT 8 IS USED FOR ELECTRIC LOCK/NWP OR CROSS LIGHTING ON TRACK 1. FALSE IF SLOT 8 IS NOT USED FOR ELECTRIC LOCK/NWP OR CROSS LIGHTING ON TRACK 1.
8	SLOT9_ON			TRUE IF SLOT 9 IS USED FOR ELECTRIC LOCK/NWP ON TRACK 2. FALSE IF SLOT 9 IS NOT USED FOR ELECTRIC LOCK/NWP ON TRACK 2.

APPLICATION ID SETTINGS				
DIP SHUNT	BIT NAME	TRUE	FALSE	BIT MEANING
1	N_W1C9AA			PER CHASSIS ID SETTING 1
2	S_E1C9AA			PER CHASSIS ID SETTING 2
3	N_W2C9AA			PER CHASSIS ID SETTING 3
4	S_E2C9AA			PER CHASSIS ID SETTING 4
5	BDE0_MODE1			PER CHASSIS ID SETTING 5
6	BDE0_MODE2			PER CHASSIS ID SETTING 6
7	SLOT8_ON			PER CHASSIS ID SETTING 7
8	SLOT9_ON			PER CHASSIS ID SETTING 8
9	N_W1MCODE			TRUE IF MAINTENANCE CODE WILL BE RECEIVED FROM THE NORTH/WEST AND WILL BE PASSED SOUTH/EAST. FALSE IF NO MAINTENANCE CODE IS RECEIVED FROM THE NORTH/WEST AND IT IS TO BE INITIATED TO THE SOUTH/EAST.
10	S_E1MCODE			TRUE IF MAINTENANCE CODE WILL BE RECEIVED FROM THE SOUTH/EAST AND WILL BE PASSED NORTH/WEST. FALSE IF NO MAINTENANCE CODE IS RECEIVED FROM THE SOUTH/EAST AND IT IS TO BE INITIATED TO THE NORTH/WEST.
11	N_W2MCODE			TRUE IF MAINTENANCE CODE WILL BE RECEIVED FROM THE NORTH/WEST AND WILL BE PASSED SOUTH/EAST. FALSE IF NO MAINTENANCE CODE IS RECEIVED FROM THE NORTH/WEST AND IT IS TO BE INITIATED TO THE SOUTH/EAST.
12	S_E2MCODE			TRUE IF MAINTENANCE CODE WILL BE RECEIVED FROM THE SOUTH/EAST AND WILL BE PASSED NORTH/WEST. FALSE IF NO MAINTENANCE CODE IS RECEIVED FROM THE SOUTH/EAST AND IT IS TO BE INITIATED TO THE NORTH/WEST.
13	N_WLOK POK			DIP SHUNT 13 TRUE AND DIP SHUNT 14 FALSE MAINTENANCE CODE FOR BLOCK LAMP-OUT INDICATION WILL BE TRANSMITTED INTO THE NORTH/WEST TRACK AND BLOCK POWER-OFF INDICATION WILL BE TRANSMITTED INTO THE SOUTH/EAST TRACK. IF BOTH SETTINGS ARE TRUE OR BOTH FALSE NO MAINTENANCE CODE WILL BE TRANSMITTED IN EITHER DIRECTION.
14	S_ELOK POK			DIP SHUNT 13 FALSE AND DIP SHUNT 14 TRUE MAINTENANCE CODE FOR BLOCK LAMP-OUT INDICATION WILL BE TRANSMITTED INTO THE SOUTH/EAST TRACK AND BLOCK POWER-OFF INDICATION WILL BE TRANSMITTED INTO THE NORTH/WEST TRACK. IF BOTH SETTINGS ARE TRUE OR BOTH FALSE NO MAINTENANCE CODE WILL BE TRANSMITTED IN EITHER DIRECTION.
15	N_WC5ER			TRUE FOR APPROACH LIGHTING OF THE S_E SIGNALS WITH LOSS OF CODE 5 FALSE FOR NORMAL APPROACH LIGHTING OF THE S_E SIGNALS
16	S_EC5ER			TRUE FOR APPROACH LIGHTING OF THE N_W SIGNALS WITH LOSS OF CODE 5 FALSE FOR NORMAL APPROACH LIGHTING OF THE N_W SIGNALS

FIELD VERIFY
ELECTROLOGIXS PROGRAM
MARK FOR A.I.S.

NOTE,
1. LOK-POK SETTINGS ARE FOR BOTH TRACKS.

NO CHANGES

0H2016032
16-471CSX

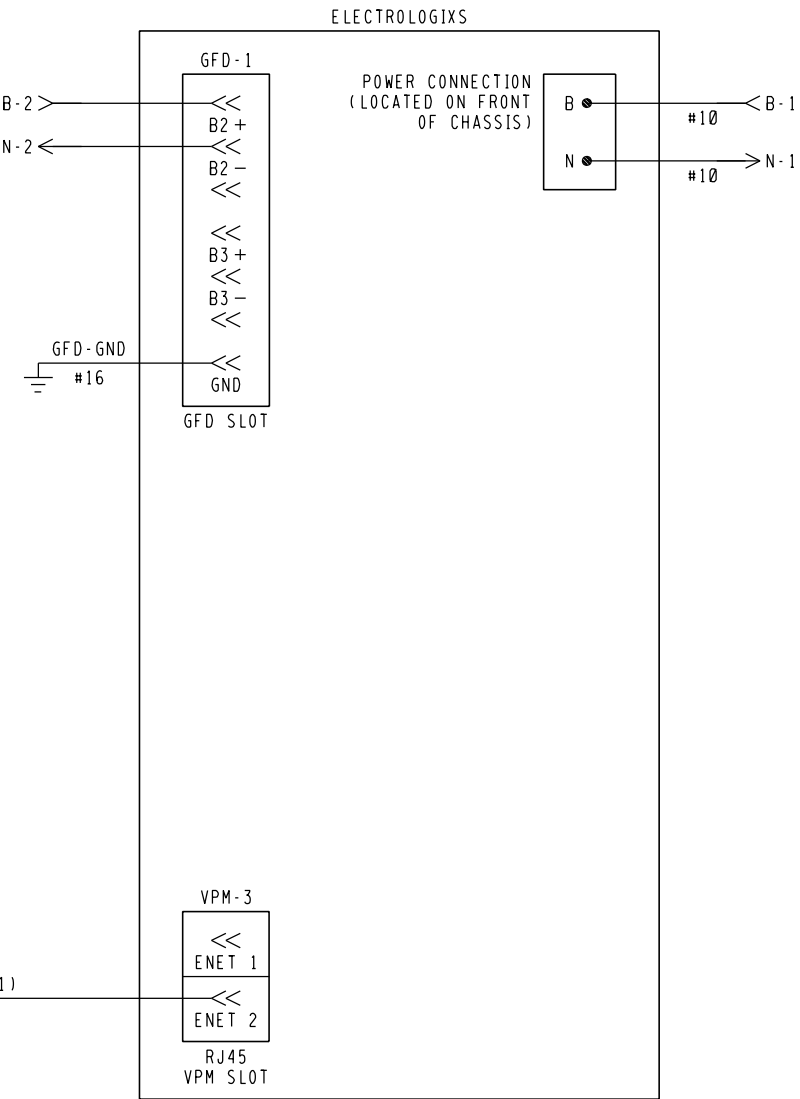
SSE /WGM
09-26-16



Signal South

DESIGN DATE	REV. NO. 1	DRAWING	SHEET NO	FILE CD00202	DATE 05-27-14
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CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
SIGNALS 20-1/2 & 21-1/2 ELECTRIC LOCK ELECTROLOGIXS PROGRAM COLUMBUS, OH M.P. CD-2.02			
DESIGNED IRS/CDM	DIGITIZED IRS/CDM	CHECKED IRS/LEK	DATE 05-27-14
DESIGN DATE	REV. NO. 1	DRAWING	SHEET NO
FILE CD00202		SHEET P02	



NOTE.

1. CABLE CAT 6 PATCH MOLDED SNAGLESS YELLOW 20 FEET,
CSD PN 10-5075-00-20 UNSHIELDED (CSX PN 020-0750021-1)

ETHERNET SWITCH PORT ASSIGNMENTS

PORT #1	COMM. ROUTER
PORT #2	COMM. EQUIPMENT
PORT #3	220 MHZ RADIO / SATELLITE
PORT #4	COMMUNICATIONS NETWORK ADAPTER
PORT #5	WAYSIDE INTERFACE UNIT #3 / COMM. ETHERNET EXTENDER
PORT #6	WAYSIDE INTERFACE UNIT #2 / SIGNAL ETHERNET EXTENDER
PORT #7	WAYSIDE INTERFACE UNIT #1 / VPM
PORT #8	WAYSIDE MESSAGE SERVER

NO CHANGES

0H2016032
16-471CSX



SSE/WGM
09-26-16

Signal South

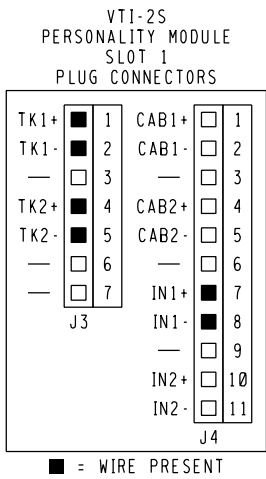
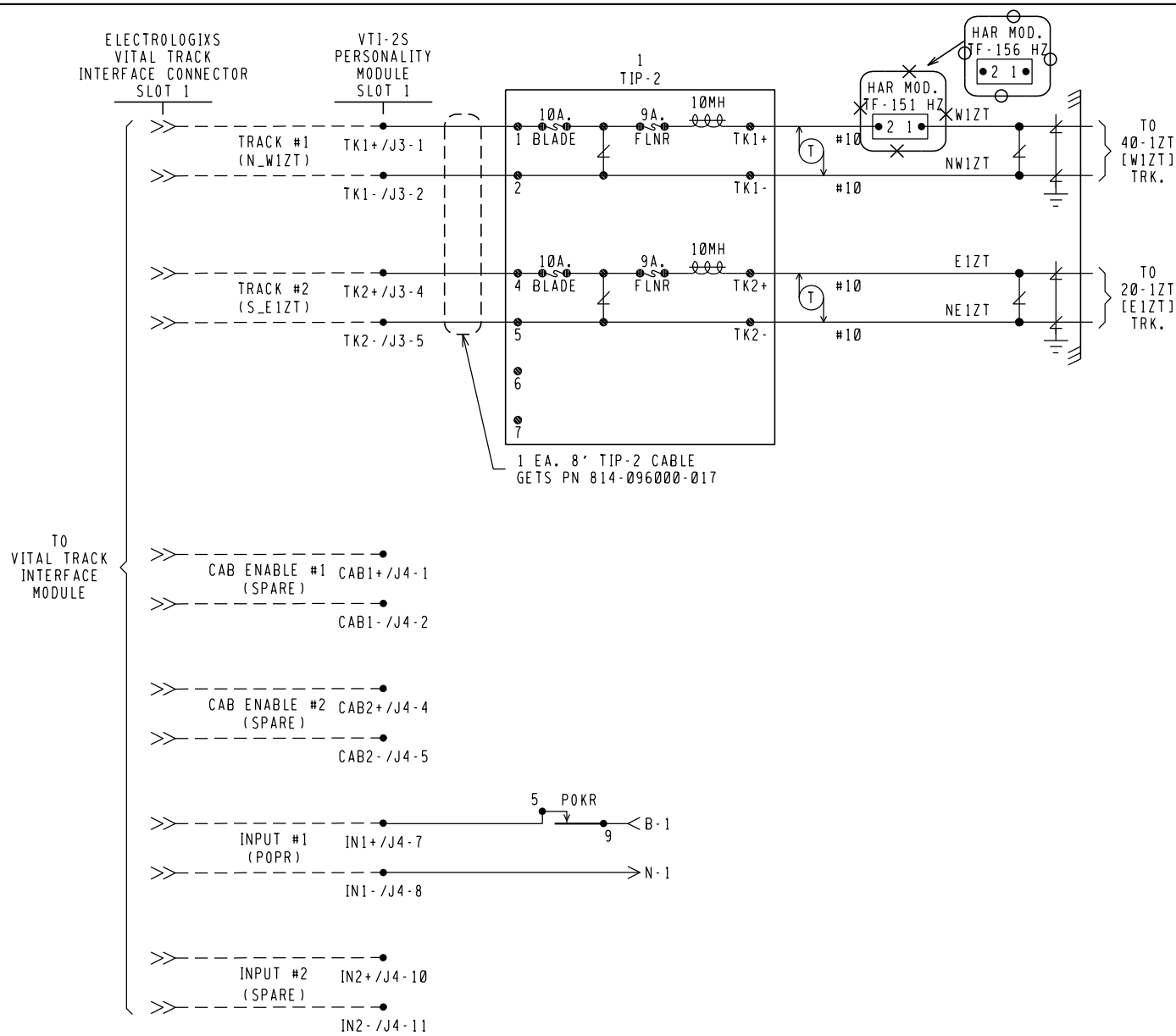


RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

SIGNALS 20-1/2 & 21-1/2

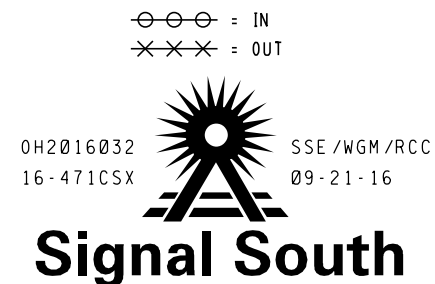
ELECTROLOGIXS CIRCUITS
COLUMBUS, OH M.P. CD-2.02

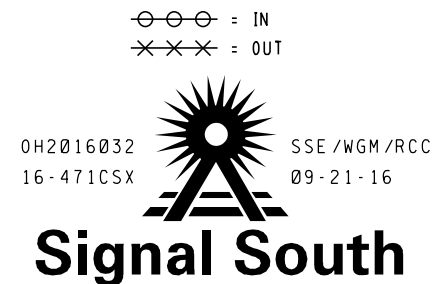
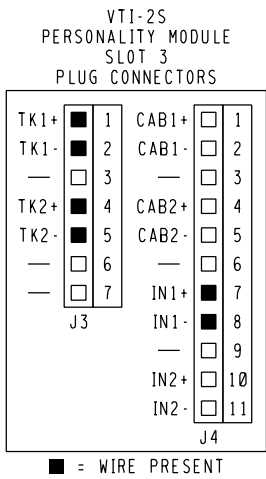
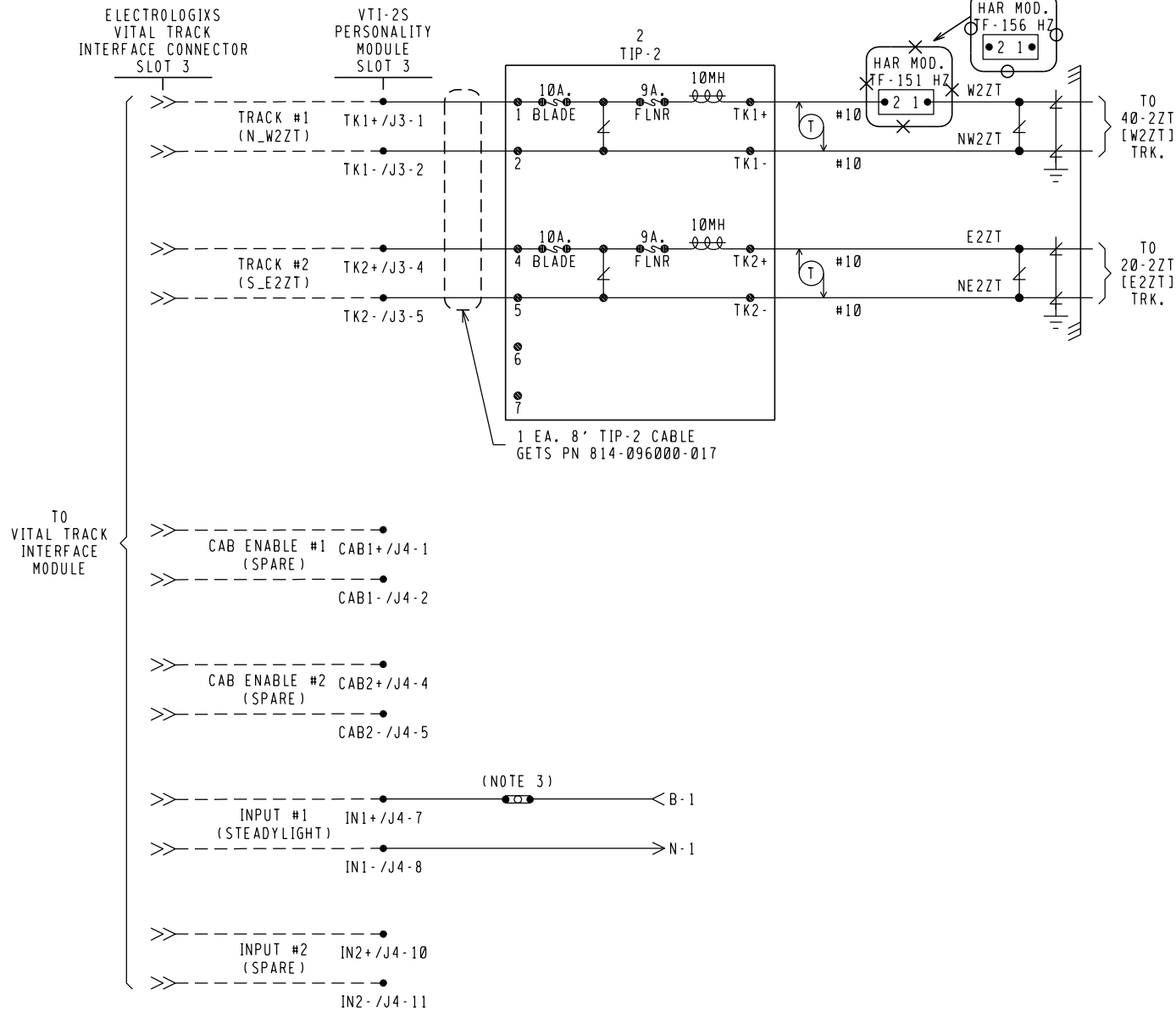
DESIGNED IRS/CDM	DIGITIZED IRS/CDM	CHECKED IRS/LEK	DATE 05-27-14
DESIGN DATE -----	REV. NO. 1	DRAWING -----	SHEET NO -----
FILE CD00202	SHEET C01		



- NOTES.
- = INTERNAL CONNECTION
 - [] = TAGGING PURPOSE ONLY
 - POK INPUT PROGRAMMED TO ACTIVATE CODE 10 ON BOTH TRACKS.

TRACK 1			
CSX TRANSPORTATION			
RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
SIGNALS 20-1/2 & 21-1/2			
ELECTROLOGIXS TRACK CIRCUITS COLUMBUS, OH M.P. CD-2.02			
DESIGNED IRS/CDM	DIGITIZED IRS/CDM	CHECKED IRS/LEK	DATE 05-27-14
DESIGN DATE 09-21-16	REV. NO. 1	DRAWING	SHEET NO. C02

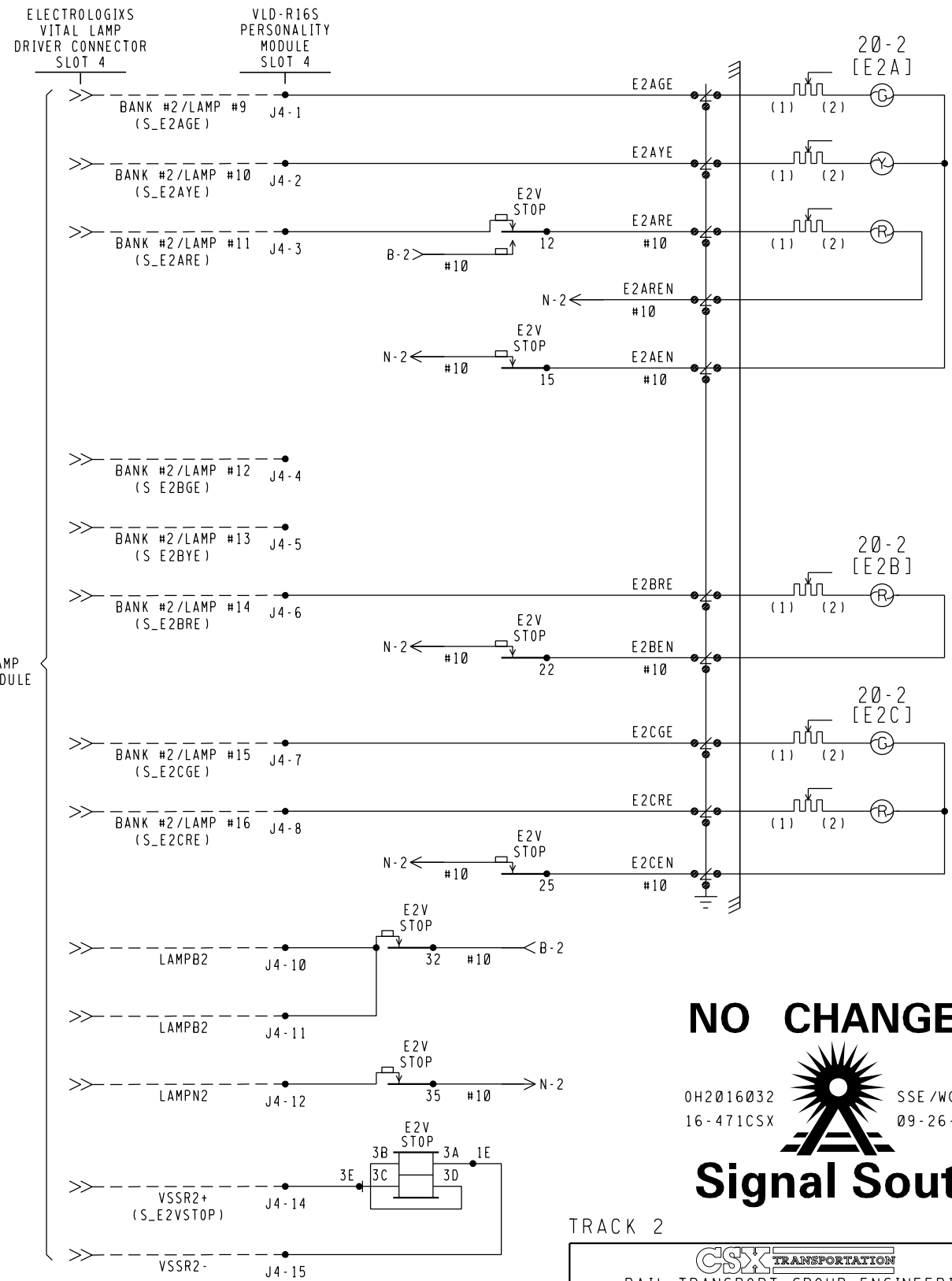
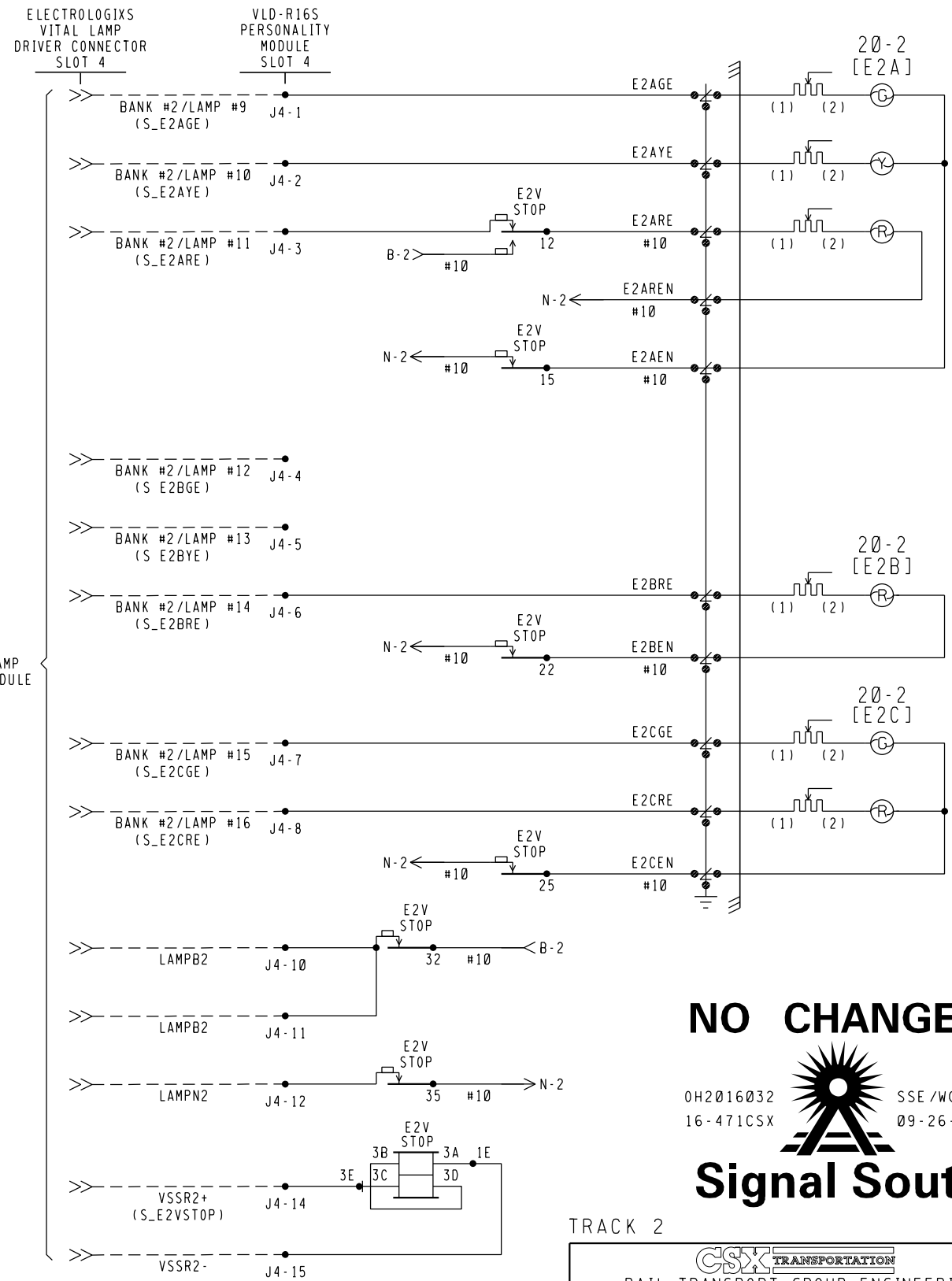




- NOTES.
- = INTERNAL CONNECTION
 - [] = TAGGING PURPOSE ONLY
 - CLOSE TEST NUT FOR STEADY LIGHTING WITH POWER OFF INPUT HIGH, OPEN TEST NUT FOR APPROACH LIGHTING.

TRACK 2

CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
SIGNALS 20-1/2 & 21-1/2			
ELECTROLOGIXS TRACK CIRCUITS COLUMBUS, OH M.P. CD-2.02			
DESIGNED IRS/CDM	DIGITIZED IRS/CDM	CHECKED IRS/LEK	DATE 05-27-14
DESIGN DATE 09-21-16	REV. NO. 1	DRAWING -----	SHEET NO -----
FILE CD00202		SHEET C04	

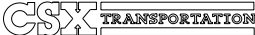


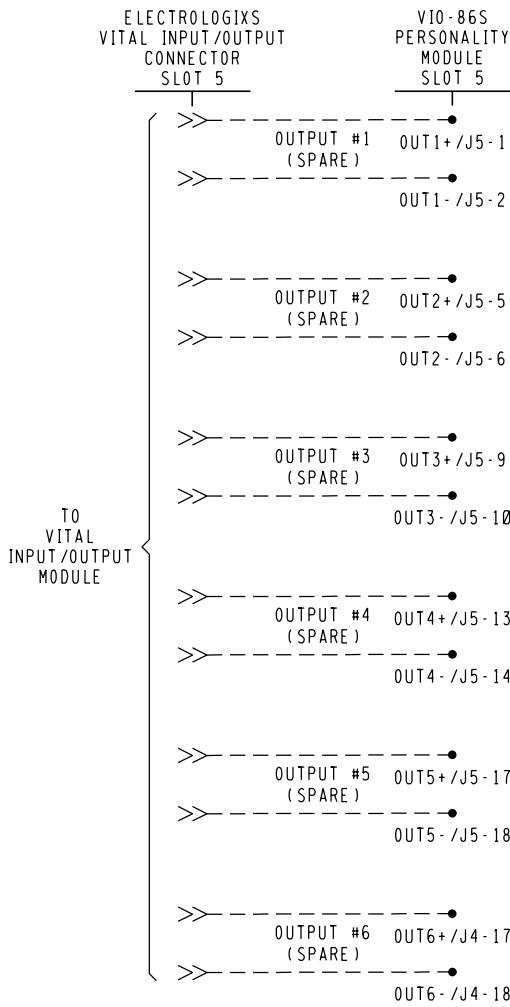
NO CHANGES

0H2016032
16-471CSX

SSE /WGM
09-26-16

Signal South

TRACK 2			
			
RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
SIGNALS 20-1/2 & 21-1/2			
SIGNAL LIGHTING CIRCUITS			
COLUMBUS, OH M.P. CD-2.02			
DESIGNED IRS/CDM	DIGITIZED IRS/CDM	CHECKED IRS/LEK	DATE 05-27-14
DRAWING -----	SHEET NO -----	FILE CD00202	SHEET C05

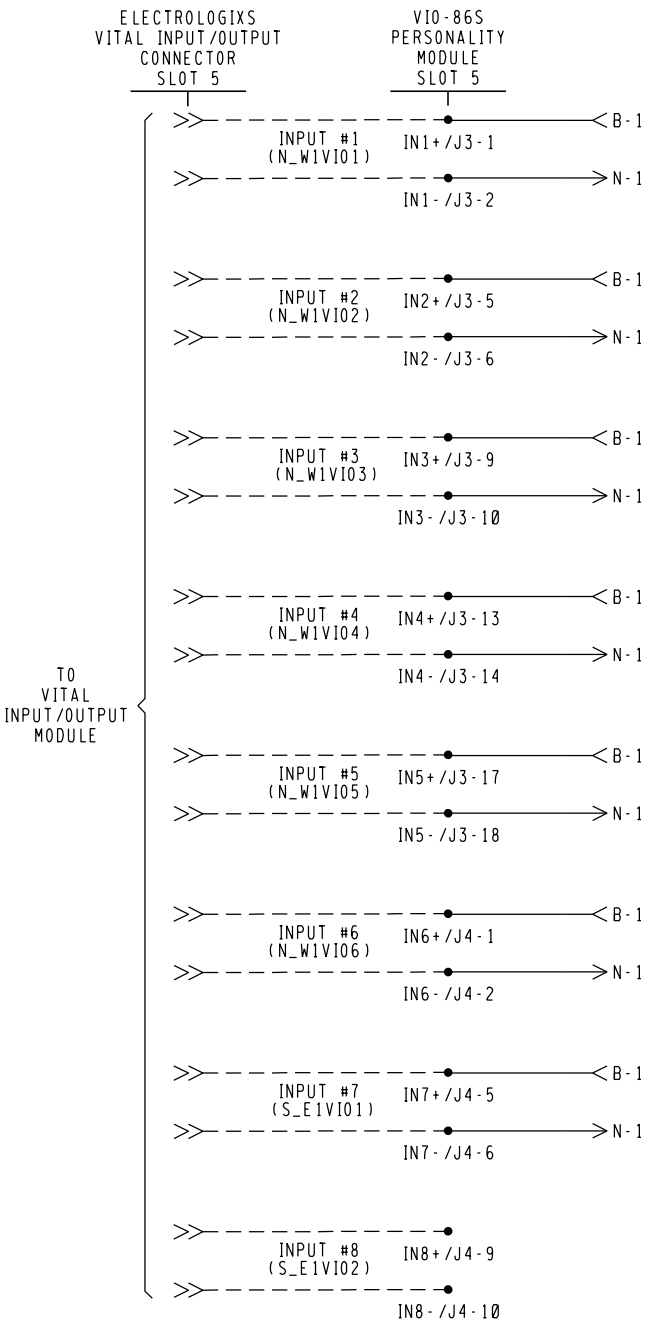


V10-86S PERSONALITY MODULE SLOT 5 PLUG CONNECTORS

IN1+	1	IN6+	1	OUT1+	1
IN1-	2	IN6-	2	OUT1-	2
---	3	---	3	---	3
---	4	---	4	---	4
IN2+	5	IN7+	5	OUT2+	5
IN2-	6	IN7-	6	OUT2-	6
---	7	---	7	---	7
---	8	---	8	---	8
IN3+	9	IN8+	9	OUT3+	9
IN3-	10	IN8-	10	OUT3-	10
---	11	---	11	---	11
---	12	---	12	---	12
IN4+	13	---	13	OUT4+	13
IN4-	14	---	14	OUT4-	14
---	15	---	15	---	15
---	16	---	16	---	16
IN5+	17	OUT6+	17	OUT5+	17
IN5-	18	OUT6-	18	OUT5-	18

J3 J4 J5

■ = WIRE PRESENT



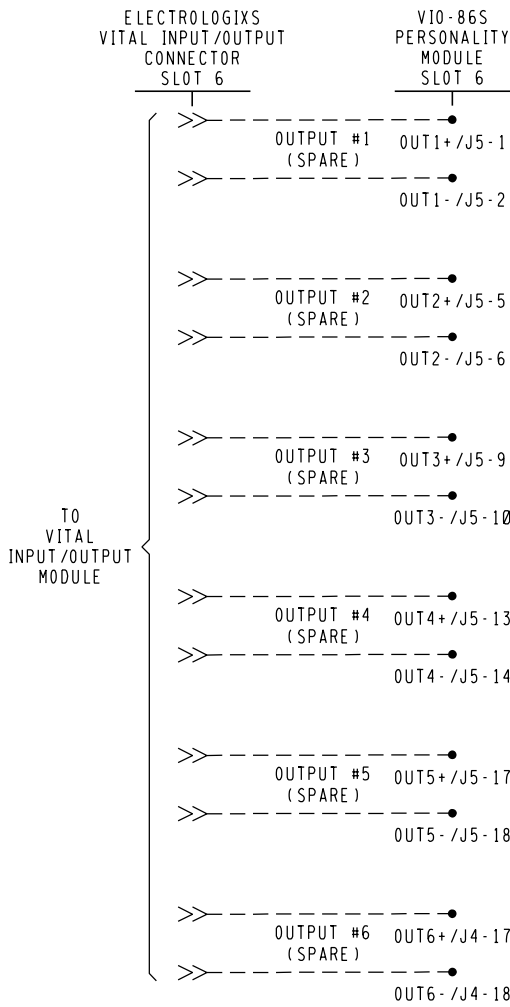
NOTE:
---- = INTERNAL CONNECTION

NO CHANGES



DESIGN DATE -----	REV. NO. 1	DRAWING -----	SHEET NO -----	FILE CD00202	DATE 05-27-14 SHEET C06
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CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS					
SIGNALS 20-1/2 & 21-1/2					
ELECTROLOGIXS I/O CIRCUITS COLUMBUS, OH M.P. CD-2.02					
DESIGNED IRS/CDM	DIGITIZED IRS/CDM	CHECKED IRS/LEK	DATE 05-27-14		
DESIGN DATE -----	REV. NO. 1	DRAWING -----	SHEET NO -----	FILE CD00202	DATE 05-27-14 SHEET C06

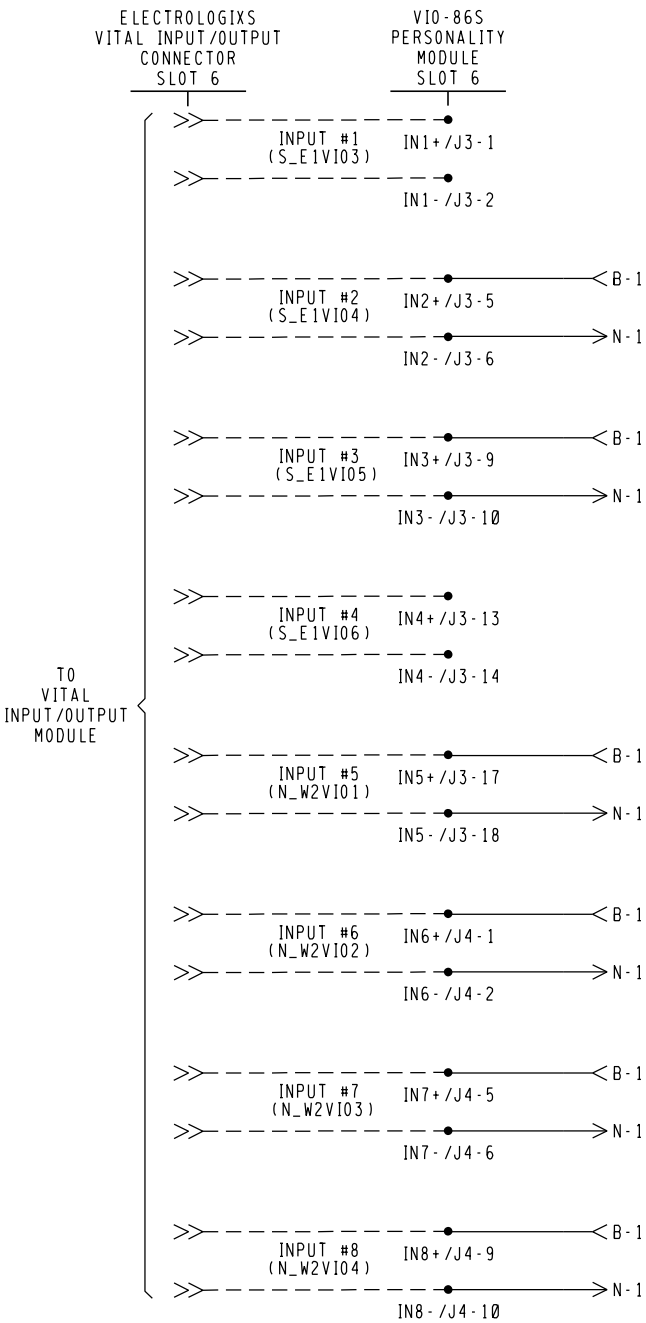


V10-86S PERSONALITY MODULE SLOT 6 PLUG CONNECTORS

IN1+	□	1	IN6+	■	1	OUT1+	□	1
IN1-	□	2	IN6-	■	2	OUT1-	□	2
—	□	3	—	□	3	—	□	3
—	□	4	—	□	4	—	□	4
IN2+	■	5	IN7+	■	5	OUT2+	□	5
IN2-	■	6	IN7-	■	6	OUT2-	□	6
—	□	7	—	□	7	—	□	7
—	□	8	—	□	8	—	□	8
IN3+	■	9	IN8+	■	9	OUT3+	□	9
IN3-	■	10	IN8-	■	10	OUT3-	□	10
—	□	11	—	□	11	—	□	11
—	□	12	—	□	12	—	□	12
IN4+	□	13	—	□	13	OUT4+	□	13
IN4-	□	14	—	□	14	OUT4-	□	14
—	□	15	—	□	15	—	□	15
—	□	16	—	□	16	—	□	16
IN5+	■	17	OUT6+	□	17	OUT5+	□	17
IN5-	■	18	OUT6-	□	18	OUT5-	□	18

J3 J4 J5

■ = WIRE PRESENT



NOTE.
---- = INTERNAL CONNECTION

NO CHANGES

0H2016032
16-471CSX



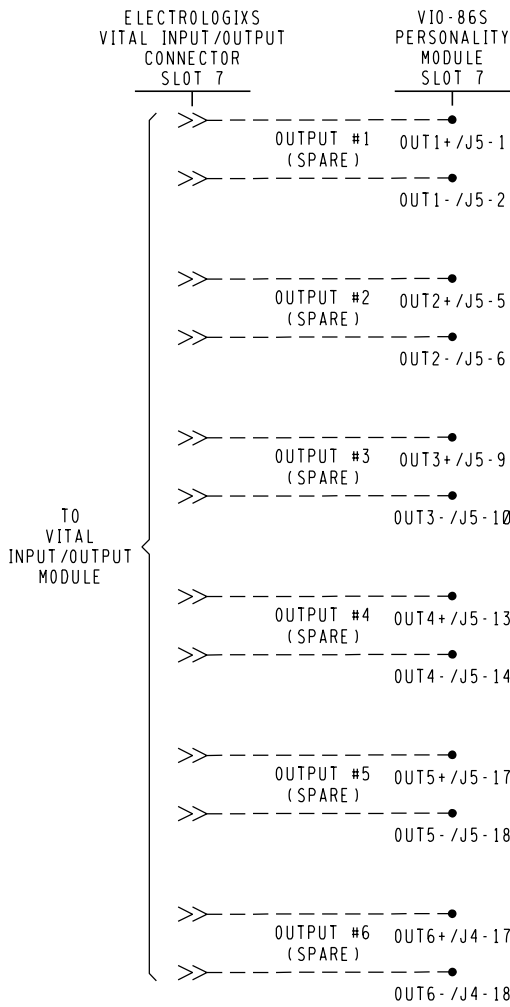
SSE /WGM
09-26-16

CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

SIGNALS 20-1/2 & 21-1/2

ELECTROLOGIXS I/O CIRCUITS
COLUMBUS, OH M.P. CD-2.02

DESIGNED IRS/CDM	DIGITIZED IRS/CDM	CHECKED IRS/LEK	DATE 05-27-14
DESIGN DATE -----	REV. NO. 1	DRAWING -----	SHEET C07

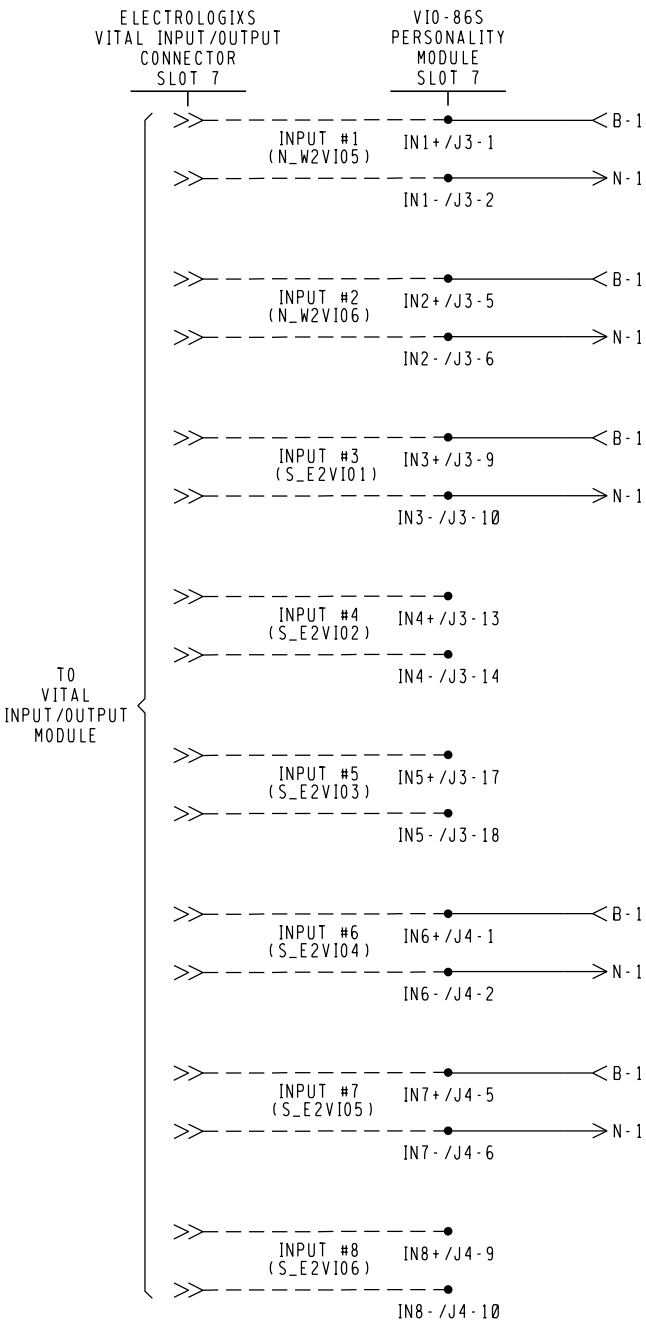


VIO-86S PERSONALITY MODULE SLOT 7 PLUG CONNECTORS

IN1+	1	IN6+	1	OUT1+	1
IN1-	2	IN6-	2	OUT1-	2
---	3	---	3	---	3
---	4	---	4	---	4
IN2+	5	IN7+	5	OUT2+	5
IN2-	6	IN7-	6	OUT2-	6
---	7	---	7	---	7
---	8	---	8	---	8
IN3+	9	IN8+	9	OUT3+	9
IN3-	10	IN8-	10	OUT3-	10
---	11	---	11	---	11
---	12	---	12	---	12
IN4+	13	---	13	OUT4+	13
IN4-	14	---	14	OUT4-	14
---	15	---	15	---	15
---	16	---	16	---	16
IN5+	17	OUT6+	17	OUT5+	17
IN5-	18	OUT6-	18	OUT5-	18

J3 J4 J5

■ = WIRE PRESENT



NOTE.

---- = INTERNAL CONNECTION

NO CHANGES



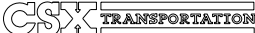
0H2016032 16-471CSX SSE /WGM 09-26-16

DESIGN DATE	REV. NO.	DRAWING	SHEET NO	FILE	SHEET
-----	1	-----	-----	CD00202	C08

CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
SIGNALS 20-1/2 & 21-1/2			
ELECTROLOGIXS I/O CIRCUITS COLUMBUS, OH M.P. CD-2.02			
DESIGNED IRS/CDM	DIGITIZED IRS/CDM	CHECKED IRS/LEK	DATE 05-27-14
DESIGN DATE	REV. NO.	DRAWING	SHEET NO
-----	1	-----	-----
FILE		SHEET	
CD00202		C08	



---- = INTERNAL CONNECTION

			
RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
SIGNALS 20-1/2 & 21-1/2 ELECTRIC LOCK ELECTROLOGIXS I/O CIRCUITS COLUMBUS, OH M.P. CD-2.02			
DESIGNED IRS/CDM	DIGITIZED IRS/CDM	CHECKED IRS/LEK	DATE 05-27-14
DRAWING -----	SHEET NO -----	FILE CD00202	SHEET C09

Signal South

DESIGN DATE -----	REV. NO. 1	DRAWING -----	SHEET NO -----	FILE C000202	SHEET C09
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OHIO RAIL DEVELOPMENT COMMISSION

Mail Stop #3140, 1980 West Broad Street, Columbus OH 43223

John R. Kasich, Governor • Mark Policinski, ORDC Chairman

June 29, 2016

Ms. Amanda DeCesare
Project Manager
500 Meijer Drive, Suite 305
Florence, KY 41042

RE: Franklin County, Kinnear Road
DOT 228627V, PID 102507

Dear Ms. DeCesare:

A diagnostic review was held at the above grade crossing on November 3, 2015. The crossing has been recommended for a circuitry upgrade.

CSX is authorized to proceed with the site plans and cost estimates (PE) for this project. This authorization is made with the stipulation and understanding that any field work needs prior approval before work begins. This authorization is made with the stipulation and understanding that an approved estimate may contain entries for items or activities that may be cited and found to be ineligible for federal participation during the project audit.

The ORDC is not requesting that the PUCO issue an Order at this time. When the ORDC receives the PE it will be evaluated and a construction-only Order will be requested from PUCO. Please submit the PE to ORDC within 90 days of receipt of this letter.

The diagnostic review form is attached. Please note any recommendations (page 5), if any, made by the team with regard to requirements for this location. Any minor roadway work necessary for MUTCD compliance should be incorporated into the PE and such costs will flow through the railroad reimbursement process.

The Project Manager for this project is Joe Reinhardt. He can be reached at (614) 644.0291, or Joe.Reinhardt@dot.state.oh.us, if you have any questions.

Sincerely,

Joseph N. Reinhardt
Project Manager

C: George Martin, PUCO, Grade Crossing Planner
ORDC (file)



www.rail.ohio.gov

phone: 614.644.0306

IMPROVING RAIL TODAY FOR TOMORROW'S ECONOMY



Diagnostic Review Team Survey

Reason for Survey:

(e.g. formula, accident, constituent, etc.)

Constituent

Date: 11/3/2015

Location Data

Street or Road Name: Kinnear Road

Route/Road Number
(i.e. Twp., Co., SR or US) CR 176

US DOT No.: 228627V

County: FRA

Township:

City:
(In or Near)

Near City of Columbus

Railroad
Name: CSX Transportation

Railroad
Division: Columbus

Branch/Line
Name:

Nearest RR
Timetable Station: Miami

RR Milepost: 2.82

On-Site Review Team

(Include: Name - Organization - Phone Number - Email)

1. Joe Baraback ORDC 614-644-0291
2. James Young City of Columbus 614-645-8446
3. Cathy Stach ORDC 614 644 0313
4. GEORGE MARTIN PUCO 614-752-9107
5. JAMES BELL CSX 614 557-7821
6. Reynaldo Stargell City of Columbus 614-724-4697
7. Maria Ruppe " 614-645-6738
8. JED BELDIE FRANKLIN TWP 614-525-3020
- 9.

Existing Traffic Control Devices

Type of Warning Devices	Installed?		Quantity/Comments
Advance Warning Signs (condition?)	☒ Yes	☐ No	2
'Stop' Signs	☐ Yes	☒ No	
'Stop Ahead' Signs	☐ Yes	☒ No	
Pavement Markings (condition?)	☒ Yes	☐ No	1
Crossbucks	☒ Yes	☐ No	2
Number of Tracks Signs	☒ Yes	☐ No	2
Inventory Tags	☒ Yes	☐ No	Emergency
Interconnected Highway Traffic Signal	☐ Yes	☒ No	
Mast-Mounted Flashing Lights	☒ Yes	☐ No	
Cantilever Flashing Lights	☐ Yes	☒ No	Number: Length:
Side Lights	☐ Yes	☒ No	
Automatic Gates	☒ Yes	☐ No	Number: Length:
Bells	☒ Yes	☐ No	Number:
Sidewalk Gate Arms	☐ Yes	☒ No	
'No Turn' Signs	☐ Yes	☒ No	
Illumination	☐ Yes	☒ No	
Is crossing flagged by train crew?	☐ Yes	☒ No	
Other	☐ Yes	☒ No	

Safety Data (Obtain crash reports, if possible, prior to review)

	Initial Information (from database)	Revised
Number & dates of crashes in previous 5 years	0	
Hazard Ranking	894	Date Run: 10/15/15

Railroad Data

Railroad Characteristics	Initial Information (from database)	Revised
Total trains per day	9	
< 1 per day		
Day thru trains	3	
Night thru trains	5	
Daytime switching movements	1	
Nighttime switching movements		
Total number of tracks	2	
Number of main tracks	2	
Number of other tracks		
Maximum train speed	50	
Typical train speed	50	
Amtrak		

If non-gated crossing, is clearing sight distance adequate in all quadrants? (See Table I) ☒ Yes ☐ NoIf multiple tracks, can two trains occupy crossing at the same time? ☒ Yes ☐ NoCan one train block the motorists' view of another train at crossing? ☒ Yes (Explain below) ☐ NoCan one or more tracks be eliminated through the crossing? ☒ Yes ☐ NoAre there other track(s) crossing this same roadway within 100 ft of this crossing? ☐ Yes ☒ No

If yes, Crossing DOT #(if different) _____

If yes, distance _____ (take measurement between track centerlines at closest point along roadway)

Roadway Data

Local Highway Authority: Franklin County

Roadway Characteristics	Initial Information (from database)	Revised
Average daily traffic	11539 (2004)	
Highway paved	X Yes ☐ No	☐ Yes ☐ No
Roadway Surface: ☒ Blacktop ☐ Gravel ☐ Concrete ☐ Other _____		
Roadway width: <u>20</u> ft.		
Number of highway lanes	2	
Urban or Rural	Urban	
Vehicle Speed: <u>35</u> MPH		
School Bus Operation: ☐ No ☒ Yes _____ Amount		
Hazardous Materials Trucks: ☐ No ☒ Yes .04% Amount		
Shoulders: ☒ No ☐ Yes		
Is the shoulder surfaced? ☒ No ☐ Yes		
Is there existing guardrail along roadway in crossing vicinity? ☒ No ☐ Yes		
Is stopping site distance adequate? (See Table 2) ☒ Yes ☐ No	If no, deficient approach(es) _____	

Quadrant _____ Curb and Gutter: ☐ Functional (Curb height = 4" or more) ☐ Non-functional (Curb height = Less than 4") ☒ None	Quadrant _____ Curb and Gutter: ☐ Functional (Curb height = 4" or more) ☐ Non-functional (Curb height = Less than 4") ☒ None
---	---

Pedestrians: ☐ No ☒ Yes
 Is sidewalk present? ☒ No ☐ Yes
 Is there a nearby intersection that could cause queuing over the crossing? ☐ No ☐ Yes
 If yes,
 Distance _____
 Is this intersection signalized? ☒ No ☐ Yes
 Are the signals currently interconnected with the existing crossing warning devices? ☐ No ☐ Yes
 Is there a 'Do not Stop on Track' sign? ☒ No ☐ Yes
 Is a roadway improvement project (e.g. widening, turn lanes, nearby new or upgraded traffic signal, sidewalk) planned at or near this location in the foreseeable future? ☐ No ☐ Yes
 If yes,
 Improvement type _____ Lead Agency _____ Timeline/completion - _____
 Is it the consensus of the Diagnostic Review Team that this is a potential closure project? ☒ No ☐ Yes
 Explain reasons:

Type of Development	
☐ Open Space ☐ Institutional ☐ Industrial ☒ Commercial ☒ Residential	Location of nearby schools: O.S. University & Melvo High School

Utility Information													
Is commercial power available? ☐ No ☒ Yes Utility Provider (Company Name) <u>AEP</u> Phone Number _____ Nearest Available Power Source _____ What other utilities are present? (add locations to sketch) <table style="width: 100%; margin-top: 5px;"> <tr> <td>☒ Gas</td> <td>☒ Cable</td> <td>☒ Telephone</td> <td>☒ Fiber Optic Cable</td> </tr> <tr> <td>☐ Petroleum</td> <td>☒ Water</td> <td>☒ Sanitary Sewer</td> <td></td> </tr> <tr> <td>☐ Other _____</td> <td></td> <td></td> <td></td> </tr> </table>		☒ Gas	☒ Cable	☒ Telephone	☒ Fiber Optic Cable	☐ Petroleum	☒ Water	☒ Sanitary Sewer		☐ Other _____			
☒ Gas	☒ Cable	☒ Telephone	☒ Fiber Optic Cable										
☐ Petroleum	☒ Water	☒ Sanitary Sewer											
☐ Other _____													
Is(are) there potential utility conflict(s) ☐ Yes ☐ No ☒ Unknown Comments:													

Potential Red Flags / Project Challenges

Traffic Signal Preemption (include traffic signal intersection name and LHA with jurisdiction over traffic signal, if known):

Crossing Consolidation or Closure:

Real Estate or ROW:

Culverts / Drainage / Ballast Conditions:

Roadway and/or Sidewalks:

Circuitry (e.g. reaches out to other crossings, specific needs, etc.):

Environmental:

Other:

AKL
11-3-15

Diagnostic Team Recommendations

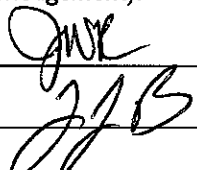
	Quadrants Needed
☒ Install/upgrade active devices	
☐ Automatic Flashing Lights (AFLS)	
☐ AFLS / Cants	
☐ AFLS / Gates	
☐ AFLS / Gates / Cants	
☐ Bells / number	
☒ Upgrade circuitry / type	Possibly
☐ Sidelights	
☐ Guardrail Needed	
☐ Install/Replace curb	
☐ Bungalow placement & offset from rail & highway	
☒ Other (define)	Possible Circuitry Upgrade

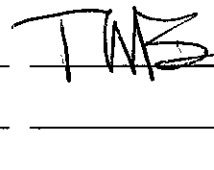
Comments:

PMD3 motion sensor in house.
City & County will get back to ORAC with their plans.

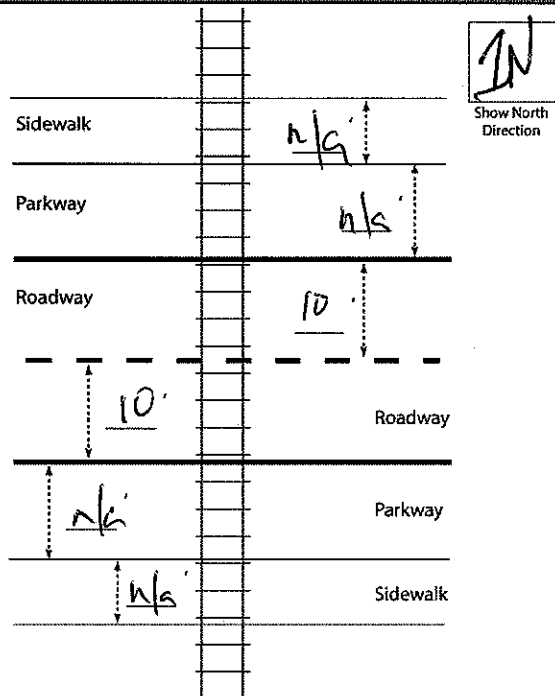
☐ Install/upgrade traffic signal preemption	
☐ No improvements needed	
☒ Other (define)	City of Columbus & County will decide sidewalk locations

Acknowledgement of Recommendations (each entity represented at the diagnostic must have at least one signature acknowledgement):





Field Dimensions

	
---	--

Field Sketch

Boy
Scouts
of
America

SYNTHETIC

Public Storage

Driveway



Crossing Angle ☐ 0-29° ☐ 30-59° ☒ 60-90° Measured in _____ Quadrant?

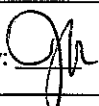
Sketch by: 

TABLE 1

Clearing Sight Distances

Maximum Authorized Train Speed	Distance (dT) Along Railroad from Crossing (ft)
1 - 10	240
15	360
20	480
25	600
30	720
35	840
40	960
45	1080
50	1200
55	1320
60	1440
65	1560
70	1680
75	1800
80	1920
85	2040
90	2160

Source: R-H Grade Crossing Handbook Table 36 (pp. 132-133)

Notes:

All calculated distances are rounded up to the next higher 5-foot increment.

Distances indicated are for 65-ft double bottom semi-tractor trailers and level single track 90 degree crossings; and may need to be adjusted for multiple tracks, skewed crossings or approaches on grades.

Clearing Sight Distance is to be measured in each vehicle travel direction at non-gated crossings as viewed from a point 25 feet from centerline of nearest track in the center of whichever travel lane is nearest the direction along track being measured.

Table 2

Stopping Sight Distances

Highway Vehicle Speed	Distance (dH) Along Roadway from Crossing (ft)
0	n/a
5	50
10	70
15	105
20	135
25	180
30	225
35	280
40	340
45	410
50	490
55	570
60	660
65	760
70	865

Source: R-H Grade Crossing Handbook Table 36 (pp. 132-133)

Notes:

All calculated distances are rounded up to the next higher 5-foot increment.

Distances indicated are for 65-ft double bottom semi-tractor trailers on dry level pavements.

Stopping Sight Distance is to be measured on each roadway approach to crossing from stop bar.

Handwritten signature
11-3-15

This foregoing document was electronically filed with the Public Utilities

Commission of Ohio Docketing Information System on

12/28/2016 2:25:56 PM

in

Case No(s). 16-2433-RR-FED

Summary: Application In the Matter of a Request for upgrades at the CSX Railroad Crossing, DOT#228-627V, Kinnear Road in Franklin County, Ohio. electronically filed by Mrs. Jill A Henry on behalf of PUCO/Rail Division