

Memo

To: Docketing Division
From: Jill Henry, Rail Specialist, Rail Division
Cc: PUCO Legal Department
Date: 12/12/17

Re: PUCO Case No. 17-2491-RR-FED- In the Matter of a Request for Upgrades to the Active Warning Devices at Center Street/SR 95 (DOT#518-415T) and Kenton Avenue/SR 309 (DOT#261-540P) in Marion County, Ohio.

On May 24, 2017, the Ohio Rail Development Commission (ORDC) authorized funding for CSX Transportation to modernize warning devices at two crossings in the City of Marion. The crossings were surveyed on August 29, 2013 and were found to warrant the upgrades. The electric utility provider for the crossings is Ohio Edison- First Energy Corp.

The following crossings have the following changes:

Name	DOT#	Improvement
Center Street/SR 95	518-415T	Lights and Gates w/ one Cantilever
Kenton Avenue/SR 309	261-540P	Lights and gates w/ one Cantilever/Simultaneous Preemption.

The projects will be paid for with federal funds and is actual cost. The plans and estimates for the projects in the amount of \$299,832 for Center Street and \$361,223 for Kenton Avenue have been approved. Construction may commence at once. **Staff requests a Finding & Order with completion of the project in 9 months.** 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 Marion
Jim Bischoff
Director of Public Works
233 West Center Street
Marion, Ohio 43302

Ohio Edison- First Energy Corp.

INTER-OFFICE COMMUNICATION

TO: Randall Schumacher, Supervisor, Rail Division, PUCO

FROM: Cathy Stout, Manager, Safety Section, ORDC

BY: Eric Neff, Safety Manager, Safety Section, ORDC

SUBJECT: Marion County, SR95 Center Street 518415T, PID 96927
Marion County, SR309 Kenton Ave 261540P, PID 96926

DATE: November 14, 2017

The Ohio Rail Development Commission (ORDC) established a diagnostic survey at the subject locations on August 29, 2013. The Public Utilities Commission of Ohio (PUCO) attended the review. The Diagnostic Team recommended the improvement of warning devices to flashing lights, roadway gates and cantilevers. Copies of the diagnostic review form and the plan and estimate are attached.

PE has already been provided by the railroad. ORDC accepts the site plans and estimates as provided. Please issue a construction-only order for the project outlined above. 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, Rail Division Specialist, 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

November 14, 2017

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

RE: Grade Crossing Warning Device Improvements CSX Construction authorization
Marion County, SR95 Center Street 518415T, PID 96927
Marion County, SR309 Kenton Ave 261540P, PID 96926

Dear Ms. DeCesare:

The plans and estimates dated September 22, 2017, for the referenced project have been reviewed and are acceptable. CSX Transportation (CSX) may proceed with the construction of the proposed grade crossing warning devices 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 costs are limited to the following:

- \$299,832 Marion County, SR95 Center Street 518415T, PID 96927
- \$361,223 Marion County, SR309 Kenton Ave 261540P, PID 96926

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 for each project:

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 Eric Neff, ORDC, email: eric.neff@dot.ohio.gov and to Jill Henry the Public Utilities Commission of Ohio at email: jill.henry@puco.ohio.gov. 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 Eric Neff at 614-745-6760 (telephone) or eric.neff@dot.ohio.gov (email) 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.



www.rail.ohio.gov

phone: 614.644.0306

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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.
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.

These projects are authorized for construction under the master agreement between Ohio Rail Development Commission, Public Utilities Commission of Ohio and CSX executed on May 13, 2013.

Thank you for your assistance with these matters.

Sincerely,

Eric Neff

Eric Neff
Project Manager

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

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

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ACCT. CODE : 709 - OH1191

ESTIMATE SUBJECT TO REVISION AFTER:	3/19/2018	DOT NO.: 261540P
CITY: Marion	COUNTY: Marion	STATE: OH
DESCRIPTION: Kenton Ave. - Grade crossing warning device improvements for SR 309/Kenton Ave.		

DIVISION: Great Lakes	SUB-DIV: Mt. Victory	MILE POST: QI - 101.62
AGENCY PROJECT NUMBER: PID 96926		

PRELIMINARY ENGINEERING:

212 Contracted & Administrative Engineering Services	\$ 4,500
Subtotal	\$ 4,500

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)	\$ 475,631
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<u>TRACK WORK:</u>	(Details Attached)	\$ -
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<u>PROJECT SUBTOTAL</u>	\$ 481,631
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900 <u>CONTINGENCIES:</u>	\$ -
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GRAND TOTAL *****	\$ 481,631
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DIVISION OF COST:

Agency	<u>75.00%</u>	\$ 361,223
Railroad	<u>25.00%</u>	\$ 120,408
TOTAL *****		\$ 481,631

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: 9/20/2017	REVISED:	DATE: 9/22/2017

Estimate No. 129754
CSX Transportation

Kenton Ave. - Grade crossing warning device improvements for SR 309 / Kenton Avenue

Marion, OH

DOT: 261540P

OP: OH1191

CSX Project: OH2017031

Summary

Material	\$ 144,490
Sales Tax	\$ 0
Labor:	
Construction Labor (251 man-days).....	\$ 95,380
Shop Labor (7 man-days).....	\$ 2,660
Subsistence (251 man-days).....	\$ 37,650
Track Labor (0 man-days).....	\$ 0
Railroad Engineering, Preliminary	\$ 6,953
Railroad Engineering, Construction	\$ 14,307
Additives to Construction Labor	\$ 113,369
Additives to Shop Labor	\$ 3,162
Additives to Track Labor	\$ 0
Additives to Engineering	\$ 0
Equipment Expenses (0 work days).....	\$ 0
Waste Management (51 work days).....	\$ 612
Contract Engineering	\$ 20,684
Freight	\$ 9,865
Poleline Removal	\$ 0
AC Power Service	\$ 15,000
Salvage	\$ -1
VAC-TRUCK	\$ 8,000
Cantilever Shoring Box	\$ 3,500

TOTAL ESTIMATE COST	\$ 475,629
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Date: 09/14/2017

Estimated By: Adam Ronsick

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

Field Material List for CSX Project: OH2017031 (Effective: 09/14/2017)
FIELD MODIFY REMOTE CROSSING APPLICATION (QI-101.40)
Control Point 101, OH - QI 101.40

Catalog Num	Cond	Unit Price	Qty	Cost	Description
020-0025145	1	363.99	8	2911.92	SHUNT ENCLOSURE WAYSIDE MOUNT ASSEMBLY COMPLETE WITH LOCK
020-2531180	1	265.93	4	1063.72	SHUNT HARMON 250250-979 NBS-1-10 979HZ 10 FT LEADS
020-2531660	1	603.93	4	2415.72	COUPLER 979HZ TJC-1A UNDERGROUND TYPE DO NOT TIE
020-2541320	1	104.76	2	209.52	INDUCTOR 227032-005 1500 DUMMY LOAD HARMON
Total Cost: \$				6,600.88	

Shop Material List for CSX Project: OH2017031 (Effective: 09/14/2017)
INSTALL CFLS&G w/ GCP-4000 (QI-101.62)
Kenton Ave. (SR 309), OH - QI 101.62

Catalog Num	Cond	Unit Price	Qty	Cost	Description
020-0007673	1	27.55	1	27.55	RESISTOR ADJUSTABLE 1.530 TO 16.00 OHMS 15W US&S N161444
020-0016116	1	337.12	1	337.12	DRIVER MODEL TD-1A TRACK ELECTRO PNEUMATIC
020-0016117	1	203.84	1	203.84	GENERATOR MODEL ACG-2T AC ELECTRO PNEUMATIC
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	67.38	1	67.38	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	7	746.90	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	387.88	3	1163.64	CHARGER BATTERY ELC 12/20 S 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	6.27	2	12.54	SOCKET RELAY POTTER & BRUMFIELD 27E894 NEWARK
020-0056920	1	65.60	1	65.60	RESISTOR ADJUSTABLE 0.770 TO 8.00 OHMS SAFETRAN 029603-4X
020-0064060	1	16.12	1	16.12	PLATE RELAY MOUNTING FOR 2 EACH TYPE KHAU OR OCTAL RELAY
020-0167501	1	38.51	34	1309.34	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
020-0770060	1	15.46	24	371.04	ARRESTER US&S N451552-0201 TRACK SERIES RED LABEL USGA
020-0770105	1	22.40	9	201.60	ARRESTER HARMON 202217-000 AGE-1 TRACK AIR GAP EQUALIZER
020-1000354	1	6052.50	1	6052.50	HOUSE SIGNAL 6FT X 6FT WITH PTC UPGRADE PTMW P/N 91000354
020-1940055	1	20.24	1	20.24	CONTAINER CIRCUIT PRINT 24" SCHEDULE 20 4" PVC PIPE WITH
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

Shop Material List for CSX Project: OH2017031 (Effective: 09/14/2017)
INSTALL CFLS&G w/ GCP-4000 (QI-101.62)
Kenton Ave. (SR 309), OH - QI 101.62

Catalog Num	Cond	Unit Price	Qty	Cost	Description
020-2503238	1	40362.00	1	40362.00	PREDICTOR SAFETRAN GCP-4000 6 TRK DUAL CASE FOR 4 TRK
020-3430110	1	363.23	5	1816.15	RELAY SAFETRAN 400004 500 OHMS CONTACTS 4FB-2F-1B CSX
020-3430130	1	409.74	1	409.74	RELAY SAFETRAN 400023 500 OHMS CONTACTS 6FB HEAVY DUTY
020-3430150	1	496.02	1	496.02	RELAY SAFETRAN 400510 2.0 OHMS CONTACTS 4FB-2F-1B CSX
020-3652615	1	61.32	1	61.32	RESISTOR ADJUSTABLE 0.340 TO 3.00 OHMS 2.24A 15W SAFETRAN
020-4200340	1	1.74	24	41.76	LINK TEST ASSEMBLY 1" CENTERS COMPLETE WITH INSULATED
020-4200350	1	2.06	14	28.84	LINK TEST ASSEMBLY 2-3/8" CENTERS COMPLETE WITH
020-4201045	1	0.15	300	45.00	NUT HEX CLAMP (FLAT NUT) AAR 14.1.11-7 14-24 NS-2 THD FLAT
020-8000067	1	15.18	2	30.36	LOCK AMERICAN H10SIGRA CSX SIGNAL PADLOCK WITH BLACK
022-8005160	1	513.88	1	513.88	KIT CDMA AND VHF RADIO MATERIAL FOR USE WITH CSX
028-1120501	1	314.80	3	944.40	SOLID STATE RELAY DEVICE, VOLTAGE MONITOR, EXTENDED
Total Cost: \$				60,226.2	

Field Material List for CSX Project: OH2017031 (Effective: 09/14/2017)
INSTALL CFLS&G w/ GCP-4000 (QI-101.62)
Kenton Ave. (SR 309), OH - QI 101.62

Catalog Num	Cond	Unit Price	Qty	Cost	Description
N/A		28000.00	1	28000.00	GATE & CANT COMBO - ESTIMATE ONLY
014-8006169	1	10.62	2	21.24	SIGN PERMANENT EMERGENCY NOTIFICATION (VEHICLE
020-0010447	1	9.83	2	19.66	BOX GROUND ROD CONNECTION ENCLOSURE COMPLETE WITH 7"
020-0010449	1	15.78	1	15.78	BOX, 9 INCH DIA. "FLOWER POT" ENCLOSURE WITH HD
020-0013686	1	68.90	7	482.30	BOOTLEG KIT CSX RAIL CONN W/15 FT 3/16 IN BDSTRAND 6/64
020-0013687	1	37.51	1	37.51	SPLICE TRACK WIRE TO BONDSTRAND (FLOWER POT KIT)
020-0013870	1	1.33	200	266.00	CABLE UG 5 COND NO 14 AWG SOLID C CSX SPEC SS796 SHOW
020-0013880	1	1.59	2000	3180.00	CABLE UG 7 COND NO 14 AWG SOLID C CSX SPEC SS796 SHOW
020-0013908	1	6.36	500	3180.00	CABLE UG COMPOSITE 19 CONDUCTOR INCLUDES 13
020-0014605	1	2990.00	1	2990.00	FOUNDATION CONCRETE GCWD 5' - 10" SECT PRECAST ASSY BLT
020-0016115	1	120.33	1	120.33	RECTIFIER TRACK CIRCUIT EPC 800-004080-000 MODEL RING-10
020-0025145	1	371.02	7	2597.14	SHUNT ENCLOSURE INTERRAIL P/N IRS-SE8A WAYSIDE MOUNT
020-0052475	1	11.20	4	44.80	ARM EXTENSION 10-1/2" ALUM WITH 3/8" DIAMETER MOUNTING
020-0053220	1	2.29	150	343.50	CABLE POWER UG 3 COND NO 6 AWG, SHOW LENGTH ON EACH
020-0054075	1	986.08	2	1972.16	GATE SAVER COMPLETE WITH SHEAR PIN AND RETURN SPRING
020-0055421	1	23.96	2	47.92	BRACKET SIGN 4" OR 5" MAST W/1/2" U-BOLT FOR ALL SIGNS
020-0055424	1	76.17	6	457.02	BRACKET SIGN 10" MAST W/SPLIT BOLTS FOR ALL SIGNS REQUIRING
020-0056151	1	32.31	2	64.62	SIGN MULTIPLE TRACK "4 TRACKS" NO HARDWARE CSX DWG
020-0056421	1	23.96	4	95.84	BRACKET SIGN 4" OR 5" MAST FOR ALL SIGNS REQUIRING 5/8"
020-0056424	1	81.95	4	327.80	BRACKET SIGN 10" MAST W/SPLIT BOLTS FOR ALL SIGNS REQUIRING
020-0056629	1	7170.63	1	7170.63	SIGNAL 02217-L GCWD GATE ASSY DWG SS222 INCLS ADJ 19 TO 28
020-0056823	1	17.77	6	106.62	TAPE UG RED CABLE MARKER IMPRINT TO READ "CAUTION
020-0057275	1	0.69	2000	1380.00	WIRE UG TRACK TWISTED PAIR NO. 6 AWG SOLID CONDUCTOR
020-1040322	1	127.92	11	1407.12	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

Field Material List for CSX Project: OH2017031 (Effective: 09/14/2017)
INSTALL CFLS&G w/ GCP-4000 (QI-101.62)
Kenton Ave. (SR 309), OH - QI 101.62

Catalog Num	Cond	Unit Price	Qty	Cost	Description
020-1040326	1	244.88	9	2203.92	BATTERY SAFT SPL340, 340 AH POCKET PLATE NICKEL CADMIUM
020-1040540	1	31.36	4	125.44	TRAY BATTERY FIBER CO 82687-1-P 12" WIDTH 24" LONG
020-1040550	1	45.92	1	45.92	TRAY BATTERY FIBER CO 82687-3-P 12" WIDTH 38"
020-1150750	1	1.00	500	500.00	BOND STRAND 3/16" DIA 7 STRANDS OF 19 STR EACH 6 WITH
020-1304014	1	5.40	24	129.60	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	24.06	1	24.06	PACKAGE SAFETY & SECURMENT WITH 1 EA CAUTION TAG 1 EA
020-1360104	1	1312.25	1	1312.25	LAYOUT AC METER SERVICE WITH 30' POLE CSX DWG SS351 SH 2
020-2500432	1	93.06	2	186.12	INDUCTOR 8V617-800 DUMMY LOAD SAFETRAN
020-2500435	1	96.20	2	192.40	INDUCTOR 8V617-1400 DUMMY LOAD SAFETRAN
020-2500640	1	254.35	4	1017.40	SHUNT SAFETRAN 62775-525 NARROW BAND 525HZ
020-2500655	1	241.57	3	724.71	SHUNT SAFETRAN 62775-970 NARROW BAND 970HZ
020-3263640	1	0.28	35	9.80	SLEEVE NICOPRESS 14 AWG SOLID COPPER WIRE 1-1/8" LONG STD
020-3901895	1	100.52	2	201.04	TIP FLEX HWY CROSSING GATE 24 IN LONG ENGINEERING GRADE RED
020-3920200	1	178.76	2	357.52	BELL GCWD ELECTRONIC 4" OR 5" MAST 8 TO 13 VOLTS DC GSI PN
020-4200340	1	1.74	29	50.46	LINK TEST ASSEMBLY 1" CENTERS COMPLETE WITH INSULATED
020-4200900	1	0.18	10	1.80	CONNECTOR SHEATHING AMP 329860 FOR NO. 14 WIRE
020-4201042	1	0.13	40	5.20	NUT HEX BINDING (RSA NUT) AAR 14.1.11-6 14-24 NS-2 THD CONE
020-4201043	1	0.09	250	22.50	NUT HEX CLAMP (FLAT NUT) AAR 14.1.11-7 14-24 NS-2 THD FLAT
020-4201044	1	0.08	200	16.00	WASHER AAR 14.1.11 ROUND COPPER NICKEL PLATED FOR AAR
020-7300030	1	189.28	2	378.56	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
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 ID300

Total Cost: \$ 64,602.49

Consumables List for CSX Project: OH2017031 (Effective: 09/14/2017)
INSTALL CFLS&G w/ GCP-4000 (QI-101.62)
Kenton Ave. (SR 309), OH - QI 101.62

Catalog Num	Cond	Unit Price	Qty	Cost Description
N/A		50.00	10	500.00 FILL MATERIAL
N/A		800.00	1	800.00 WALKWAY ROCK, 10 CUBIC YARDS
020-0017605	1	0.27	500	135.00 WIRE CASE 10 AWG FLEX CSX SPEC SS796 OKONITE
020-0017607	1	0.65	400	260.00 WIRE CASE TW PR NO 10 AWG FLEX CSX SPEC SS796 TWIST 2
020-0017625	1	0.44	150	66.00 WIRE CASE TW PR NO 14 AWG FLEX CSX SPEC SS796 TWIST 2
020-0017630	1	0.13	200	26.00 WIRE CASE NO 16 AWG FLEX CSX SPEC SS796 FURN 1000 FT SPOOL
020-0017635	1	0.80	130	104.00 WIRE SIGNAL DEL 018 NO 6 COPPER STRANDED SINGLE
020-0028610	1	0.23	100	23.00 TERMINAL RING AMP 35628 YELLOW PLASTI-BOND HVY DUTY
020-0053510	1	208.13	1	208.13 KIT 240V AC EMERGENCY GENERATOR CABLE AND
020-1710045	1	2.42	3000	7260.00 CONDUIT SDR 13.5 4" POLYETHYLENE TRENCHLESS
020-2060072	1	442.00	1	442.00 FOUNDATION HELICAL SCREW-IN ASSEMBLY 7' X 10", USED FOR
020-2060074	1	366.00	1	366.00 EXTENSION 10" X 3' USE WITH XING GATE AND SIGNAL MAST
020-3261960	1	18.82	2	37.64 DECAL (DO NOT ORDER, CALL SIGNAL SHOP) ASSY 5" BLACK
020-3261970	1	9.41	2	18.82 DECAL ASSY 2" BLACK PRESSURE SENSITIVE VINYL PRE-MASKED
020-4168917	1	0.50	2	1.00 RESISTOR, FIXED .5W, 20W OHM (REPLACEMENT FOR INVENSYS PN
020-4200880	1	0.53	2	1.06 CONNECTOR TERMINAL 2-3/8" CENTERS AAR 14.1.15-4 NICKEL
020-4200892	1	0.37	27	9.99 CONNECTOR TERMINAL 1" CENTERS AAR 14.1.15-3 NICKEL PLATED
020-4251190	1	0.14	120	16.80 TERMINAL RING AMP 35627 BLACK PLASTI-BOND WIRE SIZE 10-12
020-4251290	1	0.53	30	15.90 TERMINAL WIRE AMP 322051 BLUE WIRE SIZE NO 6 AWG 1/4" STUD
020-4251295	1	0.53	6	3.18 TERMINAL WIRE AMP 322007 BLUE WIRE SIZE NO 6 AWG 3/8" STUD
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: \$				10,384.52

Field Material List for CSX Project: OH2017031 (Effective: 09/14/2017)
FIELD MODIFY REMOTE CROSSING APPLICATION (QI-101.63)
Remote Crossing House, OH - QI 101.63

Catalog Num	Cond	Unit Price	Qty	Cost	Description
020-0025145	1	363.99	4	1455.96	SHUNT ENCLOSURE WAYSIDE MOUNT ASSEMBLY COMPLETE WITH LOCK
020-2500439	1	92.01	2	184.02	INDUCTOR 8V617-2200 DUMMY LOAD SAFETRAN
020-2500630	1	258.93	4	1035.72	SHUNT SAFETRAN 62775-348 NARROW BAND 348HZ
Total Cost: \$				2,675.7	

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

Page 1

ACCT. CODE : 709 - OH1190

ESTIMATE SUBJECT TO REVISION AFTER:	3/19/2018	DOT NO.: 518415T
CITY: Marion	COUNTY: Marion	STATE: OH
DESCRIPTION: Center St. - Grade crossing warning device improvements for SR 95/Center St.		

DIVISION: Great Lakes	SUB-DIV: Mt. Victory	MILE POST: QI - 101.94
AGENCY PROJECT NUMBER: PID 96927		

PRELIMINARY ENGINEERING:

212 Contracted & Administrative Engineering Services	\$ 4,500
Subtotal	\$ 4,500

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)	\$ 393,776
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<u>TRACK WORK:</u>	(Details Attached)	\$ -
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<u>PROJECT SUBTOTAL</u>	\$ 399,776
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900 <u>CONTINGENCIES:</u>	\$ -
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GRAND TOTAL *****	\$ 399,776
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DIVISION OF COST:

Agency	<u>75.00%</u>	\$ 299,832
Railroad	<u>25.00%</u>	\$ 99,944
TOTAL *****		\$ 399,776

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: 9/20/2017	REVISED:	DATE: 9/22/2017

Estimate No. 129756
CSX Transportation

Center St. - Grade crossing warning device improvements for SR 95 / Center Street
Marion, OH

DOT: 518415T

OP: OH1190

CSX Project: OH2017030

Summary

Material	\$ 102,496
Sales Tax	\$ 0
Labor:	
Construction Labor (216 man-days).....	\$ 82,080
Shop Labor (7 man-days).....	\$ 2,660
Subsistence (216 man-days).....	\$ 32,400
Track Labor (0 man-days).....	\$ 0
Railroad Engineering, Preliminary	\$ 6,045
Railroad Engineering, Construction	\$ 12,312
Additives to Construction Labor	\$ 97,560
Additives to Shop Labor	\$ 3,162
Additives to Track Labor	\$ 0
Additives to Engineering	\$ 0
Equipment Expenses (0 work days).....	\$ 0
Waste Management (44 work days).....	\$ 528
Contract Engineering	\$ 20,684
Freight	\$ 7,350
Poleline Removal	\$ 0
AC Power Service	\$ 15,000
Salvage	\$ -1
VAC-TRUCK	\$ 8,000
Cantilever Shoring Box	\$ 3,500

TOTAL ESTIMATE COST	\$ 393,775
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Date: 09/15/2017

Estimated By: Adam Ronsick

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

Field Material List for CSX Project: OH2017030 (Effective: 09/15/2017)
FIELD MODIFY REMOTE CROSSING APPLICATION (QI-101.63)
Remote Crossing House, OH - QI 101.63

Catalog Num	Cond	Unit Price	Qty	Cost	Description
020-0025145	1	363.99	2	727.98	SHUNT ENCLOSURE WAYSIDE MOUNT ASSEMBLY COMPLETE WITH LOCK
020-2500630	1	258.93	2	517.86	SHUNT SAFETRAN 62775-348 NARROW BAND 348HZ
Total Cost: \$				1,245.84	

Shop Material List for CSX Project: OH2017030 (Effective: 09/15/2017)
INSTALL CFLS&G w/ GCP-4000 (QI-101.94)
Center St. (SR 95), OH - QI 101.94

Catalog Num	Cond	Unit Price	Qty	Cost	Description
020-0007673	1	27.55	1	27.55	RESISTOR ADJUSTABLE 1.530 TO 16.00 OHMS 15W US&S N161444
020-0016116	1	337.12	1	337.12	DRIVER MODEL TD-1A TRACK ELECTRO PNEUMATIC
020-0016117	1	203.84	1	203.84	GENERATOR MODEL ACG-2T AC ELECTRO PNEUMATIC
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	67.38	1	67.38	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	4	426.80	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	387.88	3	1163.64	CHARGER BATTERY ELC 12/20 S 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	6.27	2	12.54	SOCKET RELAY POTTER & BRUMFIELD 27E894 NEWARK
020-0056920	1	65.60	1	65.60	RESISTOR ADJUSTABLE 0.770 TO 8.00 OHMS SAFETRAN 029603-4X
020-0064060	1	16.12	1	16.12	PLATE RELAY MOUNTING FOR 2 EACH TYPE KHAU OR OCTAL RELAY
020-0167501	1	38.51	28	1078.28	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
020-0770060	1	15.46	14	216.44	ARRESTER US&S N451552-0201 TRACK SERIES RED LABEL USGA
020-0770105	1	22.40	5	112.00	ARRESTER HARMON 202217-000 AGE-1 TRACK AIR GAP EQUALIZER
020-1000354	1	6052.50	1	6052.50	HOUSE SIGNAL 6FT X 6FT WITH PTC UPGRADE PTMW P/N 91000354
020-1940055	1	20.24	1	20.24	CONTAINER CIRCUIT PRINT 24" SCHEDULE 20 4" PVC PIPE WITH
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

Shop Material List for CSX Project: OH2017030 (Effective: 09/15/2017)
INSTALL CFLS&G w/ GCP-4000 (QI-101.94)
Center St. (SR 95), OH - QI 101.94

Catalog Num	Cond	Unit Price	Qty	Cost	Description
020-2503220	1	14073.70	1	14073.70	PREDICTOR SAFETRAN GCP-4000 2-TRACK DUAL CASE W/RECORDER
020-3430110	1	363.23	2	726.46	RELAY SAFETRAN 400004 500 OHMS CONTACTS 4FB-2F-1B CSX
020-3430130	1	409.74	1	409.74	RELAY SAFETRAN 400023 500 OHMS CONTACTS 6FB HEAVY DUTY
020-3430150	1	496.02	1	496.02	RELAY SAFETRAN 400510 2.0 OHMS CONTACTS 4FB-2F-1B CSX
020-3652615	1	61.32	1	61.32	RESISTOR ADJUSTABLE 0.340 TO 3.00 OHMS 2.24A 15W SAFETRAN
020-4200340	1	1.74	14	24.36	LINK TEST ASSEMBLY 1" CENTERS COMPLETE WITH INSULATED
020-4200350	1	2.06	14	28.84	LINK TEST ASSEMBLY 2-3/8" CENTERS COMPLETE WITH
020-4201045	1	0.15	300	45.00	NUT HEX CLAMP (FLAT NUT) AAR 14.1.11-7 14-24 NS-2 THD FLAT
020-8000067	1	15.18	2	30.36	LOCK AMERICAN H10SIGRA CSX SIGNAL PADLOCK WITH BLACK
022-8005160	1	513.88	1	513.88	KIT CDMA AND VHF RADIO MATERIAL FOR USE WITH CSX
028-1120501	1	314.80	3	944.40	SOLID STATE RELAY DEVICE, VOLTAGE MONITOR, EXTENDED
Total Cost: \$				32,035.45	

Field Material List for CSX Project: OH2017030 (Effective: 09/15/2017)
INSTALL CFLS&G w/ GCP-4000 (QI-101.94)
Center St. (SR 95), OH - QI 101.94

Catalog Num	Cond	Unit Price	Qty	Cost	Description
N/A		28000.00	1	28000.00	GATE & CANT COMBO - ESTIMATE ONLY
014-8006169	1	10.62	2	21.24	SIGN PERMANENT EMERGENCY NOTIFICATION (VEHICLE
020-0010447	1	9.83	2	19.66	BOX GROUND ROD CONNECTION ENCLOSURE COMPLETE WITH 7"
020-0010449	1	15.78	2	31.56	BOX, 9 INCH DIA. "FLOWER POT" ENCLOSURE WITH HD
020-0013686	1	68.90	9	620.10	BOOTLEG KIT CSX RAIL CONN W/15 FT 3/16 IN BDSTRAND 6/64
020-0013687	1	37.51	1	37.51	SPLICE TRACK WIRE TO BONDSTRAND (FLOWER POT KIT)
020-0013880	1	1.59	2000	3180.00	CABLE UG 7 COND NO 14 AWG SOLID C CSX SPEC SS796 SHOW
020-0013908	1	6.36	500	3180.00	CABLE UG COMPOSITE 19 CONDUCTOR INCLUDES 13
020-0014605	1	2990.00	1	2990.00	FOUNDATION CONCRETE GCWD 5' - 10" SECT PRECAST ASSY BLT
020-0016115	1	120.33	1	120.33	RECTIFIER TRACK CIRCUIT EPC 800-004080-000 MODEL RING-10
020-0025145	1	371.02	4	1484.08	SHUNT ENCLOSURE INTERRAIL P/N IRS-SE8A WAYSIDE MOUNT
020-0052475	1	11.20	4	44.80	ARM EXTENSION 10-1/2" ALUM WITH 3/8" DIAMETER MOUNTING
020-0053220	1	2.29	150	343.50	CABLE POWER UG 3 COND NO 6 AWG, SHOW LENGTH ON EACH
020-0054075	1	986.08	2	1972.16	GATE SAVER COMPLETE WITH SHEAR PIN AND RETURN SPRING
020-0055421	1	23.96	2	47.92	BRACKET SIGN 4" OR 5" MAST W/1/2" U-BOLT FOR ALL SIGNS
020-0055424	1	76.17	6	457.02	BRACKET SIGN 10" MAST W/SPLIT BOLTS FOR ALL SIGNS REQUIRING
020-0056141	1	32.44	2	64.88	SIGN MULTIPLE TRACK "3 TRACKS" NO HARDWARE CSX DWG
020-0056421	1	23.96	4	95.84	BRACKET SIGN 4" OR 5" MAST FOR ALL SIGNS REQUIRING 5/8"
020-0056424	1	81.95	4	327.80	BRACKET SIGN 10" MAST W/SPLIT BOLTS FOR ALL SIGNS REQUIRING
020-0056678	1	6374.43	1	6374.43	SIGNAL 0221-L GCWD GATE ASSY DWG SS222 INCLS ADJ 19 TO 28
020-0056823	1	17.77	6	106.62	TAPE UG RED CABLE MARKER IMPRINT TO READ "CAUTION
020-0057275	1	0.69	1000	690.00	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	4	125.44	TRAY BATTERY FIBER CO 82687-1-P 12" WIDTH 24" LONG

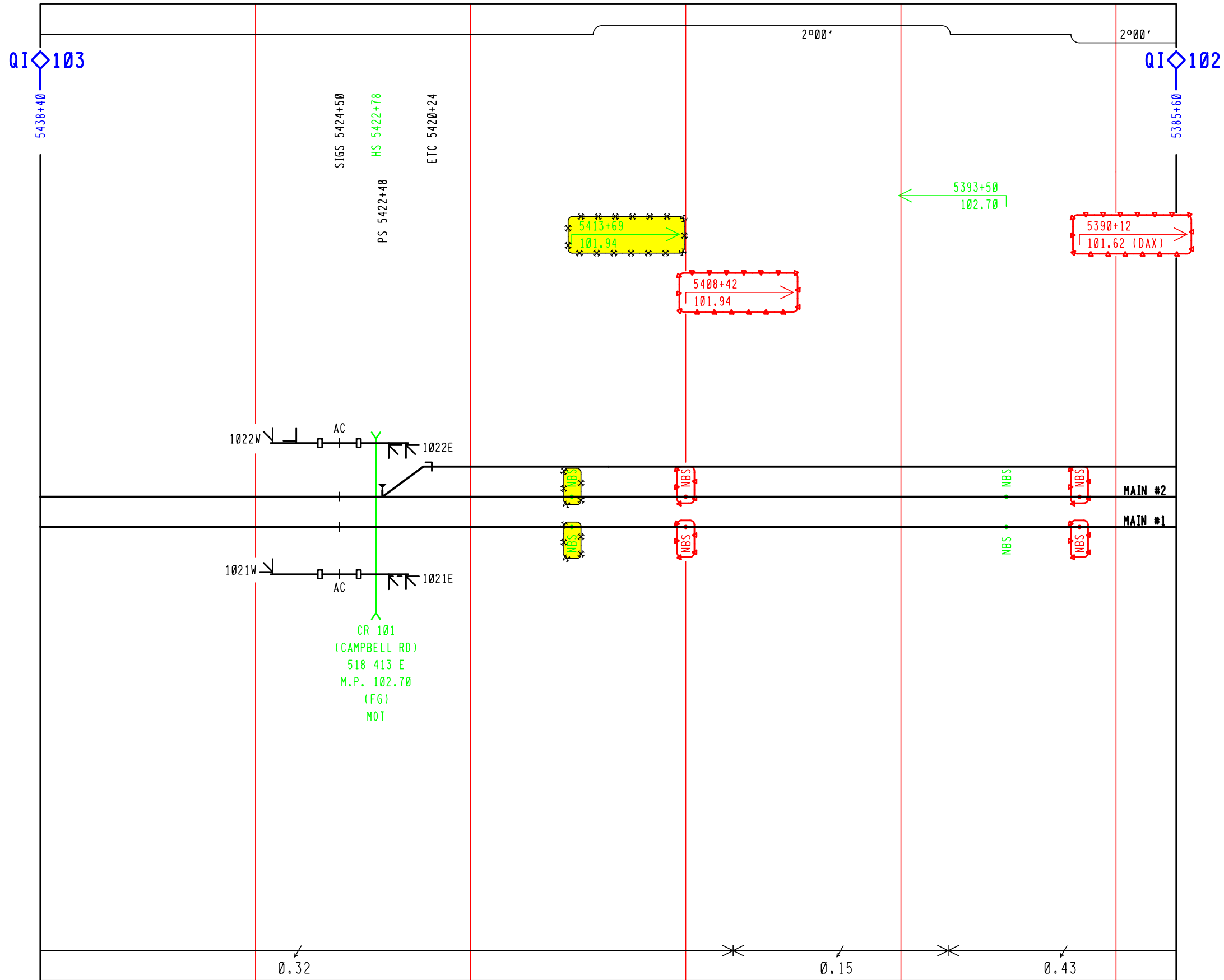
Field Material List for CSX Project: OH2017030 (Effective: 09/15/2017)
INSTALL CFLS&G w/ GCP-4000 (QI-101.94)
Center St. (SR 95), OH - QI 101.94

Catalog Num	Cond	Unit Price	Qty	Cost	Description
020-1040550	1	45.92	1	45.92	TRAY BATTERY FIBER CO 82687-3-P 12" WIDTH 38"
020-1150750	1	1.00	500	500.00	BOND STRAND 3/16" DIA 7 STRANDS OF 19 STR EACH 6 WITH
020-1304014	1	5.40	24	129.60	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	24.06	1	24.06	PACKAGE SAFETY & SECURMENT WITH 1 EA CAUTION TAG 1 EA
020-1360104	1	1312.25	1	1312.25	LAYOUT AC METER SERVICE WITH 30' POLE CSX DWG SS351 SH 2
020-2500434	1	57.29	2	114.58	INDUCTOR 8V617-1200 DUMMY LOAD SAFETRAN
020-2500615	1	301.96	4	1207.84	SHUNT SAFETRAN 62775-156 NARROW BAND 156HZ
020-3263640	1	0.28	35	9.80	SLEEVE NICOPRESS 14 AWG SOLID COPPER WIRE 1-1/8" LONG STD
020-3901895	1	100.52	2	201.04	TIP FLEX HWY CROSSING GATE 24 IN LONG ENGINEERING GRADE RED
020-3920200	1	178.76	2	357.52	BELL GCWD ELECTRONIC 4" OR 5" MAST 8 TO 13 VOLTS DC GSI PN
020-4200340	1	1.74	29	50.46	LINK TEST ASSEMBLY 1" CENTERS COMPLETE WITH INSULATED
020-4200900	1	0.18	10	1.80	CONNECTOR SHEATHING AMP 329860 FOR NO. 14 WIRE
020-4201042	1	0.13	40	5.20	NUT HEX BINDING (RSA NUT) AAR 14.1.11-6 14-24 NS-2 THD CONE
020-4201043	1	0.09	250	22.50	NUT HEX CLAMP (FLAT NUT) AAR 14.1.11-7 14-24 NS-2 THD FLAT
020-4201044	1	0.08	200	16.00	WASHER AAR 14.1.11 ROUND COPPER NICKEL PLATED FOR AAR
020-7300030	1	189.28	2	378.56	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
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 ID300

Total Cost: \$ 60,040.22

Consumables List for CSX Project: OH2017030 (Effective: 09/15/2017)
INSTALL CFLS&G w/ GCP-4000 (QI-101.94)
Center St. (SR 95), OH - QI 101.94

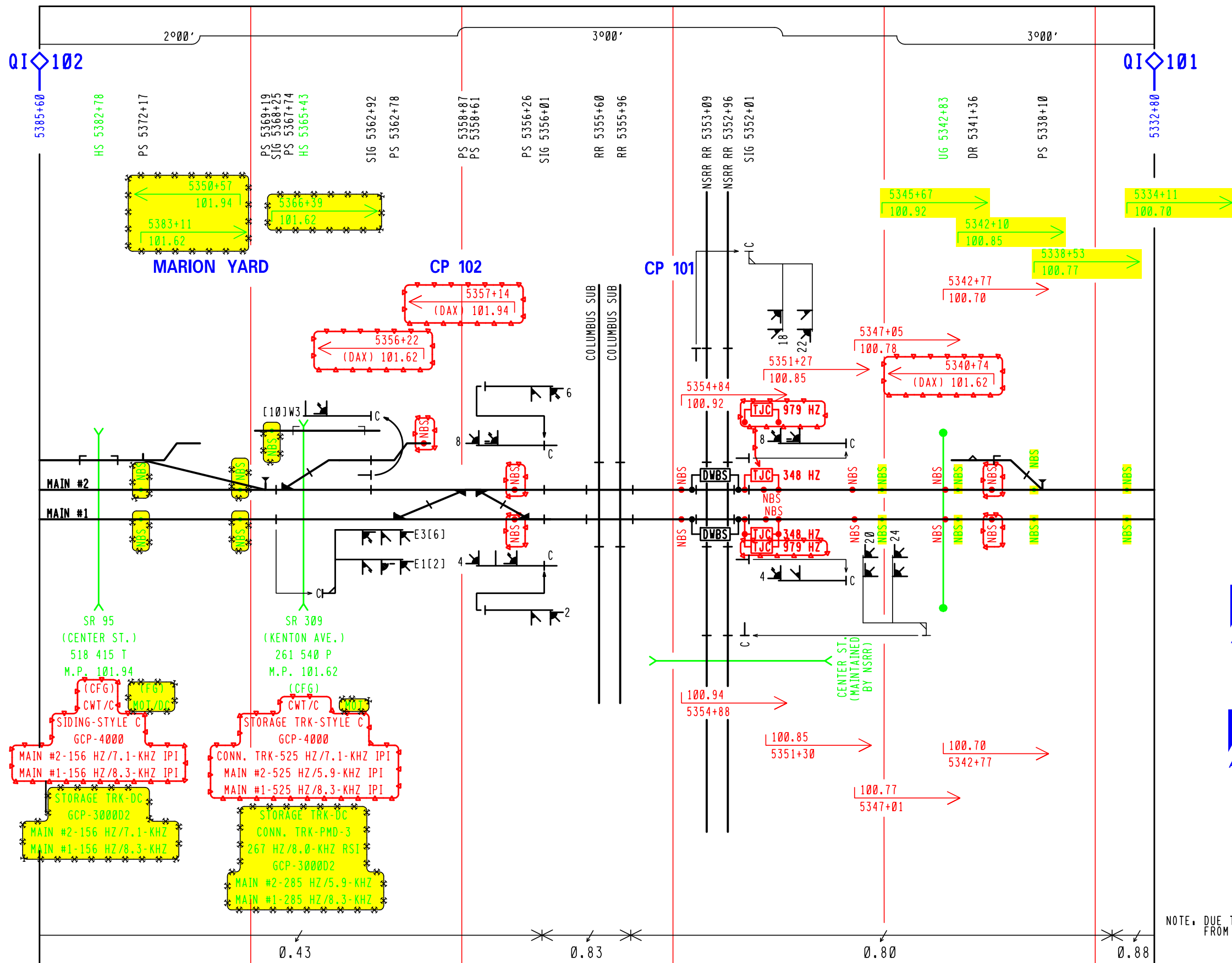
Catalog Num	Cond	Unit Price	Qty	Cost Description
N/A		50.00	10	500.00 FILL MATERIAL
N/A		800.00	1	800.00 WALKWAY ROCK, 10 CUBIC YARDS
020-0017605	1	0.27	500	135.00 WIRE CASE 10 AWG FLEX CSX SPEC SS796 OKONITE
020-0017607	1	0.65	400	260.00 WIRE CASE TW PR NO 10 AWG FLEX CSX SPEC SS796 TWIST 2
020-0017625	1	0.44	150	66.00 WIRE CASE TW PR NO 14 AWG FLEX CSX SPEC SS796 TWIST 2
020-0017630	1	0.13	200	26.00 WIRE CASE NO 16 AWG FLEX CSX SPEC SS796 FURN 1000 FT SPOOL
020-0017635	1	0.80	130	104.00 WIRE SIGNAL DEL 018 NO 6 COPPER STRANDED SINGLE
020-0028610	1	0.23	100	23.00 TERMINAL RING AMP 35628 YELLOW PLASTI-BOND HVY DUTY
020-0053510	1	208.13	1	208.13 KIT 240V AC EMERGENCY GENERATOR CABLE AND
020-1710045	1	2.42	2500	6050.00 CONDUIT SDR 13.5 4" POLYETHYLENE TRENCHLESS
020-2060072	1	442.00	1	442.00 FOUNDATION HELICAL SCREW-IN ASSEMBLY 7' X 10", USED FOR
020-2060074	1	366.00	1	366.00 EXTENSION 10" X 3' USE WITH XING GATE AND SIGNAL MAST
020-3261960	1	18.82	2	37.64 DECAL (DO NOT ORDER, CALL SIGNAL SHOP) ASSY 5" BLACK
020-3261970	1	9.41	2	18.82 DECAL ASSY 2" BLACK PRESSURE SENSITIVE VINYL PRE-MASKED
020-4168917	1	0.50	2	1.00 RESISTOR, FIXED .5W, 20W OHM (REPLACEMENT FOR INVENSYS PN
020-4200880	1	0.53	2	1.06 CONNECTOR TERMINAL 2-3/8" CENTERS AAR 14.1.15-4 NICKEL
020-4200892	1	0.37	27	9.99 CONNECTOR TERMINAL 1" CENTERS AAR 14.1.15-3 NICKEL PLATED
020-4251190	1	0.14	120	16.80 TERMINAL RING AMP 35627 BLACK PLASTI-BOND WIRE SIZE 10-12
020-4251290	1	0.53	30	15.90 TERMINAL WIRE AMP 322051 BLUE WIRE SIZE NO 6 AWG 1/4" STUD
020-4251295	1	0.53	6	3.18 TERMINAL WIRE AMP 322007 BLUE WIRE SIZE NO 6 AWG 3/8" STUD
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: \$				9,174.52



REVISIONS
06-10-14 GET 0H2011021
11-20-15 XRL 0H2013073
09-12-16 XRL 0H2014025 0H2014027 0H2014029 0H2014037 0H2014038 0H2014093

TRACK PLAN HORIZONTAL SCALE: 1 INCH = 500 FEET							
DESIGNED GET/KJM	DIGITIZED GET/SAT	CHECKED GET/KHQ	DATE 12-12-11	NEXT FILE Q110300	NEXT SH T01	FILE Q110200	SHEET T01

CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS



THIS PLAN DOES ☐ DOES NOT ☒
SUPERSEDE PLAN DATED 10/26/16
CSX PROJECT # 0H2016046
CSX PROJECT # 0H2016047
CSX PROJECT # 0H2016048
CSX PROJECT # 0H2016049
CSX PROJECT # 0H2016050
CSX PROJECT # 0H2016051
CSX PROJECT # 0H2017010
CSX PROJECT # 0H2017011

PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 05/25/17
CSX # 0H2017030
0H2017031
PRS/TDF/SAF

PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 10/26/16
CSX # 0H2016046
0H2016047
0H2016048
0H2016049
0H2016050
0H2016051
0H2017010
0H2017011
PRS/TDF/SAF

YELLOW = OUT
RED = IN

NOTE: DUE TO HIGH DENSITY, PROFILE IS NOT DRAWN TO SCALE FROM MP Q1-101.40 TO Q1-101.80.

REVISIONS	DATE	BY	APP
06-10-14 GET	0H2011021		
09-12-16 XRL	0H2014025		
	0H2014027		
	0H2014029		
	0H2014037		
	0H2014038		
	0H2014093		
11-22-16 IRS	0H2013049		

TRACK PLAN HORIZONTAL SCALE: 1 INCH = 500 FEET				CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
DESIGNED GET/KJM	DIGITIZED GET/SAT	CHECKED GET/KNO	DATE 12-12-11	NEXT FILE Q110200	NEXT SH T01	FILE Q110100	SHEET T01

INDEX CONTENTS										
SH. NO.		REVISION NO.								
		1	2	3	4	5	6	7	8	9
I01	INDEX AND REVISIONS	X	X	X	X					
S01	TRACK AND SIGNAL PLAN	X	X	X	X					
P01	MINIMUM PROGRAM STEPS REPORT CWE-70	X	X							
E01	POWER DISTRIBUTION	X	X	X						
C01	DETECTION DEVICE CONSIST CWE-70	X	X							
C02	DETECTION DEVICE CONSIST CWE-70	X								
C03	DETECTION DEVICE CONSIST CWE-70	X	X							
C04	DETECTION DEVICE CONSIST CWE-70	X								
C05	DETECTION DEVICE CONSIST CWE-70	X	X							
C06	CROSSING WARNING DEVICE GATE CIRCUITRY	X	X							
C07	CROSSING WARNING DEVICE LIGHT CIRCUITRY	X								
C08	CROSSING WARNING DEVICE CIRCUITRY	X								
C09	SEAR II1 CONFIGURATION & FUNCTIONS	X								
C10	LINE AND SWITCH CIRCUITS	X		X						

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

NOTE

PROGRESS

RAIL SERVICES

A Caterpillar Company

DATE: 05/25/17

CSX# 0H2017030

0H2017031

PRS/TDF/SAF

= OUT

= IN

DESIGN DATE

REV. NO.

06-02-15

3

DESIGNED XRL	DIGITIZED XRL	CHECKED XRL	DATE 03-25-15
DRAWING	SHEET NO	FILE	SHEET
-----	-----	QI10270	101

05-25-17

4

REVISIONS				
REV. NO.	PROJECT NO.	DESIGN DATE	IN SERVICE DATE	REVISION DATE
1	0H2013073	03-25-15	10-09-15	11-20-15
2	0H2013073B	07-06-15	10-09-15	11-20-15
3	0H2014093	06-02-15	03-29-16	09-12-16
4	0H2017030 0H2017031	05-25-17		

TO BE COMPLETED

ON A.I.S.

CSX TRANSPORTATION

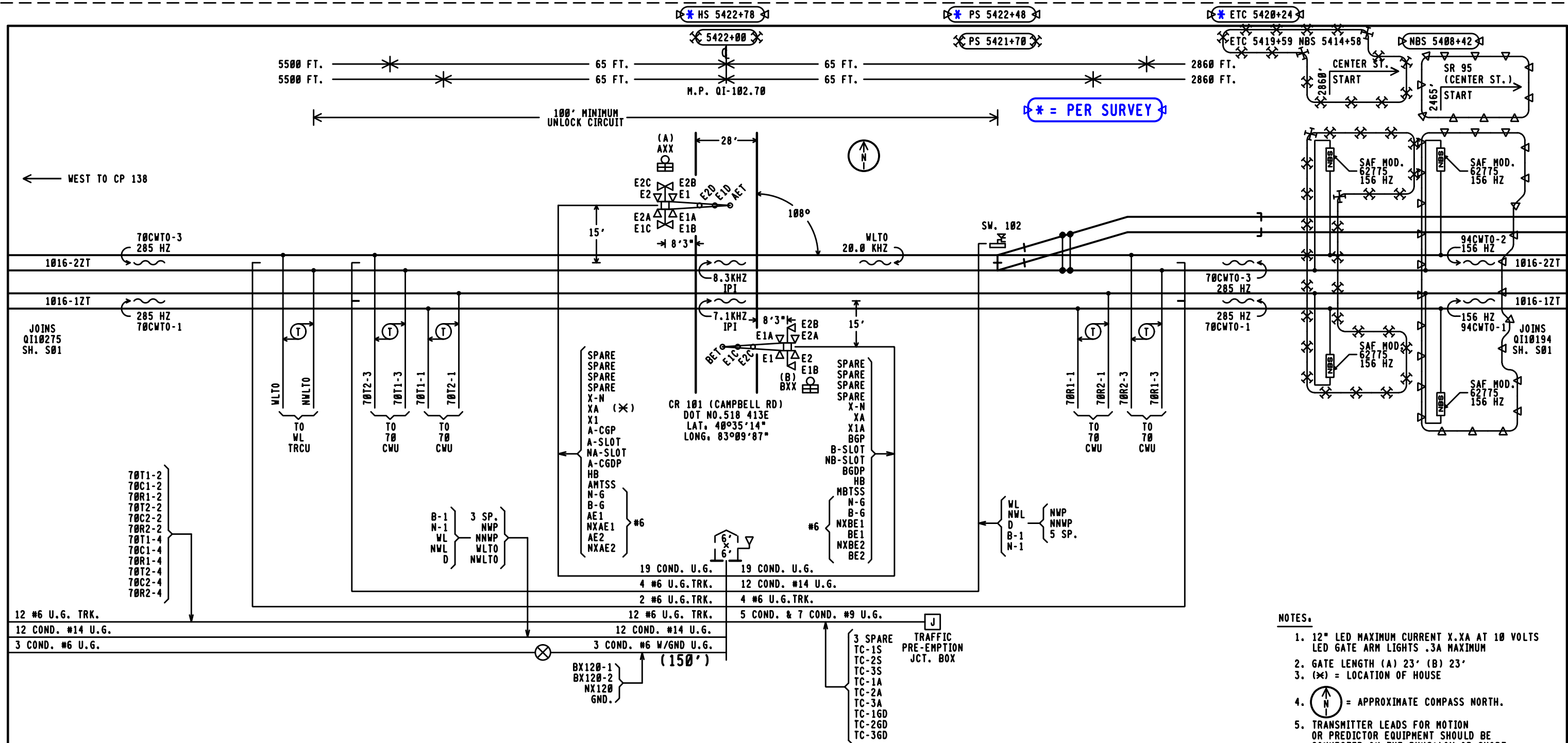
RAIL TRANSPORT GROUP ENGINEERING

COMMUNICATIONS AND SIGNALS

CR 101 (CAMPBELL RD) 518413E

INDEX AND REVISIONS

MARION, OH M.P. 01-102.70

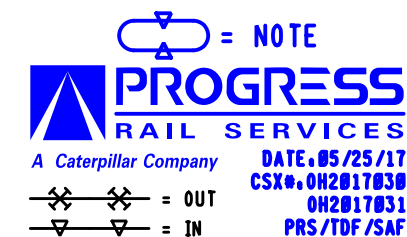


NOTES.

1. 12" LED MAXIMUM CURRENT X.XA AT 10 VOLTS
LED GATE ARM LIGHTS .3A MAXIMUM
2. GATE LENGTH (A) 23' (B) 23'
3. (*) = LOCATION OF HOUSE
4. = APPROXIMATE COMPASS NORTH.
5. TRANSMITTER LEADS FOR MOTION
OR PREDICTOR EQUIPMENT SHOULD BE
CONNECTED ON THE BUNGALOW OR SHORT
LEAD SIDE OF THE CROSSING.
6. ISLAND TRACK LEADS SHOULD BE CONNECTED
50 FEET FROM ROAD EDGE BUT ON NARROW
ROADS (20' OR LESS) ISLAND LENGTH
SHALL BE 120 FEET.
7. WARNING SYSTEM APPROACH CIRCUIT
DISTANCES ARE TO BE MEASURED FROM THE
ISLAND TRACK CONNECTIONS.

APPROACH LENGTHS TABLE	WESTWARD TRACK 1 CWT	EASTWARD TRACK 1 CWT	WESTWARD TRACK 2 CWT	EASTWARD TRACK 2 CWT
DC, AFO, TYPE C, MOTION, CWT, OR OTHER				
STANDARD MINIMUM WARNING TIME IN SECONDS	25	25	25	25
ROADWAY GATE TIME IN SECONDS	5	5	5	5
CLEARANCE TIME IN SECONDS	2	2	2	2
DOT TRAFFIC LIGHT SIMULTANEOUS PREEMPT TIME IN SECONDS*	0	0	0	0
DESIGNED WARNING TIME FOR TRAINS AT TIME TABLE SPEED	32 SEC.	32 SEC.	32 SEC.	32 SEC.
DOT TRAFFIC LIGHT ADVANCE PREEMPT TIME IN SECONDS *	23	23	23	23
CONTROL EQUIPMENT DECISION TIME IN SECONDS	5	5	5	5
DESIGNED DETECTION TIME FOR TRAINS AT TIME TABLE SPEED	60 SEC.	60 SEC.	60 SEC.	60 SEC.
TIME TABLE MAXIMUM TRAIN SPEED IN MILES PER HOUR	60	30	60	30
BUFFER SPEED IN MILES PER HOUR	5	5	5	5
TOTAL WARNING SYSTEM DESIGN SPEED IN MILES PER HOUR	65	35	65	35
APPROACH DISTANCE TO ISLAND EDGE IN FEET	5500	2860	5500	2860
HALF WIDTH OF ISLAND IN FEET	65	65	65	65
APPROXIMATE MILE POSTS FOR APPROACH CIRCUIT	103.75	102.15	103.75	102.15

*AUTHORIZING AGENCY, ODOT
*DATE OF REQUIREMENT, 12-2-2013
*AMOUNT OF TIME (SEC.), 23



DESIGN DATE 06-02-15
REV. NO. 3

05-25-17 4

RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
CR 101 (CAMPBELL RD) 518413E			
TRACK AND SIGNAL PLAN MARION, OH M.P. Q1-102.70			
DESIGNED XRL	DIGITIZED XRL	CHECKED XRL	DATE 03-25-15
-----	-----	-----	S01

Minimum Program Steps Report

Location and SIN

DOT Number: 518412E
Milepost Number: QI-102.70
Site Name: CAMPBELL RD

SIN: 712544200616 *

* Parameter is part of office check number calculation.

MCF and Template Selection

MCF Name: GCP-T6X-02-6.mcf
MCF Revision: 26
MCFCRC: 494D2656

Template = 2A.4 B1, 2 Rem (OCCN) *

* Parameter is part of office check number calculation.

Minimum Program Steps

TEMPLATE, module configuration
Track 3/PS0 2 Slot = Track (OCCN) *
Track 4/PS0 3 Slot = Track (OCCN) *

TEMPLATE, preemption
Preempt Logic = Advnce (OCCN) *
Adv Preempt Delay = 23 sec (OCCN) *
Preempt Hlth IP Used = No (OCCN) *

TEMPLATE, track 1-B1, Island
Track 1, GCP Frequency = 285 Hz (OCCN) *
Track 1, Approach Distance = 2860 ft (OCCN) *
Track 1, Prime Warning Time = 32 sec (OCCN) *
Track 1, Prmpt Warning Time = 55 sec (OCCN) *
Track 1, GCP Transmit Level = Medium (Set in Field,TCN)
Track 1, Isl Frequency = 7.1 kHz (OCCN) *

TEMPLATE, track 2-Remote Prime
Track 2, GCP Frequency = 86 Hz (OCCN) *
Track 2, Approach Distance = 5315 ft (OCCN) *
Track 2, Prime Warning Time = 32 sec (OCCN) *
Track 2, Prime Offset Distance = 185 ft (OCCN) *
Track 2, Prmpt Warning Time = 55 sec (OCCN) *
Track 2, Prmpt Offset Distance = 185 ft (OCCN) *
Track 2, GCP Transmit Level = High (Set in Field,TCN)
Track 2, Uni/B1/Sim-Bidirnl = Sim. Bidirnl (OCCN) *

TEMPLATE, track 3-B1, Island
Track 3, GCP Frequency = 285 Hz (OCCN) *
Track 3, Approach Distance = 2860 ft (OCCN) *
Track 3, Prime Warning Time = 32 sec (OCCN) *
Track 3, Prmpt Warning Time = 55 sec (OCCN) *
Track 3, GCP Transmit Level = Medium (Set in Field,TCN)
Track 3, Isl Frequency = 8.3 kHz (OCCN) *

TEMPLATE, track 4-Remote Prime
Track 4, GCP Frequency = 86 Hz (OCCN) *
Track 4, Approach Distance = 5315 ft (OCCN) *
Track 4, Prime Warning Time = 32 sec (OCCN) *
Track 4, Prime Offset Distance = 185 ft (OCCN) *
Track 4, Prmpt Warning Time = 55 sec (OCCN) *
Track 4, Prmpt Offset Distance = 185 ft (OCCN) *
Track 4, GCP Transmit Level = High (Set in Field,TCN)
Track 4, Uni/B1/Sim-Bidirnl = Sim. Bidirnl (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, 00S

00S Control = Display+00S IPs (OCCN) *
00S Timeout = 1 hrs (Set in Field)
T2 00S Control = 00S Input 1 (OCCN) *
T3 00S Control = 00S Input 1 (OCCN) *
T4 00S Control = 00S Input 1 (OCCN) *

TEMPLATE, OP assignment 1
OUT 1.1 = Adv Preempt (OCCN) *
OUT 2.1 = AND 1 XR (OCCN) *

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) *

GCP, track 1
Track 1, Island Distance = 130 ft (Set in Field,TCN)

GCP, track 3
Track 3, Island Distance = 130 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) *

* Parameter is part of office check number calculation.

Check Numbers

Office Check Number: 7BAA4B3E
Config. Check Number: 0641D4AD
(Based on MCF Revision 26)

Parameters not part of office check number calculation:

Track 1, GCP Transmit Level = Medium (Set in Field)
Track 2, GCP Transmit Level = High (Set in Field)
Track 3, GCP Transmit Level = Medium (Set in Field)
Track 4, GCP Transmit Level = High (Set in Field)
00S Timeout = 1 hrs (Set in Field)
Track 1, Island Distance = 130 ft (Set in Field)
Track 3, Island Distance = 130 ft (Set in Field)
Daylight Savings = 0n (Set in Field)

Comments

<none>



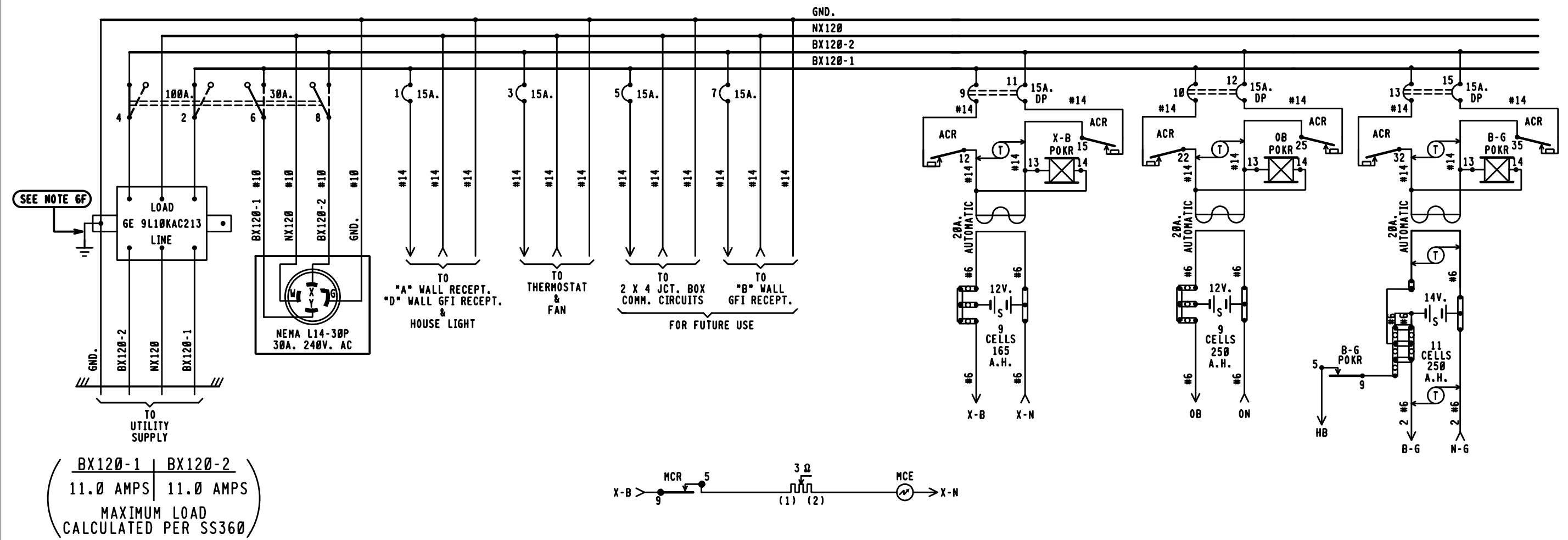
CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

CR 101 (CAMPBELL RD) 518413E

MINIMUM PROGRAM STEPS REPORT CWE-70
MARION, OH M.P. QI-102.70

DESIGNED XRL	DIGITIZED XRL	CHECKED XRL	DATE 07-06-15
DESIGN DATE 07-06-15	REV. NO. 2	DRAWING -----	SHEET P01

TOP ROW											
ACR			X-B POKR			MCR			PER-ADV		
12	B	B77	9	11	F N68	9	F	11	12	FB	B8
15	B	C30	10	F	C48	10	F	12	15	FB	C30
22	B				C49				22		
25	B								23		
32	B								25		
35	B								32		
									35		
			OB POKR			B-G POKR					
			9	11	F N68	9	F	11			
			10	F	C48	10	F	12			



- 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 BUSES, 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 OUTPUT 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-Q0124L1256 (24 SPACES)

6'X 6' PTC CROSSING HOUSE

CSX TRANSPORTATION

RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

CR 101 (CAMPBELL RD) 518413E

POWER DISTRIBUTION
MARION, OH M.P. QI-102.70

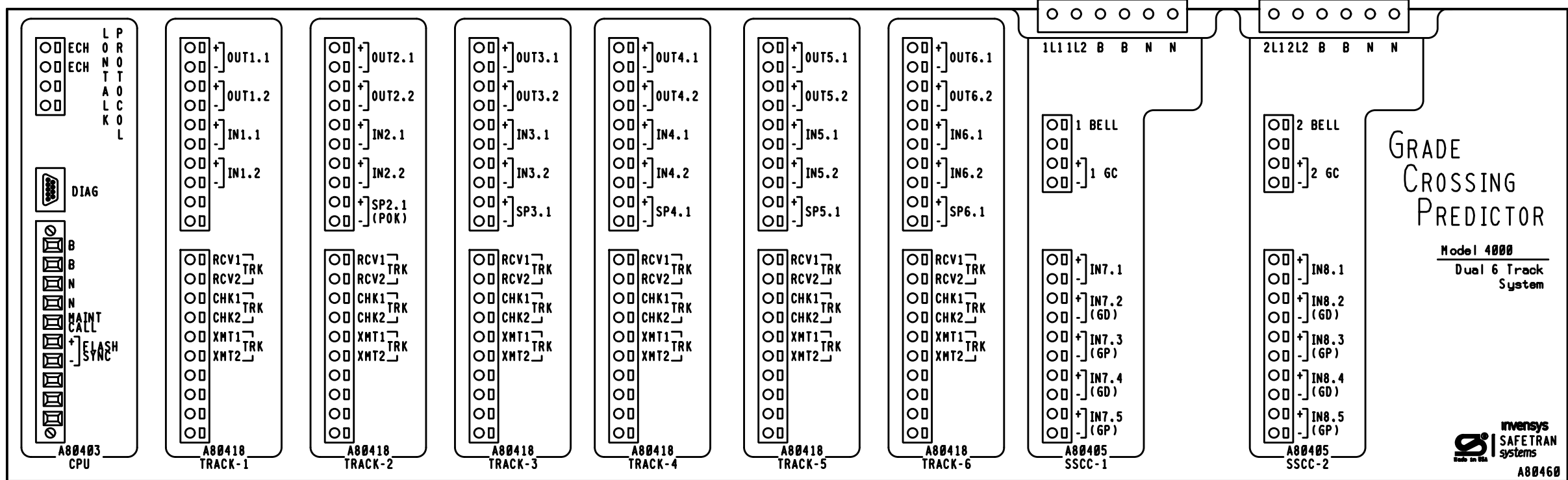
DESIGNED XRL	DIGITIZED XRL	CHECKED XRL	DATE 03-25-15
DRAWING -----	SHEET NO -----	FILE QI10270	SHEET E01

PROGRESS
RAIL SERVICES
A Caterpillar Company

DATE: 05/25/17
CSX# 0H2017030
0H2017031
PRS/TDF/SAF

NO CHANGES

DESIGN DATE 06-02-15	REV. NO. 3
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PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 05/25/17
CSX# 0H2017030
0H2017031
PRS/TDF/SAF

NO CHANGES

CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

CR 101 (CAMPBELL RD) 518413E

DETECTION DEVICE CONSIST CWE-70
MARION, OH M.P. Q1-102.70

DESIGN DATE
03-25-15

REV. NO.
1

DRAWING

SHEET NO

FILE
Q110270

SHEET
C01

GCP 4000 APPLICATION NOTES.

1. 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.

2. THE GCP 4000 GCP (A80460) IS A SIX TRACK REDUNDANT UNIT CAPABLE OF DRIVING 4 INDEPENDENT FLASHER AND GATE SIGNALS AND RECORDING EVENTS AND REPORTING ALARMS. THIS A80460 INCLUDES THE FOLLOWING MODULES.

SLOT	MODULE	FUNCTION	PART NO.
1M1	CPU-II+	MAIN	A80403
1M2	TRACK-1	MAIN	A80418
1M3	TRACK-2	MAIN	A80418
1M4	TRACK-3	MAIN	A80418
1M5	TRACK-4	MAIN	A80418
1M6	TRACK-5	NONE	A80418
1M7	TRACK-6	NONE	A80418
1M8	SSCC-III ₁	A SIGNAL	A80405
1M9	DISPLAY MODULE		A80407
2M1	CPU-II+	STANDBY	A80403
2M2	TRACK-1	STANDBY	A80418
2M3	TRACK-2	STANDBY	A80418
2M4	TRACK-3	STANDBY	A80418
2M5	TRACK-4	STANDBY	A80418
2M6	TRACK-5	NONE	A80418
2M7	TRACK-6	NONE	A80418
2M8	SSCC-III ₁	B SIGNAL	A80405
2M9	TRANSFER UNIT		A80468
LOWER BAY	SEAR II ₁	RECORDER	A80410

3. EACH TRACK MODULE HAS TWO PROGRAMMABLE INPUTS AND TWO PROGRAMMABLE OUTPUTS.

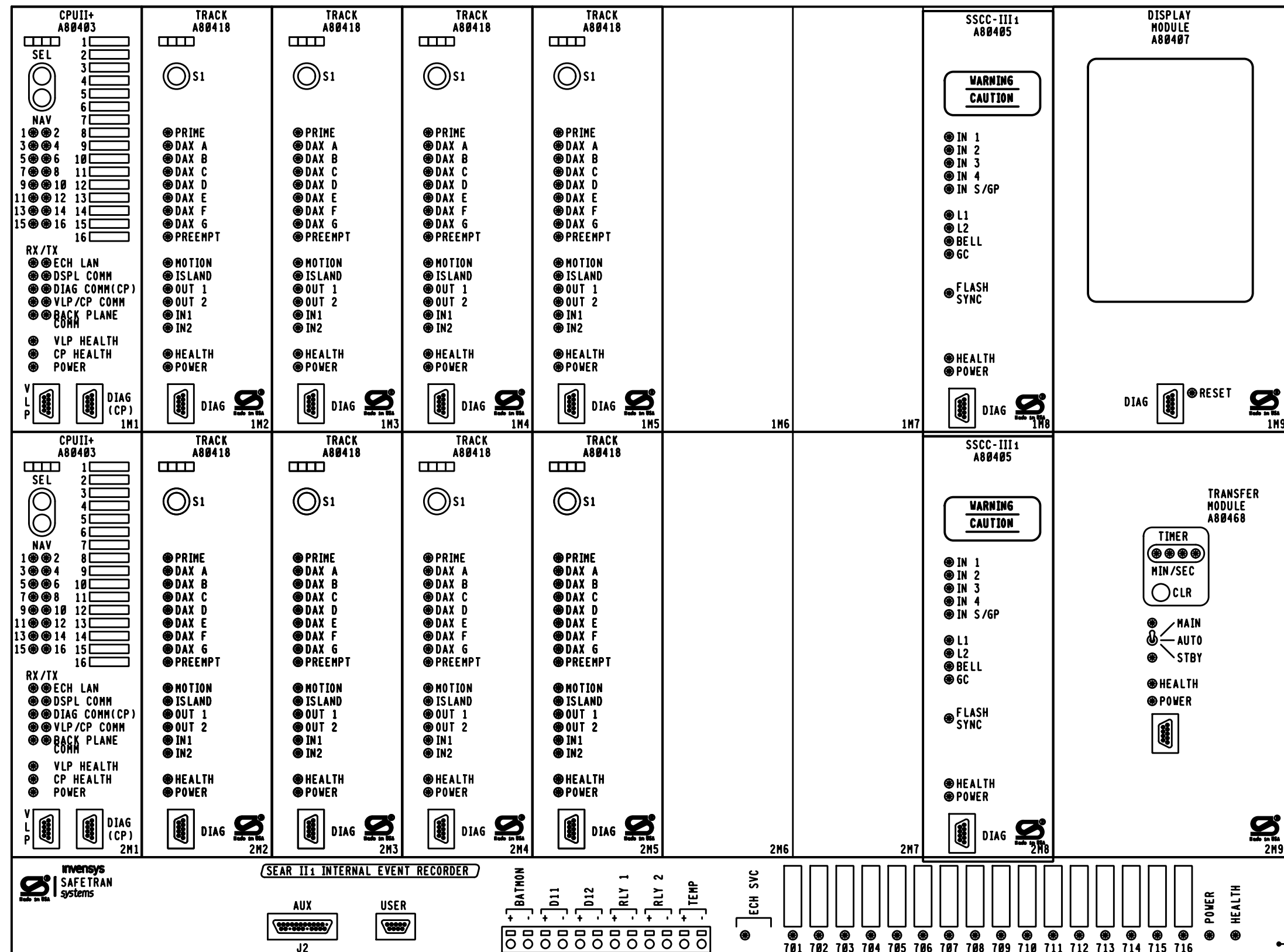
4. THE SEAR II INTERNAL EVENT RECORDER HAS INPUTS FOR ONE BATTERY MONITOR, TWO NON-VITAL INPUTS AND TWO PROGRAMMABLE RELAY DRIVES (HEEL/FRONT).

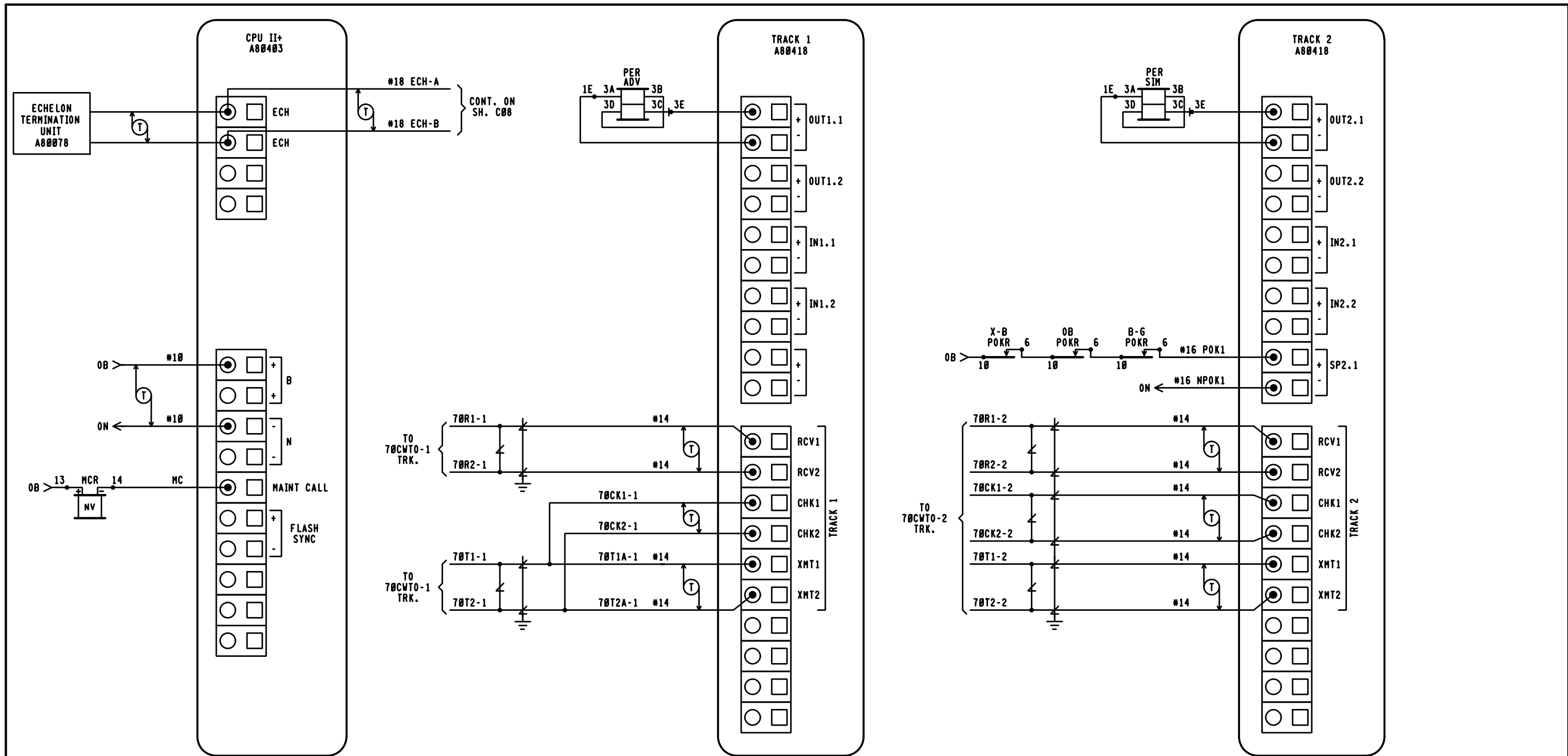
5. LOCATED ON THE FRONT OF EACH MODULE THERE ARE LED LIGHTS TO INDICATE THE ACTIVITY OF CERTAIN FUNCTIONS OCCURRING INSIDE THE GCP.

6. BETWEEN SLOT 1 & 2 THERE IS A CHASSIS IDENTIFICATION CHIP (CIC) SOCKET AND AN ECD CONNECTOR (DB-25 FEMALE).

7. UPON THE FAILURE OF A MODULE IN SLOTS 1M1-1M7 THE AUTOMATIC TRANSFER UNIT SWITCHES TO THE STANDBY MODULES IN SLOTS 2M1-2M7.

8. THE GCP 4000 GCP (A80460) MAY USE RIO MODULES IN SLOTS 1M3, 1M6, 1M7, 2M3, 2M6 AND 2M7.





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.



**RAIL TRANSPORT GROUP ENGINEERING
 COMMUNICATIONS AND SIGNALS**

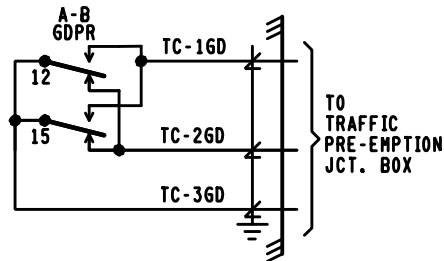
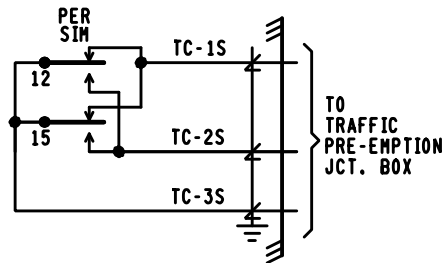
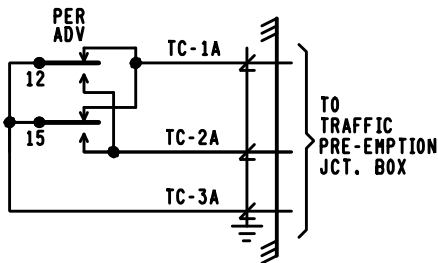
CR 101 (CAMPBELL RD) 518413E

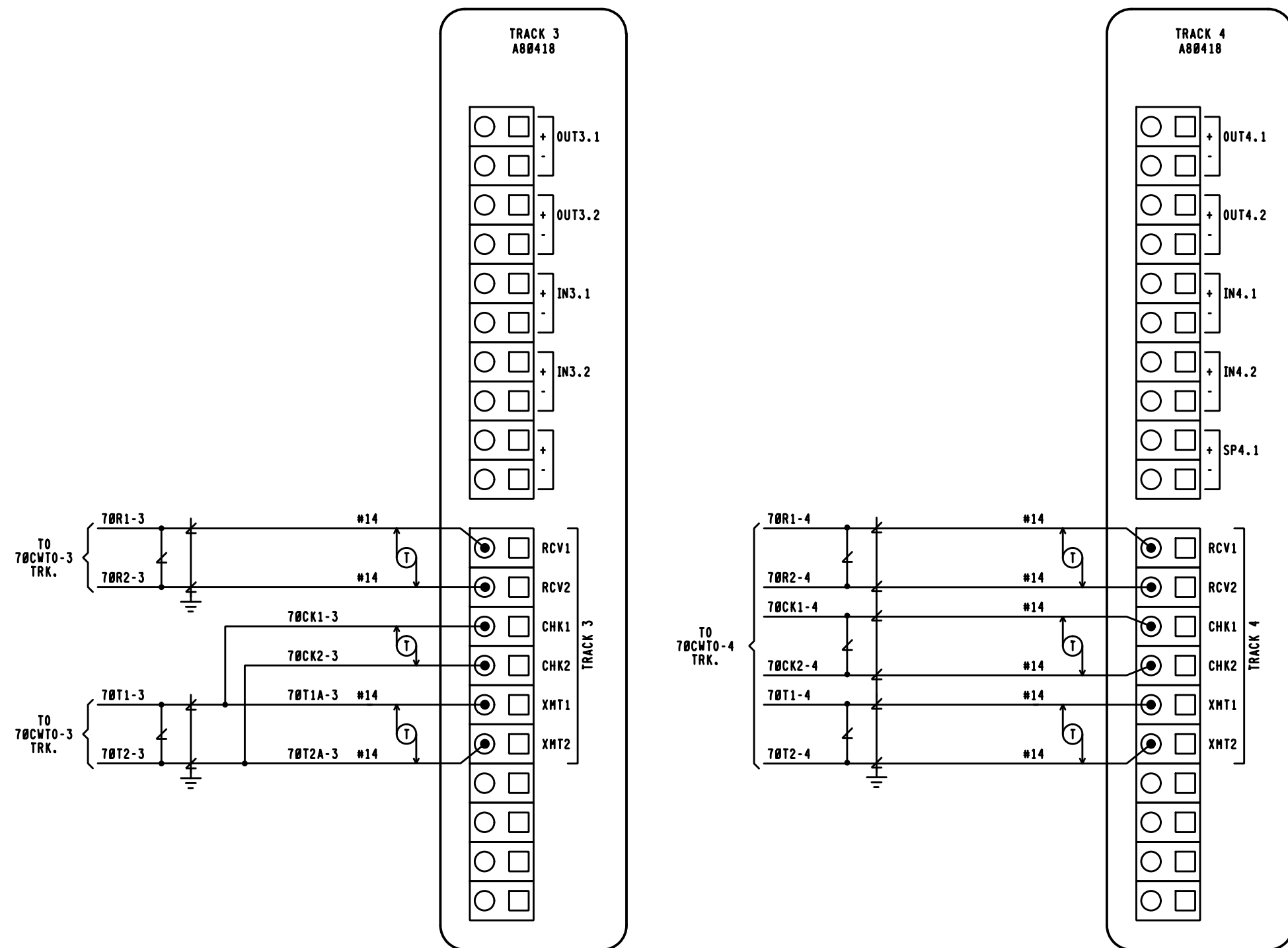
DETECTION DEVICE CONSIST CWE-70
 MARION, OH M.P. 01-102.70

DESIGNED XRL	DIGITIZED XRL	CHECKED XRL	DATE 03-25-15
DRAWING -----	SHEET NO -----	FILE Q110270	SHEET C03


 A Caterpillar Company
NO CHANGES
 DATE: 05/25/17
 CSX# 0H2017030
 0H2017031
 PRS/TDF/SAF

DESIGN DATE 07-06-15	REV. NO. 2
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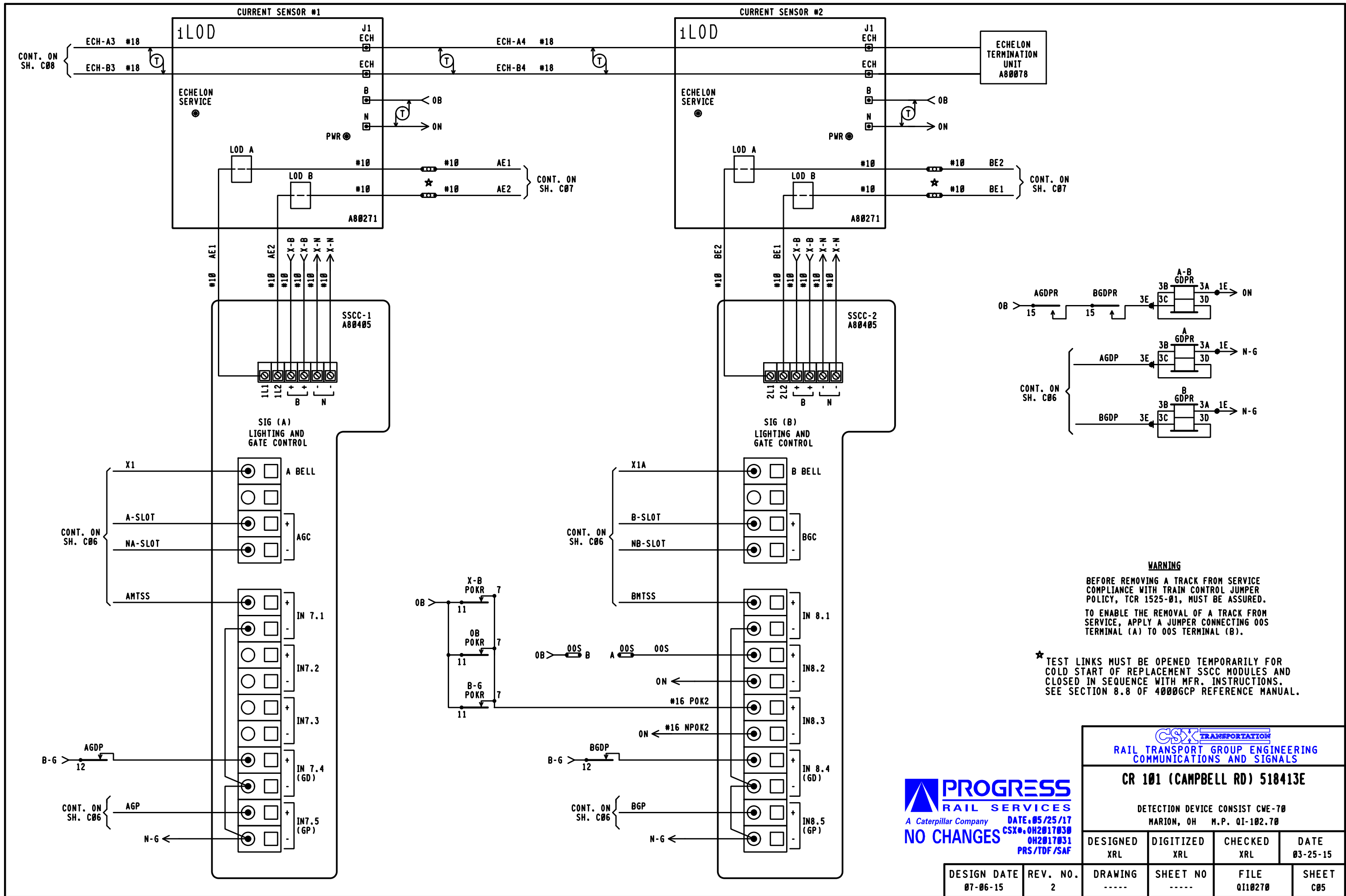


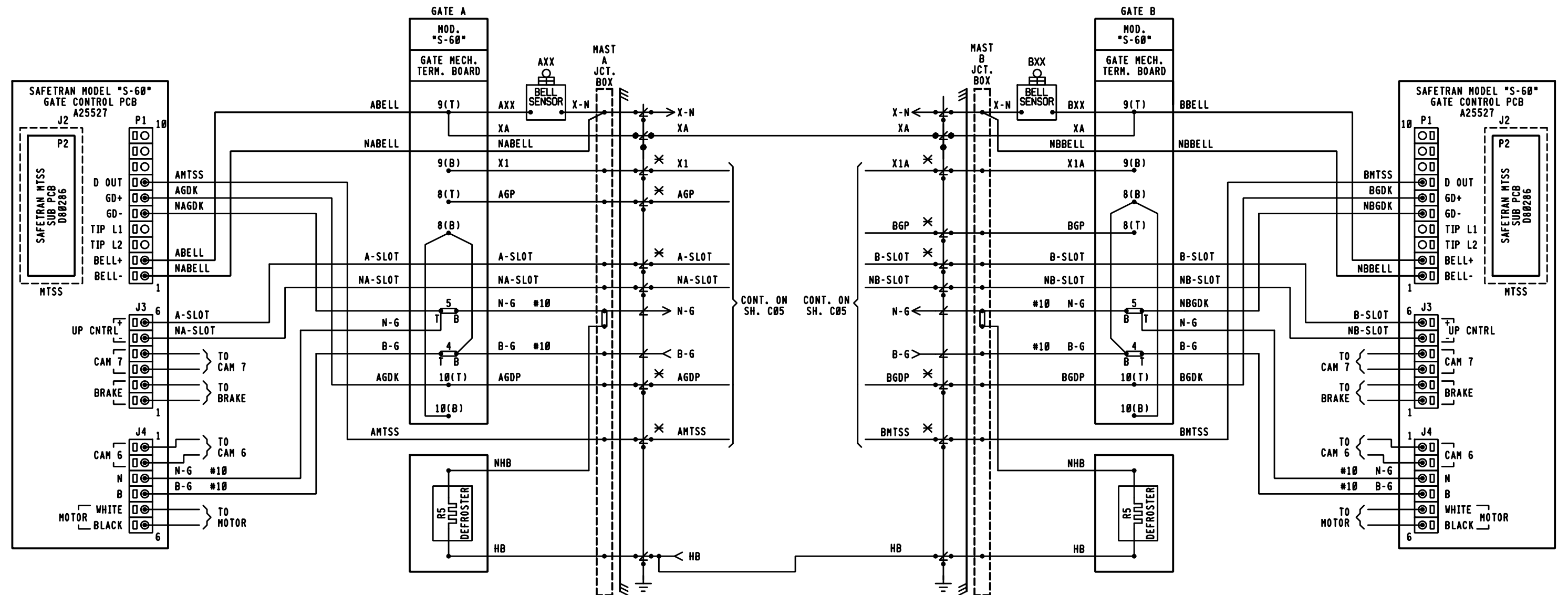
PROGRESS
RAIL SERVICES
A Caterpillar Company
NO CHANGES

DATE: 05/25/17
CSX# 0H2017030
0H2017031
PRS/TDF/SAF

 RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
CR 101 (CAMPBELL RD) 518413E			
DETECTION DEVICE CONSIST CUE-70 MARION, OH M.P. 01-102.70			
DESIGNED XRL	DIGITIZED XRL	CHECKED XRL	DATE 03-25-15
DRAWING -----	SHEET NO -----	FILE QI10270	SHEET C04

DESIGN DATE 03-25-15	REV. NO. 1
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NOTES.

- ✱ = 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.
- ⬢ = TERMINAL IN JCT. BOX BASE
- ALL WIRING #16 UNLESS NOTED OTHERWISE.

PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 05/25/17
CSX# 0H2017030
0H2017031
PRS/TDF/SAF
NO CHANGES

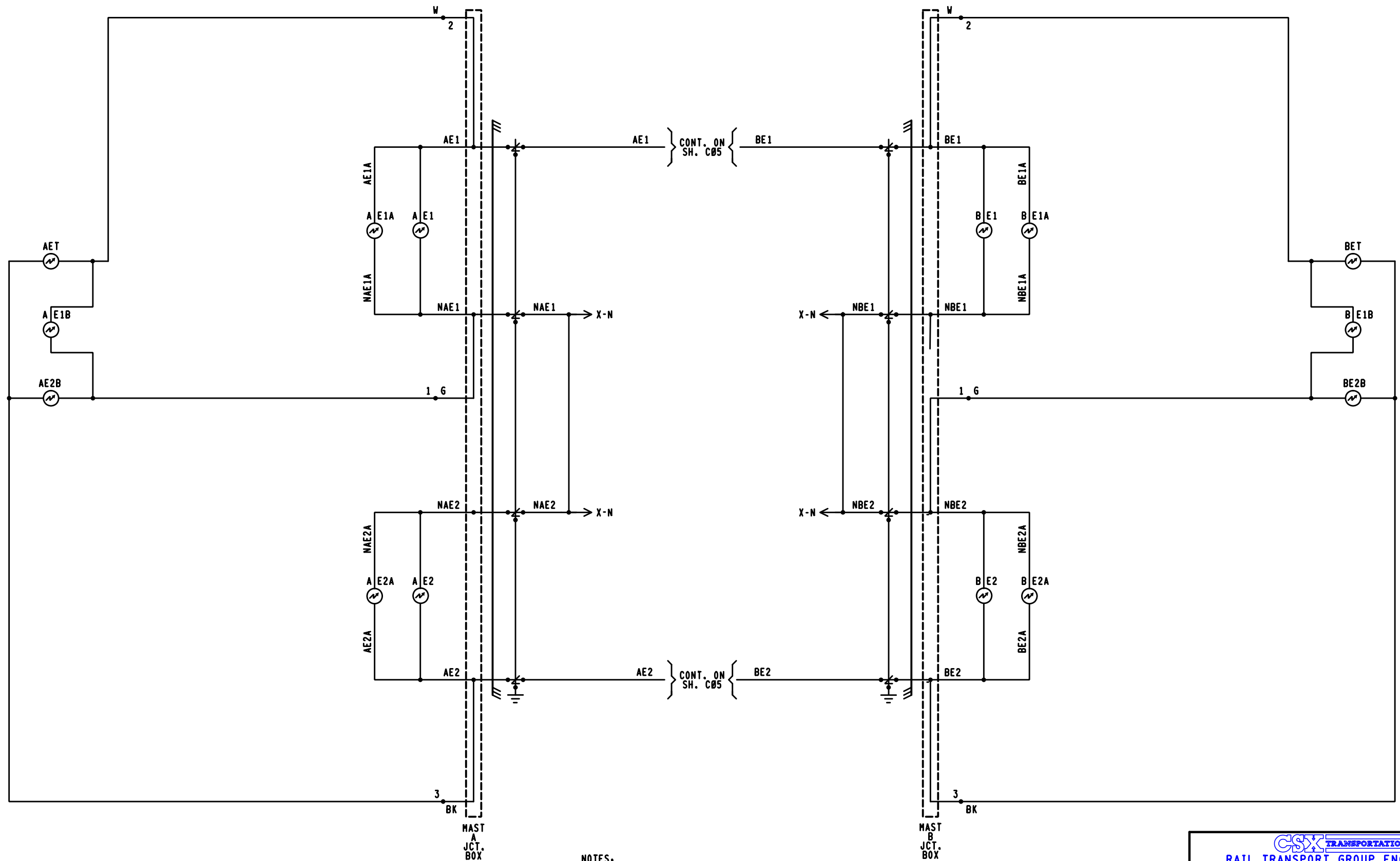
CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

CR 101 (CAMPBELL RD) 518413E

CROSSING WARNING DEVICE GATE CIRCUITRY
MARION, OH M.P. Q1-102.70

DESIGNED XRL	DIGITIZED XRL	CHECKED XRL	DATE 03-25-15
DRAWING -----	SHEET NO -----	FILE Q110270	SHEET C06

DESIGN DATE 07-06-15	REV. NO. 2
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NOTES:

1.  = 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



DATE: 05/25/17
CSX# 0H2017030
0H2017031
PRS/TDF/SAF

CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

CR 101 (CAMPBELL RD) 518413E

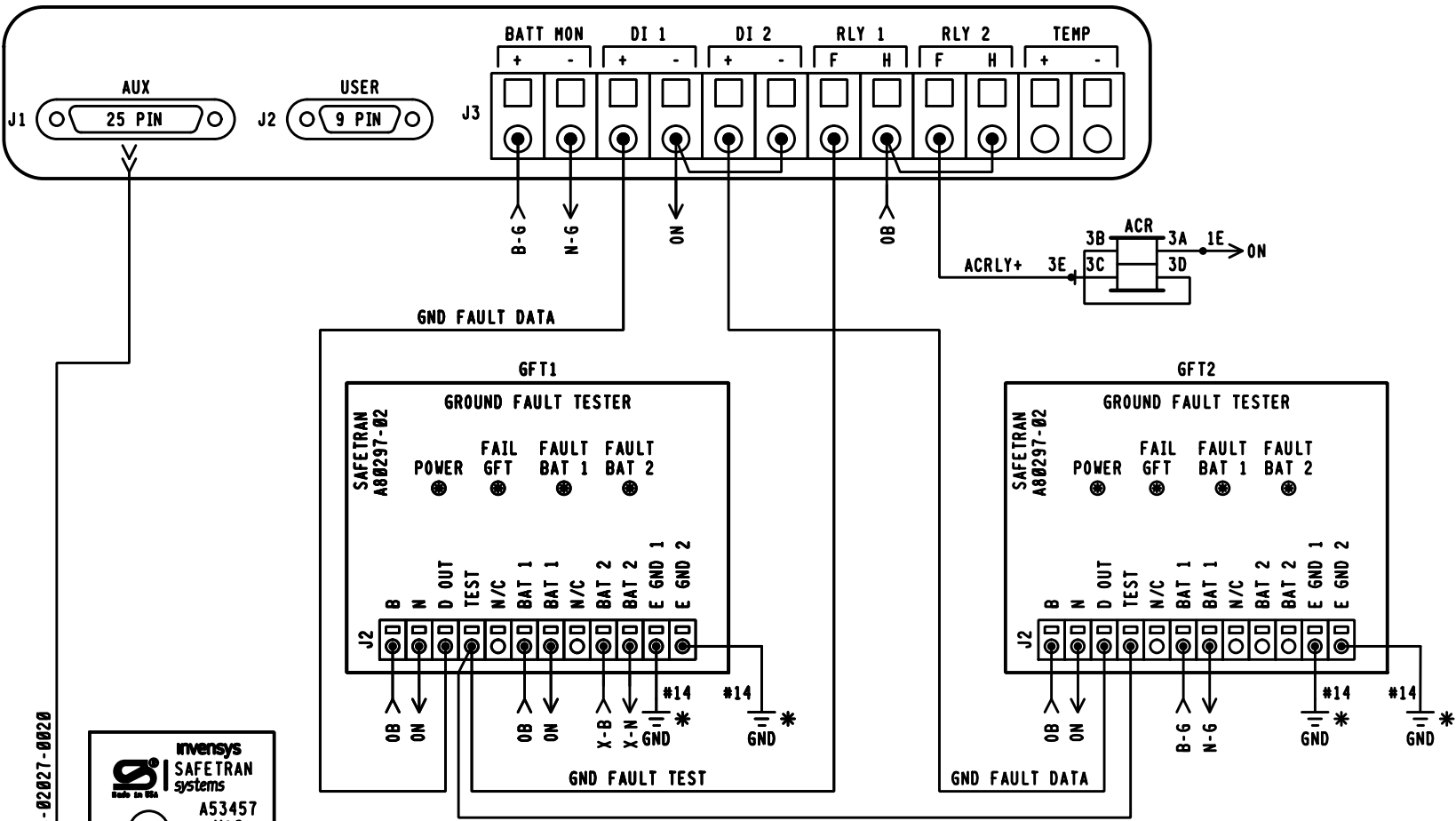
CROSSING WARNING DEVICE LIGHT CIRCUITRY
MARION, OH M.P. QI-102.70

DESIGNED XRL	DIGITIZED XRL	CHECKED XRL	DATE 03-25-15
DRAWING -----	SHEET NO -----	FILE QI10270	SHEET C07

DESIGN DATE 03-25-15	REV. NO. 1
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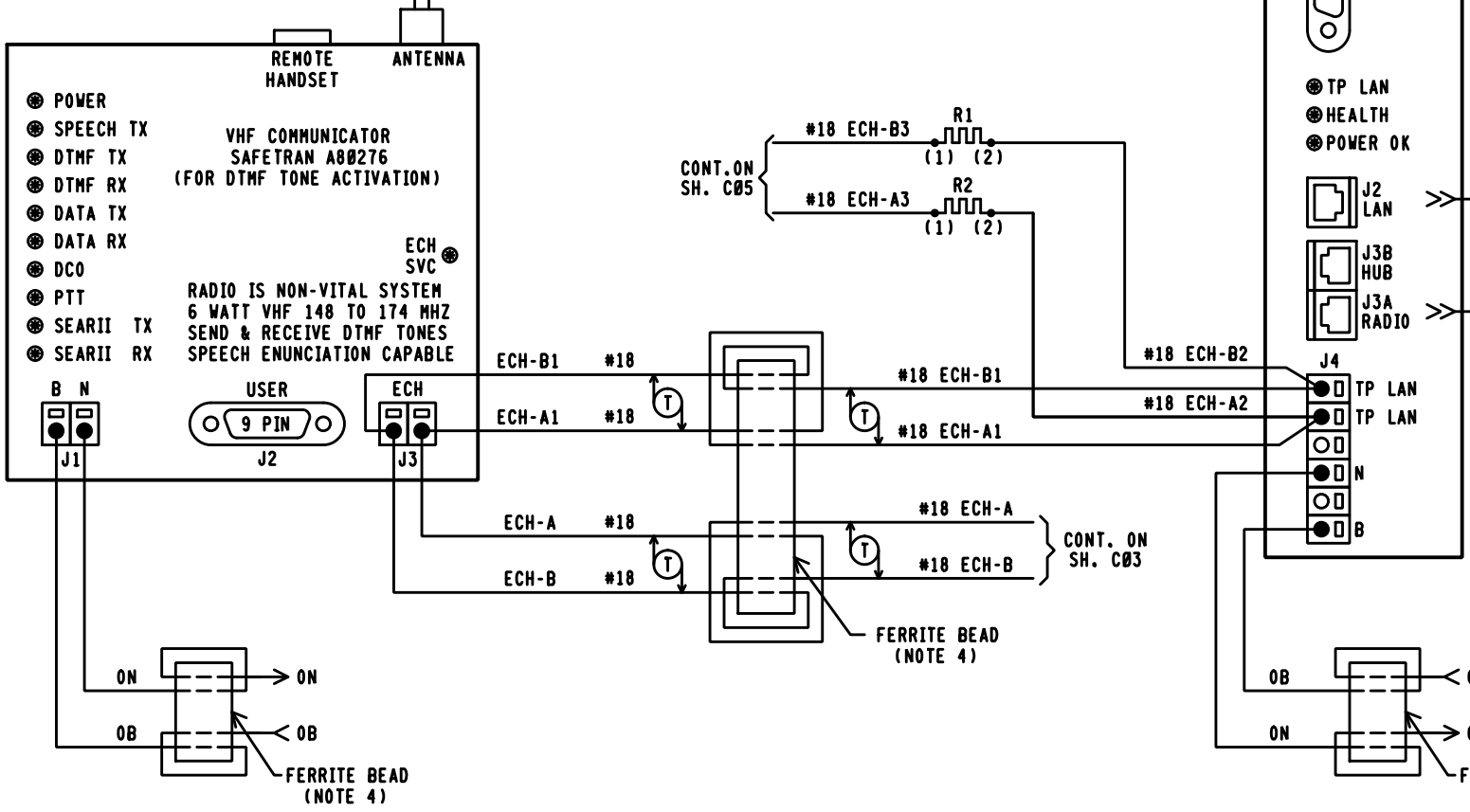
WAYSIDE ACCESS GATEWAY CONFIGURATION	
SITE ATCS ADDRESS	7.125.442.006.16.01 7.125.LLL.666.SS.DD
SERIAL INTERFACE	38,400,NONE,8,1/NOFLOW
SERIAL FORMAT	RAW
WAG TEST MODE	DISABLED
ECHOLON ADDRESS	01.07
UDP PORTS	5000, 5001, 5002, 5003
ROUTE TABLE EXPIRY	5400 SEC
BROADCAST MEDIUM	IP ETHERNET
TCP PORTS	23, 10023, 6001, 6002
DHCP SERVER	DISABLED
IP ADDRESS	192.168.13.1
TYPE 7 ROUTE LENGTH	12--7RRLLL666SS
IP NETWORK MASK	255.255.255.0
WAG CIRCUIT ID	DISABLE
ROUTING REGION DOMAIN 1	OC6SERVER1.JAX.COM
ATCS SERVER UDP PORT NUMBER	6001
TELNET NUMBERS	WAG 6002, SERIAL 10023
DEFAULT GATEWAY IP	192.168.013.031

SEAR II₁ INTERNAL EVENT RECORDER I/O



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

** SHIELDED COAXIAL
CABLE TO ANTENNA



GCP PROGRAMMING FOR VHF RADIO

REMOTE DTMF CROSSING ACTIVATION
(ACTIVATES ENTIRE CROSSING)

TO ACTIVATE PRESS, 006*

TO DE-ACTIVATE PRESS, 006*

(ACTIVATION WILL TIME OUT AFTER 60 SEC.)

- COMM NOTES.
1. WAG J3A PINOUTS.
4 & 5 = +12VDC RADIO OUT
7 & 8 = GND RADIO RETURN
 2. WAG AND SEARII₁ ECHOLON 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.

- 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.
 5. R1 & R5 ARE .5W. 20 OHM RESISTORS.
 6. RESISTORS R1 & R2 SHOULD BE
PLACED AS CLOSE TO ILOD AS POSSIBLE.

PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 05/25/17
CSX# 0H2017030
0H2017031
PRS/TDF/SAF
NO CHANGES

CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
CR 101 (CAMPBELL RD) 518413E			
CROSSING WARNING DEVICE CIRCUITRY MARION, OH M.P QI-102.70			
DESIGNED XRL	DIGITIZED XRL	CHECKED XRL	DATE 03-25-15
DRAWING -----	SHEET NO -----	FILE QI10270	SHEET C08

DESIGN DATE 03-25-15	REV. NO. 1
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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 101 (CAMPBELL RD)	
MILEPOST	Q1-102.70	
DOT NUMBER	518413E	
TESTER TYPE	CROSSING	
DATE FORMAT	MM-DD-YYYY	
TEMP FORMAT	FAHRENHEIT	
INDICATE HOLD (SEC)	0	
INDICATE REFRESH (SEC)	60	
SITE ATCS ADDRESS	7.125.442.006.16.01 (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	7.125.442.006.16.01 (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	

LIT BULB COUNT ON EACH CIRCUIT	NO.	TYPE OF BULB	CURRENT READING IN AMP. AT APPROX. 10.0 V ARRAY VOLTAGE
CURRENT SENSOR (1) AE1, LAMP SET UP	5	☐ BULBS ☒ LED	X.X
CURRENT SENSOR (1) AE2, LAMP SET UP	5	☐ BULBS ☒ LED	X.X
CURRENT SENSOR (2) BE1, LAMP SET UP	5	☐ BULBS ☒ LED	X.X
CURRENT SENSOR (2) BE2, LAMP SET UP	5	☐ BULBS ☒ LED	X.X

NOTE 7

MENU→CONFIGURATION→
MODULES→ADD MODULE

MODULE TYPE	WAG
MODULE NAME	DEFAULT
WAG ECHELON NODE	7

NOTE.
REFER TO WAG INSTALLATION AND
SETUP IN APPENDIX "A" GCP4000 SYTEM
CUT OVER, TEST PROCEDURE AND CHECK
OFF SHEET.

MEASURE BATTERY VOLTAGE AT INPUT			
BATTERY VOLTAGE	0B	12	VOLTS
BATTERY VOLTAGE	X-B	13	VOLTS
BATTERY VOLTAGE	B-6	14	VOLTS

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

NOTE 6

PROGRAM MENU SELECT

EDIT DIGITAL INPUTS	☒ NO ☐ YES
EDIT BATTERIES	☒ NO ☐ YES
EDIT RELAYS	☒ NO ☐ YES
EDIT TEST LED'S	☒ NO ☐ YES
EDIT ILOD1 SENSOR ★	☒ NO ☐ YES
EDIT ILOD2 SENSOR ★	☒ NO ☐ YES
EDIT ILOD3 SENSOR ★	☒ NO ☐ YES
EDIT ILOD4 SENSOR ★	☒ NO ☐ YES
EDIT VHF SETTINGS	☒ NO ☐ YES
GCP4K ATCS SUBNODE	16

★STAR = OPTIONS SHOWN DEPENDANT ON
NUMBER OF ILODS SELECTED

NOTE 9

NOTE 8

NOTE 1

NOTE 2

NOTE 3

NOTE 4

NOTE 5

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 ACTIVATION*	YES ☒ NO ☐
ACTIVATION CODE	006
ACTIVATION TIMEOUT	(60 SEC)
ILOD 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 ILODS.
- 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



PROGRESS

RAIL SERVICES

A Caterpillar Company

DATE: 05/25/17

CSX# 0H2017030

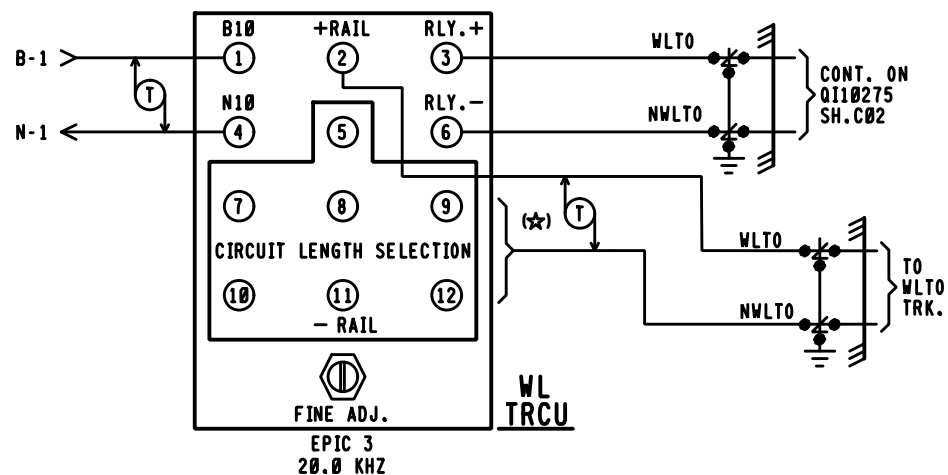
0H2017031

PRS/TDF/SAF

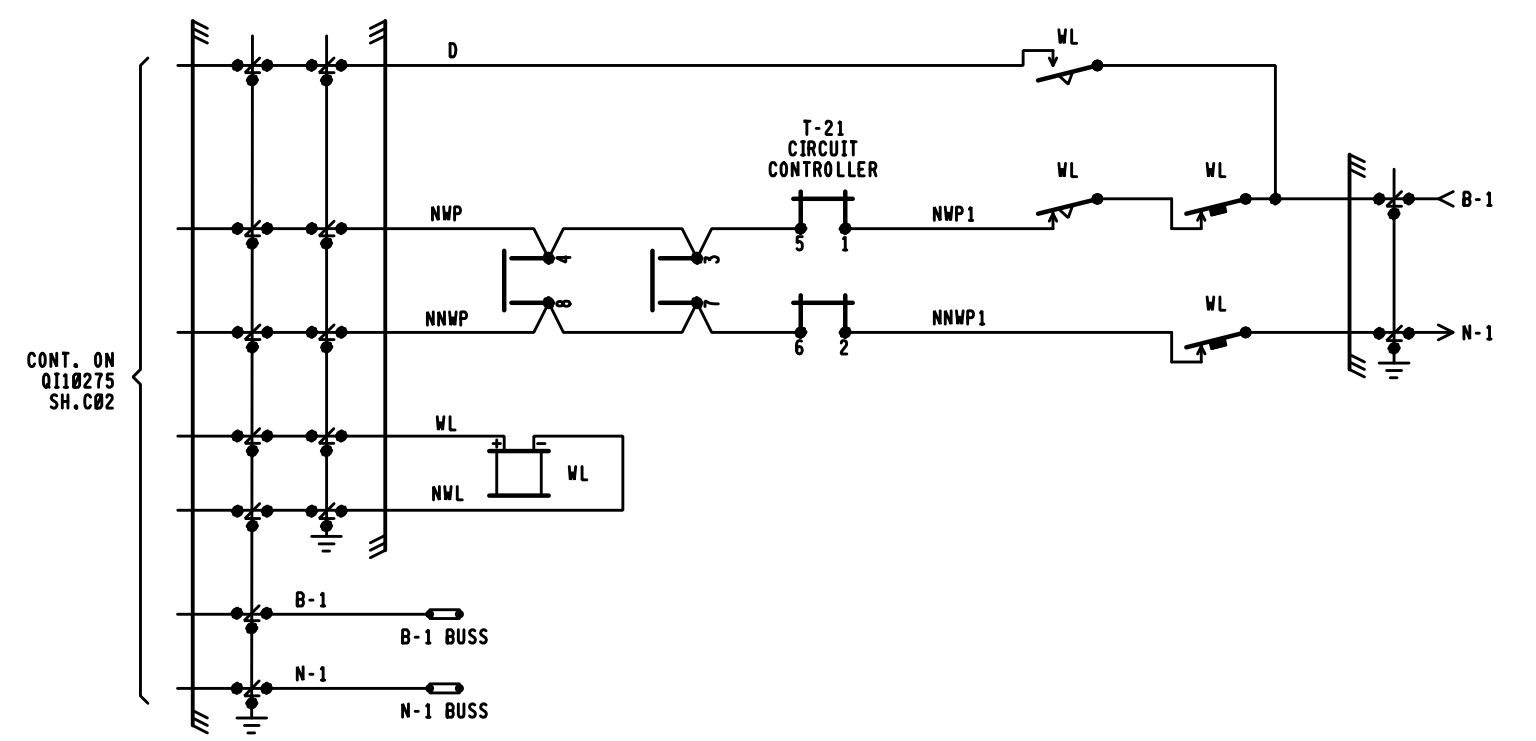
NO CHANGES

CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
CR 101 (CAMPBELL RD) 518413E			
SEAR II: CONFIGURATION & FUNCTIONS MARION, OH M.P. Q1-102.70			
DESIGNED XRL	DIGITIZED XRL	CHECKED XRL	DATE 03-25-15
DRAWING -----	SHEET NO -----	FILE Q110270	SHEET C09

DESIGN DATE 03-25-15	REV. NO. 1
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(★) = (- RAIL) FIELD SELECT PER ADJUSTMENT PROCEDURE TO SET SHUNT ZONE OF 100'



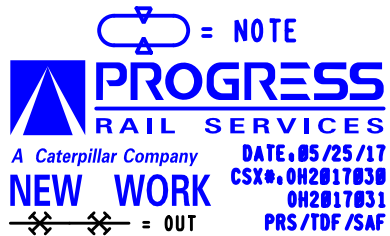
PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 05/25/17
CSX# 0H2017030
0H2017031
PRS/TDF/SAF

DESIGN DATE	REV. NO.
06-02-15	3

6'X6' CROSSING HOUSE					
 RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS					
CR 101 (CAMPBELL RD) 518423E					
LINE AND SWCH CIRCUITS 102.60 MARION, OH M.P. QI-102.70					
DESIGNED XRL	DIGITIZED XRL	CHECKED XRL	DATE 06-02-15		
DRAWING -----	SHEET NO -----	FILE QI10270	SHEET C10		

SH. NO.	CONTENTS	REVISION NO.									
		1	2	3	4	5	6	7	8	9	
I01	INDEX AND REVISIONS	/									
S01	TRACK AND SIGNAL PLAN	/									
G01	INTERNAL SOFTWARE AND GATES LOGIC DIAGRAMS	/									
P01	MINIMUM PROGRAM STEPS REPORT CWE-94	/									
E01	POWER DISTRIBUTION	/									
C01	DETECTION DEVICE CONSIST CWE-94	/									
C02	DETECTION CIRCUITRY CWE-94	/									
C03	DETECTION CIRCUITRY CWE-94	/									
C04	CROSSING WARNING DEVICE GATE CIRCUITRY	/									
C05	CROSSING WARNING DEVICE LIGHT CIRCUITRY	/									
C06	CROSSING WARNING DEVICE CIRCUITRY	/									
C07	SEAR II ₁ CONFIGURATION & FUNCTIONS	/									

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



DESIGN DATE
05-25-17

REV. NO.
1

DRAWING
- - - -

SHEET NO
.....

FILE
QI10194

SHEET
101 (A)

REVISIONS				
REV. NO.	PROJECT NO.	DESIGN DATE	IN SERVICE DATE	REVISION DATE
1	0H2017030 0H2017031	05-25-17		
TO BE COMPLETED ON A.I.S.				

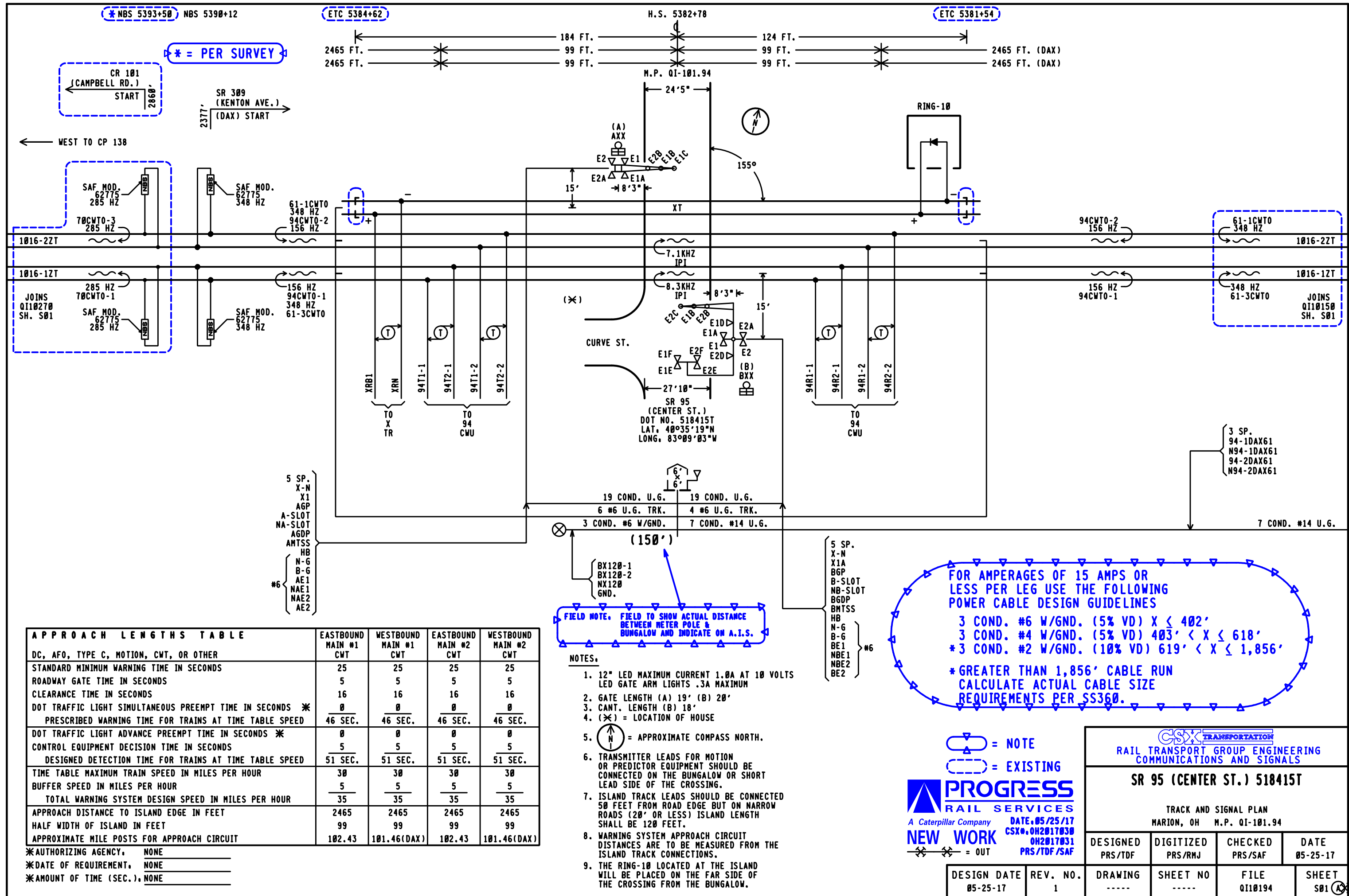


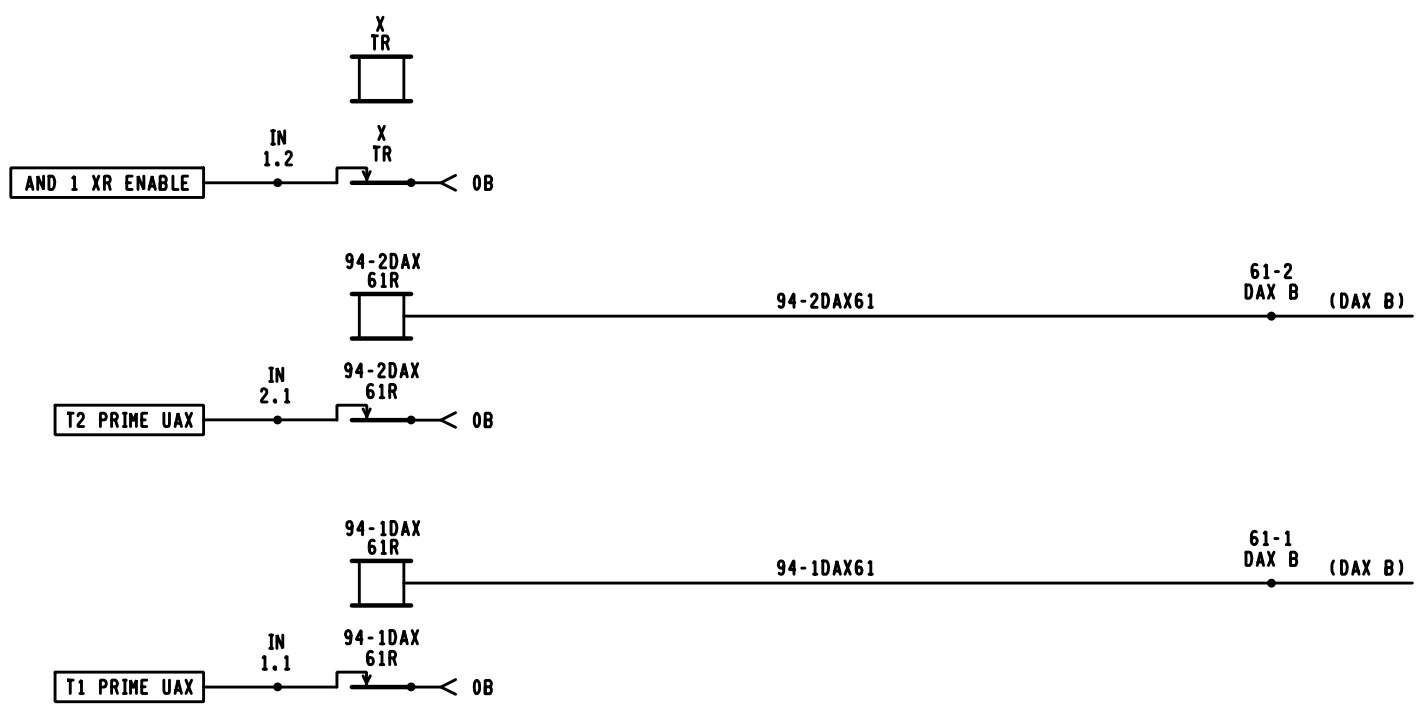
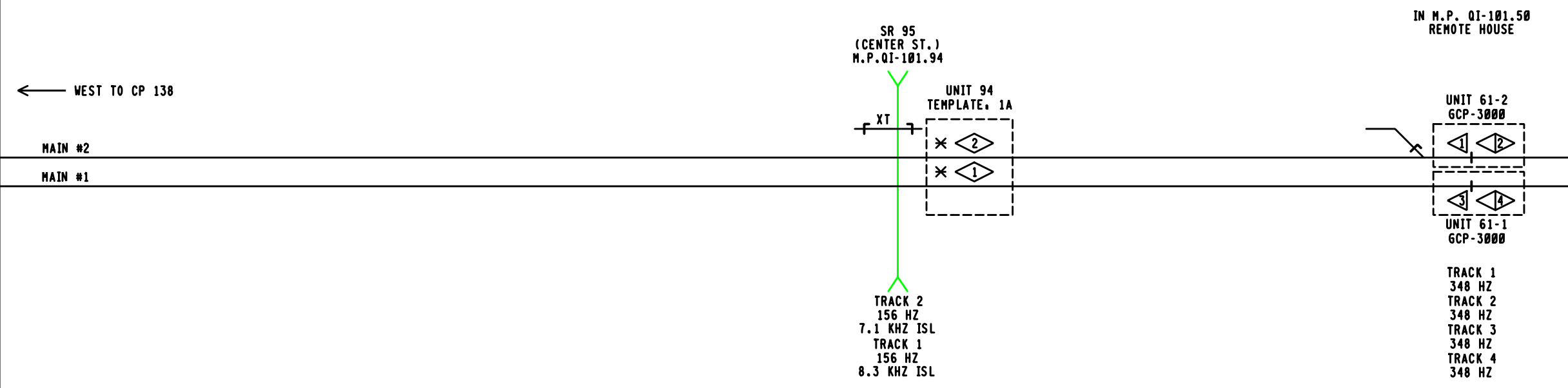
**RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS**

SR 95 (CENTER ST.) 518415T

INDEX AND REVISIONS
MARION, OH M.P. 01-101.94

DESIGNED PRS/TDF	DIGITIZED PRS/RMJ	CHECKED PRS/SAF	DATE 05-25-17
DRAWING -----	SHEET NO -----	FILE Q110194	SHEET 101 





SYMBOL	DEFINE	SYMBOL	DEFINE	SYMBOL	DEFINE	SYMBOL	DEFINE	SYMBOL	DEFINE	SYMBOL	DEFINE	SYMBOL	DEFINE	SYMBOL	DEFINE
	BI-DIRECTIONAL		SIMULATED BI-DIRECTIONAL		UNI-DIRECTIONAL		GCP 4000 UNIT		ISLAND		SOFTWARE UAX INPUT		EXTERNAL VITAL AND GATE		INTERNAL SOFTWARE GATE

PROGRESS
RAIL SERVICES
A Caterpillar Company

NEW WORK

DATE: 05/25/17
CSX# 0H2017030
0H2017031
PRS/TDF/SAF

RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

SR 95 (CENTER ST.) 518415T

INTERNAL SOFTWARE AND GATES LOGIC DIAGRAMS
MARION, OH M.P. QI-101.94

DESIGNED PRS/TDF	DIGITIZED PRS/RMJ	CHECKED PRS/SAF	DATE 05-25-17
DRAWING -----	SHEET NO -----	FILE QI10194	SHEET 601

DESIGN DATE 05-25-17	REV. NO. 1
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Minimum Program Steps Report

Location and SIN

DOT Number: 518415T
Milepost Number: Q1-101.94
Site Name: SR 95 (CENTER ST)

SIN: 712544203616 *

* Parameter is part of office check number calculation.

MCF and Template Selection

MCF Name: GCP-T6X-02-6.mcf
MCF Revision: 26
MCFCRC: 494D2656

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

* Parameter is part of office check number calculation.

Minimum Program Steps

MS4000 configuration

Track 1, GCP Frequency = 156 Hz (OCCN,TCN) (Hidden) *
Track 1, Prime UAX = IP (OCCN) (Hidden) *
Track 1, Isl Frequency = 8.3 kHz (OCCN) (Hidden) *
IN 1.1 = T1 Prime UAX (OCCN) (Hidden) *
IN 1.2 = AND 1 XR Enable (OCCN) (Hidden) *

MS4000 Predictor

Track 1, Prime Warning Time = 46 sec (OCCN) (Hidden) *

BASIC, module configuration
Chassis Type = Dual Two Track (OCCN) *
Track 2/R10 1 Slot = Track (OCCN) *

GCP, track 1

Track 1, GCP Frequency = 156 Hz (OCCN,TCN) *
Track 1, Approach Distance = 2465 ft (OCCN,TCN) *
Track 1, GCP Transmit Level = High (Set in Field,TCN)
Track 1, Island Distance = 198 ft (Set in Field,TCN)

GCP, track 1 prime

Track 1, Prime Warning Time = 46 sec (OCCN) *
Track 1, Prime UAX = IP (OCCN) *

GCP, track 2

Track 2, GCP Frequency = 156 Hz (OCCN,TCN) *
Track 2, Approach Distance = 2465 ft (OCCN,TCN) *
Track 2, GCP Transmit Level = High (Set in Field,TCN)
Track 2, Island Distance = 198 ft (Set in Field,TCN)

GCP, track 2 prime

Track 2, Prime Warning Time = 46 sec (OCCN) *
Track 2, Prime UAX = IP (OCCN) *

ISLAND, track 1

Track 1, Isl Frequency = 8.3 kHz (OCCN) *

ISLAND, track 2

Track 2, Isl Frequency = 7.1 kHz (OCCN) *

AND, AND 1 XR
AND 1 Enable Used = Yes (OCCN) *

ADVANCED, out of service
OOS Control = Display OOS IPs (OCCN) *

ADVANCED, out of service 2
T2 OOS Control = OOS Input 1 (OCCN) *

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

SSCC
SSCC1+2 GPs Coupled = No (OCCN) *

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

SSCC, 2
SSCC-2 Gate Delay = 5 sec (OCCN) *
SSCC-2 Number of GPs = 1 (OCCN) *
SSCC-2 Number of GDS = 1 (OCCN) *
SSCC 2, Flash Rate = 55 (OCCN) *

INPUT, assignment page 1
IN 1.1 = T1 Prime UAX (OCCN) *
IN 1.2 = AND 1 XR Enable (OCCN) *
IN 2.1 = T2 Prime UAX (OCCN) *

IO, 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) *

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) *
Track 1, Prime UAX = IP (OCCN) (Hidden) *
IN 1.1 = T1 Prime UAX (OCCN) (Hidden) *
IN 1.2 = AND 1 XR Enable (OCCN) (Hidden) *

Express, MS4000 Predictor

Track 1, Prime Warning Time = 46 sec (OCCN) (Hidden) *

* Parameter is part of office check number calculation.

Check Numbers

Office Check Number: 0090D1DF
Config. Check Number: 075DDF33
(Based on MCF Revision 26)

Parameters not part of office check number calculation:

Track 1, GCP Transmit Level = High (Set in Field)
Track 1, Island Distance = 198 ft (Set in Field)
Track 2, GCP Transmit Level = High (Set in Field)
Track 2, Island Distance = 198 ft (Set in Field)
Daylight Savings = 0n (Set in Field)

Comments

(none)



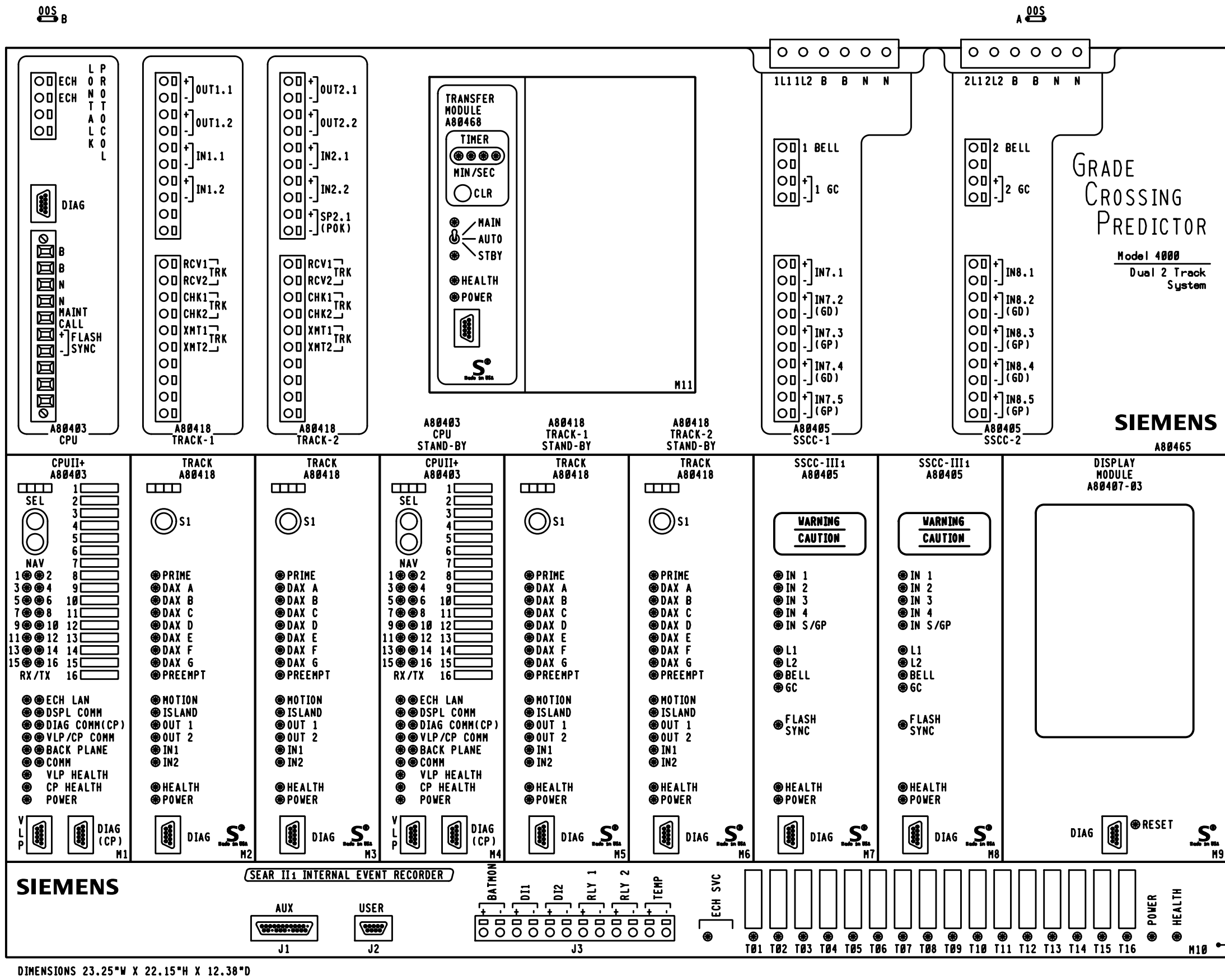
CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

SR 95 (CENTER ST.) 518415T

MINIMUM PROGRAM STEPS REPORT CWE-94
MARION, OH M.P. Q1-101.94

DESIGNED PRS/TDF	DIGITIZED PRS/RMJ	CHECKED PRS/SAF	DATE 05-25-17
DRAWING -----	SHEET NO -----	FILE Q110194	SHEET P01

DESIGN DATE 05-25-17	REV. NO. 1
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GCP 4000 APPLICATION NOTES.

1. 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 II: MODULE THE GCP 4000 WILL RECORD EVENTS AND REPORT ALARMS WHEN CONNECTED TO AN OFFICE SYSTEM.
2. 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-III1	A SIGNAL	A80405
M8	SSCC-III1	B SIGNAL	A80405
M9	DISPLAY MODULE		A80407-03
TOP CENTER	TRANSFER UNIT		A80468
LOWER BAY	SEAR II:	RECORDER	A80410
3. EACH TRACK MODULE HAS TWO PROGRAMMABLE INPUTS AND TWO PROGRAMMABLE OUTPUTS.
4. THE SEAR II: INTERNAL EVENT RECORDER HAS INPUTS FOR ONE BATTERY MONITOR, TWO NON-VITAL INPUTS AND TWO PROGRAMMABLE RELAY DRIVES (HEEL/Front).
5. LOCATED ON THE FRONT OF EACH MODULE THERE ARE LED LIGHTS TO INDICATE THE ACTIVITY OF CERTAIN FUNCTIONS OCCURRING INSIDE THE GCP.
6. BETWEEN SLOT 1 & 2 THERE IS A CHASSIS IDENTIFICATION CHIP (CIC) SOCKET AND AN ECD CONNECTOR (DB-25 FEMALE).
7. UPON THE FAILURE OF A MODULE IN SLOTS M1-M3 THE AUTOMATIC TRANSFER UNIT SWITCHES TO THE STANDBY MODULES IN SLOTS M4-M6.
8. THE GCP 4000 GCP (A80465) MAY USE RIO MODULES IN SLOTS M3 AND M6.

DESIGNED PRS/TDF	DIGITIZED PRS/RMJ	CHECKED PRS/SAF	DATE 05-25-17
DRAWING -----	SHEET NO -----	FILE Q110194	SHEET C01

RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

SR 95 (CENTER ST.) 518415T

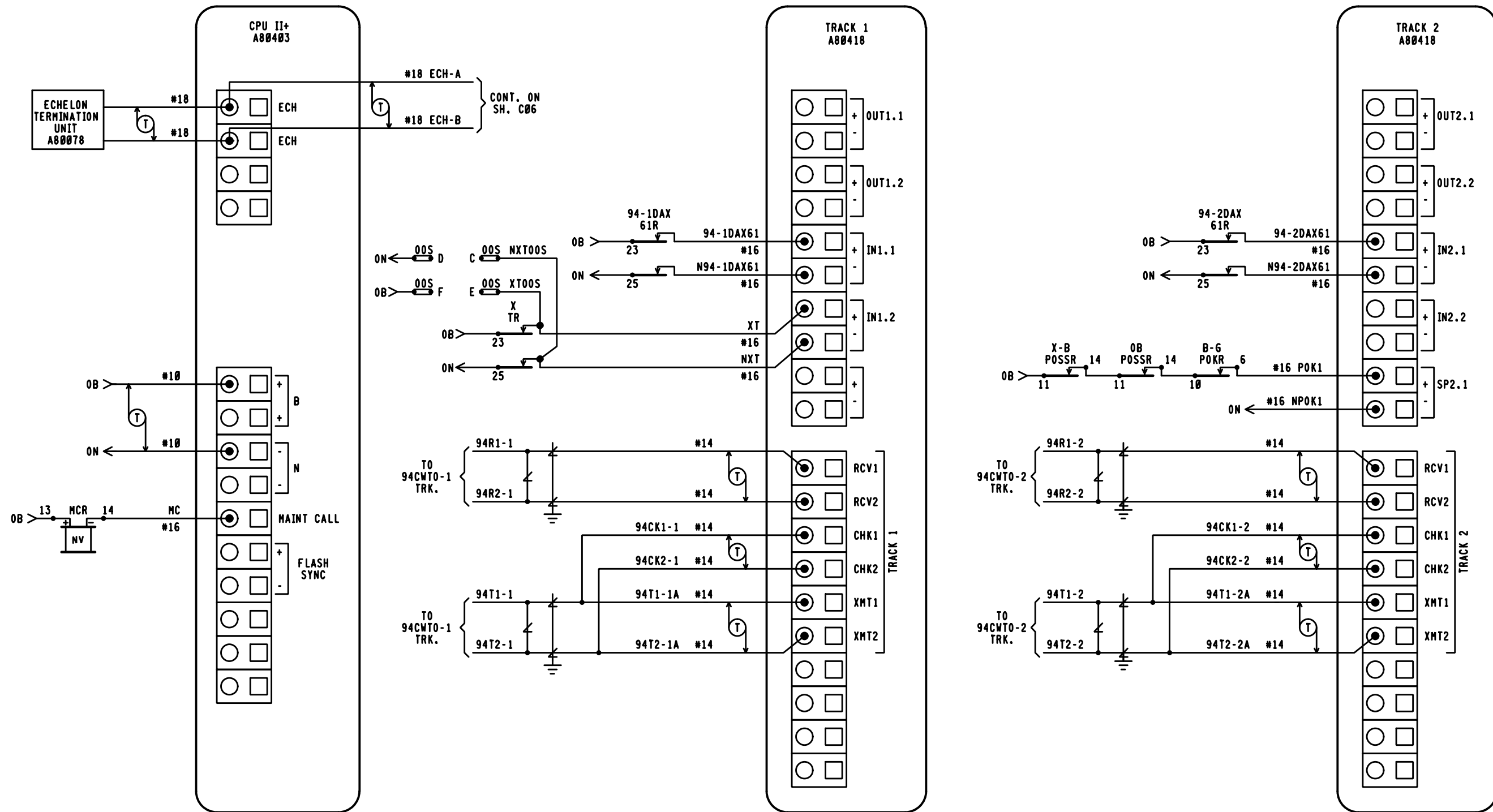
DETECTION DEVICE CONSIST CWE-94
MARION, OH M.P. Q1-101.94

A Caterpillar Company

NEW WORK

DATE: 05/25/17
CSX: 0H2017030
0H2017031
PRS/TDF/SAF

DESIGN DATE 05-25-17	REV. NO. 1
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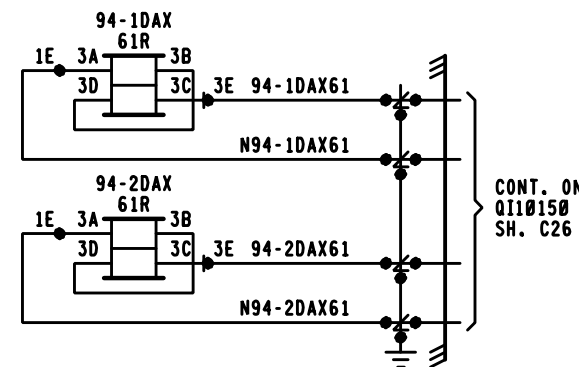


WARNING

BEFORE REMOVING A TRACK FROM SERVICE COMPLIANCE WITH TRAIN CONTROL JUMPER POLICY, TCR 1525-01, MUST BE ASSURED. TO ENABLE THE REMOVAL OF THE XT TRACK FROM SERVICE, APPLY A JUMPER CONNECTING OOS TERMINAL (C) TO OOS TERMINAL (D) AND OOS TERMINAL (E) TO OOS TERMINAL (F).

NOTES.

1. 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.
2. = HLVA2-1675-01 HYBRID LOW VOLTAGE ARRESTER, UNLESS NOTED.



DATE: 05/25/17
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PRS/TDF/SAF

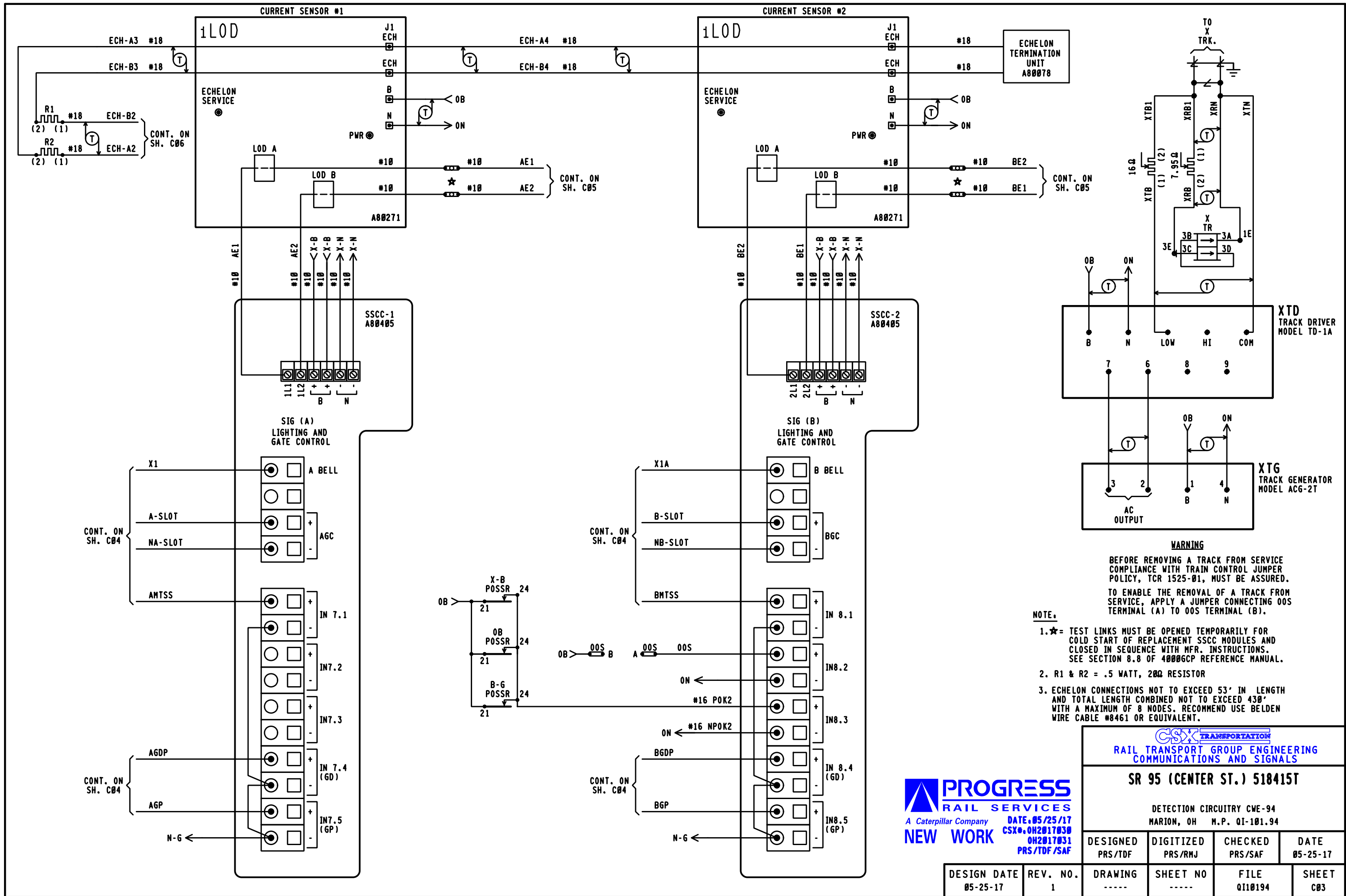
CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

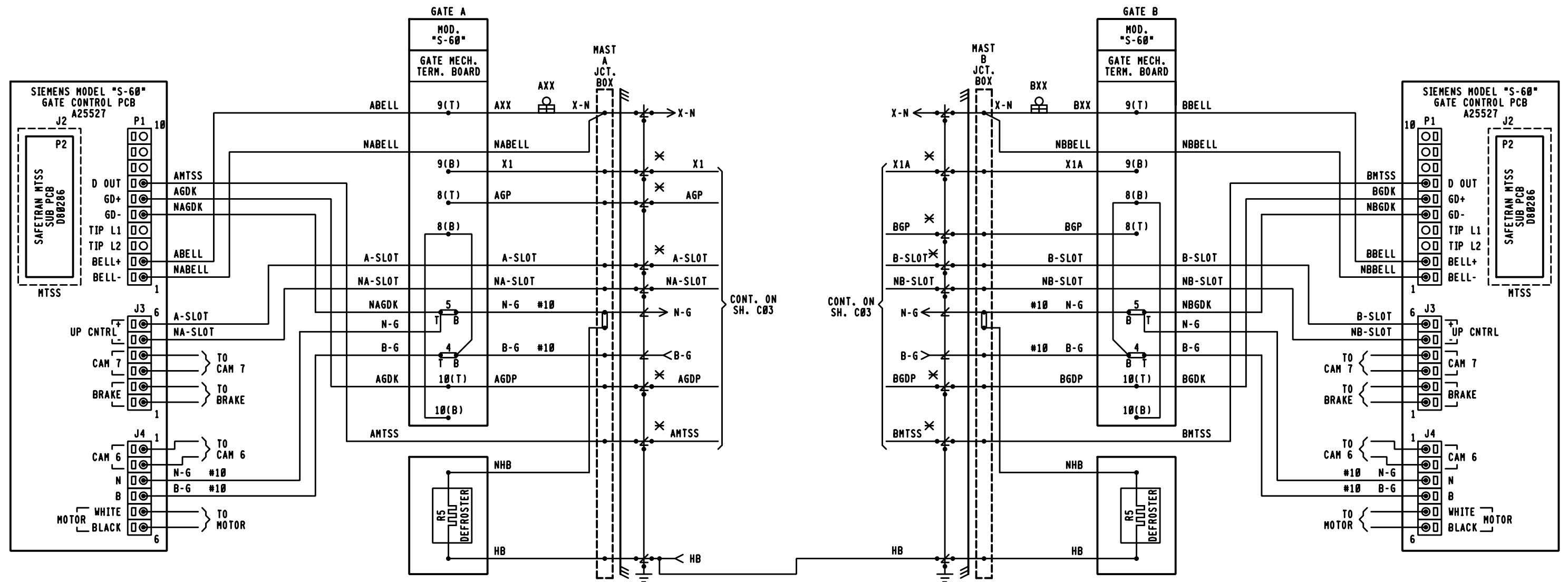
SR 95 (CENTER ST.) 518415T

DETECTION CIRCUITRY CWE-94
MARION, OH M.P. QI-101.94

DESIGNED PRS/TDF	DIGITIZED PRS/RMJ	CHECKED PRS/SAF	DATE 05-25-17
DRAWING -----	SHEET NO -----	FILE QI10194	SHEET C02

DESIGN DATE 05-25-17	REV. NO. 1
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- 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.
 4. ⚡ = HLVA2-1675-01 HYBRID LOW VOLTAGE ARRESTER, UNLESS NOTED.

PROGRESS
RAIL SERVICES
A Caterpillar Company
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DATE: 05/25/17
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CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

SR 95 (CENTER ST.) 518415T

CROSSING WARNING DEVICE GATE CIRCUITRY
MARION, OH M.P. Q1-101.94

DESIGN DATE
05-25-17

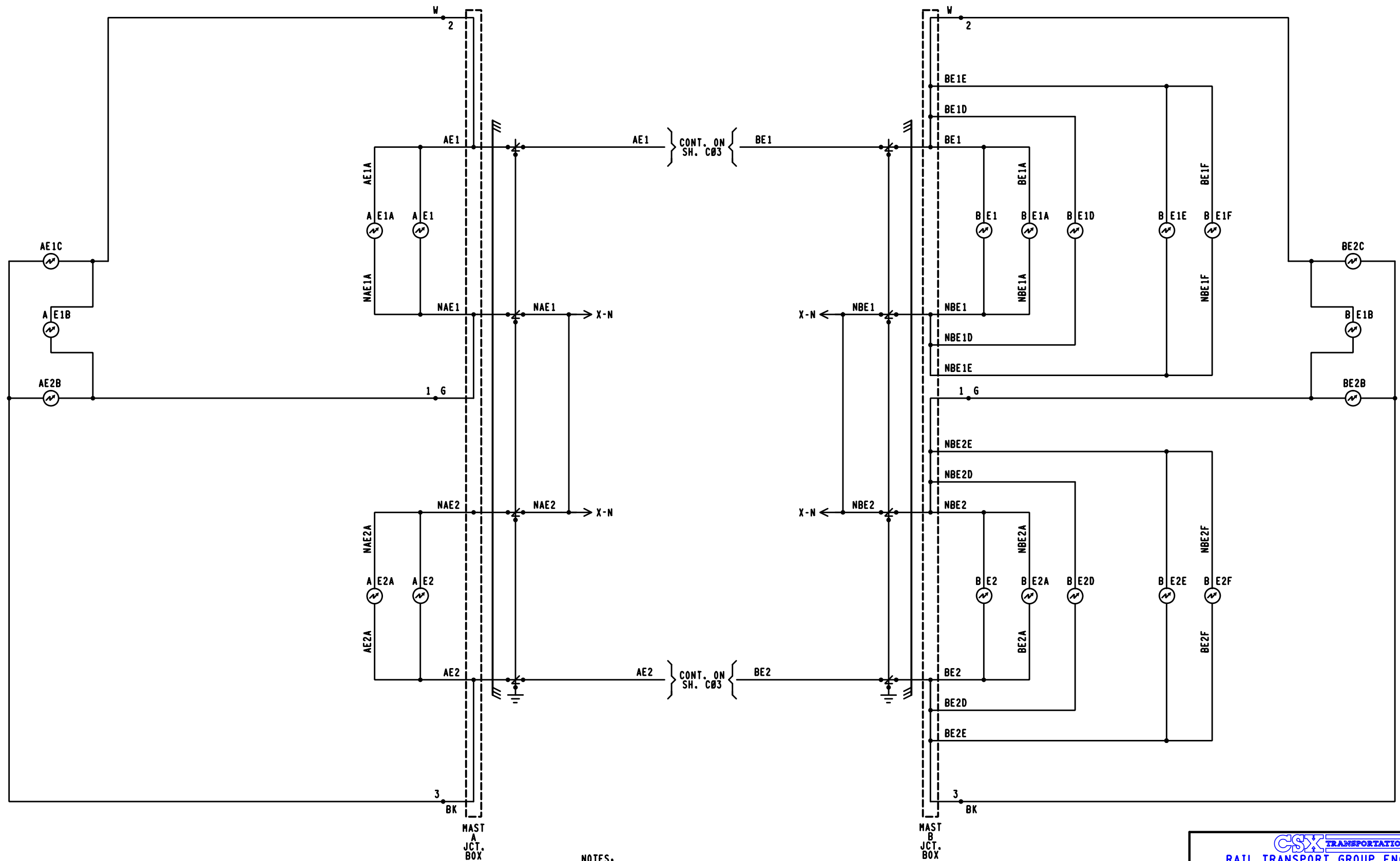
REV. NO.
1

DRAWING

SHEET NO

FILE
Q110194

SHEET
C04



NOTES:

1.  = 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
6.  = HLVA2-1675-01 HYBRID LOW VOLTAGE ARRESTER, UNLESS NOTED.



DATE: 05/25/17
CSX# 0H2017030
0H2017031
PRS/TDF/SAF

CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

SR 95 (CENTER ST.) 518415T

CROSSING WARNING DEVICE LIGHT CIRCUITRY
MARION, OH M.P. Q1-101.94

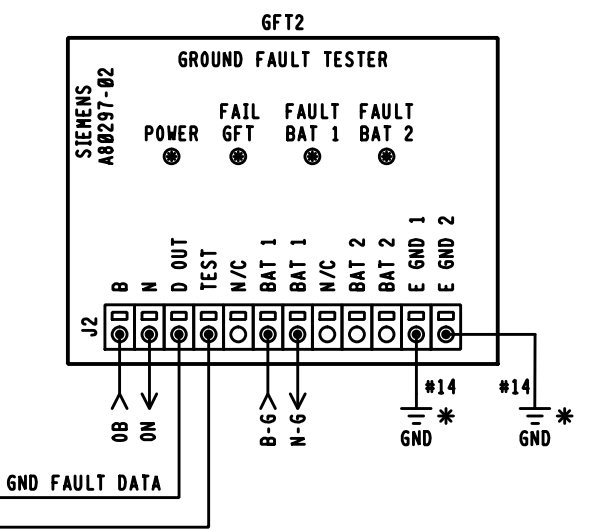
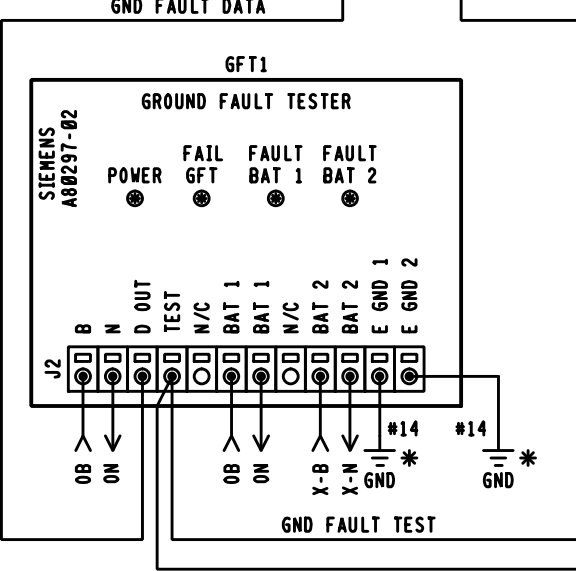
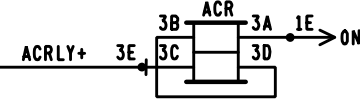
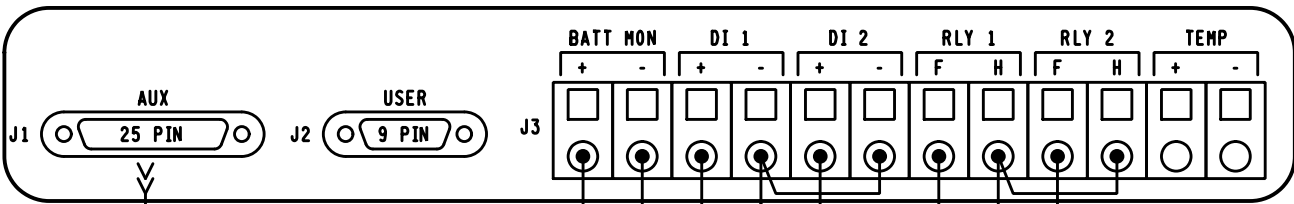
DESIGNED PRS/TDF	DIGITIZED PRS/RMJ	CHECKED PRS/SAF	DATE 05-25-17
DRAWING -----	SHEET NO -----	FILE Q110194	SHEET C05

DESIGN DATE 05-25-17	REV. NO. 1
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WAYSIDE ACCESS GATEWAY CONFIGURATION	
SITE ATCS ADDRESS	7.125.442.036.07.01 7.125.LLL.666.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--7RRLL666SS
IP NETWORK MASK	255.255.255.0
WAG CIRCUIT ID	DISABLE
ROUTING REGION DOMAIN 1	OC6SERVER1.JAX.COM
ATCS SERVER UDP PORT NUMBER	6001
TELNET NUMBERS	WAG 6002, SERIAL 10023
DEFAULT GATEWAY IP	192.168.013.031

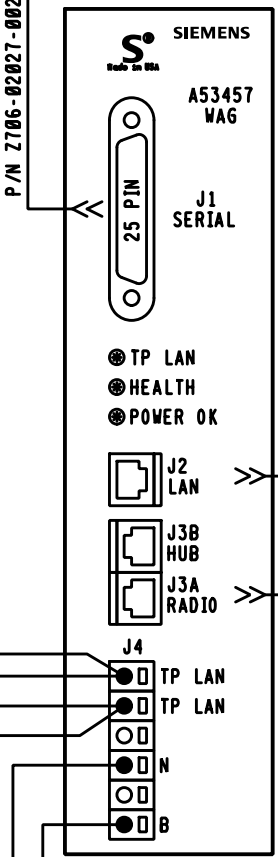
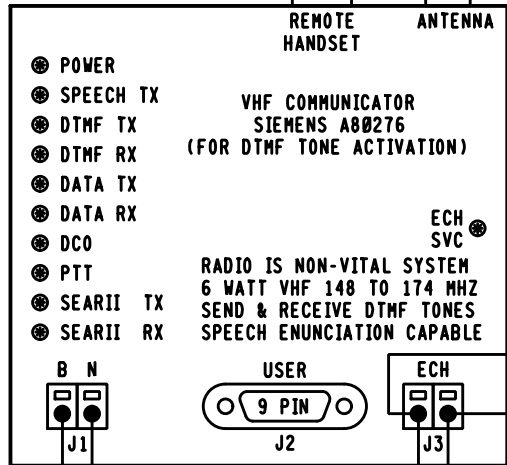
NOTE TO INSPECTOR,
AT INSTALLATION OF WAG,
OR UPDATE OF THE
CONFIGURATION, OR UPDATE
OF THE EXECUTIVE PROGRAM,
MARK-UP CONFIGURATION
TABLE FOR AS IN SERVICE
PLANS

SEAR II₁ INTERNAL EVENT RECORDER I/O



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

** SHIELDED COAXIAL
CABLE TO ANTENNA



GCP PROGRAMMING FOR VHF RADIO

REMOTE DTMF CROSSING ACTIVATION
(ACTIVATES ENTIRE CROSSING)

TO ACTIVATE PRESS, 415#

TO DE-ACTIVATE PRESS, 415#

(ACTIVATION WILL TIME OUT AFTER 60 SEC.)

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

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



CSX TRANSPORTATION

RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

SR 95 (CENTER ST.) 518415T

CROSSING WARNING DEVICE CIRCUITRY
MARION, OH M.P. Q1-101.94

DESIGNED PRS/TDF	DIGITIZED PRS/RMJ	CHECKED PRS/SAF	DATE 05-25-17
DRAWING -----	SHEET NO -----	FILE Q110194	SHEET C06

DESIGN DATE 05-25-17

REV. NO. 1

DEFAULTS AND/OR STYLE		FIELD RECORD
SEAR II ₁ 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	SR 95 (CENTER ST.)	
MILEPOST	Q1-101.94	
DOT NUMBER	518415T	
TESTER TYPE	CROSSING	
DATE FORMAT	MM-DD-YYYY	
TEMP FORMAT	FAHRENHEIT	
INDICATE HOLD (SEC)	0	
INDICATE REFRESH (SEC)	60	
SITE ATCS ADDRESS	7.125.442.036.99.01 (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	7.125.442.036.07.01 (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 II₁ OR UPDATE
OF ITS INTERNAL EXECUTIVE PROGRAM
OR ITS CSXT APPLICATION PROGRAM,
NOTE THE VERSION NUMBER OF EACH
PROGRAM MUST IN THE BLANK FIELDS.

LIT BULB COUNT ON EACH CIRCUIT	NO.	TYPE OF BULB	CURRENT READING IN AMP. AT APPROX. 10.0 V ARRAY VOLTAGE
CURRENT SENSOR (1) AE1, LAMP SET UP	4	☐ BULBS ☒ LED	X.X
CURRENT SENSOR (1) AE2, LAMP SET UP	4	☐ BULBS ☒ LED	X.X
CURRENT SENSOR (2) BE1, LAMP SET UP	7	☐ BULBS ☒ LED	X.X
CURRENT SENSOR (2) BE2, LAMP SET UP	7	☐ BULBS ☒ LED	X.X

INSPECTOR NOTE,
CURRENT VALUES MAY VARY DEPENDANT ON FIELD
CONDITIONS, MARK UP PER ACTUAL READINGS FOR
IN-SERVICE REVISION.

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 ILOD1 SENSOR ★	☒ NO ☐ YES
EDIT ILOD2 SENSOR ★	☒ NO ☐ YES
EDIT ILOD3 SENSOR ★	☒ NO ☐ YES
EDIT ILOD4 SENSOR ★	☒ NO ☐ YES
EDIT VHF SETTINGS	☒ NO ☐ YES
GCP4K ATCS SUBNODE	16

★ STAR = OPTIONS SHOWN DEPENDANT ON
NUMBER OF ILODS 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 ACTIVATION*	YES ☒ NO ☐
ACTIVATION CODE	415
ACTIVATION TIMEOUT	(60 SEC)
ILOD 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 ILODS.
- 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



CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
SR 95 (CENTER ST.) 518415T			
SEAR II ₁ CONFIGURATION & FUNCTIONS MARION, OH M.P. Q1-101.94			
DESIGNED PRS/TDF	DIGITIZED PRS/RMJ	CHECKED PRS/SAF	DATE 05-25-17
DRAWING -----	SHEET NO -----	FILE Q110194	SHEET C07

DESIGN DATE 05-25-17	REV. NO. 1
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INDEX

SH. NO.	CONTENTS	REVISION NO.						
		1	2	3	4	5	6	7
1	TITLE, NOTES, INDEX AND REVISIONS	✓	✓	✓	✓	✓		
2	LOCATION PLAN	✓	✓	✓	✓	✓		
3	POWER DISTRIBUTION	✓	✓		✓			
4	3000D2 SAFETAN GRADE CROSSING PREDICTOR CIRCUITS	✓	✓					
5	GATE CONTROL, LIGHTING CIRCUITS AND CABLE TERMINATIONS	✓						
6	GATE MECHANISM TYPICALS	✓						
7	RELAY RACK AND CONNECTIONS - HOUSE LAYOUT	✓	✓		✓			
8	FRONT AND LEFT WALL LAYOUT	✓						
9	RIGHT SIDE OF HOUSE	✓	✓					
10	TERMINAL BOARD ARRANGEMENT	✓	✓		✓			

NOTES

 = FOR MATERIAL REFERENCE SEE PLAN S-1002

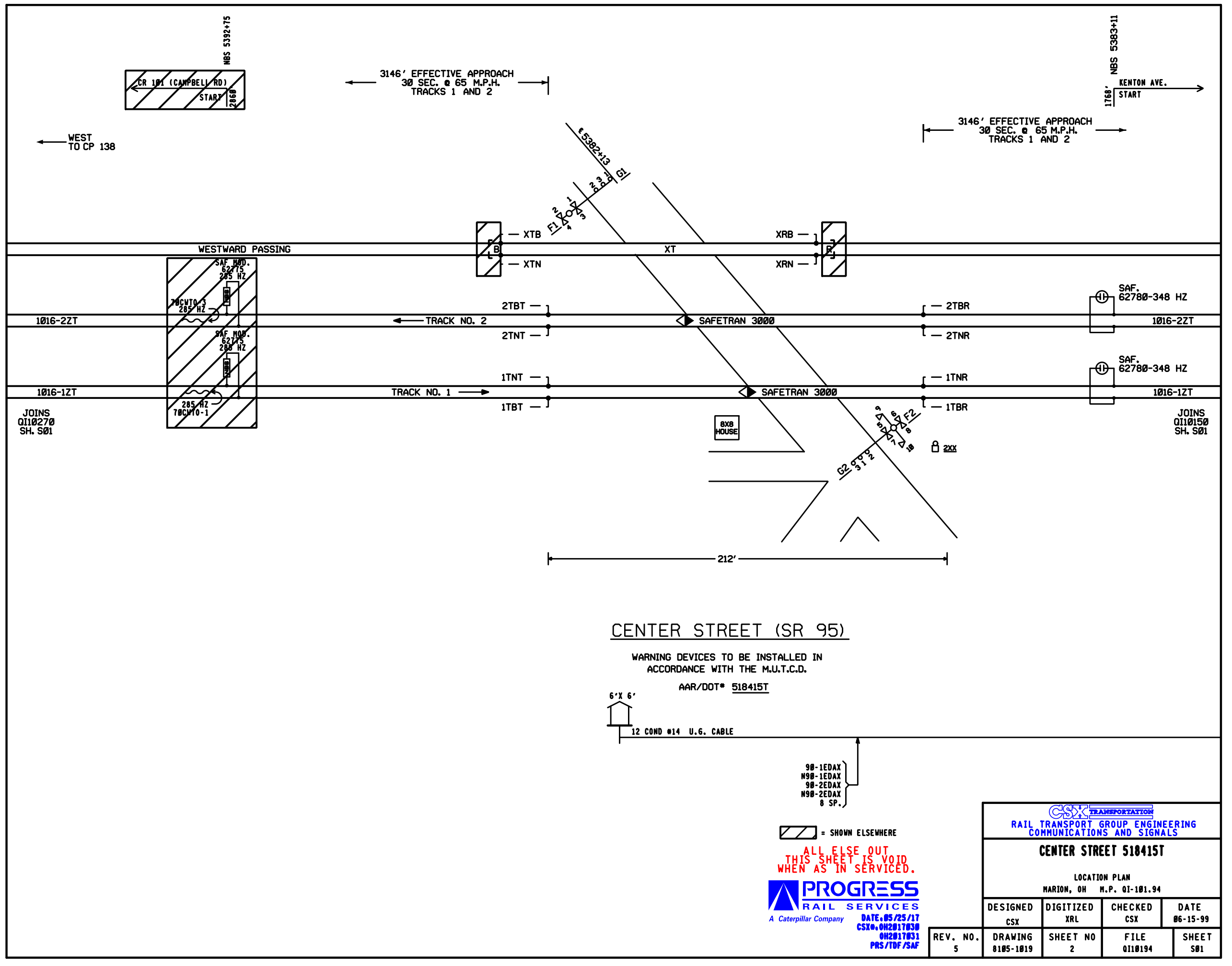
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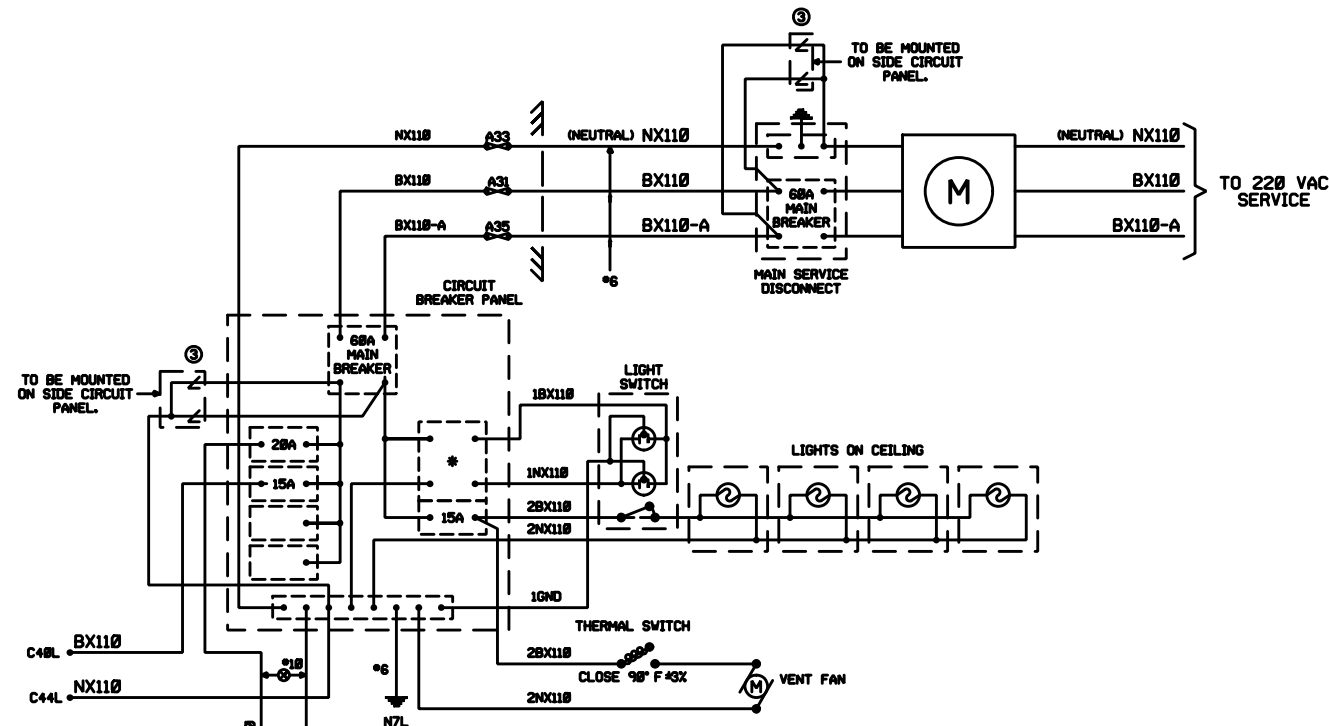
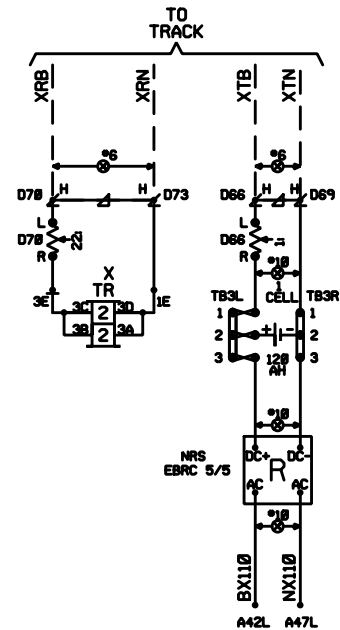
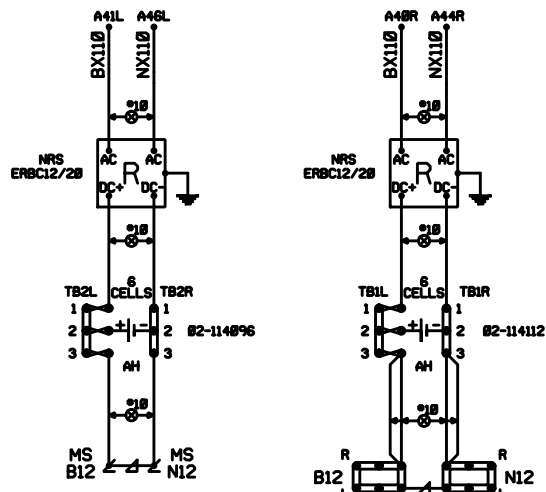
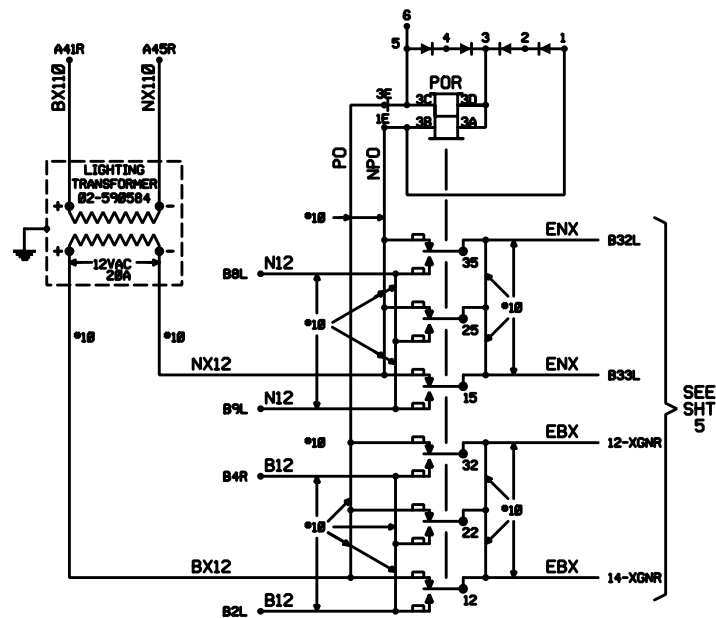
GROUND IN ACCORDANCE WITH CS-9001-A

ALL OUT
THIS SHEET IS VOID
WHEN AS IN SERVICED.



REVISIONS				
REV. NO.	PROJECT NO.	DESIGN DATE	IN SERVICE DATE	REVISION DATE
1	7-18-94			
PLAN REDRAWN ACCOUNT REMOTE CONTROL OF MARION INTERLOCKING.				
WO/AFE NO: IA807 IN SERVICE: 1-31-95 PER: RCW				
2	06-15-99		SWE	RDW FLK SWE SWE
INSTALL 1-*10 & 1-*20 CROSSOVER AND CSX CONNECTION TRK. WITH VHLC WEST OF C.P. 101				
WO/AFE NO: A20142 IN SERVICE: 03-13-2000 PER: SWE				
3	03-05-10 XRL		OH2008070	
4	0H2011021	12-12-11	04-24-13	06-10-14
5	0H2013073	03-25-15	10-09-15	11-20-15
 RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS				
CENTER STREET 518415T TITLE, NOTES, INDEX AND REVISIONS MARION, OH M.P. 01-101.94				
DESIGNED CSX	DIGITIZED XRL	CHECKED CSX	DATE 06-15-99	
DRAWING 8105-1019	SHEET NO 1	FILE 0110194	SHEET 101	





- NOTES:
- ② = JOSLYN SURGITRON SURGE ARRESTER 2 WIRE PACKAGE *1250-32 OR EQUIVALENT.
 - ③ = JOSLYN SURGITRON SURGE ARRESTER 3 WIRE PACKAGE *1250-33 OR EQUIVALENT.
 - ④ = JOSLYN SURGITRON SURGE ARRESTER 3 WIRE PACKAGE *1250-03 OR EQUIVALENT.
 - ★ = WHEN UNGROUNDED POWER IS USED, REPLACE LINKS WITH FUSE OR ARRESTOR EQUIVALENT TO BX110 SIDE OF CIRCUIT AND THE GROUND WIRES SHOULD BE REMOVED FROM BREAKER PANEL NEUTRAL BUSS AND TIED TO PANEL CASE.
 - ⊗ = TWISTED PAIR.
 - * = 20A GROUND FAULT CIRCUIT BREAKER
- ALL HOUSE WIRING *16 EXCEPT AS SHOWN.

ALL OUT
THIS SHEET IS VOID
WHEN AS IN SERVICED.

PROGRESS
RAIL SERVICES
A Caterpillar Company

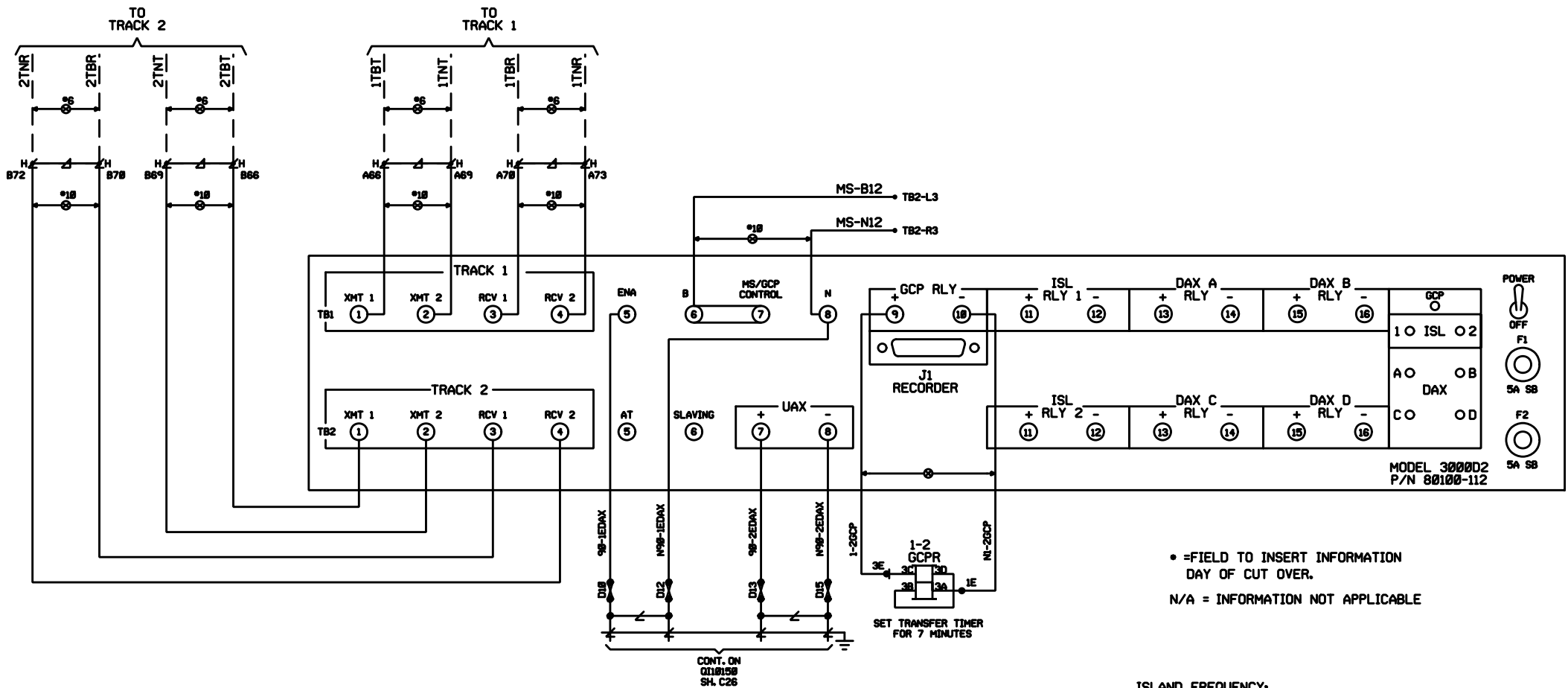
DATE: 05/25/17
CSX# 002017030
002017031
PMS/TDF/SAF



CENTER STREET MARION, OHIO

HIGHWAY CROSSING
POWER DISTRIBUTION

ISSUE DATE: JULY 18, 1994	8105-1019
REV. 4	06-15-99
SHEET 3	

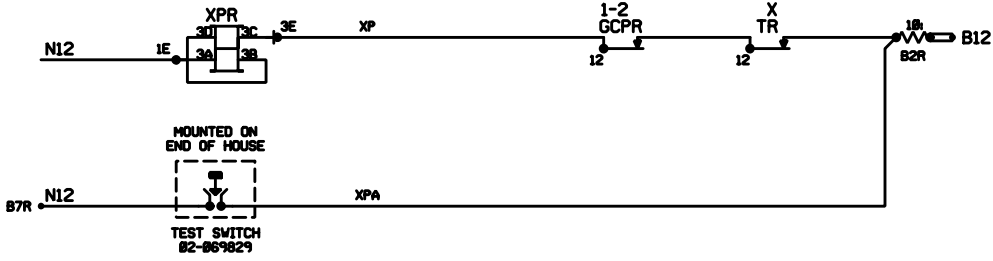


• =FIELD TO INSERT INFORMATION
DAY OF CUT OVER.
N/A = INFORMATION NOT APPLICABLE

ISLAND FREQUENCY:
TRACK 1: 8.3 KHz.
TRACK 2: 7.1 KHz.

THIS UNIT TO BE EQUIPPED
WITH F1 LEVEL SOFTWARE
ON PROCESSOR MODULE
(80014) AND DATA
RECORDER MODULE (80015)

SYSTEM PROGRAMMING PARAMETERS	
PROMPT	RESPONSE
NUMBER OF TRACKS	2 TRACK
FREQUENCY (MS/GCP)	156 HZ
UNI/BIDIRECTIONAL T1	BIDIRECTIONAL
UNI/BIDIRECTIONAL T2	BIDIRECTIONAL
XMIT LEVEL T1	MAX
XMIT LEVEL T2	MAX
PREDICTOR/MOTION SENSOR T1	PREDICTOR
PREDICTOR/MOTION SENSOR T2	PREDICTOR
WARNING TIME SELECTED T1	35 SEC.
WARNING TIME SELECTED T2	35 SEC.
APPROACH DIST. SELECTED T1	3127 FT.
APPROACH DIST. SELECTED T2	3127 FT.
APPROACH DIST. COMPUTED T1	3372 FT.
APPROACH DIST. COMPUTED T2	3403 FT.
UAX PICKUP DELAY(0=OFF)	25 SEC.
ENA/UAX2 PICKUP DELAY(0=ENA)	25 SEC.
NUMBER OF DAX'S	0
ISLAND DISTANCE T1	212 FT.
ISLAND DISTANCE T2	212 FT.
DAX A TRACK ASSIGNMENT	N/A
DAX A DISTANCE (0=PREEMPT)	N/A FT.
DAX A WARNING TIME	N/A SEC.
DAX B TRACK ASSIGNMENT	N/A
DAX B DISTANCE (0=PREEMPT)	N/A FT.
DAX B WARNING TIME	N/A SEC.
DAX C TRACK ASSIGNMENT	N/A
DAX C DISTANCE (0=PREEMPT)	N/A FT.
DAX C WARNING TIME	N/A SEC.
DAX D TRACK ASSIGNMENT	N/A
DAX D DISTANCE (0=PREEMPT)	N/A FT.
DAX D WARNING TIME	N/A SEC.
SLAVING MASTER/SLAVE	MASTER
PASSWORD ENABLED	DISABLED
RECORDER INSTALLED	INSTALLED
RS-232-C BAUD RATE	300
RS-232-C DATA BITS	7
RS-232-C STOP BITS	2
RS-232-C PARITY	NONE
DATE(E.G., MON 16 NOV 1987)	•
TIME(E.G., 11:25:43 AM)	•
DAYLIGHT SAVINGS	ON
EXPANDED PROGRAMMING HISTORY	
SWITCH TO MS T1	0-EZ
SWITCH TO MS T2	0-EZ
TRANSFER DELAY MS TO GCP T1	0-SEC.
TRANSFER DELAY MS TO GCP T2	0-SEC.
PRIME PREDICTION OFFSET T1	0-FT.
PRIME PREDICTION OFFSET T2	0-FT.
PICKUP DELAY PRIME	15-SEC.
PICKUP DELAY DAX A	15-SEC.
PICKUP DELAY DAX B	15-SEC.
PICKUP DELAY DAX C	15-SEC.
PICKUP DELAY DAX D	15-SEC.
COMPENSATION VALUE T1	SET BY SYSTEM
COMPENSATION VALUE T2	SET BY SYSTEM
NUMBER OF TRACK WIRES T1	4 WIRES
NUMBER OF TRACK WIRES T2	4 WIRES



ALL OUT
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WHEN AS IN SERVICED.

PROGRESS
RAIL SERVICES
A Caterpillar Company

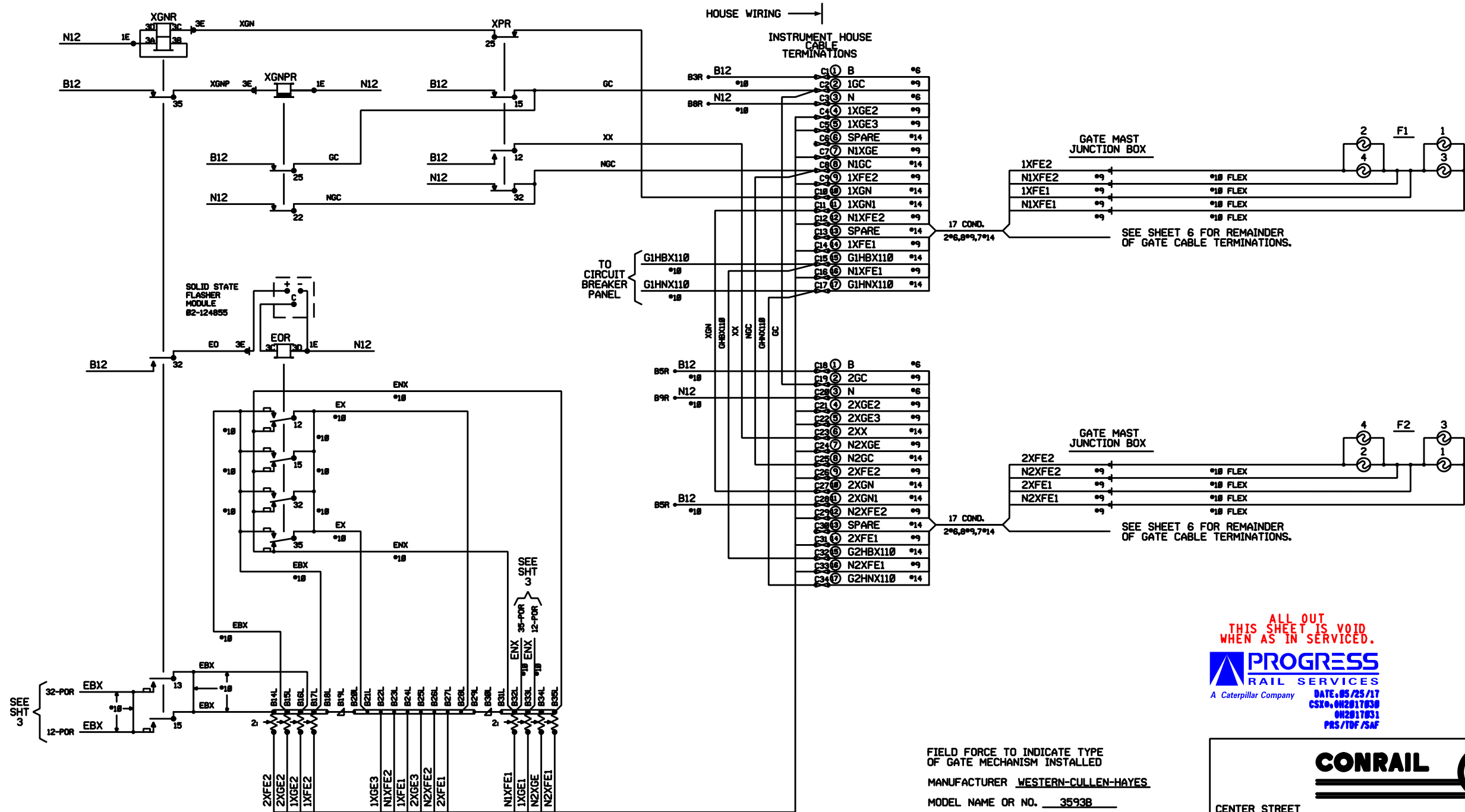
DATE: 05/25/17
CSX: 002017030
002017031
PRS/TDF/SAF



CENTER STREET MARION, OHIO

HIGHWAY CROSSING
DUAL BIDIRECTIONAL GCP
MODEL 3000D2 02-806766

ISSUE DATE: JULY 18, 1994	8105-1019
REV. 2	06-15-99
SHEET 4	



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PROGRESS
RAIL SERVICES
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DATE: 05/25/17
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FIELD FORCE TO INDICATE TYPE
OF GATE MECHANISM INSTALLED

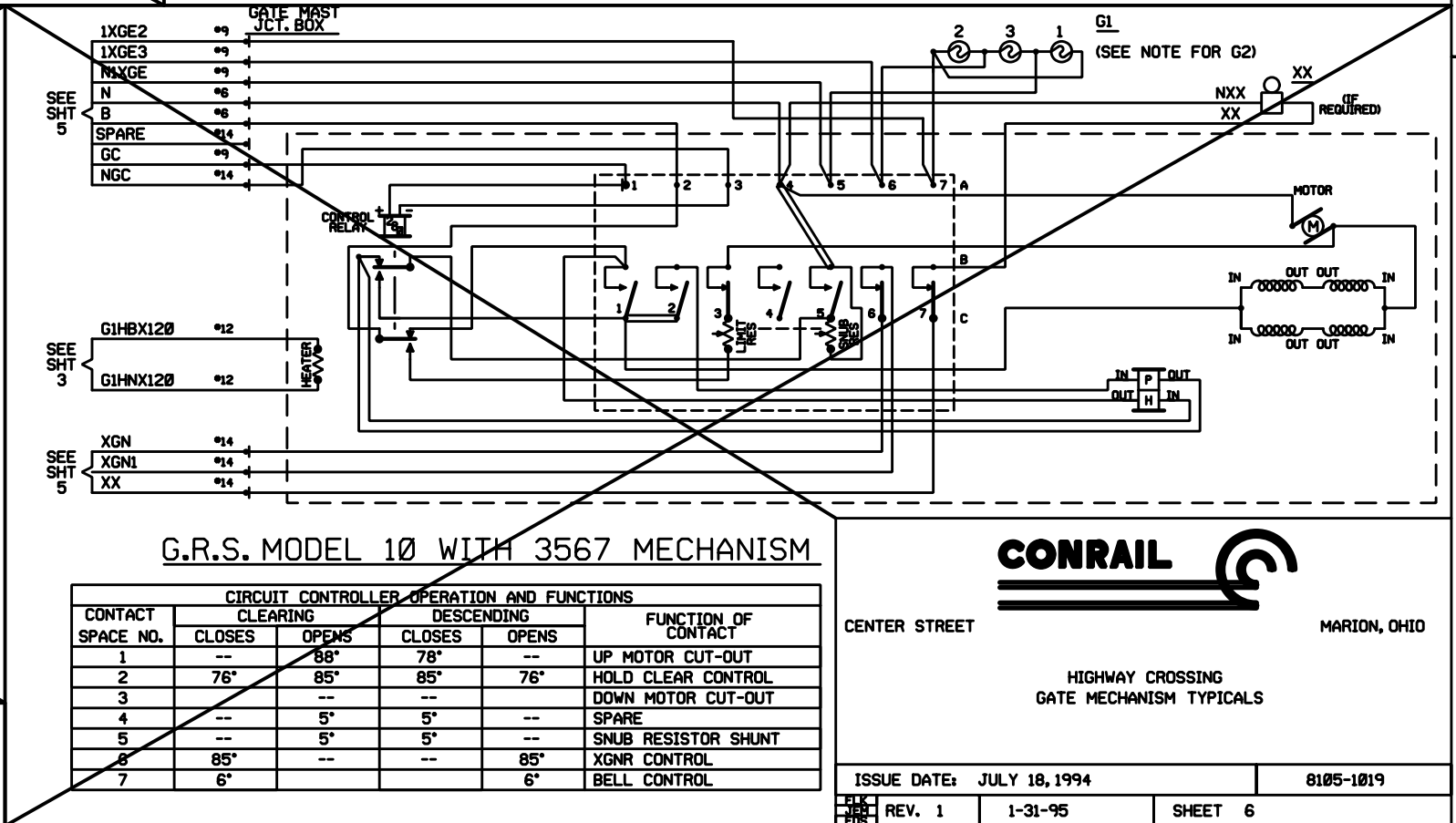
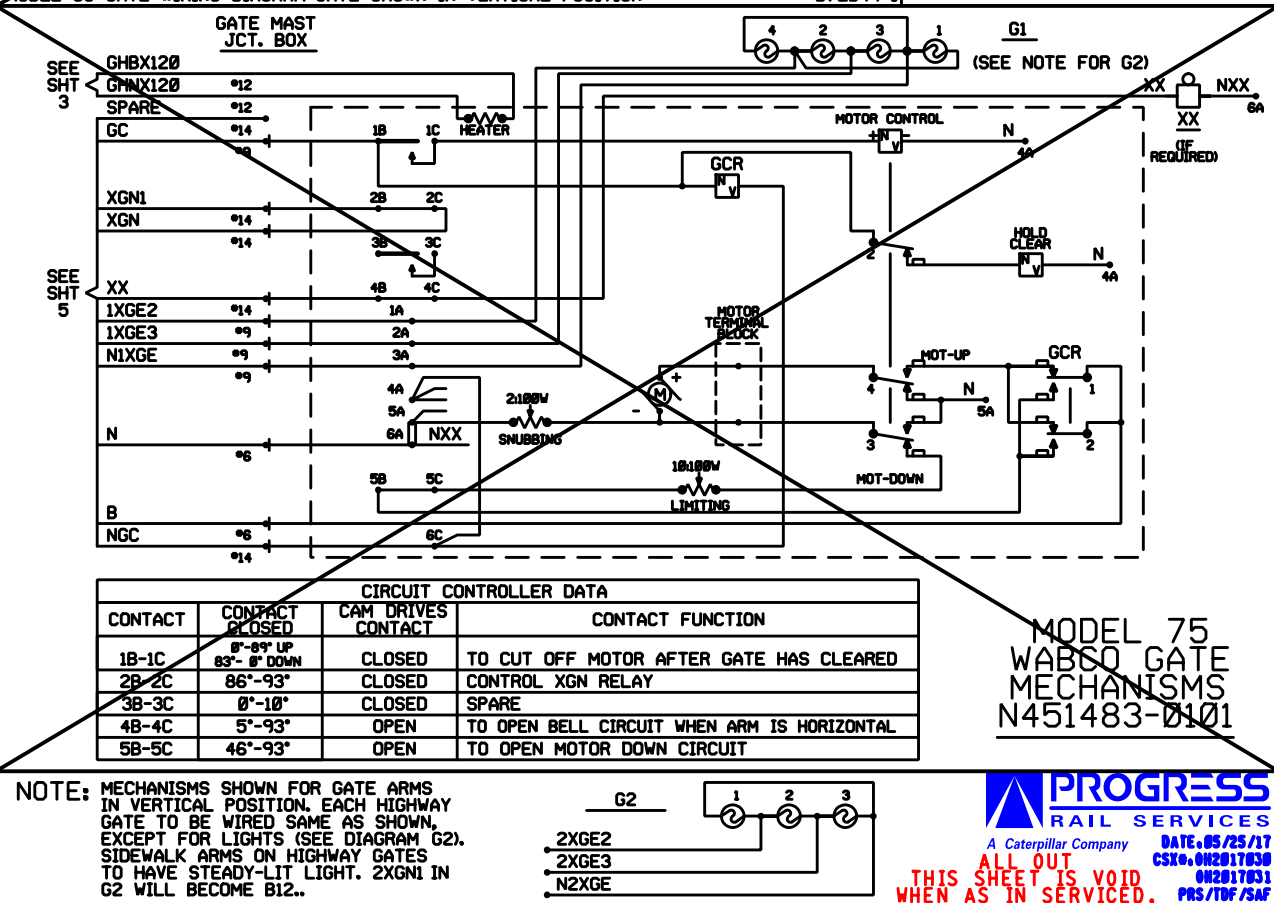
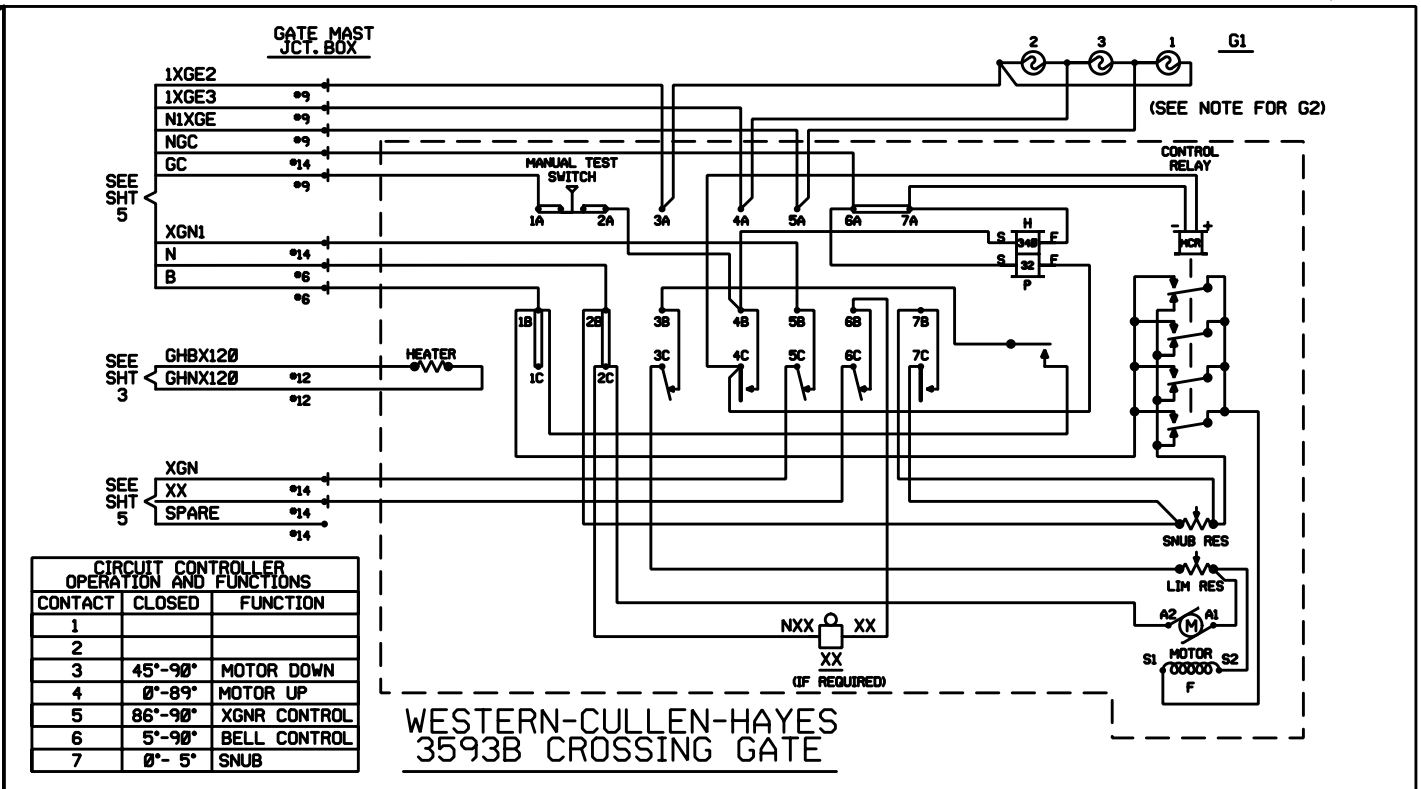
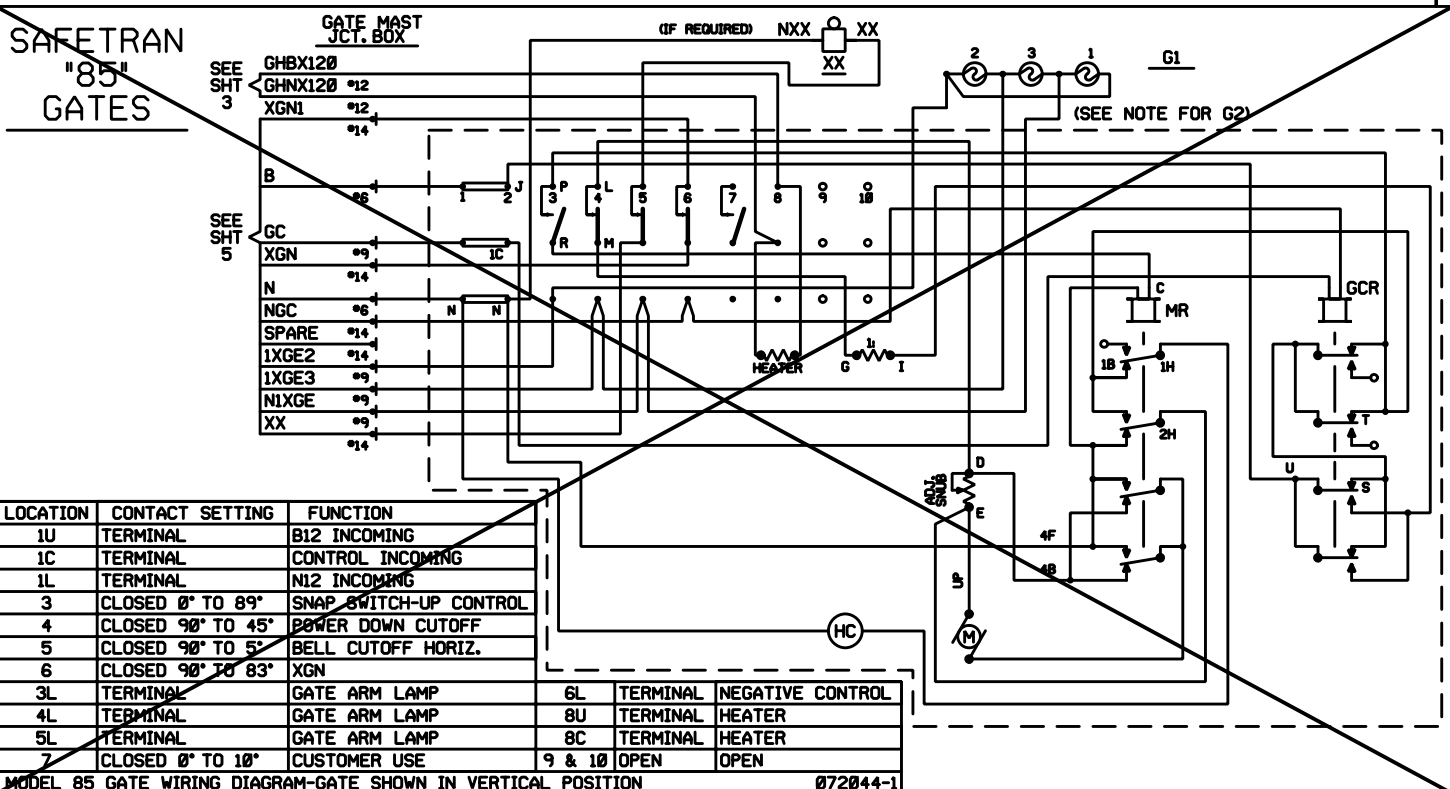
MANUFACTURER WESTERN-CULLEN-HAYES

MODEL NAME OR NO. 3593B

NUMBER OF BELLS 1

(SEE SHEET 6 FOR TYPICAL MECHANISMS)

CONRAIL	
CENTER STREET	MARION, OHIO
HIGHWAY CROSSING GATE CONTROL, LIGHTING CIRCUITS AND CABLE TERMINATIONS	
ISSUE DATE: JULY 18, 1994	8105-1019
REV. 1	1-31-95
SHEET 5	



CENTER STREET MARION, OHIO

HIGHWAY CROSSING GATE MECHANISM TYPICALS

ISSUE DATE:	JULY 18, 1994	8105-1019
REV. 1	1-31-95	SHEET 6

HX3000G2.D0A

PROGRESS RAIL SERVICES
A Caterpillar Company
DATE: 05/25/17
CSX: 0H2017030
0H2017031
PRS/TDF/SAF

C&S CAD

RELAY ENERGY LOOPS

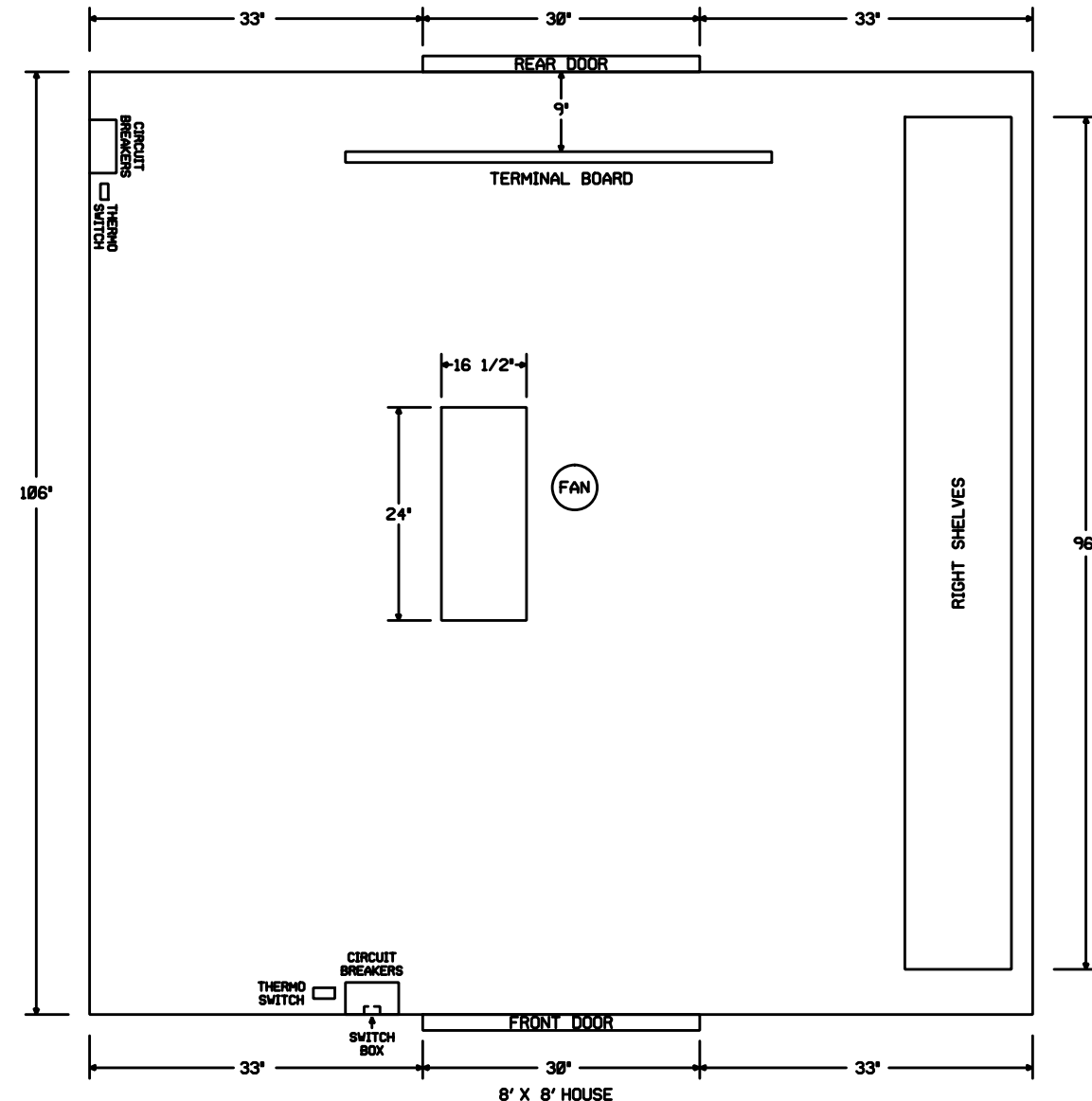


*= POR RELAY P/N A62-407 02-411542
POR RECTIFIER P/N A63-541 02390142

RELAY FUNCTIONS

<u>POR</u>	<u>EOR</u>	<u>XPR</u>	<u>XGNR</u>
12-EBX	12-EX	12-XX	13-HD-EBX
15-ENX	15-EX	15-GC	15-HD-EBX
22-EBX	32-EX	22-	32-EO
25-ENX	35-EX	25-XGN	35-XGNP
32-EBX		32-NGC	
35-ENX		35-	

<u>XGNPR</u>	<u>1-2 GCPR</u>	<u>X TR</u>
22-NGC	12-XP	12-XP
25-GC	15-	15-
	22-	22-
	25-	25-
	32-	32-
	35-	35-

[illegible]

ALL OUT
THIS SHEET IS VOID
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 **PROGRESS**
RAIL SERVICES

A Caterpillar Company

DATE: 05/25/17
CS12: 0H2017030
0H2017031
PRS/TDF/SAF



CENTER STREET

MARION, OHIO

HIGHWAY CROSSING RELAY RACK AND CONNECTIONS HOUSE LAYOUT

ISSUE DATE: JULY 18, 1994

8105-1019

FK	
JEM	REV. 4

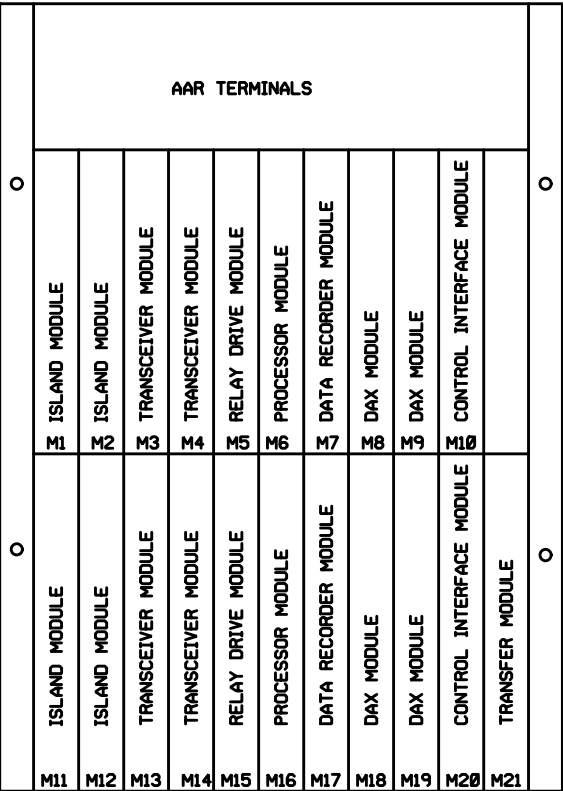
06-15-99

SHEET 7

MATERIAL REF. # 02-247664

RIGHT SIDE OF HOUSE

REQUIRED MODULES		
PART NUMBER AND MODULE NAME	UPPER BAY	LOWER BAY
80011-F (HZ) ISLAND MODULE	M1-M2	M11-M12
80012 TRANSCEIVER MODULE	M3-M4	M13-M14
80013 RELAY DRIVE MODULE	M5	M15
80014 PROCESSOR MODULE	M6	M16
80015 DATA RECORDER MODULE	M7	M17
80016-1,-2 DAX MODULE	NONE	NONE
80020 CONTROL MODULE INCLUDES 80017 KEYBOARD DISPLAY INTERFACE	M10	M20
80028 TRANSFER MODULE		M21



CARDFILE LAYOUT

SAFETRAK
GRADE CROSSING PREDICTOR
MODEL 300002
02-806766

GCP FREQUENCY: 156 HZ.
ISLAND FREQUENCY: TRK.1 7.1 KHZ
ISLAND FREQUENCY: TRK.2 8.3 KHZ

P/N 80100-112

ALL OUT
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PROGRESS
RAIL SERVICES
A Caterpillar Company

DATE: 05/25/17
CSX# 002017030
002017031
PRS/TDF/SAF

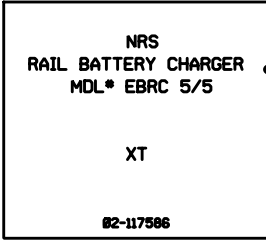
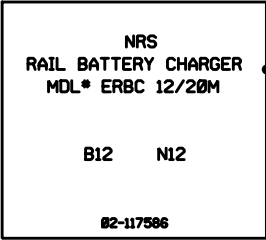
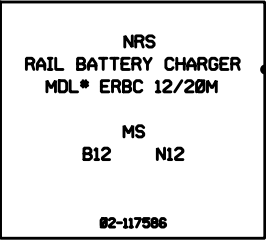
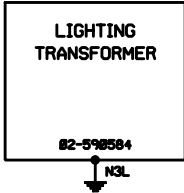
CONRAIL

CENTER STREET MARION, OHIO

HIGHWAY CROSSING
RIGHT SIDE OF HOUSE

ISSUE DATE: JULY 18, 1994	8105-1019
REV. 1	1-31-95
SHEET 8	

LEFT SIDE OF HOUSE



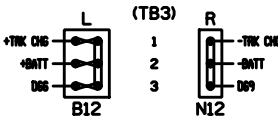
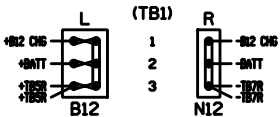
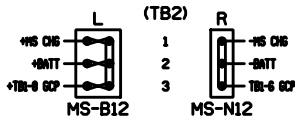
26'

72'

AC
CIRCUITS
BREAKER
PANEL

26'

72'

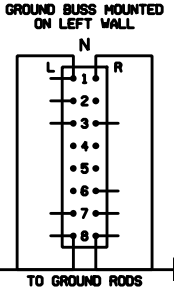


SPACE
FOR
BATTERIES

ALL OUT
THIS SHEET IS VOID
WHEN AS IN SERVICED.

PROGRESS
RAIL SERVICES
A Caterpillar Company

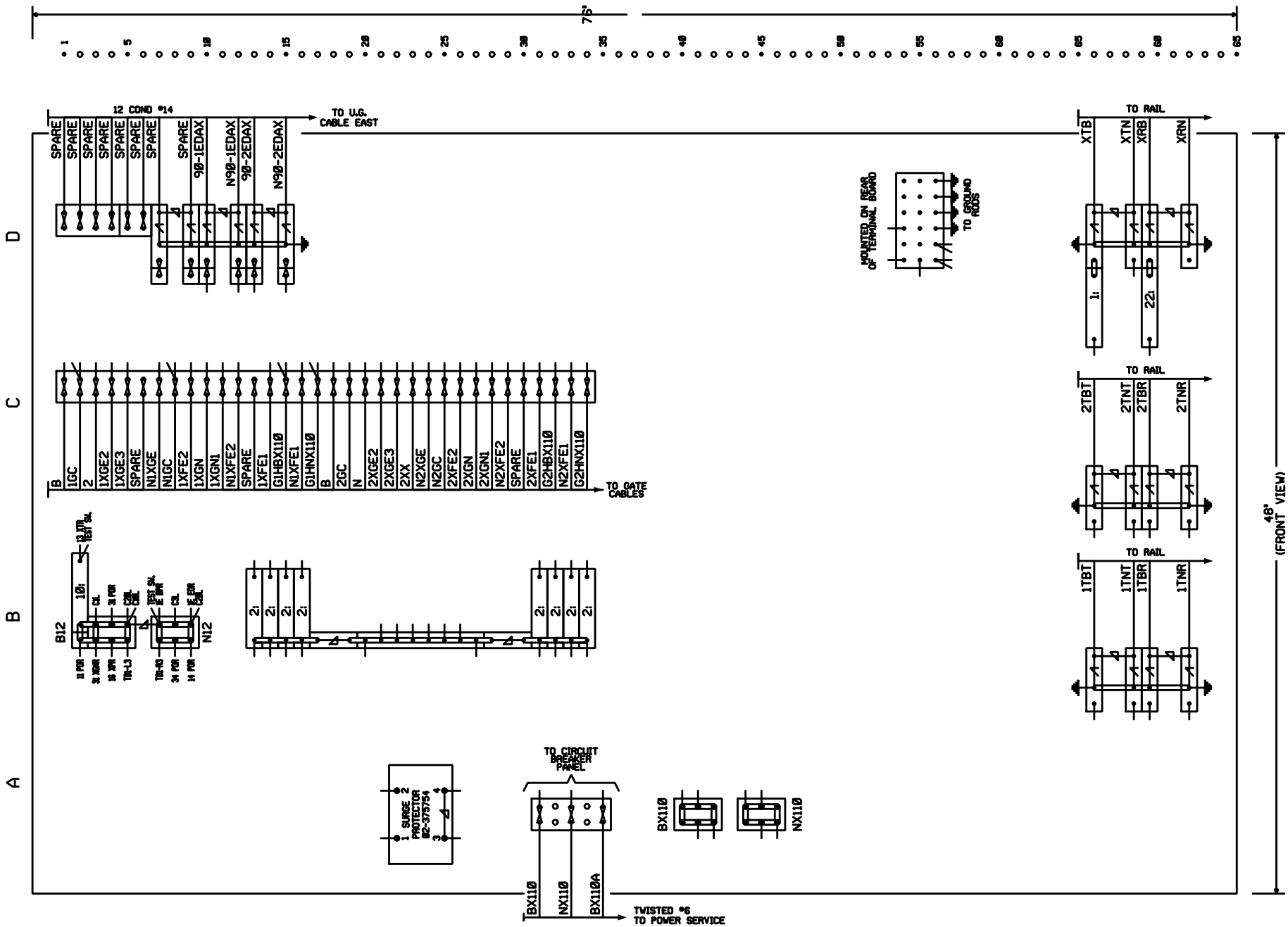
DATE: 05/25/17
CSX# 082017830
082017831
PRS/TDF/SAF



CENTER STREET MARION, OHIO

HIGHWAY CROSSING
RIGHT SIDE OF HOUSE

ISSUE DATE: JULY 18, 1994		8105-1019
REV. 2	06-15-99	SHEET 9



- NOTES:
- 1: ADJ.
 - 2: ADJ.
 - 10: FIXED
- 02-425799 - RESISTOR
 - 02-425807 - RESISTOR
 - 02-423588 - RESISTOR
 - 02-037057 - 3 POST PORCELAIN BASE
 - 02-050753 - TERMINAL BLOCK FOR EQUALIZER
 - 02-048757 - TERMINAL STRIP
 - 02-150009 - BUSS LINK
 - 02-286662 - TEST LINK ASSEMBLY
 - 02-025920 - ARRESTOR, HEAVY DUTY
 - 02-025565 - ARRESTOR
 - 02-197950 - EQUALIZER
- GROUND CONNECTION TO BE IN ACCORDANCE WITH STANDARD PLAN CS-9001-A

ALL OUT
THIS SHEET IS VOID
WHEN AS IN SERVICED.

PROGRESS
RAIL SERVICES
A Caterpillar Company

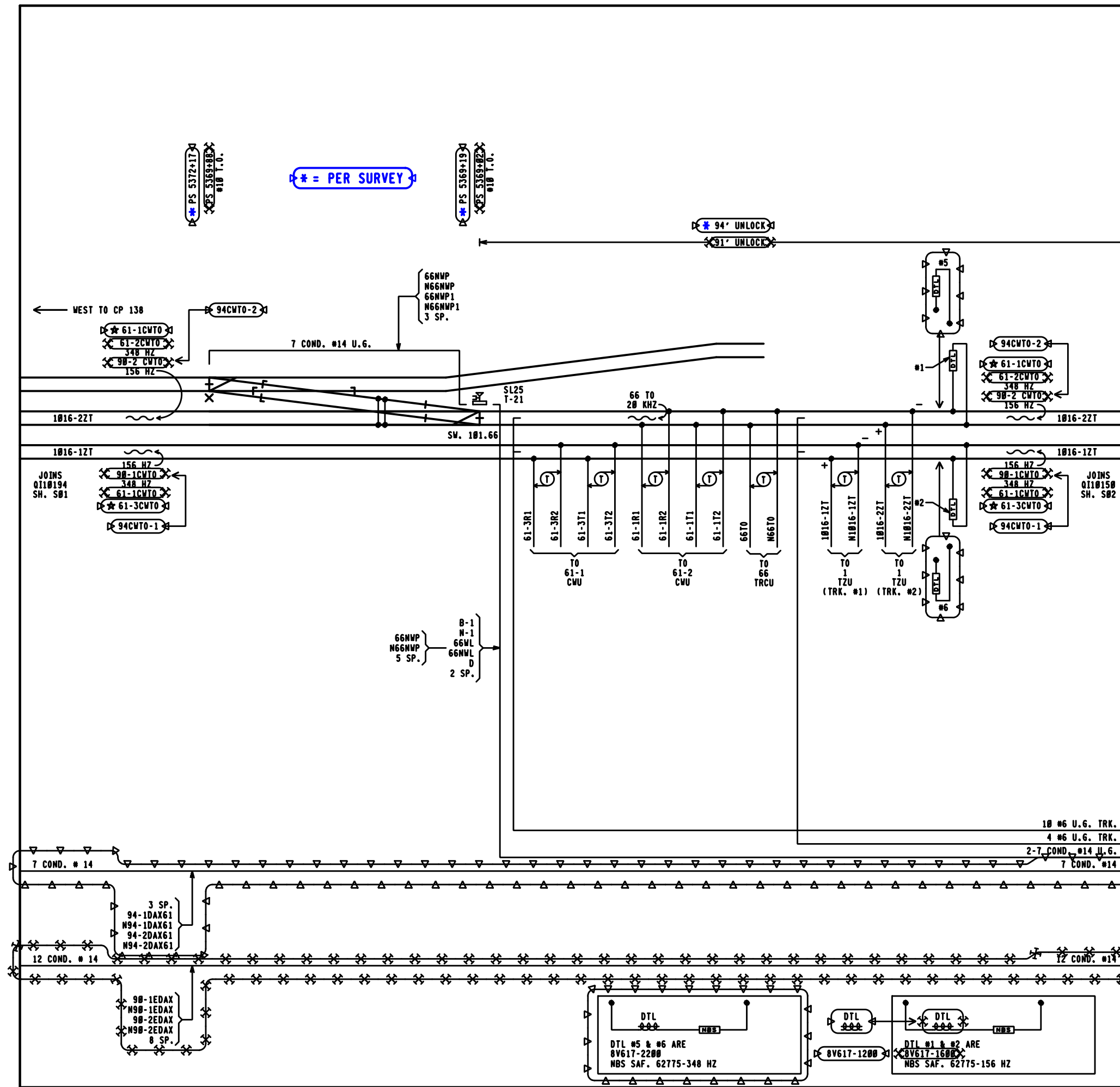
DATE: 05/25/17
CSX # 002017030
002017031
PMS/TDF/SAF



CENTER STREET MARION, OHIO

HIGHWAY CROSSING
TERMINAL BOARD ARRANGEMENT

ISSUE DATE: JULY 18, 1994		8105-1019
REV. 4	06-15-99	SHEET 10



REVISIONS

05-10-2000 SWE	0H1990112A
06-10-14 GET 0H2011021	

PROGRESS

RAIL SERVICES

A Caterpillar Company

DATE: 05/25/17
CSX#: 0H2017030
0H2017031
PRS/TDF/SAF

CSX

TRANSPORTATION

RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

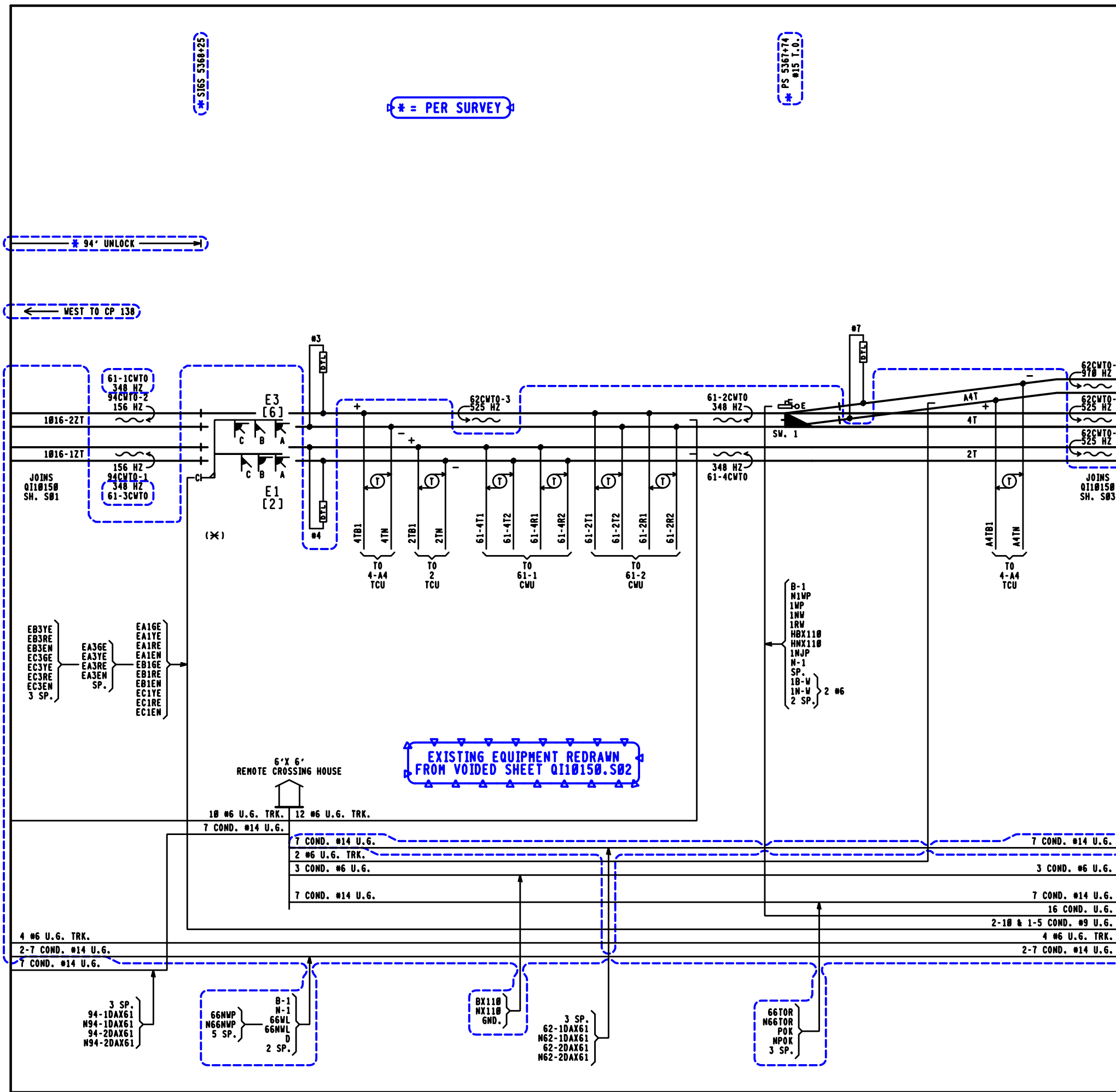
CP 102 & 1

SR 309 (KENTON AVE.) 261540P

TRACK AND SIGNAL PLAN

MARION, OH H.P. 01-101.50

DESIGNED SWE	DIGITIZED SWE	CHECKED SWE	DATE 06-15-99
NEXT FILE 0110150	NEXT SH S02	FILE 0110150	SHEET S01



REVISIONS

DESIGNED	DIGITIZED	CHECKED	DATE
PRS/TDF	PRS/RNJ	PRS/SAF	05-25-17
NEXT FILE	NEXT SH	FILE	SHEET
Q110150	S03	Q110150	S02

DTL

D.T.L. #3 & #4 ARE
8V617-0600
NBS SAF. 62775-525 HZ

DTL

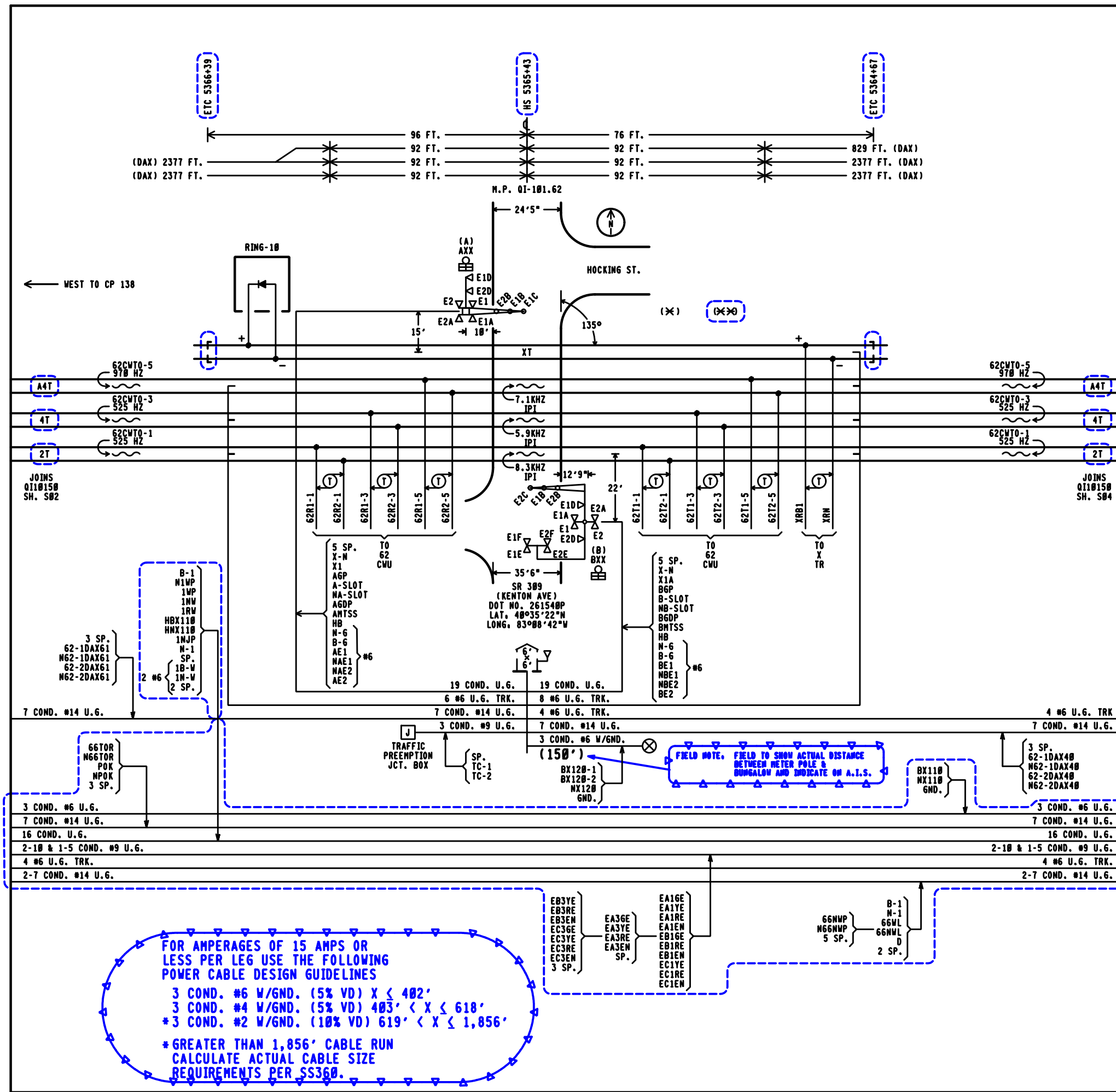
D.T.L. #7 IS
8V617-1400
NBS SAF. 62775-970 HZ

PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 05/25/17
CSX: 0H2017030
0H2017031
PRS/TDF/SAF

NOTES:

- [] = INDICATION PURPOSE ONLY
- (X) = LOCATION OF REMOTE HOUSE

CP 102 &
SR 309 (KENTON AVE.) 261540P
TRACK AND SIGNAL PLAN
MARION, OH M.P. Q1-101.50



REVISIONS

EXISTING EQUIPMENT REDRAWN FROM VOIDED SHEET Q110150.S02

PROGRESS

Rail Services

A Caterpillar Company

NEW WORK

DATE: 05/25/17
CSX: 0H2017030
0H2017031
PRS/TDF/SAF

NOTES:

- 12" LED MAXIMUM CURRENT 1.0A AT 10 VOLTS
LED GATE ARM LIGHTS .3A MAXIMUM
- GATE LENGTH (A) 21' (B) 30'
- CANT. LENGTH (B) 26'
- (X) = LOCATION OF CROSSING HOUSE
- (X) = LOCATION OF COMMUNICATIONS HOUSE
- (N) = APPROXIMATE COMPASS NORTH.
- TRANSMITTER LEADS FOR MOTION OR PREDICTOR EQUIPMENT SHOULD BE CONNECTED ON THE BUNGALOW OR SHORT LEAD SIDE OF THE CROSSING.
- ISLAND TRACK LEADS SHOULD BE CONNECTED 50 FEET FROM ROAD EDGE BUT ON NARROW ROADS (20' OR LESS) ISLAND LENGTH SHALL BE 120 FEET.
- WARNING SYSTEM APPROACH CIRCUIT DISTANCES ARE TO BE MEASURED FROM THE ISLAND TRACK CONNECTIONS.
- THE RING-10 LOCATED AT THE ISLAND WILL BE PLACED ON THE FAR SIDE OF THE CROSSING FROM THE BUNGALOW.

CSX TRANSPORTATION

RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

CP 102 &
SR 309 (KENTON AVE.) 261540P
TRACK AND SIGNAL PLAN
MARION, OH M.P. 01-101.50

DESIGNED PRS/TDF	DIGITIZED PRS/RNJ	CHECKED PRS/SAF	DATE 05-25-17
NEXT FILE Q110150	NEXT SH S04	FILE Q110150	SHEET S03

Minimum Program Steps Report

Location and SIN
DOT Number: 261540P
Milepost Number: 01-101.62
Site Name: SR 309 (KENTON AVE)

SIN: 712544203516 *

* Parameter is part of office check number calculation.

MCF and Template Selection

MCF Name: GCP-T6X-02-6.mcf
MCF Revision: 26
MCF CRC: 49402656

Template = 2B,3 B1, 3 Rem (OCCN) *

* Parameter is part of office check number calculation.

Minimum Program Steps

MS4000 configuration
Track 1, GCP Frequency = 525 Hz (OCCN,TCN) (Hidden) *
Track 1, Prime UAX = IP (OCCN) (Hidden) *
Track 1, Isl Frequency = 8.3 kHz (OCCN) (Hidden) *
IN 1.1 = T1 Prime UAX (OCCN) (Hidden) *
IN 1.2 = T1 Prime UAX (OCCN) (Hidden) *

MS4000 Predictor
Track 1, Prime Warning Time = 44 sec (OCCN) (Hidden) *

BASIC, module configuration
Track 2/RIO 1 Slot = Not Used (OCCN) *
Track 3/PSO 2 Slot = Track (OCCN) *
Track 5/RIO 2 Slot = Track (OCCN) *
Track 6/RIO 3 Slot = Track (OCCN) *

BASIC, preemption
Preempt Logic = Simult (OCCN) *

GCP, track 1
Track 1, GCP Frequency = 525 Hz (OCCN,TCN) *
Track 1, Approach Distance = 2377 ft (OCCN,TCN) *
Track 1, Island Distance = 184 ft (Set in Field,TCN)

GCP, track 1 prime
Track 1, Prime Warning Time = 44 sec (OCCN) *
Track 1, Prime UAX = IP (OCCN) *

GCP, track 3
Track 3, GCP Frequency = 525 Hz (OCCN,TCN) *
Track 3, Approach Distance = 2377 ft (OCCN,TCN) *
Track 3, Island Distance = 184 ft (Set in Field,TCN)

GCP, track 3 prime
Track 3, Prime Warning Time = 44 sec (OCCN) *
Track 3, Prime UAX = IP (OCCN) *

GCP, track 5
Track 5, GCP Frequency = 970 Hz (OCCN,TCN) *
Track 5, Approach Distance = 829 ft (OCCN,TCN) *
Track 5, Island Distance = 184 ft (Set in Field,TCN)

GCP, track 5 prime
Track 5, Prime Warning Time = 44 sec (OCCN) *

GCP, track 6
Track 6, GCP Frequency = 970 Hz (OCCN,TCN) *
Track 6, Approach Distance = 670 ft (OCCN,TCN) *

GCP, track 6 prime
Track 6, Prime Warning Time = 44 sec (OCCN) *
Track 6, Prime Offset Distance = 159 ft (OCCN) *

ISLAND, track 1
Track 1, Isl Frequency = 8.3 kHz (OCCN) *

ISLAND, track 3
Track 3, Isl Frequency = 5.9 kHz (OCCN) *

ISLAND, track 5
Track 5, Isl Frequency = 7.1 kHz (OCCN) *

AND, AND 1 XR
AND 1 Enable Used = Yes (OCCN) *

ADVANCED, out of service
00S Control = Display+00S IPs (OCCN) *

ADVANCED, out of service 2
T3 00S Control = 00S Input 1 (OCCN) *
T5 00S Control = 00S Input 1 (OCCN) *
T6 00S Control = 00S Input 1 (OCCN) *

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

SSCC
SSCC1+2 GPs Coupled = No (OCCN) *

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

SSCC, 2
SSCC-2 Gate Delay = 5 sec (OCCN) *
SSCC-2 Number of GPs = 1 (OCCN) *
SSCC-2 Number of GPs = 1 (OCCN) *
SSCC 2, Flash Rate = 55 (OCCN) *

OUTPUT, assignment page 1
OUT 1.1 = Sim Preempt (OCCN) *

INPUT, assignment page 1
IN 1.1 = T1 Prime UAX (OCCN) *
IN 1.2 = T1 Prime UAX (OCCN) *
IN 3.1 = T3 Prime UAX (OCCN) *
IN 3.2 = T3 Prime UAX (OCCN) *

INPUT, assignment page 2
IN 5.2 = AND 1 XR Enable (OCCN) *

IO, 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) *

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

SEAR, inputs
SP 2.1 = Not Used (OCCN) *
SP 3.1 = POK 1 (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 = 525 Hz (OCCN,TCN) (Hidden) *
Track 1, Prime UAX = IP (OCCN) (Hidden) *
IN 1.1 = T1 Prime UAX (OCCN) (Hidden) *
IN 1.2 = T1 Prime UAX (OCCN) (Hidden) *

Express, MS4000 Predictor
Track 1, Prime Warning Time = 44 sec (OCCN) (Hidden) *

* Parameter is part of office check number calculation.

Check Numbers

Office Check Number: 45F6DEFC
Config. Check Number: 1F815520
(Based on MCF Revision 26)

Parameters not part of office check number calculation:

Track 1, Island Distance = 184 ft (Set in Field)
Track 3, Island Distance = 184 ft (Set in Field)
Track 5, Island Distance = 184 ft (Set in Field)
Daylight Savings = 0n (Set in Field)

Comments

<none>



REVISIONS		CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
		CP 102 & SR 309 (KENTON AVE.) 261540P MINIMUM PROGRAM STEPS REPORT CME-62 MARION, OH M.P. 01-101.50			
DESIGNED PRS/TDF	DIGITIZED PRS/RHJ	CHECKED PRS/SAF	DATE 05-25-17		
NEXT FILE 0110150	NEXT SH 601	FILE 0110150	SHEET P01		

RACK	CARD NO.	CODED CIRCUIT INTERFACE OUTPUTS							
		1	2	3	4	5	6	7	8
1	64	1016-1 ZT	1016-2 ZT	462-3 ZT	UNUSED	UNUSED	UNUSED	UNUSED	UNUSED

★ 462-10
ZT

RACK	CARD NO.	VITAL SIGNAL LAMP DRIVER OUTPUT BITS																	VITAL GENERAL PURPOSE I/O BITS																
																			OUTPUTS								INPUTS								
																			1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	
1	65																		1NWR	1RWR	66WLR	SP.	SP.	SP.	SP.	SNZR	1NWPR	1RWPR	1 WCBPR	SNPR	1NJP	1TR	66 NWPR	POR	
	66																		2NWR	2RWR	SP.	SP.	SP.	SP.	SP.	SP.	2NWPR	2RWPR	2 WCBPR	SP.	3NJP	2TR	66TOR	D00R	
	67																		3NWR	3RWR	SP.	SP.	SP.	SP.	SP.	SP.	3NWPR	3RWPR	3 WCBPR	SP.	5NJP	3TR	SP.	SP.	
	68																																		
																			INPUTS																
																			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
	69																																		
	610	EA1GE	EA1YE	EA1RE	EB1GE	EB1RE	EC1YE	EC1RE	EA3GE	EA3YE	EA3RE	EB3YE	EB3RE	EC3GE	EC3YE	EC3RE	SP.	10V STOP																	
	611	WA1GE	WA1YE	WA1RE	SP.	SP.	WB1RE	WC1GE	WC1YE	WC1RE	SP.	WA2GE	WA2YE	WA2RE	WB2GE	WB2YE	WB2RE	11V STOP																	
612	WD3RE	SP.	WE3GE	WE3YE	WE3RE	SP.	SP.	SP.	SP.	SP.	SP.	SP.	SP.	SP.	SP.	SP.	12V STOP																		

VHLC - LED INDICATIONS (VLP BOARD)	
V L P	16
	15
	14
	13 EA1LOPR
B	12 EB1LOPR
	11 EC1LOPR
	10 EA3LOPR
	9 EB3LOPR
V L P	8 EC3LOPR
	7 WA1LOPR
	6 WB1LOPR
	5 WC1LOPR
A	4 WA2LOPR
	3 WB2LOPR
	2 WD3LOPR
	1 WE3LOPR

DESIGNER NOTE:
1. HEALTH IS STATUS FOR HARMON LCP PANEL.

★ = DRAFTING ERROR CORRECTION

PROGRESS

RAIL SERVICES

A Caterpillar Company

DATE: 05/25/17
CSX 0.0H2017030
0H2017031
PRS/TDF/SAF

✕✕ = OUT

▽▽ = IN

8'X 10' RELAY HOUSE

REVISIONS		CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
05-10-2000 SWE	0H1990112A	CP 102 SR 300 (KENTON AVE.) 261540P EQUIVALENT CIRCUITS MARION, OH H.P. 01-101.50			
06-10-14 GET 0H2011021/0H2011021A					
09-12-16 XRL	0H2014093				
		DESIGNED SWE	DIGITIZED SWE	CHECKED SWE	DATE 06-15-99
		NEXT FILE 0110150	NEXT SH 602	FILE 0110150	SHEET 601

ADDRESS TYPE RAILROAD ID NUMBER CODE LINE ADDRESS STATION ADDRESS SUB DEVICE INTERNAL DEVICE														OFFICE TO VHLC AUXILIARY COMMUNICATION PROCESSOR SERIAL COMMUNICATION BITS								
														CONTROLS FROM OFFICE								
														WORD	1	2	3	4	5	6	7	8
														1	C1 NWS	C1 RWS	C3 NWS	C3 RWS	C5 NWS	C5 RWS	C2 GS	C4 GS
														2	C2-4 STOP	C8 GS	C8 STOP	C6 GS	C10 GS	C6-10 STOP	C2 TBS	C2 TBS0
														3	C6 TBS	C6 TBS0	C10 TBS	C10 TBS0	CECS	CECS0	CSMS	CSMS0
4																						
1	2	3	4	5	6	7	8	9	10	11	12	13	14	INDICATIONS TO OFFICE								
														WORD	1	2	3	4	5	6	7	8
														1	1 NWK	1 RWK	1 LK	1 NJK	3 NWK	3 RWK	3 LK	3 NJK
														2	5 NWK	5 RWK	5 LK	5 NJK	2 GK	4 GK	2-4 TEK	6 GK
														3	10 GK	6-10 TEK	8 GK	8 TEK			2 TK	4 TK
														4	6 TK	2 AAK	6 AAK	10 AK	10 AAK	2 TBK	6 TBK	10 TBK
														5	LOK	POK	MOK	ECK	SNK	2 BDK	6 BDK	SEK

LSR PROGRAM TIME		
EA1TER	512	SEC.
EA3TER	512	SEC.
WA1TER	406	SEC.
WA2TER	406	SEC.
WD3TER	310	SEC.
66WL	600	SEC. (LONG)
66WL	20	SEC. (SHORT)

NOTE.
OFFICE CONTROL AND INDICATION
NOMENCLATURE IS SHOWN IN BRACKETS.

8'X 10' RELAY HOUSE



PROGRESS
RAIL SERVICES
A Caterpillar Company

DATE: 05/25/17
CSX 0.0H2017030
0H2017031
PRS/TDF/SAF

⬆⬆

= OUT

⬆⬆

= IN

REVISIONS

05-10-2000 SWE	0H1990112B
06-10-14 GET 0H2011021/0H2011021A	
09-12-16 XRL	0H2014093

 **TRANSPORTATION**

**RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS**

CP 102

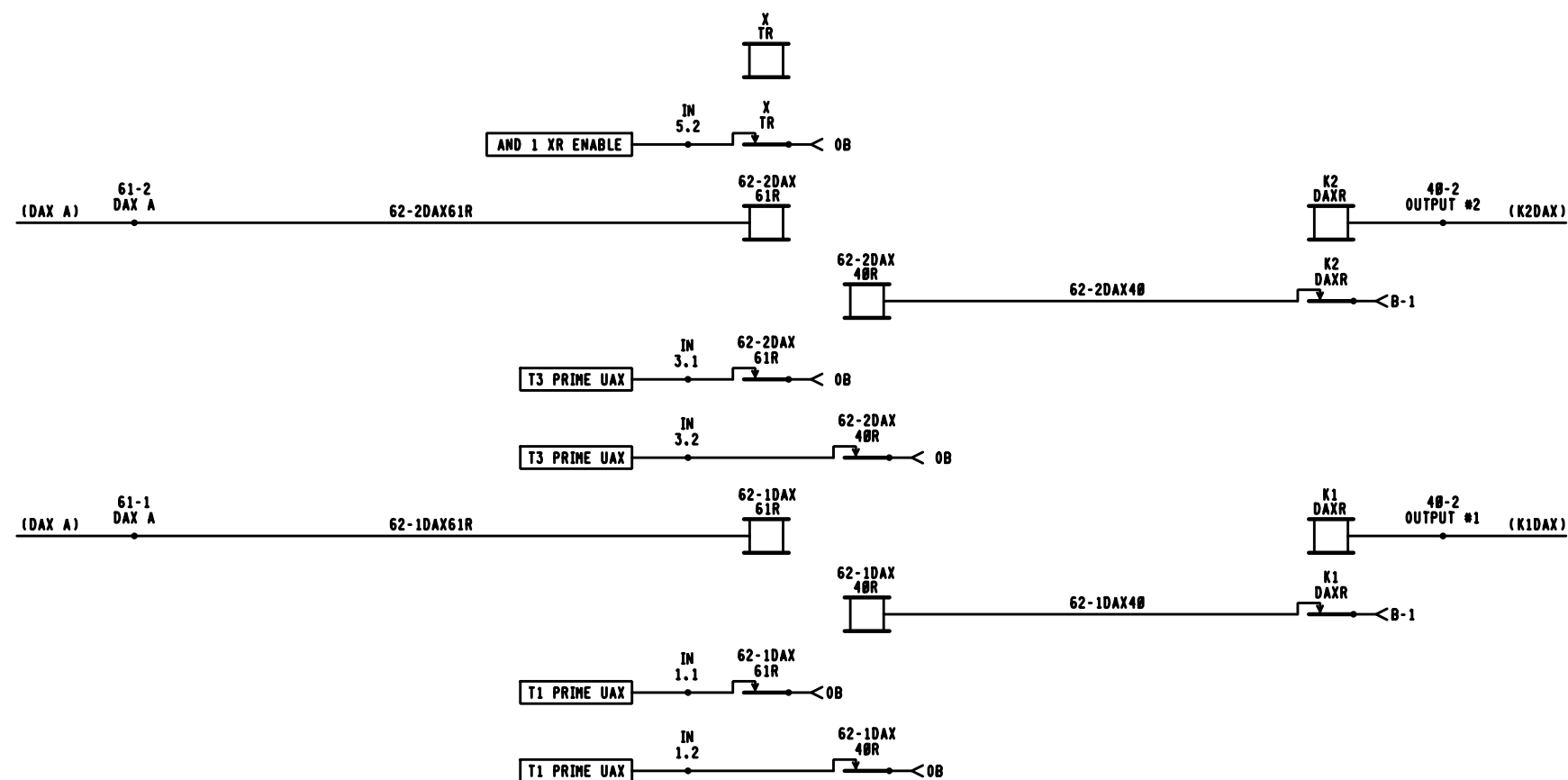
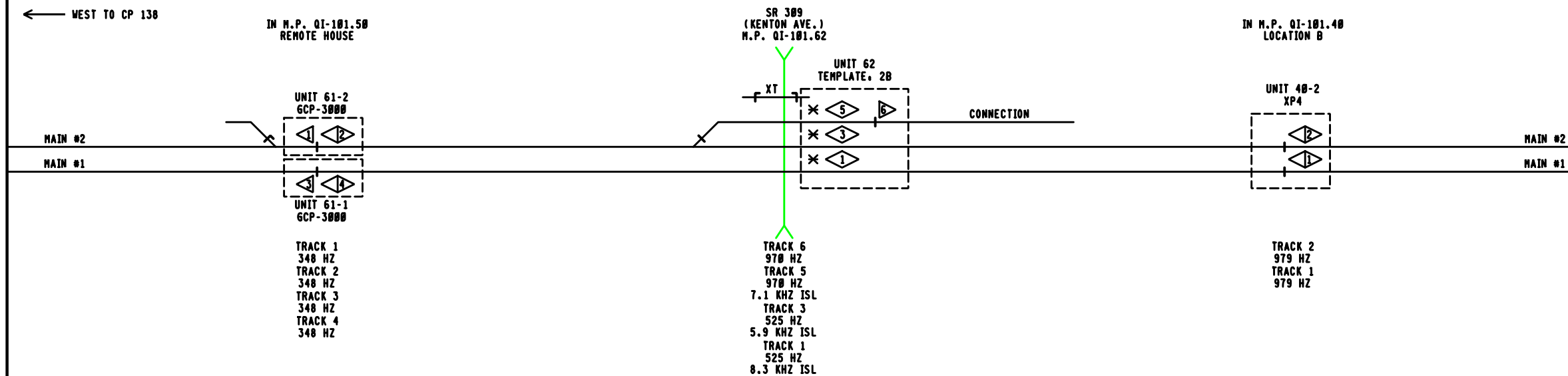
SR 300 (KENTON AVE.) 261540P

EQUIVALENT CIRCUITS

MARION, OH H.P. 01-101.50

DESIGNED SWE	DIGITIZED SWE	CHECKED SWE	DATE 06-15-99
NEXT FILE 0110150	NEXT SH 001	FILE 0110150	SHEET 602

603

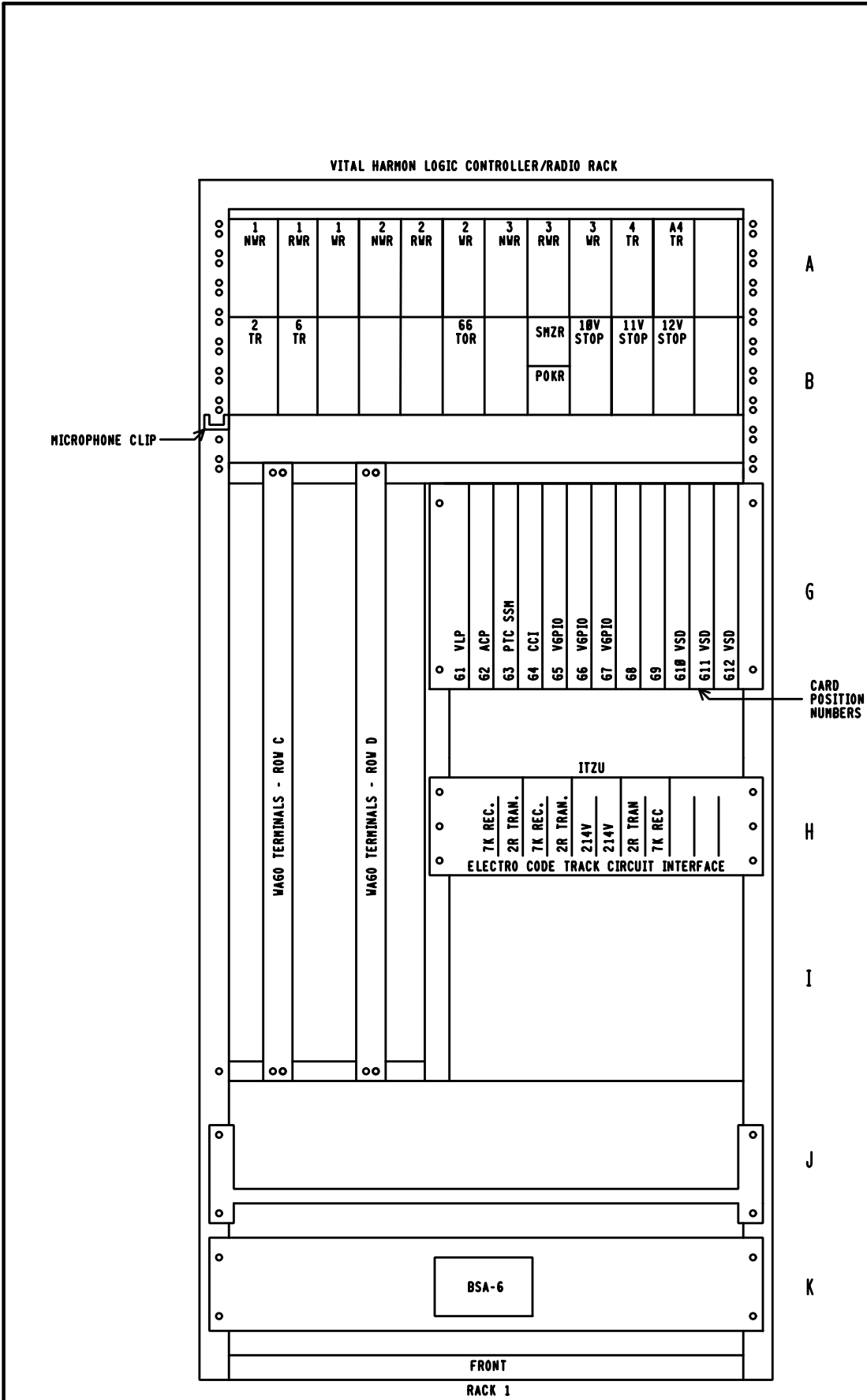


SYMBOL	DEFINE	SYMBOL	DEFINE	SYMBOL	DEFINE	SYMBOL	DEFINE
✕	ISLAND	UAX	SOFTWARE UAX INPUT	V	EXTERNAL VITAL AND GATE	D	INTERNAL SOFTWARE GATE
SYMBOL	DEFINE	SYMBOL	DEFINE	SYMBOL	DEFINE	SYMBOL	DEFINE
◇	BI-DIRECTIONAL	◁◇	SIMULATED BI-DIRECTIONAL	▷	UNI-DIRECTIONAL	□	GCP 4000 UNIT

PROGRESS
RAIL SERVICES
A Caterpillar Company
NEW WORK

DATE: 05/25/17
CSX: 0H2017030
0H2017031
PRS/TDF/SAF

REVISIONS				CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
				CP 102 & SR 309 (KENTON AVE.) 261540P INTERNAL SOFTWARE AND GATES LOGIC DIAGRAMS MARION, OH H.P. Q1-101.50			
DESIGNED PRS/TDF	DIGITIZED PRS/RNJ	CHECKED PRS/SAF	DATE 05-25-17				
NEXT FILE Q110150	NEXT SH E01	FILE Q110150	SHEET 603				



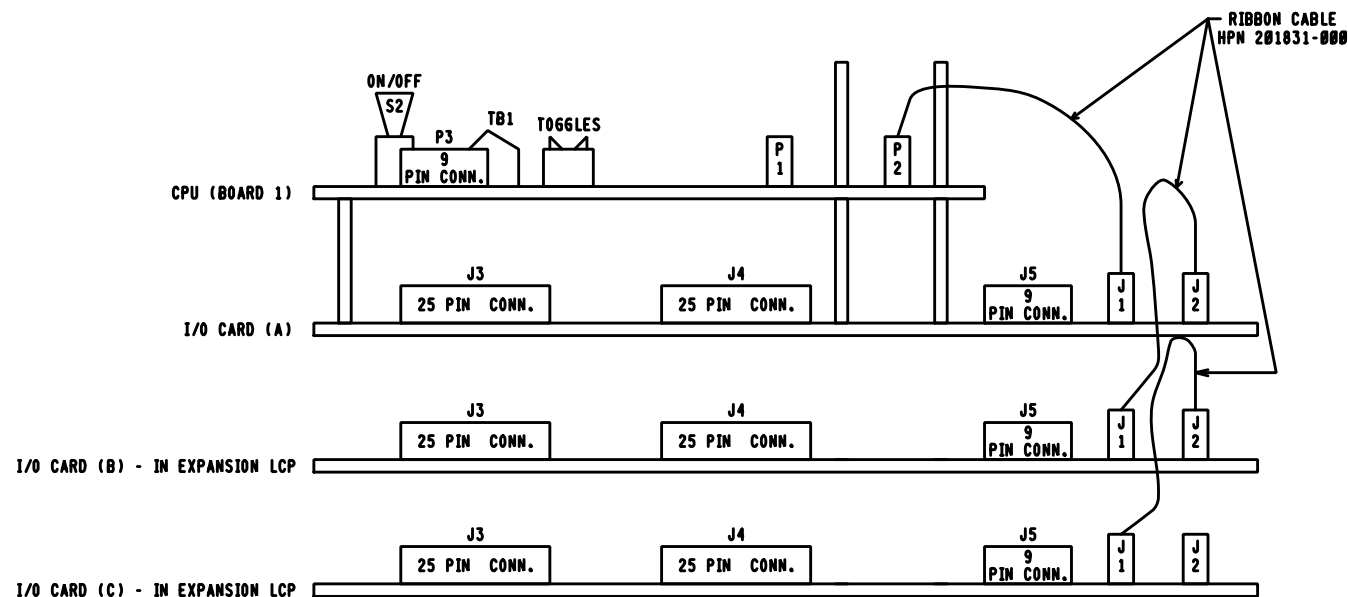
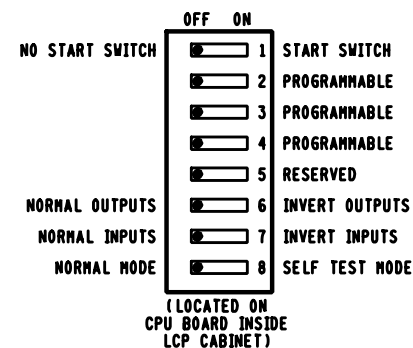
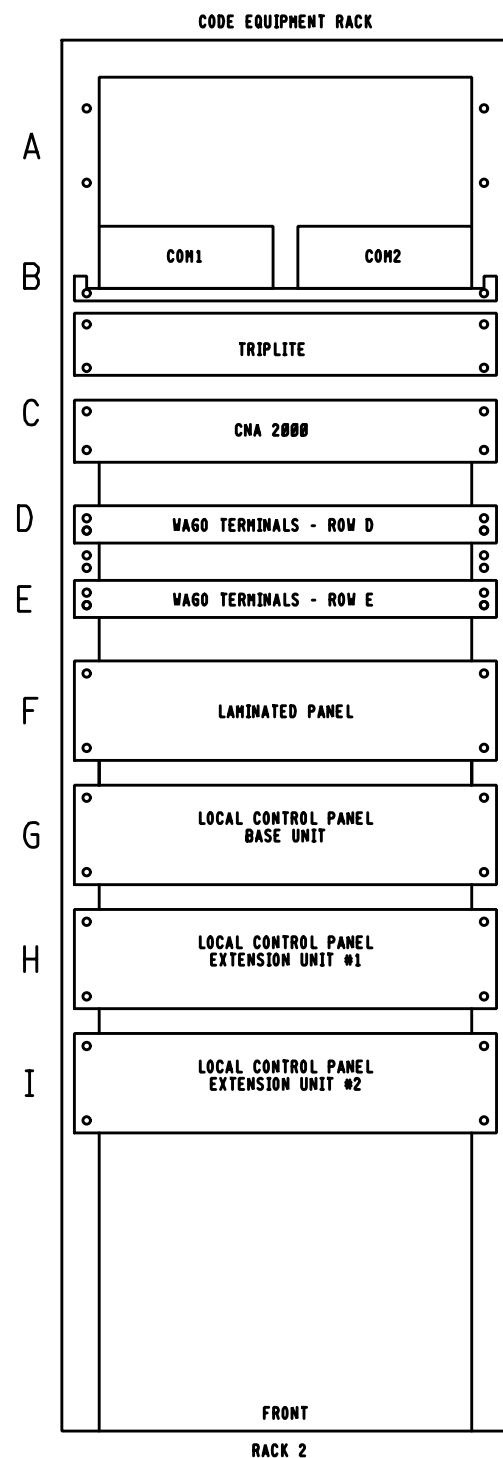
VITAL HARMON LOGIC CONTROLLER/RADIO EQUIPMENT RACK 84" X 30"		
REF.	NOMENCLATURE	TYPE
(C-D) 1-65	WAGO TERMINALS #14 (65 X 2)	HPN 132288-681
(C-D) 66-83	WAGO TERMINALS #10 (16 X 2)	HPN 132282-681
(C-D) 84-119	#14 (65X2)	HPN 132288-681
61	VITAL LOGIC PROCESSOR	HPN 226610-000
62	AUXILIARY COM. PROCESSOR	HPN 226611-200
63	SITE SPECIFIC MODULE	180684-200
64	CODED CIRCUIT INTERFACE	HPN 226802-001
64	CABLE - CODED CIRCUIT INTERFACE	HPN 200123-001
65-68	VITAL GENERAL PURPOSE I/O	HPN 226808-001
65-67	CABLE - VITAL GEN. PURPOSE I/O	HPN 200124-110
68	CABLE - VITAL GEN. PURPOSE I/O	HPN 200124-130
69	VITAL GEN. PURPOSE INPUT	HPN 226855-000
610-612	VITAL SIGNAL DRIVER	HPN 226801-000
610-612	CABLE - VITAL SIGNAL DRIVER	HPN 200125-010
ROW G	POWER SUPPLY MODULE	HPN 226609-002
ROW G	RS422/485 INTERFACE MODULE	HPN 226927-000 IEA
ROW H	2R REGULATED TRK. CONVERTER	HPN 262600-000
ROW H	7K TRACK RECEIVER	HPN 262599-000
ROW H	214V PROCESSOR	HPN 262214-001
PORT C	RS-232 INTERFACE MODULE	
PORT E	CURRENT LOOP ADAPTER MODULE	HPN 226859-000
ROW K	BSA-6	HPN 250597-100

BACK
OF
VHLC
PORT

WHEN KITS FOR ADDITIONAL ITEMS ARE REQUIRED	
DESCRIPTION	CSX STOCK CONTROL NO.
KIT UPGRADE VHLC PTC ALT5 FPVP (GETS P/N 180684-000)	020.1806840.1
KIT UPGRADE VHLC PTC STD5 FPVP (GETS P/N 180684-100)	020.1806841.1
KIT UPGRADE VHLC PTC ALT5 (GETS P/N 180684-200)	020.1806842.1
KIT UPGRADE VHLC PTC STD5 (GETS P/N 180684-300)	020.1806843.1
POWER SUPPLY MODULE 40 WATT (GETS P/N 226955-000)	020.2305006.1
AUXILIARY COM. PROCESSOR 3 (GETS P/N 226611-300)	020.2305058.1

8'X 10' RELAY HOUSE

REVISIONS		CSXTRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS				
05-10-2000	SWE	0H1998112A	CP 102 EQUIPMENT MARION, OH N.P. Q1-101.50			
06-10-14	GET	0H2011021/0H2011021A				
			DESIGNED	DIGITIZED	CHECKED	DATE
			SWE	SWE	SWE	06-15-99
			NEXT FILE	NEXT SH	FILE	SHEET
			Q110150	E03	Q110150	E02

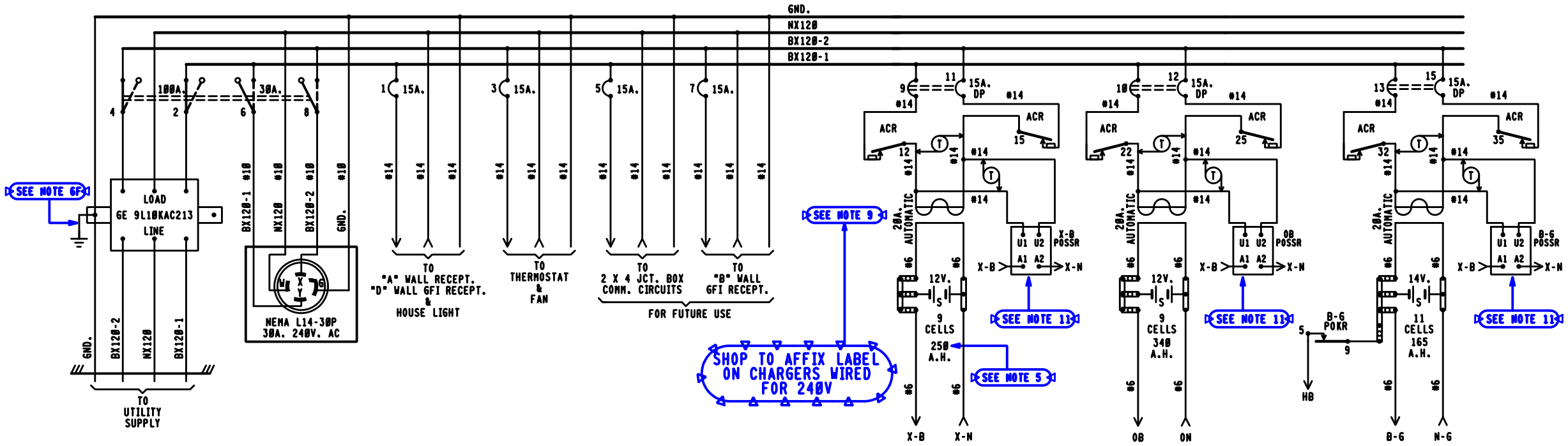


CODE EQUIPMENT		
REF.	NOMENCLATURE	TYPE
ROW A	LAMINATED PANEL	
ROW B	LINE INTERFACE PANEL	LIRP-600 020-2901000-1
ROW C	PHONE LINE INTFC 600 OHM	DEI PN LIRB-0630-11
ROW C	RFL POWER SUPPLY MODULE	DEI PN 46350-1 60 PS 12VDC-1
ROW C	RFL PROG FSK XNTR	DEI PN 99160 68P TX
ROW C	RFL PROG FSK RCVR	DEI PN 99155 68P RX
ROW C	RFL CHASSIS	DEI PN 46950 68CHAS
(D-E) 1-60	WAGO TERMINALS #14 (60X2)	HPN 132200-601
(D-E) 66-72	WAGO TERMINALS #10 (17X2)	HPN 132200-601
ROW F	LAMINATED PANEL	
ROW G	LOCAL CONTROL PANEL	HARMON LPC BASE UNIT
ROW G,H,I	LOCAL CONTROL PANEL	HARMON LPC EXTENSION UNIT

8'X 10' RELAY HOUSE

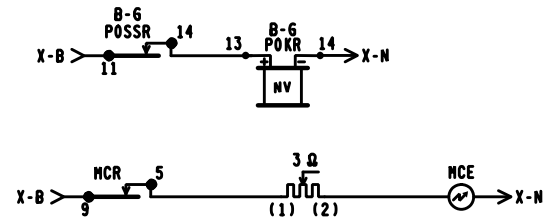
REVISIONS		CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
05-10-2000 SWE	0H1990112A	CP 102 EQUIPMENT MARION, OH H.P. 01-101.50			
06-10-14 GET	0H2011021/0H2011021A				
		DESIGNED	DIGITIZED	CHECKED	DATE
		SWE	SWE	SWE	06-15-99
		NEXT FILE	NEXT SH	FILE	SHEET
		0110150	E04	0110150	E03

TOP ROW									
	ACR				MCR				
	12	B	B77		9	F	11	N41	
	15	B	C30		10		12	C48	
	22	B						C49	
	25	B			B-6 POKR				
	32	B			9	F	11	N41	
	35	B			10	F	12	C48	
					PER				
	12		B8		12			B51	
	15		C30		15				
	22				22			C30	
	23	F			23	F			
	25	F			25	F			
	32				32				
	35				35				
					XTR				
	12				12				
	15				15				
	22				22				
	23	F			23	F			
	25	F			25	F			
	32				32				
	35				35				
					62-1DAX61R				
	12		B8		12			B8	
	15		C30		15				
	22				22			C30	
	23	F			23	F			
	25	F			25	F			
	32				32				
	35				35				
					62-2DAX61R				
	12		B8		12			B8	
	15		C30		15				
	22				22			C30	
	23	F			23	F			
	25	F			25	F			
	32				32				
	35				35				
					62-1DAX40R				
	12		B8		12			B8	
	15		C30		15				
	22				22			C30	
	23	F			23	F			
	25	F			25	F			
	32				32				
	35				35				
					62-2DAX40R				
	12		B8		12			B8	
	15		C30		15				
	22				22			C30	
	23	F			23	F			
	25	F			25	F			
	32				32				
	35				35				



BX120-1	BX120-2
11.0 AMPS	11.0 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 BUSES, 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- 00124L1256 (24 SPACES)
 - SOLID STATE VOLTAGE MONITOR BENDER MOD. VME 420-DW-1 DIN RAIL MOUNTED. OUTPUTS CONFIGURED NORMALLY CLOSED(NC). UNDERVOLTAGE SENSING MINIMUM OF 210 VOLTS AC.



X-B POSSR	OB POSSR	B-6 POSSR
11 F 21 F N70	11 F 21 F N70	11 F 21 F N70

WALL/DIN RAIL MOUNTED

6'X 6' PTC CROSSING HOUSE

REVISIONS		CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS	
		CP 102 & SR 309 (KENTON AVE.) 261540P POWER DISTRIBUTION MARION, OH M.P. 01-101.50	
DESIGNED PRS/TDF	DIGITIZED PRS/RHJ	CHECKED PRS/SAF	DATE 05-25-17
NEXT FILE Q110150	NEXT SH E05	FILE Q110150	SHEET E04

= NOTE
PROGRESS
RAIL SERVICES
A Caterpillar Company
NEW WORK
DATE: 05/25/17
CSX 0102017030
0102017031
PRS/TDF/SAF
= OUT

61-1CWU
MODULES REQUIRED

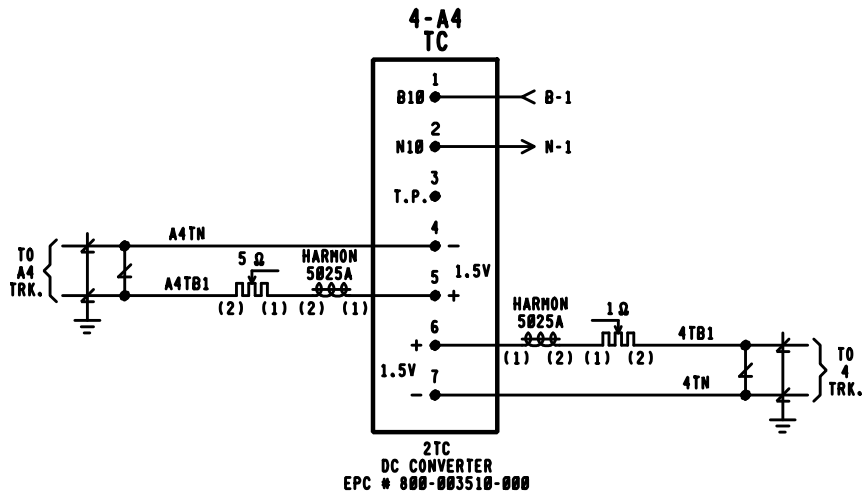
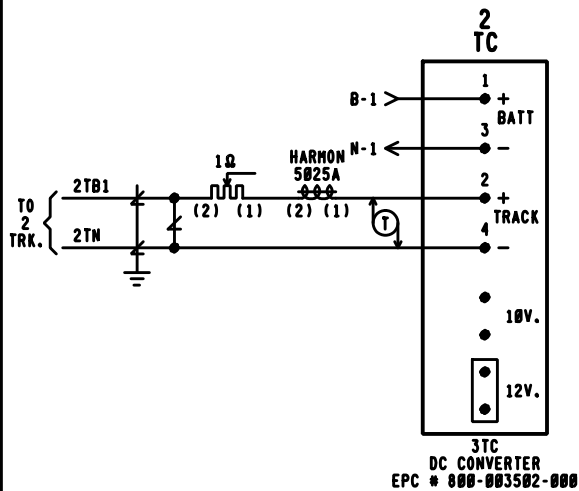
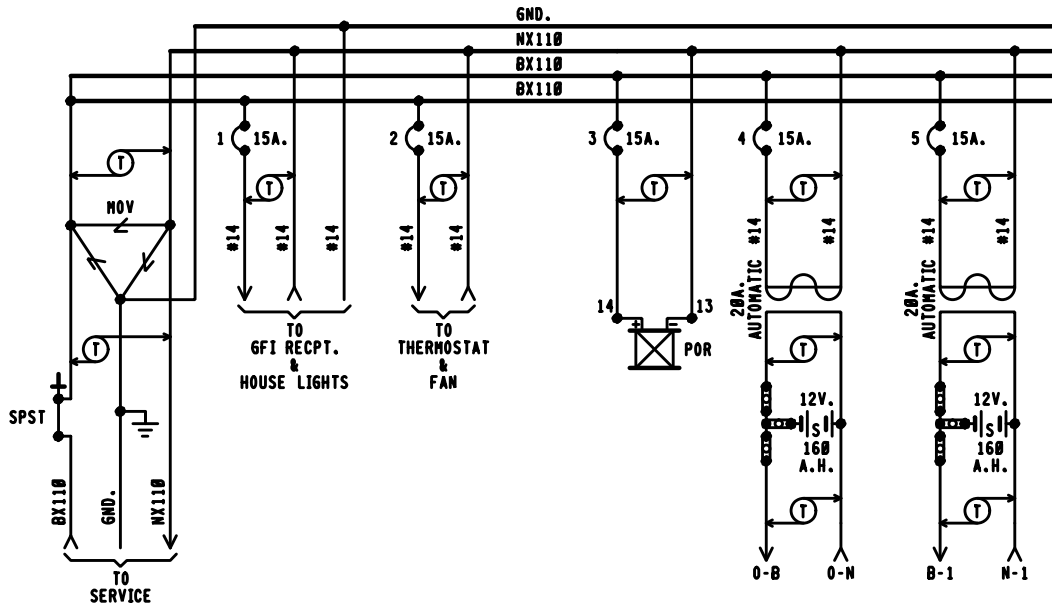
1EA. 80016 DAX MODULE
1EA. 80012 TRANSCIVER MOD.
1EA. 80013 RELAY DRIVE
1EA. 80044 PROCESSOR MOD.
1EA. 80020 CONTROL INTERFACE

61-2CWU
MODULES REQUIRED

1EA. 80016 DAX MODULE
1EA. 80012 TRANSCIVER MOD.
1EA. 80013 RELAY DRIVE
1EA. 80044 PROCESSOR MOD.
1EA. 80020 CONTROL INTERFACE

POR			
9	F	11	N66
10		12	C40

EQUIPMENT		
REF.	NOMENCLATURE	TYPE
	61-1CWU	MOTION SENSOR/GCP SAFETRAN 3000, P/N 80100-104 FREQ. 340 HZ WITHOUT ISLAND
	61-2CWU	MOTION SENSOR/GCP SAFETRAN 3000, P/N 80100-104 FREQ. 340 HZ WITHOUT ISLAND

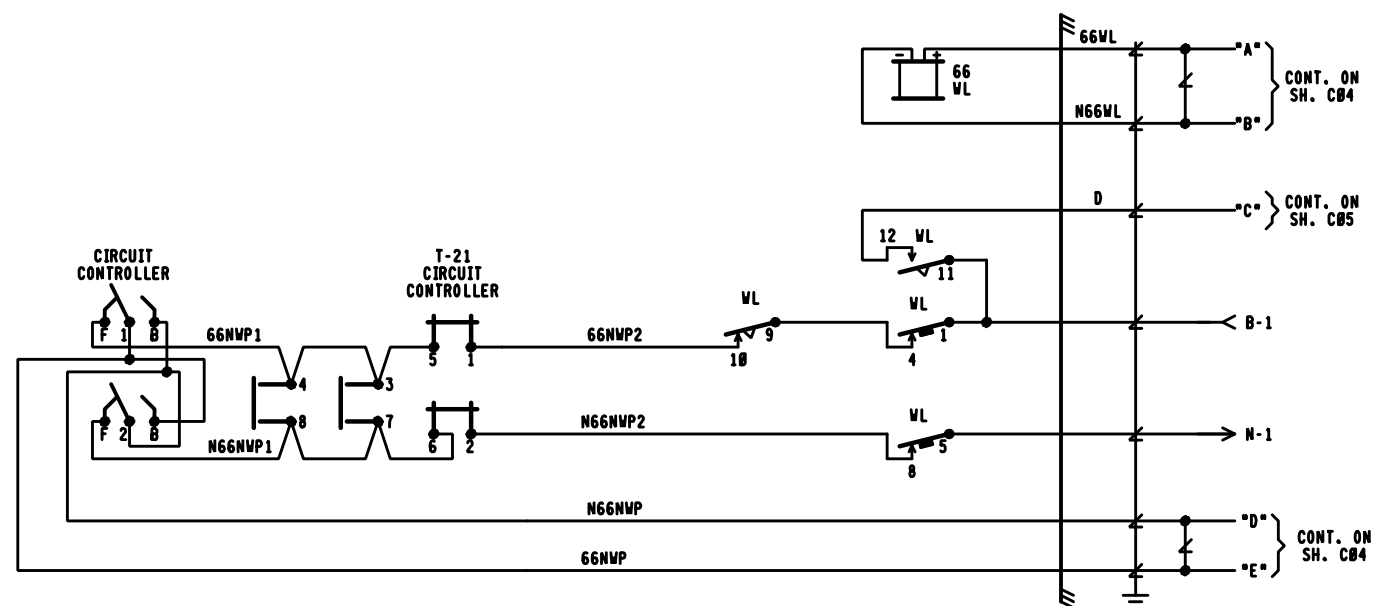


NOTES:

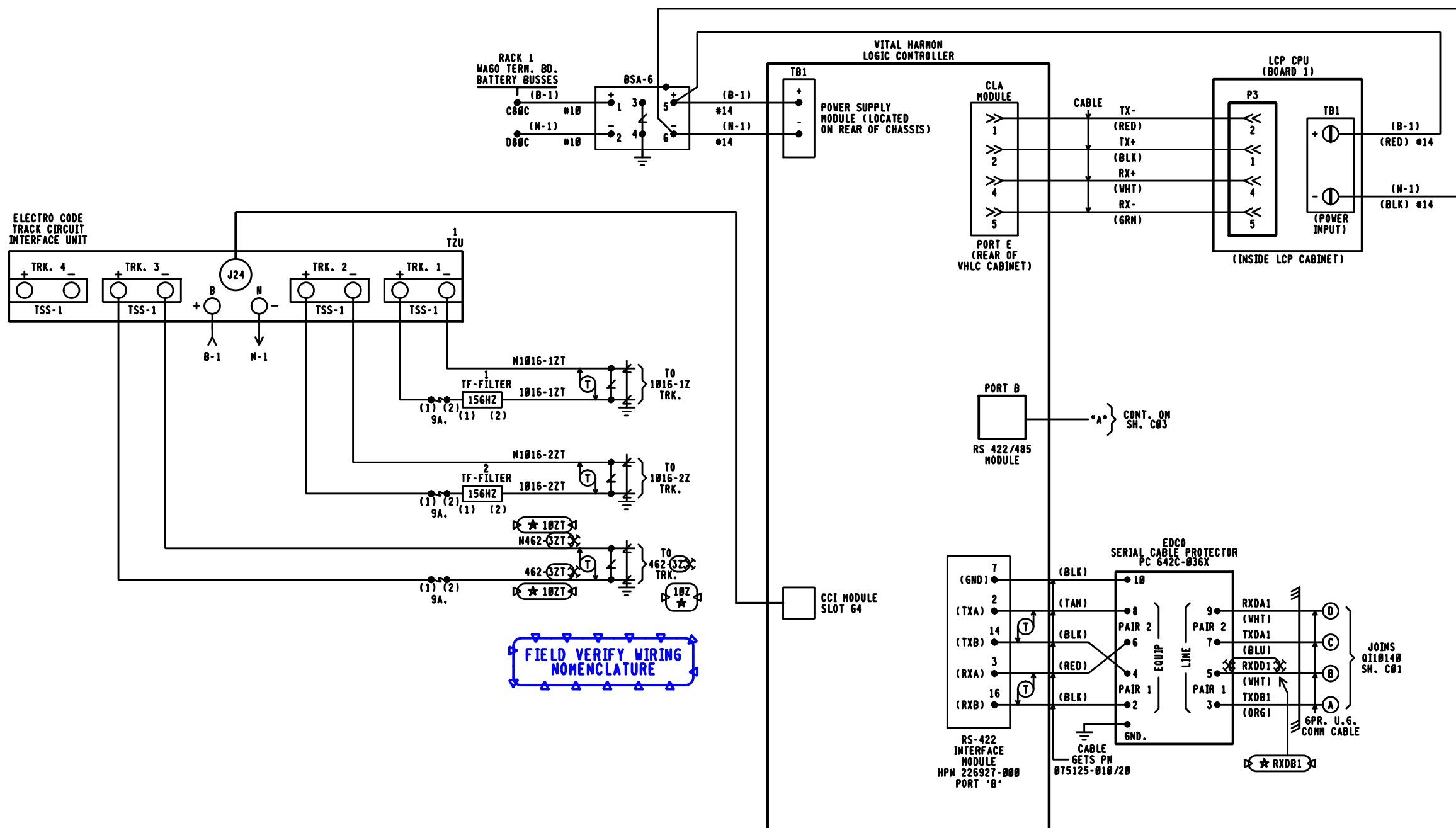
- 1 - REFERENCES ARE PER SCHS-13.
- 2 - ARRESTERS AND BATTERY LINE ARE PER SCHS-22.
- 3 - SHELF RELAY PLACEMENT ON CONSIST CHART HAS NO SIGNIFICANCE.
- 4 - PLUG-IN RELAYS ARE VIEWED FROM THE FRONT OF RACK.
- 5 - WIRING
 - A - FEED TO ALL BUSES, LIGHT CIRCUITS, MOTOR CIRCUITS TO BE #10 FLEX.
 - B - 110-VOLT 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.
- 6 - ALL WIRING ON THIS PLAN BY RAILROAD.

6'X 6' REMOTE CROSSING RELAY HOUSE

REVISIONS		CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
05-10-2000 SWE	0H1990112A				
06-10-14 GET 0H2011021/0H2011021A					
		MARION, OH H.P. 01-101.50			
DESIGNED SWE	DIGITIZED SWE	CHECKED SWE	DATE 06-15-99		
NEXT FILE 0110150	NEXT SH 001	FILE 0110150	SHEET 006		

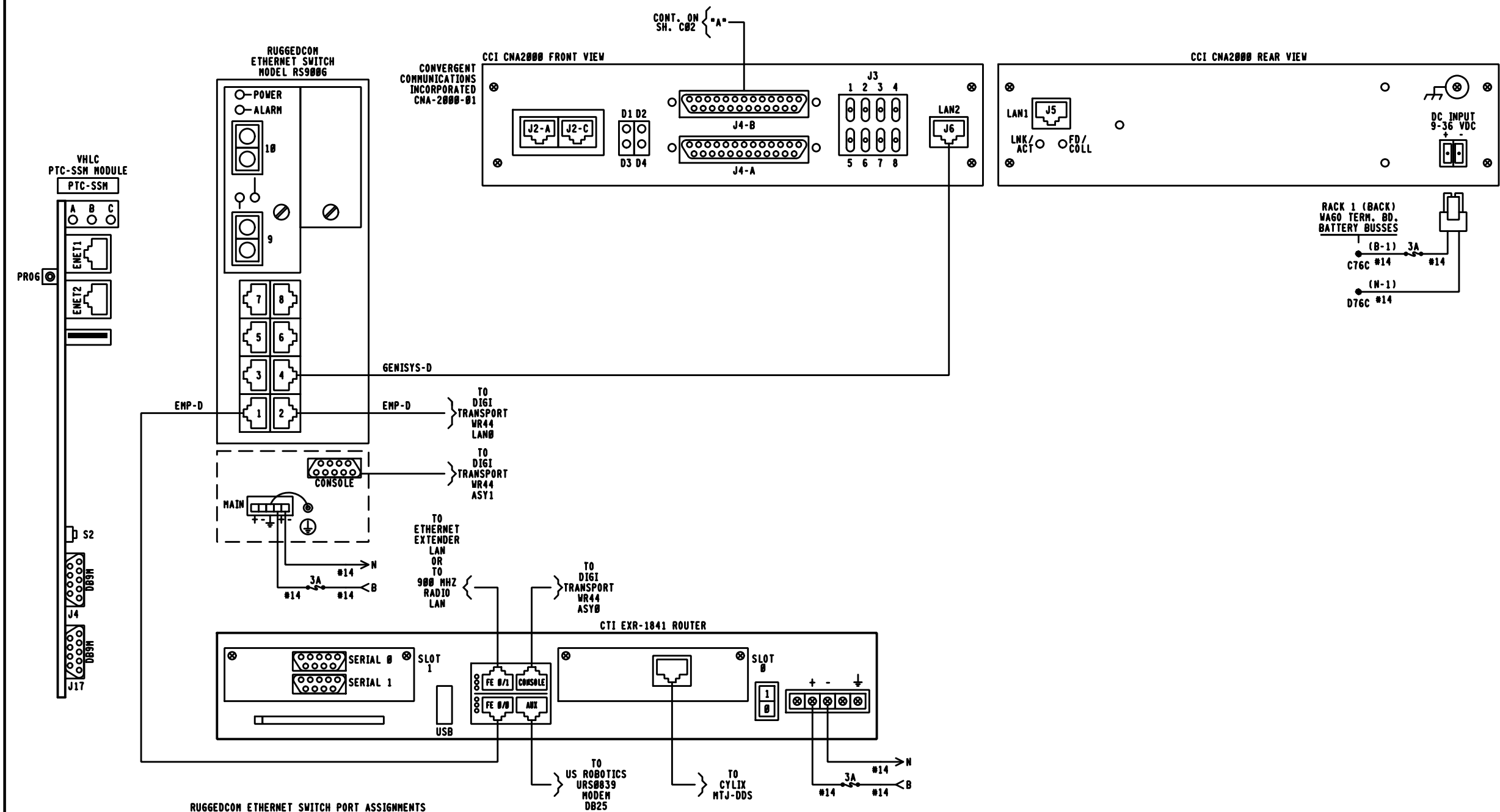


REVISIONS 05-10-2000 SWE OH1990112A 06-10-14 GET OH2011021		 RAIL TRAFFIC GROUP ENGINEERING COMMUNICATIONS AND SIGNALS	
			
DESIGNED SWE	DIGITIZED SWE	CHECKED SWE	DATE 06-15-99
NEXT FILE Q110150	NEXT SH C02	FILE Q110150	SHEET C01



8'X 10' RELAY HOUSE

REVISIONS		CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
05-10-2000 SWE	0H1990112A	CP 1024 SR 309 (KENTON AVE.) 261540P CIRCUITS MARION, OH H.P. Q1-101.50			
06-10-14 GET 0H2011021					
DESIGNED SWE	DIGITIZED SWE	CHECKED SWE	DATE 06-15-99		
NEXT FILE Q110150	NEXT SH C03	FILE Q110150	SHEET C02		

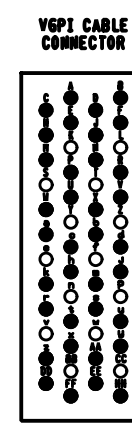
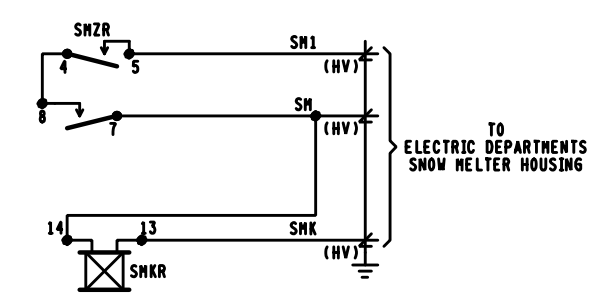
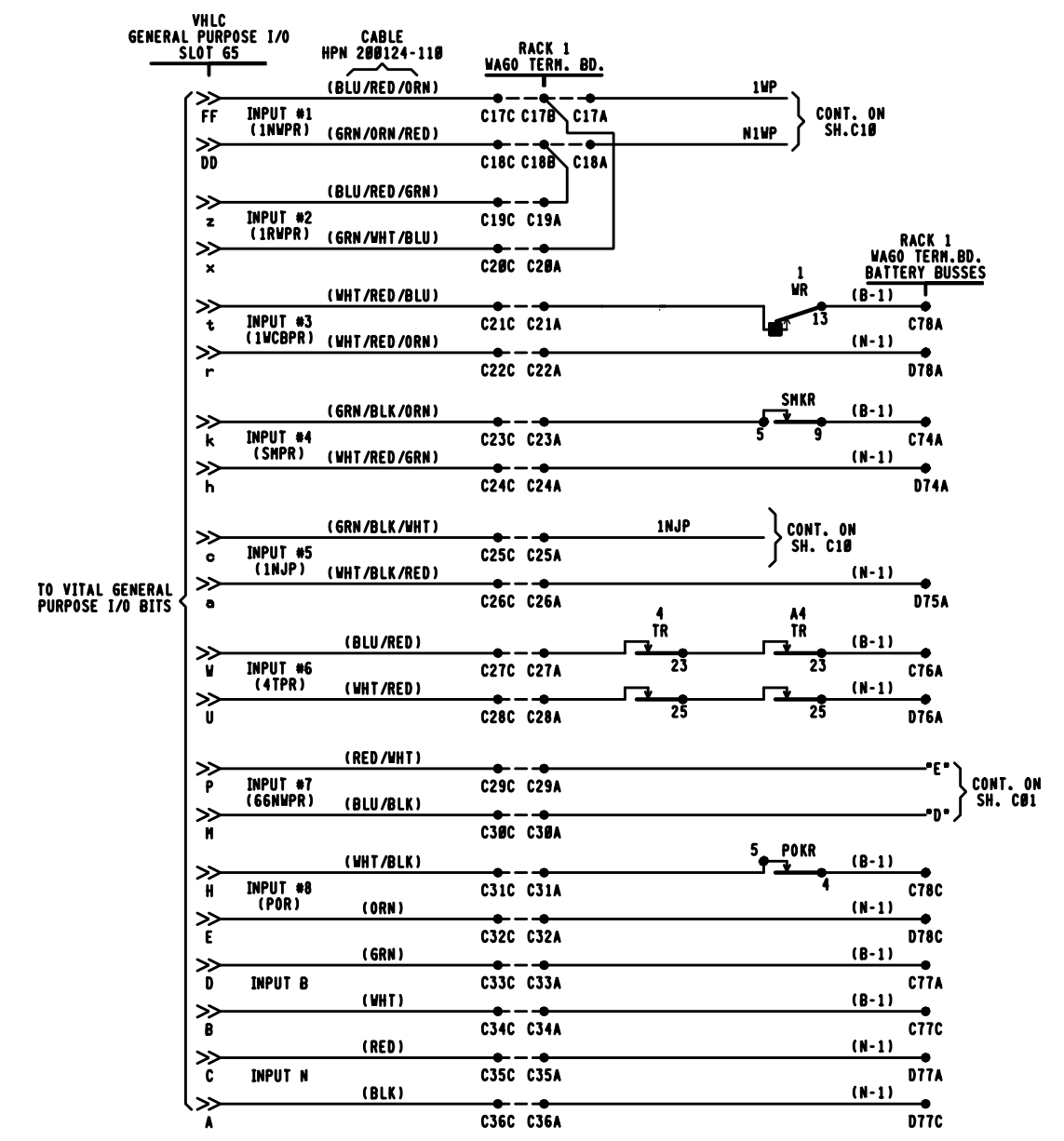
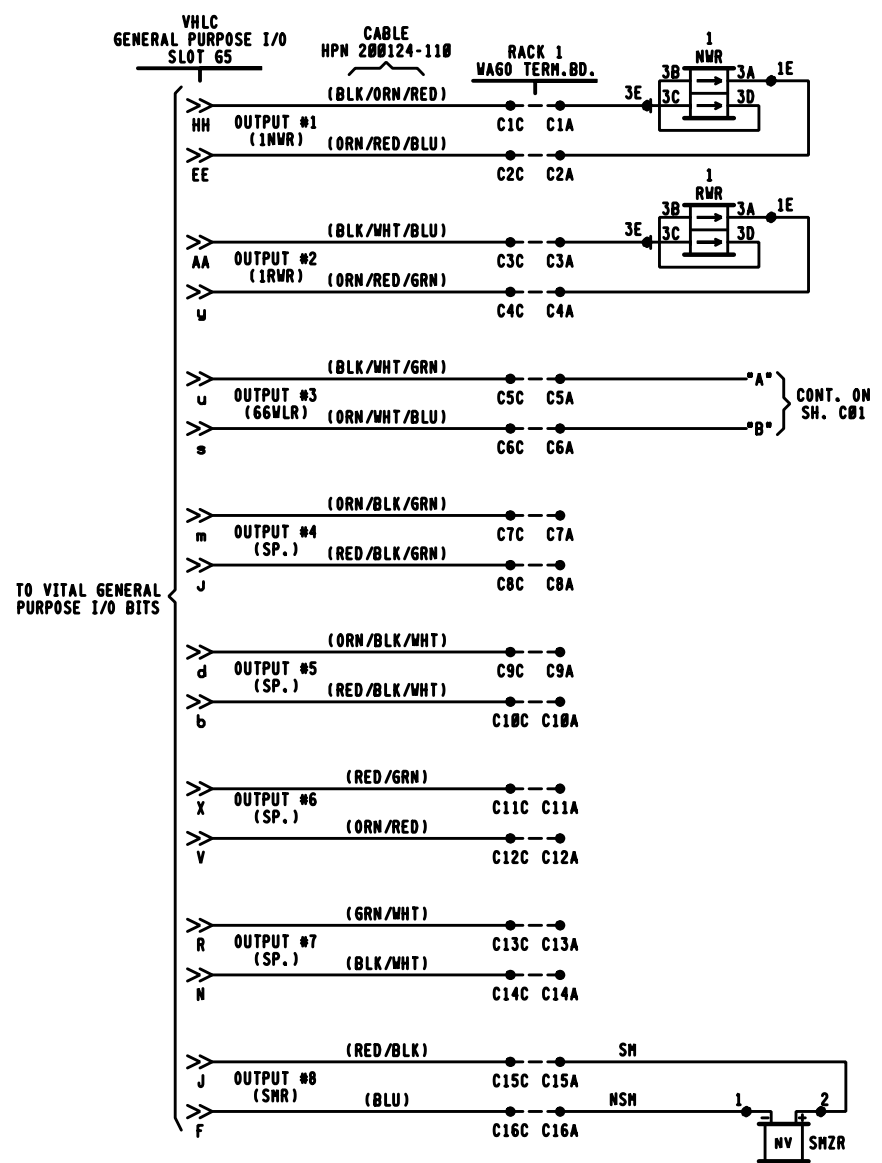


RUGGEDCOM ETHERNET SWITCH PORT ASSIGNMENTS	
PORT #1	CTI EXR-1841 ROUTER
PORT #2	DIGI TRANSPORT WR44
PORT #3	220 MHZ RADIO / SATELLITE
PORT #4	WAYSIDE COMMUNICATIONS MANAGER
PORT #5	WAYSIDE INTERFACE UNIT #3 / ETHERNET EXTENDER
PORT #6	WAYSIDE INTERFACE UNIT #2 / ETHERNET EXTENDER
PORT #7	WAYSIDE INTERFACE UNIT #1
PORT #8	WAYSIDE MESSAGE SERVER

NOTE:
ALL WIRED CONNECTIONS SHOWN ON THIS SHEET USE
CAT-5 STP ETHERNET CABLE UNLESS NOTED.

8'X 10' RELAY HOUSE

REVISIONS		CSX TRANSPORTATION			
06-10-14 GET 0H2011021		RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
		CP 102			
		PTC COMMUNICATION CIRCUITS MARION, OH H.P. 01-101.50			
DESIGNED GET/KJM	DIGITIZED GET/SAT	CHECKED GET/KMQ	DATE 12-12-11		
NEXT FILE 0110150	NEXT SH C04	FILE 0110150	SHEET C03		

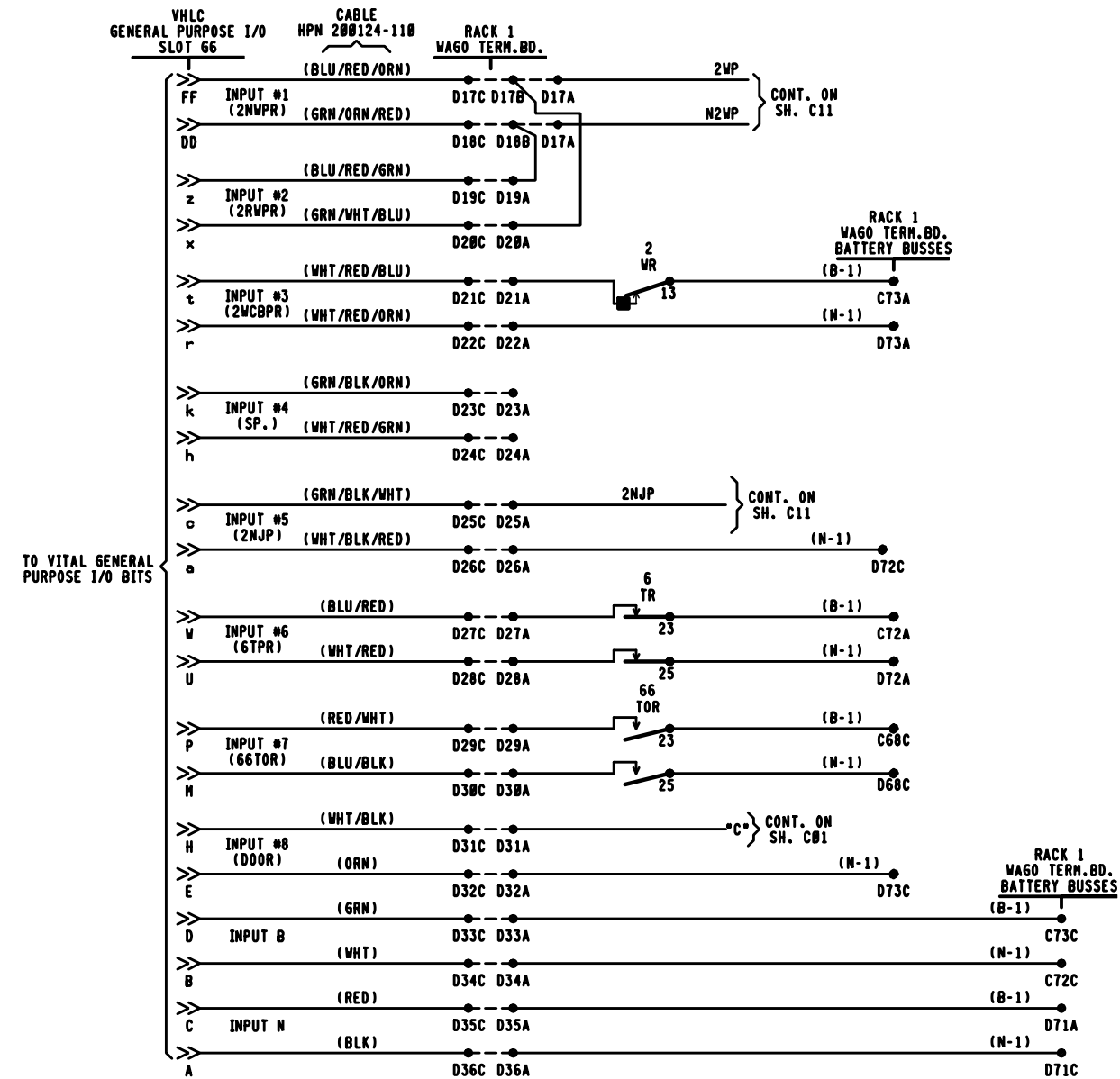
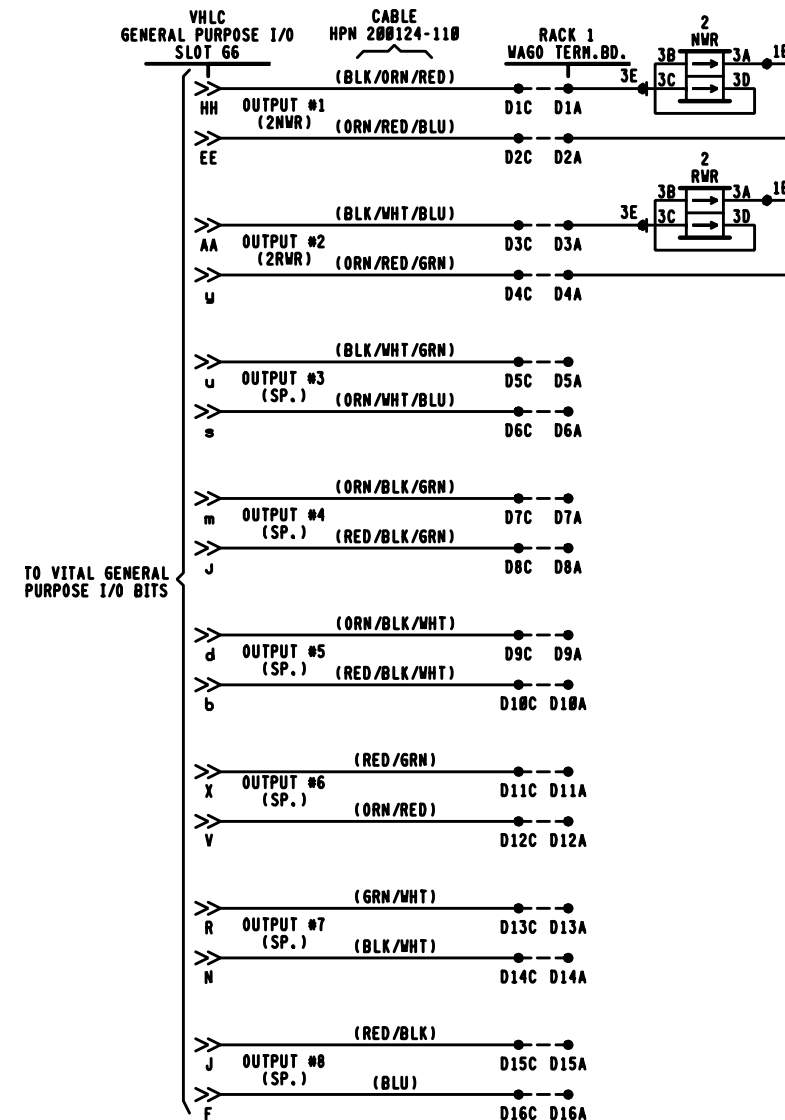


- NOTES:
1. ALL WIRING #14 UNLESS NOTED OTHERWISE.
 2. HV=110V AC

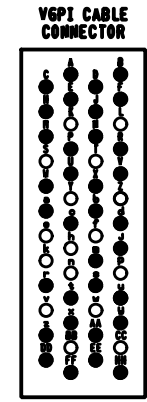
8'X 10' RELAY HOUSE

REVISIONS		CSXTRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS					
05-10-2000	SWE	0H1990112A					
06-10-14	GET	0H2011021/0H2011021A					
		CP 102					
		CIRCUITS					
		MARION, OH H.P. Q1-101.50					
		DESIGNED SWE	DIGITIZED SWE	CHECKED SWE	DATE 06-15-99		
NEXT FILE Q110150		NEXT SH C05		FILE Q110150		SHEET C04	

PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 05/25/17
CSX: 0H2017030
0H2017031
PRS/TDF/SAF
NO CHANGES



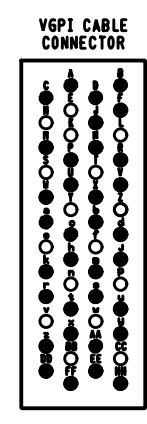
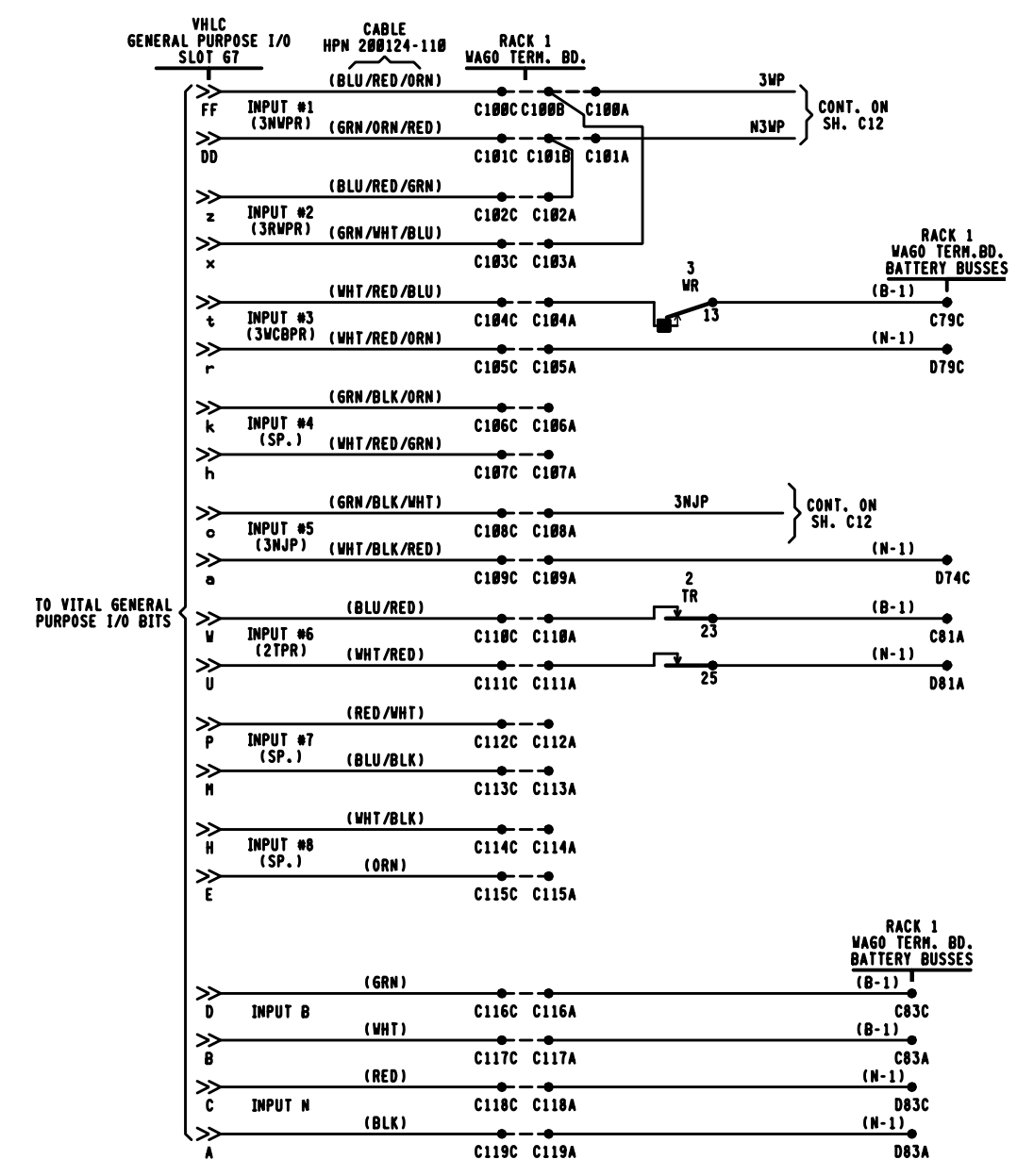
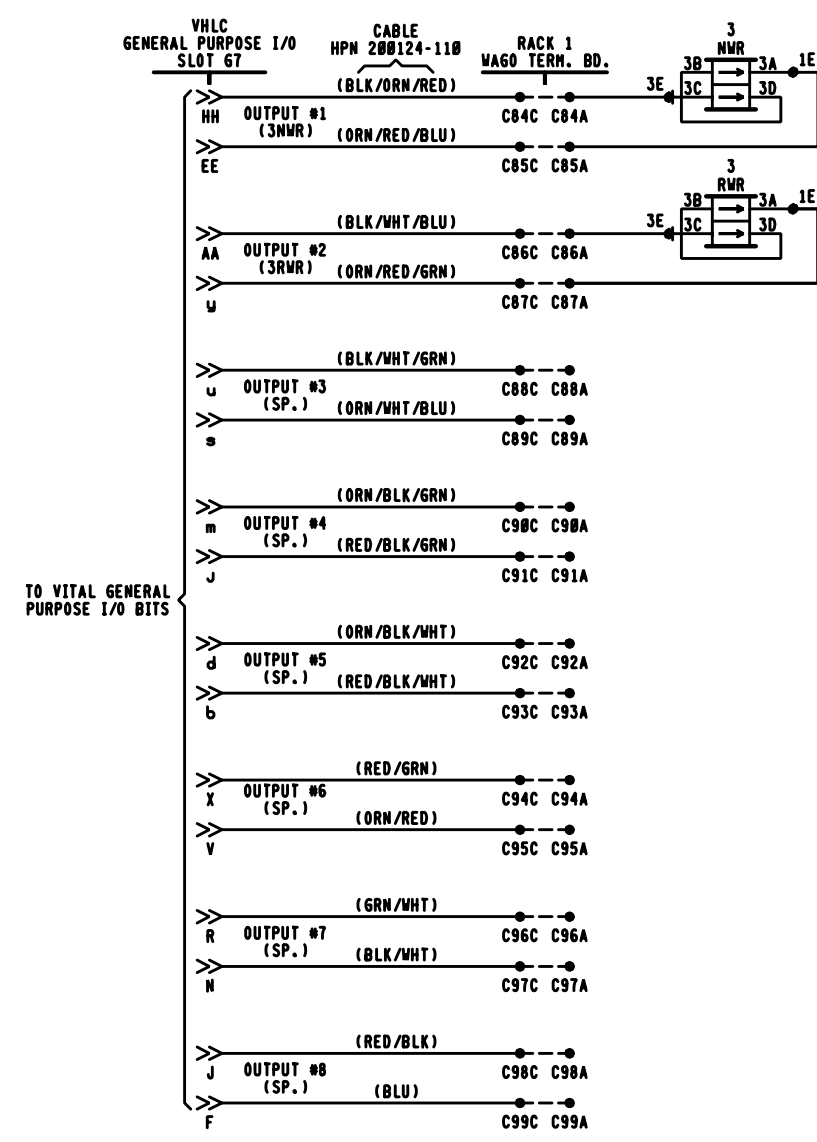
TO VITAL GENERAL PURPOSE I/O BITS



- NOTES:
1. ALL WIRING #14 UNLESS NOTED OTHERWISE.
 2. (X) = SOFTWARE NOMENCLATURE.

8'X 10' RELAY HOUSE

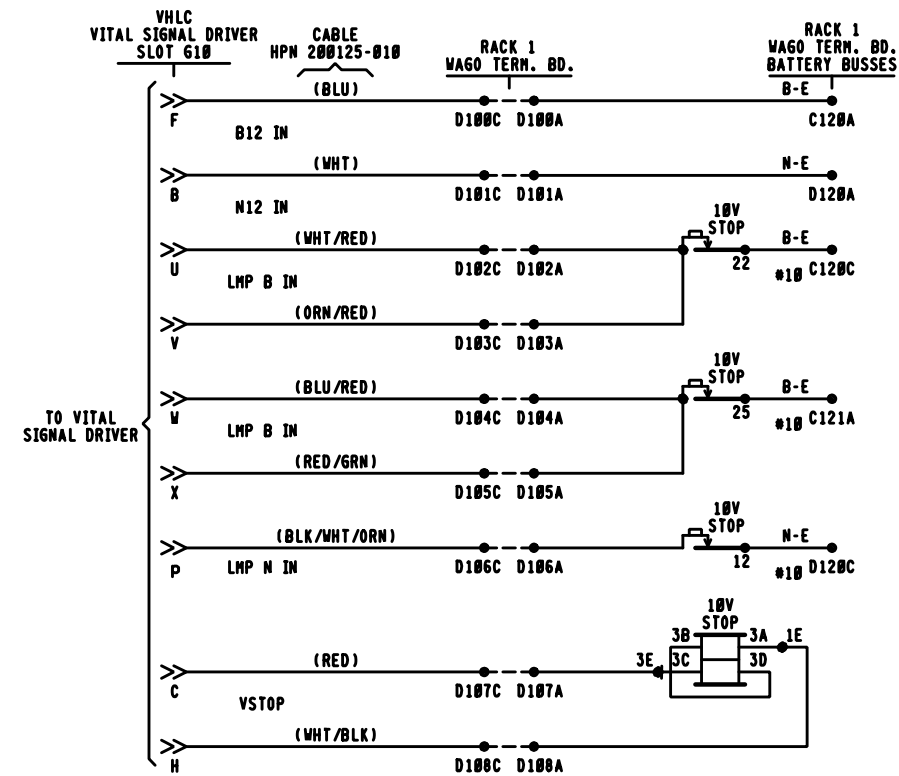
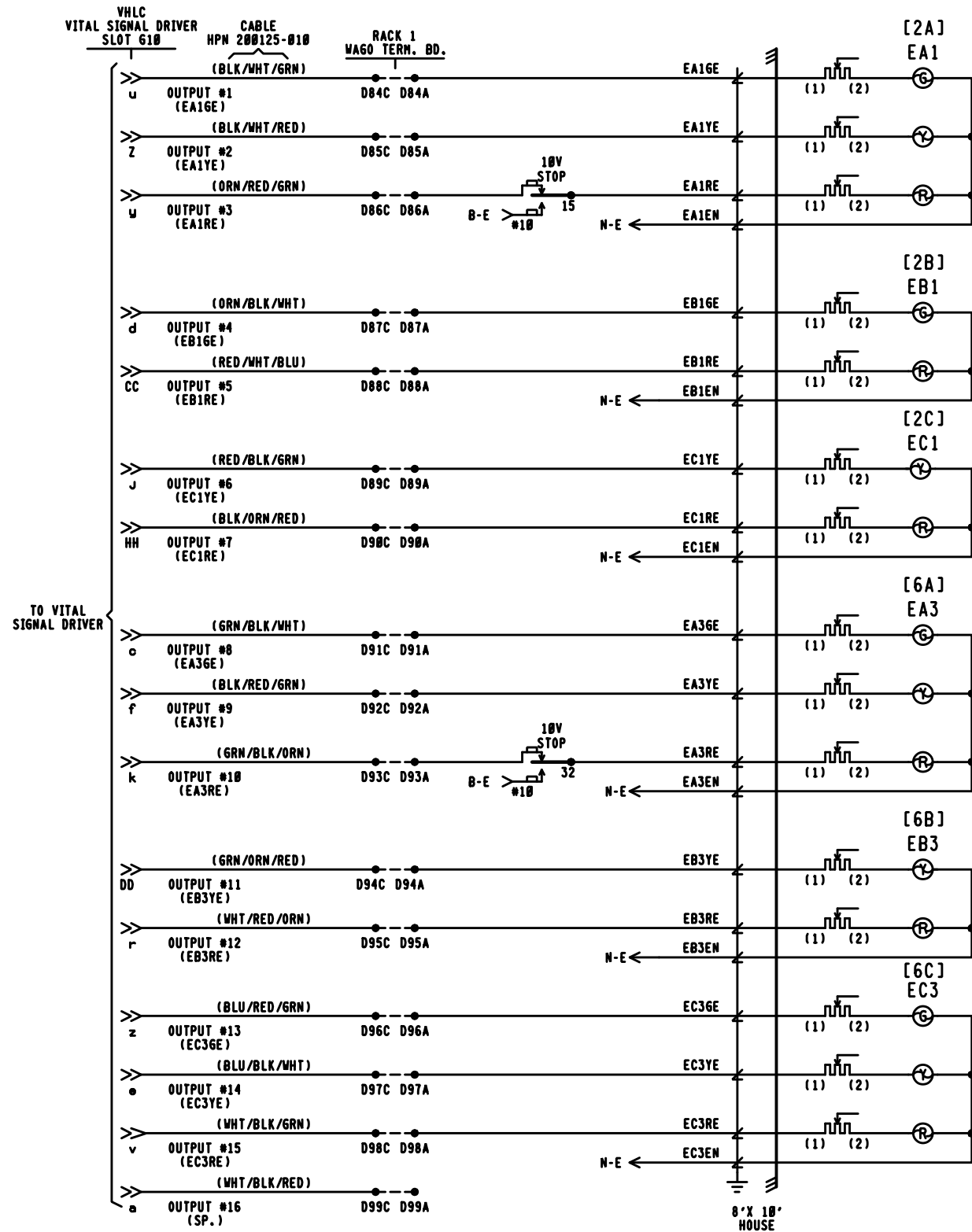
REVISIONS		CSXTRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS											
05-10-2000 SWE	0H1990112A	CP 102 CIRCUITS MARION, OH M.P. 01-101.50 <table><tr><td>DESIGNED SWE</td><td>DIGITIZED SWE</td><td>CHECKED SWE</td><td>DATE 06-15-99</td></tr><tr><td>NEXT FILE 0110150</td><td>NEXT SH C06</td><td>FILE 0110150</td><td>SHEET C05</td></tr></table>				DESIGNED SWE	DIGITIZED SWE	CHECKED SWE	DATE 06-15-99	NEXT FILE 0110150	NEXT SH C06	FILE 0110150	SHEET C05
DESIGNED SWE	DIGITIZED SWE					CHECKED SWE	DATE 06-15-99						
NEXT FILE 0110150	NEXT SH C06					FILE 0110150	SHEET C05						
06-10-14 GET 0H2011021/0H2011021A													



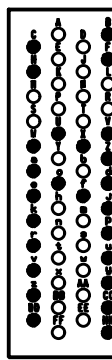
PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 05/25/17
CSX 0H2017030
0H2017031
PRS/TDF/SAF
NO CHANGES

8'X 10' RELAY HOUSE

REVISIONS		CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
05-10-2000 SWE	0H1990112A	CP 102			
06-10-14 GET 0H2011021					
		CIRCUITS MARION, OH M.P. 01-101.50			
DESIGNED SWE	DIGITIZED SWE	CHECKED SWE	DATE 06-15-99		
NEXT FILE Q110150	NEXT SH C07	FILE Q110150	SHEET C06		



VSD CABLE CONNECTOR

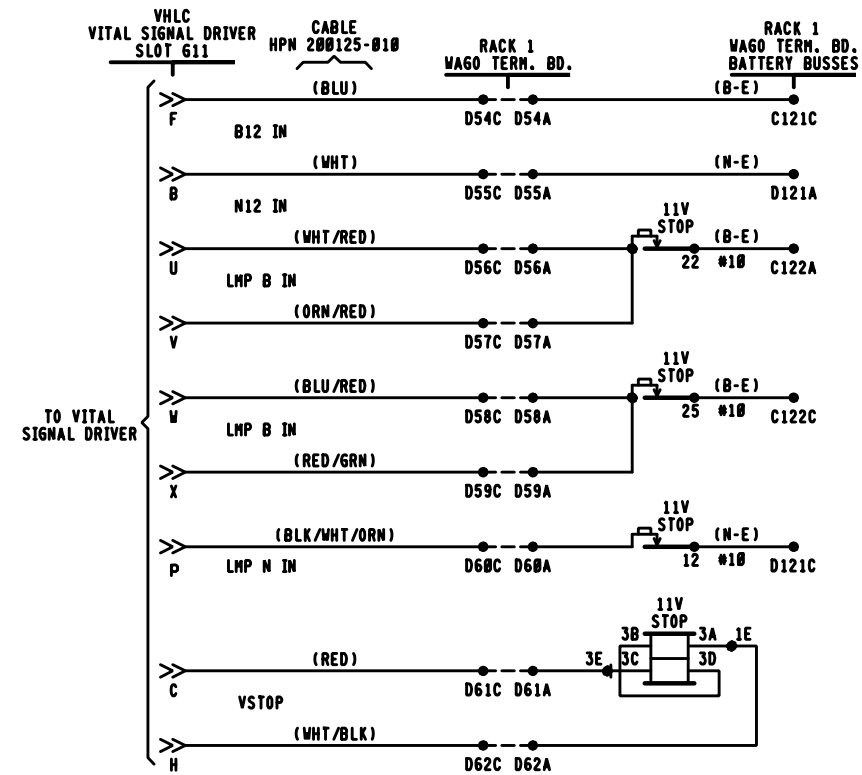
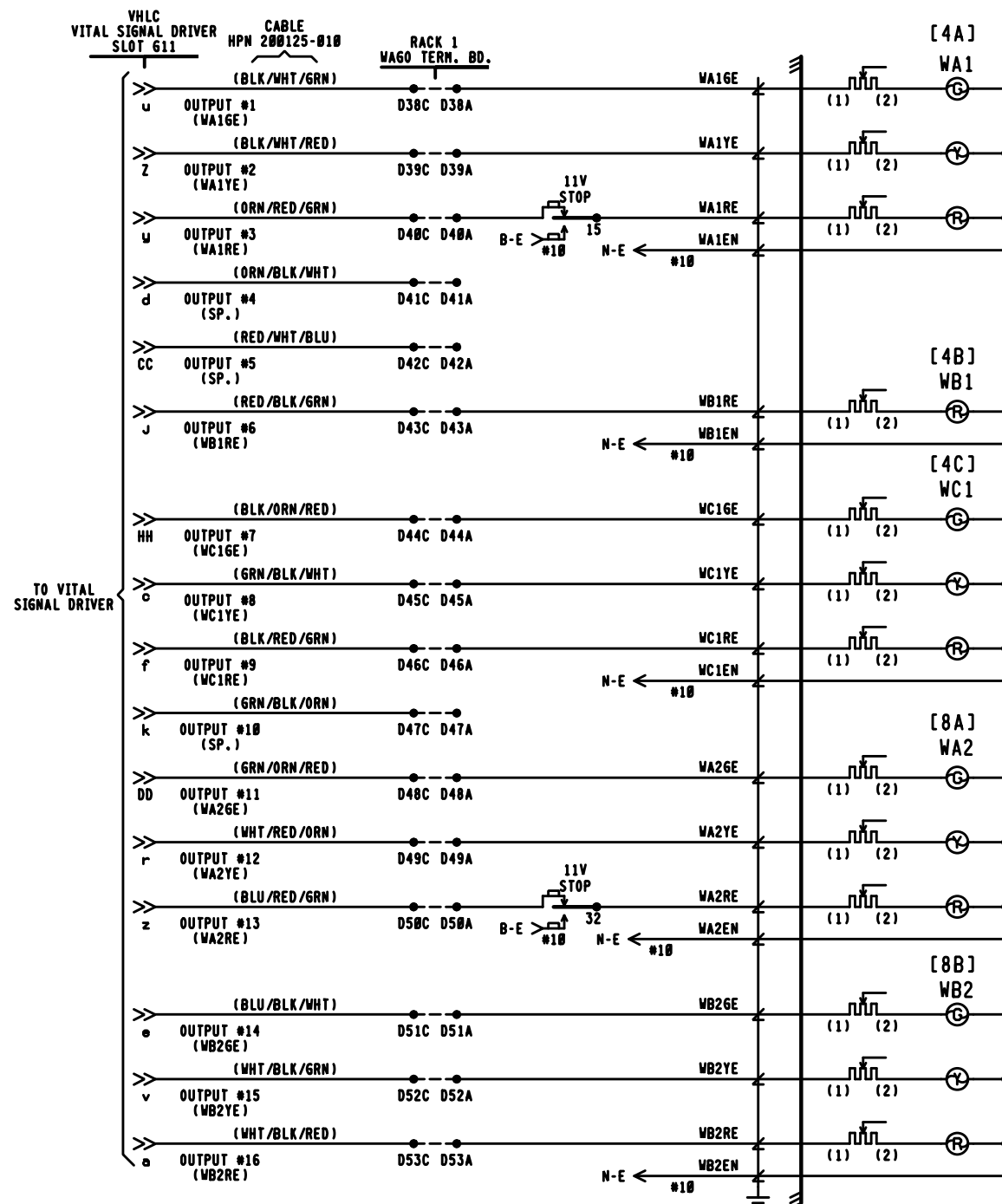


NOTE:
ALL WIRING FROM WAGOS #14, ALL OTHER WIRING #10 UNLESS OTHERWISE NOTED.
ALL RESISTORS ARE 3 OHM VARIABLE, 15 WATTS.

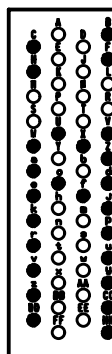
8'X 10' RELAY HOUSE

REVISIONS		CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
05-10-2000 SWE	0H1990112A	CP 102			
06-10-14 GET 0H2011021/0H2011021A					
09-12-16 XRL	0H2014093				
		CIRCUITS MARION, OH N.P. 01-101.50			
DESIGNED SWE	DIGITIZED SWE	CHECKED SWE	DATE 06-15-99		
NEXT FILE Q110150	NEXT SH C08	FILE Q110150	SHEET C07		

PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 05/25/17
CSX: 0H2017030
0H2017031
PRS/TDF/SAF
NO CHANGES



VSD CABLE CONNECTOR

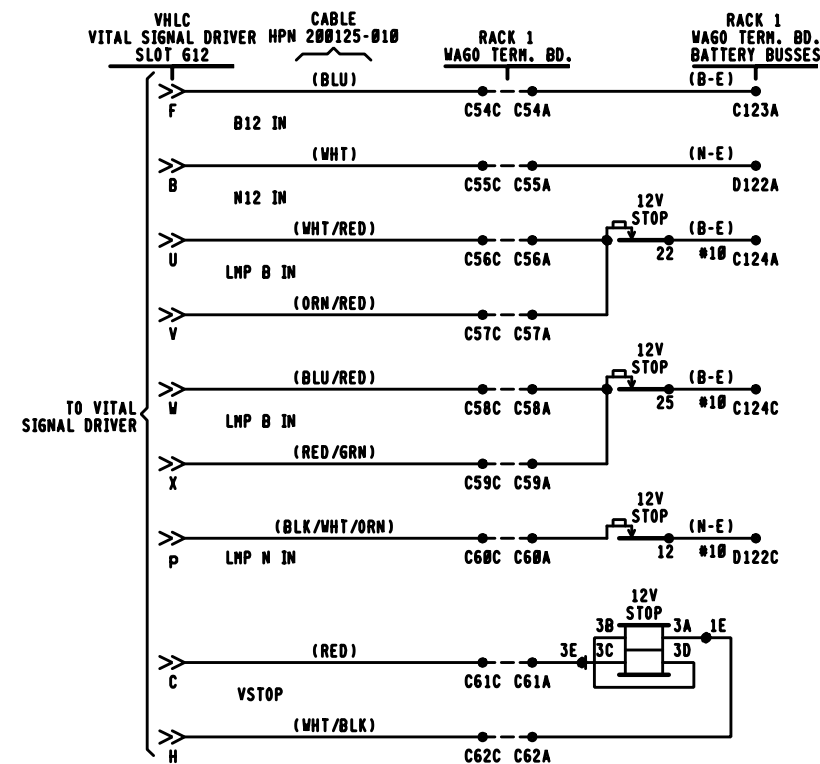
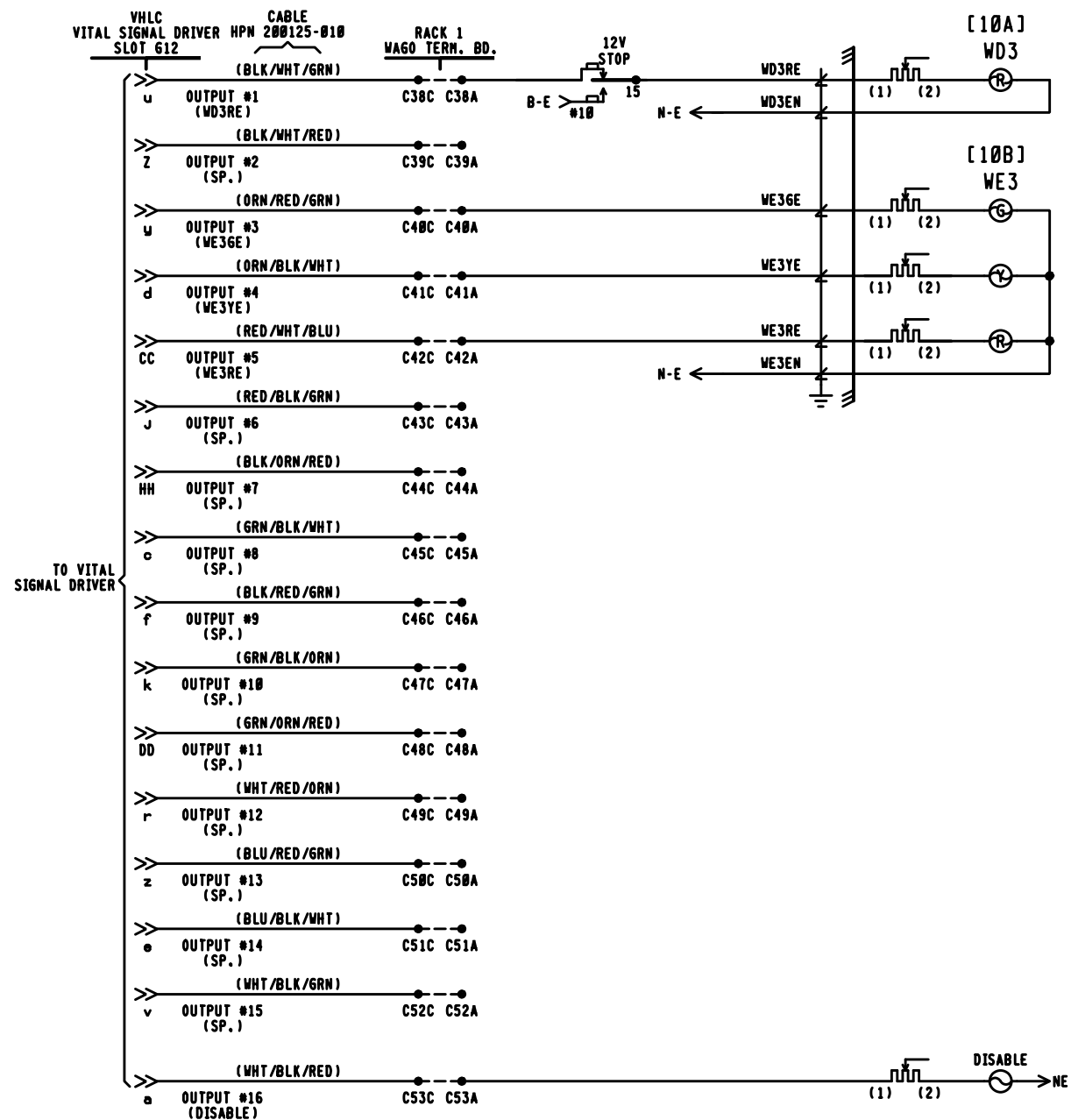


NOTES:

1. [] = LOCATION SPECIFIC SIGNAL INFORMATION, APPEARS ON PLANS ONLY.
2. ALL WIRING FROM WAGOS #14, ALL OTHER WIRING #10 UNLESS OTHERWISE NOTED.
3. ALL RESISTORS ARE 3 OHM VARIABLE, 15 WATTS.

8'X 10' RELAY HOUSE

REVISIONS		CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
05-10-2000 SWE	0H1990112A	CP 102			
06-10-14 GET 0H2011021/0H2011021A					
		CIRCUITS MARION, OH M.P. 01-101.50			
DESIGNED SWE	DIGITIZED SWE	CHECKED SWE	DATE 06-15-99		
NEXT FILE Q110150	NEXT SH C09	FILE Q110150	SHEET C00		



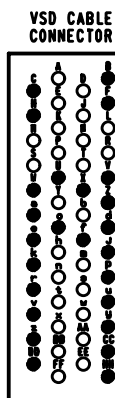
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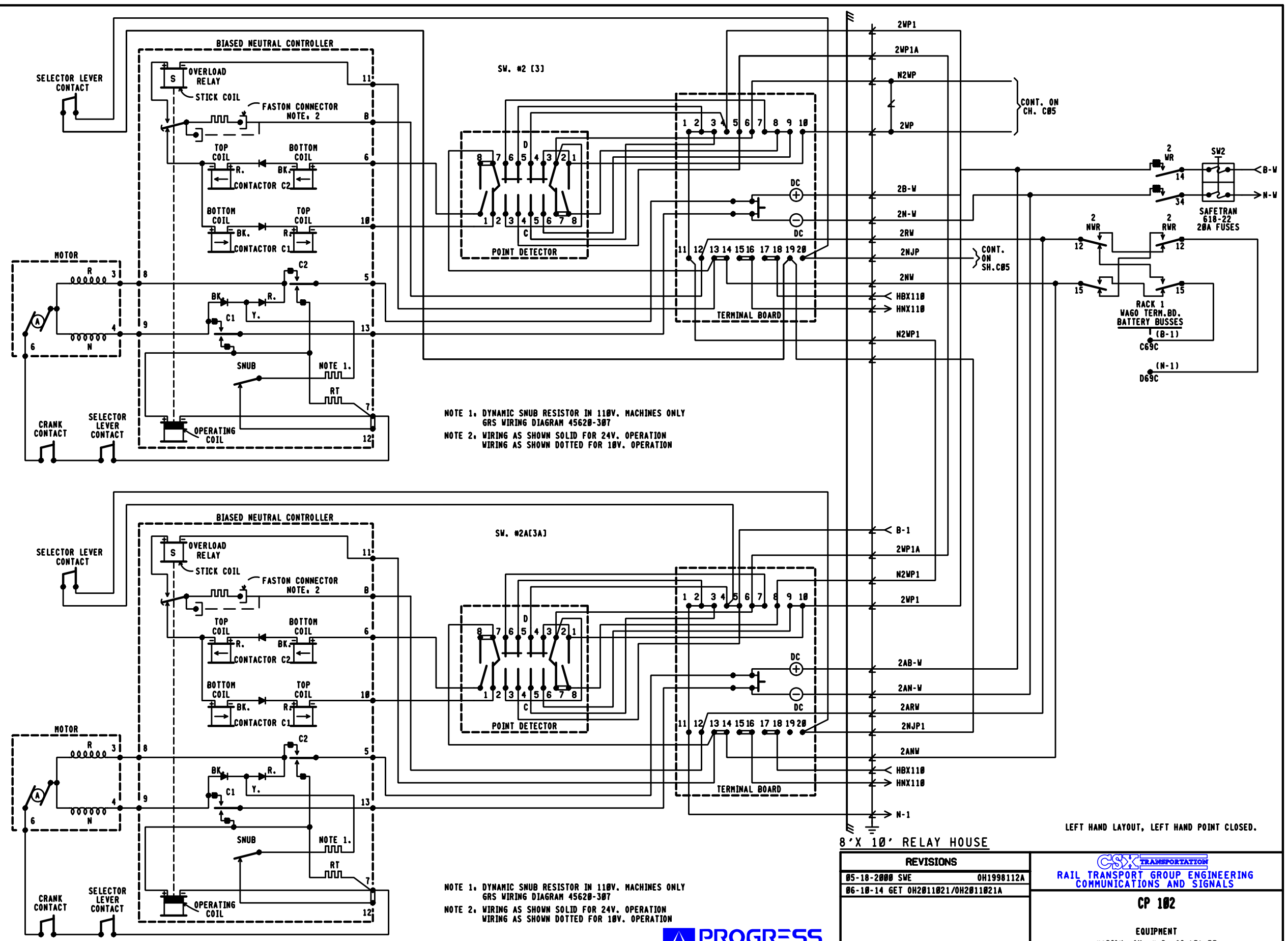
1. [] = LOCATION SPECIFIC SIGNAL INFORMATION, APPEARS ON PLANS ONLY.
2. ALL WIRING FROM WAGOS #14, ALL OTHER WIRING #10 UNLESS OTHERWISE NOTED.
3. ALL RESISTORS ARE 3 OHM VARIABLE, 15 WATTS.

8'X 10' RELAY HOUSE

REVISIONS					
05-10-2000	SWE	0H1990112A			
06-10-14	GET	0H2011021/0H2011021A			
		CP 102			
		EQUIPMENT			
		MARION, OH N.P. Q1-101.50			
DESIGNED SWE	DIGITIZED SWE	CHECKED SWE	DATE 06-15-99		
NEXT FILE Q110150	NEXT SH C10	FILE Q110150	SHEET C09		

PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 05/25/17
CSX# 0H2017030
0H2017031
PRS/TDF/SAF





NOTE:
GRS MODEL 5H LEFT HAND SWITCH MACHINE
FOR USE ON LEFT HAND LAYOUT ON NORMAL
CLOSED POINT OR RIGHT HAND LAYOUT ON
NORMAL OPEN POINT.

NOTE 1. DYNAMIC SNUB RESISTOR IN 110V. MACHINES ONLY
GRS WIRING DIAGRAM 45620-307

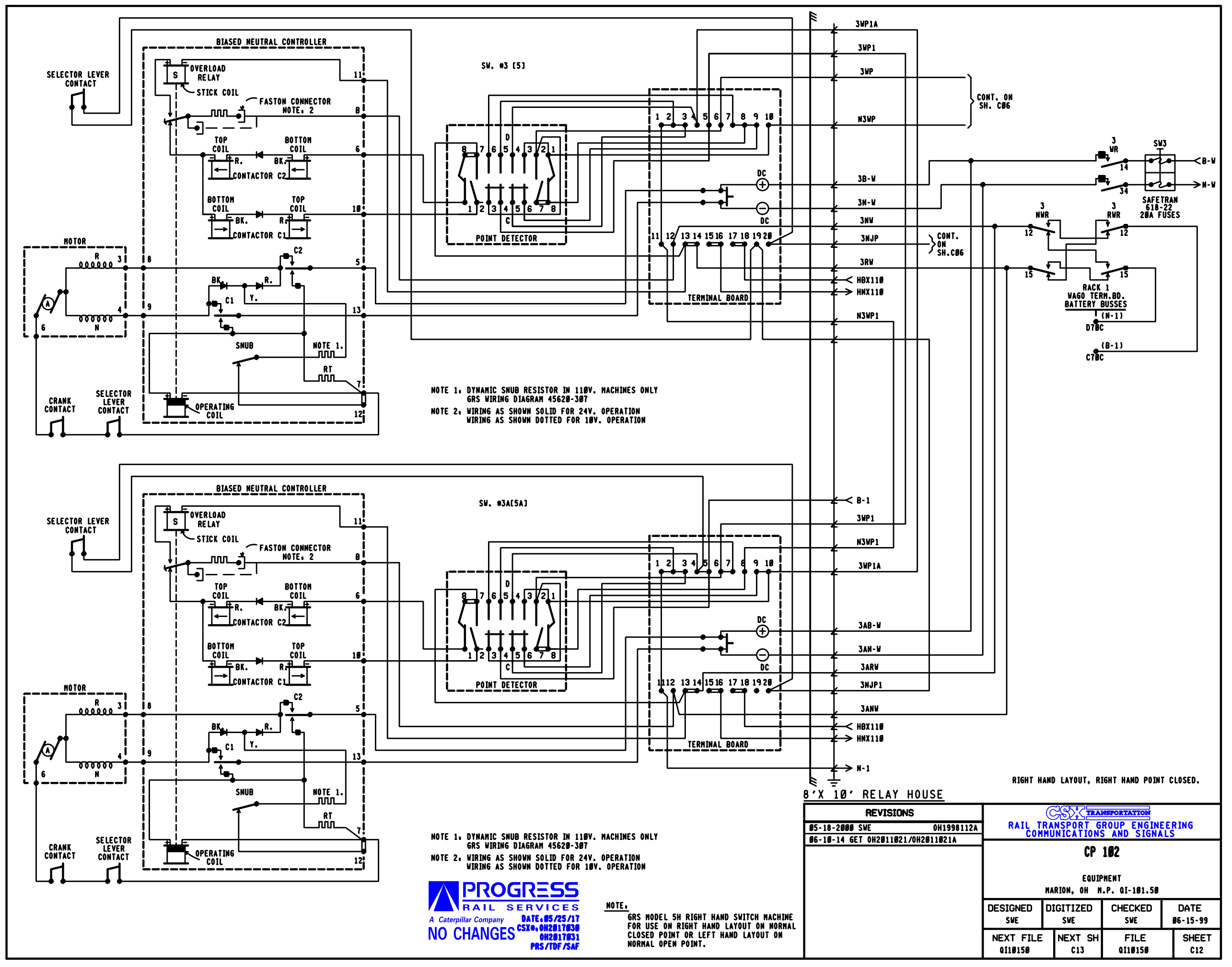
NOTE 2. WIRING AS SHOWN SOLID FOR 24V. OPERATION
WIRING AS SHOWN DOTTED FOR 10V. OPERATION

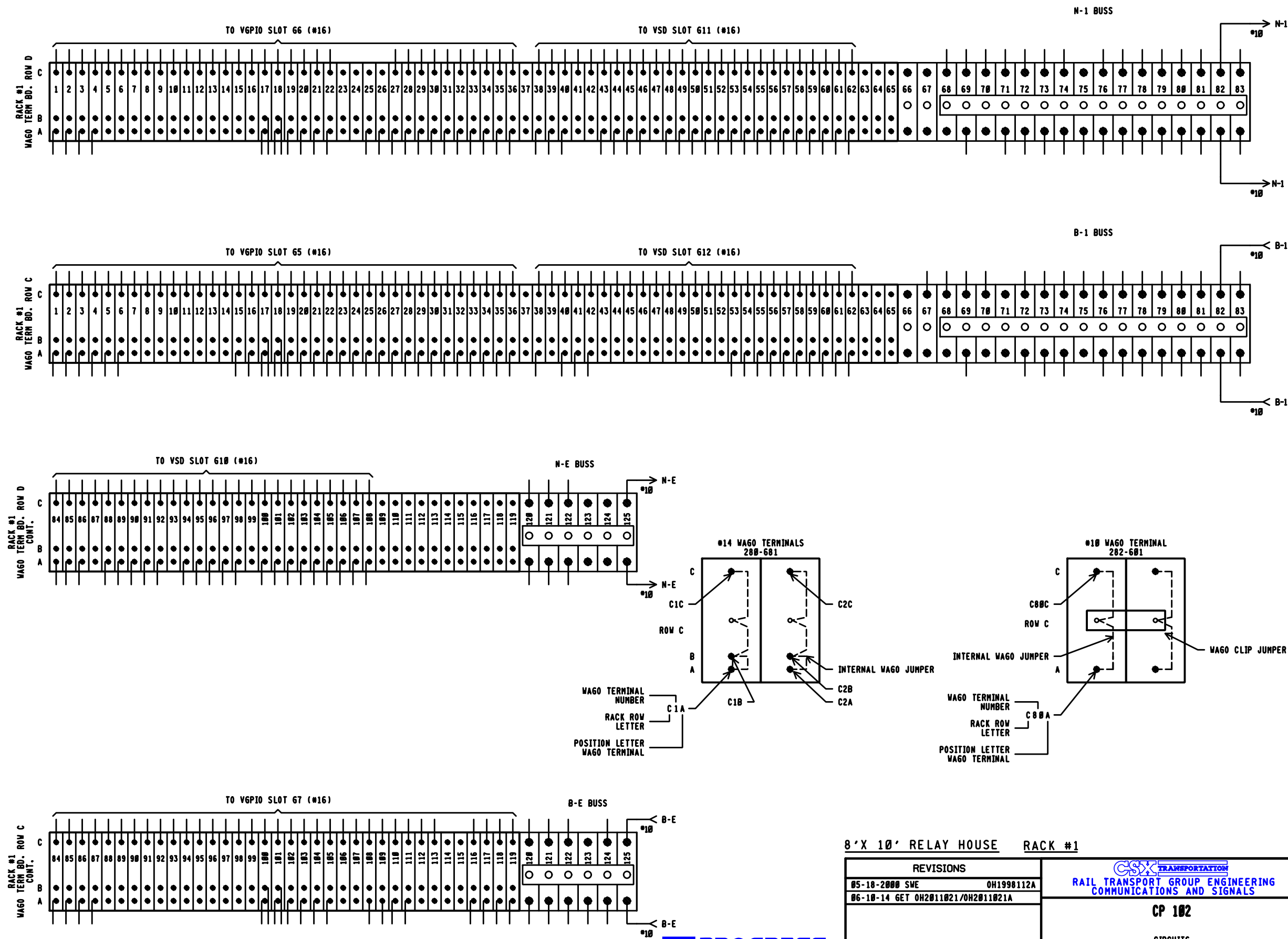
PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 05/25/17
CSX: 0H2017030
0H2017031
PRS/TDF/SAF

8' X 10' RELAY HOUSE

LEFT HAND LAYOUT, LEFT HAND POINT CLOSED.

REVISIONS		CSX TRANSPORTATION	
05-10-2000 SWE	0H1990112A	RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS	
06-10-14 GET 0H2011021/0H2011021A		CP 102	
		EQUIPMENT MARION, OH M.P. 01-101.50	
DESIGNED SWE	DIGITIZED SWE	CHECKED SWE	DATE 06-15-99
NEXT FILE 0110150	NEXT SH C12	FILE 0110150	SHEET C11

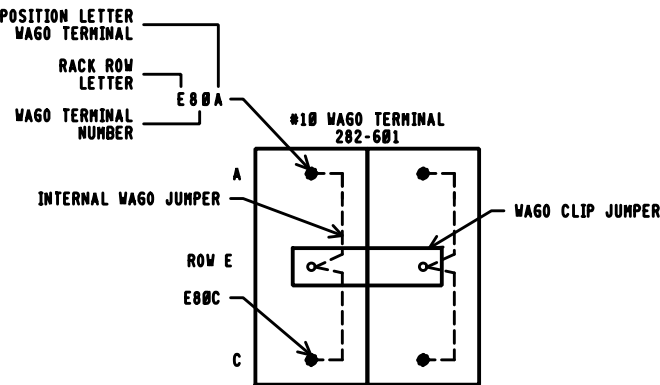
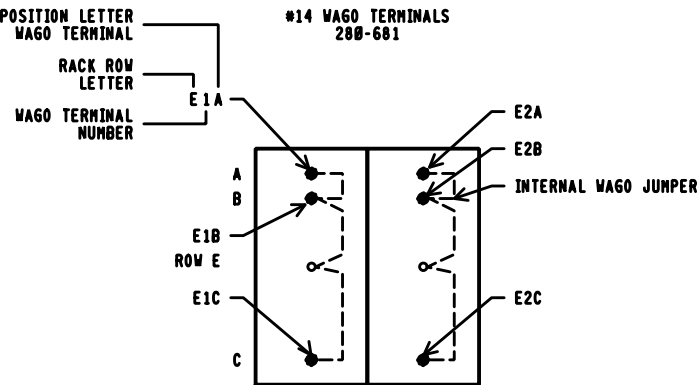
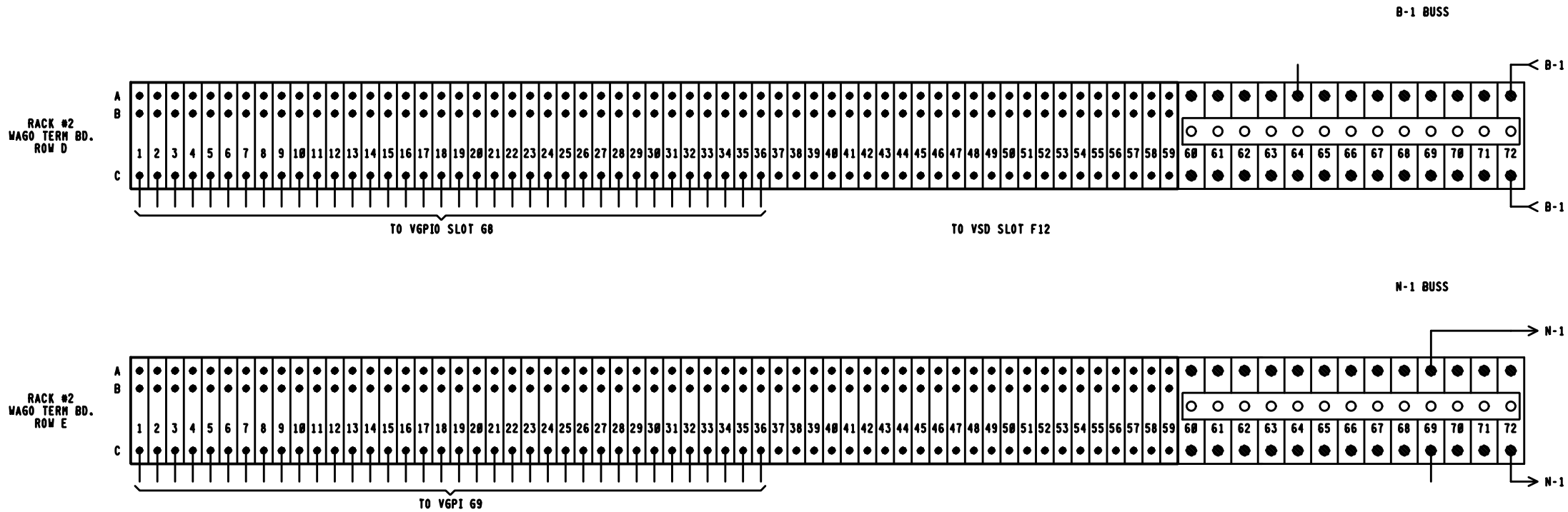




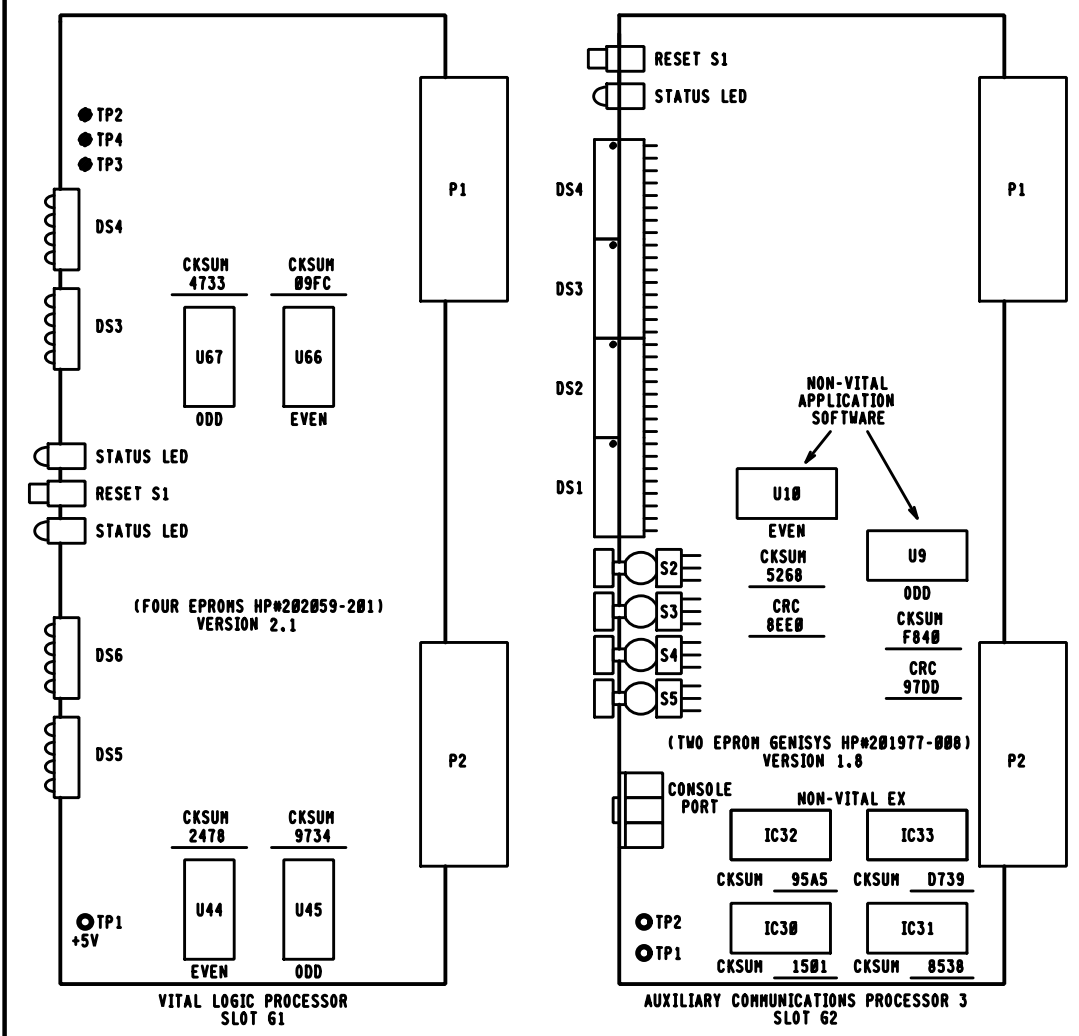
PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 05/25/17
CSX 0.0H2017030
0H2017031
PRS/TDF/SAF
NO CHANGES

8'X 10' RELAY HOUSE RACK #1

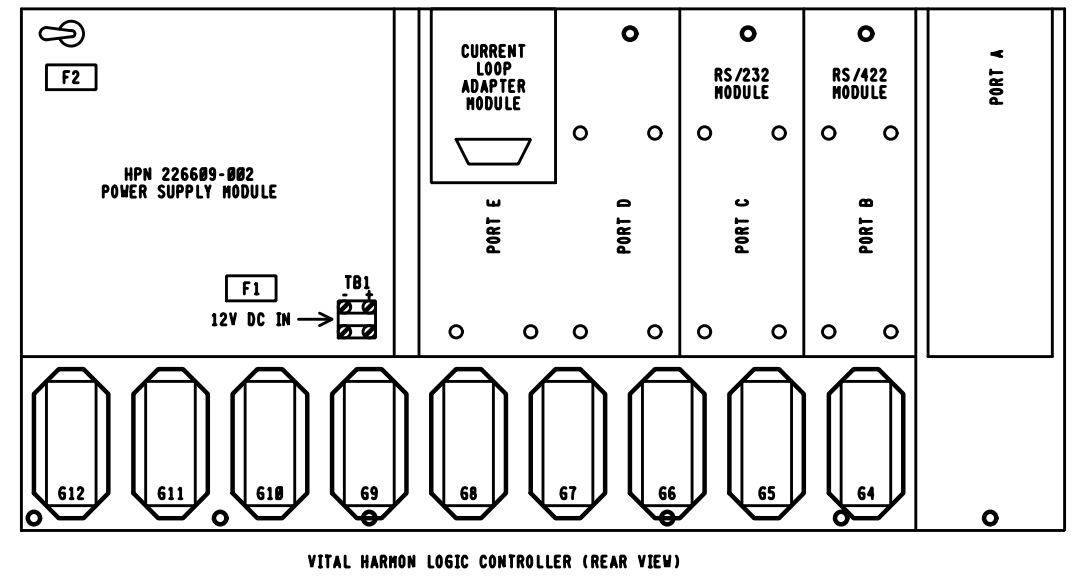
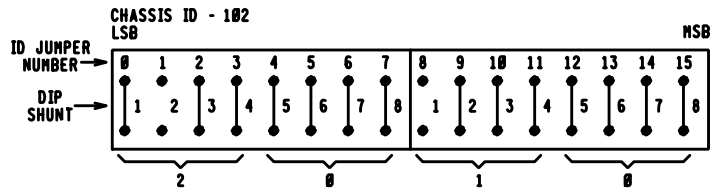
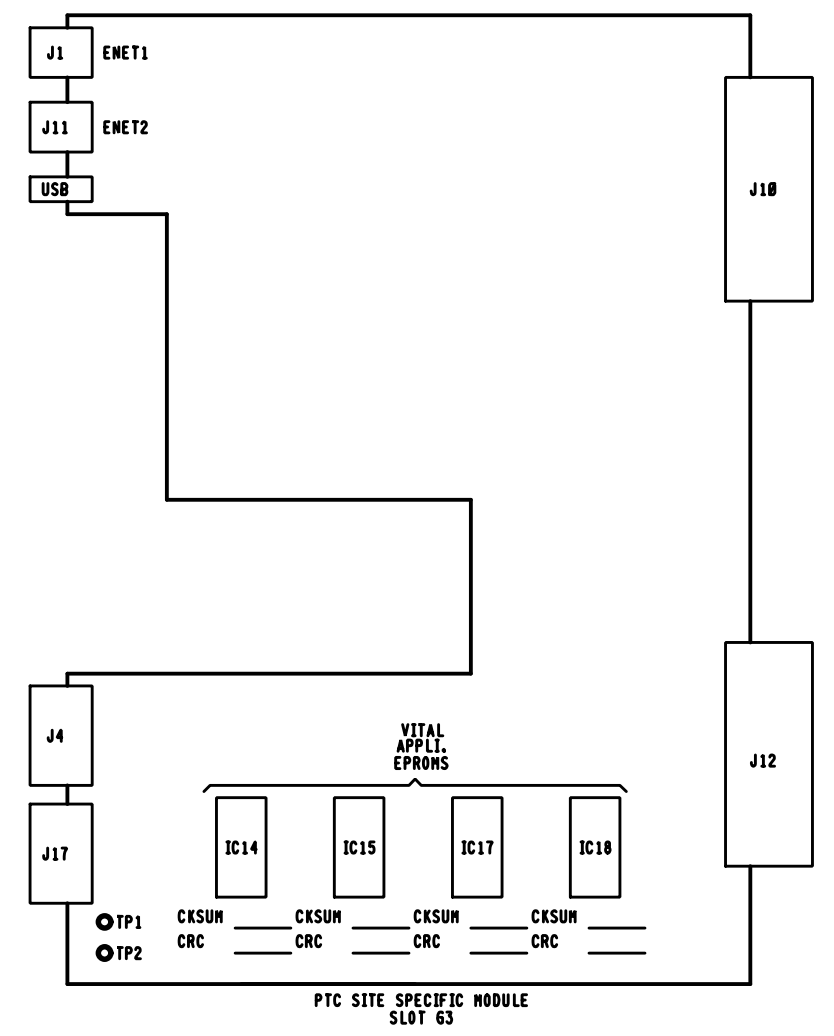
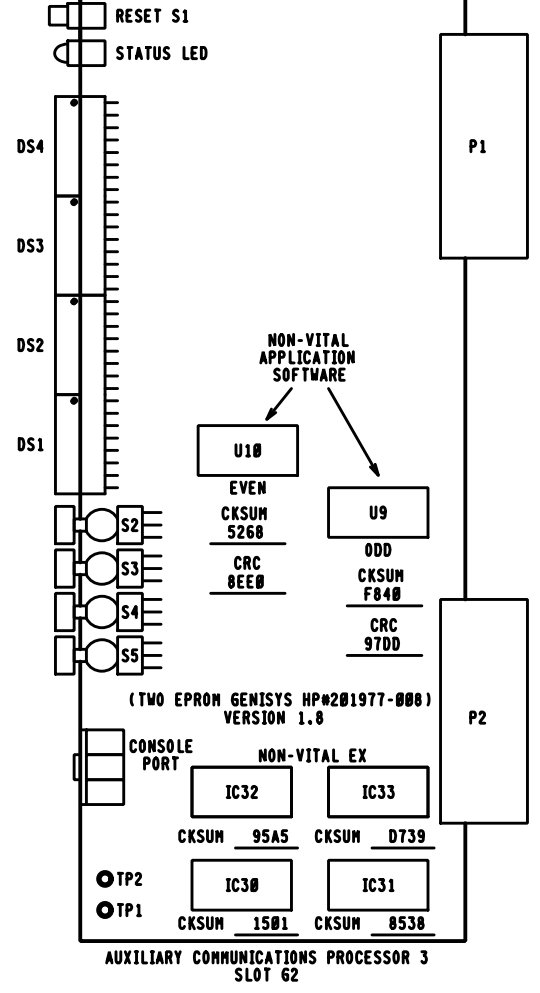
REVISIONS		 RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
05-10-2000 SWE	0H1990112A	CP 102 CIRCUITS MARION, OH M.P. 01-101.50			
06-10-14 GET	0H2011021/0H2011021A				
DESIGNED SWE	DIGITIZED SWE	CHECKED SWE	DATE 06-15-99		
NEXT FILE 0110150	NEXT SH C14	FILE 0110150	SHEET C13		



8'X 10' RELAY HOUSE		RACK #2							
REVISIONS		CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS CP 102 CIRCUITS MARION, OH H.P. Q1-101.50							
05-10-2000 SWE 0H1990112A									
06-10-14 GET 0H2011021/0H2011021A									
		DESIGNED		DIGITIZED		CHECKED		DATE	
		SWE		SWE		SWE		06-15-99	
		NEXT FILE		NEXT SH		FILE		SHEET	
		Q110150		C15		Q110150		C14	



PTC SSH MODULE JUMPER AND DIP SHUNT SETTINGS			
IXS APP ID		PTC PROCESSOR CHASSIS ID	
1 ○	9 ○	1 ○	9 ○
2 ○	10 ○	2 ○	10 ○
3 ○	11 ○	3 ○	11 ○
4 ○	12 ○	4 ○	12 ○
5 ○	13 ○	5 ○	13 ○
6 ○	14 ○	6 ○	14 ○
7 ○	15 ○	7 ○	15 ○
8 ○	16 ○	8 ○	16 ○
S8	S9	S4	S6
● = TAB PUNCHED OUT (BROKEN) ○ = TAB INTACT (MADE)			
SSH JUMPERS			
P5		P6	
1 ○● 3		1 ○● 3	
2 ● 4		2 ● 4	
PTC APPLICATION DATA			
PTC MAP FILE NAME			
PTC MAP FILE REV.		1.0	
PTC MAP FILE CRC			
PTC CONFIG. FILE NAME			
PTC CONFIG. FILE REV.		1.0	
PTC CONFIG. FILE CRC			



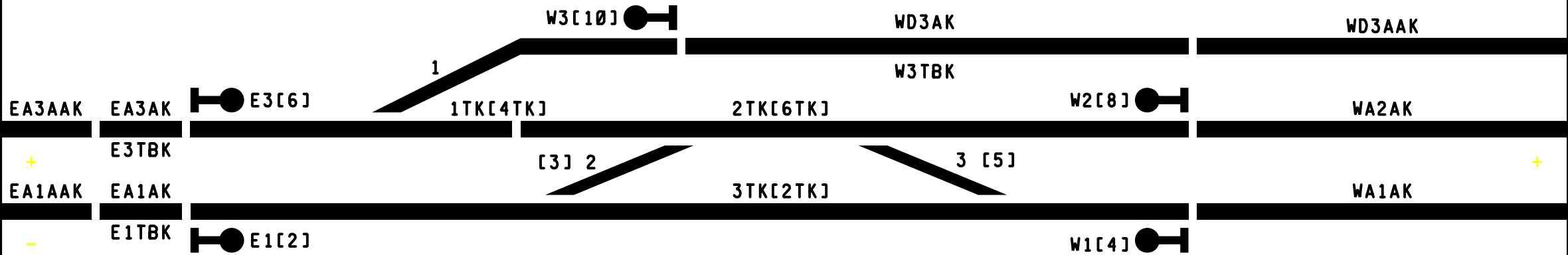
PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 05/25/17
CSX 0.0H2017030
0H2017031
PRS/TDF/SAF

8'X 10' RELAY HOUSE

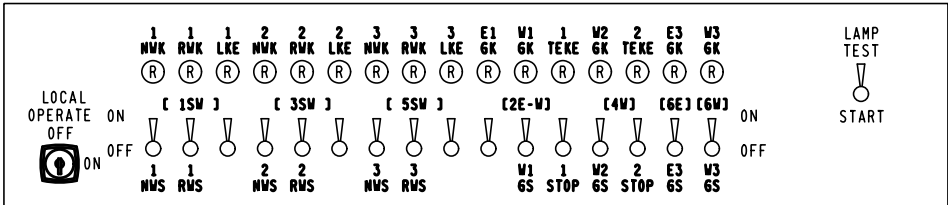
REVISIONS		CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
05-10-2000 SWE	0H1998112A	CP 102			
06-10-14 GET	0H2011021	CIRCUITS MARION, OH H.P. 01-101.50			
09-12-16 XRL	0H2014093				
DESIGNED SWE	DIGITIZED SWE	CHECKED SWE	DATE 06-15-99		
NEXT FILE 0110150	NEXT SH C16	FILE 0110150	SHEET C15		



C.P. 102
MP QI-101.50

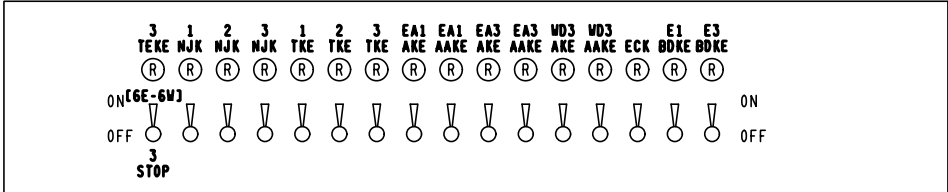


LOCAL CONTROL PANEL



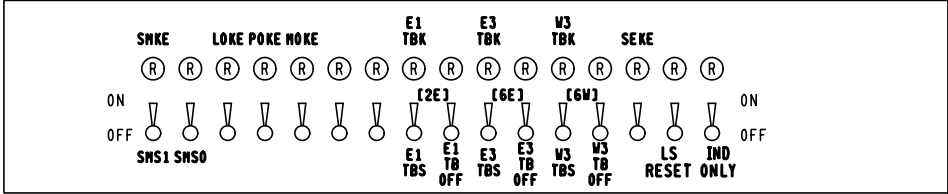
⏏ = TOGGLE SWITCH (R) = LED INDICATOR

LOCAL CONTROL PANEL EXPANSION #1



⏏ = TOGGLE SWITCH (R) = LED INDICATOR

LOCAL CONTROL PANEL EXPANSION #2



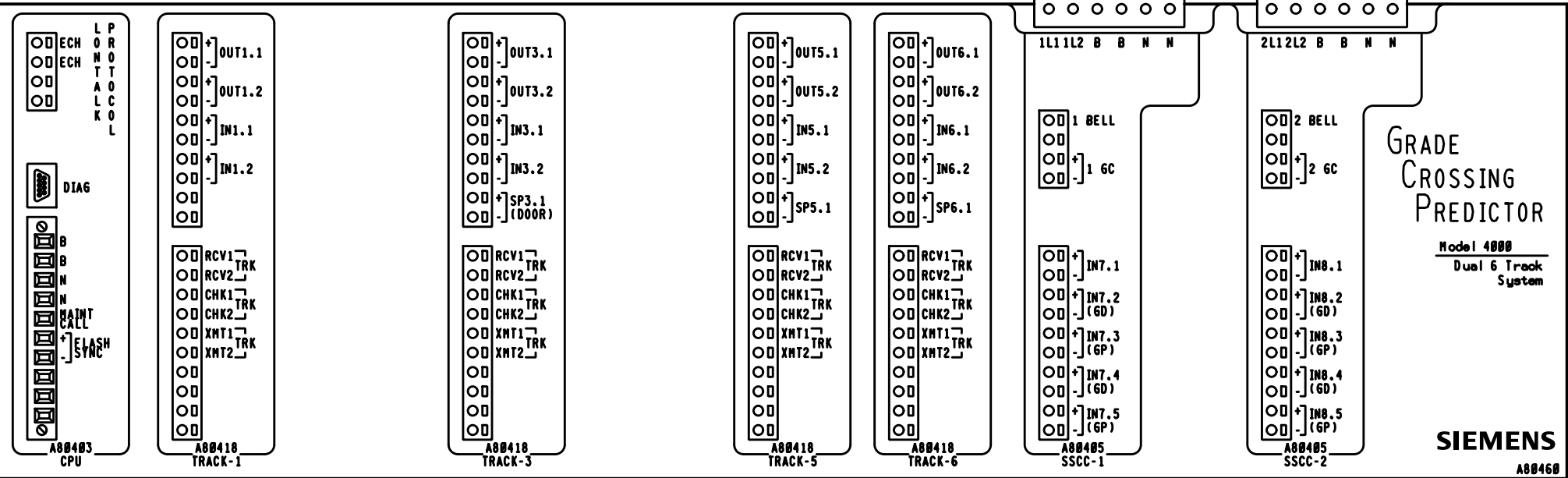
⏏ = TOGGLE SWITCH (R) = LED INDICATOR

8'X 10' RELAY HOUSE

REVISIONS		CSXTRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
05-10-2000	SWE	0H1998112B		CP 102	
06-10-14	GET	0H2011021/0H2011021A			
09-12-16	XRL	0H2014093			
		LOCAL CONTROL PANEL MARION, OH M.P. QI-101.50			
DESIGNED SWE		DIGITIZED SWE		CHECKED SWE	DATE 06-15-99
NEXT FILE QI10150		NEXT SH C17		FILE QI10150	SHEET C16

- NOTES:
- WHERE "KE" APPEARS AT END OF WORD ONLY INDICATION IS OPERATIVE.
 - LOCATION SPECIFIC TRACK, SWITCH AND SIGNAL NOMENCLATURE IS SHOWN IN BRACKETS AND APPEARS ON PLANS AND CODE FUNCTION ASSIGNMENTS ONLY.





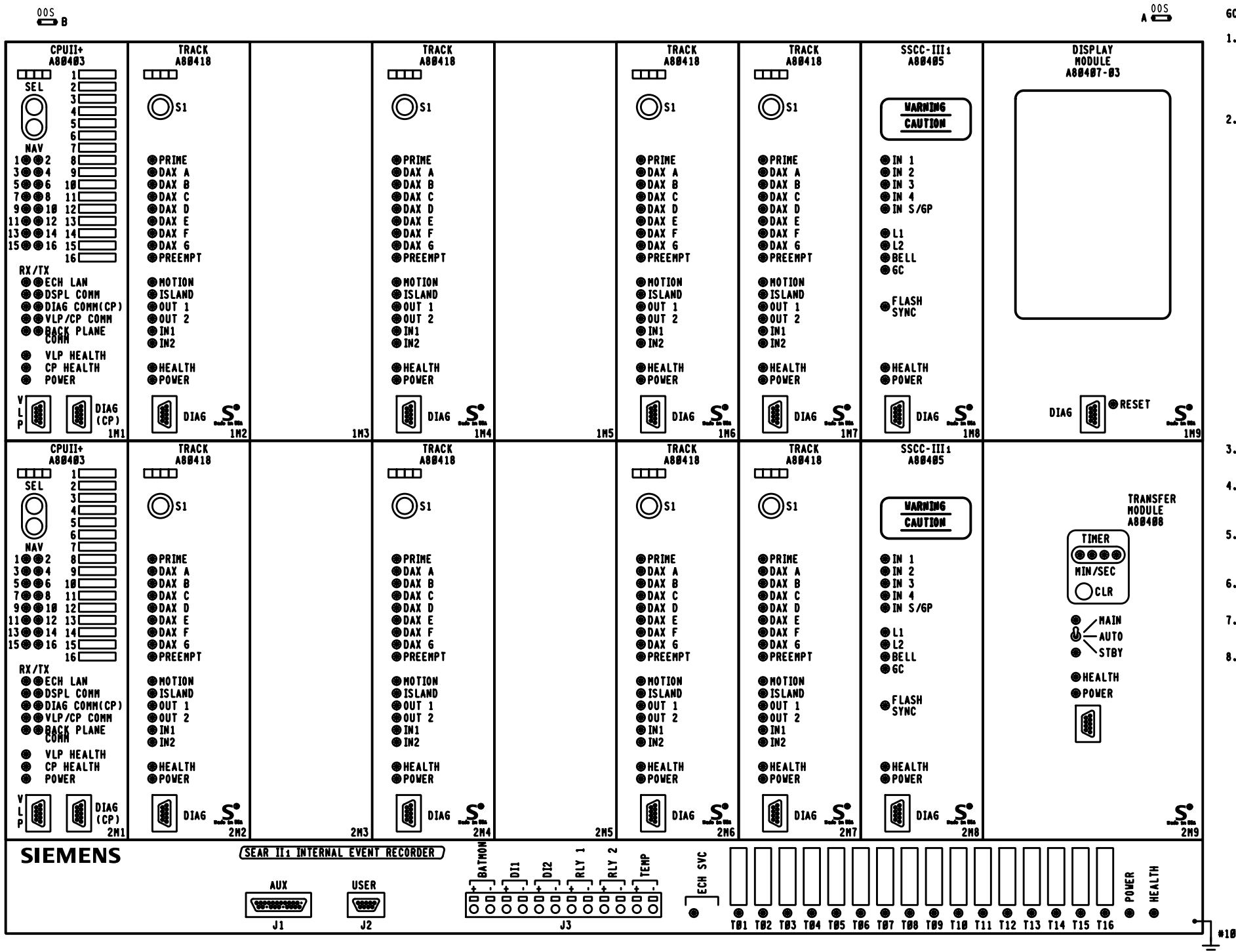
APPROACH LENGTHS TABLE	EASTBOUND MAIN #1 CWT	WESTBOUND MAIN #1 CWT	EASTBOUND MAIN #2 CWT	WESTBOUND MAIN #2 CWT	WESTBOUND CONN. CWT
DC, AFO, TYPE C, MOTION, CWT, OR OTHER	25	25	25	25	25
STANDARD MINIMUM WARNING TIME IN SECONDS	5	5	5	5	5
ROADWAY GATE TIME IN SECONDS	14	14	14	14	14
CLEARANCE TIME IN SECONDS	0	0	0	0	0
DOT TRAFFIC LIGHT SIMULTANEOUS PREEMPT TIME IN SECONDS *	44 SEC.	44 SEC.	44 SEC.	44 SEC.	44 SEC.
PREScribed WARNING TIME FOR TRAINS AT TIME TABLE SPEED	0	0	0	0	0
DOT TRAFFIC LIGHT ADVANCE PREEMPT TIME IN SECONDS *	5	5	5	5	5
CONTROL EQUIPMENT DECISION TIME IN SECONDS	49 SEC.	49 SEC.	49 SEC.	49 SEC.	49 SEC.
DESIGNED DETECTION TIME FOR TRAINS AT TIME TABLE SPEED	30	30	30	30	10
TIME TABLE MAXIMUM TRAIN SPEED IN MILES PER HOUR	5	5	5	5	2.5
BUFFER SPEED IN MILES PER HOUR	35	35	35	35	12.5
TOTAL WARNING SYSTEM DESIGN SPEED IN MILES PER HOUR	2377(DAX)	2377(DAX)	2377(DAX)	2377(DAX)	829
APPROACH DISTANCE TO ISLAND EDGE IN FEET	92	92	92	92	92
HALF WIDTH OF ISLAND IN FEET	102.09	101.15	102.09	101.15	101.44
APPROXIMATE MILE POSTS FOR APPROACH CIRCUIT					

*AUTHORIZING AGENCY, OHIO DOT
*DATE OF REQUIREMENT, 01/01/00
*AMOUNT OF TIME (SEC.), 0 (SIMULTANEOUS)



6' X 6' PTC CROSSING HOUSE

REVISIONS		CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
		CP 102 & SR 309 (KENTON AVE.) 261540P DETECTION DEVICE CONSIST CUE-62 MARION, OH M.P. 01-101.50			
DESIGNED PRS/TDF	DIGITIZED PRS/RNJ	CHECKED PRS/SAF	DATE 05-25-17		
NEXT FILE Q110150	NEXT SH C18	FILE Q110150	SHEET C17		



GCP 4000 APPLICATION NOTES.

1. 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 II MODULE THE GCP 4000 WILL RECORD EVENTS AND REPORT ALARMS WHEN CONNECTED TO AN OFFICE SYSTEM.

2. THE GCP 4000 GCP (A80460) IS A SIX TRACK REDUNDANT UNIT CAPABLE OF DRIVING 4 INDEPENDENT FLASHER AND GATE SIGNALS AND RECORDING EVENTS AND REPORTING ALARMS. THIS A80460 INCLUDES THE FOLLOWING MODULES.

SLOT	MODULE	FUNCTION	PART NO.
1M1	CPU-II+	MAIN	A80403
1M2	TRACK-1	MAIN	A80418
1M3	PANEL	NONE	D39325
1M4	TRACK-3	MAIN	A80418
1M5	PANEL	NONE	D39325
1M6	TRACK-5	MAIN	A80418
1M7	TRACK-6	MAIN	A80418
1M8	SSCC-III	A SIGNAL	A80405
1M9	DISPLAY MODULE		A80407-03
2M1	CPU-II+	STANDBY	A80403
2M2	TRACK-1	STANDBY	A80418
2M3	PANEL	NONE	D39325
2M4	TRACK-3	STANDBY	A80418
2M5	PANEL	NONE	D39325
2M6	TRACK-5	STANDBY	A80418
2M7	TRACK-6	STANDBY	A80418
2M8	SSCC-III	B SIGNAL	A80405
2M9	TRANSFER UNIT		A80408
LOWER BAY	SEAR II	RECORDER	A80410

3. EACH TRACK MODULE HAS TWO PROGRAMMABLE INPUTS AND TWO PROGRAMMABLE OUTPUTS.

4. THE SEAR II INTERNAL EVENT RECORDER HAS INPUTS FOR ONE BATTERY MONITOR, TWO NON-VITAL INPUTS AND TWO PROGRAMMABLE RELAY DRIVES (HEEL/FRONT).

5. LOCATED ON THE FRONT OF EACH MODULE THERE ARE LED LIGHTS TO INDICATE THE ACTIVITY OF CERTAIN FUNCTIONS OCCURRING INSIDE THE GCP.

6. BETWEEN SLOT 1 & 2 THERE IS A CHASSIS IDENTIFICATION CHIP (CIC) SOCKET AND AN ECD CONNECTOR (DB-25 FEMALE).

7. UPON THE FAILURE OF A MODULE IN SLOTS 1M1-1M7 THE AUTOMATIC TRANSFER UNIT SWITCHES TO THE STANDBY MODULES IN SLOTS 2M1-2M7.

8. THE GCP 4000 GCP (A80460) MAY USE RIO MODULES IN SLOTS 1M3, 1M6, 1M7, 2M3, 2M6 AND 2M7.

6'X 6' PTC CROSSING HOUSE

REVISIONS

CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

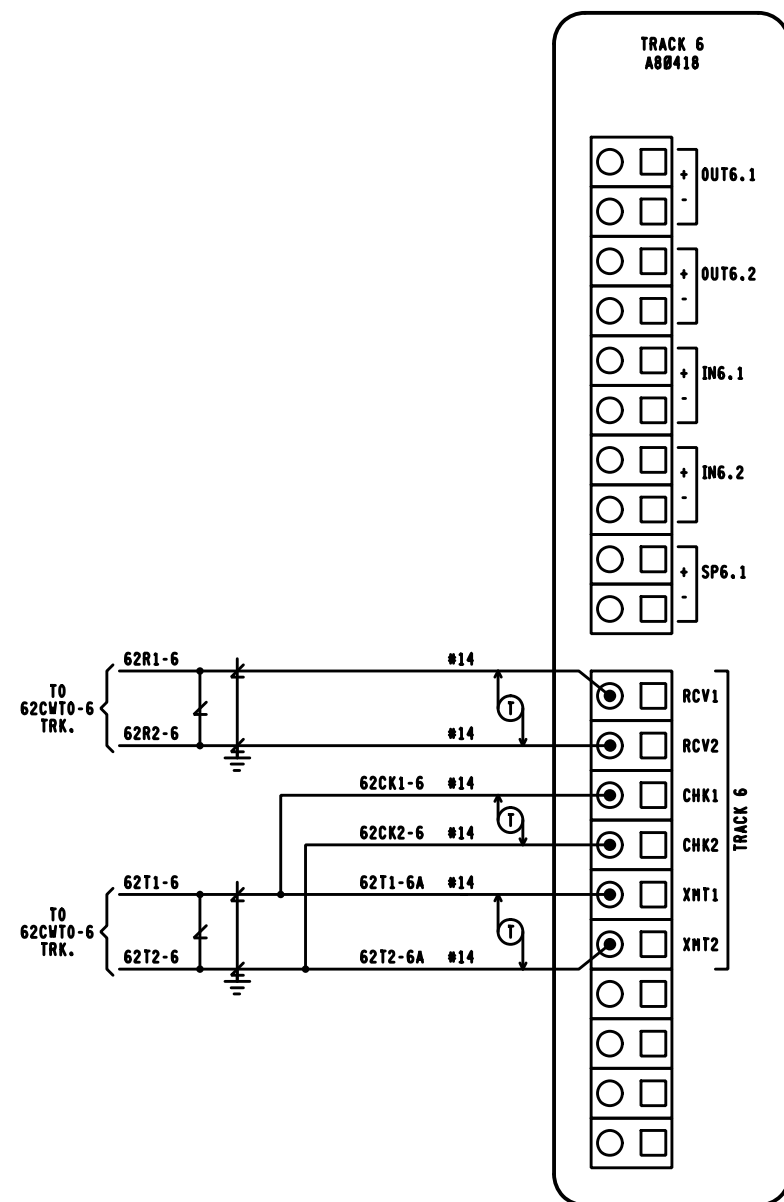
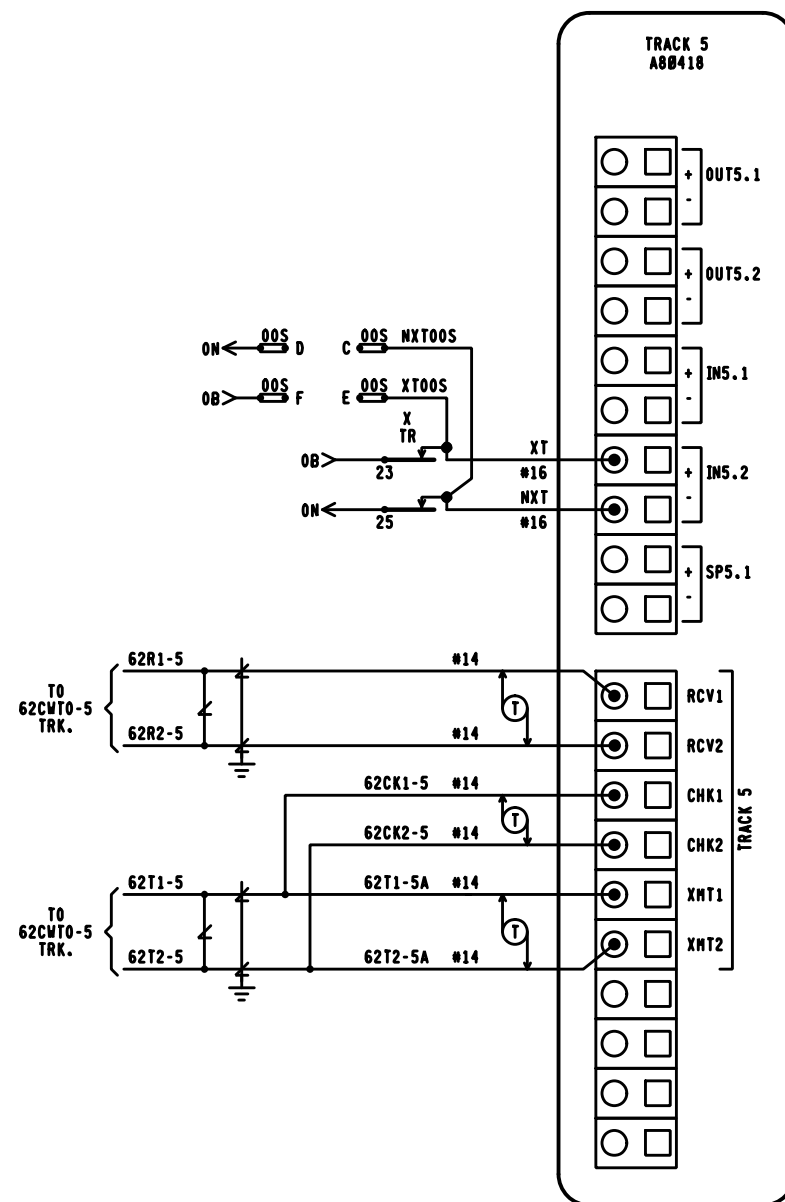
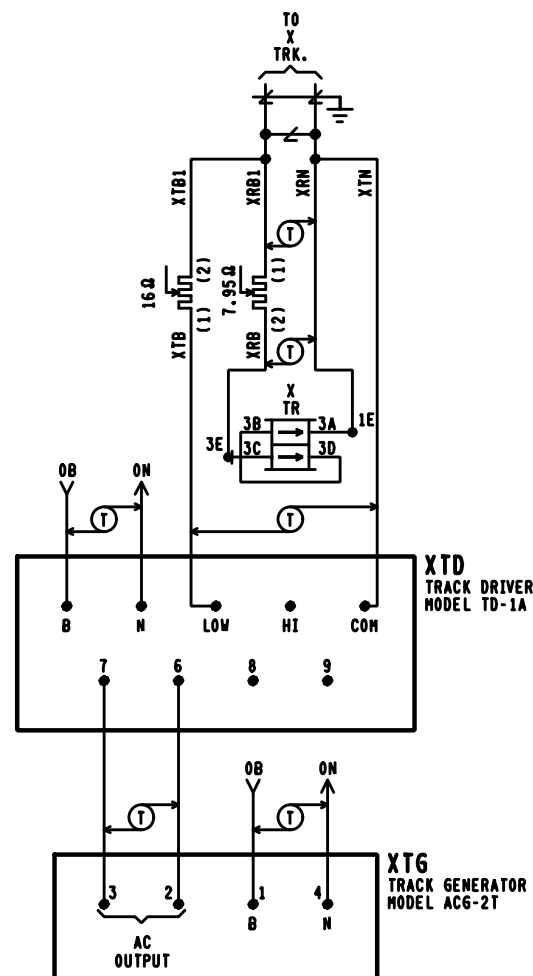
CP 102 &

SR 309 (KENTON AVE.) 261540P
DETECTION DEVICE CONSIST CUE-62
MARION, OH M.P. 01-101.50

DESIGNED PRS/TDF	DIGITIZED PRS/RNJ	CHECKED PRS/SAF	DATE 05-25-17
NEXT FILE Q110150	NEXT SH C19	FILE Q110150	SHEET C10



REVISIONS	CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
	CP 102 & SR 309 (KENTON AVE.) 261540P DETECTION CIRCUITRY CWE-62 MARION, OH N.P. Q1-101.50			
	DESIGNED PRS/TDF	DIGITIZED PRS/RNJ	CHECKED PRS/SAF	DATE 05-25-17
	NEXT FILE Q110150	NEXT SH C20	FILE Q110150	SHEET C19



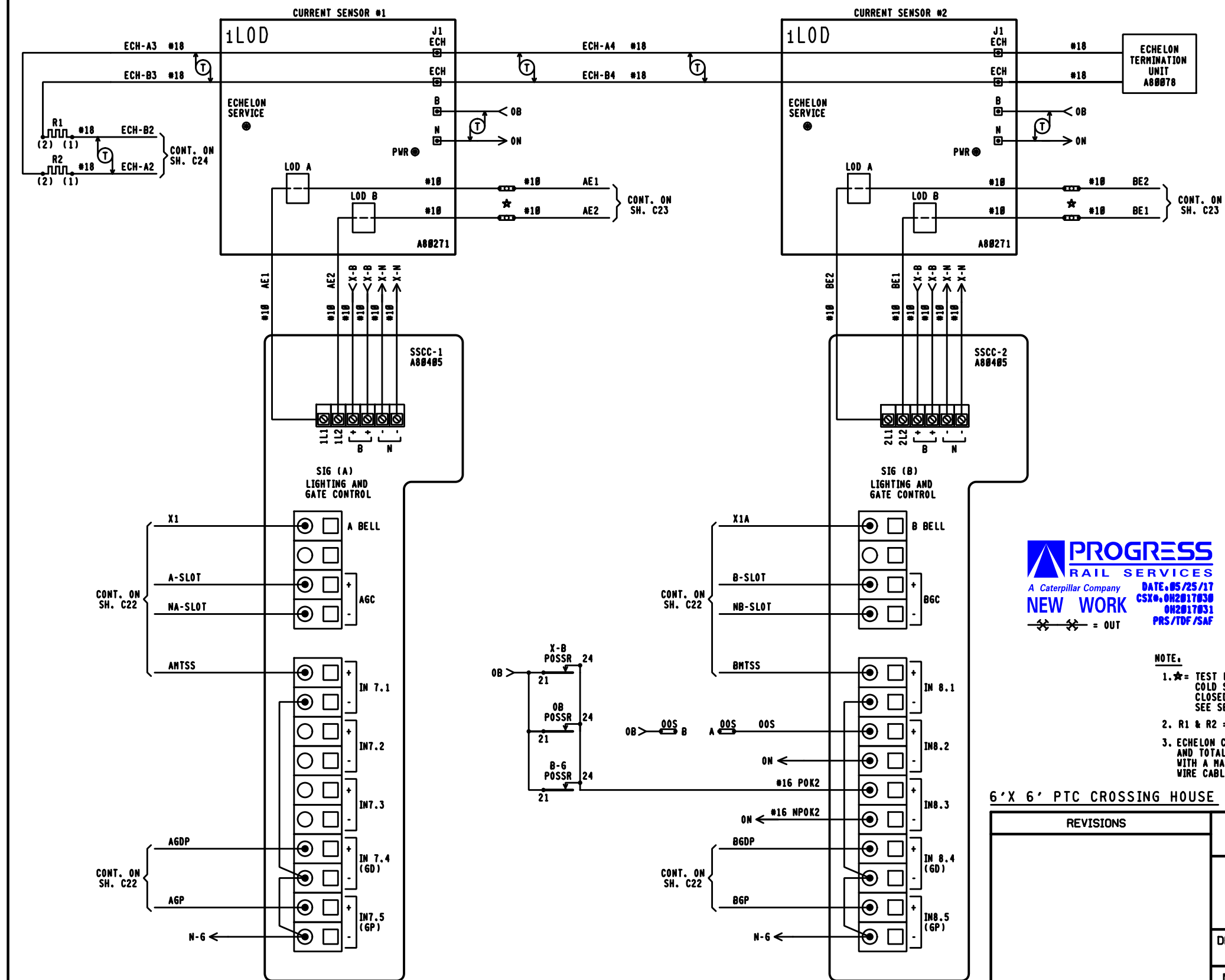
WARNING

BEFORE REMOVING A TRACK FROM SERVICE COMPLIANCE WITH TRAIN CONTROL JUMPER POLICY, TCR 1525-01, MUST BE ASSURED. TO ENABLE THE REMOVAL OF THE XT TRACK FROM SERVICE, APPLY A JUMPER CONNECTING 00S TERMINAL (C) TO 00S TERMINAL (D) AND 00S TERMINAL (E) TO 00S TERMINAL (F).



6'X 6' PTC CROSSING HOUSE

REVISIONS		RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
		CP 102 & SR 309 (KENTON AVE.) 261540P DETECTION CIRCUITRY CME-62 MARION, OH M.P. 01-101.50			
DESIGNED PRS/TDF	DIGITIZED PRS/RNJ	CHECKED PRS/SAF	DATE 05-25-17		
NEXT FILE 0110150	NEXT SH C21	FILE 0110150	SHEET C20		



DATE: 05/25/17
CSX: 0H2017030
0H2017031
PRG/TDF/SAF

WARNING

BEFORE REMOVING A TRACK FROM SERVICE COMPLIANCE WITH TRAIN CONTROL JUMPER POLICY, TCR 1525-01, MUST BE ASSURED. TO ENABLE THE REMOVAL OF A TRACK FROM SERVICE, APPLY A JUMPER CONNECTING OOS TERMINAL (A) TO OOS TERMINAL (B).

NOTE:

1. ★ = TEST LINKS MUST BE OPENED TEMPORARILY FOR COLD START OF REPLACEMENT SSCC MODULES AND CLOSED IN SEQUENCE WITH MFR. INSTRUCTIONS. SEE SECTION 8.8 OF 4000GCP REFERENCE MANUAL.
2. R1 & R2 = .5 WATT, 200 RESISTOR
3. 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.

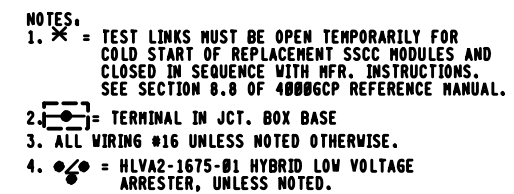
REVISIONS

CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

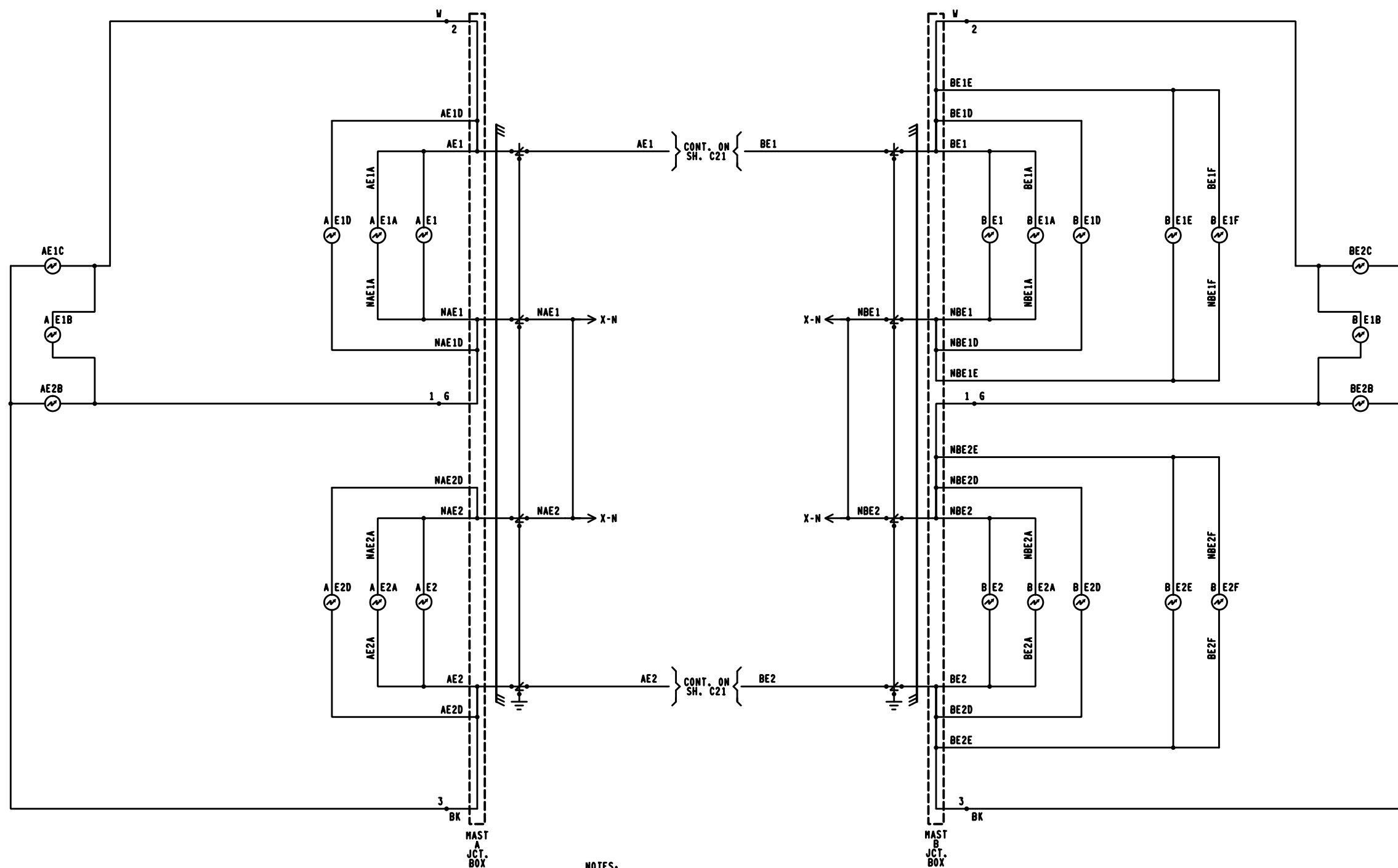
CP 102 &

SR 309 (KENTON AVE.) 261540P
DETECTION CIRCUITRY CME-62
MARION, OH M.P. 01-101.50

DESIGNED PRG/TDF	DIGITIZED PRG/RNJ	CHECKED PRG/SAF	DATE 05-25-17
NEXT FILE 0110150	NEXT SH C22	FILE 0110150	SHEET C21



REVIEWS	 TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
	CP 102 & SR 309 (KENTON AVE.) 261540P CROSSING WARNING DEVICE GATE CIRCUITRY MARION, OH N.P. Q1-101.50			
	DESIGNED PRG/TRF	DIGITIZED PRG/RMJ	CHECKED PRG/SAF	DATE 05-25-17
	NEXT FILE Q110150	NEXT SH C23	FILE Q110150	SHEET C22 



NOTES:

1.  = TERMINAL IN JUNCTION BOX
2. WHEN 7 OR MORE LIGHTS ON A SINGLE STRUCTURE REFER TO SS302 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. S03
6.  = HLVA2-1675-B1 HYBRID LOW VOLTAGE ARRESTER, UNLESS NOTED.



6' X 6' PTC CROSSING HOUSE

REVISIONS		 RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
		CP 102 & SR 309 (KENTON AVE.) 261540P CROSSING WARNING DEVICE LIGHT CIRCUITRY MARION, OH M.P. 01-101.50			
DESIGNED PRS/TDF	DIGITIZED PRS/RNJ	CHECKED PRS/SAF	DATE 05-25-17		
NEXT FILE Q110150	NEXT SH C24	FILE Q110150	SHEET C23 		

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	SR 309 (KENTON AVE.)	
MILEPOST	01-101.62	
DOT NUMBER	261540P	
TESTER TYPE	CROSSING	
DATE FORMAT	MM-DD-YYYY	
TEMP FORMAT	FAHRENHEIT	
INDICATE HOLD (SEC)	0	
INDICATE REFRESH (SEC)	60	
SITE ATCS ADDRESS	7.125.442.035.99.01 (7.RRR.LLL.GGG.99.01)	
SITE TYPE	COLLECTOR	
OFFICE ADDRESS	2.125.00.0000 (2.RRR.MM.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	7.125.442.035.07.01 (7.RRR.LLL.GGG.MM.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,
CURRENT VALUES MAY VARY DEPENDANT ON FIELD
CONDITIONS. MARK UP PER ACTUAL READINGS FOR
IN-SERVICE REVISION.

LIT BULB COUNT ON EACH CIRCUIT	NO.	TYPE OF BULB	CURRENT READING IN AMP. AT APPROX. 10.0 V ARRAY VOLTAGE
CURRENT SENSOR (1) AE1, LAMP SET UP	5	☐ BULBS ☒ LED	X.X
CURRENT SENSOR (1) AE2, LAMP SET UP	5	☐ BULBS ☒ LED	X.X
CURRENT SENSOR (2) BE1, LAMP SET UP	7	☐ BULBS ☒ LED	X.X
CURRENT SENSOR (2) BE2, LAMP SET UP	7	☐ BULBS ☒ LED	X.X

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

MENU → CONFIGURATION →	
MODULES → ADD MODULE	
MODULE TYPE	WAG
MODULE NAME	DEFAULT
WAG ECHELON MODE	7

NOTE:

REFER TO WAG INSTALLATION AND
SETUP IN APPENDIX "A" GCP4000 SYTEM
CUT OVER, TEST PROCEDURE AND CHECK
OFF SHEET.

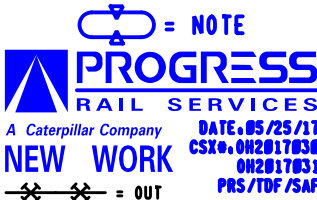
NOTE 6

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

NOTES:

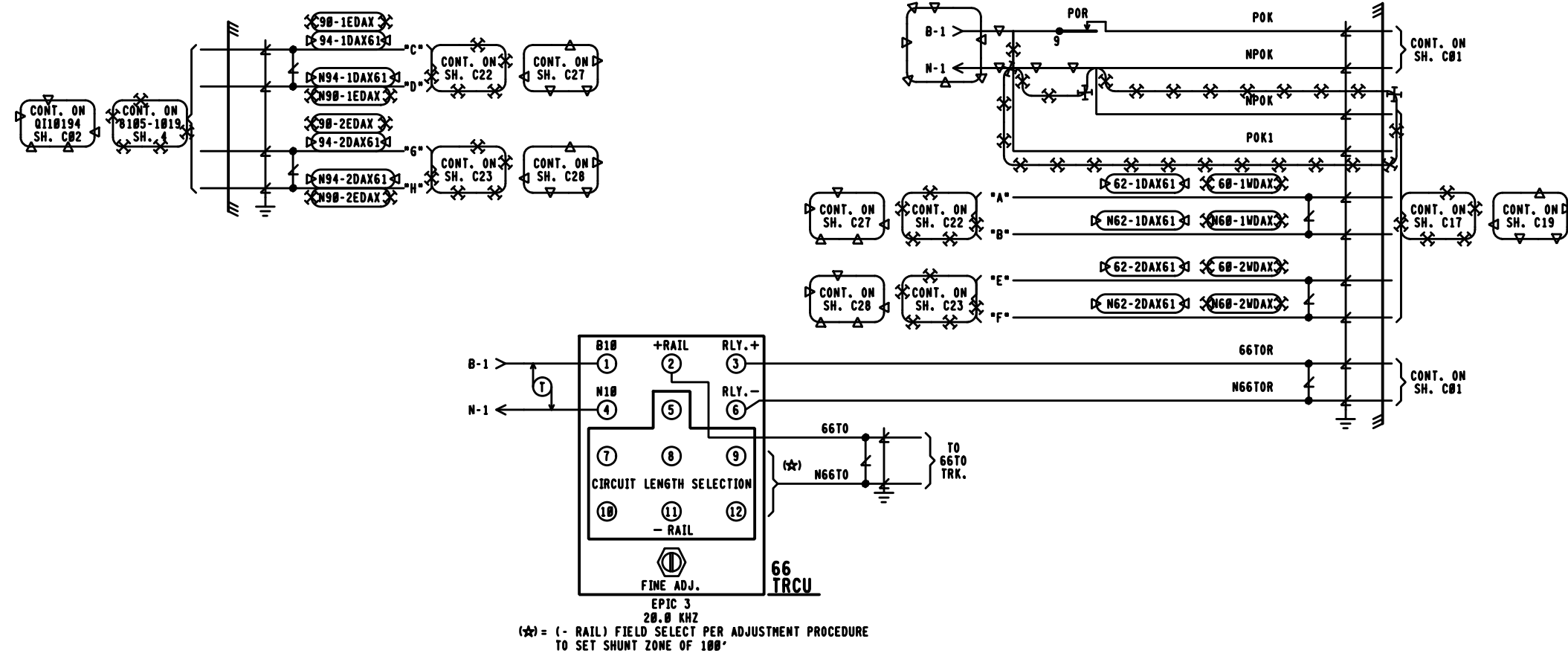
- OPTION AVAILABLE IF VHF COMMUNICATOR = YES
LAST 3 DIGITS OF DOT NUMBER.
- OPTION AVAILABLE IF IL0DS.
- OPTION AVAILABLE IF BELL SENSORS.
- OPTION AVAILABLE IF GATES.
- OPTION AVAILABLE IF VHF RADIO.
- ONLY YES IN SPECIAL CIRCUMSTANCES.
- SELECT "MENU" THEN "CONFIGURATION" FROM SEAR II
INTERFACE KEYPAD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



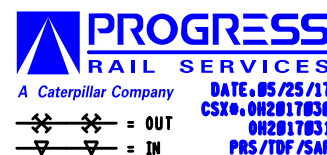
CONTROL SYSTEM CONFIGURATION MENU QUESTIONS	
OPTION	SELECTION
RESET NAMES / MODULES	NO ☐ YES ☐
RAILROAD NUMBER	125
CROSSING CONFIGURATION	NORMAL ☒ SPLIT GATE ☐ EXTERNAL ENTRANCE GATE CONTROLLER(S) ☐
AND1 USED AS XR	NO ☐ YES ☒
AND2 USED AS XR	NO ☒ YES ☐
AND3 USED AS XR	NO ☒ YES ☐
AND4 USED AS XR	NO ☒ 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	540
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 ☐

6'X 6' PTC CROSSING HOUSE

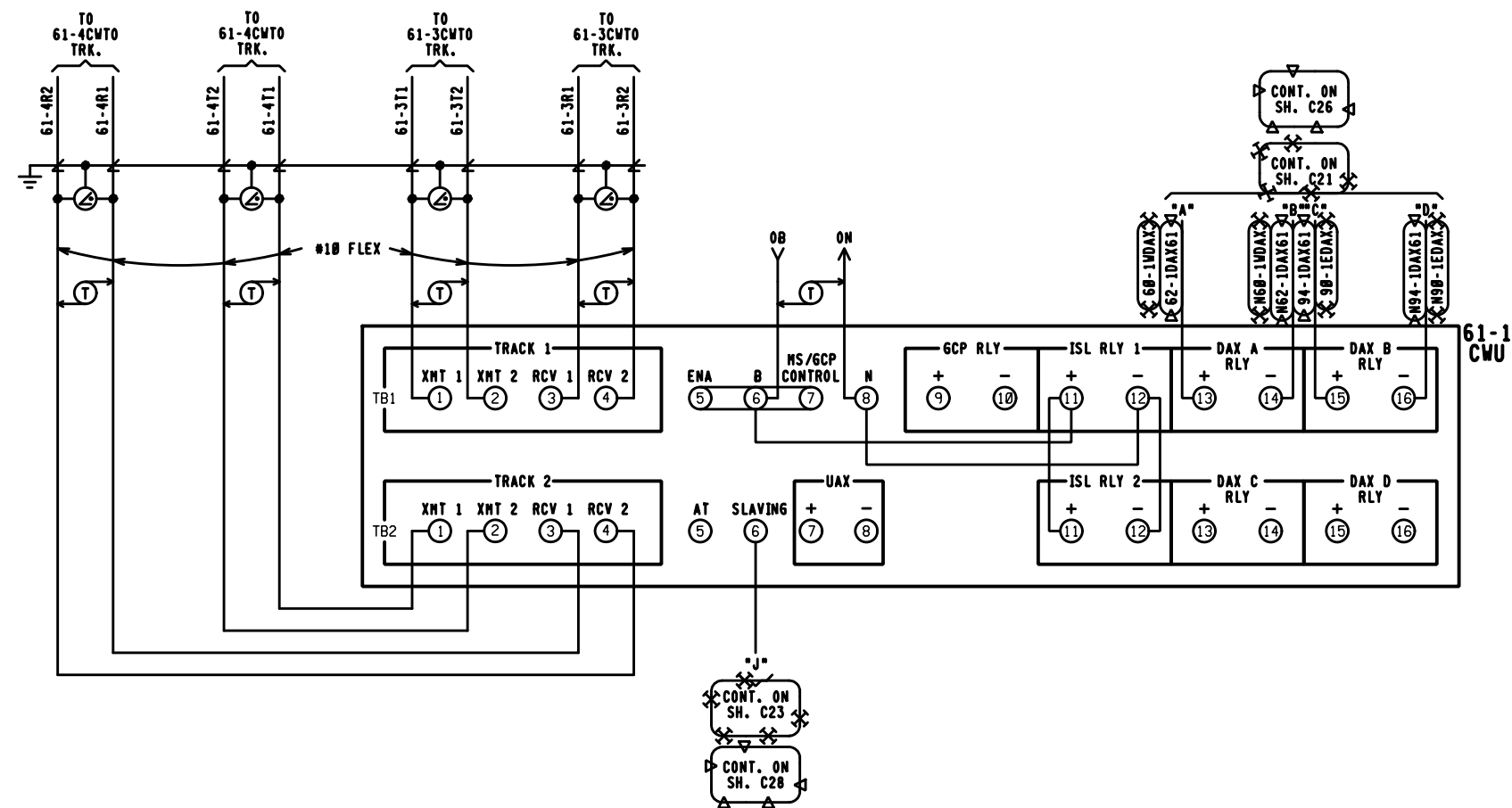
REVISIONS		CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
		CP 102 & SR 309 (KENTON AVE.) 261540P SEAR II: CONFIGURATION & FUNCTIONS MARION, OH M.P. 01-101.50			
DESIGNED PRS/TDF	DIGITIZED PRS/RNJ	CHECKED PRS/SAF	DATE 05-25-17		
NEXT FILE 0110150	NEXT SH C26	FILE 0110150	SHEET C25		



6'X 6' REMOTE CROSSING RELAY HOUSE



REVISIONS		CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
05-10-2000 SWE	0H1990112A	CP 102 SR 300 (KENTON AVE.) 261540P CIRCUITS MARION, OH M.P. 01-101.50			
06-10-14 GET 0H2011021					
DESIGNED SWE	DIGITIZED SWE	CHECKED SWE	DATE 06-15-99		
NEXT FILE Q110150	NEXT SH C22	FILE Q110150	SHEET C21		



NOTES:

1. FOR SIX WIRE OPERATION, THE JUMPER LINKS CONNECTING TB3-1 AND 2 AND TB3-3 AND 4 SHOULD BE REMOVED FOR TRACK NUMBER 1 AND A SHORT LENGTH OF STRANDED TWISTED PAIR WIRE CONNECTED TO TERMINALS TB3-1 (1C1) AND TB3-3 (1C2). THE TWISTED PAIR WIRE IS THEN ROUTED THROUGH THE EXIT HOLE IN THE SIDE OF THE CASE AND TERMINATED AT AAR TERMINALS. A NUMBER 10 AWG TWISTED PAIR CAN THEN BE USED FOR INTERCONNECTING THE TRACK ARRESTERS.
2. FOR SIX WIRE OPERATION, THE JUMPER LINKS CONNECTING TB4-1 AND 2 AND TB4-3 AND 4 SHOULD BE REMOVED FOR TRACK NUMBER 2 AND A SHORT LENGTH OF STRANDED TWISTED PAIR WIRE CONNECTED TO TERMINALS TB4-1 AND TB4-3. THE TWISTED PAIR WIRE IS THEN ROUTED THROUGH THE EXIT HOLE IN THE SIDE OF THE CASE AND TERMINATED AT AAR TERMINALS. A NUMBER 10 AWG TWISTED PAIR CAN THEN BE USED FOR INTERCONNECTING THE TRACK ARRESTERS.

6'X 6' REMOTE CROSSING RELAY HOUSE

REVISIONS		 RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
05-10-2000 SWE	0H1998112A	 CIRCUITS MARION, OH N.P. 01-101.50			
06-10-14 GET 0H2011021					
DESIGNED SWE	DIGITIZED SWE	CHECKED SWE	DATE 06-15-99		
NEXT FILE 0110150	NEXT SH C23	FILE 0110150	SHEET C22		

MODULE 80028
S4 DIP SWITCH POSITIONS *

SWITCH #	16	8	4	2	1
SWITCH POSITION	UP	DOWN	UP	DOWN	UP

* MAY BE SET PER FIELD CONDITIONS

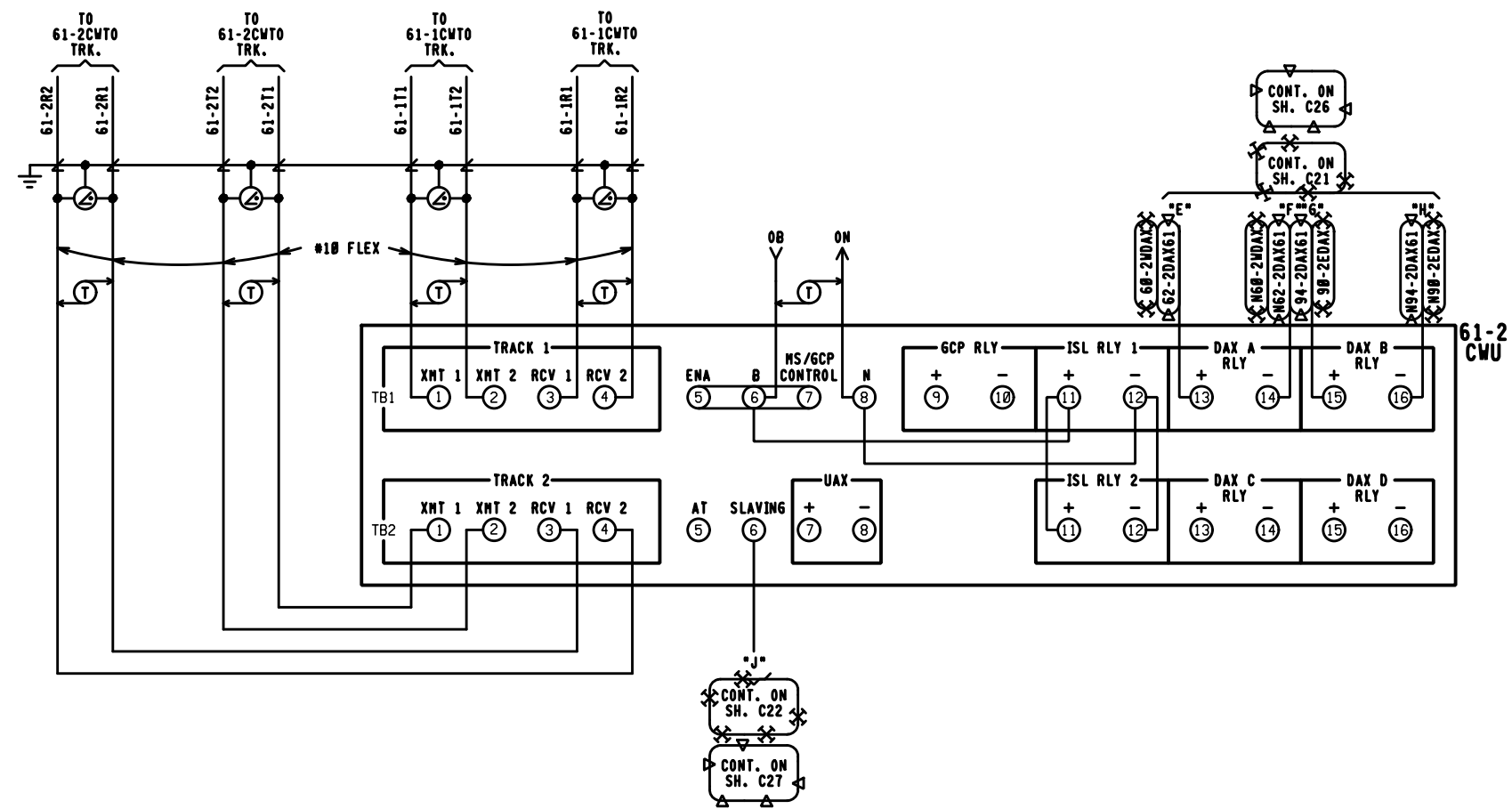
MODULE 80028
S1 DIP SWITCH POSITIONS

SWITCH #	A	B	C	D
DAX USED	LEFT	LEFT	RIGHT	RIGHT

LEFT INDICATES DAX USED

PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 05/25/17
CSX 0H2017030
0H2017031
PRS/TDF/SAF

= OUT
 = IN



- NOTES:
1. FOR SIX WIRE OPERATION, THE JUMPER LINKS CONNECTING TB3-1 AND 2 AND TB3-3 AND 4 SHOULD BE REMOVED FOR TRACK NUMBER 1 AND A SHORT LENGTH OF STRANDED TWISTED PAIR WIRE CONNECTED TO TERMINALS TB3-1 (1C1) AND TB3-3 (1C2). THE TWISTED PAIR WIRE IS THEN ROUTED THROUGH THE EXIT HOLE IN THE SIDE OF THE CASE AND TERMINATED AT AAR TERMINALS. A NUMBER 10 AWG TWISTED PAIR CAN THEN BE USED FOR INTERCONNECTING THE TRACK ARRESTERS.
 2. FOR SIX WIRE OPERATION, THE JUMPER LINKS CONNECTING TB4-1 AND 2 AND TB4-3 AND 4 SHOULD BE REMOVED FOR TRACK NUMBER 2 AND A SHORT LENGTH OF STRANDED TWISTED PAIR WIRE CONNECTED TO TERMINALS TB4-1 AND TB4-3. THE TWISTED PAIR WIRE IS THEN ROUTED THROUGH THE EXIT HOLE IN THE SIDE OF THE CASE AND TERMINATED AT AAR TERMINALS. A NUMBER 10 AWG TWISTED PAIR CAN THEN BE USED FOR INTERCONNECTING THE TRACK ARRESTERS.

6'X 6' REMOTE CROSSING RELAY HOUSE

REVISIONS		CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
05-10-2000 SWE	0H1998112A	 MARION, OH N.P. 01-101.50			
06-10-14 GET 0H2011021					
DESIGNED SWE	DIGITIZED SWE	CHECKED SWE	DATE 06-15-99		
NEXT FILE Q110150	NEXT SH C24	FILE Q110150	SHEET C23		

MODULE 80028
S4 DIP SWITCH POSITIONS *

SWITCH #	16	8	4	2	1
SWITCH POSITION	UP	DOWN	UP	DOWN	UP

* MAY BE SET PER FIELD CONDITIONS

MODULE 80028
S1 DIP SWITCH POSITIONS

SWITCH #	A	B	C	D
DAX USED	LEFT	LEFT	RIGHT	RIGHT

LEFT INDICATES DAX USED



3000 GCP APPLICATION DESIGN CARD

EQUIPMENT: 3000 ☒ 3000D2 ☐
3000ND ☐ 3000ND2 ☐

ISLAND FREQUENCY: T1: NA KHZ T2: NA KHZ 61-1 CWU

NUMBER OF TRACKS (NUMBER OF TRANSCEIVER MODULES, 1 OR 2) 1 ☐ 2 ☒

FREQUENCY (MS/GCP) 348 HZ

UNIDIRECTIONAL/BIDIRECTIONAL T1: UNI ☒ BI ☐
T2: UNI ☐ BI ☐

XMIT LEVEL T1: HI ☐ MED ☐
T2: HI ☐ MED ☐

PREDICTOR/MOTION SENSOR T1: PRED ☐ NS ☐
T2: PRED ☐ NS ☐

WARNING TIME SELECTED T1: 25 SEC.
T2: 25 SEC.

APPROACH DISTANCE SELECTED T1: ~~1768~~ (2187) FT.
T2: ~~2216~~ (1111) FT.

APPROACH DISTANCE COMPUTED T1: 1889' ←
T2: NOT REQUIRED *

UAX PICKUP DELAY (0 = OFF) 0 SEC.
ENA/UAX2 PICKUP DELAY (0 = ENABLE).. 0 SEC.

ISLAND DISTANCE (BETWEEN FEED WIRES) T1: 0 FT.
T2: 0 FT.

NUMBER OF DAXS 0 ☐ 1 ☐ 2 ☒ 3 ☐ 4 ☐

DAX A TRACK ASSIGNMENT T1 ☐ T2 ☐

DAX A DISTANCE (0 = PREEMPT) ~~202~~ (198) FT.
DAX A WARNING TIME ~~30~~ (44) SEC.

DAX B TRACK ASSIGNMENT T1 ☐ T2 ☐

DAX B DISTANCE (0 = PREEMPT) ~~402~~ (1354) FT.
DAX B WARNING TIME ~~30~~ (46) SEC.

DAX C TRACK ASSIGNMENT T1 ☐ T2 ☐

DAX C DISTANCE (0 = PREEMPT) FT.
DAX C WARNING TIME SEC.

DAX D TRACK ASSIGNMENT T1 ☐ T2 ☐

DAX D DISTANCE (0 = PREEMPT) FT.
DAX D WARNING TIME SEC.

SLAVING MASTER/SLAVE MASTER ☐ SLAVE ☐

PASSWORD ENABLED DISABLED ☐ ENABLED ☐

RECORDER INSTALLED NOT INSTALLED ☐ INSTALLED ☐

RS-232-C BAUD RATE BPS

RS-232-C DATA BITES..... 7 ☐ 8 ☐

RS-232-C STOP BITS 1 ☐ 2 ☐

RS-232-C PARITY NONE ☐ MARK ☐
ODD ☐ SPACE ☐
EVEN ☐

DATE(E.G.,MON 13 MAY 1991) .. NOT REQUIRED *
TIME(E.G.,06.25.43 PM) NOT REQUIRED *

DAYLIGHT SAVINGS..... ON ☐ OFF ☒

EXPANDED PROGRAMMING DESIGN

SWITCH TO NS(ENTER EZ VALUE) T1: 10 EZ
T2: 10 EZ

TRANSFER DELAY NS TO GCP(0 = OFF) .. T1: 0 SEC.
T2: 0 SEC.

PRIME PREDICTION OFFSET(0 = OFF) T1: 0 FT.
T2: 0 FT.

PICKUP DELAY PRIME 15 SEC.
PICKUP DELAY DAX A 15 SEC.
PICKUP DELAY DAX B 15 SEC.
PICKUP DELAY DAX C SEC.
PICKUP DELAY DAX D SEC.

COMPENSATION VALUE T1: 1300'
COMPENSATION VALUE T2: 1300'

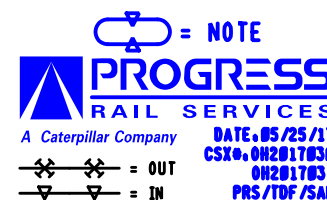
** THE COMPENSATION VALUE IS PROVIDED BY THE 3000 GCP SYSTEM AND NO ADDITIONAL PROGRAMMING IS NORMALLY REQUIRED.

FIELD VERIFY APPROACH
DISTANCE & A.I.S.
PLANS ACCORDINGLY

* PROGRAMMED AT INSTALLATION DURING CALIBRATION PROCEDURE
☆ = (FOR INFORMATION ONLY 120' MIN.) NO ENTRY NEEDED

6'X 6' REMOTE CROSSING RELAY HOUSE

REVISIONS		CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
05-10-2000 SWE 0H1998112A		 APPLICATION DESIGN CARD MARION, OH H.P. 01-101.50			
06-10-14 GET 0H2011021					
DESIGNED SWE	DIGITIZED SWE	CHECKED SWE	DATE 06-15-99		
NEXT FILE 0110150	NEXT SH C25	FILE 0110150	SHEET C24		
		C30	C29		



3000 GCP APPLICATION DESIGN CARD

EQUIPMENT: 3000 ☒ 3000D2 ☐
 3000ND ☐ 3000ND2 ☐

ISLAND FREQUENCY: T1: NA KHZ T2: NA KHZ 61-2 CWU

NUMBER OF TRACKS (NUMBER OF TRANSCEIVER MODULES, 1 OR 2)	1 ☐ 2 ☒
FREQUENCY (MS/GCP)	348 HZ
UNIDIRECTIONAL/BIDIRECTIONAL	T1: UNI ☒ BI ☐ T2: UNI ☐ BI ☐
XMIT LEVEL	T1: HI ☐ MED ☐ T2: HI ☐ MED ☐
PREDICTOR/MOTION SENSOR	T1: PRED ☐ HS ☐ T2: PRED ☐ HS ☐
WARNING TIME SELECTED	T1: 25 SEC. T2: 25 SEC.
APPROACH DISTANCE SELECTED	T1: 1768 (2187) FT. T2: 2216 (1111) FT.
APPROACH DISTANCE COMPUTED	T1: 1891' ← T2: NOT REQUIRED *
UAX PICKUP DELAY (0 = OFF)	0 SEC.
ENA/UAX2 PICKUP DELAY (0 = ENABLE) ..	0 SEC.
ISLAND DISTANCE (BETWEEN FEED WIRES) T1:	0 FT.
T2:	0 FT.
NUMBER OF DAXS	0 ☐ 1 ☐ 2 ☒ 3 ☐ 4 ☐
DAX A TRACK ASSIGNMENT	T1 ☐ T2 ☐
DAX A DISTANCE (0 = PREEMPT)	202 (198) FT.
DAX A WARNING TIME	30 (44) SEC.
DAX B TRACK ASSIGNMENT	T1 ☐ T2 ☐
DAX B DISTANCE (0 = PREEMPT)	402 (1354) FT.
DAX B WARNING TIME	30 (46) SEC.
DAX C TRACK ASSIGNMENT	T1 ☐ T2 ☐
DAX C DISTANCE (0 = PREEMPT)	FT.
DAX C WARNING TIME	SEC.
DAX D TRACK ASSIGNMENT	T1 ☐ T2 ☐
DAX D DISTANCE (0 = PREEMPT)	FT.
DAX D WARNING TIME	SEC.
SLAVING MASTER/SLAVE	MASTER ☐ SLAVE ☒
PASSWORD ENABLED	DISABLED ☒ ENABLED ☐
RECORDER INSTALLED	NOT INSTALLED ☒ INSTALLED ☐
RS-232-C BAUD RATE	BPS
RS-232-C DATA BITES	7 ☐ 8 ☐
RS-232-C STOP BITS	1 ☐ 2 ☐
RS-232-C PARITY	NONE ☐ MARK ☐ ODD ☐ SPACE ☐ EVEN ☐
DATE (E.G., MON 13 MAY 1991) .. NOT REQUIRED *	
TIME (E.G., 06.25.43 PM) .. NOT REQUIRED *	
DAYLIGHT SAVINGS	ON ☐ OFF ☒

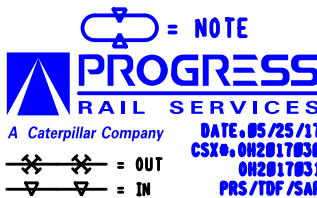
* PROGRAMMED AT INSTALLATION DURING CALIBRATION PROCEDURE
 ☆ = (FOR INFORMATION ONLY 120' MIN.) NO ENTRY NEEDED

EXPANDED PROGRAMMING DESIGN

SWITCH TO HS (ENTER EZ VALUE)	T1: 10 EZ
	T2: 10 EZ
TRANSFER DELAY HS TO GCP (0 = OFF) ..	T1: 0 SEC.
	T2: 0 SEC.
PRIME PREDICTION OFFSET (0 = OFF)	T1: 0 FT.
	T2: 0 FT.
PICKUP DELAY PRIME	15 SEC.
PICKUP DELAY DAX A	15 SEC.
PICKUP DELAY DAX B	15 SEC.
PICKUP DELAY DAX C	SEC.
PICKUP DELAY DAX D	SEC.
COMPENSATION VALUE	T1: 1300'
COMPENSATION VALUE	T2: 1300'

** THE COMPENSATION VALUE IS PROVIDED BY THE 3000 GCP SYSTEM AND NO ADDITIONAL PROGRAMMING IS NORMALLY REQUIRED.

FIELD VERIFY APPROACH
 DISTANCE & A.I.S.
 PLANS ACCORDINGLY



6'X 6' REMOTE CROSSING RELAY HOUSE

REVISIONS 05-10-2000 SWE 0H1998112A 06-10-14 GET 0H2011021		RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS	
CP 102 & SR 300 (KENTON AVE.) 261540P APPLICATION DESIGN CARD MARION, OH H.P. 01-101.50			
DESIGNED SWE	DIGITIZED SWE	CHECKED SWE	DATE 06-15-99
NEXT FILE 0110150	NEXT SH C26	FILE 0110150	SHEET C25

INDEX

SH. NO.	CONTENTS	REVISION NO.					
		1	2	3	4	5	6
I01	TITLE, NOTES, INDEX AND REVISIONS	✓		✓	✓		
S01	TRACK AND SIGNAL PLAN	✓		✓			
S02	TRACK AND SIGNAL PLAN	✓		✓	✓		
S03	TRACK AND SIGNAL PLAN	✓		✓	✓		
G01	EQUIVALANT CIRCUITS (8'X 10' RELAY HOUSE)	✓		✓	✓		
G02	EQUIVALANT CIRCUITS (8'X 10' RELAY HOUSE)	✓		✓	✓		
E01	EQUIPMENT (8'X 10' RELAY HOUSE)	✓		✓			
E02	EQUIPMENT (8'X 10' RELAY HOUSE)	✓		✓			
E03	EQUIPMENT (8'X 10' RELAY HOUSE)	✓		✓			
E04	EQUIPMENT (6'X 6' CROSSING RELAY HOUSE)	✓	✓	✓			
E05	EQUIPMENT (6'X 6' CROSSING RELAY HOUSE)	✓	✓	✓			
E06	EQUIPMENT (6'X 6' REMOTE CROSSING RELAY HOUSE)	✓		✓			
C01	EQUIPMENT (8'X 10' RELAY HOUSE)	✓		✓			
C02	CIRCUITS (8'X 10' RELAY HOUSE)	✓		✓			
C03	PTC COMMUNICATIONS CIRCUITS (8'X 10' RELAY HOUSE)			✓			
C04	CIRCUITS (8'X 10' RELAY HOUSE)	✓		✓			
C05	CIRCUITS (8'X 10' RELAY HOUSE)	✓		✓			
C06	CIRCUITS (8'X 10' RELAY HOUSE)	✓		✓			
C07	EQUIPMENT (8'X 10' RELAY HOUSE)	✓		✓	✓		
C08	CIRCUITS (8'X 10' RELAY HOUSE)	✓		✓			
C09	EQUIPMENT (8'X 10' RELAY HOUSE)	✓		✓			
C10	CIRCUITS (8'X 10' RELAY HOUSE)	✓		✓			
C11	EQUIPMENT (8'X 10' RELAY HOUSE)	✓		✓			
C12	EQUIPMENT (8'X 10' RELAY HOUSE)	✓		✓			
C13	CIRCUITS (8'X 10' RELAY HOUSE RACK #1)	✓		✓			
C14	CIRCUITS (8'X 10' RELAY HOUSE RACK #2)	✓		✓			
C15	CIRCUITS (8'X 10' RELAY HOUSE)	✓		✓	✓		
C16	LOCAL CONTROL PANEL (8'X 10' RELAY HOUSE)	✓		✓	✓		
C17	CIRCUITS (6'X 6' CROSSING RELAY HOUSE)	✓		✓			
C18	CIRCUITS (6'X 6' CROSSING RELAY HOUSE)	✓		✓			
C19	CIRCUITS (6'X 6' CROSSING HOUSE)	✓		✓			
C20	EQUIPMENT (6'X 6' CROSSING RELAY HOUSE)	✓		✓			
C21	CIRCUITS (6'X 6' REMOTE CROSSING RELAY HOUSE)	✓		✓			
C22	CIRCUITS (6'X 6' REMOTE CROSSING RELAY HOUSE)	✓		✓			
C23	CIRCUITS (6'X 6' REMOTE CROSSING RELAY HOUSE)	✓	✓	✓			
C24	APPLICATION DESIGN CARD (6'X 6' REMOTE CROSSING RELAY HOUSE)	✓		✓			
C25	APPLICATION DESIGN CARD (6'X 6' REMOTE CROSSING RELAY HOUSE)	✓	✓	✓			

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PROGRESS

RAIL SERVICES

A Caterpillar Company

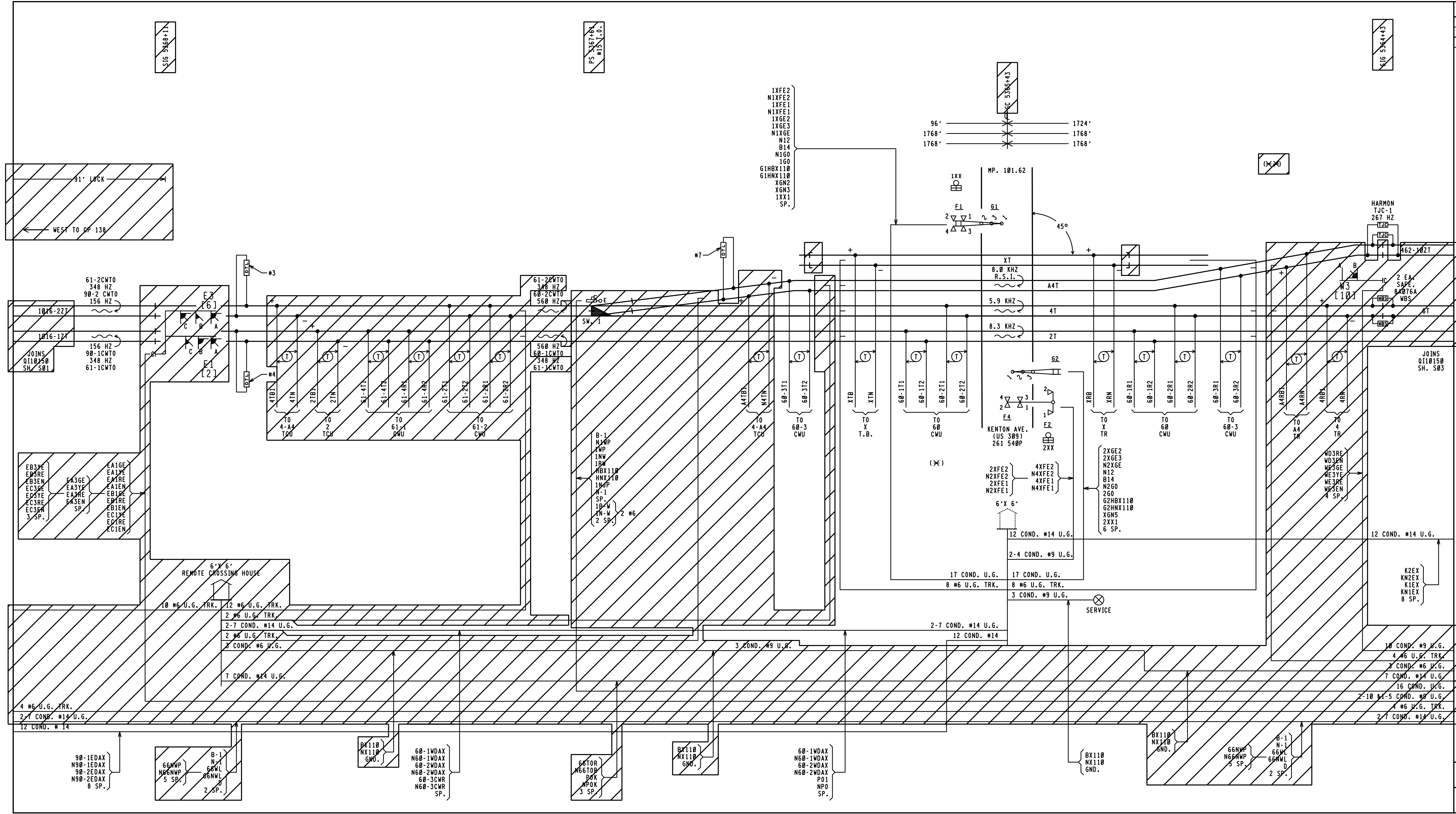
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CSX#:0H2017030

0H2017031

PRS/TDF/SAF

REVISIONS		CSXTRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
05-10-2000	SWE	0H1990112A			
06-10-14	GET	0H2011021/0H2011021A			
09-12-16	XRL	0H2014093			
		CP 102			
		TITLE, NOTES, INDEX & REVISIONS MARION, OH H.P. 01-101.50			
DESIGNED SWE	DIGITIZED SWE	CHECKED SWE	DATE 05-10-2000		
NEXT FILE 0110150	NEXT SH S01	FILE 0110150	SHEET 101		



REVISIONS

05-18-2000	SWE	OH1998112A
06-10-14	GET	OH2011021/OH2011021A
09-12-16	XRL	OH2014093

ALL ELSE OUT
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PROGRESS

RAIL SERVICES

A Caterpillar Company

DATE: 05/25/17
CSX*, OH2017030
OH2017031
PRS/TDF/SAF

DTL

NBS

D.T.L. #3 & #4 ARE
8V617-1600
NBS SAF. 62775-560 HZ
D.T.L. #7 IS
8V617-1600
HARMON NBS-1 267 HZ

NOTES:

1 = INDICATION PURPOSE ONLY
(X) = LOCATION OF 6' X 6' HOUSE
(X) = LOCATION OF COMMUNICATIONS HOUSE

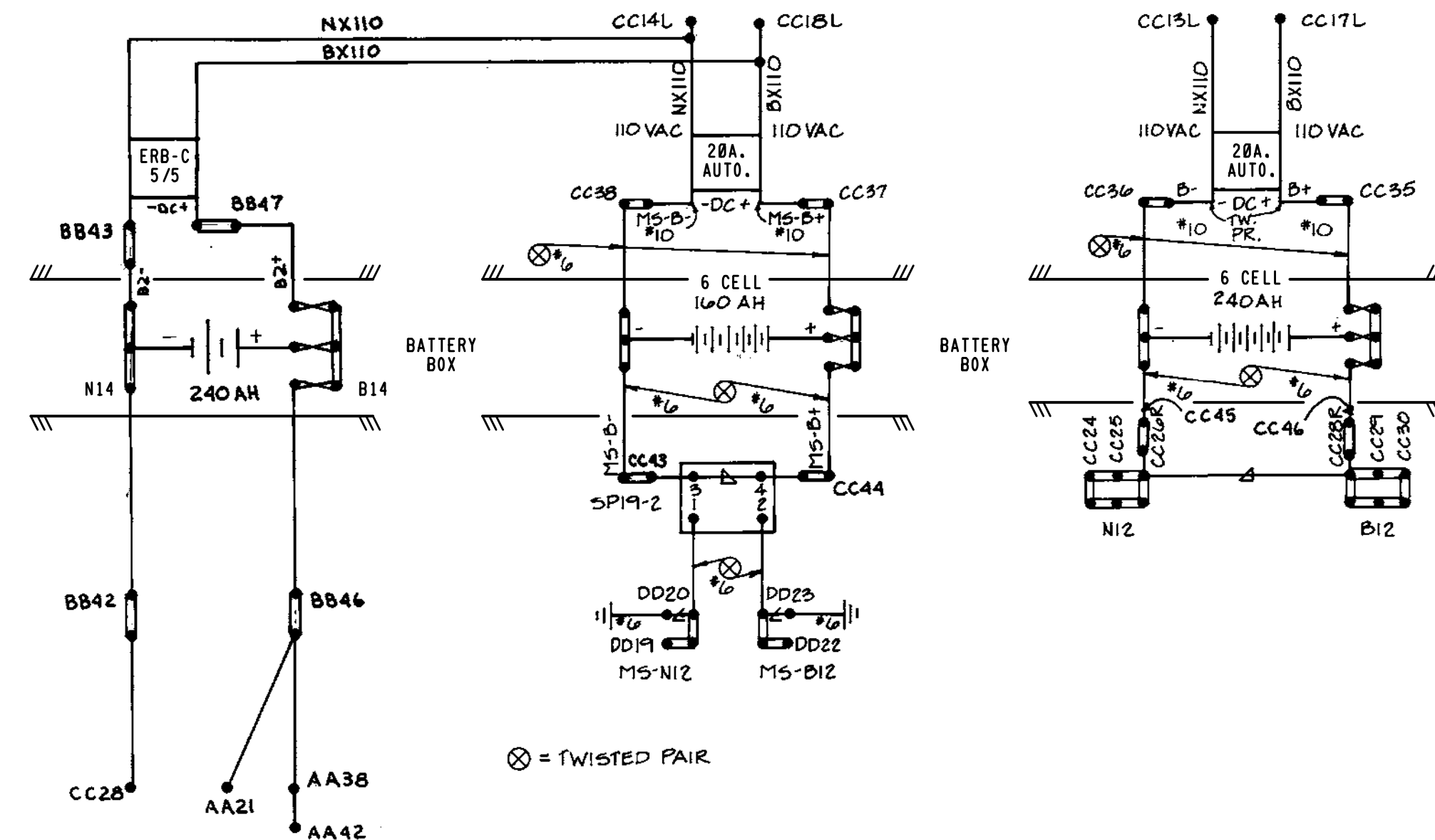
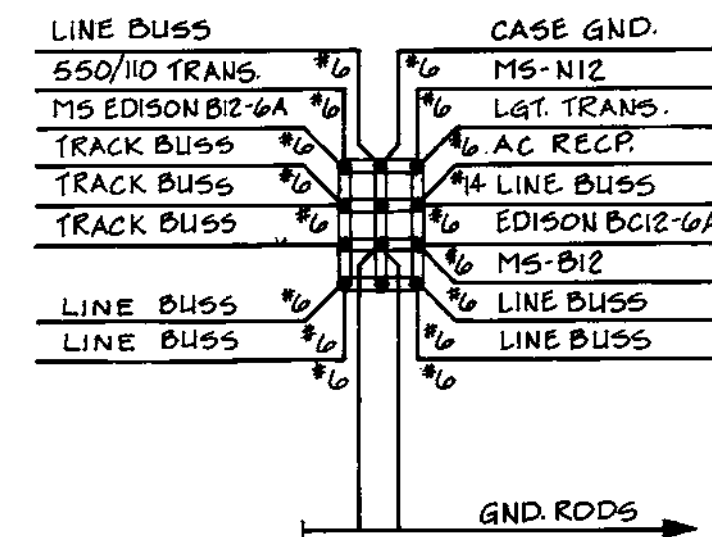
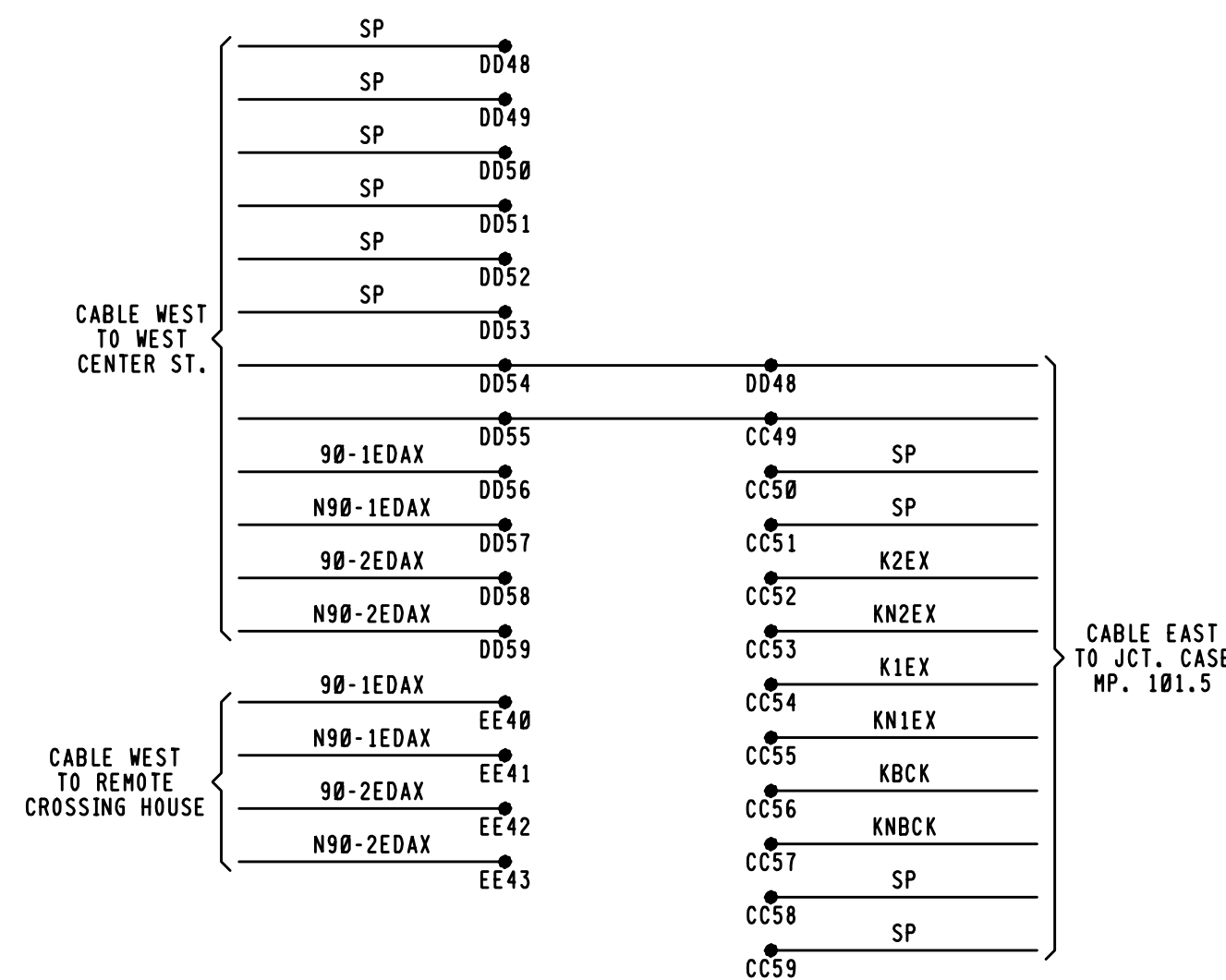
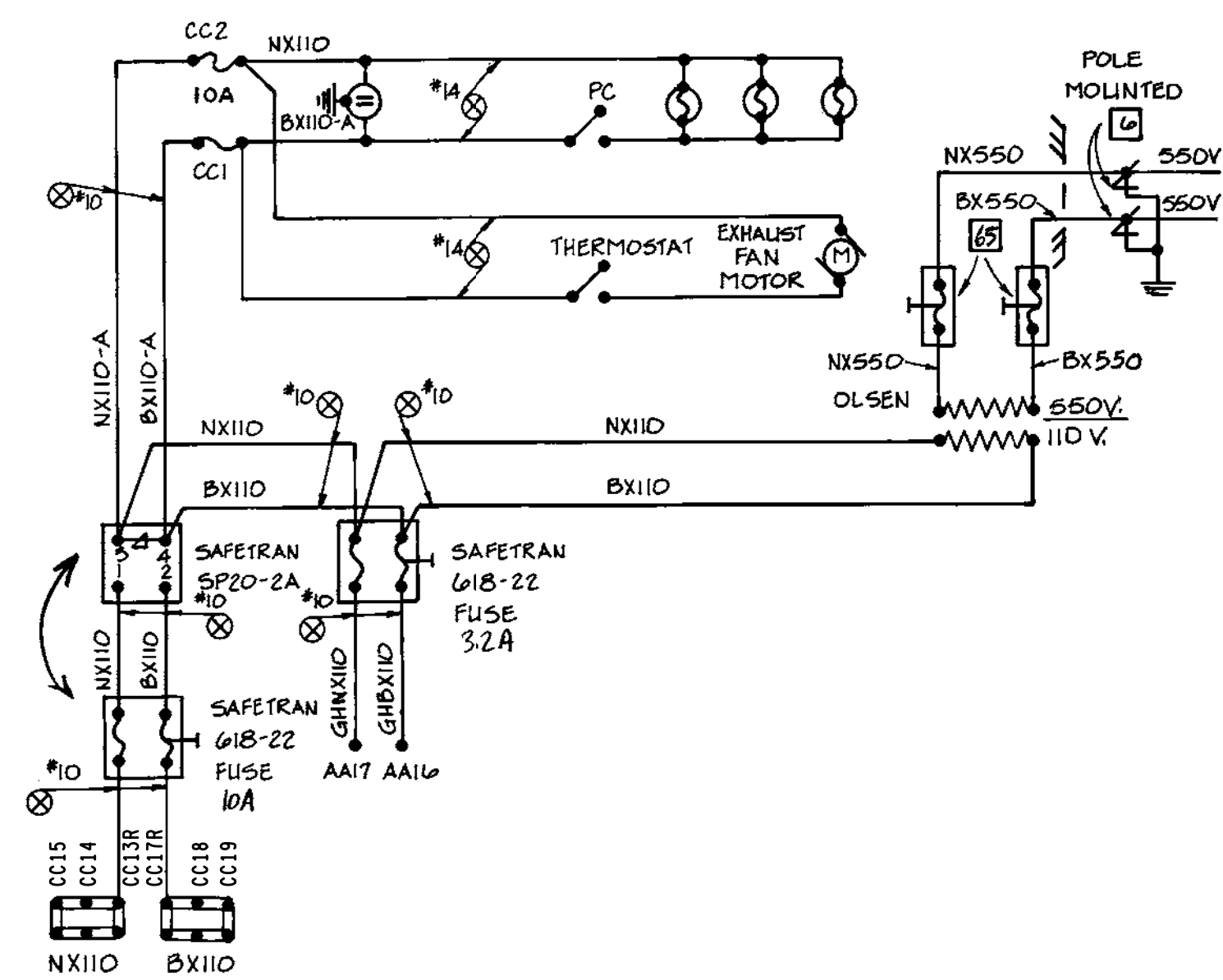
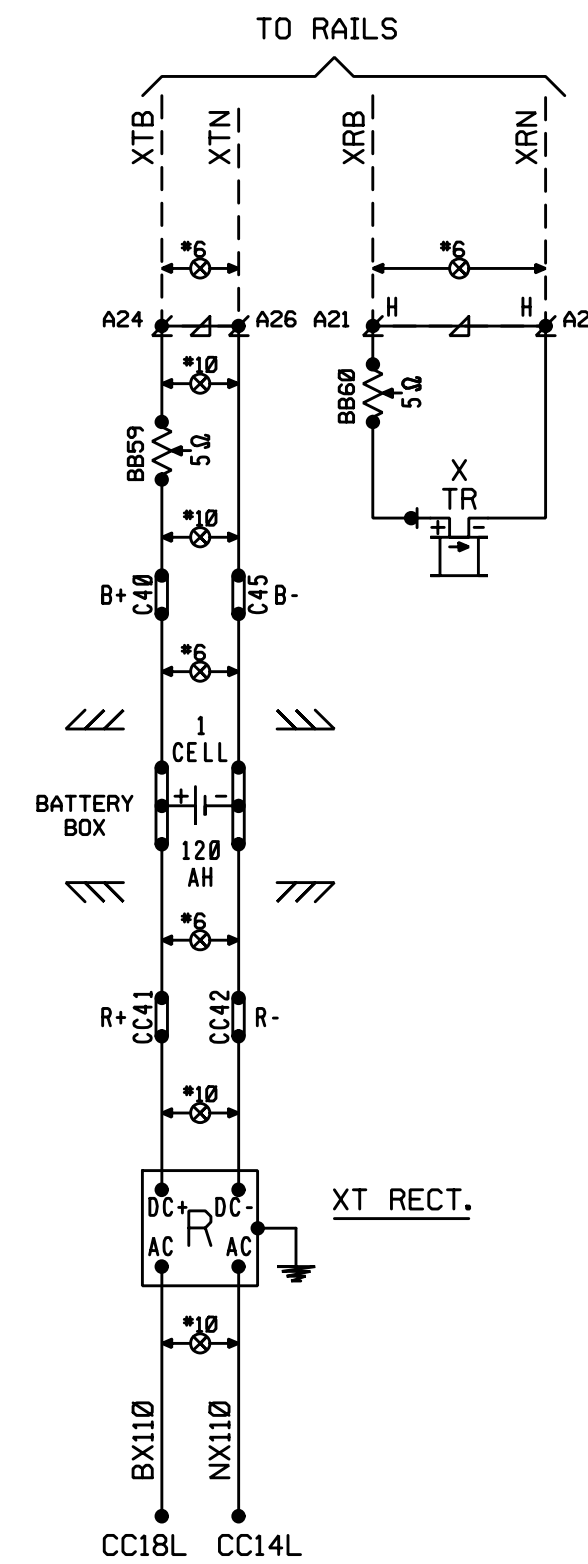
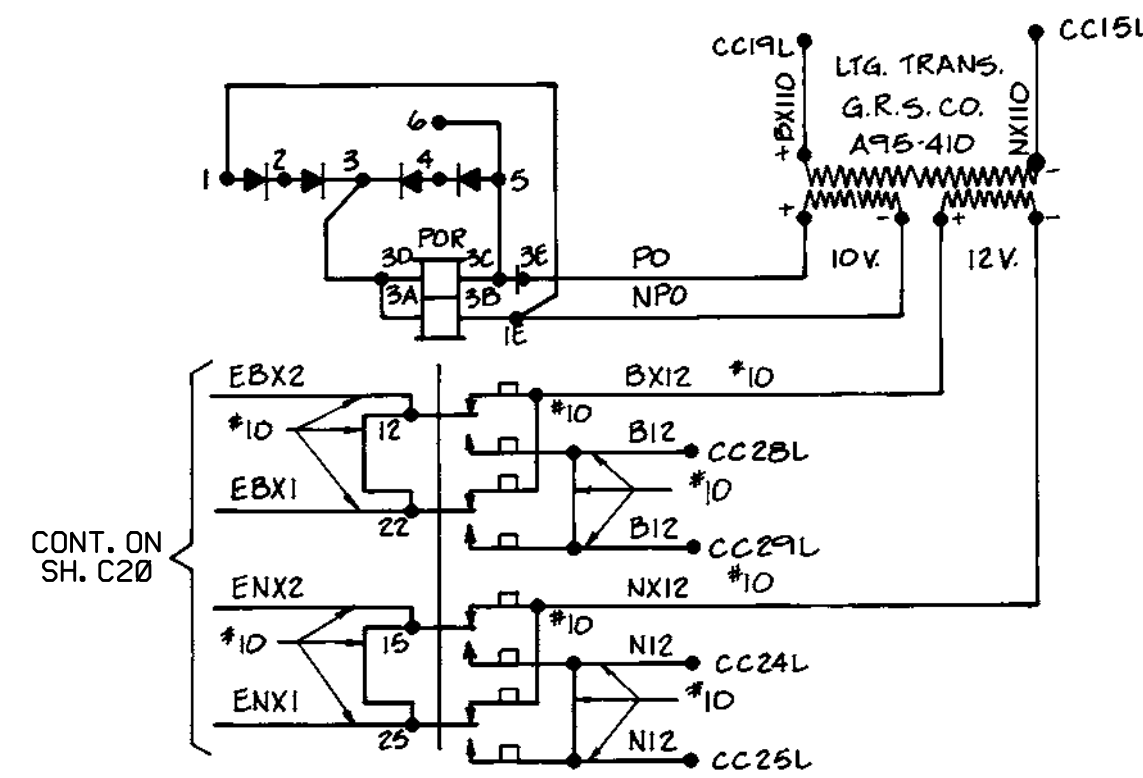
CSX TRANSPORTATION

RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

CP 102

TRACK AND SIGNAL PLAN
MARION, OH M.P. 01-101.50

DESIGNED SWE	DIGITIZED SWE	CHECKED SWE	DATE 06-15-99
NEXT FILE 0110150	NEXT SH S03	FILE 0110150	SHEET S02



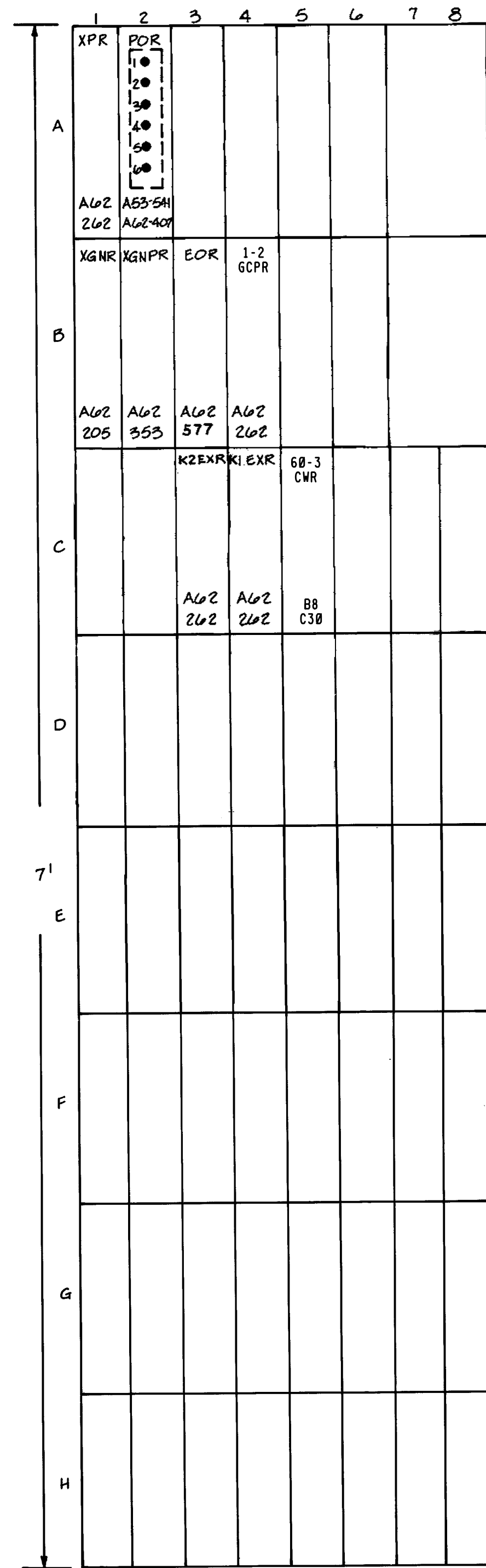
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PROGRESS
RAIL SERVICES
A Caterpillar Company

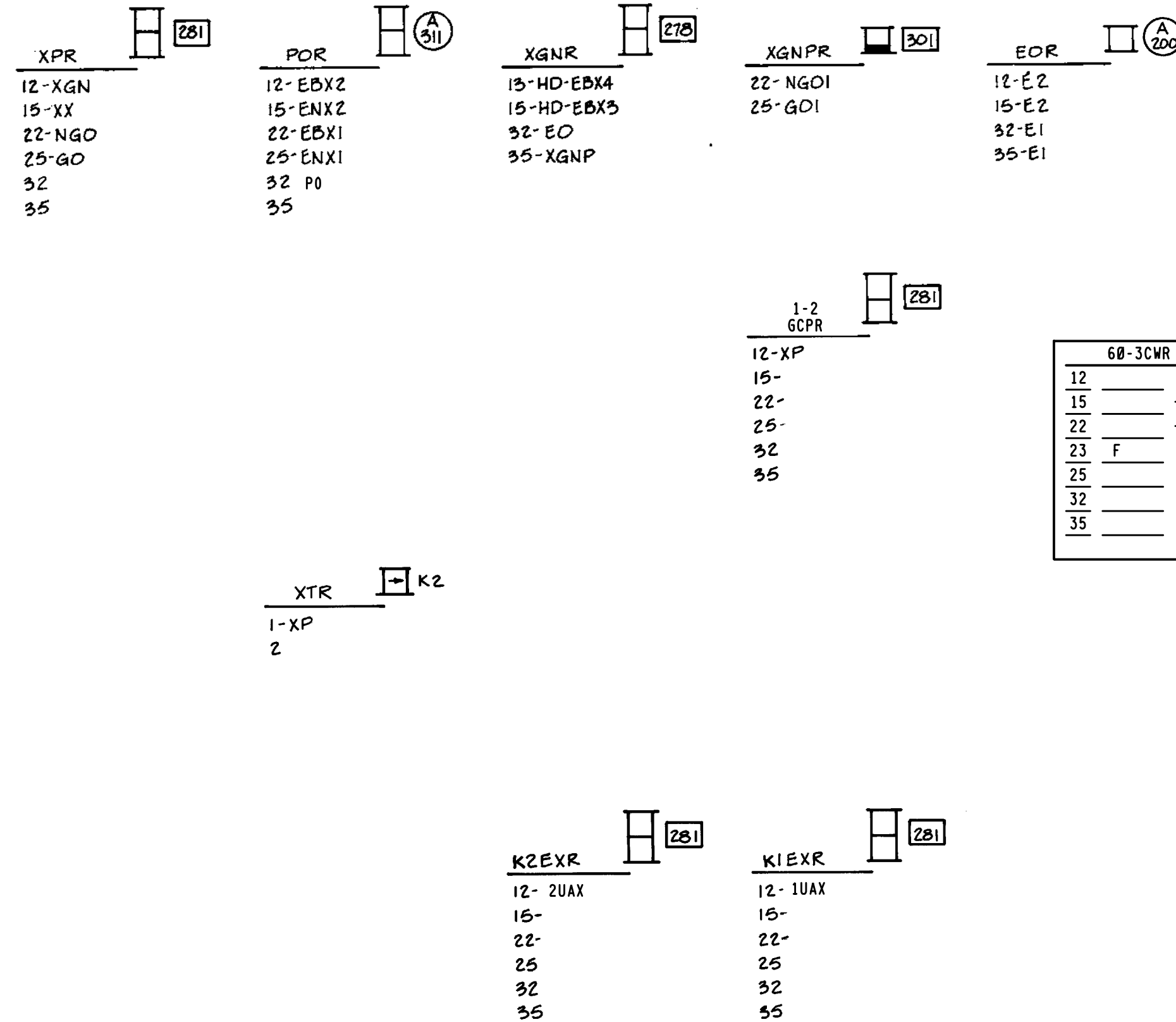
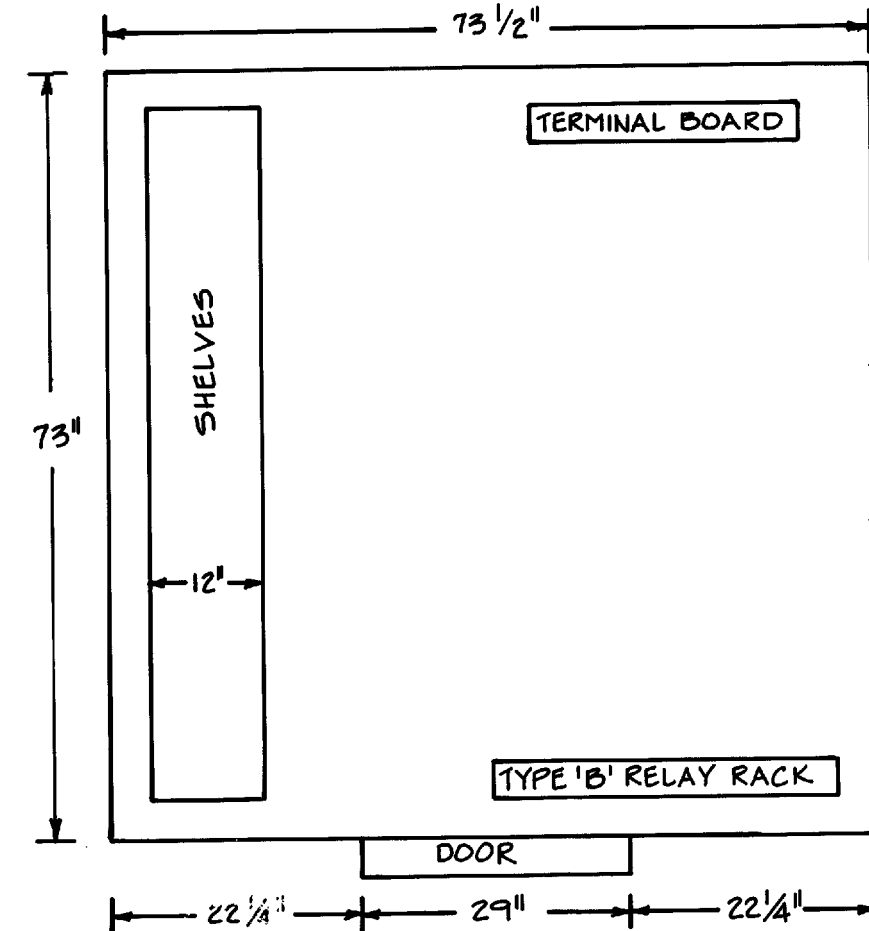
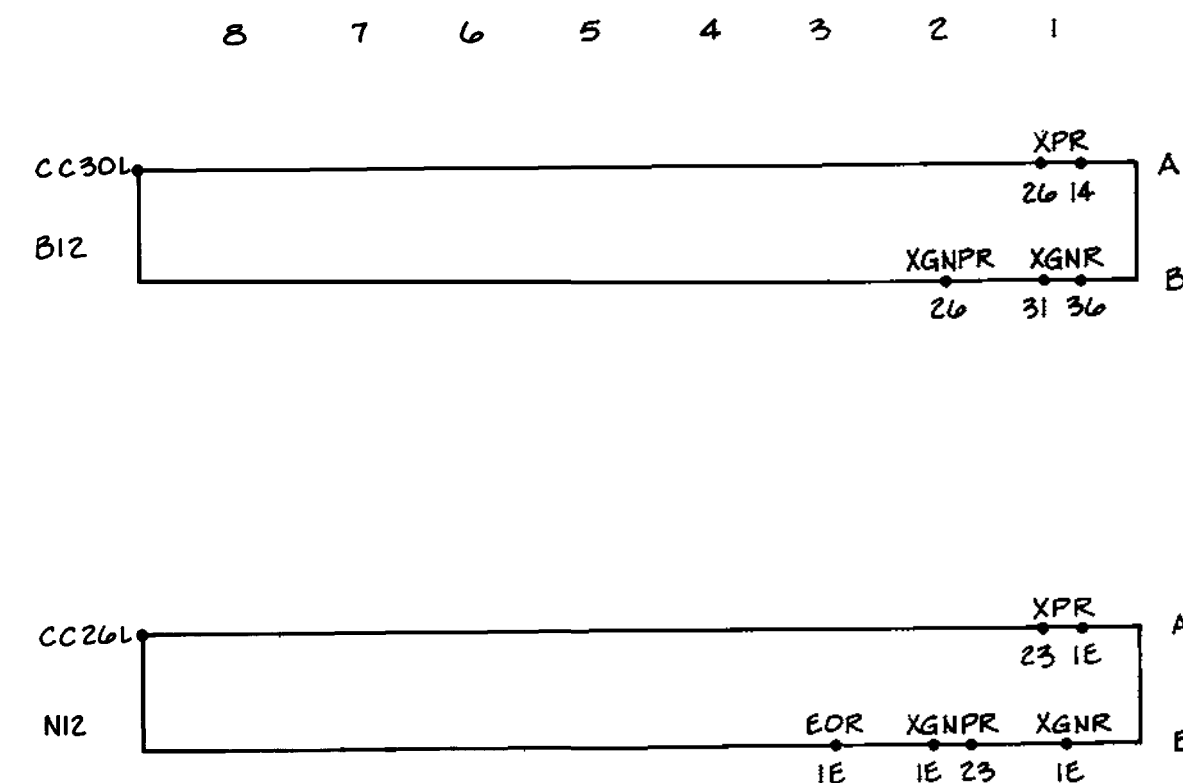
DATE: 05/25/17
CSX# 0H2017030
0H2017031
PRS/TDF/SAF

6'X 6' CROSSING RELAY HOUSE

REVISIONS				RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
06-23-94 SRD/REB/CED IN SERVICE, 1-20-95 NEW PLAN DRAWN ACCOUNT REMOTE CONTROL OF MARION INTERLOCKING.				CP 102			
05-18-2000 VECTOR CREATED BY SWE 0H1998112A				EQUIPMENT			
06-10-14 GET 0H2011021				MARION, OH M.P. Q1-101.50			
DESIGNED	DIGITIZED	CHECKED	DATE				
CSX	SWE	CSX	05-18-2000				
NEXT FILE	NEXT SH	FILE	SHEET				
Q110150	E05	Q110150	E04				



NO SCALE



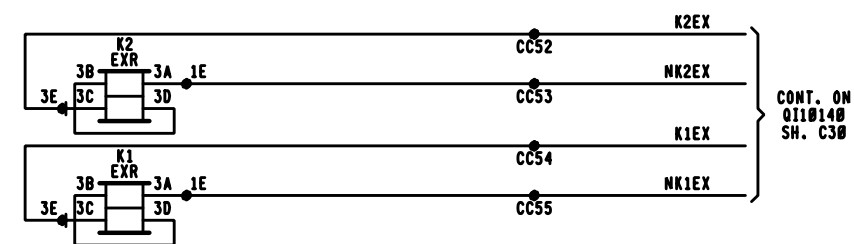
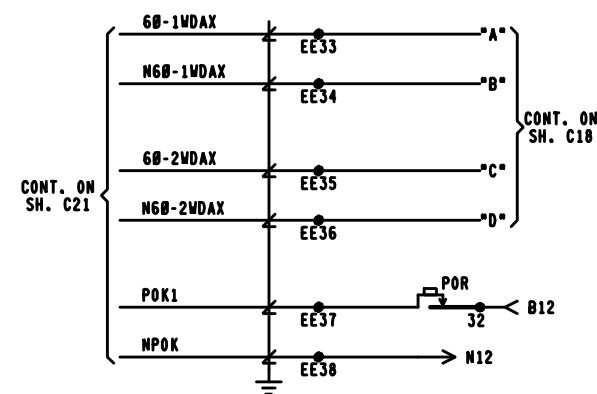
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WHEN AS IN SERVICED.

PROGRESS
RAIL SERVICES
A Caterpillar Company

DATE: 05/25/17
CSX# 0H2017030
0H2017031
PRS/TDF/SAF

6'X 6' CROSSING RELAY HOUSE

REVISIONS				CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
06-23-94 SRD/REB/CED IN SERVICE, 1-20-95 NEW PLAN DRAWN ACCOUNT REMOTE CONTROL OF MARION INTERLOCKING.				CP 102			
05-18-2000 VECTOR CREATED BY SWE 0H1998112A				EQUIPMENT MARION, OH M.P. Q1-101.50			
06-10-14 GET 0H2011021				DESIGNED CSX	DIGITIZED SWE	CHECKED CSX	DATE 05-18-2000
NEXT FILE Q110150		NEXT SH E06		FILE Q110150		SHEET E05	

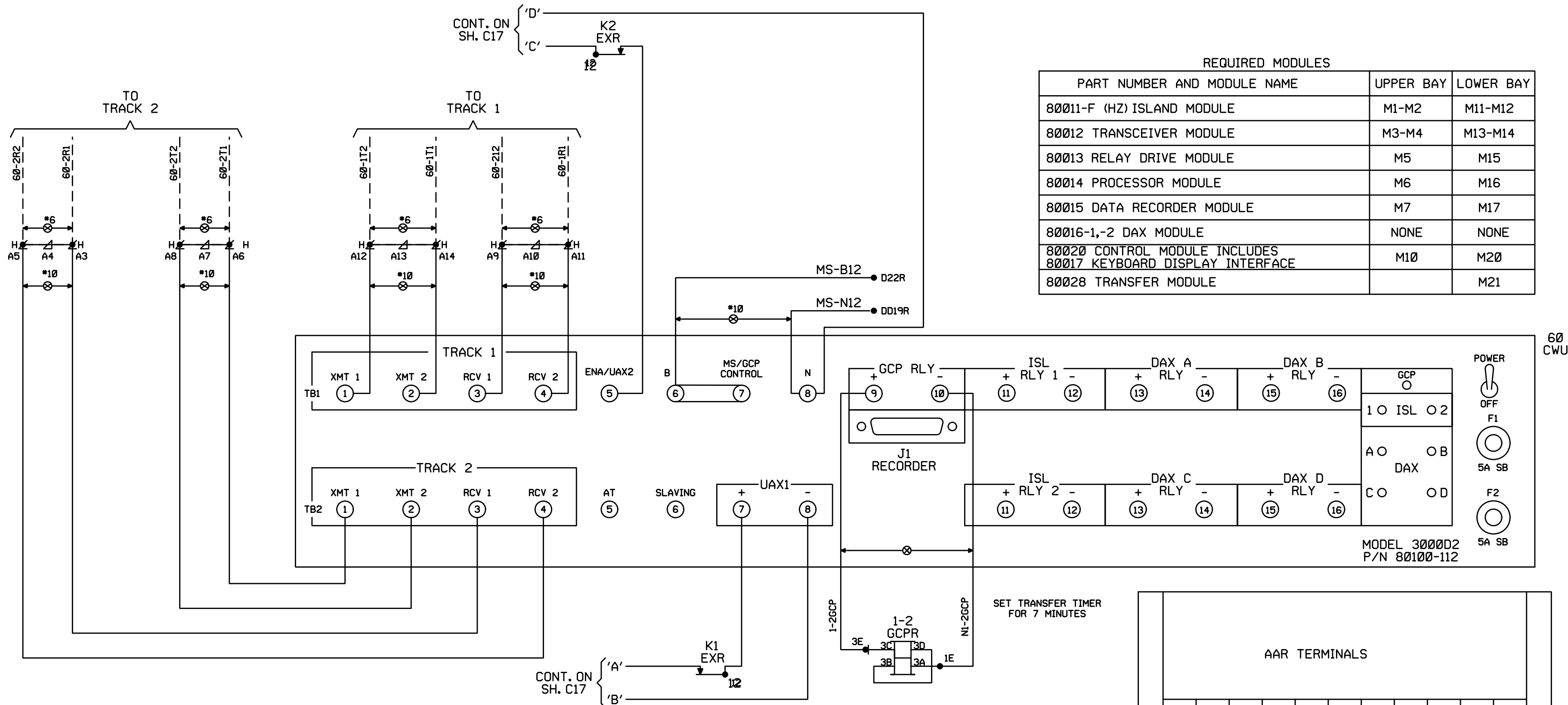


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THIS SHEET IS VOID
WHEN AS IN SERVICED.

PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 05/25/17
CSX# 0H2017030
0H2017031
PRS/TDF/SAF

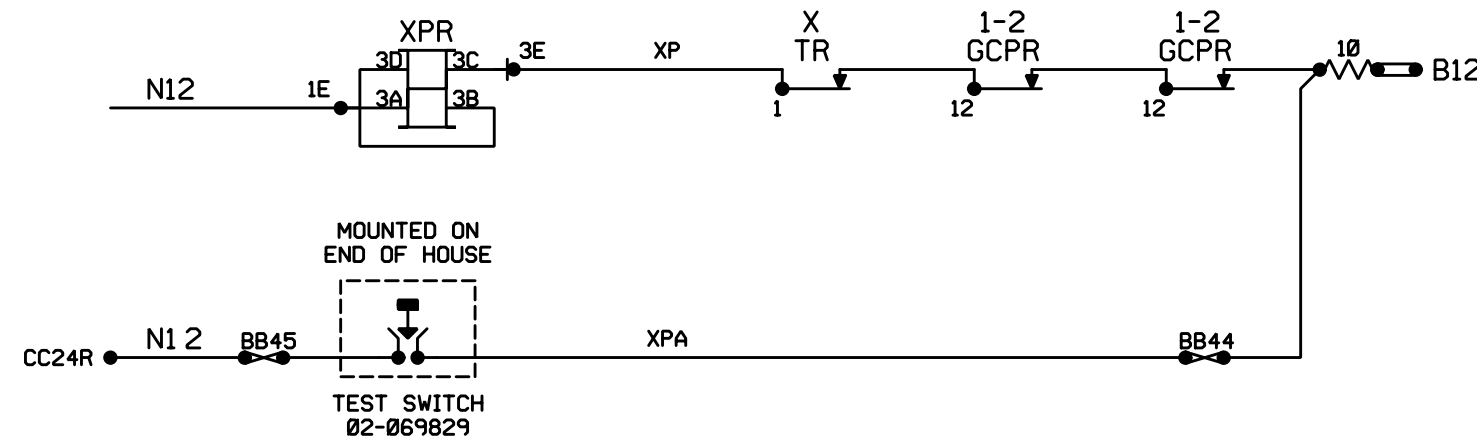
6'X 6' CROSSING RELAY HOUSE

REVISIONS		 RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
05-10-2000	SWE	0H1990112A			
06-10-14	GET	0H2011021			
		CP 102			
		CIRCUITS			
		MARION, OH H.P. Q1-101.50			
DESIGNED	DIGITIZED	CHECKED	DATE		
SWE	SWE	SWE	06-15-99		
NEXT FILE	NEXT SH	FILE	SHEET		
Q110150	C10	Q110150	C17		



REQUIRED MODULES		
PART NUMBER AND MODULE NAME	UPPER BAY	LOWER BAY
80011-F (HZ) ISLAND MODULE	M1-M2	M11-M12
80012 TRANSCEIVER MODULE	M3-M4	M13-M14
80013 RELAY DRIVE MODULE	M5	M15
80014 PROCESSOR MODULE	M6	M16
80015 DATA RECORDER MODULE	M7	M17
80016-1,-2 DAX MODULE	NONE	NONE
80020 CONTROL MODULE INCLUDES 80017 KEYBOARD DISPLAY INTERFACE	M10	M20
80028 TRANSFER MODULE		M21

SYSTEM PROGRAMMING PARAMETERS	
PROMPT	RESPONCE
NUMBER OF TRACKS	2 TRACK
FREQUENCY (MS/GCP)	285HZ
UNI/BIDIRECTIONAL T1	BIDIRECTIONAL
UNI/BIDIRECTIONAL T2	BIDIRECTIONAL
XMIT LEVEL T1	MED
XMIT LEVEL T2	MED
PREDICTOR/MOTION SENSOR T1	PREDICTOR
PREDICTOR/MOTION SENSOR T2	PREDICTOR
WARNING TIME SELECTED T1	30SEC.
WARNING TIME SELECTED T2	30SEC.
APPROACH DIST. SELECTED T1	2550FT.
APPROACH DIST. SELECTED T2	2550FT.
APPROACH DIST. COMPUTED T1	* FT.
APPROACH DIST. COMPUTED T2	* FT.
UAX1 PICKUP DELAY(0=OFF)	25-SEC.
UAX2 PICKUP DELAY(0=OFF)	25-SEC.
NUMBER OF DAX'S	0
ISLAND DISTANCE T1	* FT.
ISLAND DISTANCE T2	* FT.
DAX A TRACK ASSIGNMENT	N/A
DAX A DISTANCE (0=PREEMPT)	N/A FT.
DAX A WARNING TIME	N/A SEC.
DAX B TRACK ASSIGNMENT	N/A
DAX B DISTANCE (0=PREEMPT)	N/A FT.
DAX B WARNING TIME	N/A SEC.
DAX C TRACK ASSIGNMENT	N/A
DAX C DISTANCE (0=PREEMPT)	N/A FT.
DAX C WARNING TIME	N/A SEC.
DAX D TRACK ASSIGNMENT	N/A
DAX D DISTANCE (0=PREEMPT)	N/A FT.
DAX D WARNING TIME	N/A SEC.
SLAVING MASTER/SLAVE	MASTER
PASSWORD ENABLE	DISABLED
RECORDER INSTALLED	INSTALLED
RS-232-C BAUD RATE	
RS-232-C DATA BITS	
RS-232-C STOP BITS	
RS-232-C PARITY	
DATE(E.G., MON 16 NOV 1987)	*
TIME(E.G., 11:25:43 AM)	*
DAYLIGHT SAVINGS	ON/OFF
EXPANDED PROGRAMMING HISTORY	
SWITCH TO MS T1	0-EZ
SWITCH TO MS T2	0-EZ
TRANSFER DELAY MS TO GCP T1	0-SEC.
TRANSFER DELAY MS TO GCP T2	0-SEC.
PRIME PREDICTION OFFSET T1	0-FT.
PRIME PREDICTION OFFSET T2	0-FT.
PICKUP DELAY PRIME	15-SEC.
PICKUP DELAY DAX A	15-SEC.
PICKUP DELAY DAX B	15-SEC.
PICKUP DELAY DAX C	15-SEC.
PICKUP DELAY DAX D	15-SEC.
COMPENSATION VALUE T1	SET BY SYSTEM
COMPENSATION VALUE T2	SET BY SYSTEM



* =FIELD TO INSERT INFORMATION
DAY OF CUT OVER.
N/A = INFORMATION NOT APPLICABLE

ISLAND FREQUENCY: TRACK NO.2 5.9HZ.
ISLAND FREQUENCY: TRACK NO.1 8.3HZ.

AAR TERMINALS											
ISLAND MODULE	ISLAND MODULE	TRANSCEIVER MODULE	TRANSCEIVER MODULE	RELAY DRIVE MODULE	PROCESSOR MODULE	DATA RECORDER MODULE	SPARE	SPARE	CONTROL INTERFACE MODULE		
M1	M2	M3	M4	M5	M6	M7	M8	M9	M10		
ISLAND MODULE	ISLAND MODULE	TRANSCEIVER MODULE	TRANSCEIVER MODULE	RELAY DRIVE MODULE	PROCESSOR MODULE	DATA RECORDER MODULE	SPARE	SPARE	CONTROL INTERFACE MODULE	TRANSFER MODULE	
M11	M12	M13	M14	M15	M16	M17	M18	M19	M20	M21	

CARDFILE LAYOUT

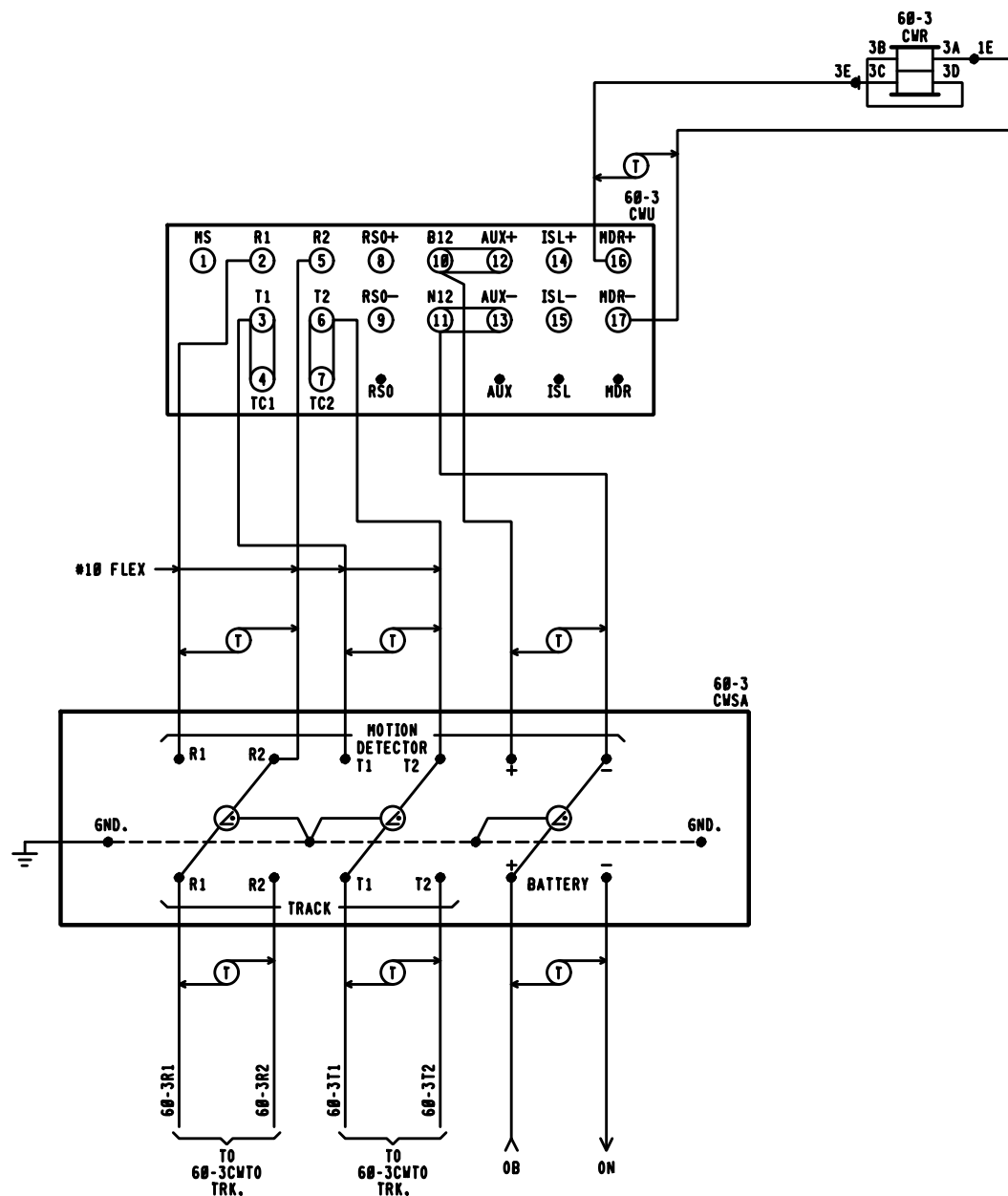
ALL OUT
THIS SHEET IS VOID
WHEN AS IN SERVICED.

PROGRESS
RAIL SERVICES
A Caterpillar Company

DATE: 05/25/17
CSX#: 0H2017030
0H2017031
PRS/TDF/SAF

6'X 6' CROSSING RELAY HOUSE

REVISIONS		RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
6-23-94 NEW PLAN DRAWN ACCOUNT REMOTE CONTROL OF MARION INTERLOCKING 1-20-95 SRD/REB/CED		CP 102			
05-18-2000 SWE		OH1998112A			
06-10-14 GET 0H2011021					
DESIGNED SWE		DIGITIZED SWE		CHECKED SWE	
NEXT FILE 0110150		NEXT SH C19		FILE 0110150	
				DATE 07-18-94	
				SHEET C18	



60-3CWU
PMD-3 MODULES REQUIRED

(NOT INSTALLED)
RHM MODULE (RECORDER MEMORY)
TRM MODULE (TRANSCIVER)
RSI MODULE (ISLAND)
RYD MODULE (RELAY DRIVE)
CPU MODULE (CENTRAL PROCESSOR UNIT)

FRONT VIEW

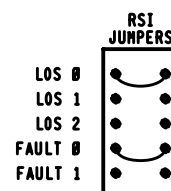
EQUIPMENT		
REF.	NOMENCLATURE	TYPE
	60-3CWU	HARMON PHASE MOTION DETECTOR PMD-3 FREQ. 267 HZ, W/8.0 KHZ RANDOM SIGNATURE ISLAND (R.S.I.)
	60-3CWSA	MOTION DETECTOR SURGE ARRESTOR, HARMON MODEL MDSA-1

CABINET SWITCHES
THESE SWITCHES ARE LOCATED ON MOTHERBOARD

MASTER/SLAVE
MASTER SLAVE
S1

SYSTEM CONFIGURATION				
S4 DIP SWITCH POSITIONS				
SWITCH	1	2	3	4
SWITCH POSITION	ON	OFF	OFF	OFF
APPROACH	NORMAL	(NOT USED)		

FREQUENCY SELECT					
S2 & S3 DIP SWITCH POSITIONS					
SWITCH	1	2	3	4	5
SWITCH POSITION	OFF	OFF	OFF	ON	OFF



ALL OUT
THIS SHEET IS VOID
WHEN AS IN SERVICED.

PROGRESS
RAIL SERVICES
A Caterpillar Company

DATE: 05/25/17
CSX# 0H2017030
0H2017031
PRS/TDF/SAF

6'X 6' CROSSING RELAY HOUSE

REVISIONS		CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS	
05-10-2000	SWE	0H1990112A	
06-10-14	GET	0H2011021	
CP 102			
CIRCUITS MARION, OH H.P. Q1-101.50			
DESIGNED SWE	DIGITIZED SWE	CHECKED SWE	DATE 06-15-99
NEXT FILE Q110150	NEXT SH C20	FILE Q110150	SHEET C19



RASTER FILE, QI10150C20.CIT

MS FILE: QI10150.C20

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SH. NO.		REVISION NO.								
		1	2	3	4	5	6	7	8	9
I01	INDEX AND REVISIONS	X	X	X	X	X				
I02	INDEX	X	X	X	X	X				
S01	TRACK AND SIGNAL PLAN	X	X	X	X	X				
S02	TRACK AND SIGNAL PLAN	X	X	X	X	X				
S03	TRACK AND SIGNAL PLAN	X	X	X	X	X				
S04	TRACK AND SIGNAL PLAN	X	X	X	X	X				
P01	ELECTROLOGIXS PROGRAM (LOCATION A)	X	X	X	X	X				
P02	ELECTROLOGIXS PROGRAM (LOCATION B)	X	X	X	X	X				
P03	XP4 SET UP INFORMATION (LOCATION A) (40-1CWU)	X	X	X	X	X				
P04	XP4 SET UP INFORMATION (LOCATION B) (40-2CWU)	X	X	X	X	X				
P05	XP4 SET UP INFORMATION (REMOTE DAX HOUSE) (40-3CWU)	X	X	X	X	X				
P06	XP4 SET UP INFORMATION (REMOTE DAX HOUSE) (40-3CWU)	X	X	X	X	X				
G01	ELECTROLOGIXS I/O EQUIVALENT CIRCUITS (LOCATION A)	X	X	X	X	X				
G02	OFFICE CONTROL AND INDICATION EQUIVALENT CIRCUITS (LOCATION A)	X	X	X	X	X				
G03	ELECTROLOGIXS I/O EQUIVALENT CIRCUITS (LOCATION B)	X	X	X	X	X				
E01	POWER DISTRIBUTION (LOCATION A)	X	X	X	X	X				
E02	TRACK CIRCUITS (LOCATION A)	X	X	X	X	X				
E03	RACK 1 LAYOUT (LOCATION A)	X	X	X	X	X				
E04	ELECTROLOGIXS MODULE CONFIGURATION RACK 1 (LOCATION A)	X	X	X	X	X				
E05	RACK 2 LAYOUT (LOCATION A)	X	X	X	X	X				
E06	ELECTROLOGIXS XP4 MODULE CONFIGURATION (LOCATION A) (40-1CWU)	X	X	X	X	X				
E07	POWER DISTRIBUTION (LOCATION B)	X	X	X	X	X				
E08	TRACK CIRCUITS (LOCATION B)	X	X	X	X	X				
E09	RACK 1 LAYOUT (LOCATION B)	X	X	X	X	X				
E10	ELECTROLOGIXS MODULE CONFIGURATION RACK 1 (LOCATION B)	X	X	X	X	X				
E11	ELECTROLOGIXS XP4 MODULE CONFIGURATION (LOCATION B) (40-2CWU)	X	X	X	X	X				
E12	POWER DISTRIBUTION (REMOTE DAX HOUSE)	X	X	X	X	X				
E13	ELECTROLOGIX XP4 MODULE CONFIGURATION (REMOTE DAX HOUSE) (40-3CWU)	X	X	X	X	X				
C01	ELECTROLOGIXS UNIT DATA AND COMMUNICATIONS CIRCUITS RACK 1 (LOCATION A)	X	X	X	X	X				
C02	PTC COMMUNICATION CIRCUITS (LOCATION A)	X	X	X	X	X				
C03	ELECTROLOGIXS TRACK CIRCUITS (LOCATION A)	X	X	X	X	X				
C04	ELECTROLOGIXS TRACK CIRCUITS (LOCATION A)	X	X	X	X	X				
C05	SIGNAL 4 & 8 LIGHTING CIRCUITS (LOCATION A)	X	X	X	X	X				
C06	SIGNAL 18 & 20 LIGHTING CIRCUITS (LOCATION A)	X	X	X	X	X				
C07	SIGNAL 22 & 24 LIGHTING CIRCUITS (LOCATION A)	X	X	X	X	X				
C08	ELECTROLOGIXS I/O CIRCUITS RACK 1 (LOCATION A)	X	X	X	X	X				
C09	ELECTROLOGIXS I/O CIRCUITS RACK 1 (LOCATION A)	X	X	X	X	X				
C10	ELECTROLOGIXS I/O CIRCUITS RACK 1 (LOCATION A)	X	X	X	X	X				
C11	XP4 CROSSING DETECTION CIRCUITS (LOCATION A) (40-1CWU)	X	X	X	X	X				

 = DESIGN COMPLETED
 = REVISION COMPLETED

THIS PLAN DOES ☐ DOES NOT ☒
SUPERSEDE PLAN DATED, 10/26/16
CSX PROJECT # 0H2016046
CSX PROJECT # 0H2016047
CSX PROJECT # 0H2016048
CSX PROJECT # 0H2016049
CSX PROJECT # 0H2016050
CSX PROJECT # 0H2016051
CSX PROJECT # 0H2017010
CSX PROJECT # 0H2017011

 = NOTE
PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 05/25/17
CSX # 0H2017030
0H2017031
PRS/TDF/SAF

 = NOTE
PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 10/26/16
CSX # 0H2016046
0H2016047
0H2016048
0H2016049
0H2016050
0H2016051
0H2017010
0H2017011
PRS/TDF/SAF

DESIGN DATE

REV. NO.
3

REVISIONS				
REV. NO.	PROJECT NO.	DESIGN DATE	IN SERVICE DATE	REVISION DATE
1	0H2011021/ 0H2011021A	12-12-11/ 04-18-12	04-24-13	06-10-14
2	0H2014093	06-02-15	03-29-16	09-12-16
3	0H2013049	06-02-14	08-08-16	11-22-16
4	0H2016046 0H2016047 0H2016048 0H2016049 0H2016050 0H2016051 0H2017010 0H2017011	10-26-16		

TO BE COMPLETED
ON A.I.S.

TO BE COMPLETED
ON A.I.S.

5	0H2017030 0H2017031	05-25-17		
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CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

CP 101

INDEX AND REVISIONS
MARION, OH M.P. 01-101.40

DESIGNED GET/KJM	DIGITIZED GET/SAT	CHECKED GET/KMQ	DATE 12-12-11
DRAWING -----	SHEET NO -----	FILE Q110140	SHEET 101

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SH. NO.		REVISION NO.								
		1	2	3	4	5	6	7	8	9
C12	XP4 I/O CIRCUITS (LOCATION A) (4Ø-1CWU)	✕		✕						
C13	XP4 I/O CIRCUITS (LOCATION A) (4Ø-1CWU)	✕		✕						
C14	WAGO TERMINAL BOARDS RACK 1 (LOCATION A)	✕	✕							
C15	WAGO TERMINAL BOARDS RACK 2 (LOCATION A)	✕								
C16	CUSTOM LOCAL CONTROL PANEL CIRCUITS (LOCATION A)	✕		✕						
C17	CUSTOM LOCAL CONTROL PANEL CIRCUITS (LOCATION A)	✕								
C18	CUSTOM LOCAL CONTROL PANEL CIRCUITS (LOCATION A)	✕		✕						
C19	CUSTOM LOCAL CONTROL PANEL CIRCUITS (LOCATION A)	✕								
C20	CUSTOM LOCAL CONTROL PANEL CIRCUITS (LOCATION A)	✕								
C21	ELECTROLOGIXS UNIT DATA AND COMMUNICATIONS CIRCUITS FRAME RELAY / WCM INTERFACE (LOCATION B)	✕		✕						
C22	ELECTROLOGIXS TRACK CIRCUITS RACK 1 (LOCATION B)	✕		✕						
C23	SIGNAL 2 & 6 LIGHTING CIRCUITS RACK 1 (LOCATION B)	✕	✕							
C24	SIGNAL 10 AND 12 LIGHTING CIRCUITS RACK 1 (LOCATION B)	✕		✕						
C25	SIGNAL 14 AND 16 LIGHTING CIRCUITS RACK 1 (LOCATION B)	✕		✕						
C26	ELECTROLOGIXS I/O CIRCUITS RACK 1 (LOCATION B)	✕								
C27	ELECTROLOGIXS I/O CIRCUITS RACK 1 (LOCATION B)	✕								
C28	ELECTROLOGIXS I/O CIRCUITS RACK 1 (LOCATION B)	✕								
C29	XP4 CROSSING DETECTION CIRCUITS (LOCATION B) (4Ø-2CWU)	✕		✕						
C30	XP4 I/O CIRCUITS (LOCATION B) (4Ø-2CWU)	✕		✕		4				
C31	WAGO TERMINAL BOARDS RACK 1 (LOCATION B)	✕	✕							
C32	XP4 CROSSING DETECTION CIRCUITS (REMOTE DAX HOUSE) (4Ø-3CWU)			✕						
C33	XP4 I/O CIRCUITS (REMOTE DAX HOUSE) (4Ø-3CWU)			✕						



= DESIGN COMPLETED
= REVISION COMPLETED

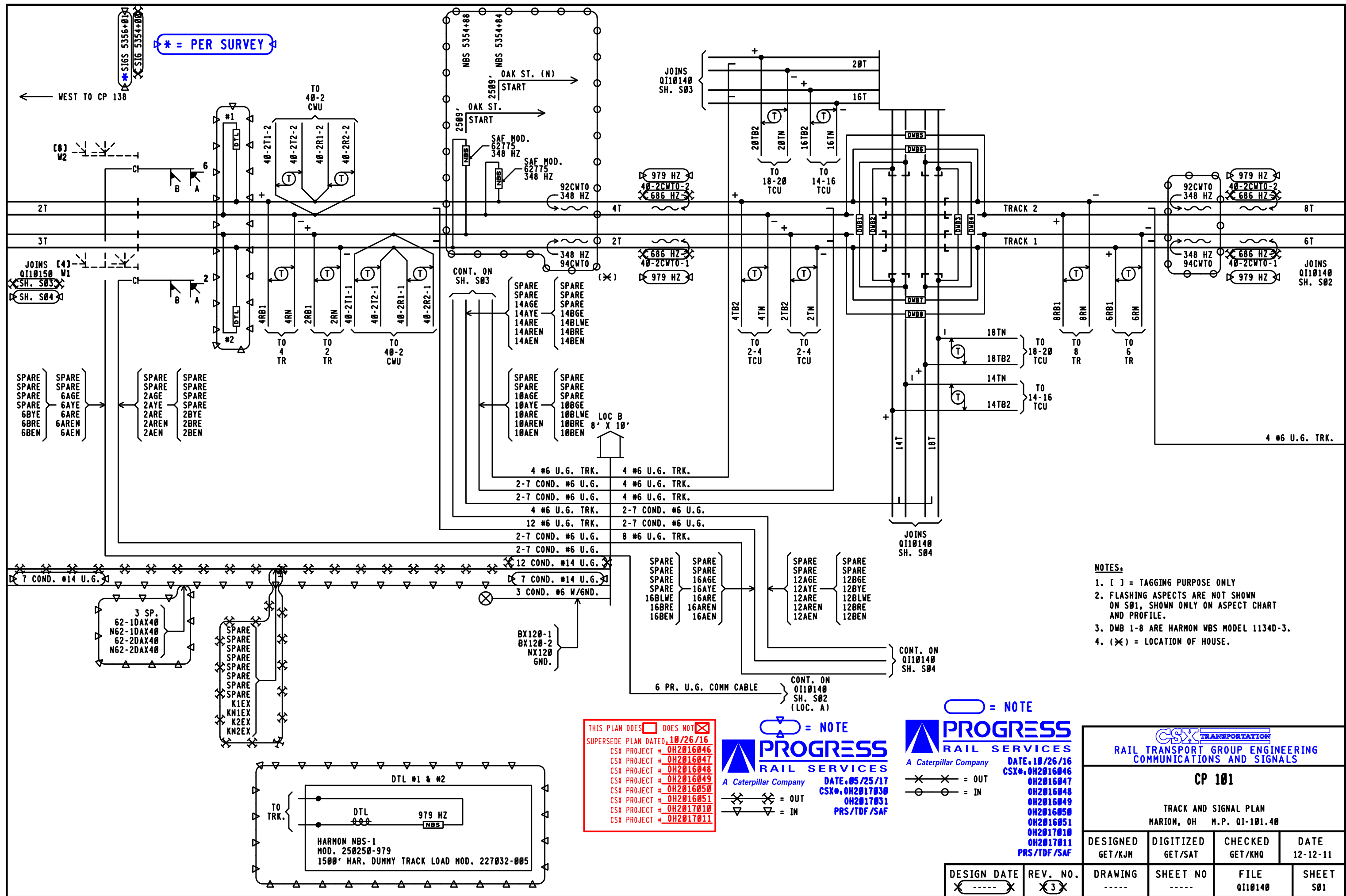
THIS PLAN DOES ☐ DOES NOT ☒
SUPERSEDE PLAN DATED 10/26/16
CSX PROJECT # 0H2016046
CSX PROJECT # 0H2016047
CSX PROJECT # 0H2016048
CSX PROJECT # 0H2016049
CSX PROJECT # 0H2016050
CSX PROJECT # 0H2016051
CSX PROJECT # 0H2017010
CSX PROJECT # 0H2017011



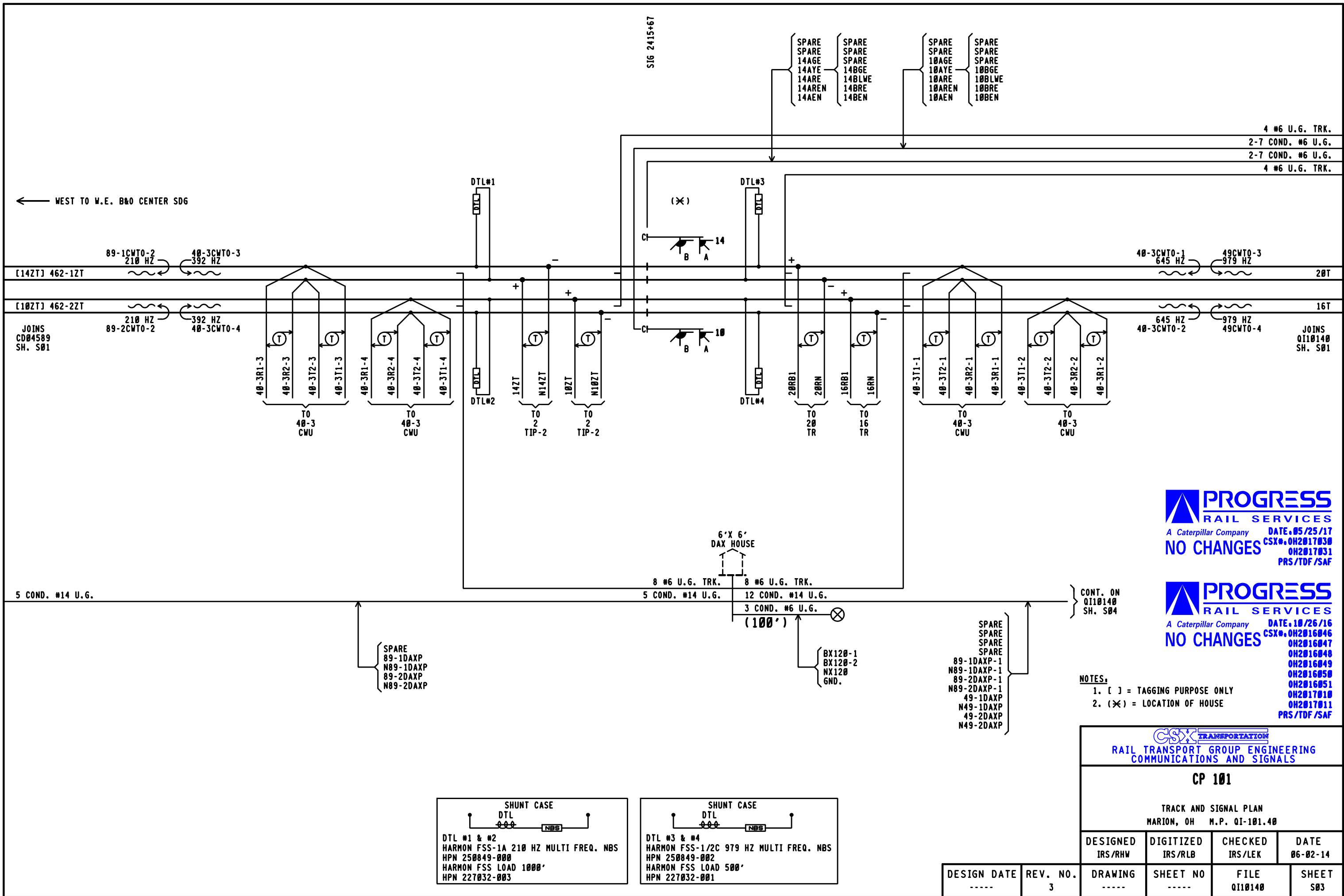
CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
CP 101			
INDEX MARION, OH M.P. Q1-101.40			
DESIGNED GET/KJM	DIGITIZED GET/SAT	CHECKED GET/KMQ	DATE 12-12-11
DRAWING -----	SHEET NO -----	FILE Q110140	SHEET 102

DESIGN DATE
05-25-17

REV. NO.
3







PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 05/25/17
CSX# 0H2017030
0H2017031
PRS/TDF/SAF
NO CHANGES

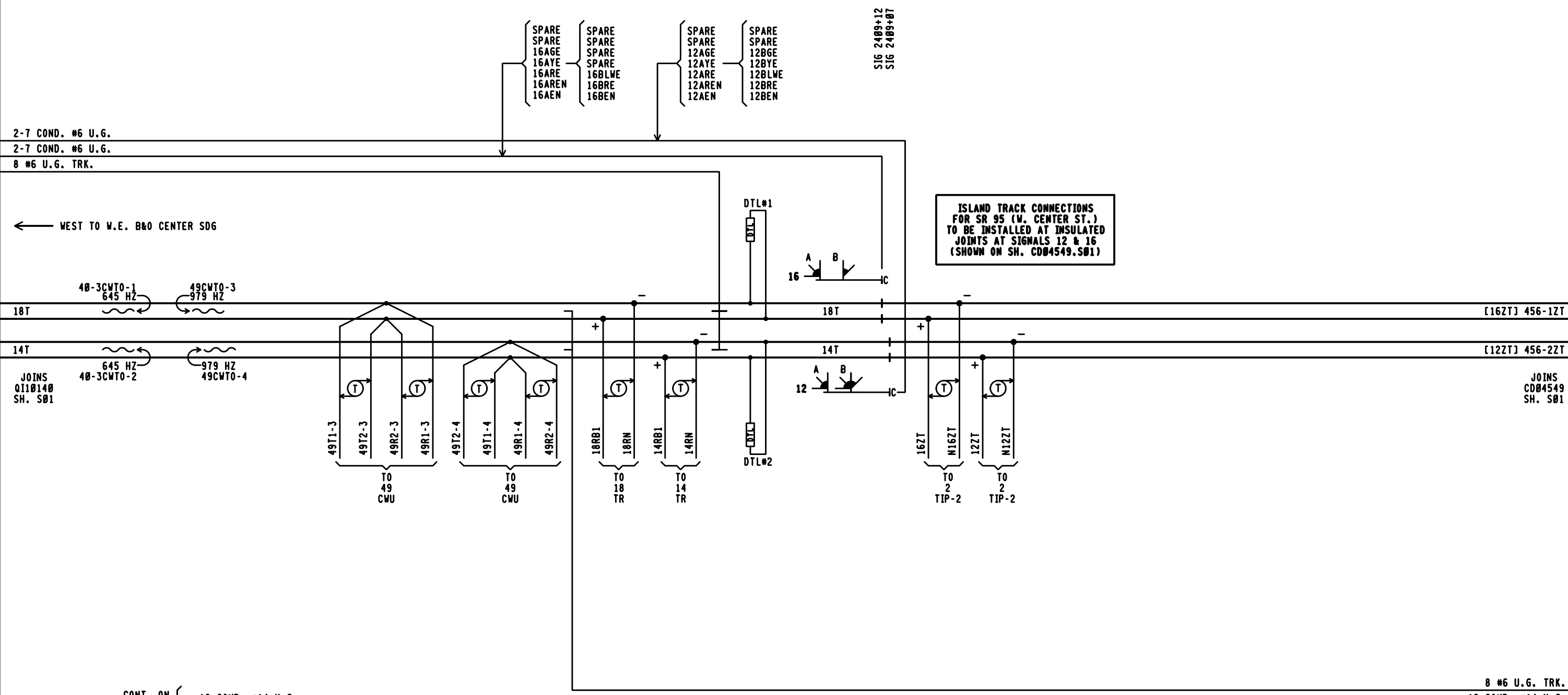
PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 10/26/16
CSX# 0H2016046
0H2016047
0H2016048
0H2016049
0H2016050
0H2016051
0H2017010
0H2017011
PRS/TDF/SAF
NO CHANGES

CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

CP 101

TRACK AND SIGNAL PLAN
MARION, OH M.P. Q1-101.40

DESIGNED	DIGITIZED	CHECKED	DATE
IRS/RHW	IRS/RLB	IRS/LEK	06-02-14
DRAWING	SHEET NO	FILE	SHEET
-----	-----	Q110140	S03



2-7 COND. #6 U.G.
2-7 COND. #6 U.G.
8 #6 U.G. TRK.

← WEST TO W.E. B&O CENTER SDG

40-3CWT0-1 645 HZ
49CWT0-3 979 HZ

18T [16ZT] 456-12T

14T [12ZT] 456-22T

JOINS QI10140 SH. S01

40-3CWT0-2 645 HZ
49CWT0-4 979 HZ

49T1-3 TO 49 CWU
49T2-3
49R2-3
49R1-3

49T2-4 TO 49 CWU
49T1-4
49R1-4
49R2-4

18RB1 TO 18 TR
18RN
14RB1 TO 14 TR
14RN

DTL#1

DTL#2

16ZT TO 2 TIP-2
N16ZT
12ZT TO 2 TIP-2
N12ZT

CONT. ON QI10140 SH. S03

12 COND. #14 U.G.

8 #6 U.G. TRK.
12 COND. #14 U.G.

SPARE
SPARE
SPARE
SPARE
89-1DAXP-1
N89-1DAXP-1
89-2DAXP-1
N89-2DAXP-1
49-1DAXP
N49-1DAXP
49-2DAXP
N49-2DAXP

SIG 2409+12
SIG 2409+07

PROGRESS
RAIL SERVICES
A Caterpillar Company

DATE: 05/25/17
CSX# 0H2017030
OH2017031
PRS/TDF/SAF

PROGRESS
RAIL SERVICES
A Caterpillar Company

DATE: 10/26/16
CSX# 0H2016046
OH2016047
OH2016048
OH2016049
OH2016050
OH2016051
OH2017010
OH2017011
PRS/TDF/SAF

NOTE:
1. [] = TAGGING PURPOSE ONLY

SHUNT CASE
DTL
WBS

DTL #1 & #2
HARMON FSS-1/2F 645 HZ MULTI FREQ. NBS
HPN 250849-002
HARMON FSS LOAD 500'
HPN 227032-001

DESIGNED
IRS/RHW

DIGITIZED
IRS/RLB

CHECKED
IRS/LEK

DATE
06-02-14

DESIGN DATE

REV. NO.
3

DRAWING

SHEET NO

FILE
QI10140

SHEET
S04

RACK 1 VITAL APPLICATION INFORMATION	
ITEM	SETTING
NAME	cp101_av
INDEX	001
EPT CRC	87CF
EPT CHECKSUM	E4E8

RACK 1 NON-VITAL APPLICATION INFORMATION	
ITEM	SETTING
NAME	cp101_anv
INDEX	001
EPT CRC	3D76
EPT CHECKSUM	1287

RACK 1 CIO-1A DIAGNOSTIC PORT SETTINGS	
ITEM	SETTING
BAUD RATE	57600
PARITY	NONE
DATA BITS	8
STOP BITS	1
FLOW CONTROL	DISABLED

SERIAL PORT 2 LCP SETTINGS	
ITEM	SETTING
LCP ENABLE	ENABLED

ETHERNET SETTINGS	
ITEM	SETTING
IP ADDRESS 1	192.168.0.11 ✕
SUBNET MASK 1	255.255.255.0 ✕
IP ADDRESS 2	10.52.176.50 ✕
SUBNET MASK 2	255.255.255.224 ✕
DEFAULT GATEWAY	10.52.176.33 ✕

RACK 1 CIO-MDA VITAL COMMUNICATION SETTINGS	
ITEM	SETTING
BAUD RATE	9600
PARITY	NONE
DATA BITS	8
STOP BITS	1
TYPE	ASYNCHRONOUS
MODE	POINT TO POINT
ATTACHED REMOTES	1
PROTOCOL	RP2000
LOCAL NETWORK ID	38400
REMOTE NETWORK ID	258(D)

* CHASSIS ID 0F102'S VHLC(102H) CONVERTED FROM HEX TO DEC

RACK 1 & RACK 2 GFD-1 SETTINGS	
ITEM	SETTING
BATTERY 1 NAME	BATTERY 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	08
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 ✕

RACK 1 CIO-A 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	12 ✕
UNIT ADDRESS	40 ✕
TRANSMISSION DELAY	50 ✕
TRANSMISSION CUTOFF	20 ✕

RACK 1 REMOTE 2 ETHERNET SETTINGS	
ITEM	SETTING
REMOTE 2 SOURCE NETWORK ID	38400
REMOTE 2 DESTINATION NET ID	38401
REMOTE 2 DATE TIME UPDATE	DISABLED ✕
REMOTE 2 IP ADDRESS	10.52.176.54 ✕
REMOTE 2 PORT	8280 ✕

RACK 1 REMOTE 4 ETHERNET SETTINGS	
ITEM	SETTING
REMOTE 4 SOURCE NETWORK ID	5
REMOTE 4 DESTINATION NET ID	1005
REMOTE 4 DATE TIME UPDATE	DISABLED ✕
REMOTE 4 IP ADDRESS	10.52.176.38 ✕
REMOTE 4 PORT	8280 ✕

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

VITAL TIMERS	
NAME	SETTING
2TER	7 MIN 25 SEC
4TER	8 MIN 02 SEC
6TER	7 MIN 25 SEC
8TER	7 MIN 47 SEC
10TER	6 MIN 1 SEC
12TER	3 MIN 00 SEC
14TER	6 MIN 1 SEC
16TER	2 MIN 54 SEC
18TER	6 MIN 32 SEC
20TER	6 MIN 32 SEC
22TER	6 MIN 32 SEC
24TER	6 MIN 32 SEC
2TPER	00 MIN 15 SEC
4TPER	00 MIN 15 SEC
6TPER	00 MIN 15 SEC
8TPER	00 MIN 15 SEC
10TPER	00 MIN 15 SEC
12TPER	00 MIN 15 SEC
14TPER	00 MIN 15 SEC
16TPER	00 MIN 15 SEC
18TPER	00 MIN 15 SEC
20TPER	00 MIN 15 SEC
22TPER	00 MIN 15 SEC
24TPER	00 MIN 15 SEC
4ZT	00 MIN 10 SEC
8ZT	00 MIN 10 SEC
10ZT	00 MIN 10 SEC
14ZT	00 MIN 10 SEC
18ZT	00 MIN 10 SEC
22ZT	00 MIN 10 SEC
20ZT	00 MIN 10 SEC
24ZT	00 MIN 10 SEC



PROGRESS

RAIL SERVICES

A Caterpillar Company

DATE:05/25/17

CSX#.0H2017030

0H2017031

PRS/TDF/SAF

NO CHANGES



PROGRESS

RAIL SERVICES

A Caterpillar Company

DATE:10/26/16

CSX#.0H2016046

0H2016047

0H2016048

0H2016049

0H2016050

0H2016051

0H2017010

0H2017011

PRS/TDF/SAF

NO CHANGES

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

DESIGN DATE	REV. NO.	DRAWING	SHEET NO	FILE	SHEET
-----	3	-----	-----	Q110140	P01

LOCATION A



RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

CP 101

ELECTROLOGIXS PROGRAM
MARION, OH M.P. QI-101.40

DESIGNED GET/KJM	DIGITIZED GET/SAT	CHECKED GET/KMQ	DATE 12-12-11
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RACK 1 VITAL APPLICATION INFORMATION	
ITEM	SETTING
NAME	op101_bv
INDEX	001
EPT CRC	AE78
EPT CHECKSUM	ED55

RACK 1 NON-VITAL APPLICATION INFORMATION	
ITEM	SETTING
NAME	op101_bnv
INDEX	001
EPT CRC	4B41
EPT CHECKSUM	75D8

RACK 1 CIO-1A DIAGNOSTIC PORT SETTINGS	
ITEM	SETTING
BAUD RATE	57600✕
PARITY	NONE✕
DATA BITS	8✕
STOP BITS	1✕
FLOW CONTROL	DISABLED✕

RACK 1 GFD-1 SETTINGS	
ITEM	SETTING
BATTERY 1 NAME	BATTERY 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✕

RACK 1 ETHERNET SETTINGS	
ITEM	SETTING
IP ADDRESS 1	192.168.0.11✕
SUBNET MASK 1	255.255.255.0✕
IP ADDRESS 2	10.52.176.54✕
SUBNET MASK 2	255.255.255.0✕
DEFAULT GATEWAY	10.52.176.33✕

RACK 1 REMOTE ETHERNET SETTINGS	
ITEM	SETTING
REMOTE 1 SOURCE NETWORK ID	38401
REMOTE 1 DESTINATION NET ID	38400
REMOTE 1 DATE TIME UPDATE	DISABLED✕
REMOTE 1 IP ADDRESS	10.52.176.50✕
REMOTE 1 PORT	8280✕

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

LOCATION B



PROGRESS

RAIL SERVICES

A Caterpillar Company

DATE:05/25/17

CSX#.0H2017030

0H2017031

PRS/TDF/SAF

NO CHANGES



PROGRESS

RAIL SERVICES

A Caterpillar Company

DATE:10/26/16

CSX#.0H2016046

0H2016047

0H2016048

0H2016049

0H2016050

0H2016051

0H2017010

0H2017011

PRS/TDF/SAF

NO CHANGES

DESIGN DATE	REV. NO.	DRAWING	SHEET NO	FILE	SHEET
-----	3	-----	-----	QI10140	P02



RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

CP 101

ELECTROLOGIXS PROGRAM
MARION, OH M.P. QI-101.40

DESIGNED GET/KJM	DIGITIZED GET/SAT	CHECKED GET/KMQ	DATE 12-12-11
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DRAWING -----	SHEET NO -----	FILE QI10140	SHEET P02
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	MDR1	
NAME	40-1	
WARNING TIME	30	
CW/MD	MD	
AP TIME(PREEMPT)	NA	
CWE-WT	80	
AUX RECOVERY DELAY	10	
	TK1	
TRACK ASSIGNED	ASSIGNED	
OFFSET DISTANCE	0'	
MD RESTART	0*	
SUDDEN SHUNT ZONE	0*	
POSITIVE START	PSEN	DISABLE
	PSRX	NA
	PST	NA
POST JOINT DETECT	PJEN	DISABLE
	PJRX	NA
	PJDT	NA

BASIC TRACK SETUP	
	TRACK 1
FREQUENCY	525
MASTER/SLAVE	MASTER
RX ADJUST	100 *
TCA	*
DIRECTION MODE	BI
LIA	*
ADVANCED APPROACH	*
NBS COMP RX	*
TRK ISLAND ASSIGN	NA
APPROACH LENGTH	664
AUTO RX	ENABLE

ADVANCED TRACK SETUP		
	TRACK 1	
MOTION DET TIMER	MDEN	DISABLE
	MDTT	10 MIN
FALSE SHUNT	FSEN	DISABLE
	FSRX	NA
	FST	NA
APPROACH RELEASE	AREN	DISABLE
	ARRX	NA
	ART	NA
CJ LOS		22 SEC
LOS TIME		16 SEC
IJ-LOS TIME		5 SEC
NRML*SHRT*VRYSHRT		NRML

ISLAND SETUP	
	TRACK 1
ENABLE/DISABLE	DIS
FREQUENCY	NA
LOSS OF SHUNT	NA
FAULT DELAY	NA

	MDR2	
NAME	40-2	
WARNING TIME	30	
CW/MD	MD	
AP TIME(PREEMPT)	NA	
CWE-WT	80	
AUX RECOVERY DELAY	10	
	TK2	
TRACK ASSIGNED	ASSIGNED	
OFFSET DISTANCE	0'	
MD RESTART	0*	
SUDDEN SHUNT ZONE	0*	
POSITIVE START	PSEN	DISABLE
	PSRX	NA
	PST	NA
POST JOINT DETECT	PJEN	DISABLE
	PJRX	NA
	PJDT	NA

BASIC TRACK SETUP	
	TRACK 2
FREQUENCY	525
MASTER/SLAVE	SLAVE
RX ADJUST	100 *
TCA	*
DIRECTION MODE	BI
LIA	*
ADVANCED APPROACH	*
NBS COMP RX	*
TRK ISLAND ASSIGN	NA
APPROACH LENGTH	664
AUTO RX	ENABLE

ADVANCED TRACK SETUP		
	TRACK 2	
MOTION DET TIMER	MDEN	DISABLE
	MDTT	10 MIN
FALSE SHUNT	FSEN	DISABLE
	FSRX	NA
	FST	NA
APPROACH RELEASE	AREN	DISABLE
	ARRX	NA
	ART	NA
CJ LOS		22 SEC
LOS TIME		16 SEC
IJ-LOS TIME		5 SEC
NRML*SHRT*VRYSHRT		NRML

ISLAND SETUP	
	TRACK 2
ENABLE/DISABLE	DIS
FREQUENCY	NA
LOSS OF SHUNT	NA
FAULT DELAY	NA

	MDR3	
NAME	40-3	
WARNING TIME	30	
CW/MD	MD	
AP TIME(PREEMPT)	NA	
CWE-WT	80	
AUX RECOVERY DELAY	10	
	TK1	
TRACK ASSIGNED	ASSIGNED	
OFFSET DISTANCE	800'	
MD RESTART	0*	
SUDDEN SHUNT ZONE	0*	
POSITIVE START	PSEN	DISABLE
	PSRX	NA
	PST	NA
POST JOINT DETECT	PJEN	DISABLE
	PJRX	NA
	PJDT	NA

BASIC TRACK SETUP	
	TRACK 1
FREQUENCY	790
MASTER/SLAVE	MASTER
RX ADJUST	100 *
TCA	*
DIRECTION MODE	BI
LIA	*
ADVANCED APPROACH	*
NBS COMP RX	*
TRK ISLAND ASSIGN	NA
APPROACH LENGTH	664
AUTO RX	ENABLE

ADVANCED TRACK SETUP		
	TRACK 1	
MOTION DET TIMER	MDEN	DISABLE
	MDTT	10 MIN
FALSE SHUNT	FSEN	DISABLE
	FSRX	NA
	FST	NA
APPROACH RELEASE	AREN	DISABLE
	ARRX	NA
	ART	NA
CJ LOS		22 SEC
LOS TIME		16 SEC
IJ-LOS TIME		5 SEC
NRML*SHRT*VRYSHRT		NRML

ISLAND SETUP	
	TRACK 1
ENABLE/DISABLE	DIS
FREQUENCY	NA
LOSS OF SHUNT	NA
FAULT DELAY	NA

	MDR4	
NAME	40-4	
WARNING TIME	30	
CW/MD	MD	
AP TIME(PREEMPT)	NA	
CWE-WT	80	
AUX RECOVERY DELAY	10	
	TK2	
TRACK ASSIGNED	ASSIGNED	
OFFSET DISTANCE	800'	
MD RESTART	0*	
SUDDEN SHUNT ZONE	0*	
POSITIVE START	PSEN	DISABLE
	PSRX	NA
	PST	NA
POST JOINT DETECT	PJEN	DISABLE
	PJRX	NA
	PJDT	NA

BASIC TRACK SETUP	
	TRACK 2
FREQUENCY	790
MASTER/SLAVE	SLAVE
RX ADJUST	100 *
TCA	*
DIRECTION MODE	BI
LIA	*
ADVANCED APPROACH	*
NBS COMP RX	*
TRK ISLAND ASSIGN	NA
APPROACH LENGTH	664
AUTO RX	ENABLE

ADVANCED TRACK SETUP		
	TRACK 2	
MOTION DET TIMER	MDEN	DISABLE
	MDTT	10 MIN
FALSE SHUNT	FSEN	DISABLE
	FSRX	NA
	FST	NA
APPROACH RELEASE	AREN	DISABLE
	ARRX	NA
	ART	NA
CJ LOS		22 SEC
LOS TIME		16 SEC
IJ-LOS TIME		5 SEC
NRML*SHRT*VRYSHRT		NRML

ISLAND SETUP	
	TRACK 2
ENABLE/DISABLE	DIS
FREQUENCY	NA
LOSS OF SHUNT	NA
FAULT DELAY	NA

40-1CWU



PROGRESS

RAIL SERVICES

A Caterpillar Company

DATE:05/25/17

CSX#0H2017030

0H2017031

PRS/TDF/SAF

NO CHANGES



PROGRESS

RAIL SERVICES

A Caterpillar Company

DATE:10/26/16

CSX#0H2016046

0H2016047

0H2016048

0H2016049

0H2016050

0H2016051

0H2017010

0H2017011

PRS/TDF/SAF

NO CHANGES

NOTES:
• = FIELD ADJUSTMENT
NA = NOT APPLICABLE

LOCATION A (40-1CWU)



RAIL TRANSPORT GROUP ENGINEERING

COMMUNICATIONS AND SIGNALS

CP 101

XP4 SET UP INFORMATION

MARION, OH M.P. QI-101.40

DESIGNED GET/KJM	DIGITIZED GET/SAT	CHECKED GET/KMQ	DATE 12-12-11
DRAWING -----	SHEET NO -----	FILE QI10140	SHEET P03

DESIGN DATE	REV. NO.
-----	3

MDR1		44 CW	MDR2		44 CW
NAME	40-5		NAME	40-6	
WARNING TIME	30		WARNING TIME	30	
CW/MD	MD		CW/MD	MD	
AP TIME(PREEMPT)			AP TIME(PREEMPT)		
CWE-WT			CWE-WT		
AUX RECOVERY DELAY			AUX RECOVERY DELAY		
TK1			TK2		
TRACK ASSIGNED			TRACK ASSIGNED		
OFFSET DISTANCE		850'	OFFSET DISTANCE	865'	850'
MD RESTART			MD RESTART	0*	
SUDDEN SHUNT ZONE			SUDDEN SHUNT ZONE	0*	
POSITIVE START	PSEN		DISABLE	PSEN	
	PSRX	NA	PSRX	NA	
	PST	NA	PST	NA	
POST JOINT DETECT	PJEN	DISABLE	POST JOINT DETECT	PJEN	DISABLE
	PJRX	NA	PJRX	NA	
	PJDT	NA	PJDT	NA	

BASIC TRACK SETUP			BASIC TRACK SETUP		
TRACK 1			TRACK 2		
FREQUENCY	686		FREQUENCY	686	
MASTER/SLAVE	MASTER		MASTER/SLAVE	SLAVE	
RX ADJUST	100 *		RX ADJUST	100 *	
TCA	*		TCA	*	
DIRECTION MODE	UNI		DIRECTION MODE	UNI	
LIA	*		LIA	*	
ADVANCED APPROACH	*		ADVANCED APPROACH	*	
NBS COMP RX	*		NBS COMP RX	*	
TRK ISLAND ASSIGN	NA		TRK ISLAND ASSIGN	NA	
APPROACH LENGTH	456'		APPROACH LENGTH	456'	
AUTO RX	ENABLE		AUTO RX	ENABLE	

ADVANCED TRACK SETUP			ADVANCED TRACK SETUP		
TRACK 1			TRACK 2		
MOTION DET TIMER	MDEN	DISABLE	MOTION DET TIMER	MDEN	DISABLE
	MDTT	10 MIN		MDTT	10 MIN
FALSE SHUNT	FSEN	DISABLE	FALSE SHUNT	FSEN	DISABLE
	FSRX	NA		FSRX	NA
	FST	NA		FST	NA
APPROACH RELEASE	AREN	DISABLE	APPROACH RELEASE	AREN	DISABLE
	ARRX	NA		ARRX	NA
	ART	NA		ART	NA
CJ LOS		5 SEC	CJ LOS		5 SEC
LOS TIME		16 SEC	LOS TIME		16 SEC
IJ-LOS TIME		5 SEC	IJ-LOS TIME		5 SEC
NRML*SHRT*VRYSHRT		NRML	NRML*SHRT*VRYSHRT		NRML

ISLAND SETUP		TRACK 1	ISLAND SETUP		TRACK 2
ENABLE/DISABLE		DIS	ENABLE/DISABLE		DIS
FREQUENCY		NA	FREQUENCY		NA
LOSS OF SHUNT		NA	LOSS OF SHUNT		NA
FAULT DELAY		NA	FAULT DELAY		NA

THIS PLAN DOES ☐ DOES NOT ☒
SUPERSEDE PLAN DATED 10/26/16
CSX PROJECT # 0H2016046
CSX PROJECT # 0H2016047
CSX PROJECT # 0H2016048
CSX PROJECT # 0H2016049
CSX PROJECT # 0H2016050
CSX PROJECT # 0H2016051
CSX PROJECT # 0H2017010
CSX PROJECT # 0H2017011



PROGRESS
RAIL SERVICES

A Caterpillar Company

DATE 05/25/17
CSX# 0H2017030
0H2017031
PRS/TDF/SAF



PROGRESS
RAIL SERVICES

A Caterpillar Company

DATE 10/26/16
CSX# 0H2016046
0H2016047
0H2016048
0H2016049
0H2016050
0H2016051
0H2017010
0H2017011
PRS/TDF/SAF

NO CHANGES

NOTES:
• = FIELD ADJUSTMENT
NA = NOT APPLICABLE

LOCATION B (40-2CWU)

CSX TRANSPORTATION

RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

CP 101

XP4 SET UP INFORMATION
MARION, OH M.P. QI-101.40

DESIGNED GET/KJM	DIGITIZED GET/SAT	CHECKED GET/KMQ	DATE 12-12-11
DRAWING -----	SHEET NO -----	FILE QI10140	SHEET P04

SITE SPECIFIC MDR DESCRIPTIONS AND SETTINGS													
NAME	MDR1				MDR2				MDR3				
FUNCTION	AX1				AX2				AX3				
WARNING TIME	35				35				33				
CW/MD	MD				MD				MD				
AP TIME(PREEMPT)	NA				NA				NA				
CWE-VT	80				80				80				
AUX RECOVERY DELAY	0				0				0				
TRACK	TK 1	TK 2	TK 3	TK 4	TK 1	TK 2	TK 3	TK 4	TK 1	TK 2	TK 3	TK 4	
TRACK ASSIGNED	ASSIGNED	UNASSIGNED	UNASSIGNED	UNASSIGNED	UNASSIGNED	ASSIGNED	UNASSIGNED	UNASSIGNED	UNASSIGNED	UNASSIGNED	ASSIGNED	UNASSIGNED	
OFFSET DISTANCE	1206'	NA	NA	NA	NA	1206'	NA	NA	NA	NA	438'	NA	
MD RESTART	0*	NA	NA	NA	NA	0*	NA	NA	NA	NA	0*	NA	
SUDDEN SHUNT ZONE	0*	NA	NA	NA	NA	0*	NA	NA	NA	NA	0*	NA	
POSITIVE START	PSEN	DISABLE	NA	NA	NA	DISABLE	NA	NA	NA	NA	DISABLE	NA	
	PSRX	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
	PST	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
POST JOINT DETECT	PJEN	DISABLE	NA	NA	NA	DISABLE	NA	NA	NA	NA	DISABLE	NA	
	PJRX	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
	PJDT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
CLEAR JOINT LOS	CJ-LOS MODE	AUTO	NA	NA	NA	AUTO	NA	NA	NA	NA	AUTO	NA	
	CJ-LOS RX	15	NA	NA	NA	15	NA	NA	NA	NA	15	NA	
	CJ-LOS TIME	99	NA	NA	NA	99	NA	NA	NA	NA	99	NA	

SITE SPECIFIC MDR DESCRIPTIONS AND SETTINGS													
NAME	MDR4				MDR5				MDR6				
FUNCTION	AX4				AX5				AX6				
WARNING TIME	33				X				X				
CW/MD	MD				*				*				
AP TIME(PREEMPT)	NA				NA				NA				
CWE-VT	80				80				80				
AUX RECOVERY DELAY	0				0				0				
TRACK	TK 1	TK 2	TK 3	TK 4	TK 1	TK 2	TK 3	TK 4	TK 1	TK 2	TK 3	TK 4	
TRACK ASSIGNED	UNASSIGNED	UNASSIGNED	UNASSIGNED	ASSIGNED	UNASSIGNED	UNASSIGNED	UNASSIGNED	UNASSIGNED	UNASSIGNED	UNASSIGNED	UNASSIGNED	UNASSIGNED	
OFFSET DISTANCE	NA	NA	NA	438'	NA	NA	NA	NA	NA	NA	NA	NA	
MD RESTART	NA	NA	NA	0*	NA	NA	NA	NA	NA	NA	NA	NA	
SUDDEN SHUNT ZONE	NA	NA	NA	0*	NA	NA	NA	NA	NA	NA	NA	NA	
POSITIVE START	PSEN	NA	NA	DISABLE	NA	NA	NA	NA	NA	NA	NA	NA	
	PSRX	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
	PST	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
POST JOINT DETECT	PJEN	NA	NA	DISABLE	NA	NA	NA	NA	NA	NA	NA	NA	
	PJRX	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
	PJDT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
CLEAR JOINT LOS	CJ-LOS MODE	NA	NA	AUTO	NA	NA	NA	NA	NA	NA	NA	NA	
	CJ-LOS RX	NA	NA	15	NA	NA	NA	NA	NA	NA	NA	NA	
	CJ-LOS TIME	NA	NA	99	NA	NA	NA	NA	NA	NA	NA	NA	

NOTES:
* = FIELD ADJUSTMENT
NA = NOT APPLICABLE



PROGRESS

RAIL SERVICES

A Caterpillar Company

DATE:05/25/17

CSX#.0H2017030

0H2017031

PRS/TDF/SAF

NO CHANGES



PROGRESS

RAIL SERVICES

A Caterpillar Company

DATE:10/26/16

CSX#.0H2016046

0H2016047

0H2016048

0H2016049

0H2016050

0H2016051

0H2017010

0H2017011

PRS/TDF/SAF

NO CHANGES

REMOTE DAX HOUSE (40-3CWU)

CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
CP 101			
XP4 SET UP INFORMATION MARION, OH M.P. Q1-101.40			
DESIGNED IRS/RHW	DIGITIZED IRS/RLB	CHECKED IRS/LEK	DATE 06-02-14
DESIGN DATE -----	REV. NO. 3	DRAWING -----	SHEET P05

RACK	SLOT NO.	VITAL TRACK INTERFACE (VTI-2S)						VITAL LAMP DRIVER (VLD-R16S)																VITAL INPUT/OUTPUT MODULES (VIO-86S)																			
		TRACK		CAB ENABLE		VITAL INPUTS		BANK #1 LAMP OUTPUTS								VSSR1	BANK #2 LAMP OUTPUTS								VSSR2	VITAL OUTPUTS						VITAL INPUTS											
		1	2	1	2	1	2	1	2	3	4	5	6	7	8		9	10	11	12	13	14	15	16		1	2	3	4	5	6	1	2	3	4	5	6	7	8				
1	E1	4ZT	8ZT	SPARE	SPARE	SPARE	SPARE																																				
	E2	NS 1ZT	NS 2ZT	SPARE	SPARE	SPARE	SPARE																																				
	E3																																										
	E4							4AGE	4AYE	4ARE	SPARE	4BYE	4BRE	SPARE	SPARE	4V STOP	8AGE	8AYE	8ARE	8BGE	8BYE	8BRE	SPARE	SPARE	8V STOP																		
	E5							SPARE	18AYE	18ARE	18BGE	18BYE	18BRE	SPARE	SPARE	18V STOP	20 AGE	20 AYE	20 ARE	20 BGE	20 BYE	20 BRE	SPARE	SPARE	20V STOP																		
	E6							22 AGE	22 AYE	22 ARE	SPARE	22 BYE	22 BRE	SPARE	SPARE	22V STOP	24 AGE	24 AYE	24 ARE	24 BGE	24 BYE	24 BRE	SPARE	SPARE	24V STOP																		
	E7																									SPARE	SPARE	SPARE	SPARE	SPARE	SPARE	6 TPR	8 TPR	10 TPR	12 TPR	SPARE	SPARE	SPARE	SPARE				
	E8																									08WLR	SPARE	SPARE	SPARE	SPARE	SPARE	SPARE	22 TPR	24 TPR	26 TPR	28 TPR	08NWP	N2D00R	08WLTOR	SPARE			
	E9																									SPARE	SPARE	SPARE	SPARE	SPARE	SPARE	AP0	SPARE	SPARE	SPARE	SPARE	SPARE	SPARE	SPARE	SPARE			

RACK	SLOT NO.	CROSSING TRACK INTERFACE (XTI-1S)						VITAL INPUT/OUTPUT MODULES (VIO-86S)															
		TRACK						VITAL OUTPUTS								VITAL INPUTS							
		1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	7	8		
2	E1	40-1 CWT0																					
	E2		40-2 CWT0																				
	E3			40-3 CWT0																			
	E4				40-4 CWT0																		
	E5																						
	E6																						
	E7																						
	E8							NSC1 DAX	NSC2 DAX	SPARE	SPARE	SPARE	SPARE	C1E DAXP	C2E DAXP	C1XTP	C2XTP	SPARE	SPARE	SPARE	SPARE		
	E9							NSS1 DAX	NSS2 DAX	SPARE	SPARE	SPARE	SPARE	S1DAX	S2DAX	SPARE	SPARE	SPARE	SPARE	SPARE	SPARE		



PROGRESS

RAIL SERVICES

A Caterpillar Company

DATE: 05/25/17

CSX# 0H2017030

0H2017031

PRS/TDF/SAF

NO CHANGES



PROGRESS

RAIL SERVICES

A Caterpillar Company

DATE: 10/26/16

CSX# 0H2016046

0H2016047

0H2016048

0H2016049

0H2016050

0H2016051

0H2017010

0H2017011

PRS/TDF/SAF

NO CHANGES

LOCATION A



RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

CP 101

ELECTROLOGIXS I/O EQUIVALENT CIRCUITS
MARION, OH M.P. 01-101.40

DESIGNED GET/KJM	DIGITIZED GET/SAT	CHECKED GET/KMQ	DATE 12-12-11
DRAWING -----	SHEET NO -----	FILE Q110140	SHEET 601

OFFICE TO VHLC AUXILIARY COMMUNICATION PROCESSOR
SERIAL COMMUNICATION BITS

ADDRESS TYPE RAILROAD ID NUMBER CODE LINE ADDRESS STATION ADDRESS SUB DEVICE INTERNAL DEVICE														CONTROLS FROM OFFICE								
														WORD	1	2	3	4	5	6	7	8
														1	C2 GS	C2-4 STOP	C4 GS	C6 GS	C6-8 STOP	C8 GS	C10 GS	C10-12 STOP
														2	C12 GS	C14 GS	C14-16 STOP	C16 GS	C18 GS	C18-20 STOP	C20 GS	C22 GS
														3	C22-24 STOP	C24 GS	C2 TBS	C2 TBS0	C4 TBS	C4 TBS0	C6 TBS	C6 TBS0
														4	C8 TBS	C8 TBS0	C10 TBS	C10 TBS0	C12 TBS	C12 TBS0	C14 TBS	C14 TBS0
														5	C16 TBS	C16 TBS0	CECS	CECS0				
1	2	3	4	5	6	7	8	9	10	11	12	13	14									
7	1	2	5	2	0	3	0	4	0	0	2	0	2									
														6	C2-6 TRPREL	C4-8 TRPREL	C6-10 TRPREL	C8-12 TRPREL	C14-16 TRPREL	C18-20 TRPREL	C22-24 TRPREL	C26-28 TRPREL
																	INDICATIONS TO OFFICE					
														WORD	1	2	3	4	5	6	7	8
														1	2 GK	2-4 TEK	4 GK	6 GK	6-8 TEK	8 GK	10 GK	10-12 TEK
														2	12 GK	14 GK	14-16 TEK	16 GK	18 GK	18-20 TEK	20 GK	22 GK
														3	22-24 TEK	24 GK	2 TK	4 TK	6 TK	8 TK	10 TK	12 TK
														4	14 TK	16 TK	18 TK	20 TK	22 TK	24 TK	26 TK	28 TK
														5	NS LRK	CSX MV LRK	CSXCS LRK		12 AK	16 AK	4 AK	8 AAK
														6	18 AK	20 AK	22 AK	24 AK	2 TBK	4 TBK	6 TBK	8 TBK
														7	10 TBK	12 TBK	14 TBK	16 TBK	18 TBK	20 TBK	22 TBK	24 TBK
														8	2-6 TSK	4-8 TSK	6-10 TSK	8-12 TSK	14-16 TSK	18-20 TSK	22-24 TSK	26-28 TSK
														9	2-6 TACK	4-8 TACK	6-10 TACK	8-12 TACK	14-16 TACK	18-20 TACK	22-24 TACK	26-28 TACK
														10	18 NSRK	20 NSRK	22 NSRK	24 NSRK				12 BDK
														11	18 AAK	20 AAK	22 AAK	24 AAK	NS1 NFKE	NS1 SFKE	NS2 NFKE	NS2 SFKE
														12	POK	LOK	ECK	6FDK	MOK			8 BDK

- ELECTROLOGIXS PROGRAMMING NOTES.
1. NSRR SIGNALS (18, 20, 22, 24) CAN'T BE CLEARED UNLESS BOTH A SIGNAL REQUEST FROM THE NSRR DISPATCHER IS RECEIVED AND A CORRESPONDING REQUEST FROM THE CSX DISPATCHER IS RECEIVED. THE NSRR SIGNAL REQUEST WILL BE PASSED FROM THE NSRR ELECTROLOGIXS TO THE CSX ELECTROLOGIXS VIA A VITAL REMOTE LINK BETWEEN THE TWO UNITS.
 2. ONCE THE NSRR SIGNAL HAS BEEN CLEARED IT CAN BE PUT TO STOP DIRECTLY BY EITHER THE CSX DISPATCHER OR NSRR DISPATCHER WITHOUT A CORRESPONDING STOP REQUEST AND WILL RUN LSR TIME.
 3. DURING POWER OFF CONDITIONS THE NSRR SIGNALS WILL BE APPROACH LIT WITH THE LOSS OF CODE 1 FROM THE APPROACH TRACK CIRCUIT TO THE SIGNALS.
 4. ALL OF THE CSX MT. VICTORY SUB-DIVISION TRACK CIRCUITS WILL BE INDICATED TO THE NSRR DISPATCHER.
 5. WHEN A NSRR SIGNAL IS IN TIME BOTH IT AND IT'S OPPOSING SIGNAL INDICATION WILL BE SENT TO THE NSRR DISPATCHER.
 6. ALL TRACK CIRCUITS ACROSS THE DIAMONDS ARE PROTECTED BY TRAP CIRCUITRY. WHEN A TRAP IS SET ON ANY TRACK A CODE 6 WILL BE SENT IN BOTH DIRECTIONS ON THAT TRACK AND ASSOCIATED HOME SIGNALS WILL BE PUT TO STOP. WHEN A TRAP ACKNOWLEDGE CONTROL IS RECEIVED AND A CORRESPONDING SIGNAL REQUEST FROM THE CSX/NSRR DISPATCHERS THE HOME SIGNAL WILL BE UPGRADED FROM A STOP TO A RESTRICTING ASPECT AND THE CORRESPONDING ELECTROCODE RATES WILL BE TRANSMITTED ON THE BLOCK TRACKS (CODE 2 FOR CSX, CODE 8 FOR NSRR).
 7. TRAP INDICATIONS (TRPK'S) ON THE LOCAL CONTROL PANEL WILL LIGHT STEADY WHEN THE TRAP IS SET AND FLASH WHEN THE ASSOCIATED TRAP ACKNOWLEDGE IS RECEIVED FROM THE CSX DISPATCHER. OPERATION OF THE TRAP RESET SWITCH ON THE CSX LOCAL CONTROL PANEL WILL RESTORE THE TRAP CIRCUITRY AND THE TRAP INDICATION WILL BE TURNED OFF.
 8. TRAP INDICATIONS (TSK'S) WILL BE SENT TO THE CSX DISPATCHER FOR THE CSX TRAPS AND BOTH THE CSX & NSRR DISPATCHER WHEN THE NSRR TRAPS ARE SET. WHEN A TRAP ACKNOWLEDGE IS RECEIVED FROM THE CSX DISPATCHER FOR ANY OF THE TRAP INDICATIONS, THE TRAP INDICATION WILL BE TURNED OFF AND A TRAP ACKNOWLEDGEMENT (TRAPACK) INDICATION WILL BE SENT. THE NSRR DISPATCHER WILL GET A TRAP ACKNOWLEDGE INDICATION WHEN THE CSX DISPATCHER ACKNOWLEDGES A TRAP THAT HAS BEEN SET ON THE NSRR TRACKS.
 9. NSRR TRACK BLOCKING ON THE BLOCK TRACKS WILL BE APPLIED BY THE NSRR DISPATCHER ONLY, CSX WILL GET INDICATIONS WHEN APPLIED BUT NEITHER THE CSX DISPATCHER NOR THE CSX LCP WILL HAVE CONTROL.

 **PROGRESS**
RAIL SERVICES
A Caterpillar Company
DATE: 05/25/17
CSX# 0H2017030
0H2017031
PRS/TDF/SAF
NO CHANGES

 **PROGRESS**
RAIL SERVICES
A Caterpillar Company
DATE: 10/26/16
CSX# 0H2016046
0H2016047
0H2016048
0H2016049
0H2016050
0H2016051
0H2017010
0H2017011
PRS/TDF/SAF
NO CHANGES

LOCATION A

CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
CP 101			
OFFICE CONTROL AND INDICATION EQUIVALENT CIRCUITS MARION, OH M.P. Q1-101.40			
DESIGNED GET/KJM	DIGITIZED GET/SAT	CHECKED GET/KMQ	DATE 12-12-11
DESIGN DATE -----	REV. NO. 3	DRAWING -----	SHEET 602

RACK	SLOT NO.	VITAL TRACK INTERFACE (VTI-2S)						VITAL LAMP DRIVER (VLD-R16S)																VITAL INPUT/OUTPUT MODULES (VIO-86S)															
		TRACK		CAB ENABLE		VITAL INPUTS		BANK #1 LAMP OUTPUTS								VSSR1	BANK #2 LAMP OUTPUTS								VSSR2	VITAL OUTPUTS						VITAL INPUTS							
1	2	1	2	1	2	1	2	3	4	5	6	7	8		9	10	11	12	13	14	15	16		1	2	3	4	5	6	1	2	3	4	5	6	7	8		
1	E1	12ZT	16ZT																																				
	E2	10ZT	14ZT																																				
	E3							2AGE	2AYE	2ARE	SPARE	2BYE	2BRE	SPARE	SPARE	2V STOP	6AGE	6AYE	6ARE	SPARE	6BYE	6BRE	SPARE	SPARE	6V STOP														
	E4							10AGE	10AYE	10ARE	10BGE	SPARE	10BRE	10 BLWE	SPARE	10V STOP	12AGE	12AYE	12ARE	12BGE	12BYE	12BRE	12 BLWE	SPARE	12V STOP														
	E5							14AGE	14AYE	14ARE	14BGE	SPARE	14BRE	14 BLWE	SPARE	14V STOP	16AGE	16AYE	16ARE	SPARE	SPARE	16BRE	16 BLWE	SPARE	16V STOP														
	E6																																						
	E7																									SPARE	SPARE	SPARE	SPARE	SPARE	SPARE	2 TPR	4 TPR	SPARE	SPARE	SPARE	SPARE	SPARE	SPARE
	E8																									SPARE	SPARE	SPARE	SPARE	SPARE	SPARE	14 TPR	16 TPR	18 TPR	20 TPR	SPARE	SPARE	SPARE	SPARE
	E9																									SPARE	SPARE	SPARE	SPARE	SPARE	SPARE	8 POK	SPARE	SPARE	SPARE	SPARE	SPARE	SPARE	SPARE

RACK	SLOT NO.	CROSSING TRACK INTERFACE (XTI)						VITAL INPUT/OUTPUT MODULES (VIO-86S)															
								VITAL OUTPUTS								VITAL INPUTS							
		1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	7	8		
NA	E1	40-5 CWT0																					
	E2		40-6 CWT0																				
	E3																						
	E4							K1 DAXR	K2 DAXR														



PROGRESS

RAIL SERVICES

A Caterpillar Company

DATE: 05/25/17

CSX # 0H2017030

0H2017031

PRS/TDF/SAF

NO CHANGES



PROGRESS

RAIL SERVICES

A Caterpillar Company

DATE: 10/26/16

CSX # 0H2016046

0H2016047

0H2016048

0H2016049

0H2016050

0H2016051

0H2017010

0H2017011

PRS/TDF/SAF

NO CHANGES

LOCATION B



RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

CP 101

ELECTROLOGIXS I/O EQUIVALENT CIRCUITS
MARION, OH M.P. QI-101.40

DESIGNED GET/KJM	DIGITIZED GET/SAT	CHECKED GET/KMQ	DATE 12-12-11
DESIGN DATE -----	REV. NO. 3	DRAWING -----	SHEET NO -----
FILE QI10140	SHEET 603		

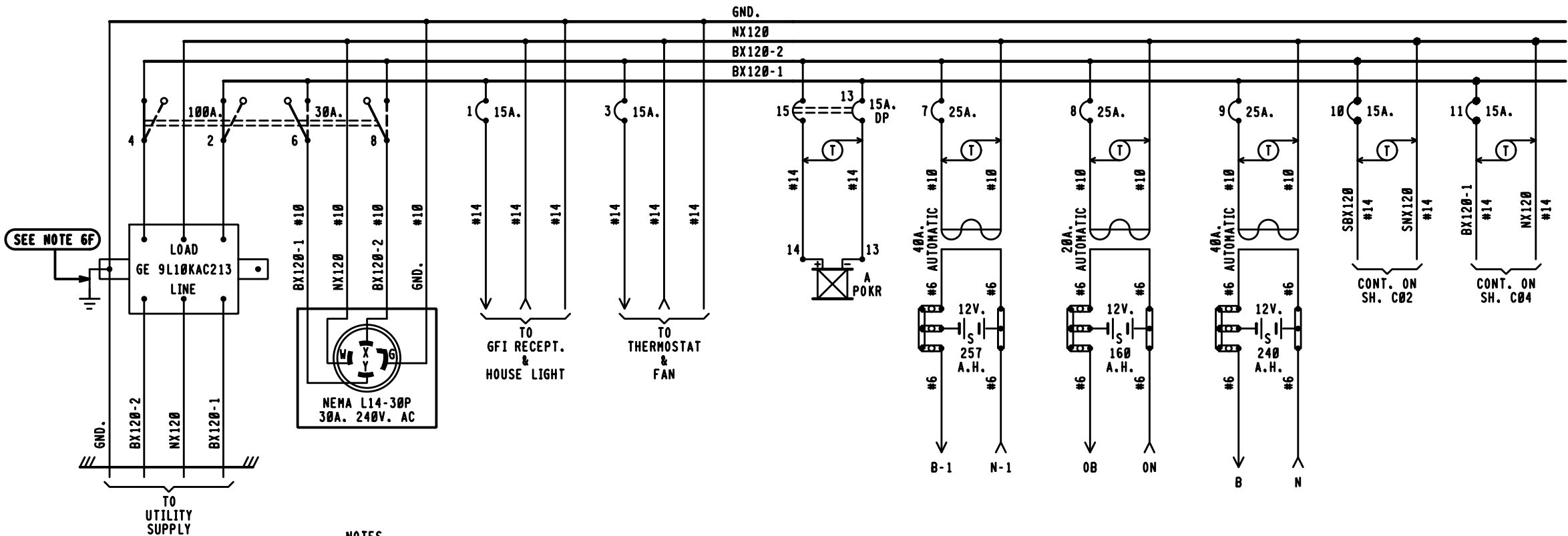
ELECTROLOGIXS RACK 1						
4VSTOP	8VSTOP	18VSTOP	20VSTOP	22VSTOP	24VSTOP	6TR
12 FB B77	12 FB B77	12 FB B77	12 FB B77	12 FB B77	12 FB B77	12 B51
15 F C30	15 F C30	15 F C30	15 F C30	15 F C30	15 F C30	15 C30
22 F	22 F	22 F	22 F	22 F	22 F	22 C30
25	25	25	25	25	25	23 F
32 F	32 F	32 F	32 F	32 F	32 F	25 F
35 F	35 F	35 F	35 F	35 F	35 F	32
						35
8TR	10TR	12TR	22TR	24TR	26TR	28TR
12 B51	12 B51	12 B51	12 B51	12 B51	12 B51	12 B51
15 C30	15 C30	15 C30	15 C30	15 C30	15 C30	15 C30
22	22	22	22	22	22	22
23 F	23 F	23 F	23 F	23 F	23 F	23 F
25 F	25 F	25 F	25 F	25 F	25 F	25 F
32	32	32	32	32	32	32
35	35	35	35	35	35	35

ELECTROLOGIXS RACK 2						
NSC1DAXR	NSC2DAXR	NSS1DAXR	NSS2DAXR	C1EDAXPR	C2EDAXPR	00WLT0PR
12 F B8	12 F B8	12 F B8	12 F B8	12 F B8	12 F B8	12 B8
15 F C30	15 F C30	15 F C30	15 F C30	15 F C30	15 F C30	15 C30
22	22	22	22	22	22	22 C30
25	25	25	25	25	25	25
32	32	32	32	32	32	32 F
35	35	35	35	35	35	35 F
C1XTPR	C2XTPR					
12 F B8	12 F B8					
15 F C30	15 F C30					
22	22					
25	25					
32	32					
35	35					

SPOR		
1 FB	(*)	
6 F		
11 FB		

WALL MOUNTED

(*) = SPOR IS RELAY TYPE
KRPA14AN-120 P&B SOCKET 27E892



APOKR		
9 F	11	N68
10	12	C48

WALL MOUNTED

BX120-1 | BX120-2
22.0 AMPS | 24.0 AMPS
MAXIMUM LOAD
CALCULATED PER SS360

NOTES.

- REFERENCES ARE PER SCMS-13.
- ARRESTERS ARE PER SS382.
- 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 BUSES, 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 TWISTED PAIR 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.

PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 05/25/17
CSX: 0H2017030
0H2017031
PRS/TDF/SAF
NO CHANGES

PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 10/26/16
CSX: 0H2016046
0H2016047
0H2016048
0H2016049
0H2016050
0H2016051
0H2017010
0H2017011
PRS/TDF/SAF
NO CHANGES

LOCATION A

CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

CP 101

POWER DISTRIBUTION
MARION, OH M.P. QI-101.40

DESIGN DATE
06-02-15

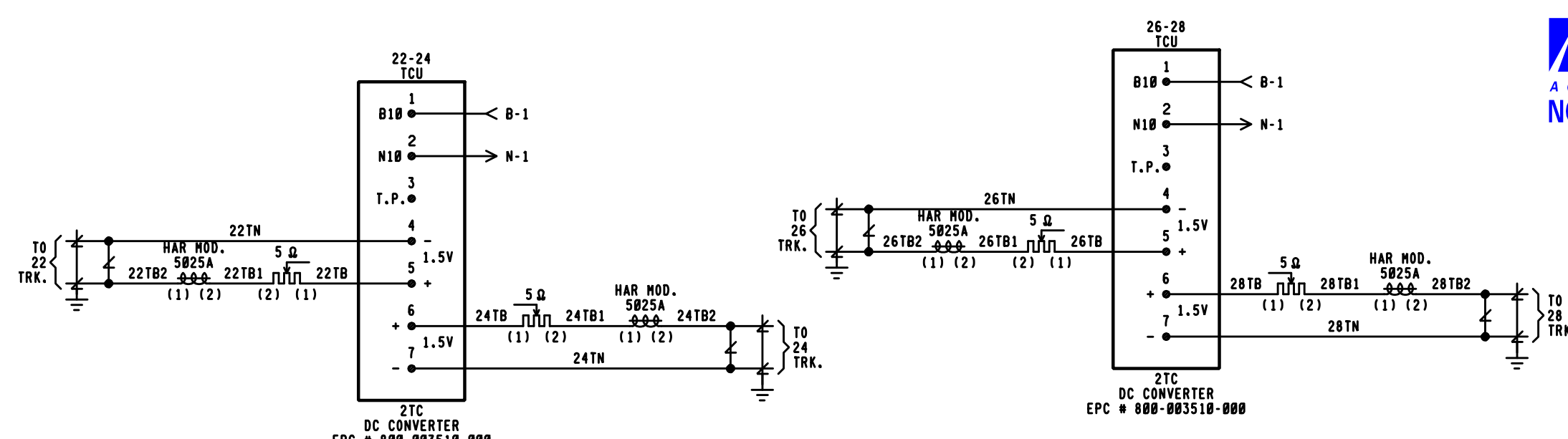
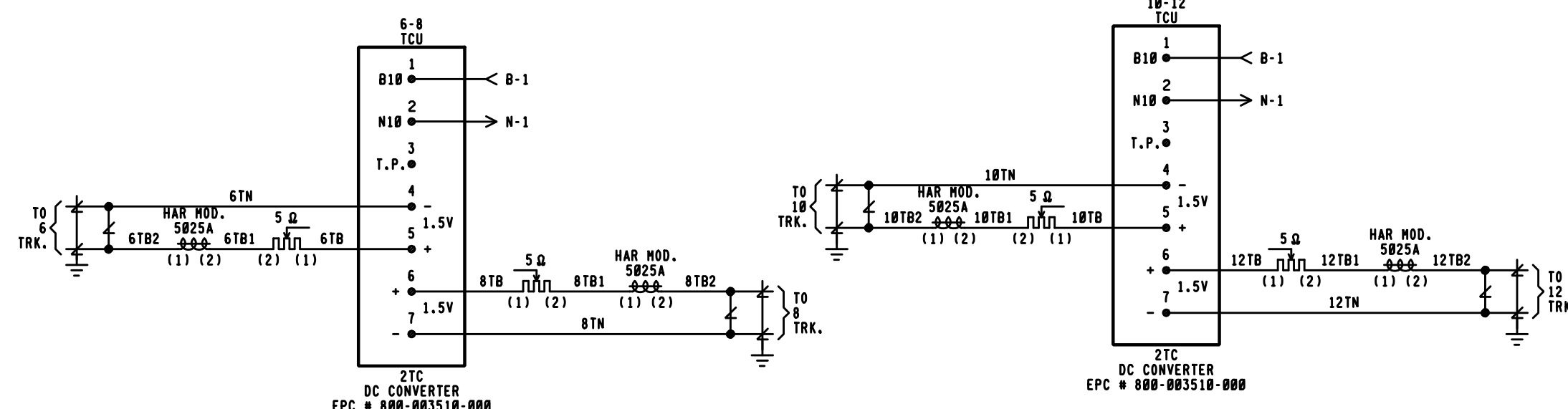
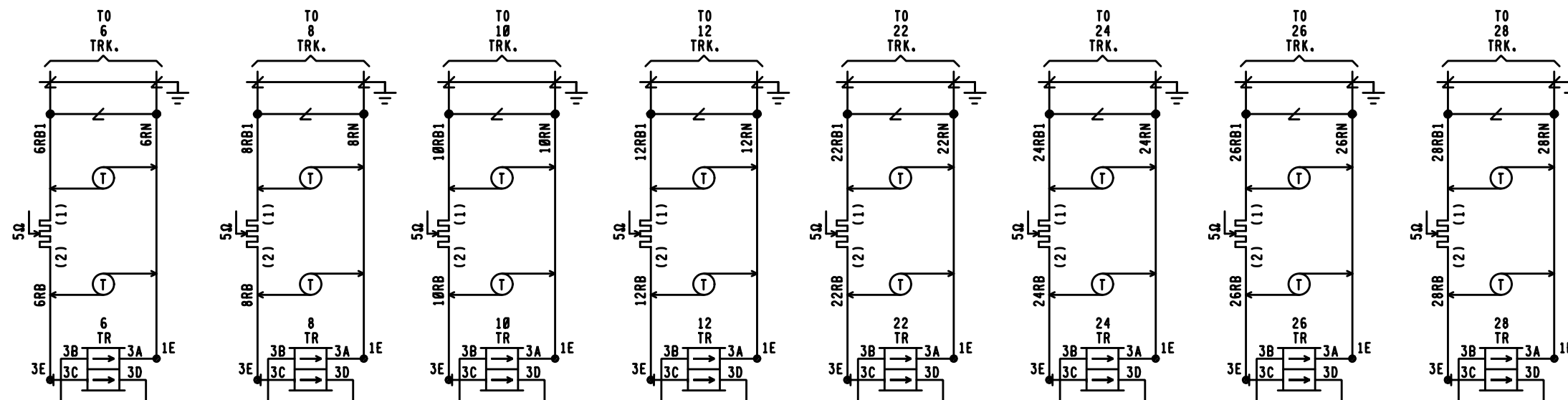
REV. NO.
2

DRAWING

SHEET NO

FILE
QI10140

SHEET
E01



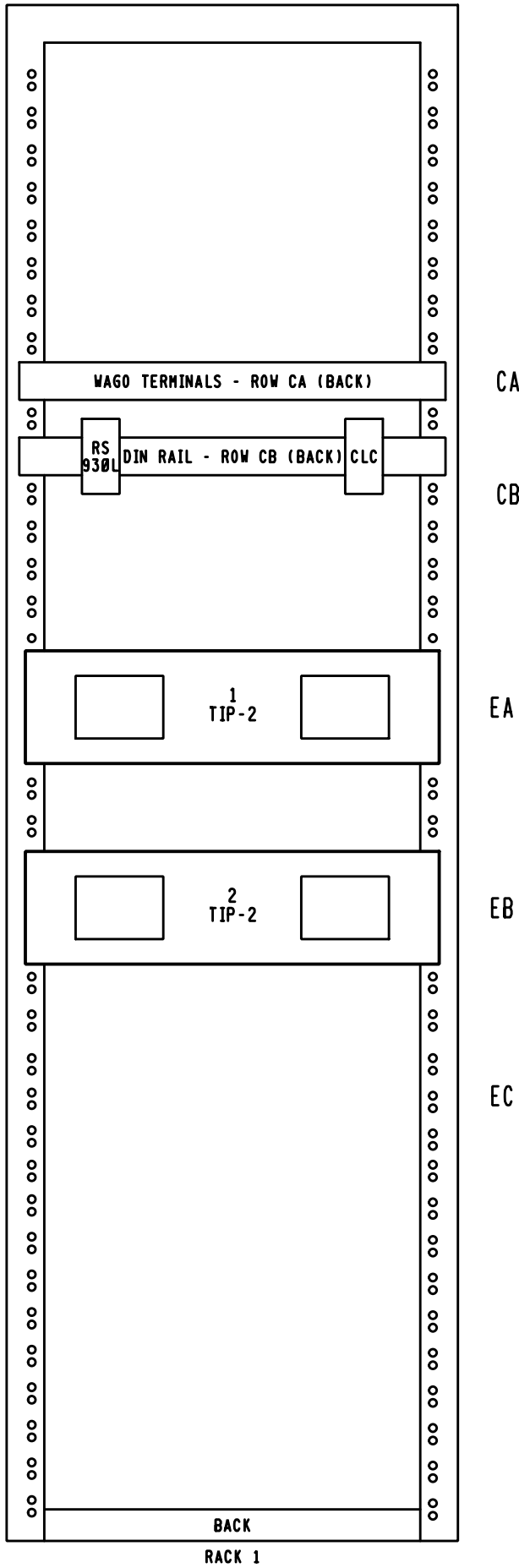
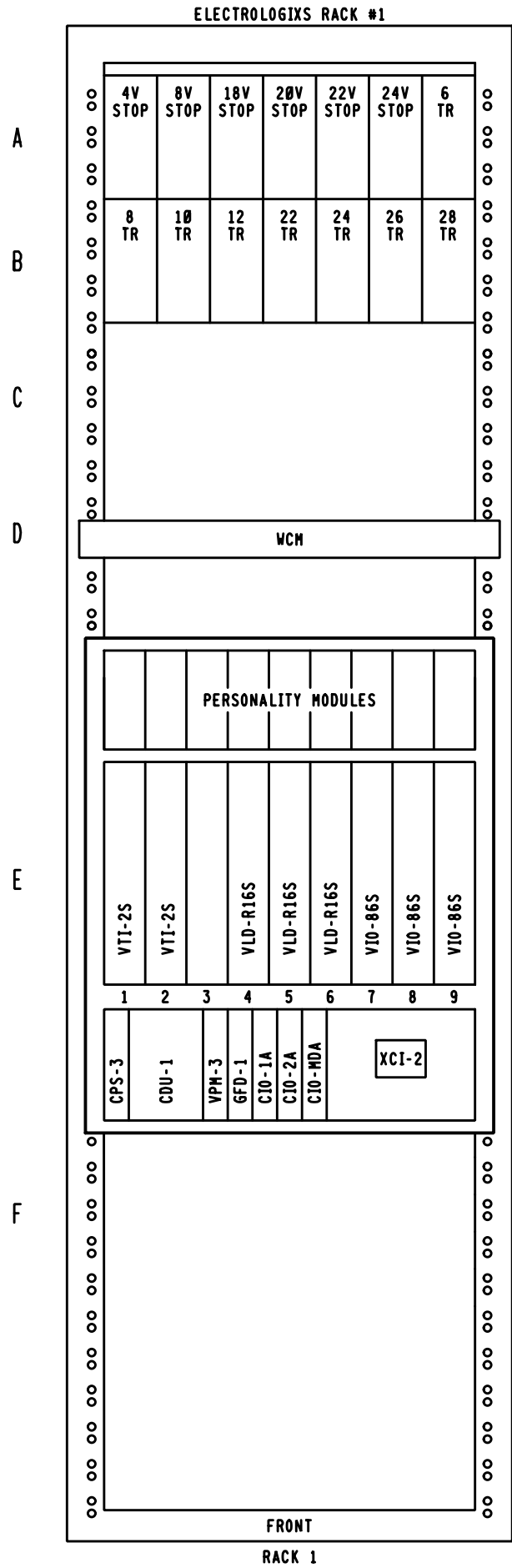


PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 05/25/17
CSX # 0H2017030
0H2017031
PRS/TDF/SAF
NO CHANGES



PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 10/26/16
CSX # 0H2016046
0H2016047
0H2016048
0H2016049
0H2016050
0H2016051
0H2017010
0H2017011
PRS/TDF/SAF
NO CHANGES

LOCATION A			
 RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
CP 101			
TRACK CIRCUITS MARION, OH M.P. QI-101.40			
DESIGNED GET/KJM	DIGITIZED GET/SAT	CHECKED GET/KMQ	DATE 12-12-11
DESIGN DATE -----	REV. NO. 1	DRAWING -----	SHEET E02



ELECTROLOGIXS EQUIPMENT RACK 84" X 19"			
REF.	DESCRIPTION	GETS P/N	QTY
---	ASSY RACK 19" CSX		1 EA.
A-B	RLY B1 PLBD KIT NO FLAG	007062-003	14 EA.
A-B	KIT RLY FL E-POST MOD	005634-000	14 EA.
A-B	BAR MTG 19" W/BLU PAINT	12272-001	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)	203120-001	1 EA.
(C)	CABLE (CLC TO CLCP CPU/IO, 20')	201876-020	1 EA.
(C)	DIN RAIL 35 X 7.5 FOR 19" RACK	124422-000	2 EA.
ROW C	RUGGEDCOM RS930L-24-D-V1-V1-XX	XXX-XXX	1 EA.
ROW D	WAYSIDE COMMUNICATIONS MANAGER (WCM) SAFETRAN	SUPPLIED BY CSX COMMUNICATIONS	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.
E4-E6	VLD-R16S PERSONALITY MODULE	227539-000	3 EA.
E4-E6	VLD-R16S MODULE	251381-000	3 EA.
E7-E9	VIO-86S PERSONALITY MODULE	227537-000	3 EA.
E7-E9	VIO-86S MODULE	251380-000	3 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	CIO-MDA MODULE	251332-000	1 EA.
ROW E	XCI-2 MODULE	251442-000	1 EA.
ROW E	CABLE, TIP-2, 4'	814-096000-016	3 EA.
ROW E (BACK)	TIP-2	800-096000-011	2 EA.

PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 05/25/17
CSX#, 0H2017030
0H2017031
PRS/TDF/SAF
NO CHANGES

PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 10/26/16
CSX#, 0H2016046
0H2016047
0H2016048
0H2016049
0H2016050
0H2016051
0H2017010
0H2017011
PRS/TDF/SAF
NO CHANGES

LOCATION A

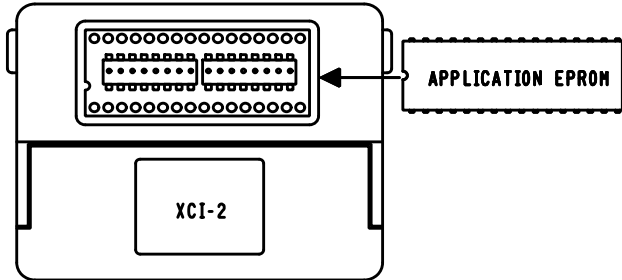
CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
CP 101			
RACK 1 LAYOUT MARION, OH M.P. QI-101.40			
DESIGNED GET/KJM	DIGITIZED GET/SAT	CHECKED GET/KMQ	DATE 12-12-11
DESIGN DATE -----	REV. NO. 1	DRAWING -----	SHEET E03



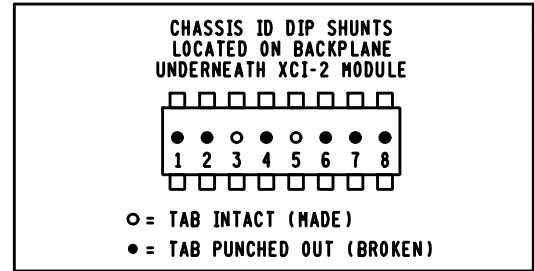
CIO-1A MODULE DIAGNOSTIC AND OFFICE PORT PIN ASSIGNMENT		
PIN	SIGNAL	SIGNAL NAME
1	CD	CARRIER DETECT
2	RX	RECEIVE DATA
3	TX	TRANSMIT DATA
4	DTR	DTE
5	GND	COMMON SIGNAL RETURN
6	DSR	DCE
7	RTS	REQUEST TO SEND
8	CTS	CLEAR TO SEND
9	RI	RING INDICATOR

1
TZU

TYPICAL INSTALLATION OF
EPROM & DIP SHUNT



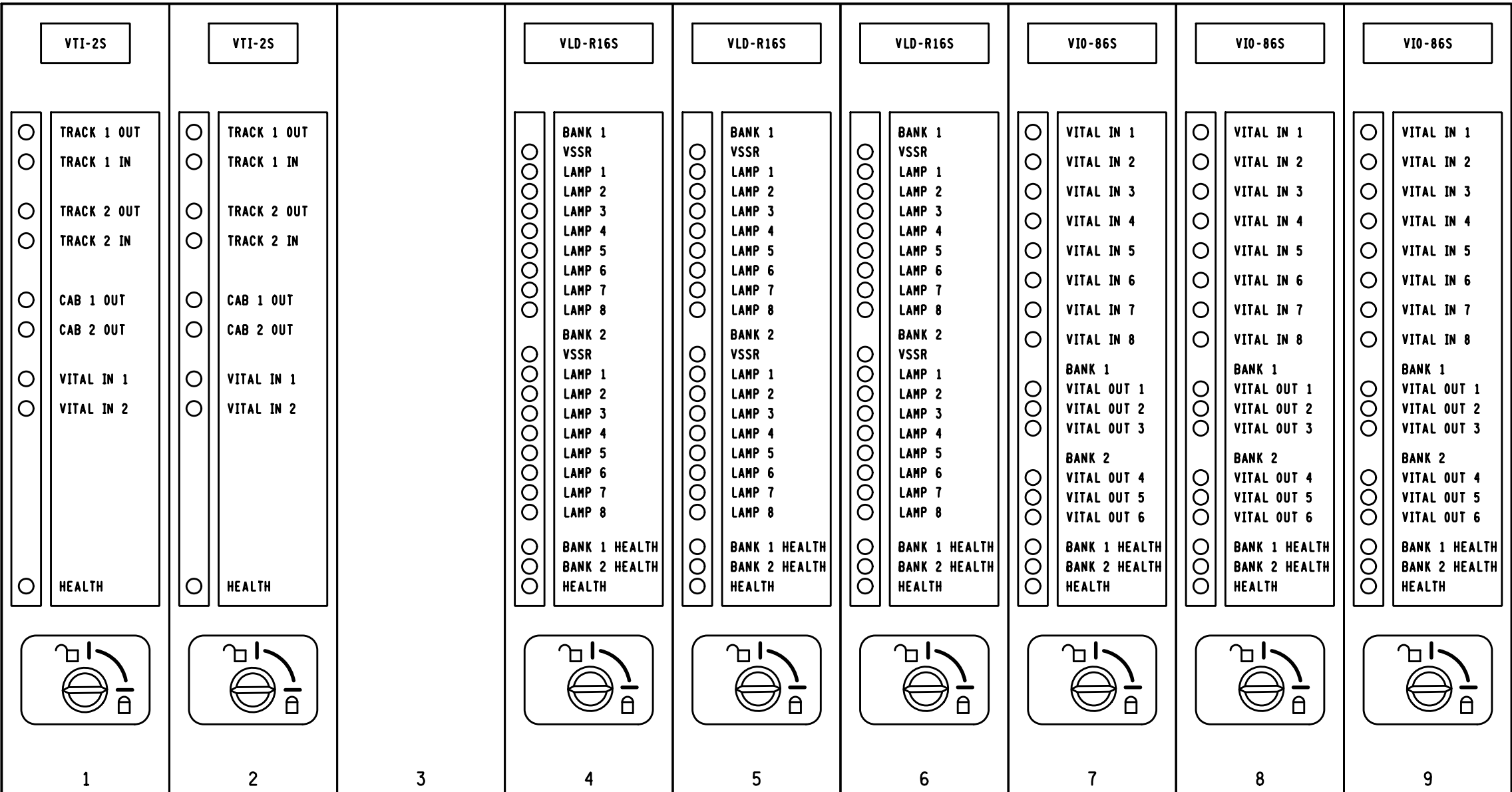
CHASSIS ID-40



CIO-2A MODULE LCP PIN ASSIGNMENT		
PIN	SIGNAL	SIGNAL NAME
1	PGND	PROTECTIVE GND
2	TX	TRANSMIT DATA
3	RX	RECEIVE DATA
4	RTS	REQUEST TO SEND
5	CTS	CLEAR TO SEND
6	DSR	DATA SET READY
7	GND	GROUND
8	CD	CARRIER DETECT
20	DTR	DATA TERMINAL READY

LOCATION A

CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
CP 101			
ELECTROLOGIXS MODULE CONFIGURATION RACK 1 MARION, OH M.P. Q1-101.40			
DESIGNED GET/KJM	DIGITIZED GET/SAT	CHECKED GET/KMQ	DATE 12-12-11
DRAWING -----	SHEET NO -----	FILE Q110140	SHEET E04



MODULE LEGEND.

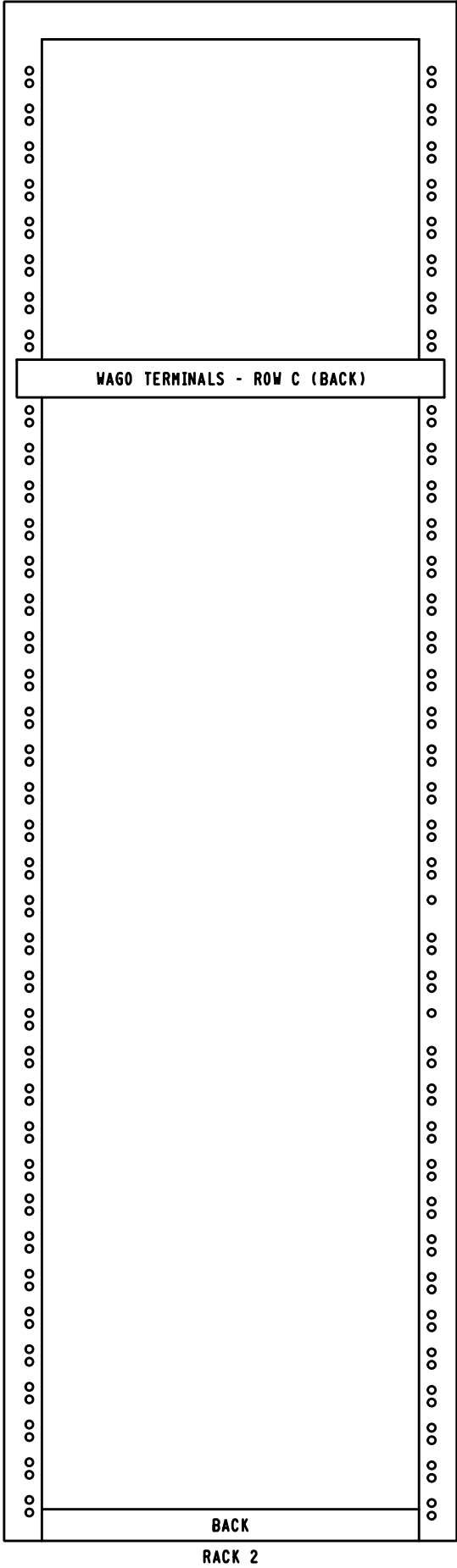
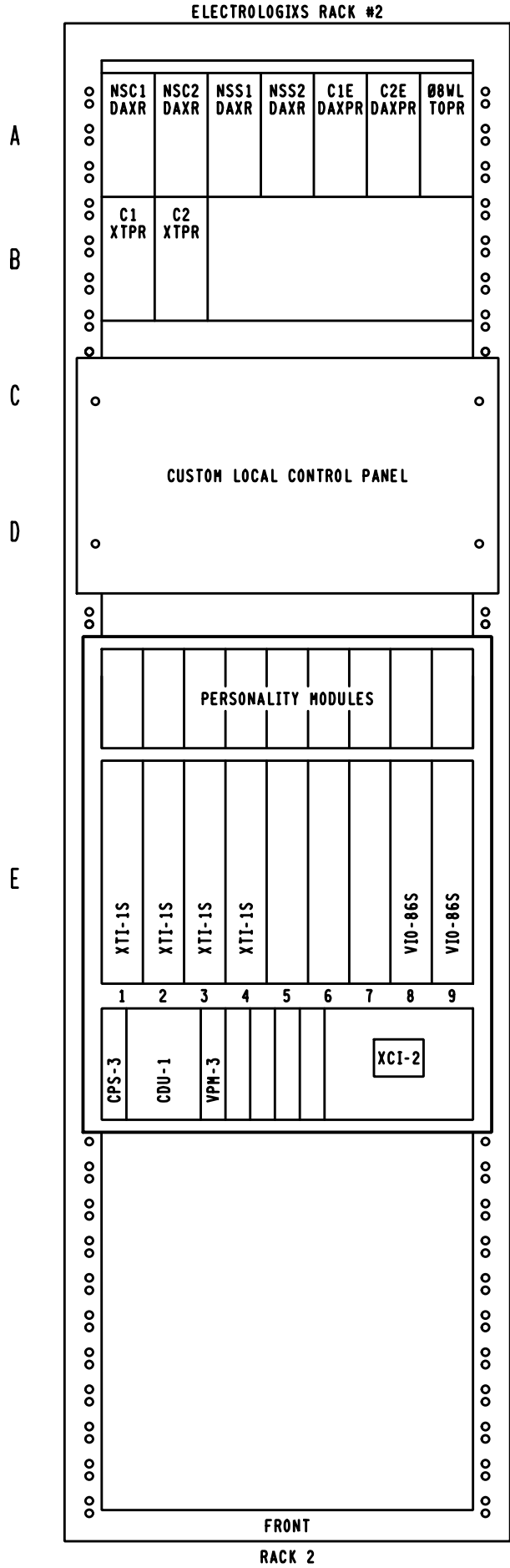
CDU-1 = CONTROL DISPLAY UNIT
CPS-3 = CENTRAL POWER SUPPLY
VPM-3 = VITAL PERIPHERAL MASTER
GFD-1 = GROUND FAULT DETECTOR
CIO-1A = COMMUNICATION INPUT/OUTPUT
CIO-2A = COMMUNICATION INPUT/OUTPUT
XCI-2 = CHASSIS INFORMATION
VTI-2S = VITAL TRACK INTERFACE
VLD-R16S = VITAL LAMP DRIVER
VIO-86S = VITAL INPUTS/OUTPUTS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

PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 05/25/17
CSX# 0H2017030
0H2017031
PRS/TDF/SAF

PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 10/26/16
CSX# 0H2016046
0H2016047
0H2016048
0H2016049
0H2016050
0H2016051
0H2017010
0H2017011
PRS/TDF/SAF

DESIGN DATE

REV. NO.
1



ELECTROLOGIXS EQUIPMENT RACK 84" X 19"			
REF.	DESCRIPTION	GETS P/N	QTY
---	ASSY RACK 19" CSX		1 EA.
A	RLY B1 PLBD KIT NO FLAG	ØØ7Ø62-ØØ3	5 EA.
A	KIT RLY FL E-POST MOD	ØØ5634-ØØØ	4 EA.
A	BAR MT6 19" W/BLU PAINT	12272-ØØ1	2 EA.
A	TIE BAR RELAY 19" W/BLU PAINT	12316Ø-ØØ2	1 EA.
C	CUSTOM LCP	SUPPLIED BY XØRAIL	1 EA.
(C) 1-5Ø	WAGO TERMINALS BLOCK ASSY	2Ø2292-Ø58	1 EA.
ROW E	ELECTROLOGIXS CHASSIS	3ØØ752-ØØØ	1 EA.
E1-E4	XTI-1S PERSONALITY MODULE	227441-ØØØ	4 EA.
E1-E4	XTI-1S MODULE	251336-ØØØ	4 EA.
E8-E9	VIO-86S PERSONALITY MODULE	227537-ØØØ	1 EA.
E8-E9	VIO-86S MODULE	25138Ø-ØØØ	1 EA.
ROW E	CPS-3 MODULE	251456-ØØØ	1 EA.
ROW E	CDU-1	251124-ØØØ	1 EA.
ROW E	VPM-3 MODULE	251432-2ØØ	1 EA.
ROW E	CIO-1A MODULE	251329-ØØØ	1 EA.
ROW E	CIO-MDA MODULE	251332-ØØØ	1 EA.
ROW E	XCI-2 MODULE	251442-ØØØ	2 EA.



PROGRESS

RAIL SERVICES

A Caterpillar Company

DATE: 05/25/17

CSX # 0H2Ø17Ø3Ø

0H2Ø17Ø31

PRS/TDF/SAF

NO CHANGES



PROGRESS

RAIL SERVICES

A Caterpillar Company

DATE: 1Ø/26/16

CSX # 0H2Ø16Ø46

0H2Ø16Ø47

0H2Ø16Ø48

0H2Ø16Ø49

0H2Ø16Ø5Ø

0H2Ø16Ø51

0H2Ø17Ø1Ø

0H2Ø17Ø11

PRS/TDF/SAF

NO CHANGES

LOCATION A

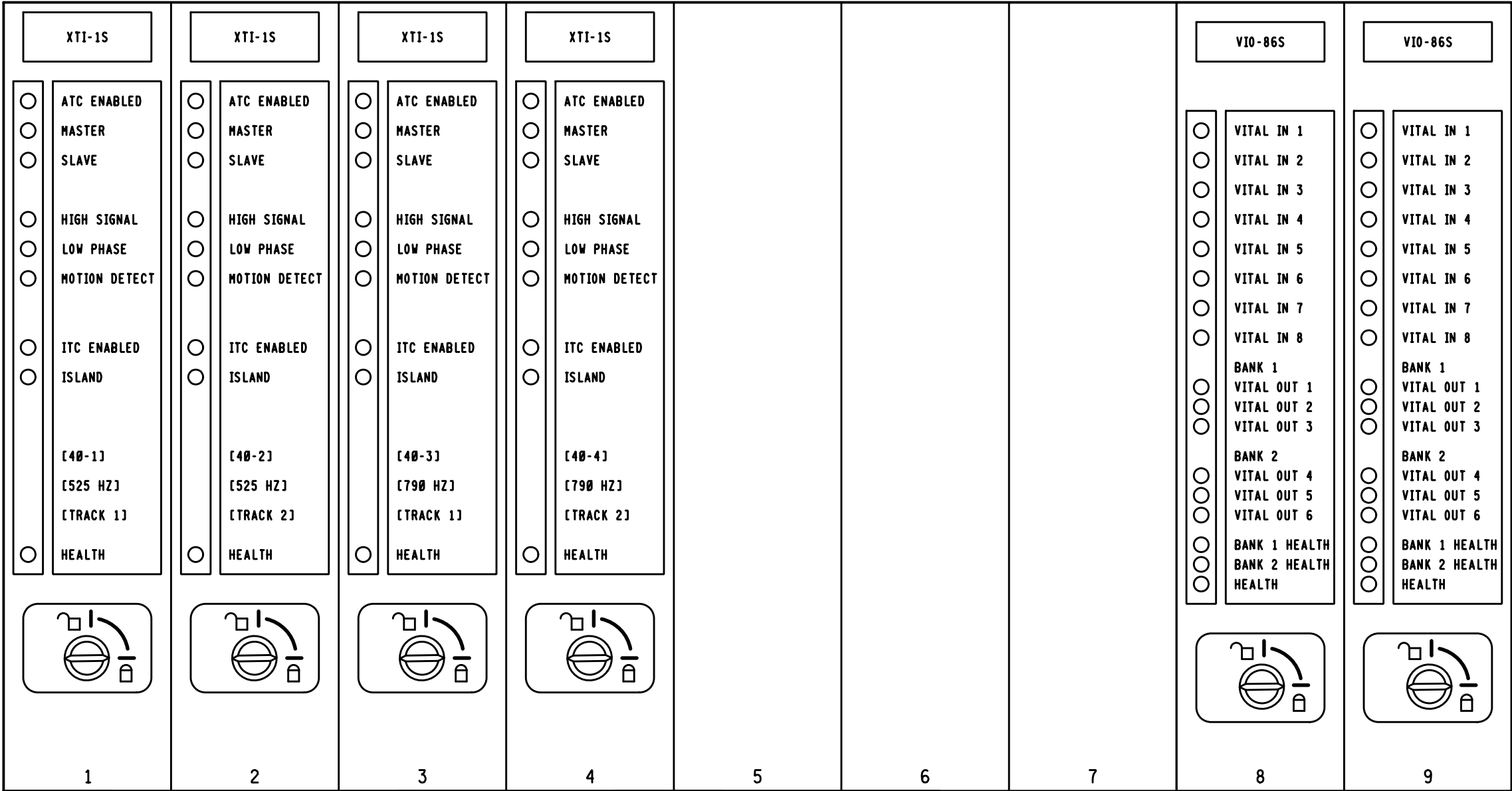


RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

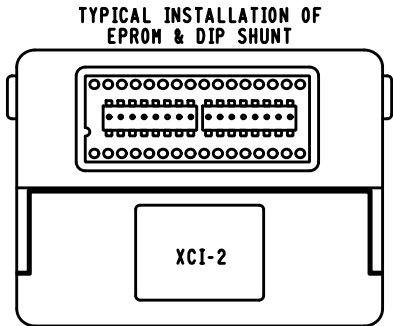
CP 1Ø1

RACK 2 LAYOUT
MARION, OH M.P. QI-1Ø1.4Ø

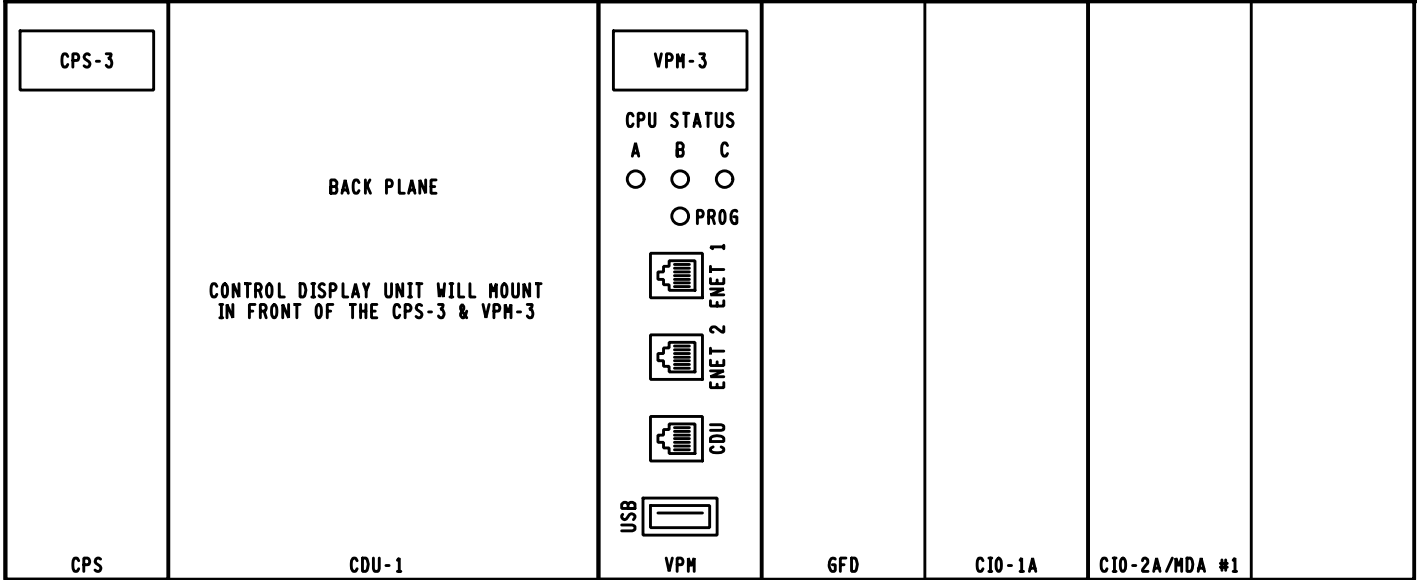
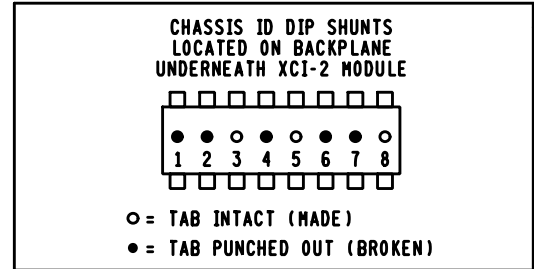
DESIGNED GET/KJM	DIGITIZED GET/SAT	CHECKED GET/KMQ	DATE 12-12-11
DESIGN DATE Ø6-Ø2-15	REV. NO. 2	DRAWING -----	SHEET EØ5



40-1CWU



CHASSIS ID-41



MODULE LEGEND.

CDU-1 = CONTROL DISPLAY UNIT
CPS-3 = CENTRAL POWER SUPPLY
VPM-3 = VITAL PERIPHERAL MASTER
XCI-2 = CHASSIS INFORMATION
XTI-1S = CROSSING TRACK INTERFACE
VIO-86S = VITAL INPUTS/OUTPUTS

PROGRESS
RAIL SERVICES
A Caterpillar Company

DATE: 05/25/17
CSX # 0H2017030
0H2017031
PRS/TDF/SAF

NO CHANGES

PROGRESS
RAIL SERVICES
A Caterpillar Company

DATE: 10/26/16
CSX # 0H2016046
0H2016047
0H2016048
0H2016049
0H2016050
0H2016051
0H2017010
0H2017011
PRS/TDF/SAF

NO CHANGES

LOCATION A (40-1CWU)

CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
CP 101			
ELECTROLOGIXS XP4 MODULE CONFIGURATION RACK 2 MARION, OH M.P. QI-101.40			
DESIGNED GET/KJM	DIGITIZED GET/SAT	CHECKED GET/KMQ	DATE 12-12-11
DRAWING -----	SHEET NO -----	FILE QI10140	SHEET E06

DESIGN DATE -----	REV. NO. 3
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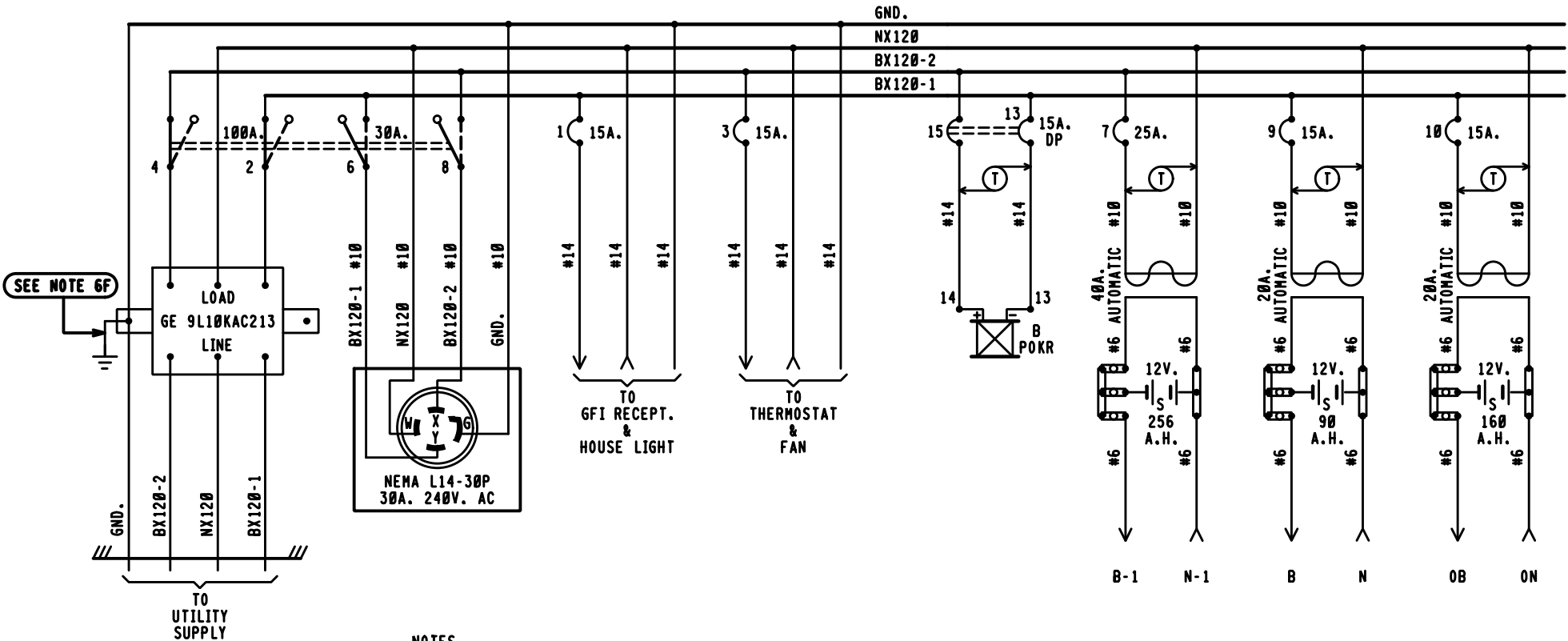
ELECTROLOGIXS RACK

2VSTOP			6VSTOP			10VSTOP			12VSTOP			14VSTOP			16VSTOP			K1DAXR		
12	FB	B77	12	FB	B77	12	FB	B77	12	FB	B77	12	FB	B77	12	FB	B77	12	F	B8
15	F	C30	15	F	C30	15	F	C30	15	F	C30	15	F	C30	15	F	C30	15	F	C30
22	F		22	F		22	F		22	F		22	F		22	F		22		
25			25			25			25			25			25			25		
32	F		32	F		32	F		32	F		32	F		32	F		32		
35	F		35	F		35	F		35	F		35	F		35	F		35		

2TR			4TR			14TR			16TR			18TR			20TR			K2DAXR		
12		B51	12		B51	12		B51	12		B51	12		B51	12		B51	12	F	B8
15		C30	15		C30	15		C30	15		C30	15		C30	15		C30	15	F	C30
22			22			22			22			22			22			22		
23	F		23	F		23	F		23	F		23	F		23	F		23		
25	F		25	F		25	F		25	F		25	F		25	F		25		
32			32			32			32			32			32			32		
35			35			35			35			35			35			35		

BP0KR		
9	F	N68
10		C48

WALL MOUNTED



BX120-1 | BX120-2
10.0 AMPS | 16.0 AMPS
MAXIMUM LOAD
CALCULATED PER SS360

- NOTES.
- REFERENCES ARE PER SCMS-13.
 - ARRESTERS ARE PER SS382.
 - 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 BUSES, 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 TWISTED PAIR 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.

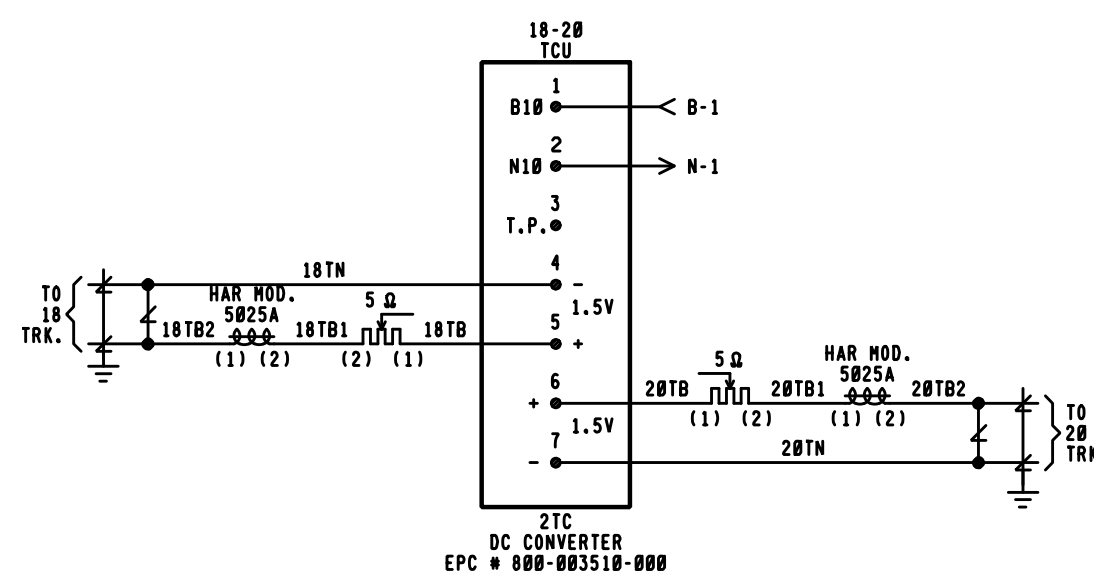
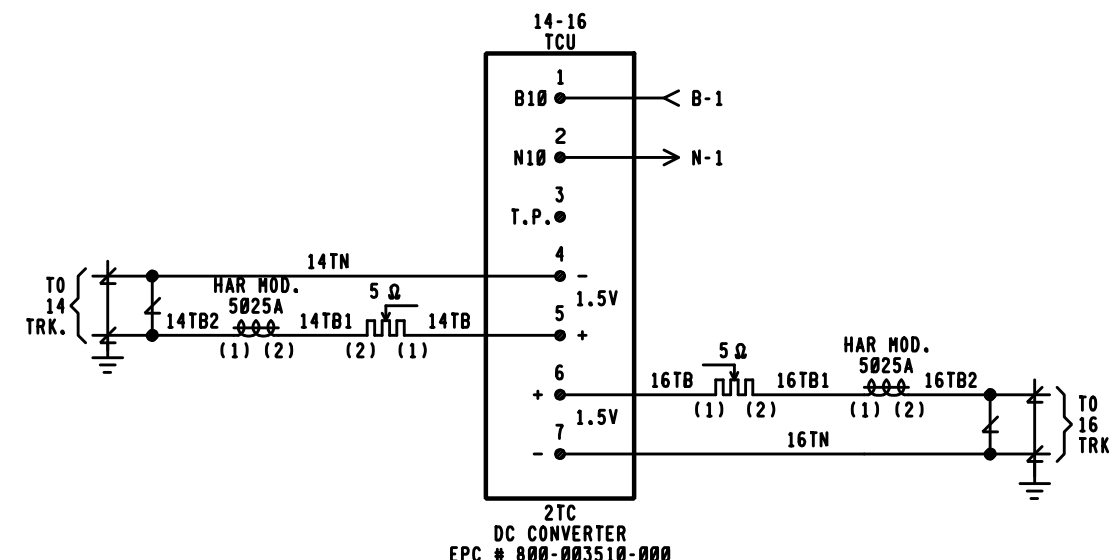
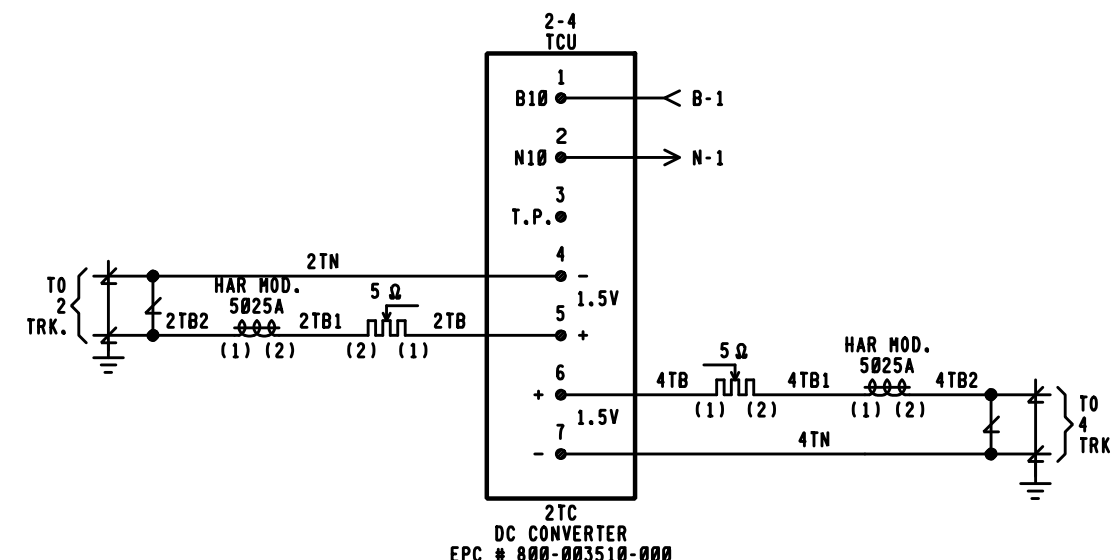
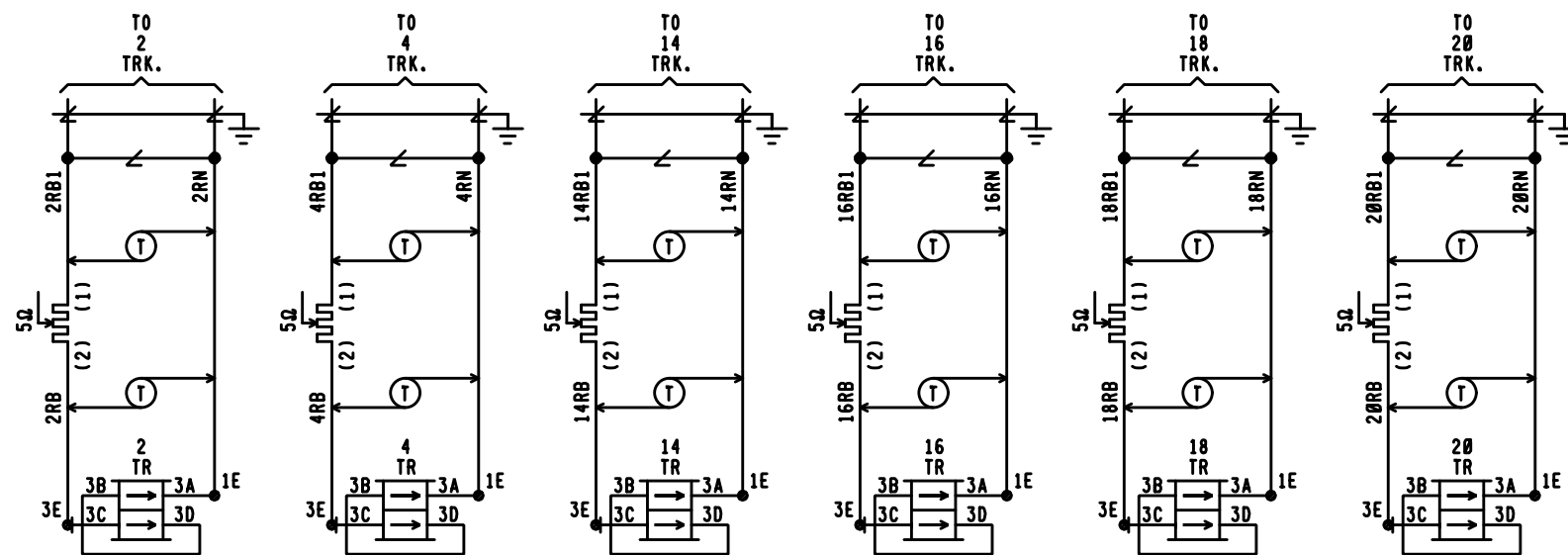
PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 05/25/17
CSX: 0H2017030
0H2017031
PRS/TDF/SAF
NO CHANGES

PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 10/26/16
CSX: 0H2016046
0H2016047
0H2016048
0H2016049
0H2016050
0H2016051
0H2017010
0H2017011
PRS/TDF/SAF
NO CHANGES

LOCATION B - 8'X10' HOUSE

CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
CP 101			
POWER DISTRIBUTION MARION, OH M.P. QI-101.40			
DESIGNED GET/KJM	DIGITIZED GET/SAT	CHECKED GET/KMQ	DATE 12-12-11
DRAWING -----	SHEET NO -----	FILE QI10140	SHEET E07

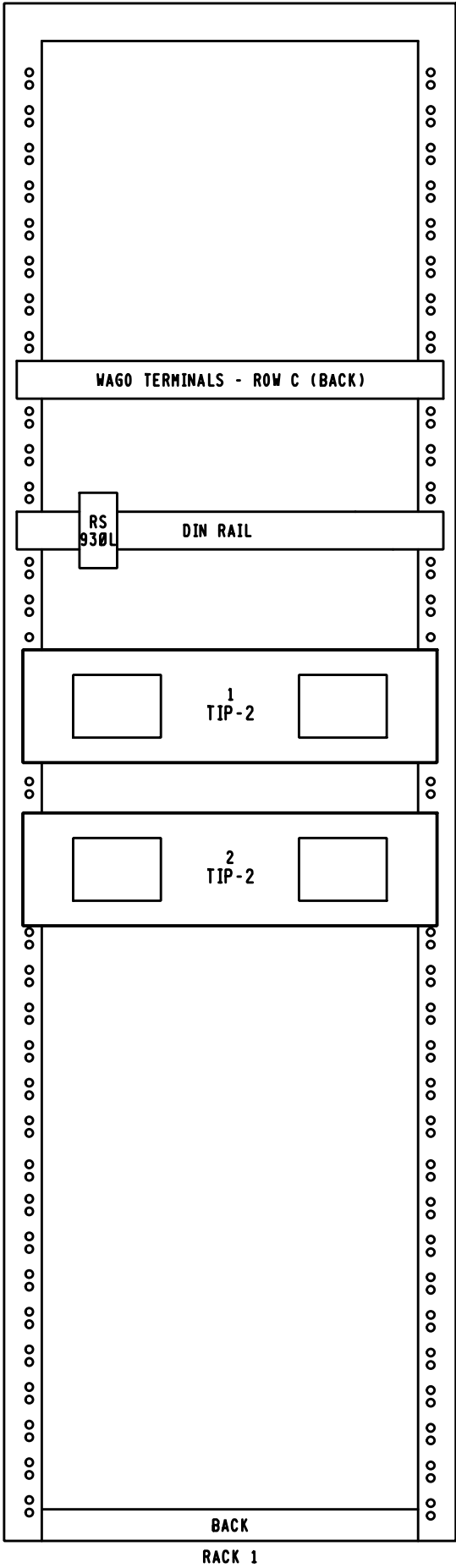
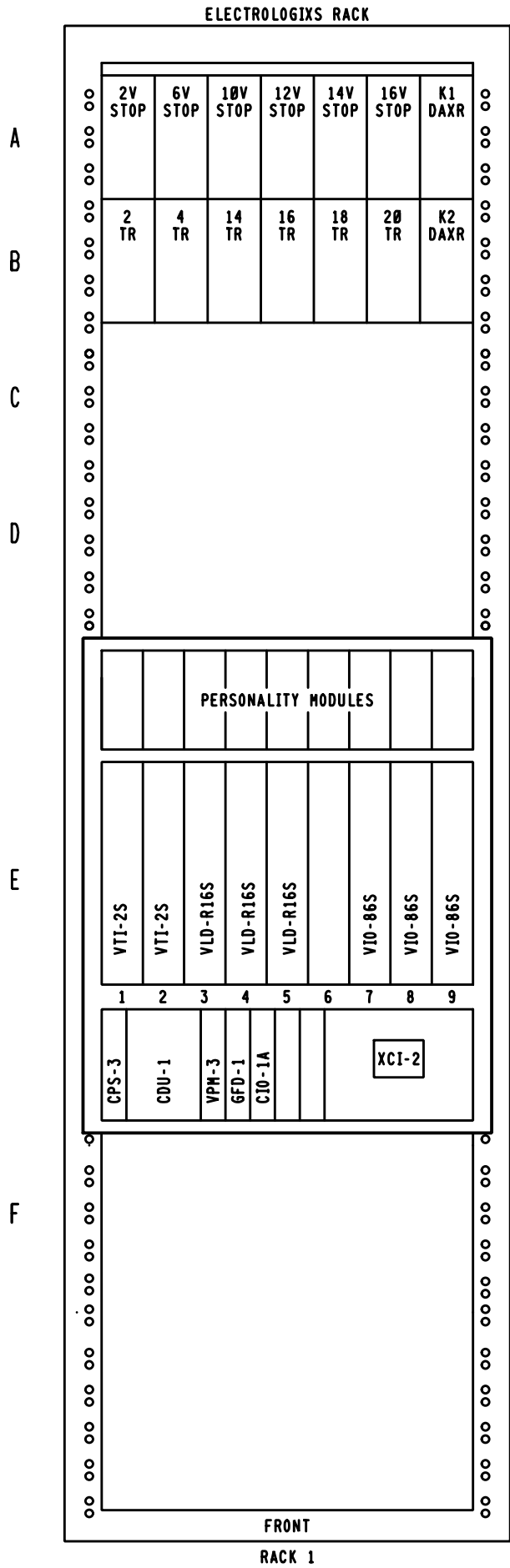
DESIGN DATE 06-02-15	REV. NO. 2
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PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 05/25/17
CSX # 0H2017030
0H2017031
PRS/TDF/SAF

PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 10/26/16
CSX # 0H2016046
0H2016047
0H2016048
0H2016049
0H2016050
0H2016051
0H2017010
0H2017011
PRS/TDF/SAF

LOCATION B			
CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
CP 101			
TRACK CIRCUITS MARION, OH M.P. QI-101.40			
DESIGNED GET/KJM	DIGITIZED GET/SAT	CHECKED GET/KMQ	DATE 12-12-11
DESIGN DATE -----	REV. NO. 1	DRAWING -----	SHEET E08



ELECTROLOGIXS EQUIPMENT RACK 84" X 19"			
REF.	DESCRIPTION	GETS P/N	QTY
---	ASSY RACK 19" CSX		1 EA.
A-B	RLY B1 PLBD KIT NO FLAG	007062-003	12 EA.
A-B	KIT RLY FL E-POST MOD	005634-000	12 EA.
A-B	BAR MT6 19" W/BLU PAINT	12272-001	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)	DIN RAIL 35 X 7.5 FOR 19" RACK	124422-000	1 EA.
ROW D	RUGGEDCOM RS930L-24-D-V1-V1-XX	NA	1 EA.
ROW E	MOUNTING BAR, 19", 4-SLOT CHASSIS	126061-000	2 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.
E7-E9	VIO-86S PERSONALITY MODULE	227537-000	3 EA.
E7-E9	VIO-86S MODULE	251380-000	3 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	XCI-2 MODULE	251442-000	1 EA.
ROW E	CABLE, TIP-2, 4'	814-096000-016	1 EA.
ROW E (BACK)	TIP-2	800-096000-011	2 EA.



PROGRESS

RAIL SERVICES

A Caterpillar Company

DATE:05/25/17

CSX#.0H2017030

0H2017031

PRS/TDF/SAF

NO CHANGES



PROGRESS

RAIL SERVICES

A Caterpillar Company

DATE:10/26/16

CSX#.0H2016046

0H2016047

0H2016048

0H2016049

0H2016050

0H2016051

0H2017010

0H2017011

PRS/TDF/SAF

NO CHANGES

LOCATION B



RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

CP 101

RACK 1 LAYOUT
MARION, OH M.P. QI-101.40

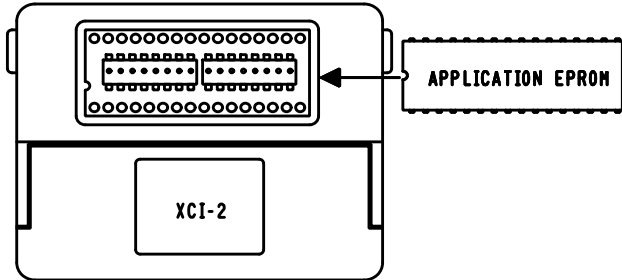
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DESIGN DATE -----	REV. NO. 1	DRAWING -----	SHEET NO -----	FILE QI10140	SHEET E09

DESIGN DATE	REV. NO.	DRAWING	SHEET NO	FILE	SHEET
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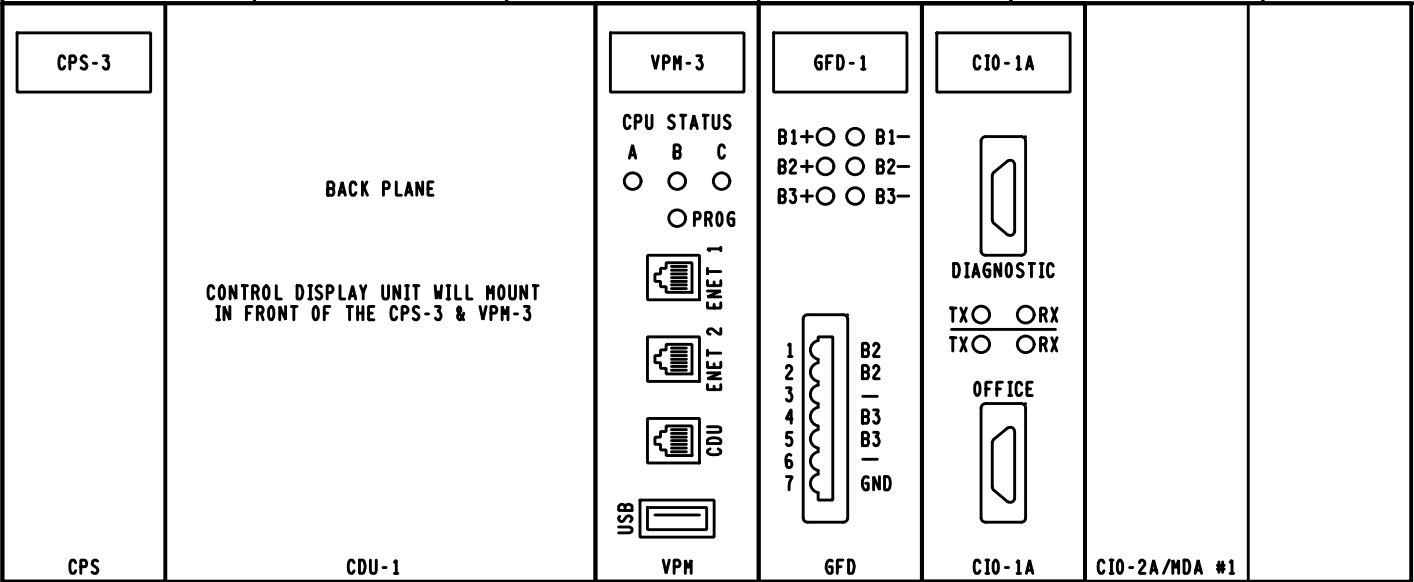
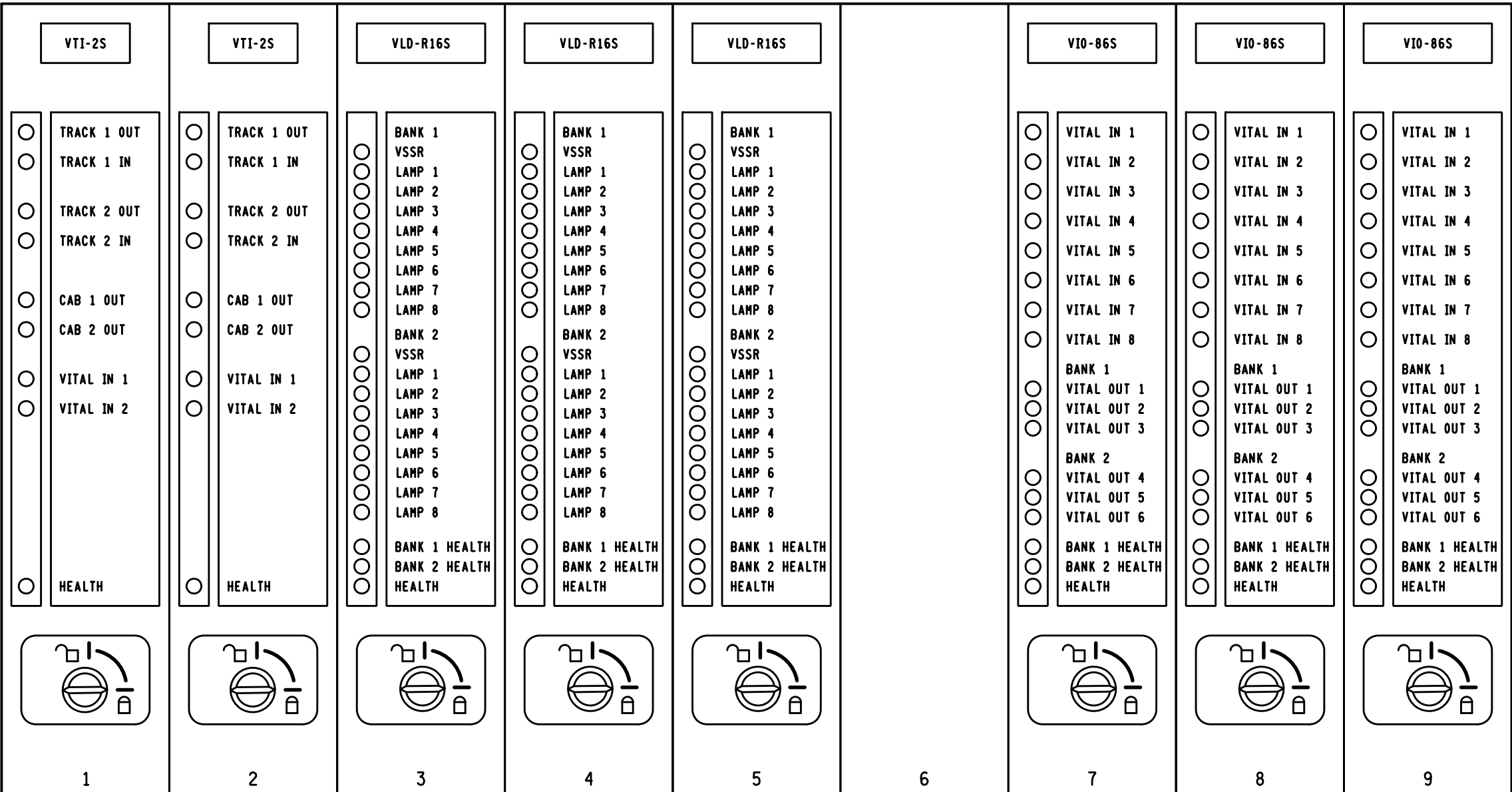
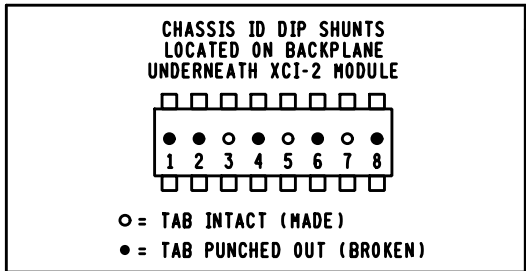


CIO-1A MODULE DIAGNOSTIC AND OFFICE PORT PIN ASSIGNMENT		
PIN	SIGNAL	SIGNAL NAME
1	CD	CARRIER DETECT
2	RX	RECEIVE DATA
3	TX	TRANSMIT DATA
4	DTR	DTE
5	GND	COMMON SIGNAL RETURN
6	DSR	DCE
7	RTS	REQUEST TO SEND
8	CTS	CLEAR TO SEND
9	RI	RING INDICATOR

TYPICAL INSTALLATION OF
EPROM & DIP SHUNT



CHASSIS ID-42



MODULE LEGEND.

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



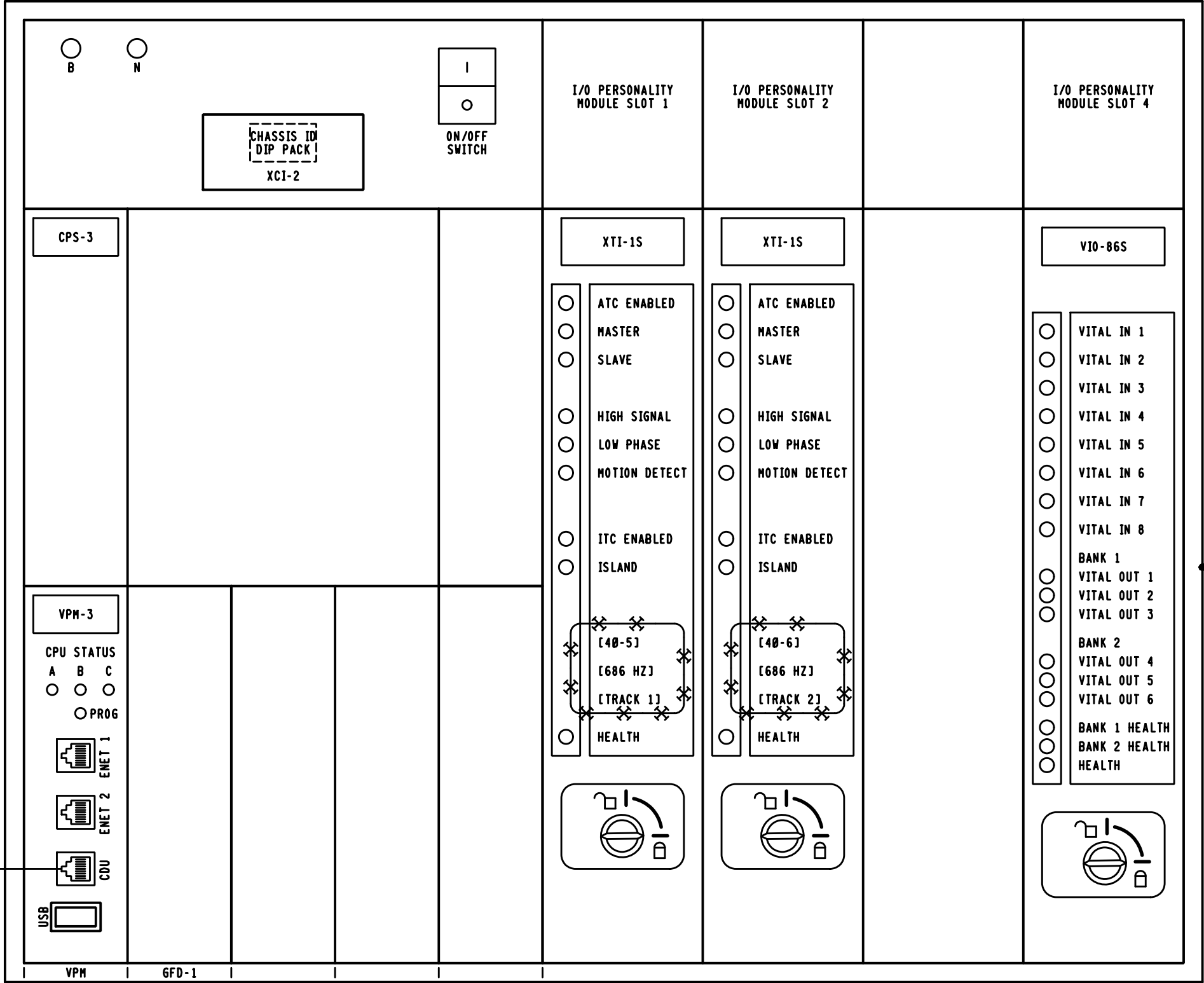
A Caterpillar Company
DATE: 05/25/17
CSX# 0H2017030
0H2017031
PRS/TDF/SAF



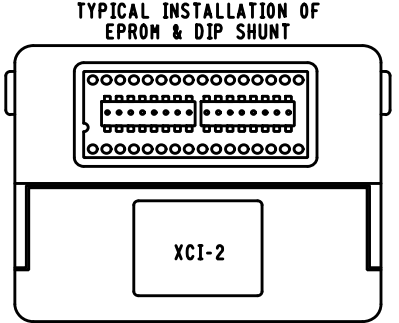
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DATE: 10/26/16
CSX# 0H2016046
0H2016047
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0H2016049
0H2016050
0H2016051
0H2017010
0H2017011
PRS/TDF/SAF

LOCATION B

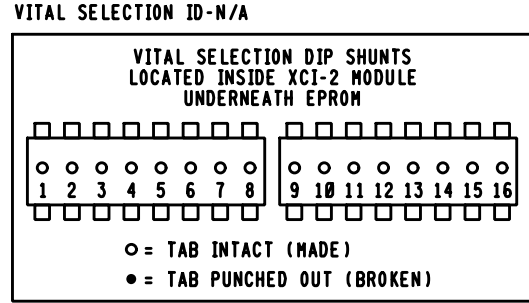
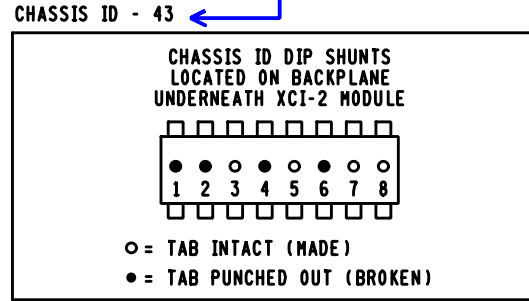
CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
CP 101			
ELECTROLOGIXS MODULE CONFIGURATION RACK 1 MARION, OH M.P. Q1-101.40			
DESIGNED GET/KJM	DIGITIZED GET/SAT	CHECKED GET/KMQ	DATE 12-12-11
DESIGN DATE -----	REV. NO. 1	DRAWING -----	SHEET E10



40-2CWU



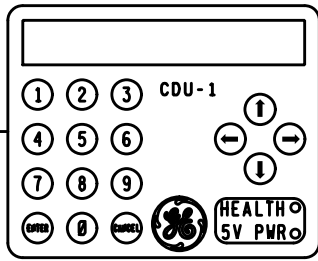
FIELD PLEASE VERIFY/PROVIDE CHASSIS ID UPON A.I.S.



NOTES:

- CDU-1 = CONTROL DISPLAY UNIT
- CPS-3 = CENTRAL POWER SUPPLY
- VPM-3 = VITAL PERIPHERAL MASTER MODULE
- GFD-1 = GROUND FAULT DETECTOR MODULE
- XCI-2 = CHASSIS INFORMATION MODULE
- XTI-1S = CROSSING TRACK INTERFACE
- VIO-86S = VITAL INPUTS/OUTPUTS
- 4 SLOT XP4 TO BE SELF MOUNTED.

LOCATION B (40-2CWU)



THIS PLAN DOES ☐ DOES NOT ☒
SUPERSEDE PLAN DATED 10/26/16
CSX PROJECT # 0H2016046
CSX PROJECT # 0H2016047
CSX PROJECT # 0H2016048
CSX PROJECT # 0H2016049
CSX PROJECT # 0H2016050
CSX PROJECT # 0H2016051
CSX PROJECT # 0H2017010
CSX PROJECT # 0H2017011

PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 05/25/17
CSX # 0H2017030
0H2017031
PRS/TDF/SAF

PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 10/26/16
CSX # 0H2016046
0H2016047
0H2016048
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0H2016051
0H2017010
0H2017011
PRS/TDF/SAF

DESIGN DATE
05-25-17

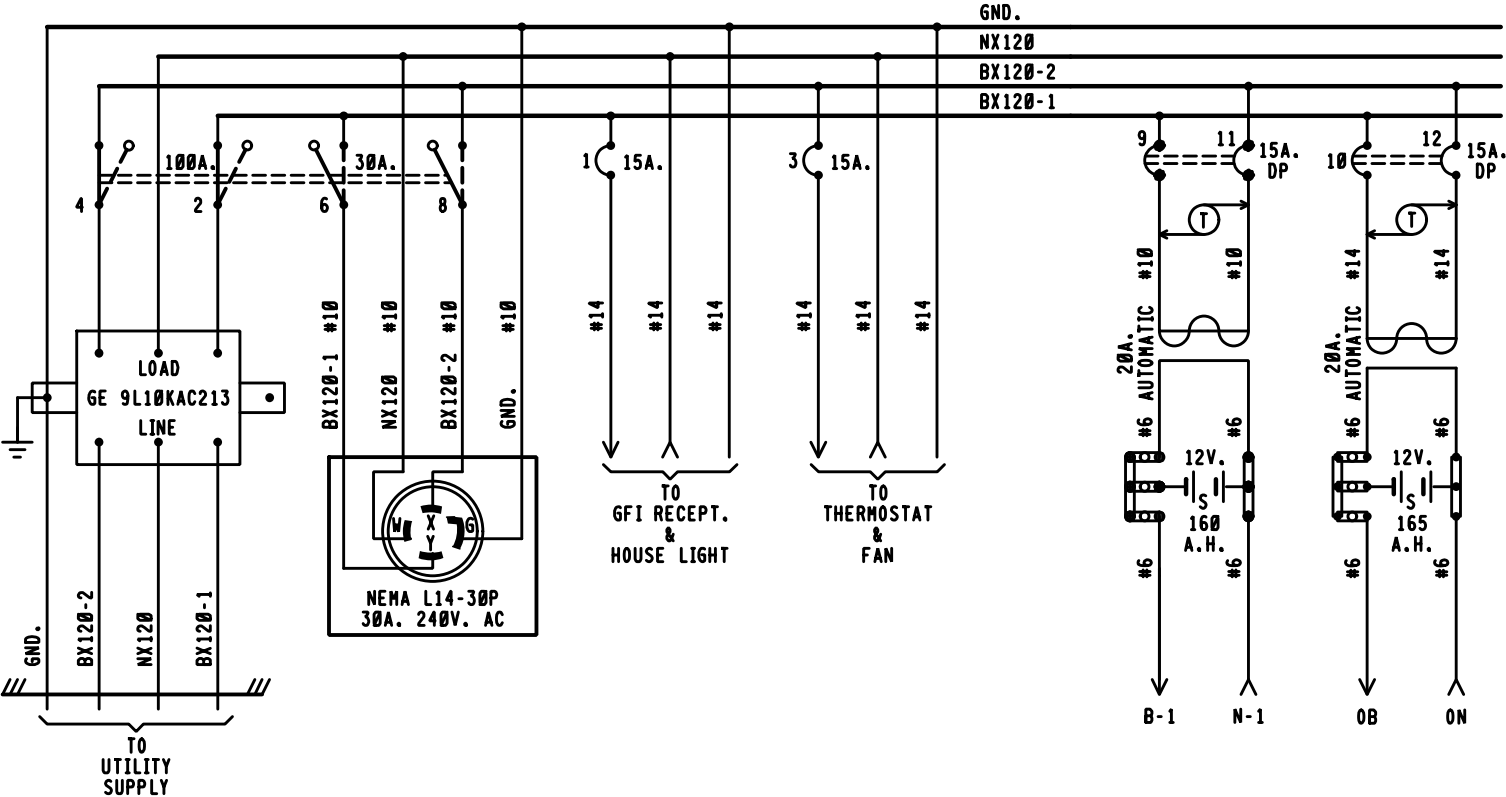
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3

DESIGNED GET/KJM	DIGITIZED GET/SAT	CHECKED GET/KMQ	DATE 12-12-11
DRAWING -----	SHEET NO -----	FILE QI10140	SHEET E11

05-25-17

3

				TOP ROW							
49-1DAXR		49-2DAXR		89-1DAX1R		89-2DAX2R					
12		12		12		12					
15	B8	15	B8	15	B8	15	B8				
22	C3Ø	22	C3Ø	22	C3Ø	22	C3Ø				
23	F	23	F	23	F	23	F				
25	F	25	F	25	F	25	F				
32		32		32		32					
35		35		35		35					



BX12Ø-1 | BX12Ø-2
8.Ø AMPS | 8.Ø AMPS
MAXIMUM LOAD
CALCULATED PER SS36Ø

- NOTES:
- 1 - REFERENCES ARE PER SCMS-13.
 - 2 - ARRESTERS ARE PER SS3Ø2.
 - 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 #1Ø FLEX.
 - B - 12Ø-VOLT FEED FROM ENTRANCE TO POWER BUSS TO BE #1Ø FLEX.
 - C - ALL TRACK WIRES TO BE #1Ø FLEX.
 - D - ALL OTHERS TO BE #16 FLEX UNLESS NOTED.
 - E - 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.



PROGRESS
RAIL SERVICES
A Caterpillar Company

DATE: 05/25/17
CSX# 0H2Ø17Ø3Ø
0H2Ø17Ø31
PRS/TDF/SAF

NO CHANGES



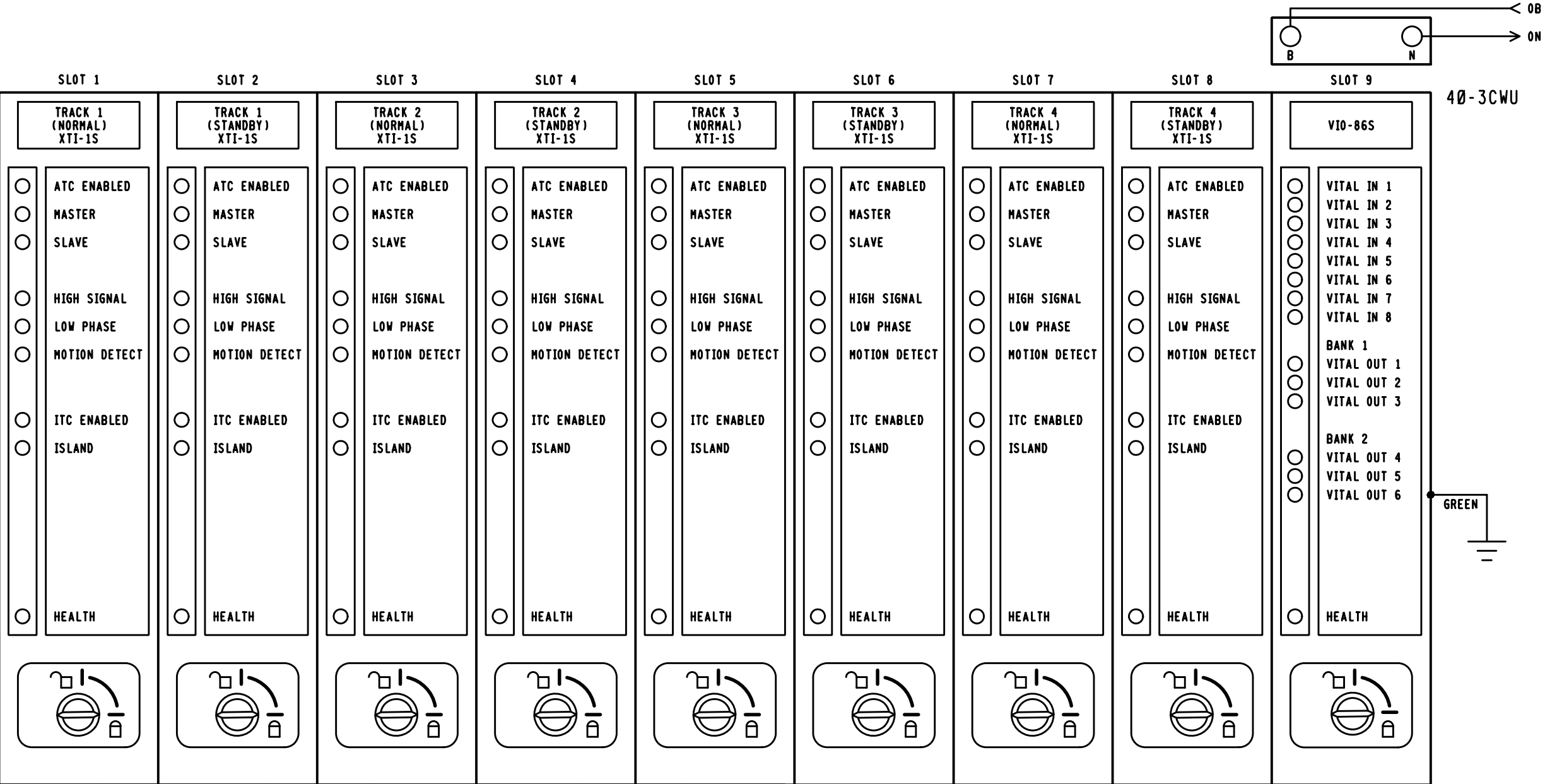
PROGRESS
RAIL SERVICES
A Caterpillar Company

DATE: 1Ø/26/16
CSX# 0H2Ø16Ø46
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0H2Ø16Ø49
0H2Ø16Ø5Ø
0H2Ø16Ø51
0H2Ø17Ø1Ø
0H2Ø17Ø11
PRS/TDF/SAF

NO CHANGES

6'X 6' DAX REMOTE HOUSE

CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
CP 1Ø1			
POWER DISTRIBUTION MARION, OH M.P. QI-1Ø1.4Ø			
DESIGNED IRS/RHW	DIGITIZED IRS/RLB	CHECKED IRS/LEK	DATE Ø6-Ø2-14
DESIGN DATE -----	REV. NO. 3	DRAWING -----	SHEET E12



CPS-3

NSM-1

VPM-3

CPU STATUS
A B C
O O O
O PROG

ENET 1

ENET 2

CDU

USB

CHASSIS ID
DIP PACK
XCI-2

ON/OFF
SWITCH

PROGRESS
RAIL SERVICES
A Caterpillar Company

DATE: 05/25/17
CSX# 0H2017030
0H2017031
PRS/TDF/SAF

NO CHANGES

DATE: 10/26/16
CSX# 0H2016046
0H2016047
0H2016048
0H2016049
0H2016050
0H2016051
0H2017010
0H2017011
PRS/TDF/SAF

CDU-1

HEALTH
SV PWR

6' X 6' REMOTE DAX HOUSE (40-3CWU)

CSX
TRANSPORTATION

RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

CP 101

ELECTROLOGIXS XP4 MODULE CONFIGURATION
MARION, OH M.P. Q1-101.40

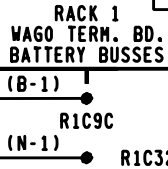
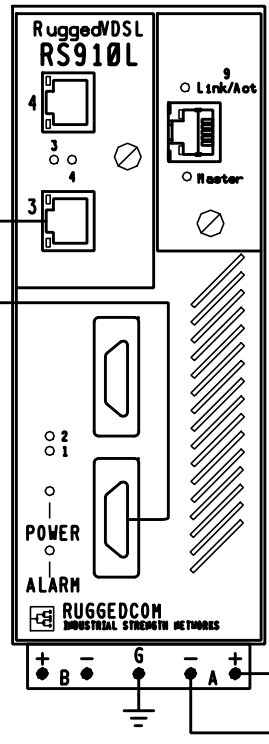
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DESIGN DATE -----	REV. NO. 3	DRAWING -----	SHEET E13

RS910L SETUP	
PIN	RS422
1	10.200.2.100
2	MASTER
3	MASTER
4	10.200.2.100
5	MASTER
6	MASTER
7	CTS
8	RTS
9	R

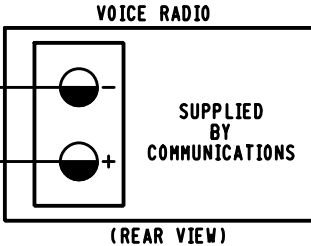
RS910L SETUP	
TRANSMIT RATE	5.2 MBS
IP ADDRESS	10.52.176.38
PORT 3 MODE	SLAVE
PORT 9 MODE	MASTER

6 PR U.G. COM CABLE TO NSRR LOC. A SEE NS PLAN SNCS04521 SH. 25

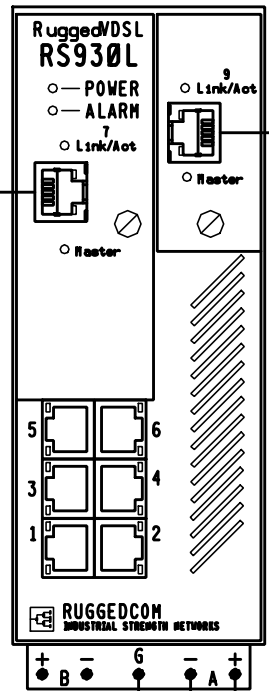
RUGGEDCOM
ETHERNET SWITCH #2
MODEL 910L-24-D-VI-VI-XX



RACK 1 (BACK)
WAGO TERM. BD.
BATTERY BUSES

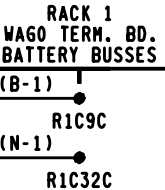


RUGGEDCOM
ETHERNET SWITCH #2
MODEL 930L-24-D-VI-VI-XX

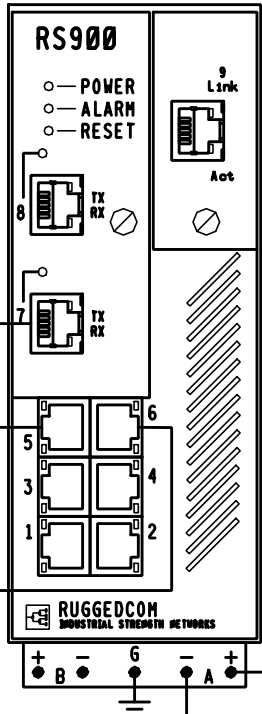


6 PR U.G. COM CABLE CONT. ON SH. C21

RS930L SETUP	
TRANSMIT RATE	5.2 MBS
IP ADDRESS	10.52.176.43
PORT 7 MODE	SLAVE
PORT 9 MODE	MASTER



RUGGEDCOM
ETHERNET SWITCH #2
MODEL 900-24-D-VI-VI-XX

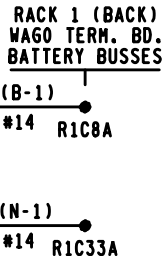
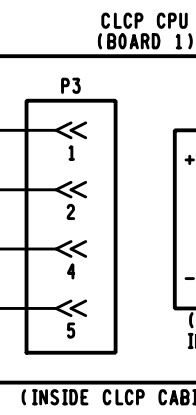
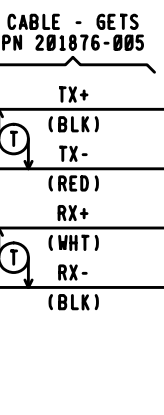
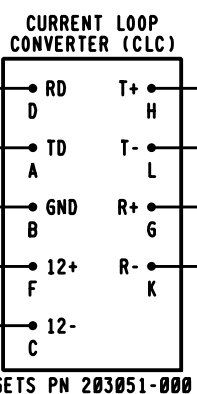
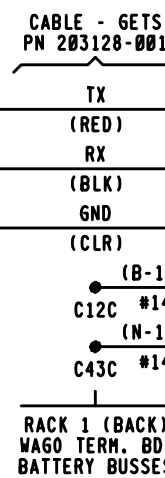
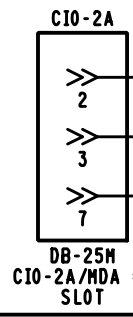
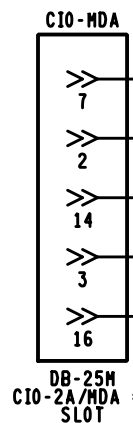
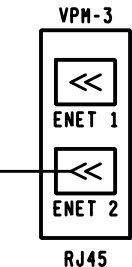
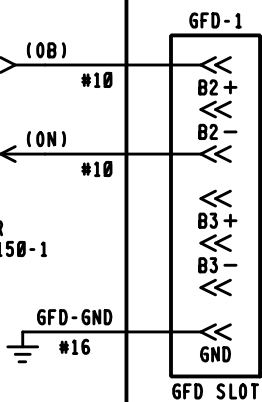


CAT 5 STP ETHERNET CABLE
GETS PN 075061-015

RS900 SETUP	
TRANSMIT RATE	5.2 MBS
IP ADDRESS	10.52.176.50
PORT 7 MODE	MASTER
PORT 8 MODE	MASTER

ELECTROLOGIXS RACK #1

POWER CONNECTION
(LOCATED ON FRONT
OF CHASSIS)



- NOTES:
- DB25 MALE/MALE GENDER CHANGER REQUIRED FOR CONNECTION TO VHLC RS-422 MODULE.
 - PRE MADE 15' CABLE WITH RJ11 CONNECTOR ON ONE END AND 1/4 INCH STRIPPED ENDS ON THE OTHER END. THE CONDUCTORS SHOULD CONNECT TO THE CENTER TWO PINS IN THE RJ11 CONNECTOR. CONDUCTOR/PIN ASSIGNMENT IS IRRELEVANT THE TWIST SHOULD BE CONSISTENT ALL THE WAY TO THE ARRESTOR BASE CONNECTION.

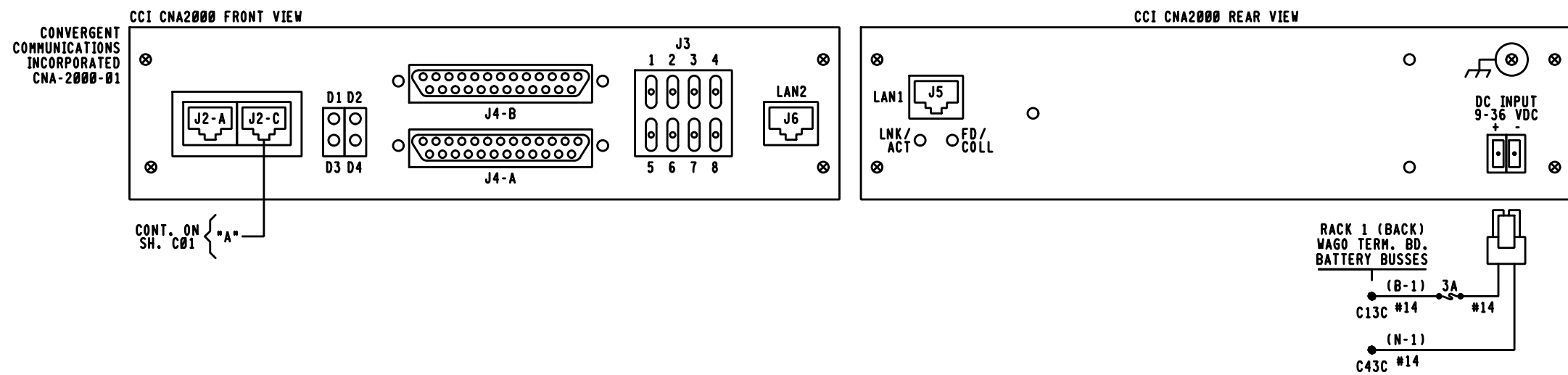
LOCATION A

PROGRESS RAIL SERVICES
A Caterpillar Company
DATE: 05/25/17
CSX # 0H2017030
0H2017031
PRS/TDF/SAF
NO CHANGES

PROGRESS RAIL SERVICES
A Caterpillar Company
DATE: 10/26/16
CSX # 0H2016046
0H2016047
0H2016048
0H2016049
0H2016050
0H2016051
0H2017010
0H2017011
PRS/TDF/SAF
NO CHANGES

CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
CP 101			
ELECTROLOGIXS UNIT DATA AND COMMUNICATIONS CIRCUITS RACK 1 MARION, OH M.P. QI-101.40			
DESIGNED GET/KJM	DIGITIZED GET/SAT	CHECKED GET/KMQ	DATE 12-12-11
DRAWING -----	SHEET NO -----	FILE QI10140	SHEET C01

DESIGN DATE	REV. NO.
-----	3



RUGGEDCOM ETHERNET SWITCH PORT ASSIGNMENTS

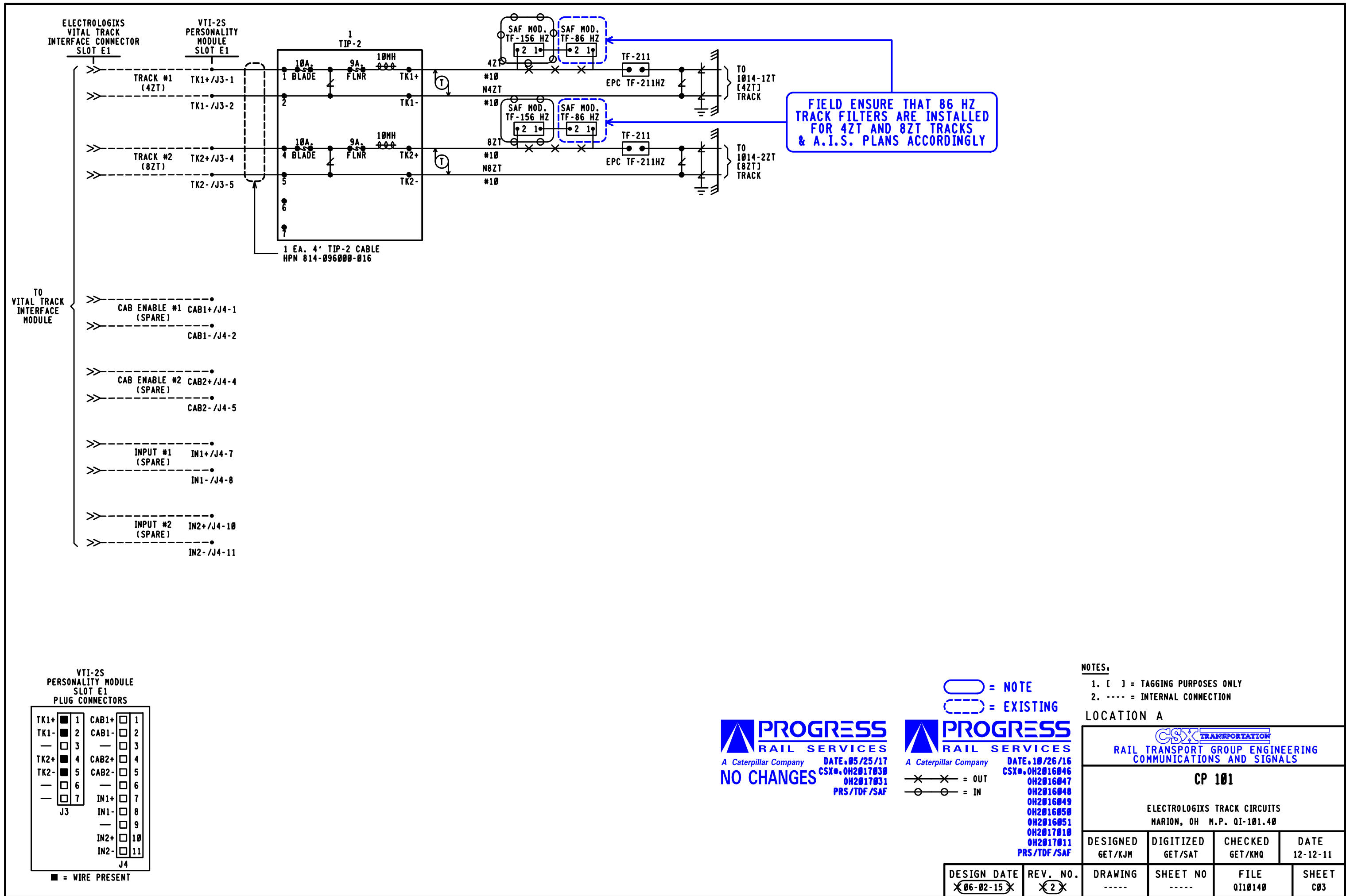
- PORT #1 - CTI EXR-1841 ROUTER
- PORT #2 - DIGI TRANSPORT WR44
- PORT #3 - 220 MHZ RADIO / SATELLITE
- PORT #4 - COMMUNICATIONS NETWORK ADAPTER
- PORT #5 - WAYSIDE INTERFACE UNIT #3 / ETHERNET EXTENDER
- PORT #6 - WAYSIDE INTERFACE UNIT #2 / ETHERNET EXTENDER
- PORT #7 - WAYSIDE INTERFACE UNIT #1 / VPM
- PORT #8 - WAYSIDE MESSAGE SERVER

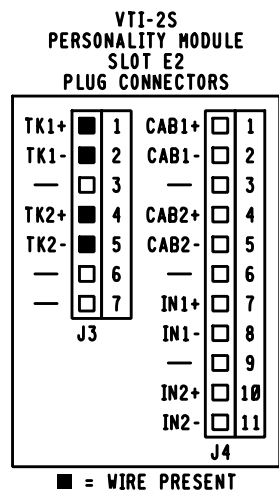
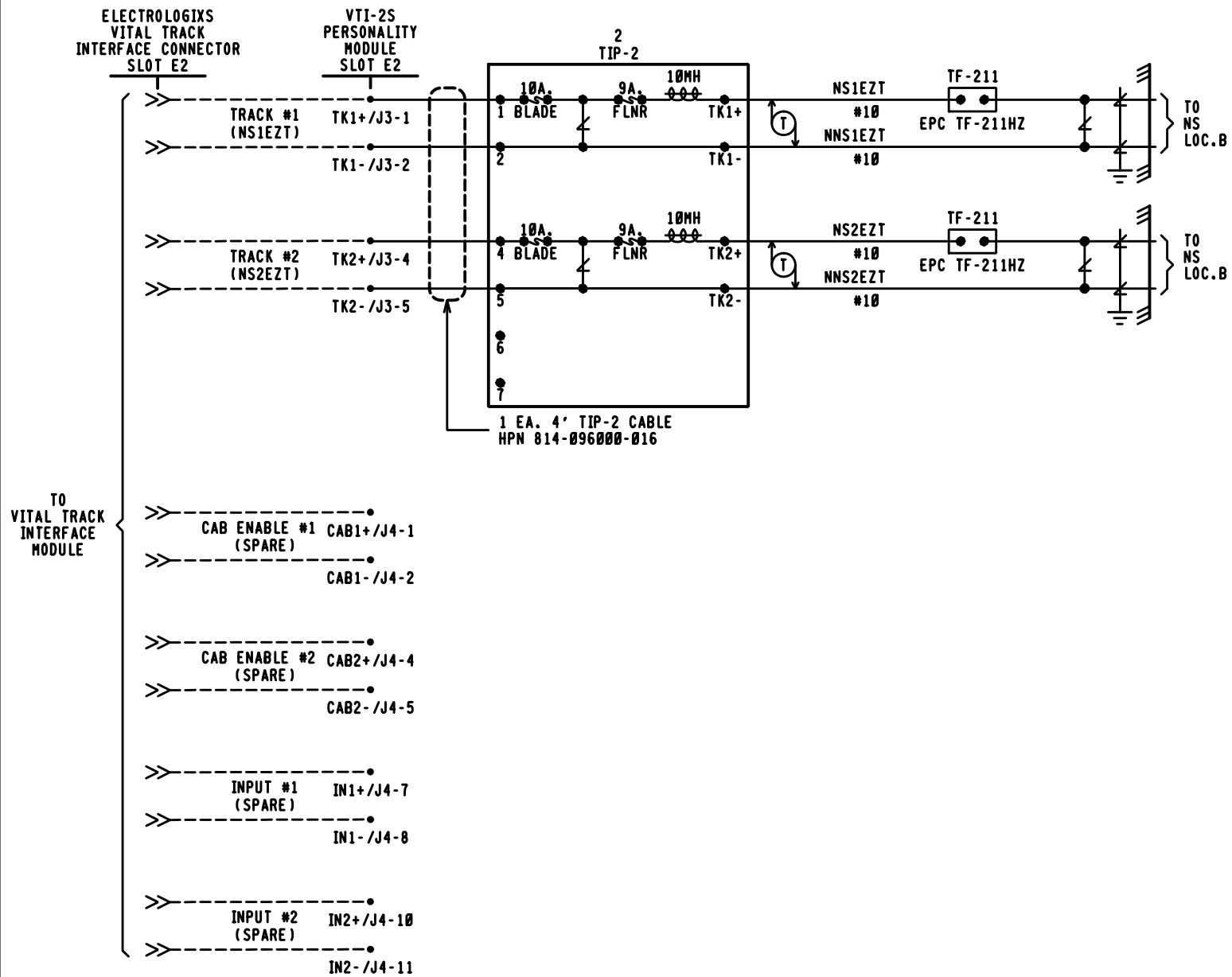
PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 05/25/17
CSX# 0H2017030
0H2017031
PRS/TDF/SAF
NO CHANGES

PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 10/26/16
CSX# 0H2016046
0H2016047
0H2016048
0H2016049
0H2016050
0H2016051
0H2017010
0H2017011
PRS/TDF/SAF
NO CHANGES

LOCATION A

CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
CP 101			
PTC COMMUNICATION CIRCUITS MARION, OH M.P. QI-101.40			
DESIGNED GET/KJM	DIGITIZED GET/SAT	CHECKED GET/KMQ	DATE 12-12-11
DESIGN DATE 06-02-15	REV. NO. 2	DRAWING -----	SHEET C02





NOTE:

1. ---- = INTERNAL CONNECTION

LOCATION A

PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 05/25/17
CSX# 0H2017030
0H2017031
PRS/TDF/SAF
NO CHANGES

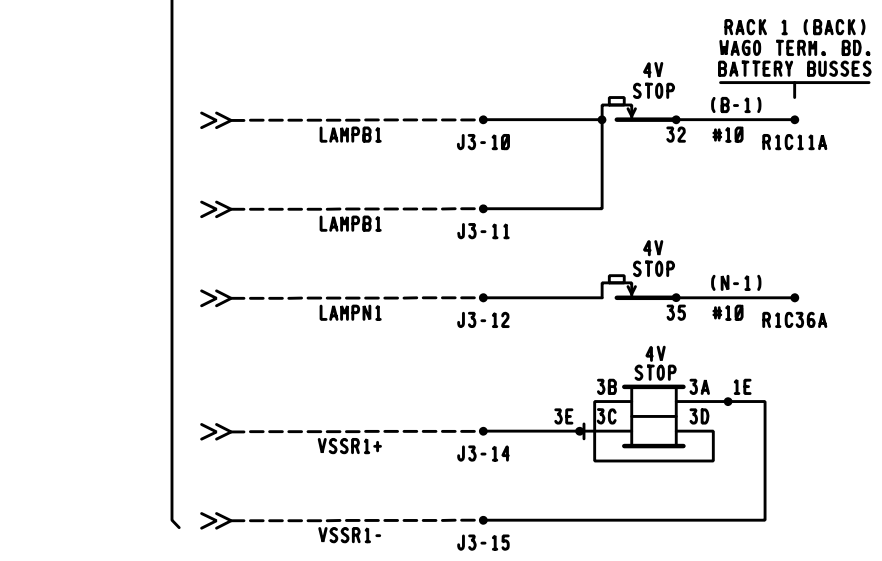
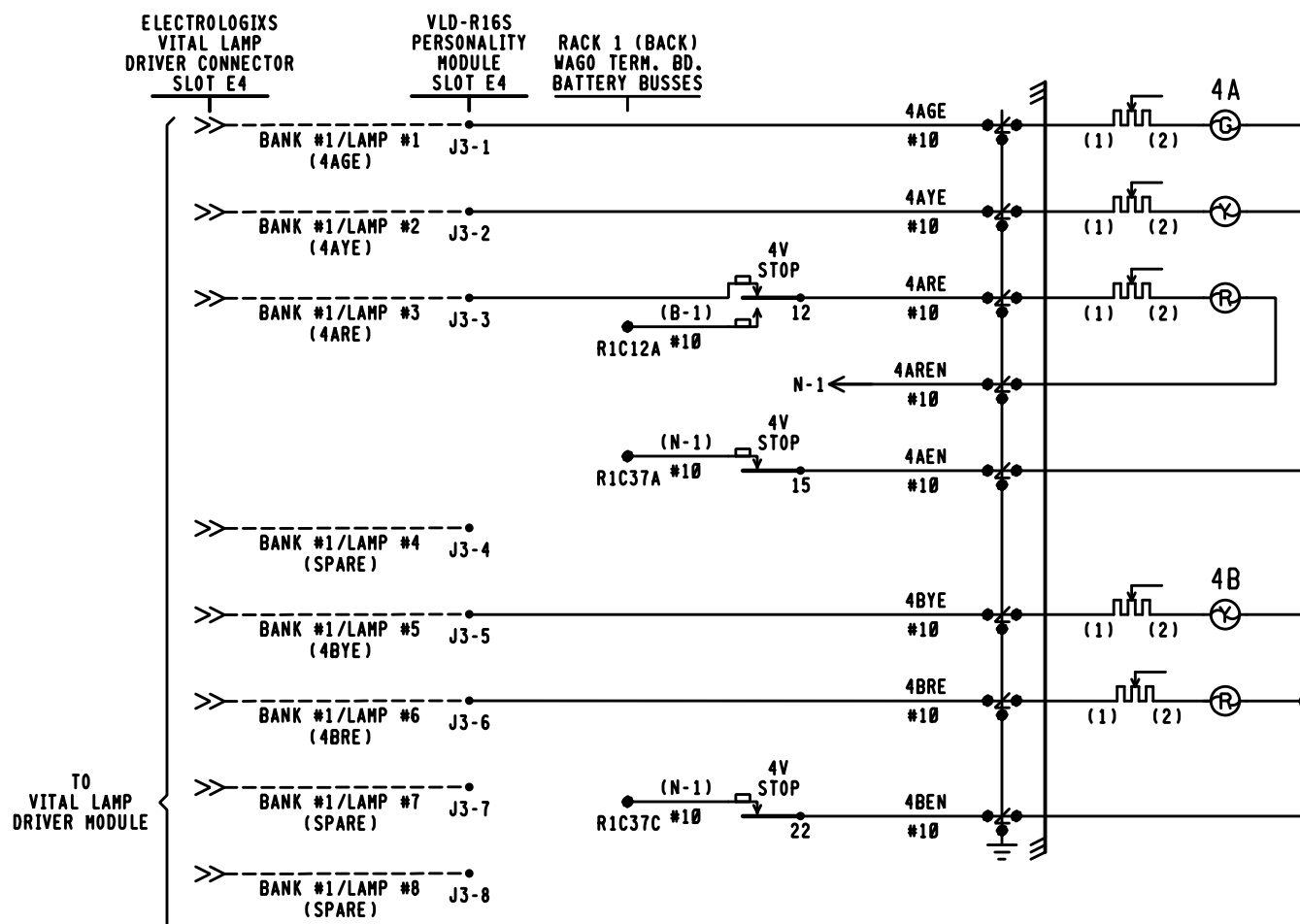
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RAIL SERVICES
A Caterpillar Company
DATE: 10/26/16
CSX# 0H2016046
0H2016047
0H2016048
0H2016049
0H2016050
0H2016051
0H2017010
0H2017011
PRS/TDF/SAF
NO CHANGES

CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

CP 101

ELECTROLOGIXS TRACK CIRCUITS
MARION, OH M.P. QI-101.40

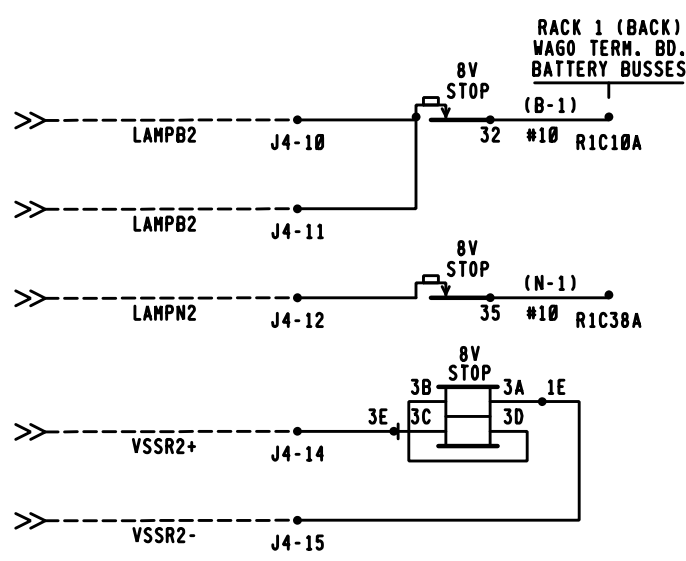
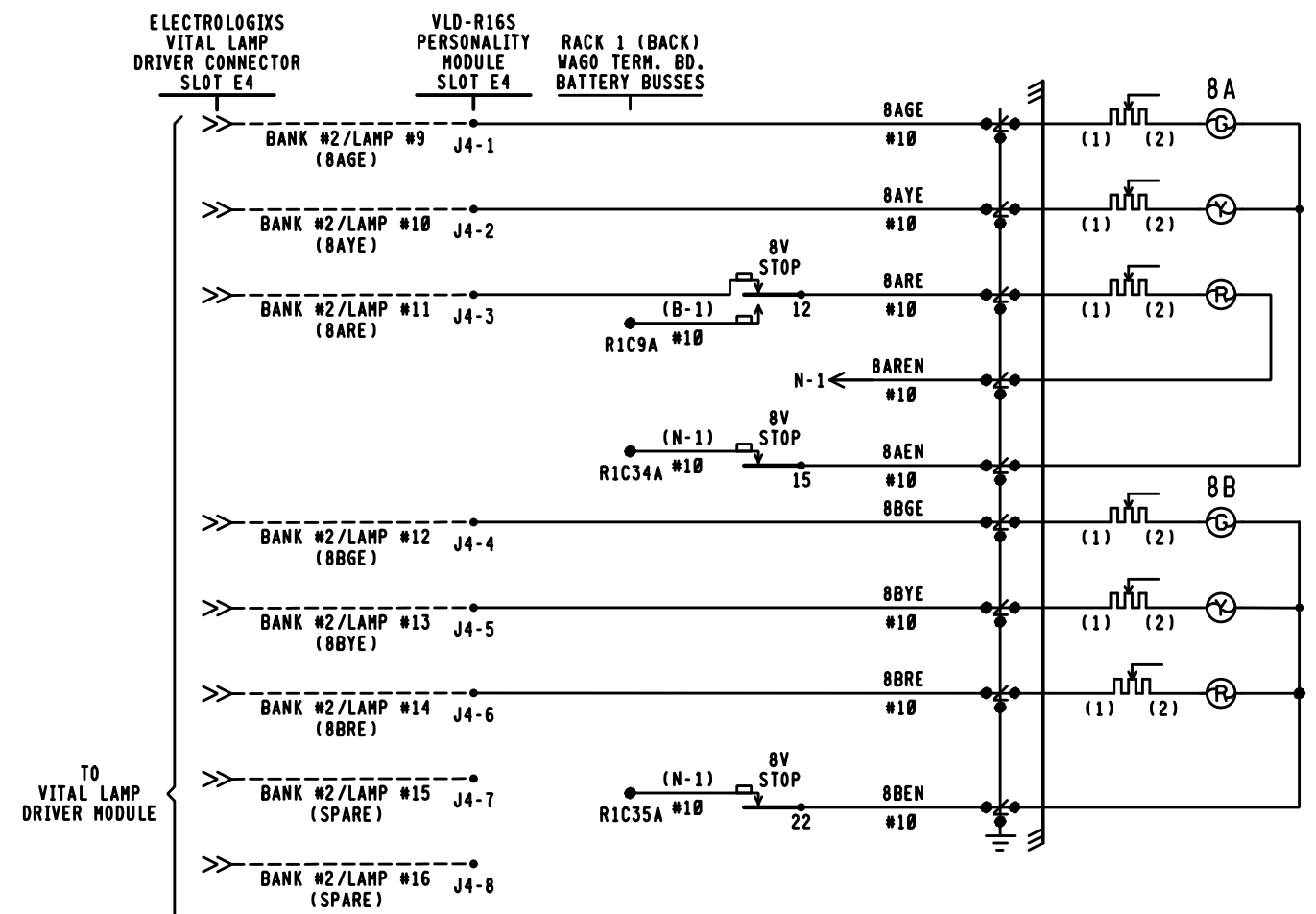
DESIGNED GET/KJM	DIGITIZED GET/SAT	CHECKED GET/KMQ	DATE 12-12-11
DESIGN DATE -----	REV. NO. 1	DRAWING -----	SHEET C04



- NOTES:
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.

VLD-R16S PERSONALITY MODULE SLOT E4 PLUG CONNECTORS			
BANK1		BANK2	
LAMP1	1	LAMP9	1
LAMP2	2	LAMP10	2
LAMP3	3	LAMP11	3
LAMP4	4	LAMP12	4
LAMP5	5	LAMP13	5
LAMP6	6	LAMP14	6
LAMP7	7	LAMP15	7
LAMP8	8	LAMP16	8
---	9	---	9
LAMPB1	10	LAMPB2	10
LAMPB1	11	LAMPB2	11
LAMPN1	12	LAMPN2	12
---	13	---	13
VSSR1+	14	VSSR2+	14
VSSR1-	15	VSSR2-	15
J3		J4	

■ = WIRE PRESENT



PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 05/25/17
CSX# 0H2017030
0H2017031
PRS/TDF/SAF
NO CHANGES

LOCATION A

CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

CP 101

SIGNAL 4 & 8 LIGHTING CIRCUITS
MARION, OH M.P. QI-101.40

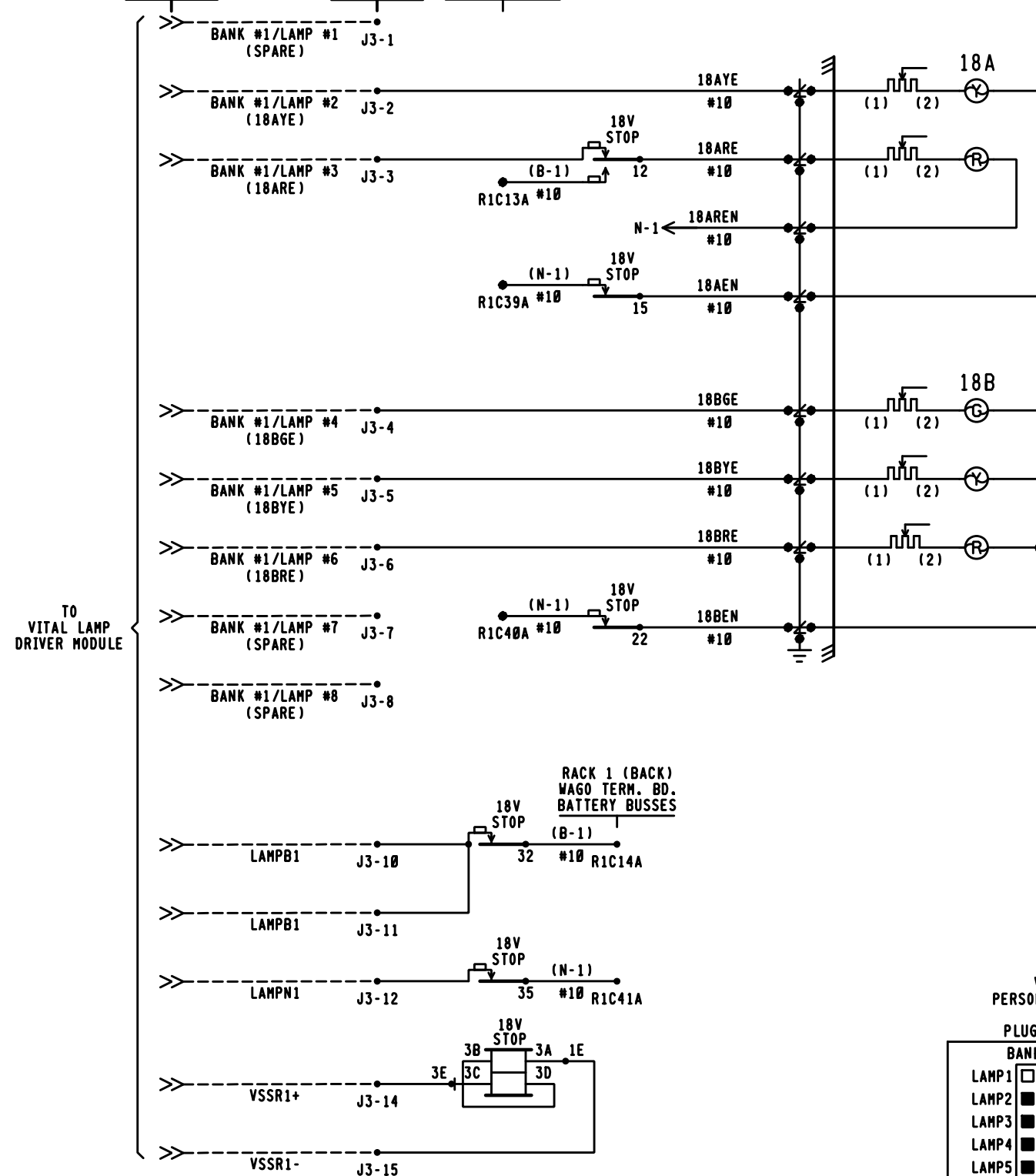
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DESIGN DATE -----	REV. NO. 1	DRAWING -----	SHEET C05

PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 10/26/16
CSX# 0H2016046
0H2016047
0H2016048
0H2016049
0H2016050
0H2016051
0H2017010
0H2017011
PRS/TDF/SAF
NO CHANGES

ELECTROLOGIXS
VITAL LAMP
DRIVER CONNECTOR
SLOT E5

VLD-R16S
PERSONALITY
MODULE
SLOT E5

RACK 1 (BACK)
WAGO TERM. BD.
BATTERY BUSSES



NOTES.

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.

VLD-R16S PERSONALITY MODULE SLOT E5 PLUG CONNECTORS			
BANK1		BANK2	
LAMP1	1	LAMP9	1
LAMP2	2	LAMP10	2
LAMP3	3	LAMP11	3
LAMP4	4	LAMP12	4
LAMP5	5	LAMP13	5
LAMP6	6	LAMP14	6
LAMP7	7	LAMP15	7
LAMP8	8	LAMP16	8
---	9	---	9
LAMPB1	10	LAMPB2	10
LAMPB1	11	LAMPB2	11
LAMPN1	12	LAMPN2	12
---	13	---	13
VSSR1+	14	VSSR2+	14
VSSR1-	15	VSSR2-	15

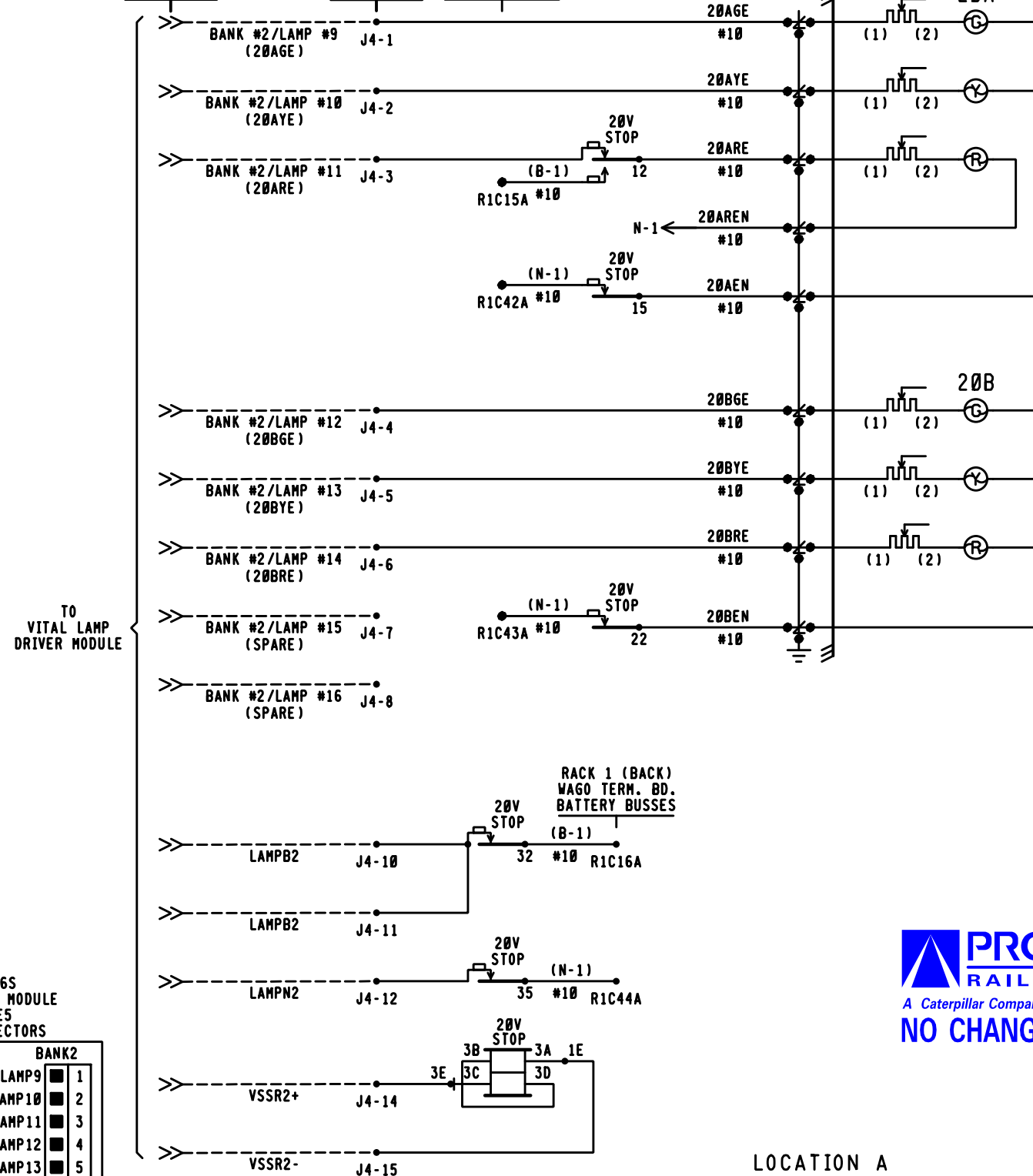
J3 J4

■ = WIRE PRESENT

ELECTROLOGIXS
VITAL LAMP
DRIVER CONNECTOR
SLOT E5

VLD-R16S
PERSONALITY
MODULE
SLOT E5

RACK 1 (BACK)
WAGO TERM. BD.
BATTERY BUSSES



PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 10/26/16
CSX# 0H2016046
0H2016047
0H2016048
0H2016049
0H2016050
0H2016051
0H2017010
0H2017011
PRS/TDF/SAF

LOCATION A

PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 05/25/17
CSX# 0H2017030
0H2017031
PRS/TDF/SAF

CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

CP 101

SIGNAL 18 & 20 LIGHTING CIRCUITS
MARION, OH M.P. QI-101.40

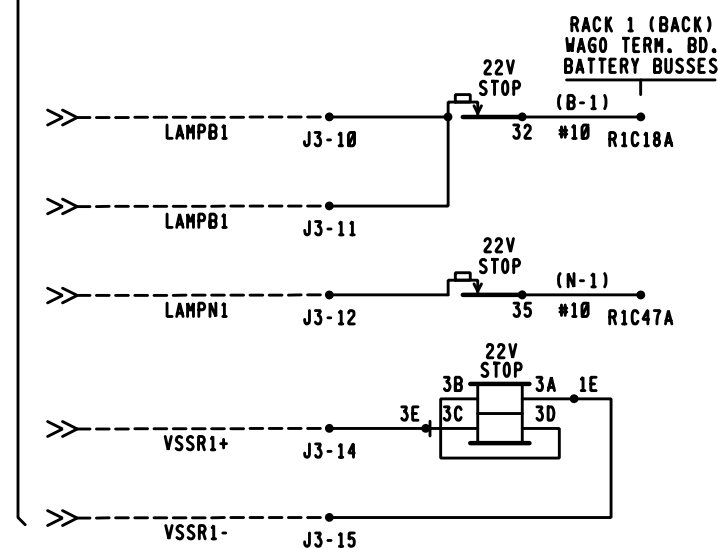
DESIGNED GET/KJM	DIGITIZED GET/SAT	CHECKED GET/KMQ	DATE 12-12-11
DRAWING -----	SHEET NO -----	FILE QI10140	SHEET C06

ELECTROLOGIX
VITAL LAMP
DRIVER CONNECTOR
SLOT E6

VLD-R16S
PERSONALITY
MODULE
SLOT E6

RACK 1 (BACK)
WAGO TERM. BD.
BATTERY BUSSES

TO
VITAL LAMP
DRIVER MODULE



VLD-R16S
PERSONALITY MODULE
SLOT E6
PLUG CONNECTORS

BANK1		BANK2	
LAMP1	1	LAMP9	1
LAMP2	2	LAMP10	2
LAMP3	3	LAMP11	3
LAMP4	4	LAMP12	4
LAMP5	5	LAMP13	5
LAMP6	6	LAMP14	6
LAMP7	7	LAMP15	7
LAMP8	8	LAMP16	8
	9		9
LAMPB1	10	LAMPB2	10
LAMPB1	11	LAMPB2	11
LAMPN1	12	LAMPN2	12
	13		13
VSSR1+	14	VSSR2+	14
VSSR1-	15	VSSR2-	15

J3 J4

■ = WIRE PRESENT

NOTES:

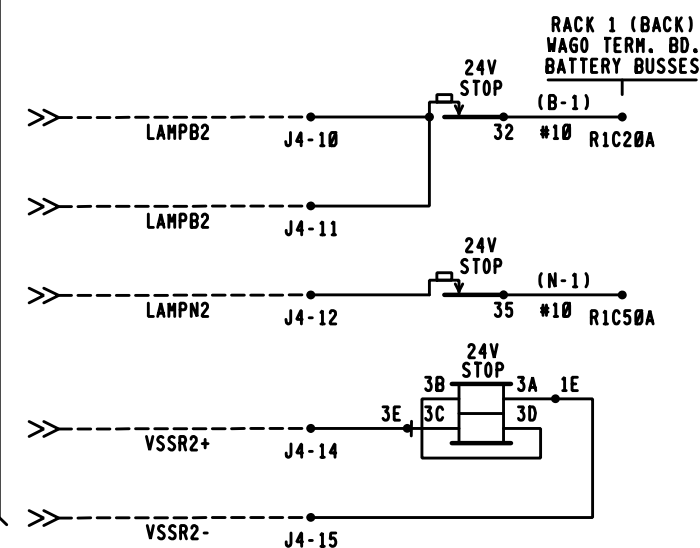
1. ● = LPC-10512-1 (15A, BLUE LEAD) HYBRID LOW VOLTAGE ARRESTER, UNLESS NOTED.
2. ---- = INTERNAL CONNECTION
3. ALL HOUSE WIRING THIS SHEET #14 FLEX UNLESS NOTED.
4. ALL RESISTORS ARE 3 OHM, 15 WATTS.
5. VSSR2 IS COMBINED IN THE PROGRAM WITH THE VSSR1 OUTPUT.

ELECTROLOGIX
VITAL LAMP
DRIVER CONNECTOR
SLOT E6

VLD-R16S
PERSONALITY
MODULE
SLOT E6

RACK 1 (BACK)
WAGO TERM. BD.
BATTERY BUSSES

TO
VITAL LAMP
DRIVER MODULE



PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 05/25/17
CSX# 0H2017030
0H2017031
PRS/TDF/SAF

PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 10/26/16
CSX# 0H2016046
0H2016047
0H2016048
0H2016049
0H2016050
0H2016051
0H2017010
0H2017011
PRS/TDF/SAF

LOCATION A

CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

CP 101

SIGNAL 22 & 24 LIGHTING CIRCUITS
MARION, OH M.P. QI-101.40

DESIGN DATE

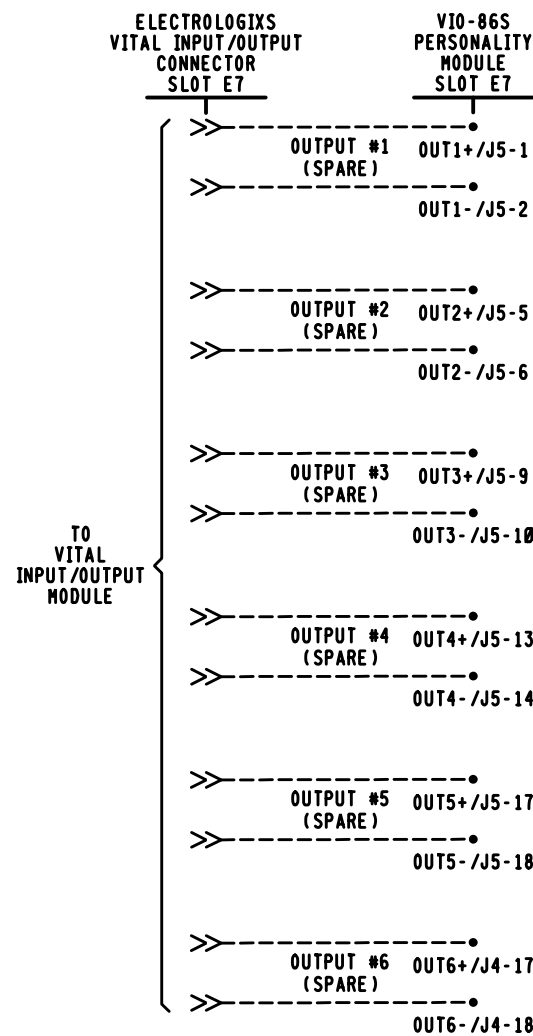
REV. NO.
1

DRAWING

SHEET NO

FILE
QI10140

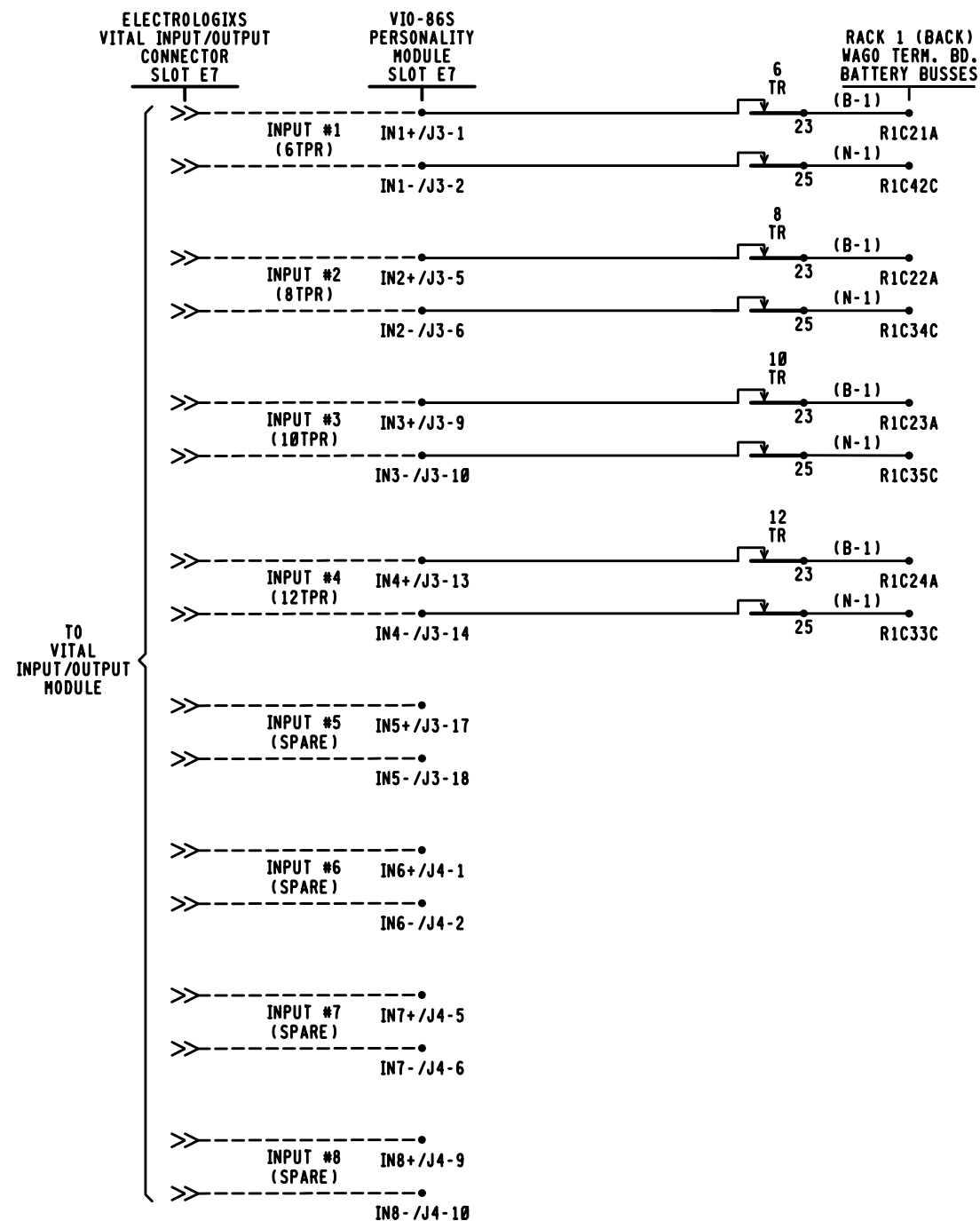
SHEET
C07



VIO-86S PERSONALITY MODULE SLOT E7 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

■ = WIRE PRESENT



NOTE:

1.---- = INTERNAL CONNECTION

LOCATION A



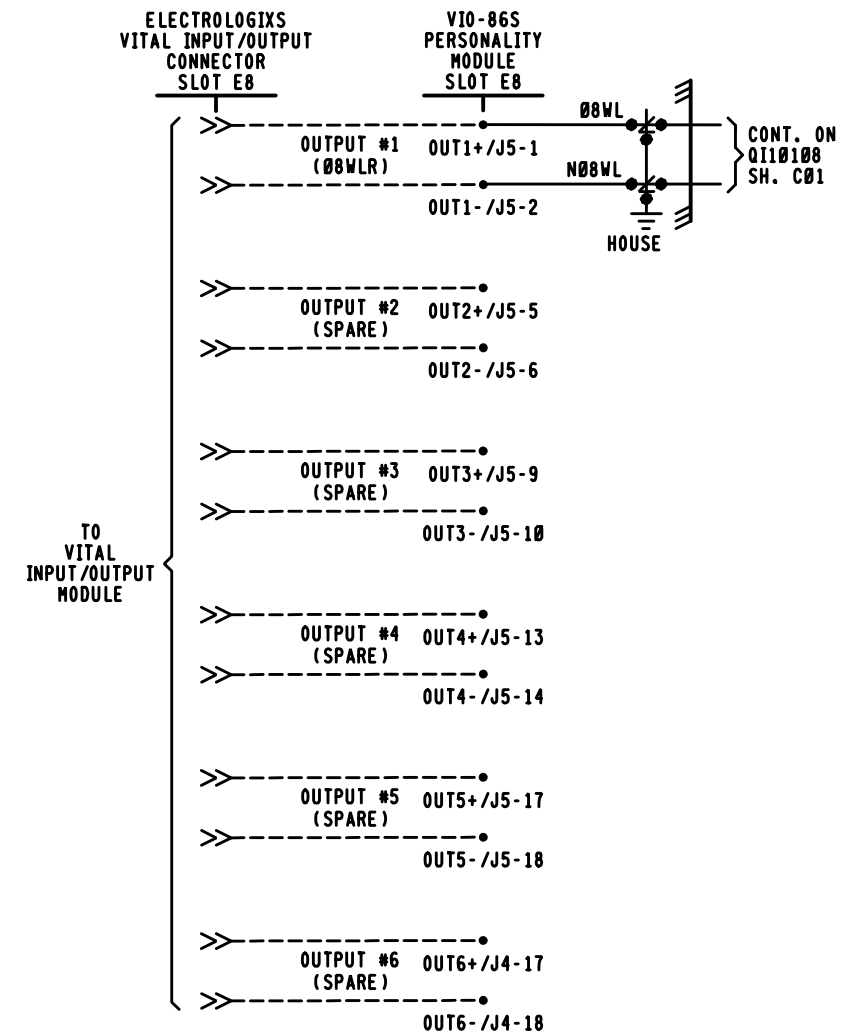
CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

CP 101

ELECTROLOGIXS I/O CIRCUITS RACK 1
MARION, OH M.P. Q1-101.40

DESIGNED GET/KJM	DIGITIZED GET/SAT	CHECKED GET/KMQ	DATE 12-12-11
DRAWING -----	SHEET NO -----	FILE Q110140	SHEET C08

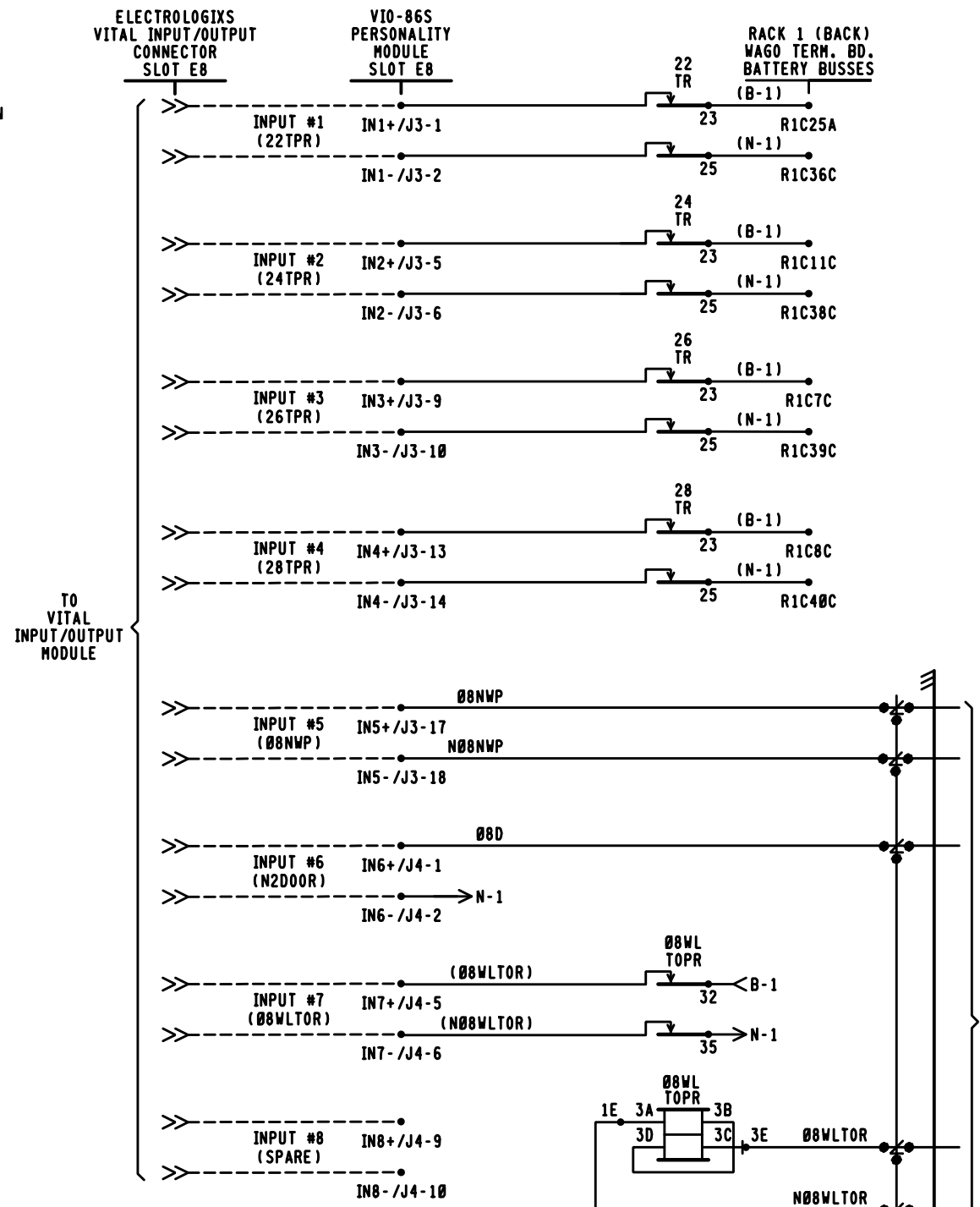
DESIGN DATE -----	REV. NO. 1
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VIO-86S PERSONALITY MODULE SLOT E8 PLUG CONNECTORS

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

■ = WIRE PRESENT



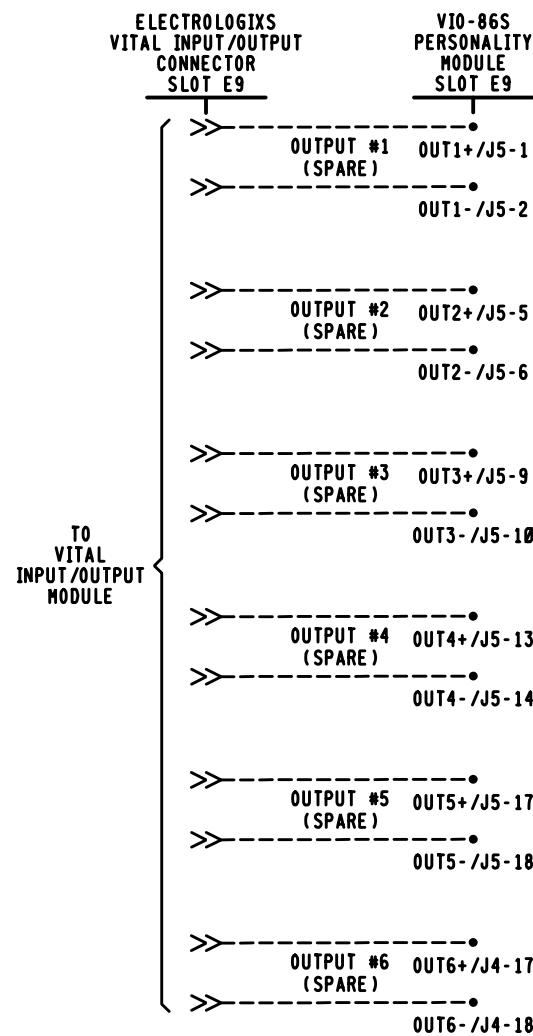
PROGRESS RAIL SERVICES
A Caterpillar Company
DATE: 05/25/17
CSX: 0H2017030
0H2017031
PRS/TDF/SAF
NO CHANGES

PROGRESS RAIL SERVICES
A Caterpillar Company
DATE: 10/26/16
CSX: 0H2016046
0H2016047
0H2016048
0H2016049
0H2016050
0H2016051
0H2017010
0H2017011
PRS/TDF/SAF
NO CHANGES

NOTE:
---- = INTERNAL CONNECTION
LOCATION A

CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
CP 101 ELECTROLOGIXS I/O CIRCUITS RACK 1 MARION, OH M.P. QI-101.40			
DESIGNED GET/KJM	DIGITIZED GET/SAT	CHECKED GET/KMQ	DATE 12-12-11
DRAWING -----	SHEET NO -----	FILE QI10140	SHEET C09

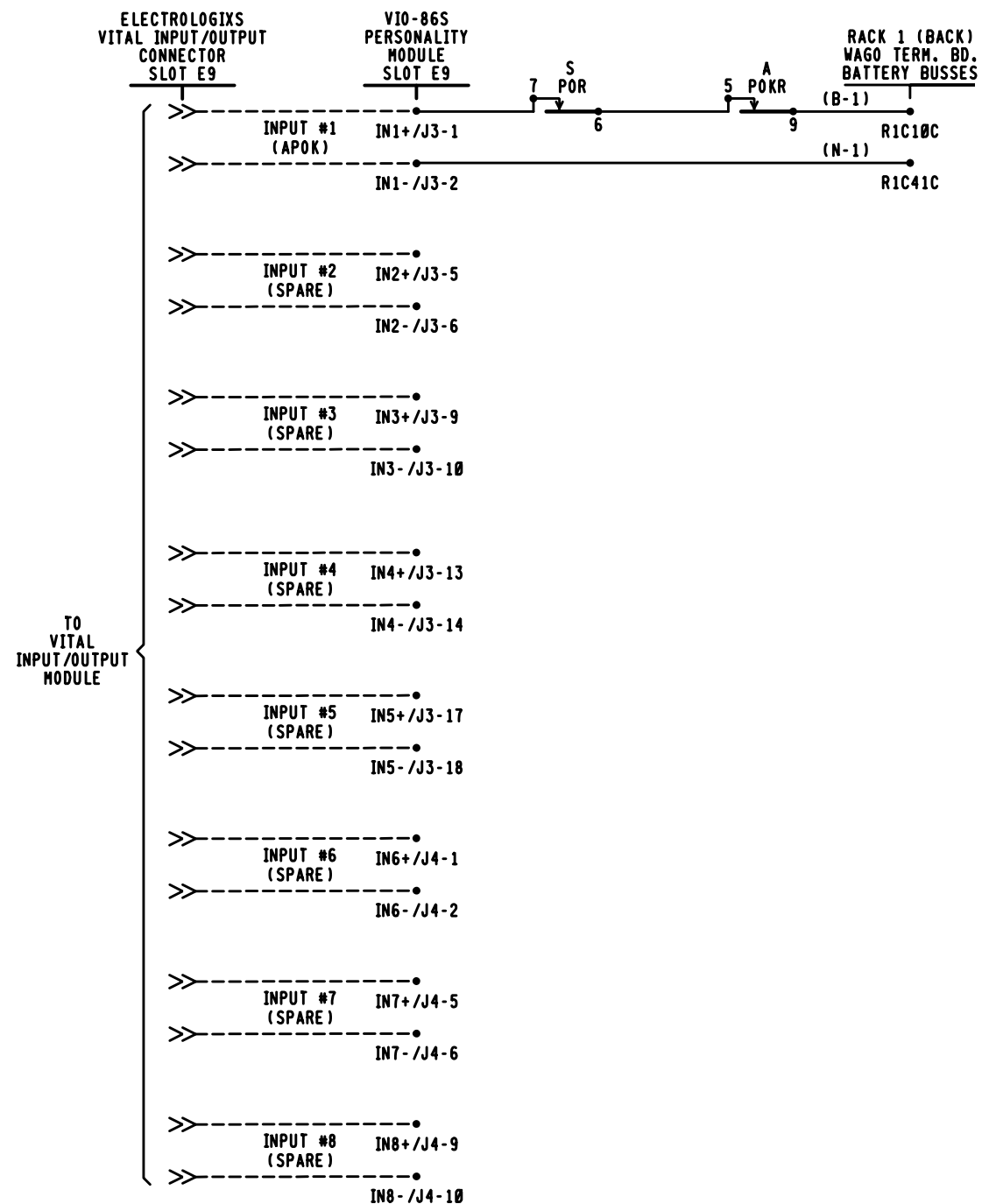
DESIGN DATE 06-02-15	REV. NO. 2
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VIO-86S PERSONALITY MODULE SLOT E9 PLUG CONNECTORS

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

■ = WIRE PRESENT



NOTE:

1.---- = INTERNAL CONNECTION

LOCATION A



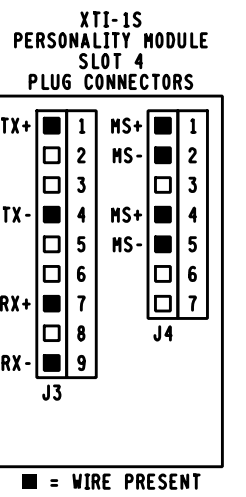
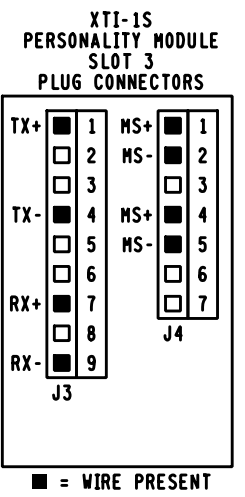
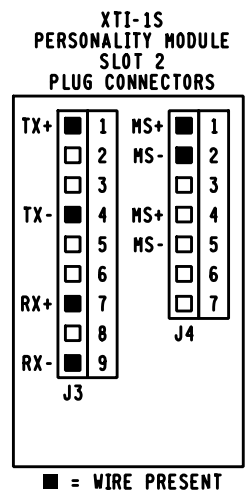
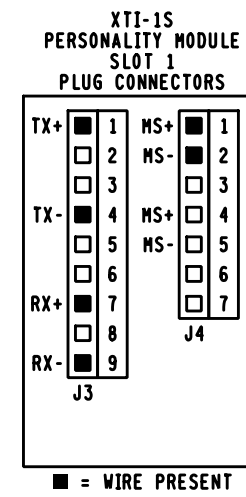
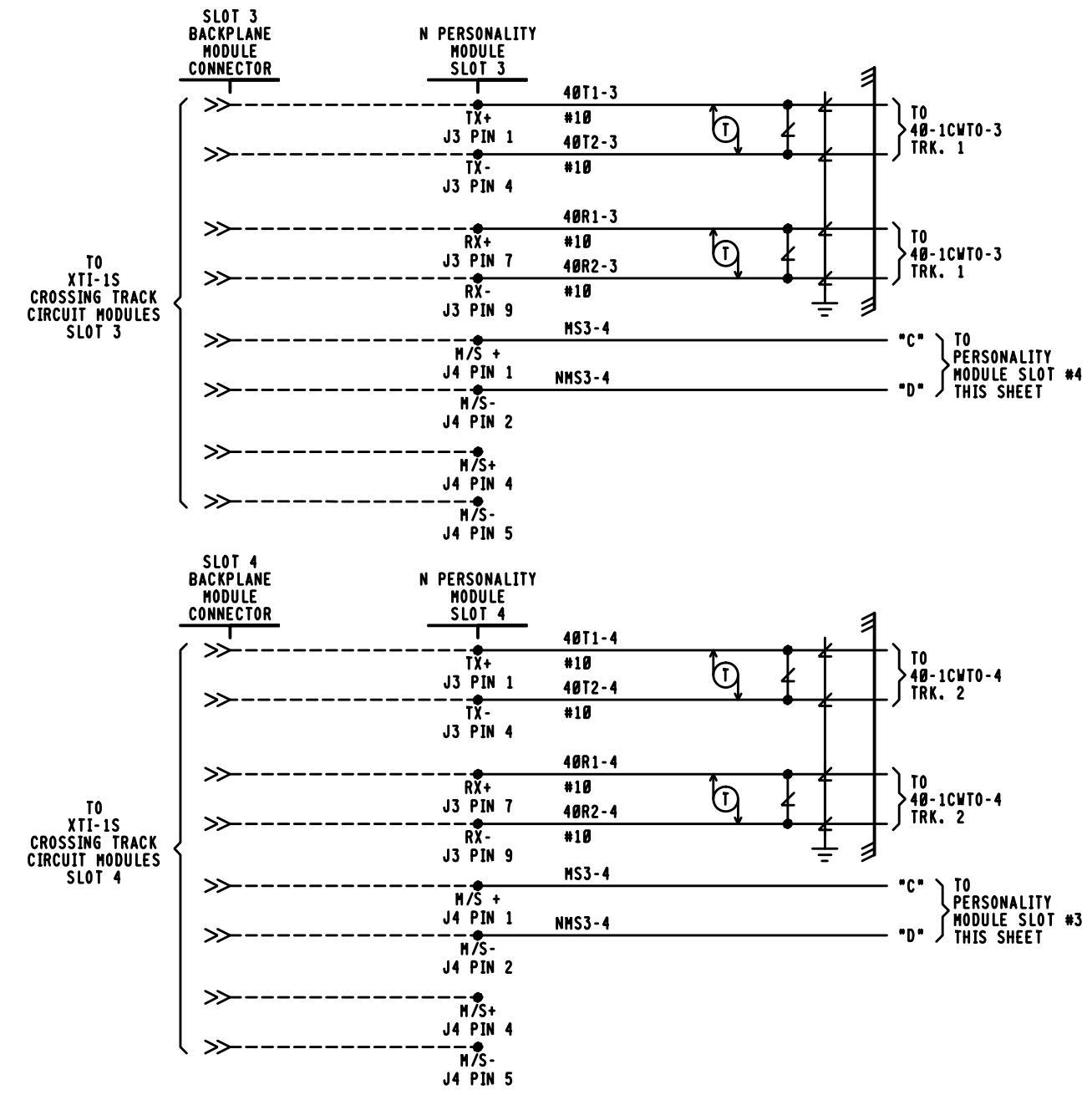
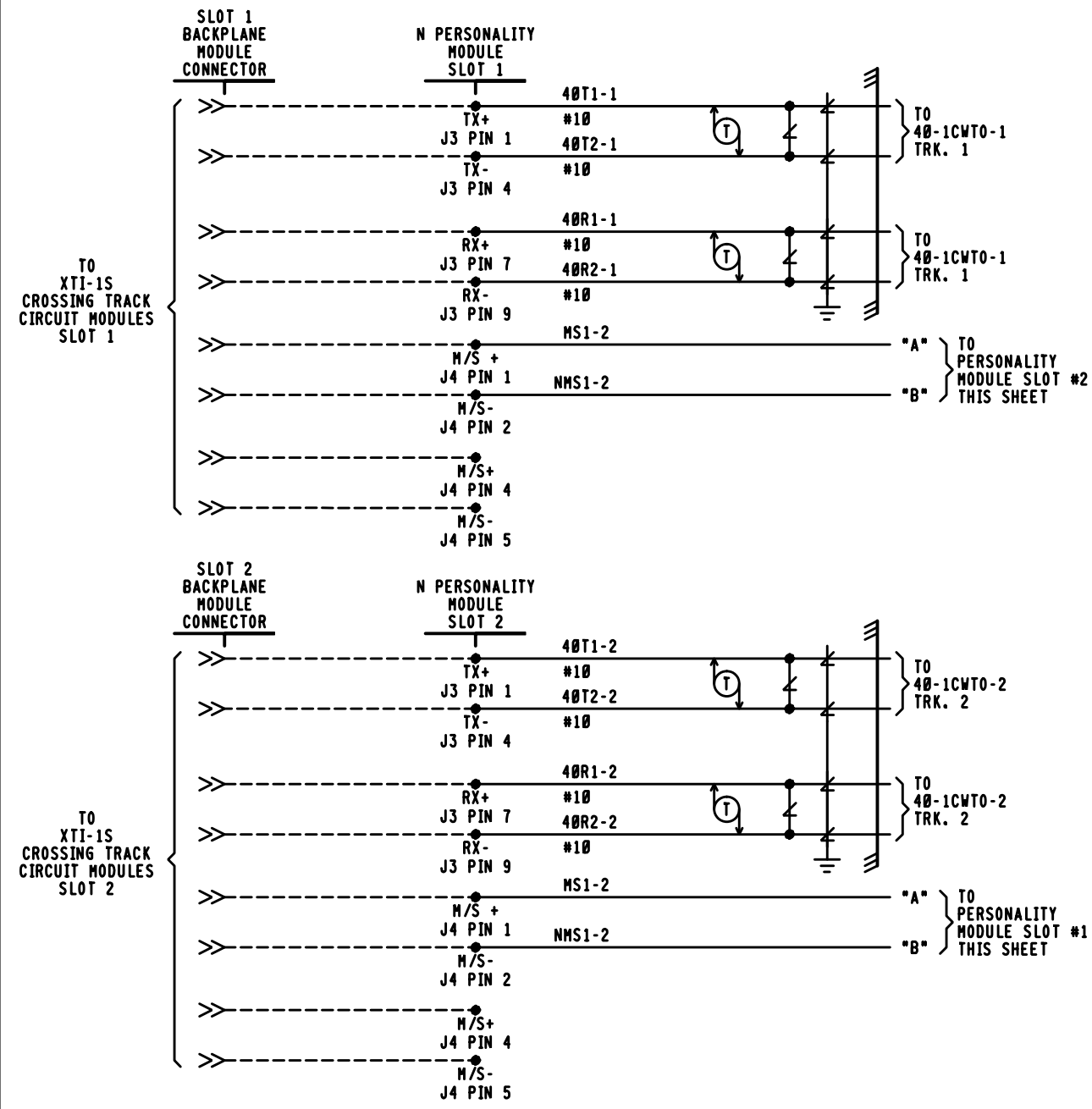
CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

CP 101

ELECTROLOGIXS I/O CIRCUITS RACK 1
MARION, OH M.P. Q1-101.40

DESIGNED GET/KJM	DIGITIZED GET/SAT	CHECKED GET/KMQ	DATE 12-12-11
DRAWING -----	SHEET NO -----	FILE Q110140	SHEET C10

DESIGN DATE -----	REV. NO. 1
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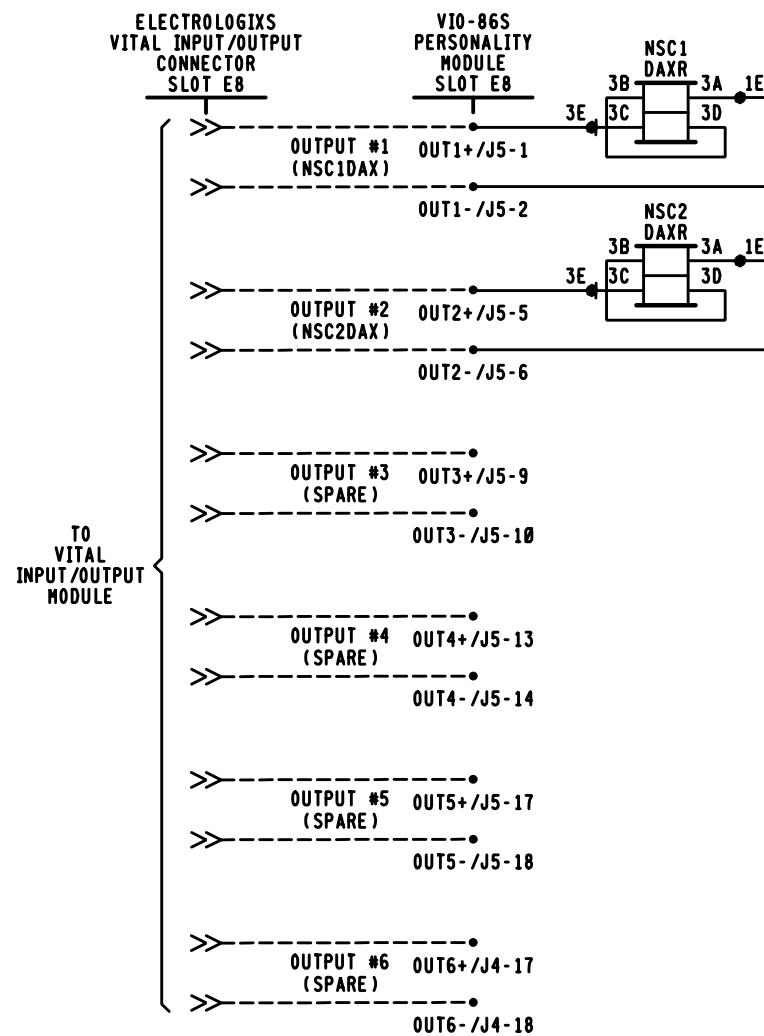
PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 05/25/17
CSX# 0H2017030
0H2017031
PRS/TDF/SAF
NO CHANGES

PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 10/26/16
CSX# 0H2016046
0H2016047
0H2016048
0H2016049
0H2016050
0H2016051
0H2017010
0H2017011
PRS/TDF/SAF
NO CHANGES

NOTE:
1. ALL WIRE THIS SHEET #16 AWG UNLESS NOTED.

LOCATION A (4Ø-1CWU)

CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
CP 101			
XP4 CROSSING DETECTION CIRCUITS MARION, OH M.P. Q1-101.40			
DESIGNED GET/KJM	DIGITIZED GET/SAT	CHECKED GET/KMQ	DATE 12-12-11
DESIGN DATE -----	REV. NO. 3	DRAWING -----	SHEET C11

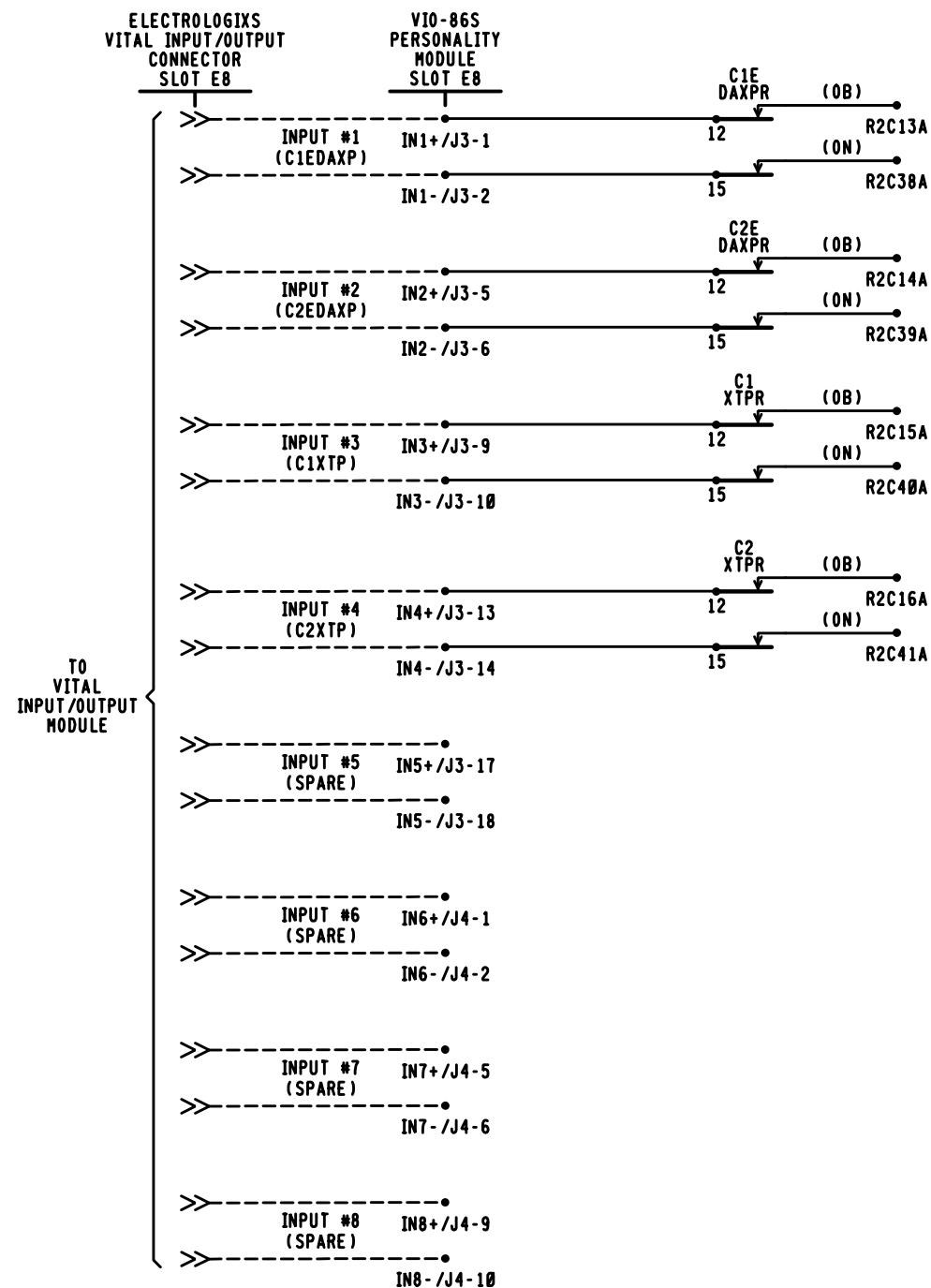
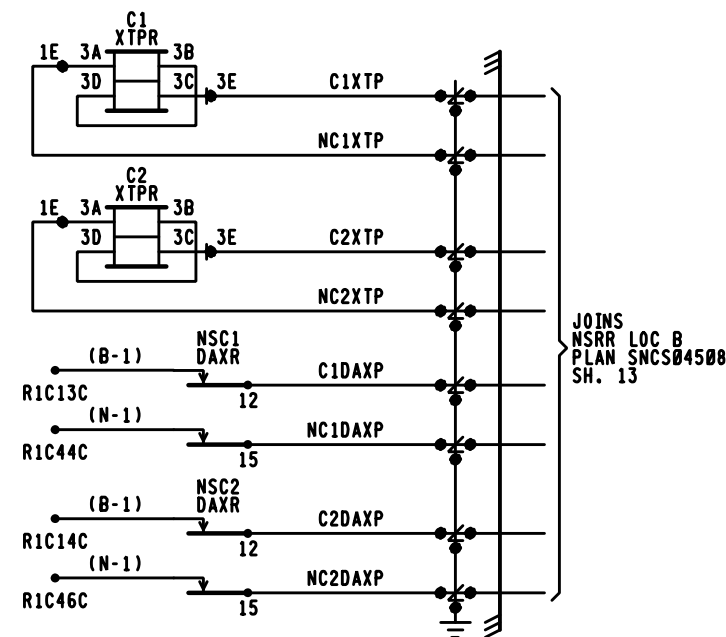


VIO-86S PERSONALITY MODULE SLOT E8 PLUG CONNECTORS

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

J3 J4 J5

■ = WIRE PRESENT



NOTES:

1. --- = INTERNAL CONNECTION

2. ALL HOUSE WIRING THIS SHEET #14 FLEX UNLESS NOTED.

LOCATION A (40-1CWU)

PROGRESS RAIL SERVICES
A Caterpillar Company
DATE: 05/25/17
CSX# 0H2017030
0H2017031
PRS/TDF/SAF
NO CHANGES

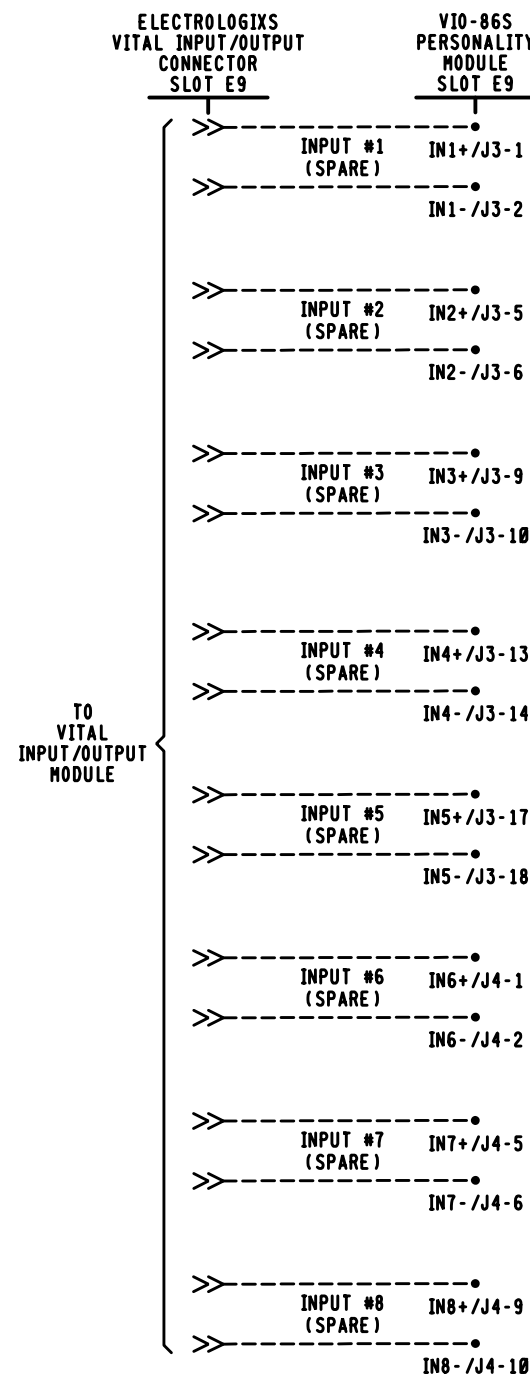
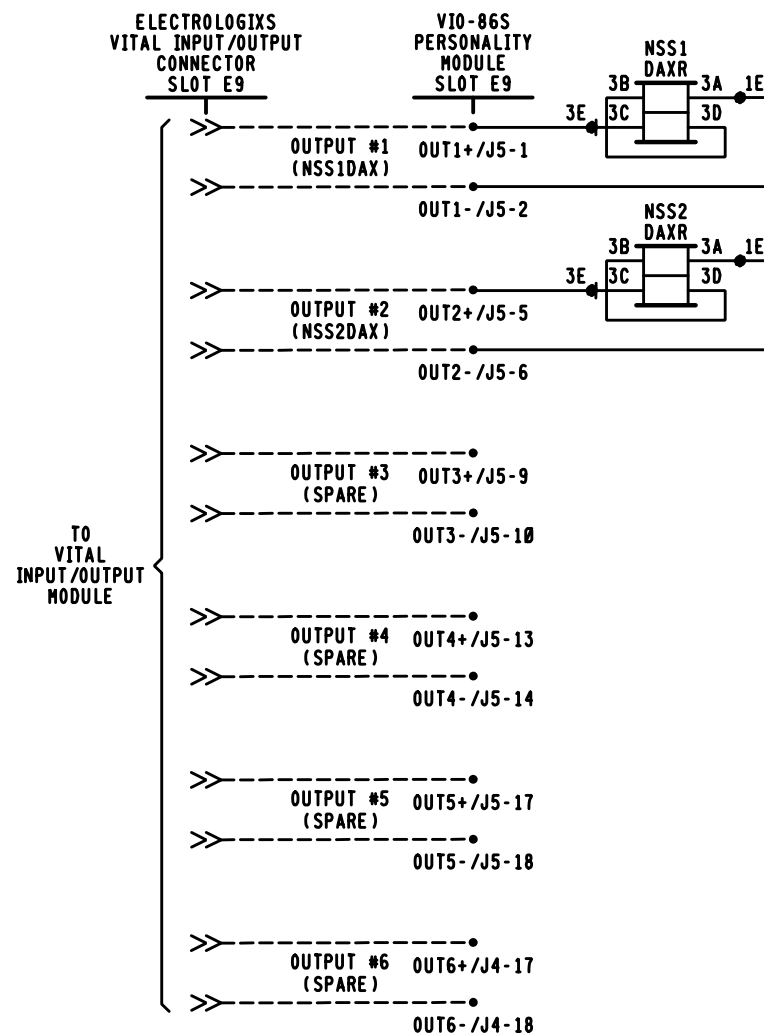
PROGRESS RAIL SERVICES
A Caterpillar Company
DATE: 10/26/16
CSX# 0H2016046
0H2016047
0H2016048
0H2016049
0H2016050
0H2016051
0H2017010
0H2017011
PRS/TDF/SAF
NO CHANGES

CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

CP 101

XP4 I/O CIRCUITS
MARION, OH M.P. Q1-101.40

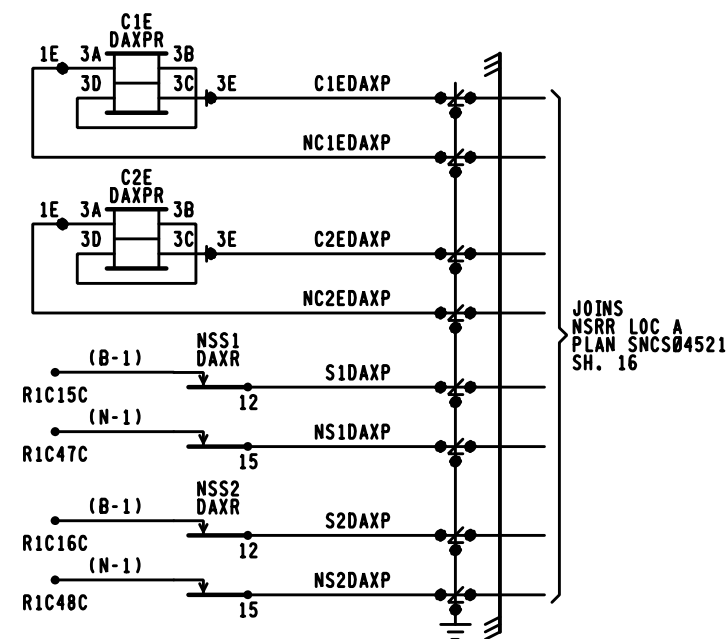
DESIGNED	DIGITIZED	CHECKED	DATE
GET/KJM	GET/SAT	GET/KMQ	12-12-11
DRAWING	SHEET NO	FILE	SHEET
-----	-----	Q110140	C12



VIO-86S PERSONALITY MODULE SLOT E9 PLUG CONNECTORS

IN1+	IN1-	IN2+	IN2-	IN3+	IN3-	IN4+	IN4-	IN5+	IN5-	IN6+	IN6-	IN7+	IN7-	IN8+	IN8-	OUT1+	OUT1-	OUT2+	OUT2-	OUT3+	OUT3-	OUT4+	OUT4-	OUT5+	OUT5-	OUT6+	OUT6-
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28

■ = WIRE PRESENT



PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 05/25/17
CSX# 0H2017030
OH2017031
PRS/TDF/SAF
NO CHANGES

PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 10/26/16
CSX# 0H2016046
OH2016047
OH2016048
OH2016049
OH2016050
OH2016051
OH2017010
OH2017011
PRS/TDF/SAF
NO CHANGES

NOTES:
1. ---- = INTERNAL CONNECTION
2. ALL HOUSE WIRING THIS SHEET #14 FLEX UNLESS NOTED.

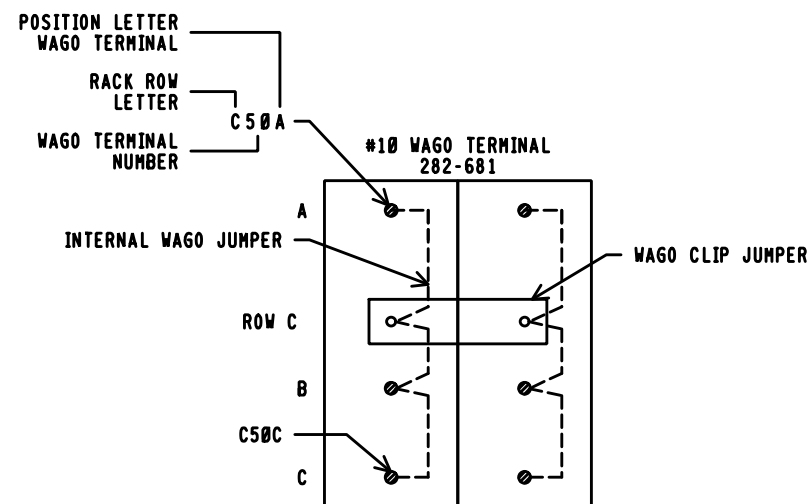
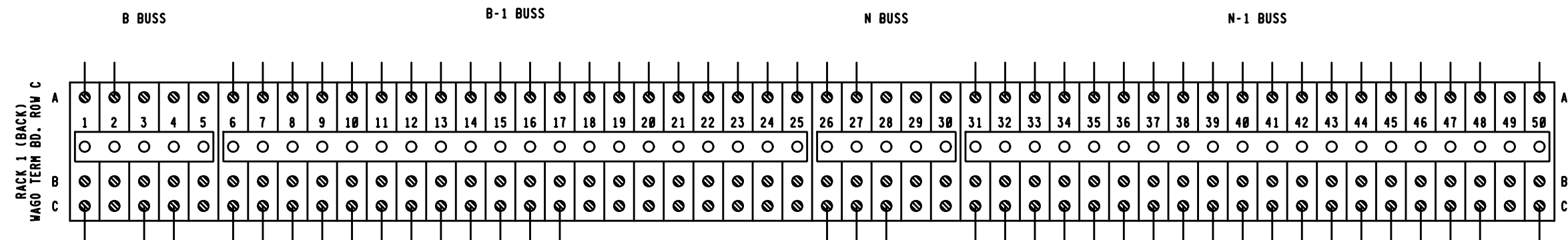
LOCATION A (40-1CWU)

CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

CP 101

XP4 I/O CIRCUITS
MARION, OH M.P. Q1-101.40

DESIGNED	DIGITIZED	CHECKED	DATE
GET/KJM	GET/SAT	GET/KMQ	12-12-11
DRAWING	SHEET NO	FILE	SHEET
-----	-----	Q110140	C13



- NOTES:
1. C1A & C1C TO B SUPPLY.
 2. C6A & C6C TO B-1 SUPPLY.
 3. C26A & C26C TO N SUPPLY.
 4. C31A & C31C TO N-1 SUPPLY.

LOCATION A

PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 05/25/17
CSX # 0H2017030
0H2017031
PRS/TDF/SAF
NO CHANGES

PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 10/26/16
CSX # 0H2016046
0H2016047
0H2016048
0H2016049
0H2016050
0H2016051
0H2017010
0H2017011
PRS/TDF/SAF
NO CHANGES

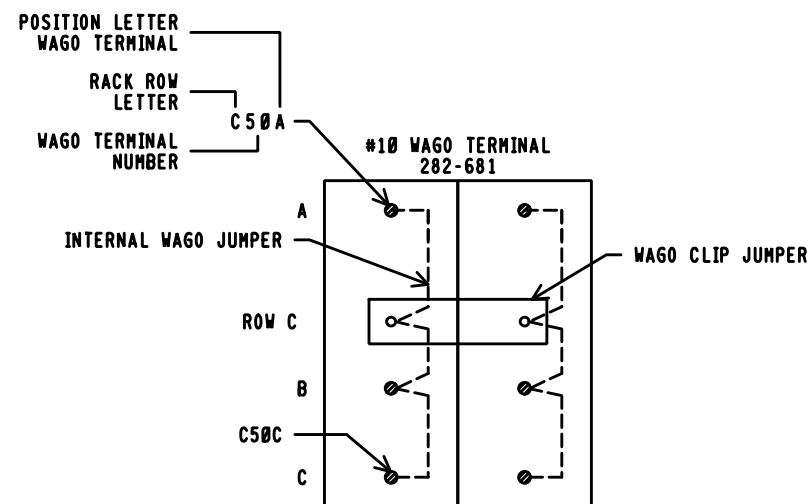
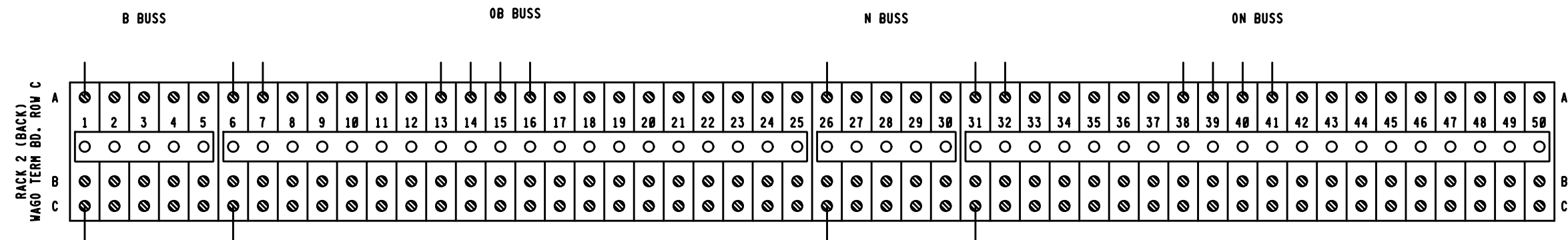
CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

CP 101

WAGO TERMINAL BOARDS RACK 1
MARION, OH M.P. QI-101.40

DESIGNED GET/KJM	DIGITIZED GET/SAT	CHECKED GET/KMQ	DATE 12-12-11
DRAWING -----	SHEET NO -----	FILE QI10140	SHEET C14

DESIGN DATE 06-02-15	REV. NO. 2
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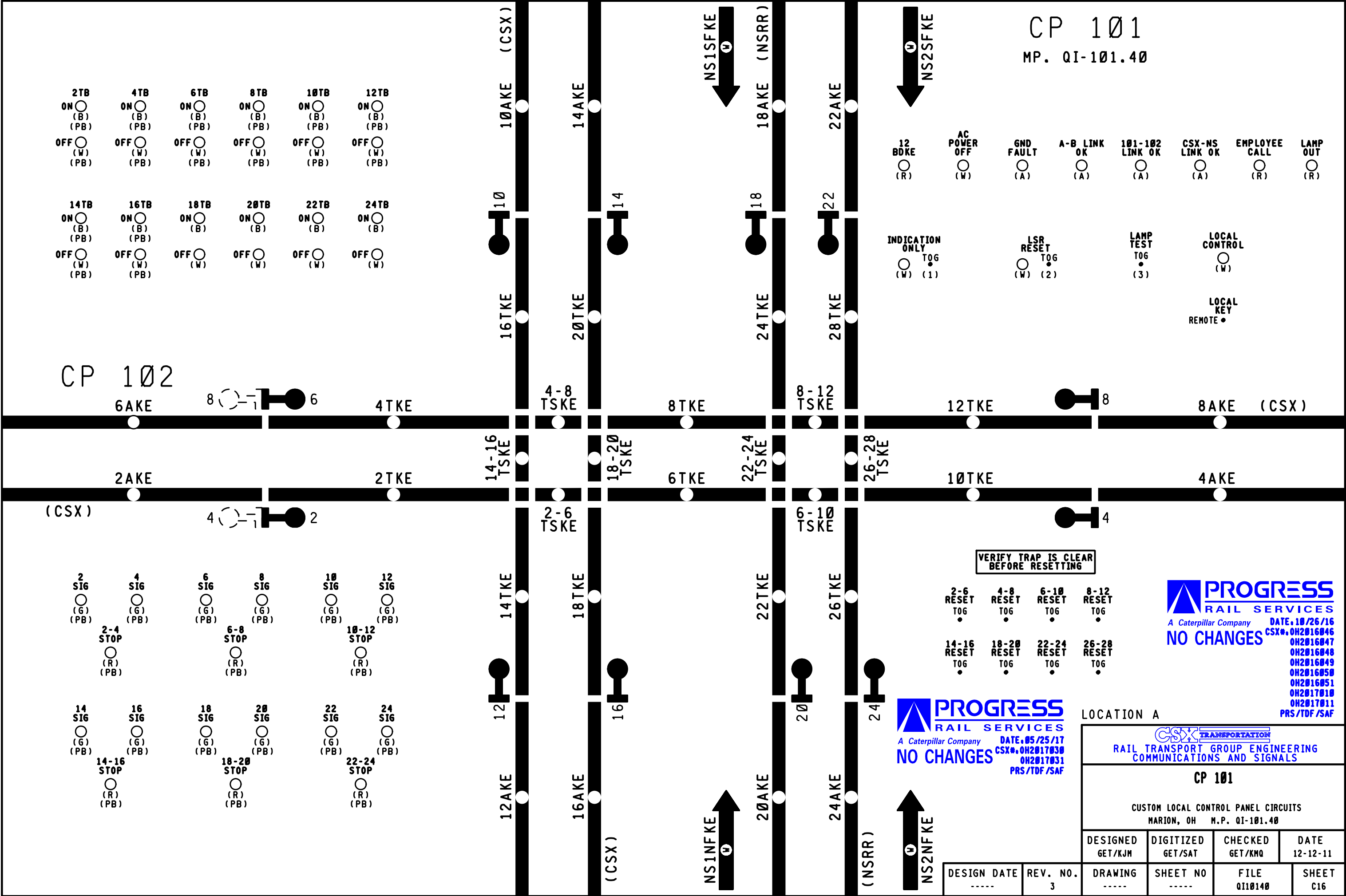


- NOTES:
1. C1A & C1C TO B SUPPLY.
 2. C6A & C6C TO B-1 SUPPLY.
 3. C26A & C26C TO N SUPPLY.
 4. C31A & C31C TO N-1 SUPPLY.

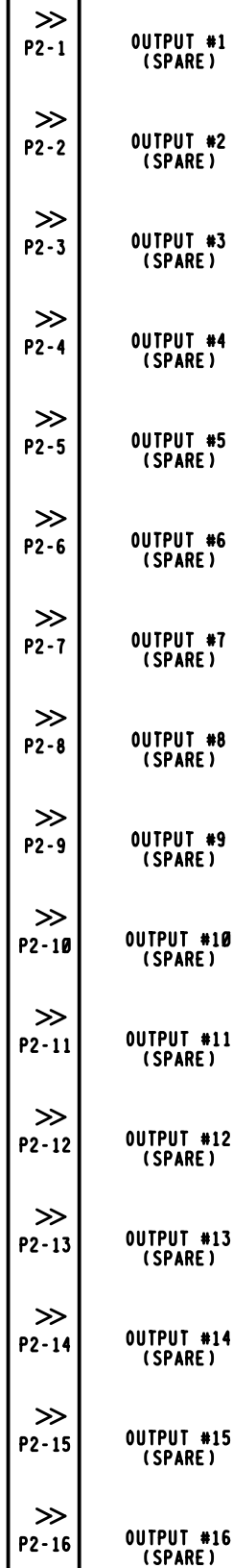
LOCATION A



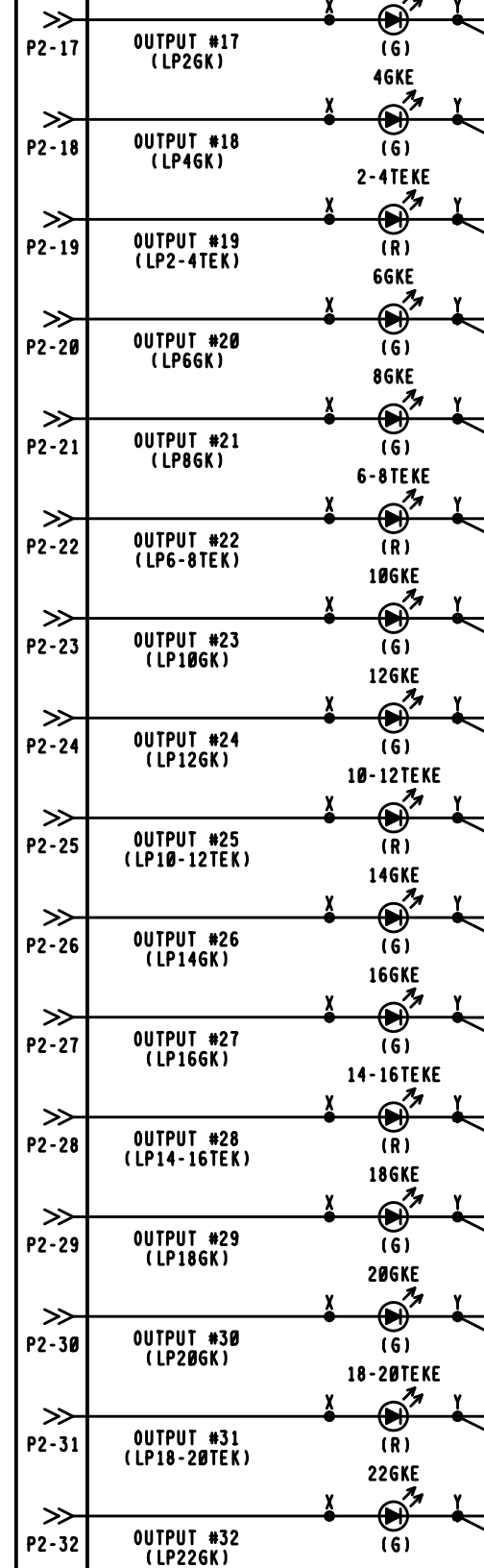
CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
CP 101			
WAGO TERMINAL BOARDS RACK 2 MARION, OH M.P. QI-101.40			
DESIGNED GET/KJM	DIGITIZED GET/SAT	CHECKED GET/KMQ	DATE 12-12-11
DESIGN DATE -----	REV. NO. 1	DRAWING -----	SHEET C15



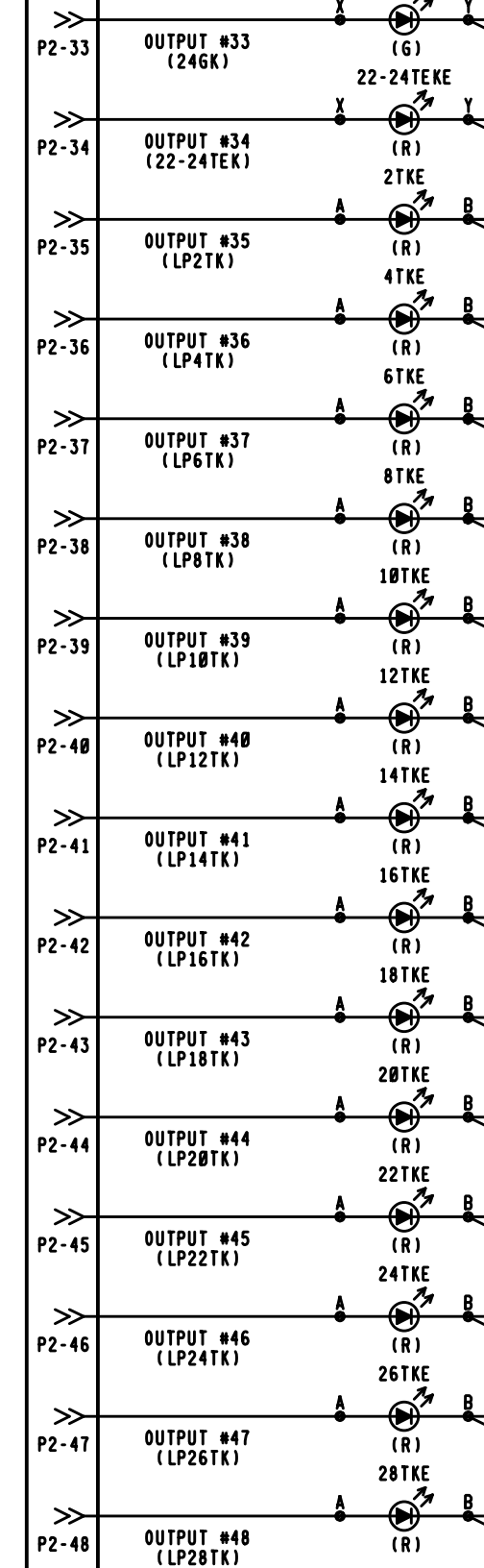
CLCP
CPU/IO BOARD



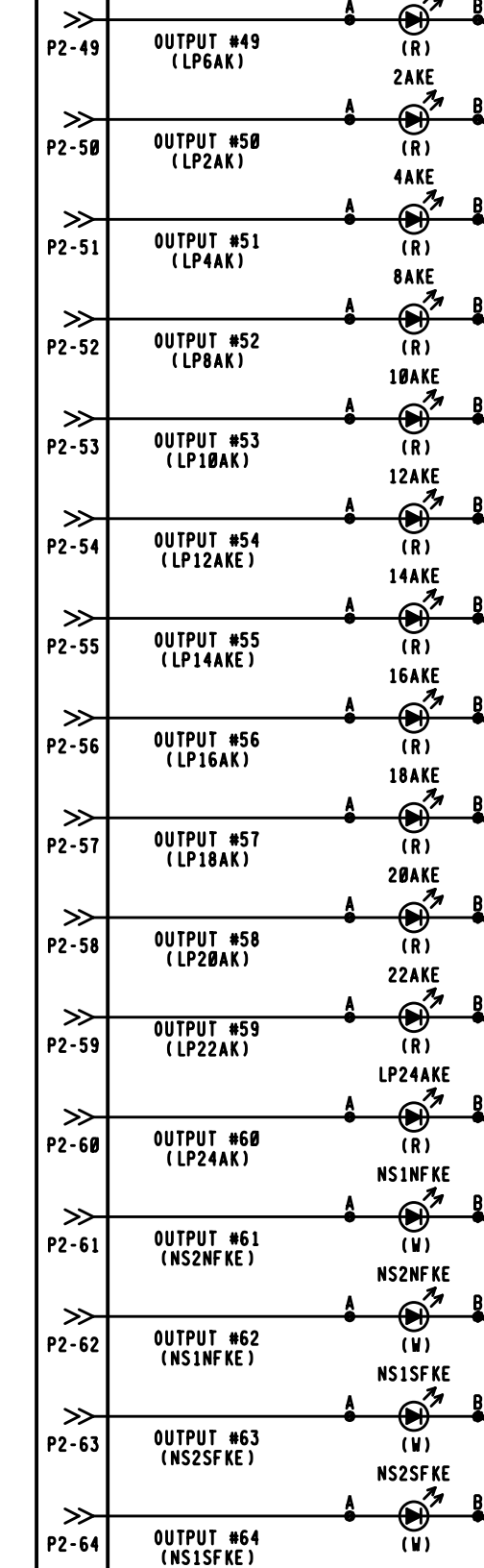
CLCP
CPU/IO BOARD



CLCP
CPU/IO BOARD



CLCP
CPU/IO BOARD



CONT. ON SH. C19 "A" (N-1)

CONT. ON SH. C18 "B" (N-1)

PROGRESS
 RAIL SERVICES
 A Caterpillar Company
 DATE: 05/25/17
 CSX# 0H2017030
 0H2017031
 PRS/TDF/SAF
NO CHANGES

PROGRESS
 RAIL SERVICES
 A Caterpillar Company
 DATE: 10/26/16
 CSX# 0H2016046
 0H2016047
 0H2016048
 0H2016049
 0H2016050
 0H2016051
 0H2017010
 0H2017011
 PRS/TDF/SAF
NO CHANGES

LOCATION A

CSX TRANSPORTATION
 RAIL TRANSPORT GROUP ENGINEERING
 COMMUNICATIONS AND SIGNALS

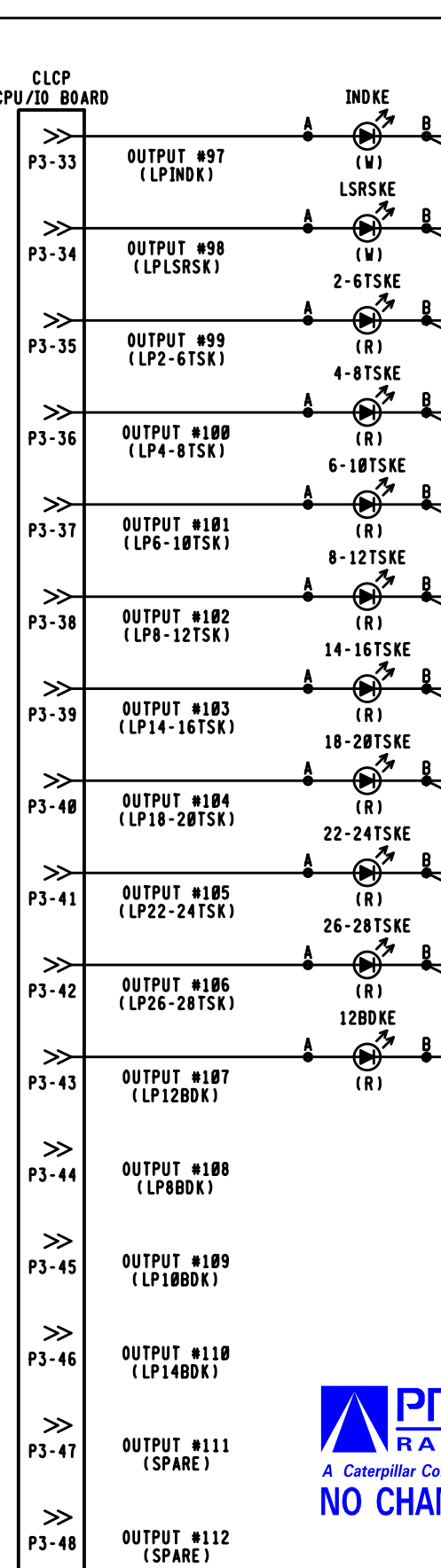
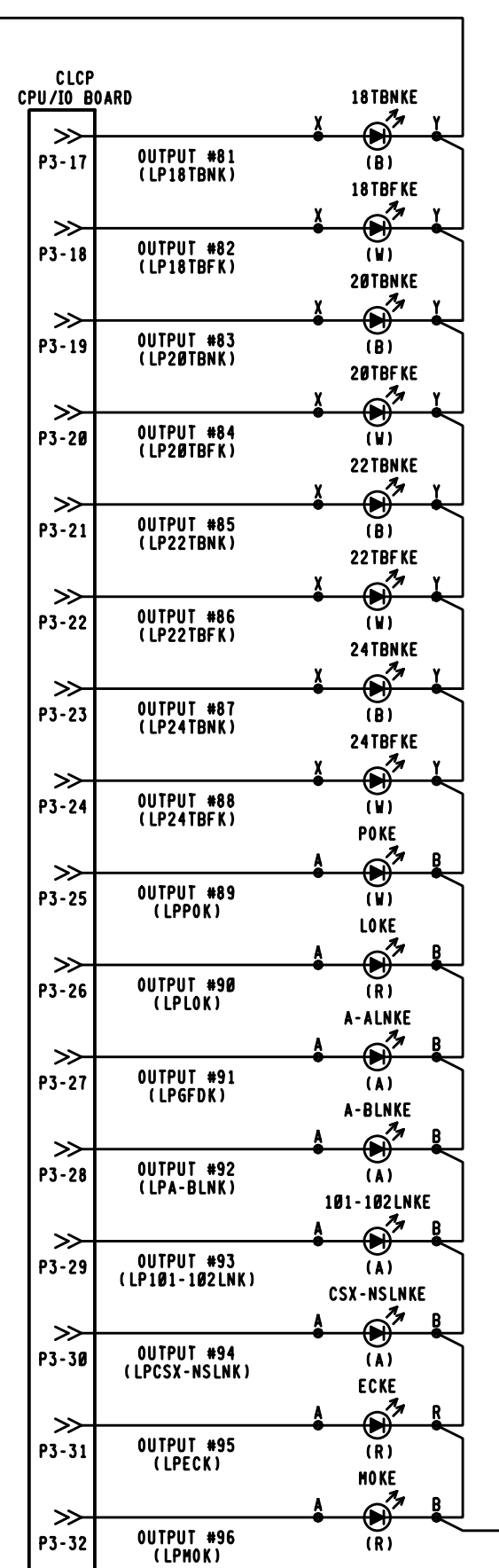
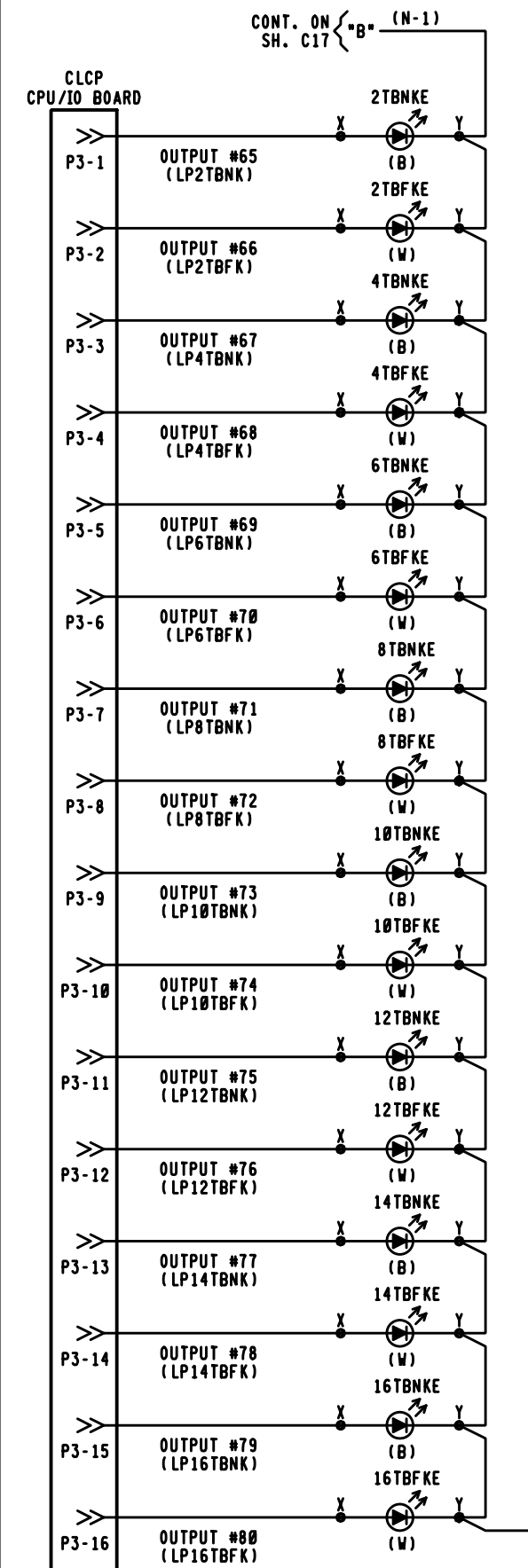
CP 101

CUSTOM LOCAL CONTROL PANEL CIRCUITS
 MARION, OH M.P. Q1-101.40

DESIGNED GET/KJM	DIGITIZED GET/SAT	CHECKED GET/KMQ	DATE 12-12-11
DRAWING -----	SHEET NO -----	FILE Q110140	SHEET C17

DESIGN DATE

REV. NO.
1



PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 05/25/17
CSX: 0H2017030
0H2017031
PRS/TDF/SAF
NO CHANGES

PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 10/26/16
CSX: 0H2016046
0H2016047
0H2016048
0H2016049
0H2016050
0H2016051
0H2017010
0H2017011
PRS/TDF/SAF
NO CHANGES

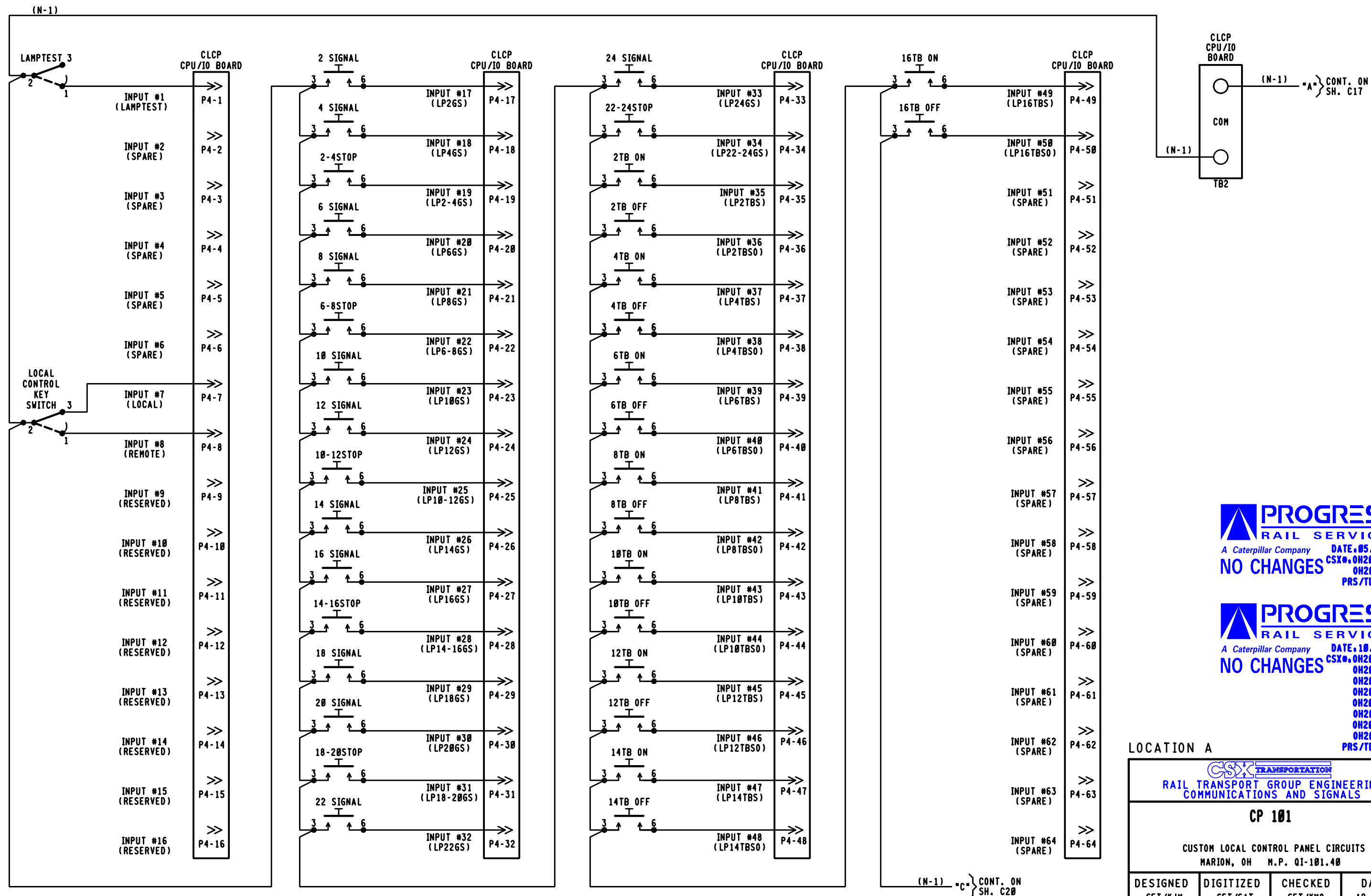
LOCATION A

CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

CP 101

CUSTOM LOCAL CONTROL PANEL CIRCUITS
MARION, OH M.P. Q1-101.40

DESIGNED GET/KJM	DIGITIZED GET/SAT	CHECKED GET/KMQ	DATE 12-12-11
DESIGN DATE -----	REV. NO. 3	DRAWING -----	SHEET C18



PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 05/25/17
CSX# 0H2017030
0H2017031
PRS/TDF/SAF
NO CHANGES

PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 10/26/16
CSX# 0H2016046
0H2016047
0H2016048
0H2016049
0H2016050
0H2016051
0H2017010
0H2017011
PRS/TDF/SAF
NO CHANGES

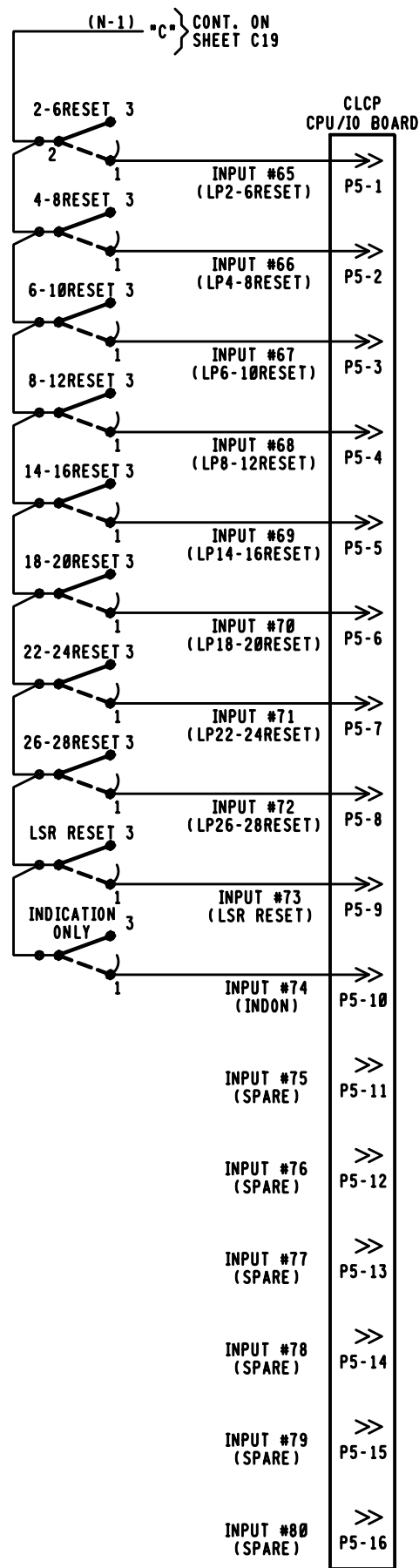
LOCATION A

CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

CP 101

CUSTOM LOCAL CONTROL PANEL CIRCUITS
MARION, OH M.P. Q1-101.40

DESIGNED GET/KJM	DIGITIZED GET/SAT	CHECKED GET/KMQ	DATE 12-12-11
DESIGN DATE -----	REV. NO. 1	DRAWING -----	SHEET C19



CLCP CPU/IO BOARD	
INPUT #81 (SPARE)	>> P5-17
INPUT #82 (SPARE)	>> P5-18
INPUT #83 (SPARE)	>> P5-19
INPUT #84 (SPARE)	>> P5-20
INPUT #85 (SPARE)	>> P5-21
INPUT #86 (SPARE)	>> P5-22
INPUT #87 (SPARE)	>> P5-23
INPUT #88 (SPARE)	>> P5-24
INPUT #89 (SPARE)	>> P5-25
INPUT #90 (SPARE)	>> P5-26
INPUT #91 (SPARE)	>> P5-27
INPUT #92 (SPARE)	>> P5-28
INPUT #93 (SPARE)	>> P5-29
INPUT #94 (SPARE)	>> P5-30
INPUT #95 (SPARE)	>> P5-31
INPUT #96 (SPARE)	>> P5-32

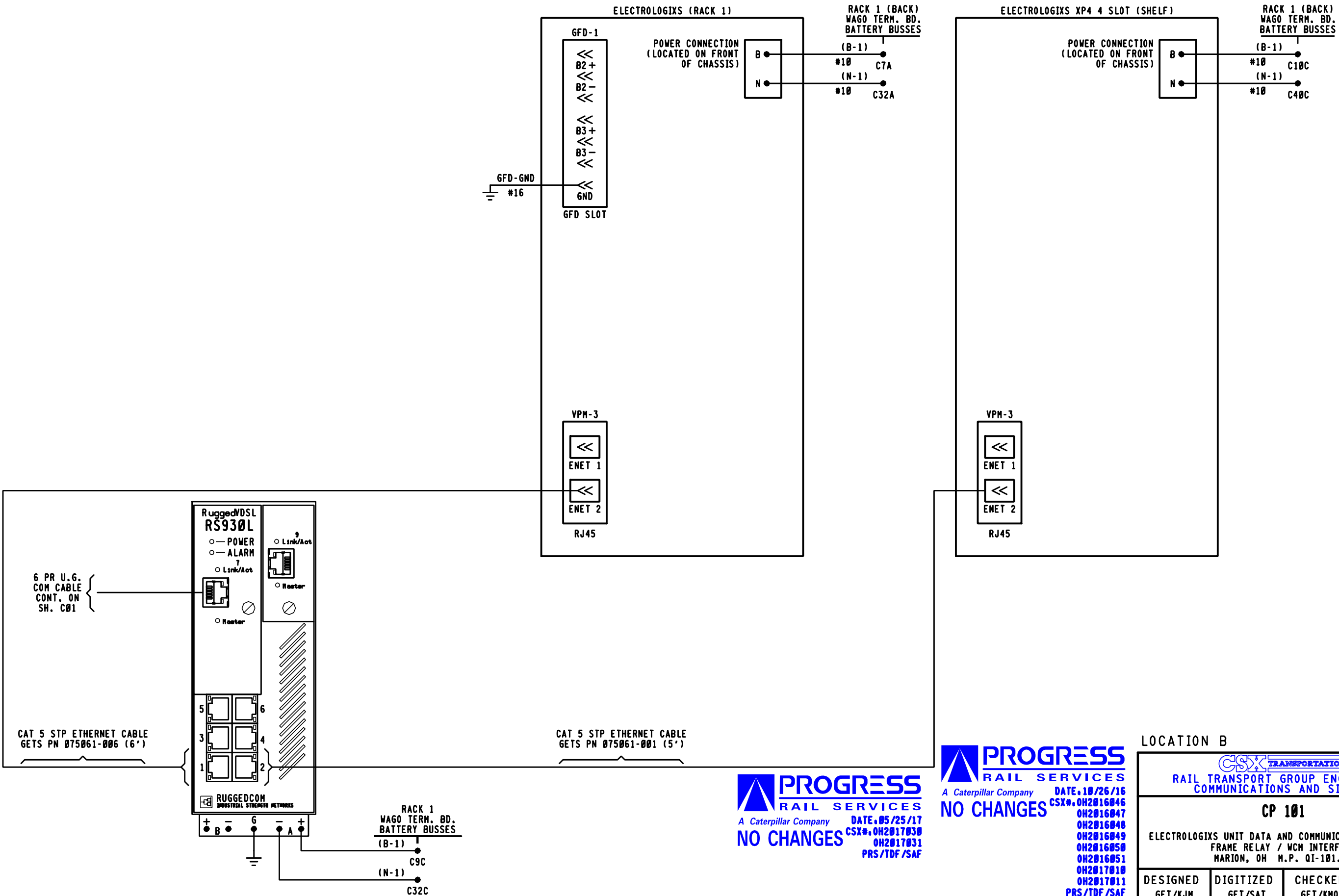
CLCP CPU/IO BOARD	
INPUT #97 (SPARE)	>> P5-33
INPUT #98 (SPARE)	>> P5-34
INPUT #99 (SPARE)	>> P5-35
INPUT #100 (SPARE)	>> P5-36
INPUT #101 (SPARE)	>> P5-37
INPUT #102 (SPARE)	>> P5-38
INPUT #103 (SPARE)	>> P5-39
INPUT #104 (SPARE)	>> P5-40
INPUT #105 (SPARE)	>> P5-41
INPUT #106 (SPARE)	>> P5-42
INPUT #107 (SPARE)	>> P5-43
INPUT #108 (SPARE)	>> P5-44
INPUT #109 (SPARE)	>> P5-45
INPUT #110 (SPARE)	>> P5-46
INPUT #111 (SPARE)	>> P5-47
INPUT #112 (SPARE)	>> P5-48

CLCP CPU/IO BOARD	
INPUT #113 (SPARE)	>> P5-49
INPUT #114 (SPARE)	>> P5-50
INPUT #115 (SPARE)	>> P5-51
INPUT #116 (SPARE)	>> P5-52
INPUT #117 (SPARE)	>> P5-53
INPUT #118 (SPARE)	>> P5-54
INPUT #119 (SPARE)	>> P5-55
INPUT #120 (SPARE)	>> P5-56
INPUT #121 (SPARE)	>> P5-57
INPUT #122 (SPARE)	>> P5-58
INPUT #123 (SPARE)	>> P5-59
INPUT #124 (SPARE)	>> P5-60
INPUT #125 (SPARE)	>> P5-61
INPUT #126 (SPARE)	>> P5-62
INPUT #127 (SPARE)	>> P5-63
INPUT #128 (SPARE)	>> P5-64

PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 05/25/17
CSX# 0H2017030
0H2017031
PRS/TDF/SAF
NO CHANGES

PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 10/26/16
CSX# 0H2016046
0H2016047
0H2016048
0H2016049
0H2016050
0H2016051
0H2017010
0H2017011
PRS/TDF/SAF
NO CHANGES

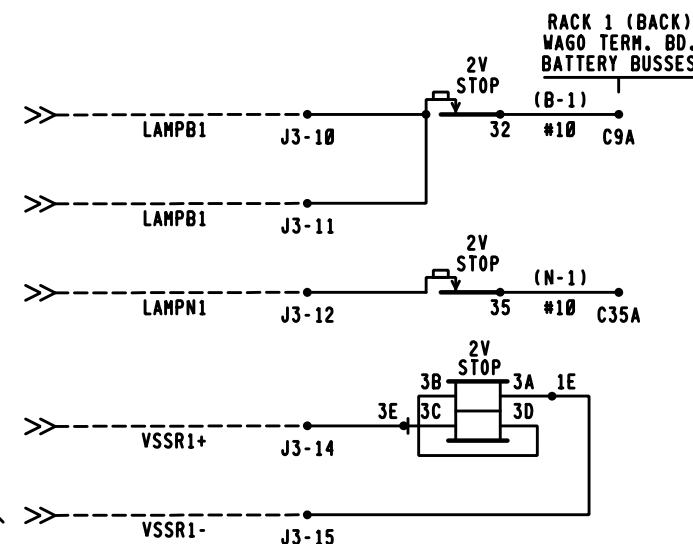
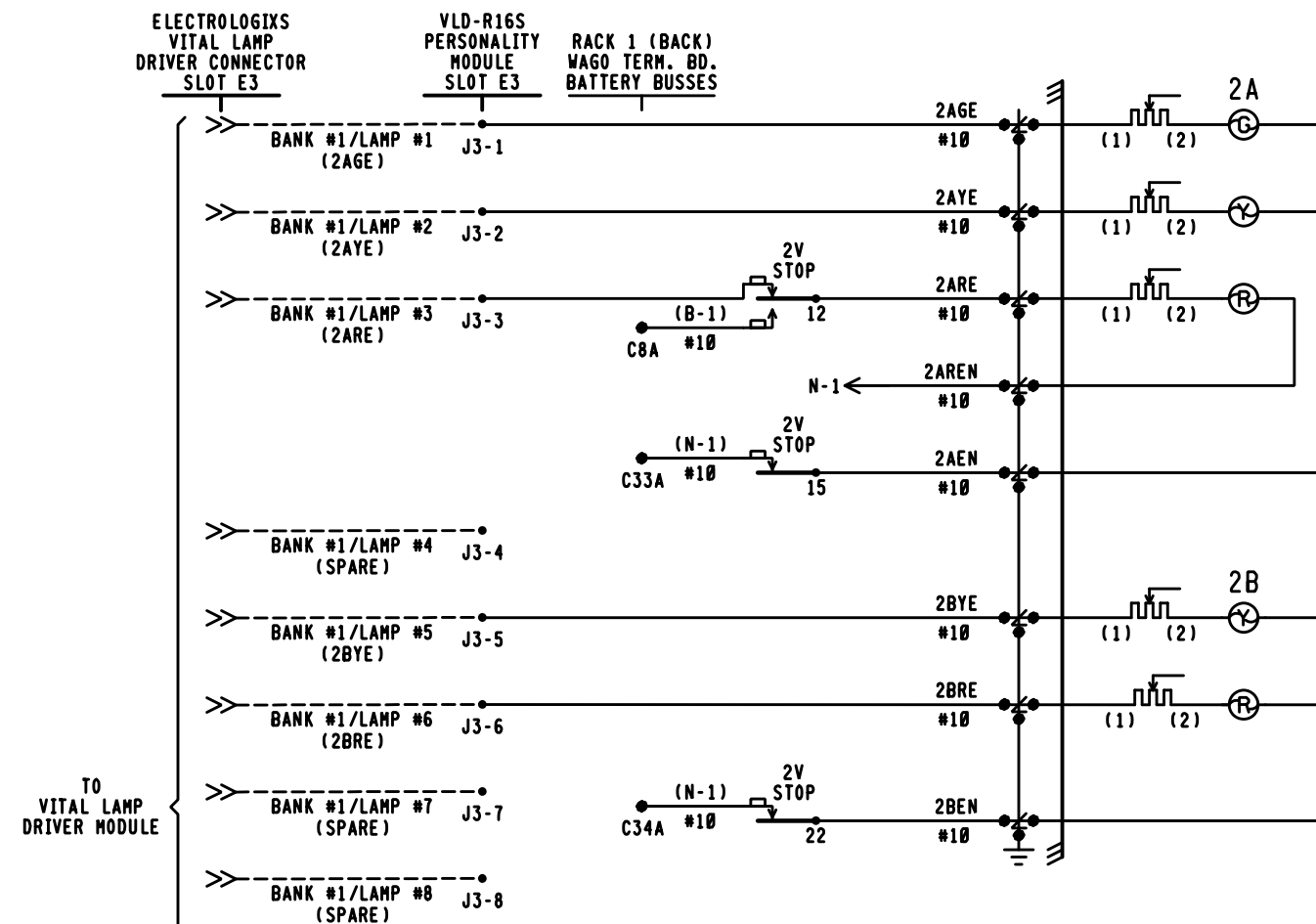
LOCATION A			
CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
CP 101			
CUSTOM LOCAL CONTROL PANEL CIRCUITS MARION, OH M.P. 01-101.40			
DESIGNED GET/KJM	DIGITIZED GET/SAT	CHECKED GET/KMQ	DATE 12-12-11
DESIGN DATE -----	REV. NO. 1	DRAWING -----	SHEET C20



PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 05/25/17
NO CHANGES
CSX# 0H2017030
0H2017031
PRS/TDF/SAF

PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 10/26/16
NO CHANGES
CSX# 0H2016046
0H2016047
0H2016048
0H2016049
0H2016050
0H2016051
0H2017010
0H2017011
PRS/TDF/SAF

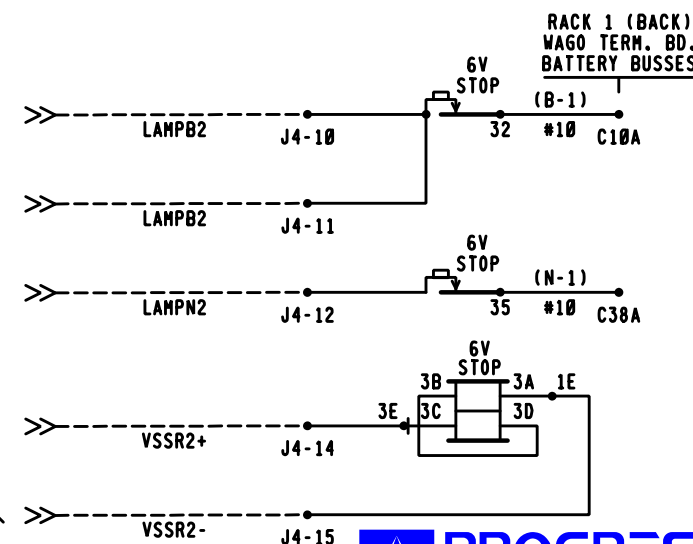
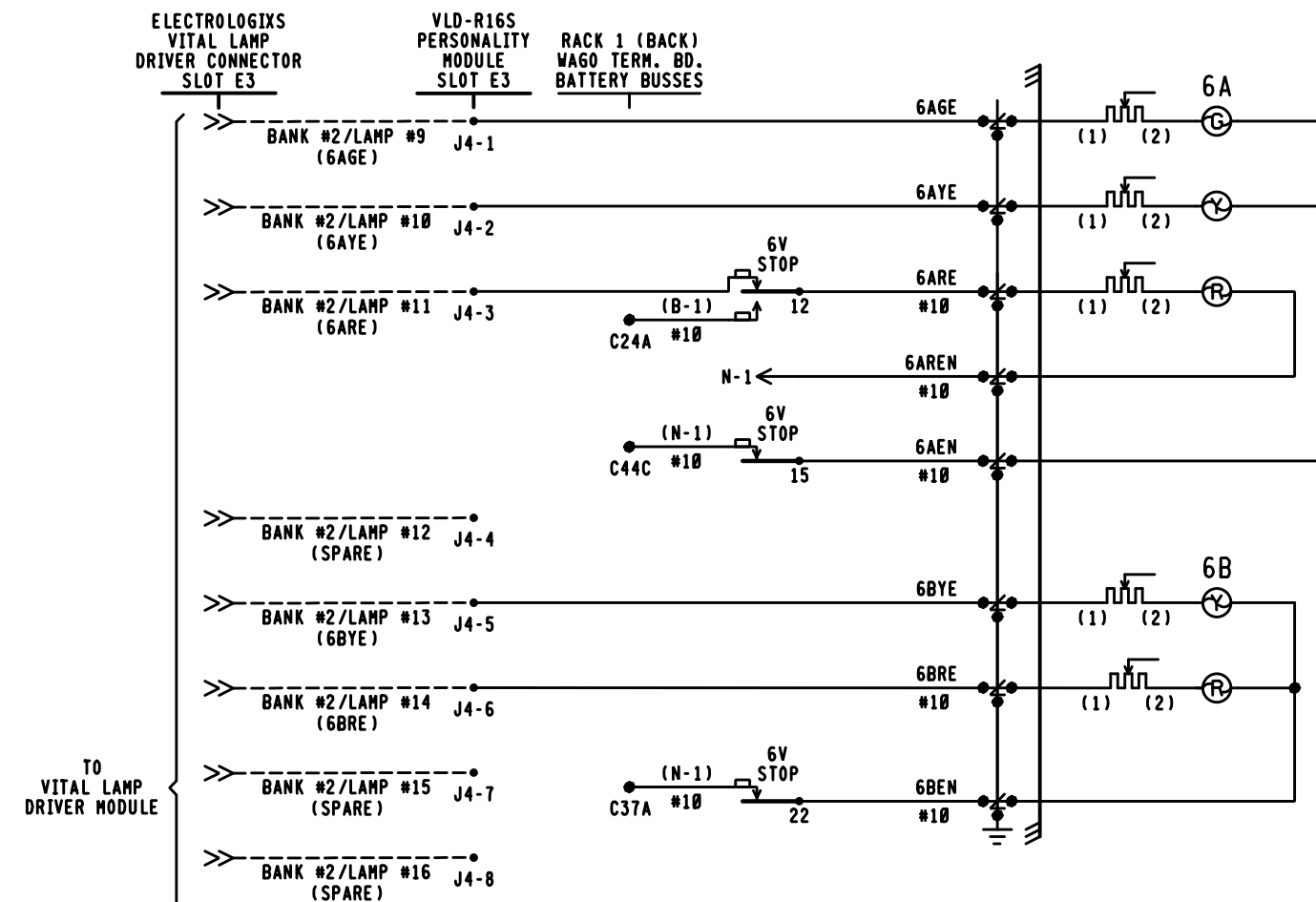
LOCATION B			
CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
CP 101			
ELECTROLOGIXS UNIT DATA AND COMMUNICATIONS CIRCUITS FRAME RELAY / WCM INTERFACE MARION, OH M.P. QI-101.40			
DESIGNED GET/KJM	DIGITIZED GET/SAT	CHECKED GET/KMQ	DATE 12-12-11
DESIGN DATE -----	REV. NO. 3	DRAWING -----	SHEET C21



VLD-R16S PERSONALITY MODULE SLOT E3 PLUG CONNECTORS

BANK1		BANK2	
LAMP1	1	LAMP9	1
LAMP2	2	LAMP10	2
LAMP3	3	LAMP11	3
LAMP4	4	LAMP12	4
LAMP5	5	LAMP13	5
LAMP6	6	LAMP14	6
LAMP7	7	LAMP15	7
LAMP8	8	LAMP16	8
---	9	---	9
LAMPB1	10	LAMPB2	10
LAMPB1	11	LAMPB2	11
LAMPN1	12	LAMPN2	12
---	13	---	13
VSSR1+	14	VSSR2+	14
VSSR1-	15	VSSR2-	15
J3		J4	

■ = WIRE PRESENT



- NOTES.**
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.

PROGRESS RAIL SERVICES
A Caterpillar Company
DATE: 05/25/17
NO CHANGES
CSX# 0H2017030
0H2017031
PRS/TDF/SAF

PROGRESS RAIL SERVICES
A Caterpillar Company
DATE: 10/26/16
NO CHANGES
CSX# 0H2016046
0H2016047
0H2016048
0H2016049
0H2016050
0H2016051
0H2017010
0H2017011
PRS/TDF/SAF

LOCATION B

CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

CP 101

SIGNAL 2 & 6 LIGHTING CIRCUITS RACK 1
MARION, OH M.P. QI-101.40

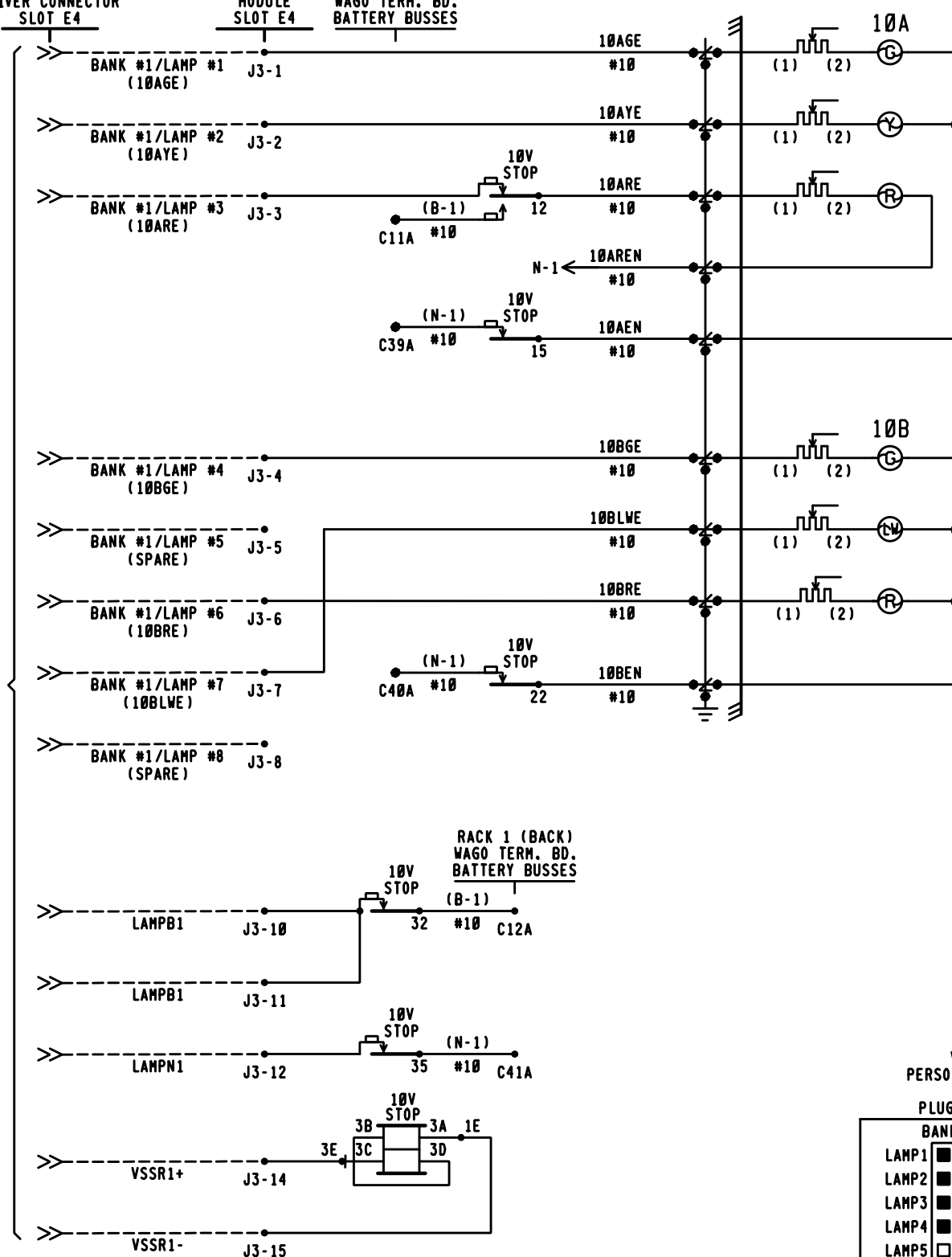
DESIGNED GET/KJM	DIGITIZED GET/SAT	CHECKED GET/KMQ	DATE 12-12-11
DESIGN DATE 06-02-15	REV. NO. 2	DRAWING -----	SHEET C23

ELECTROLOGIX
VITAL LAMP
DRIVER CONNECTOR
SLOT E4

VLD-R16S
PERSONALITY
MODULE
SLOT E4

RACK 1 (BACK)
WAGO TERM. BD.
BATTERY BUSSES

TO
VITAL LAMP
DRIVER MODULE



VLD-R16S
PERSONALITY MODULE
SLOT E4
PLUG CONNECTORS

BANK1		BANK2	
LAMP1	1	LAMP9	1
LAMP2	2	LAMP10	2
LAMP3	3	LAMP11	3
LAMP4	4	LAMP12	4
LAMP5	5	LAMP13	5
LAMP6	6	LAMP14	6
LAMP7	7	LAMP15	7
LAMP8	8	LAMP16	8
---	9	---	9
LAMPB1	10	LAMPB2	10
LAMPB1	11	LAMPB2	11
LAMPN1	12	LAMPN2	12
---	13	---	13
VSSR1+	14	VSSR2+	14
VSSR1-	15	VSSR2-	15

J3 J4

■ = WIRE PRESENT

NOTES.

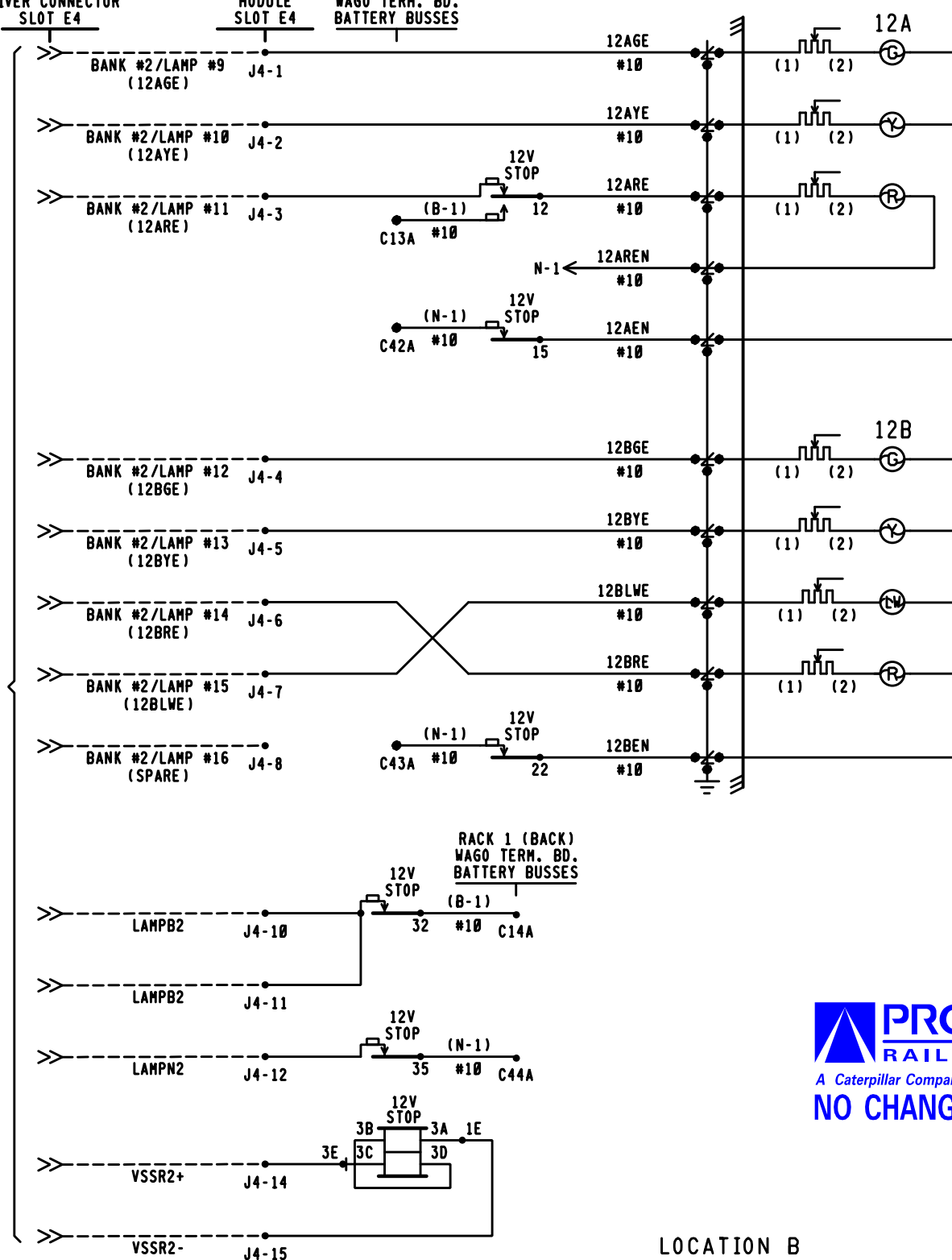
1. ● = LPC-10512-1 (15A, BLUE LEAD) HYBRID LOW VOLTAGE ARRESTER, UNLESS NOTED.
2. ---- = INTERNAL CONNECTION
3. ALL HOUSE WIRING THIS SHEET #14 FLEX UNLESS NOTED.
4. ALL RESISTORS ARE 3 OHM, 15 WATTS.

ELECTROLOGIX
VITAL LAMP
DRIVER CONNECTOR
SLOT E4

VLD-R16S
PERSONALITY
MODULE
SLOT E4

RACK 1 (BACK)
WAGO TERM. BD.
BATTERY BUSSES

TO
VITAL LAMP
DRIVER MODULE



PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 05/25/17
CSX# 0H2017030
0H2017031
PRS/TDF/SAF
NO CHANGES

LOCATION B

PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 10/26/16
CSX# 0H2016046
0H2016047
0H2016048
0H2016049
0H2016050
0H2016051
0H2017010
0H2017011
PRS/TDF/SAF
NO CHANGES

CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

CP 101

SIGNAL 10 AND 12 LIGHTING CIRCUITS RACK 1
MARION, OH M.P. QI-101.40

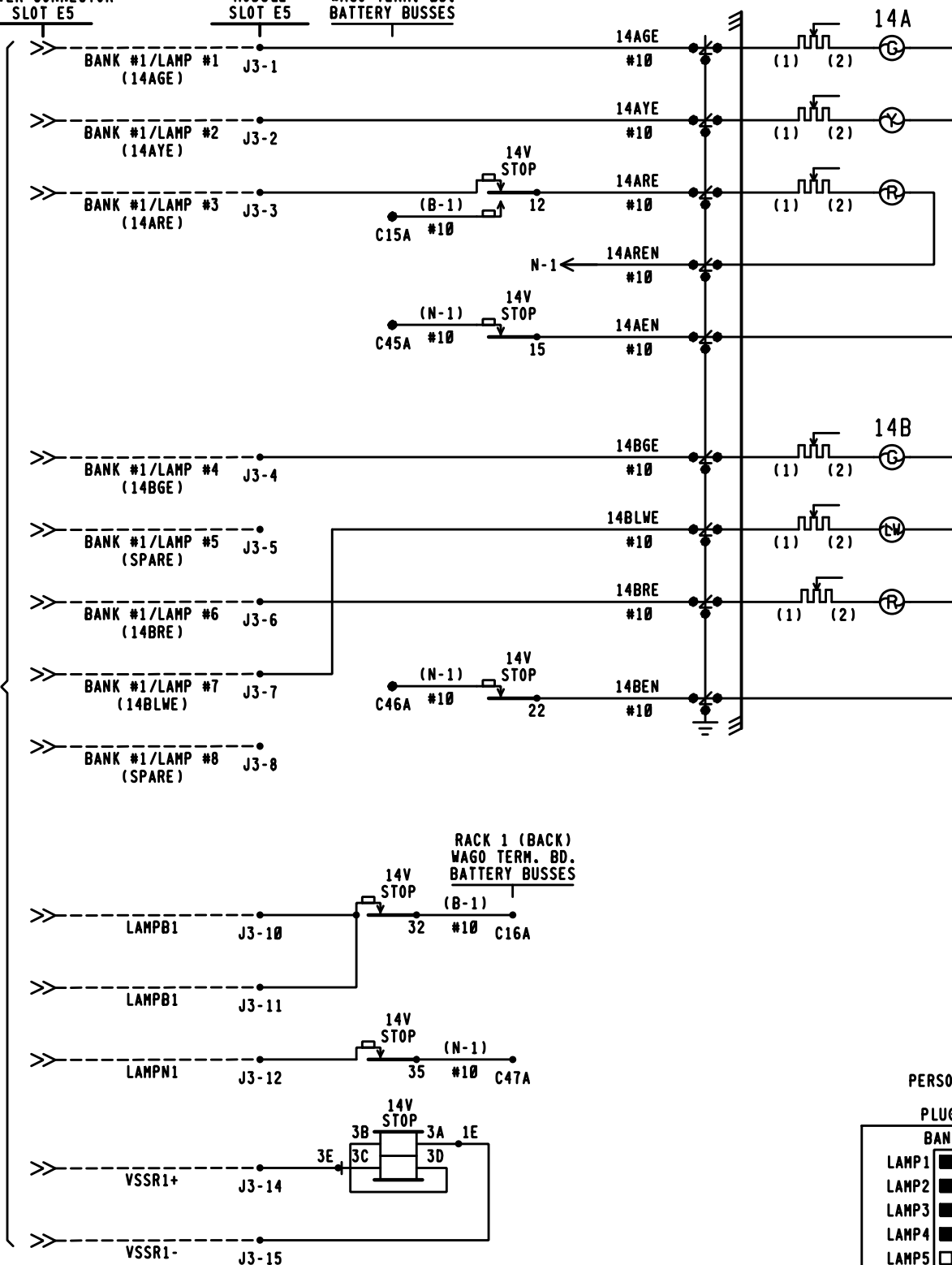
DESIGN DATE -----	REV. NO. 3	DRAWING -----	SHEET NO -----	FILE QI10140	SHEET C24
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ELECTROLOGIX
VITAL LAMP
DRIVER CONNECTOR
SLOT E5

VLD-R16S
PERSONALITY
MODULE
SLOT E5

RACK 1 (BACK)
WAGO TERM. BD.
BATTERY BUSSES

TO
VITAL LAMP
DRIVER MODULE



VLD-R16S
PERSONALITY MODULE
SLOT E5
PLUG CONNECTORS

BANK1		BANK2	
LAMP1	1	LAMP9	1
LAMP2	2	LAMP10	2
LAMP3	3	LAMP11	3
LAMP4	4	LAMP12	4
LAMP5	5	LAMP13	5
LAMP6	6	LAMP14	6
LAMP7	7	LAMP15	7
LAMP8	8	LAMP16	8
---	9	---	9
LAMPB1	10	LAMPB2	10
LAMPB1	11	LAMPB2	11
LAMPN1	12	LAMPN2	12
---	13	---	13
VSSR1+	14	VSSR2+	14
VSSR1-	15	VSSR2-	15

J3 J4

■ = WIRE PRESENT

NOTES.

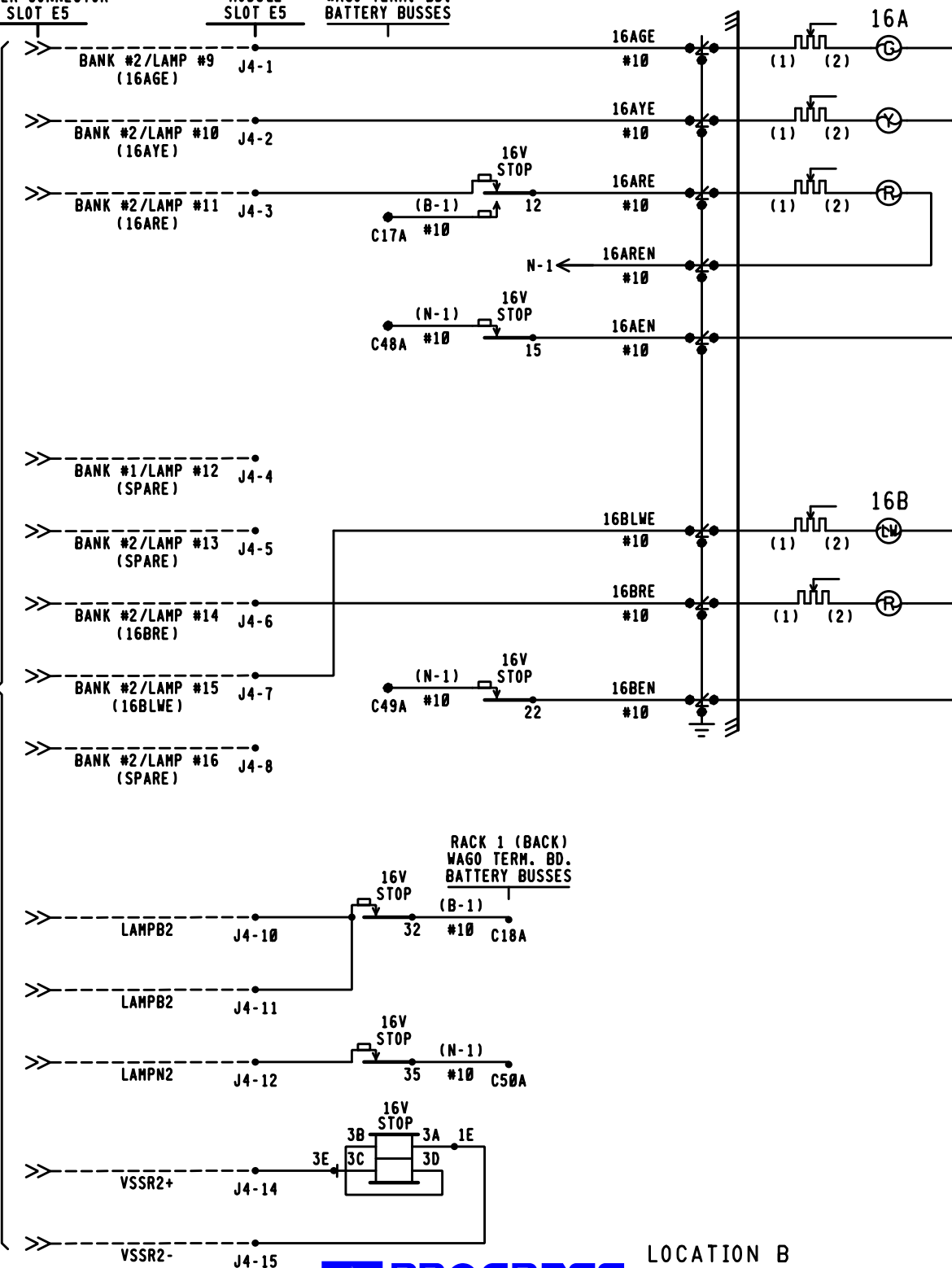
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2. ---- = INTERNAL CONNECTION
3. ALL HOUSE WIRING THIS SHEET #14 FLEX UNLESS NOTED.
4. ALL RESISTORS ARE 3 OHM, 15 WATTS.

ELECTROLOGIX
VITAL LAMP
DRIVER CONNECTOR
SLOT E5

VLD-R16S
PERSONALITY
MODULE
SLOT E5

RACK 1 (BACK)
WAGO TERM. BD.
BATTERY BUSSES

TO
VITAL LAMP
DRIVER MODULE



PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 05/25/17
NO CHANGES
CSX# 0H2017030
0H2017031
PRS/TDF/SAF

PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 10/26/16
NO CHANGES
CSX# 0H2016046
0H2016047
0H2016048
0H2016049
0H2016050
0H2016051
0H2017010
0H2017011
PRS/TDF/SAF

LOCATION B

CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

CP 101

SIGNAL 14 AND 16 LIGHTING CIRCUITS RACK 1
MARION, OH M.P. QI-101.40

DESIGN DATE

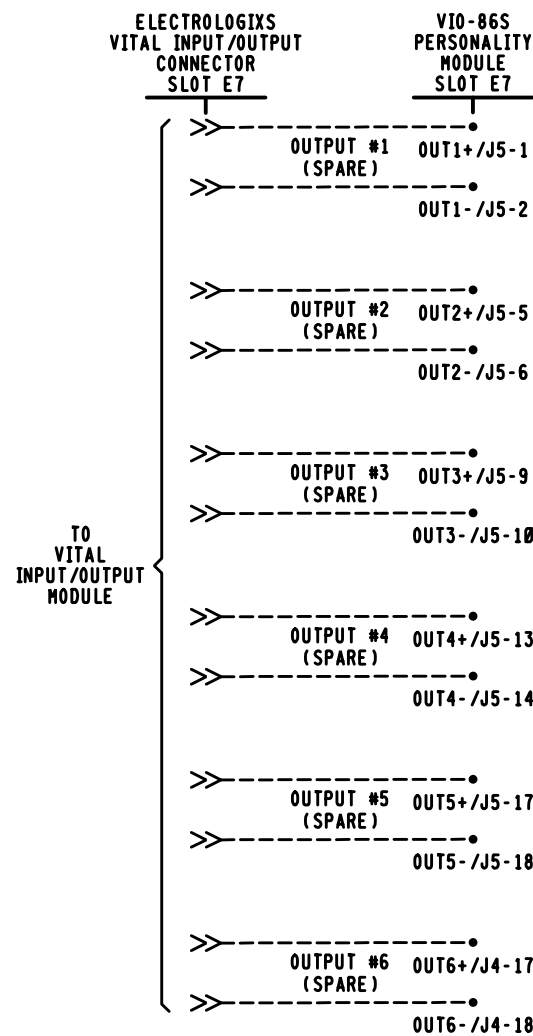
REV. NO.
3

DRAWING

SHEET NO

FILE
QI10140

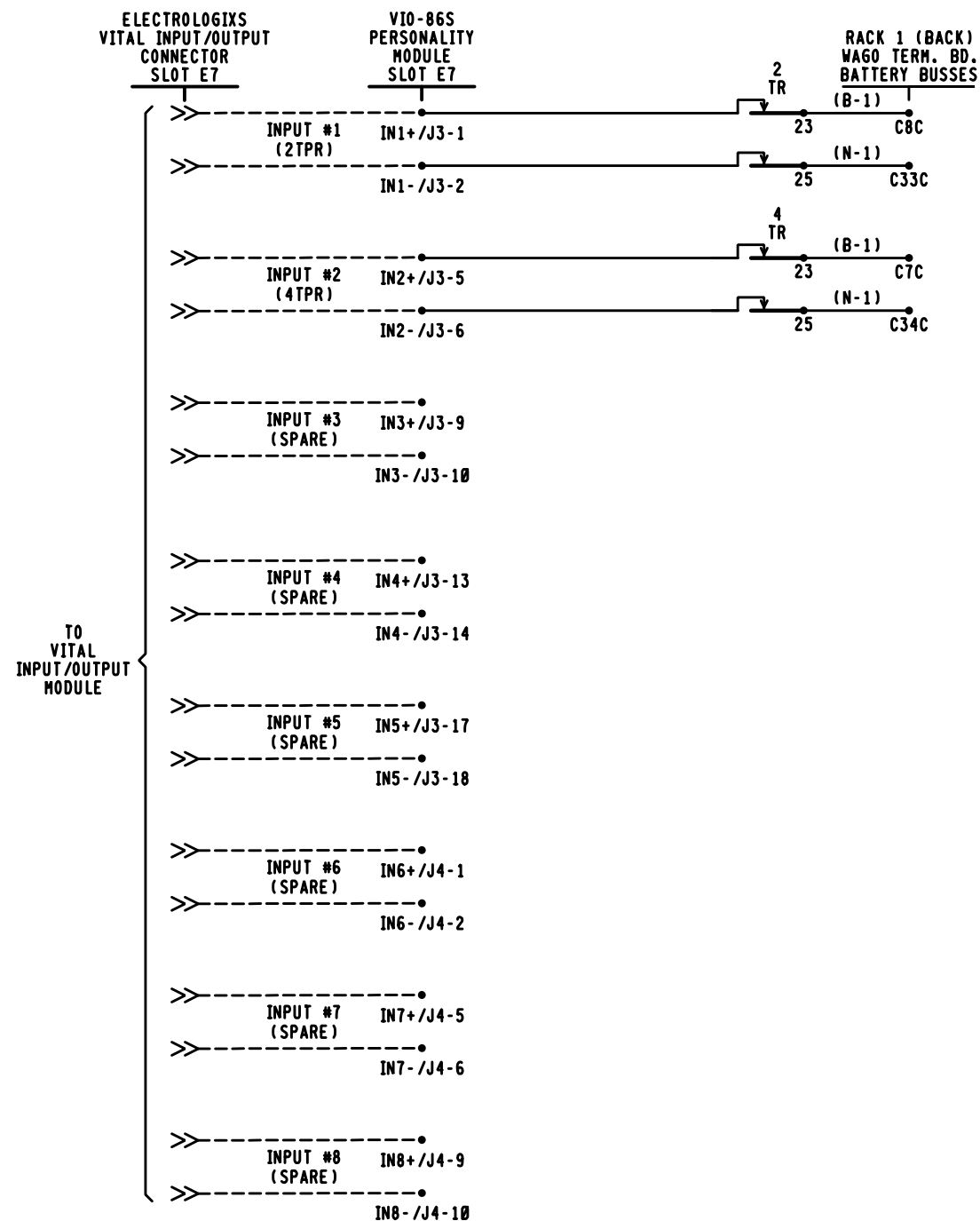
SHEET
C25



VIO-86S PERSONALITY MODULE SLOT E7 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

■ = WIRE PRESENT



NOTES.

1. = INTERNAL CONNECTION
2. ALL HOUSE WIRING THIS SHEET #14 FLEX UNLESS NOTED.

LOCATION B

CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

CP 101

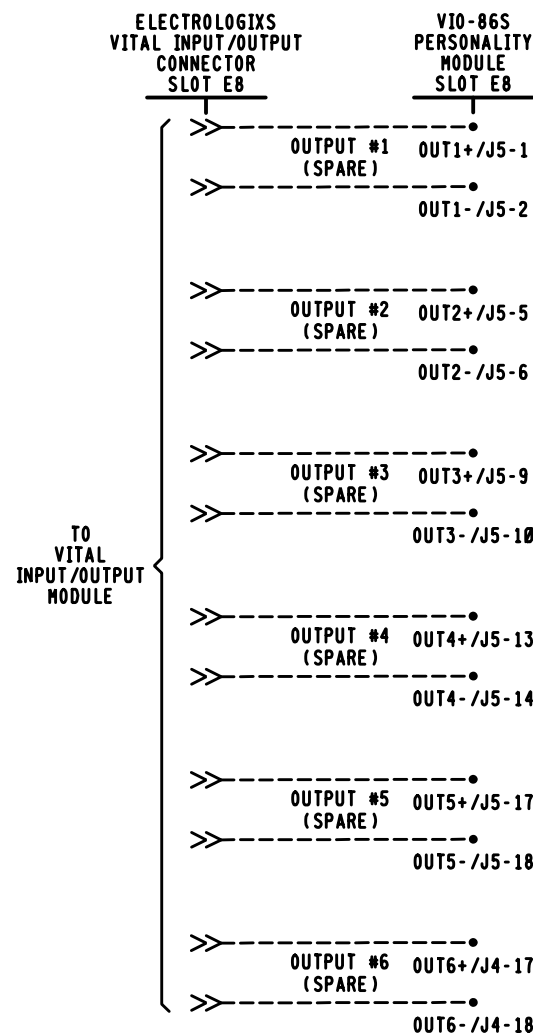
ELECTROLOGIXS I/O CIRCUITS RACK 1
MARION, OH M.P. Q1-101.40

DESIGNED GET/KJM	DIGITIZED GET/SAT	CHECKED GET/KMQ	DATE 12-12-11
DRAWING -----	SHEET NO -----	FILE Q110140	SHEET C26

PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 05/25/17
CSX# 0H2017030
0H2017031
PRS/TDF/SAF
NO CHANGES

PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 10/26/16
CSX# 0H2016046
0H2016047
0H2016048
0H2016049
0H2016050
0H2016051
0H2017010
0H2017011
PRS/TDF/SAF
NO CHANGES

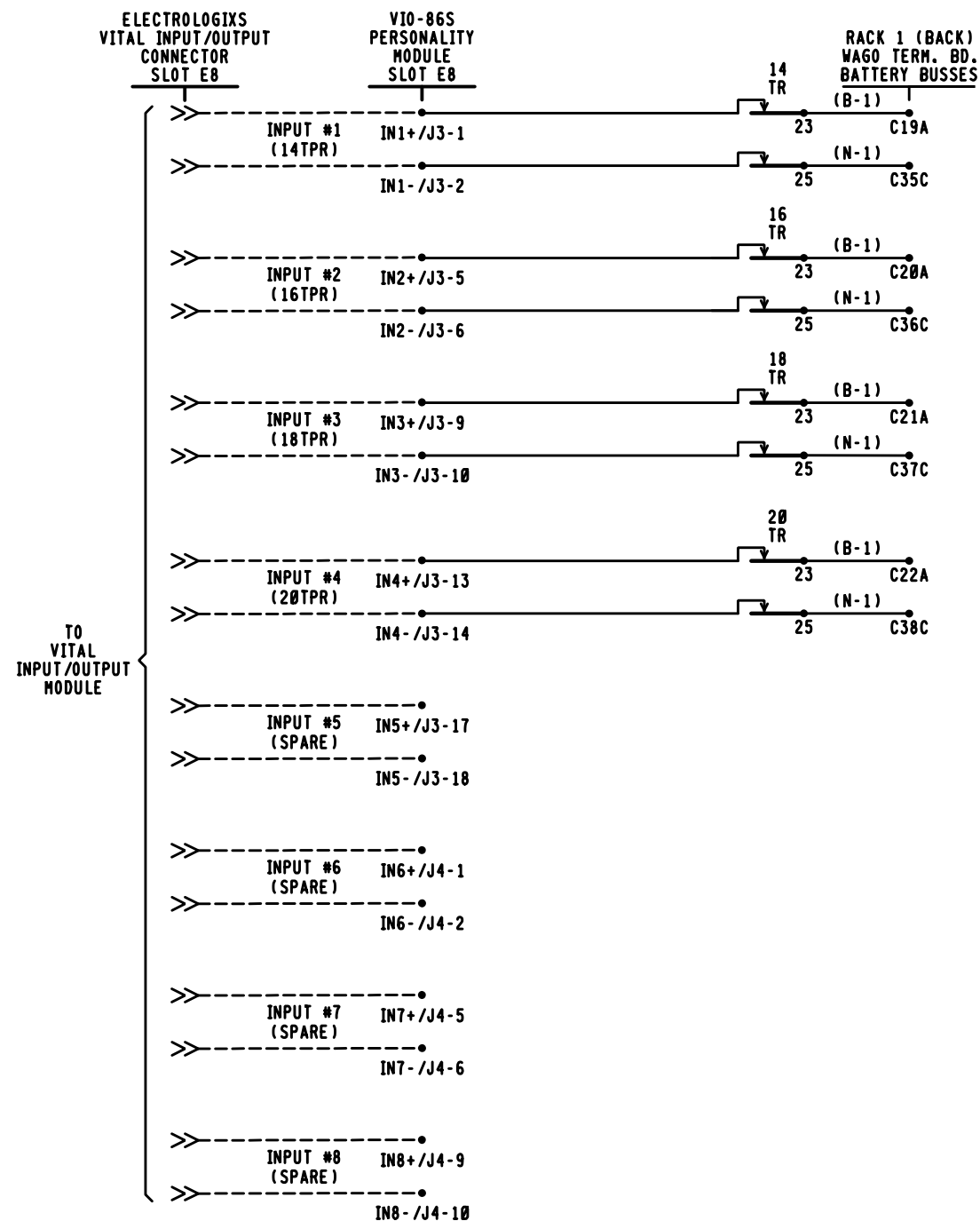
DESIGN DATE -----	REV. NO. 1
----------------------	---------------



VIO-86S PERSONALITY MODULE SLOT E8 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

■ = WIRE PRESENT



NOTES.

1. = INTERNAL CONNECTION
2. ALL HOUSE WIRING THIS SHEET #14 FLEX UNLESS NOTED.

LOCATION B

CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

CP 101

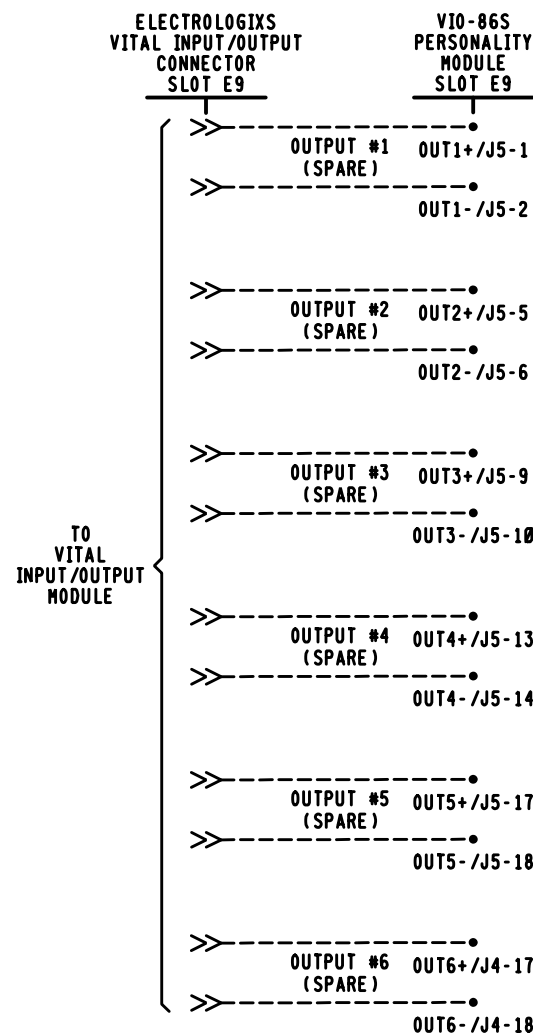
ELECTROLOGIXS I/O CIRCUITS RACK 1
MARION, OH M.P. Q1-101.40

DESIGNED GET/KJM	DIGITIZED GET/SAT	CHECKED GET/KMQ	DATE 12-12-11
DRAWING -----	SHEET NO -----	FILE Q110140	SHEET C27

PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 05/25/17
CSX#. 0H2017030
0H2017031
PRS/TDF/SAF
NO CHANGES

PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 10/26/16
CSX#. 0H2016046
0H2016047
0H2016048
0H2016049
0H2016050
0H2016051
0H2017010
0H2017011
PRS/TDF/SAF
NO CHANGES

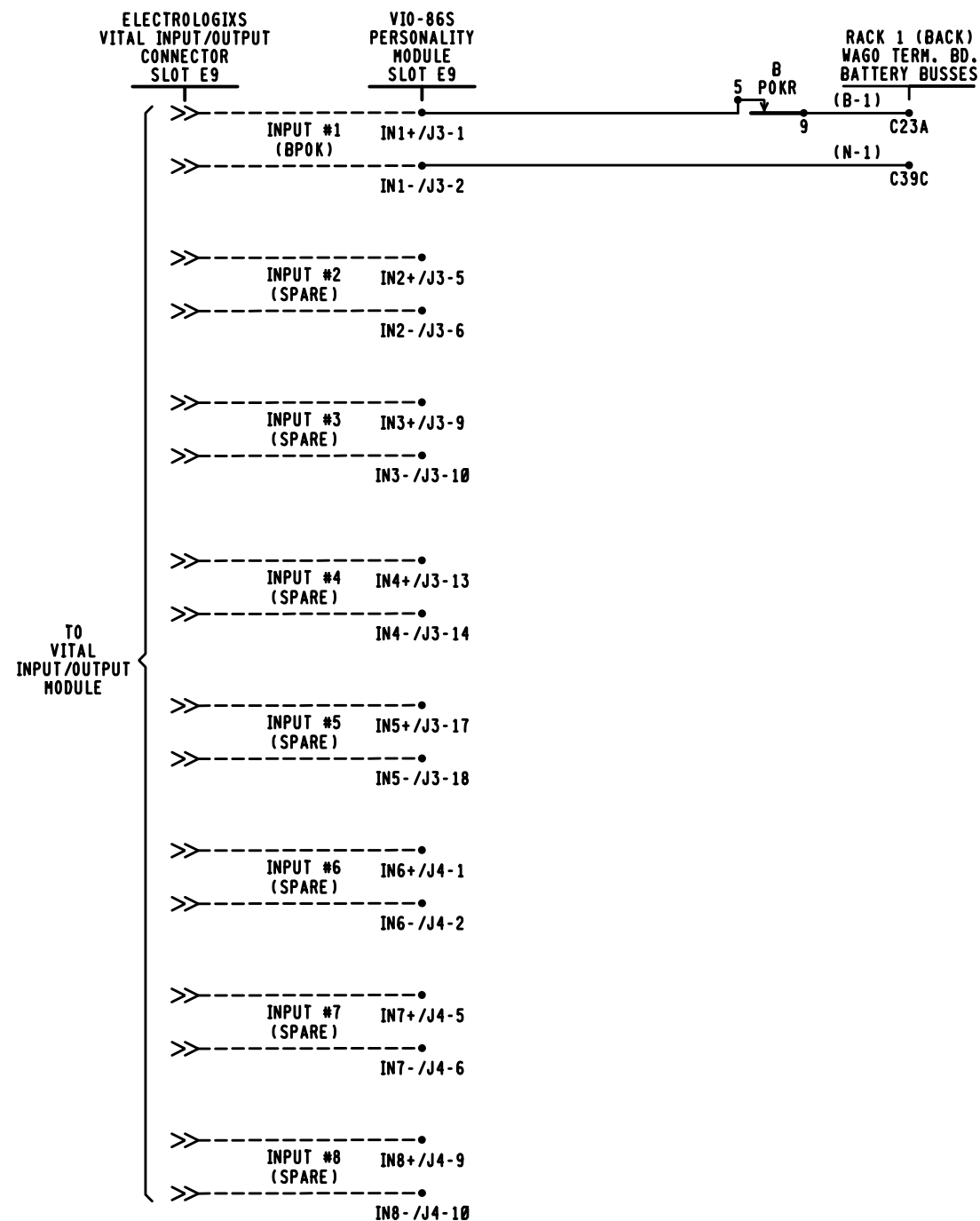
DESIGN DATE -----	REV. NO. 1
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VIO-86S PERSONALITY MODULE SLOT E9 PLUG CONNECTORS

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

■ = WIRE PRESENT



NOTE:

1.---- = INTERNAL CONNECTION

LOCATION B



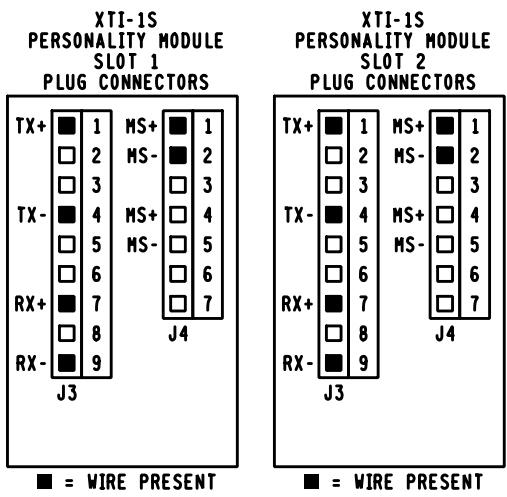
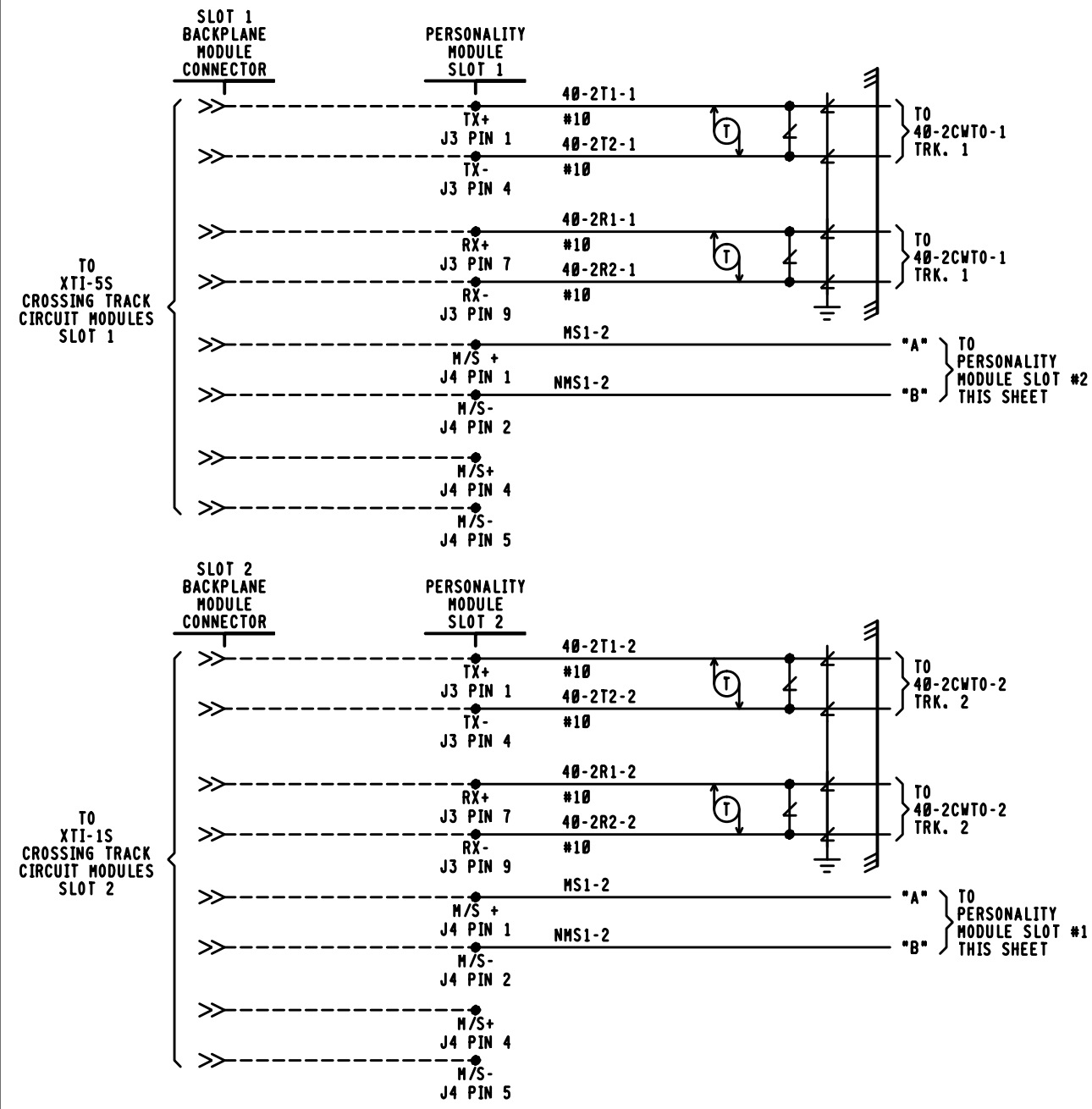
CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

CP 101

ELECTROLOGIXS I/O CIRCUITS RACK 1
MARION, OH M.P. Q1-101.40

DESIGNED GET/KJM	DIGITIZED GET/SAT	CHECKED GET/KMQ	DATE 12-12-11
DRAWING -----	SHEET NO -----	FILE Q110140	SHEET C28

DESIGN DATE -----	REV. NO. 1
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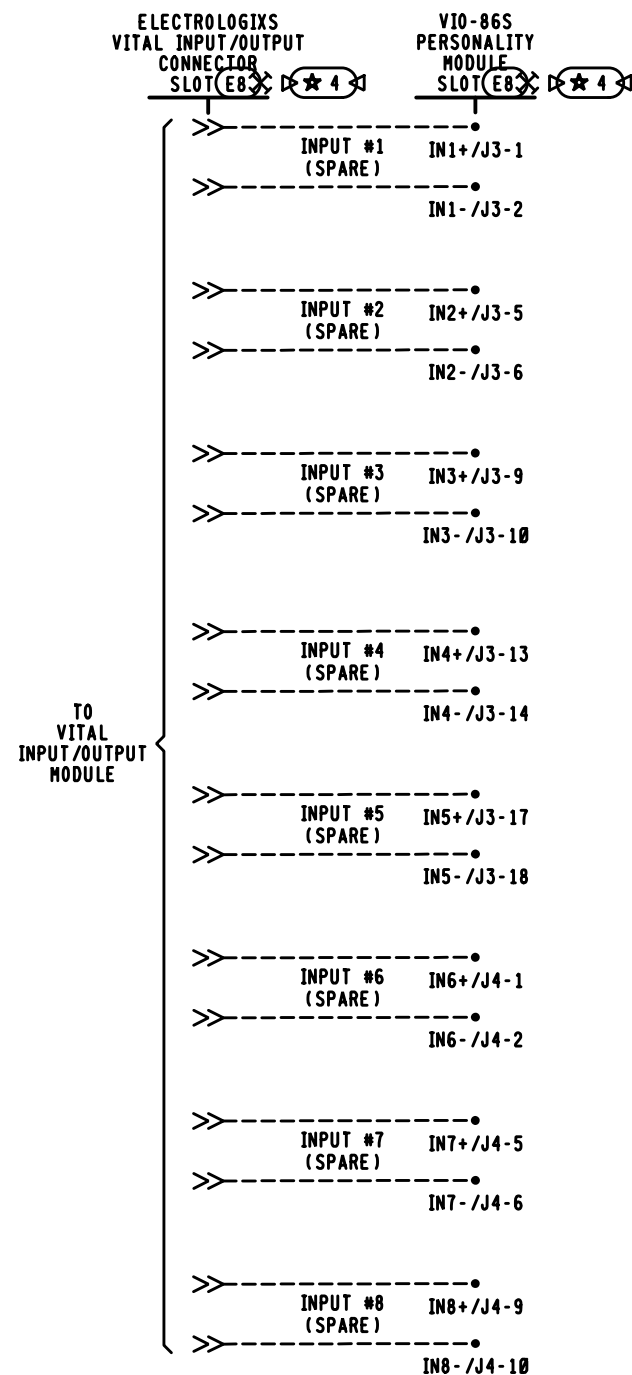
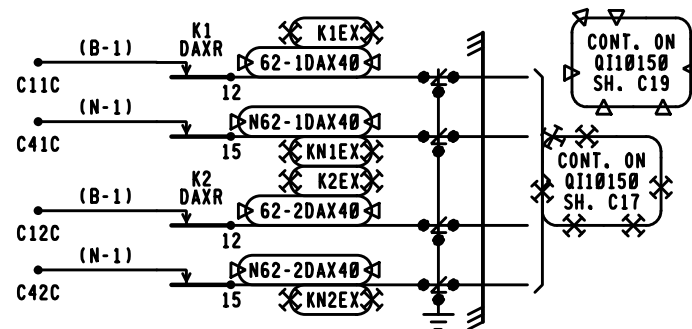
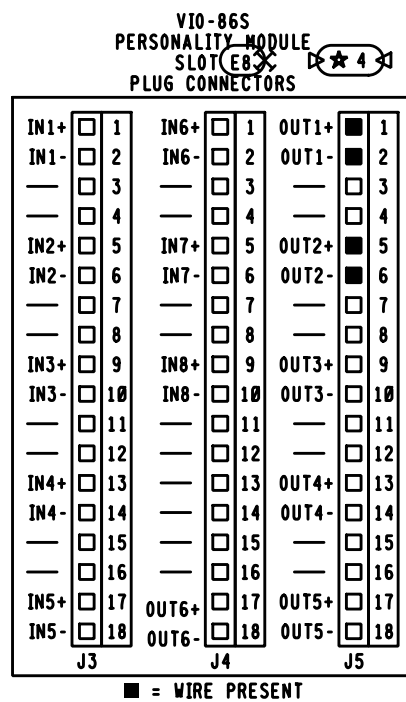
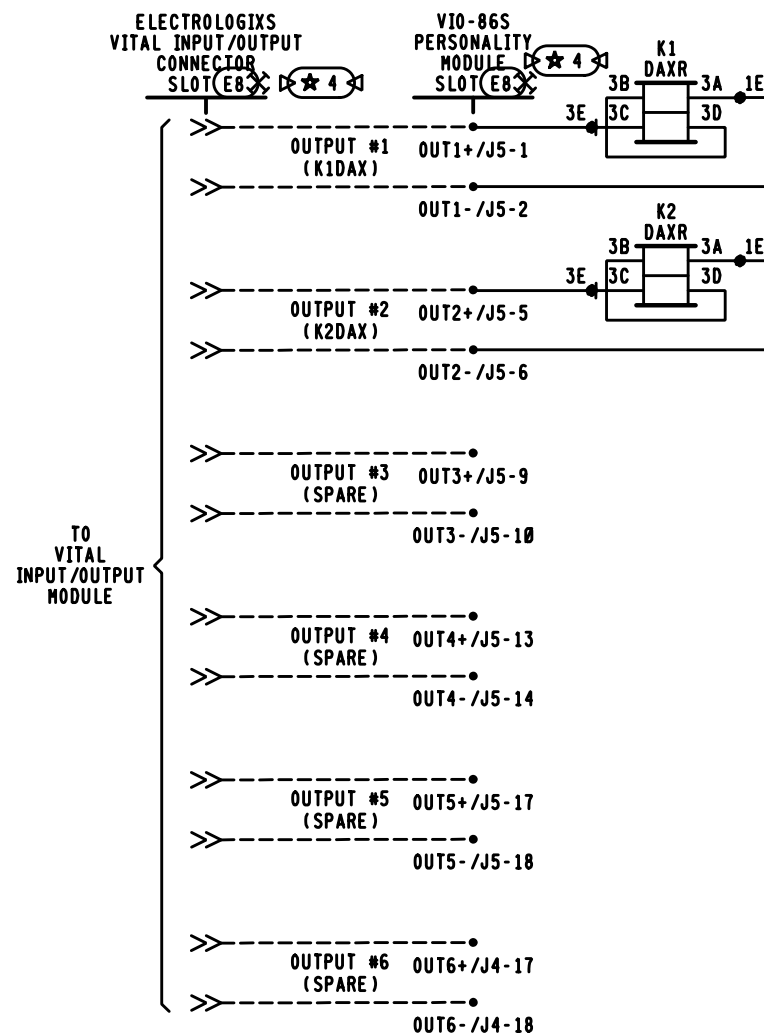
PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 05/25/17
CSX: 0H2017030
0H2017031
PRS/TDF/SAF
NO CHANGES

PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 10/26/16
CSX: 0H2016046
0H2016047
0H2016048
0H2016049
0H2016050
0H2016051
0H2017010
0H2017011
PRS/TDF/SAF
NO CHANGES

NOTE:
1. ALL WIRE THIS SHEET #16 AWG UNLESS NOTED.

LOCATION B (40-2CWU)

CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
CP 101			
XP4 CROSSING DETECTION CIRCUITS MARION, OH M.P. Q1-101.40			
DESIGNED GET/KJM	DIGITIZED GET/SAT	CHECKED GET/KMQ	DATE 12-12-11
DESIGN DATE -----	REV. NO. 3	DRAWING -----	SHEET C29



THIS PLAN DOES ☐ DOES NOT ☒

SUPERSEDE PLAN DATED 10/26/16

CSX PROJECT # 0H2016046

CSX PROJECT # 0H2016047

CSX PROJECT # 0H2016048

CSX PROJECT # 0H2016049

CSX PROJECT # 0H2016050

CSX PROJECT # 0H2016051

CSX PROJECT # 0H2017010

CSX PROJECT # 0H2017011

★ = DRAFTING ERROR CORRECTION

PROGRESS RAIL SERVICES

A Caterpillar Company

DATE: 05/25/17

CSX # 0H2017030

0H2017031

PRS/TDF/SAF

PROGRESS RAIL SERVICES

A Caterpillar Company

NO CHANGES

DATE: 10/26/16

CSX # 0H2016046

0H2016047

0H2016048

0H2016049

0H2016050

0H2016051

0H2017010

0H2017011

PRS/TDF/SAF

NOTE:

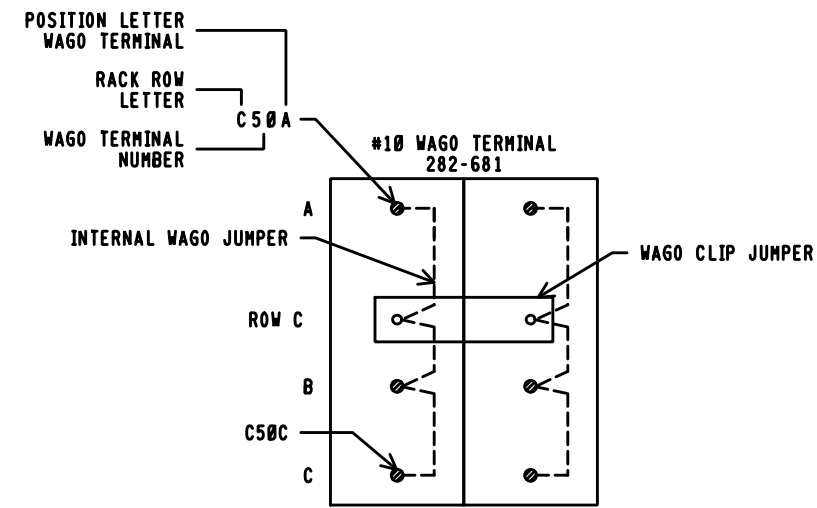
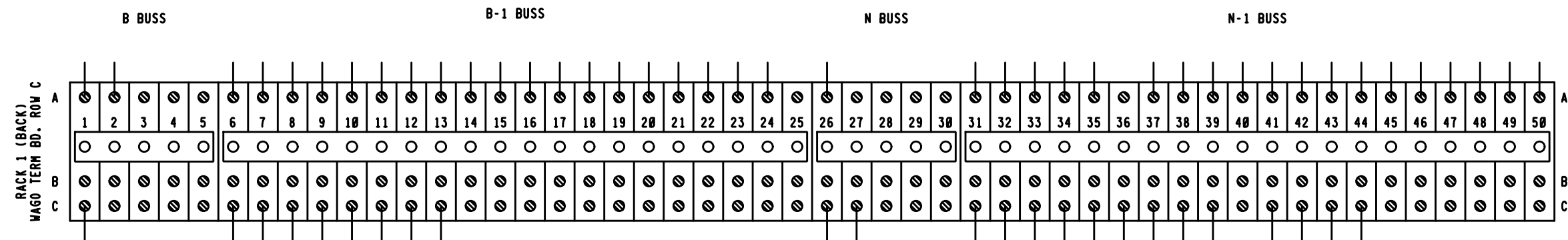
1. = INTERNAL CONNECTION

LOCATION B (40-2CWU)

CSX TRANSPORTATION			
RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
CP 101			
XP4 I/O CIRCUITS			
MARION, OH M.P. Q1-101.40			
DESIGNED	DIGITIZED	CHECKED	DATE
GET/KJM	GET/SAT	GET/KMQ	12-12-11
DRAWING	SHEET NO	FILE	SHEET
.....		Q110140	C30

DESIGN DATE 05-25-17

REV. NO. 3



- NOTES:
1. C1A & C1C TO B SUPPLY.
 2. C6A & C6C TO B-1 SUPPLY.
 3. C26A & C26C TO N SUPPLY.
 4. C31A & C31C TO N-1 SUPPLY.

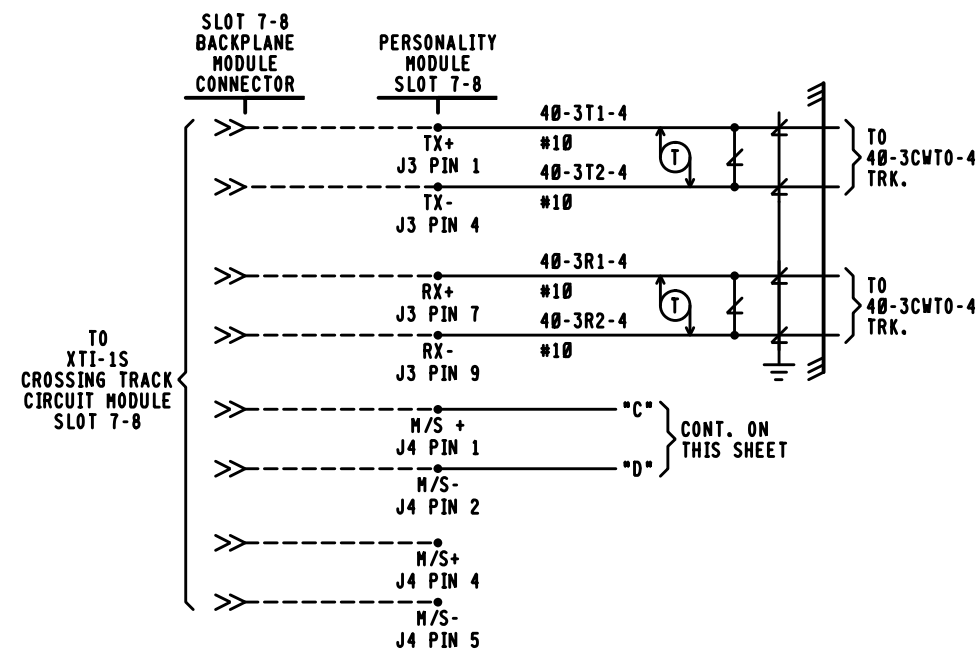
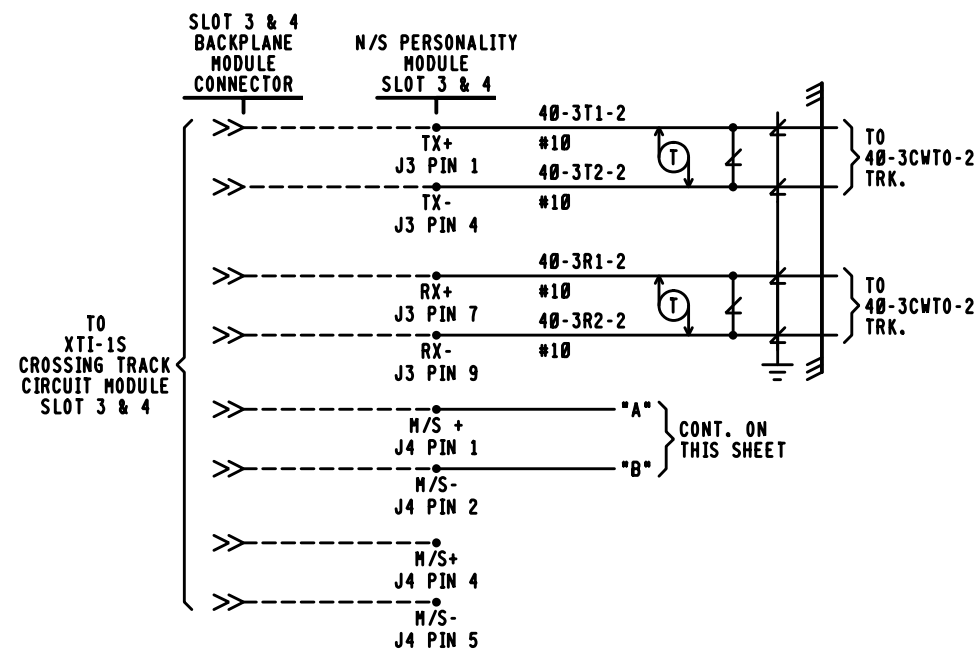
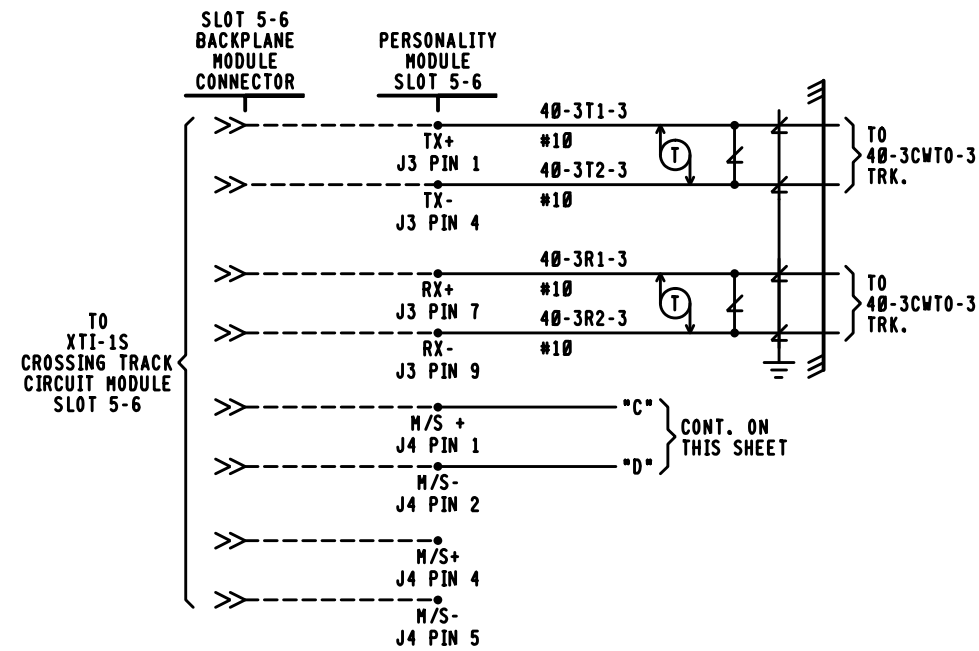
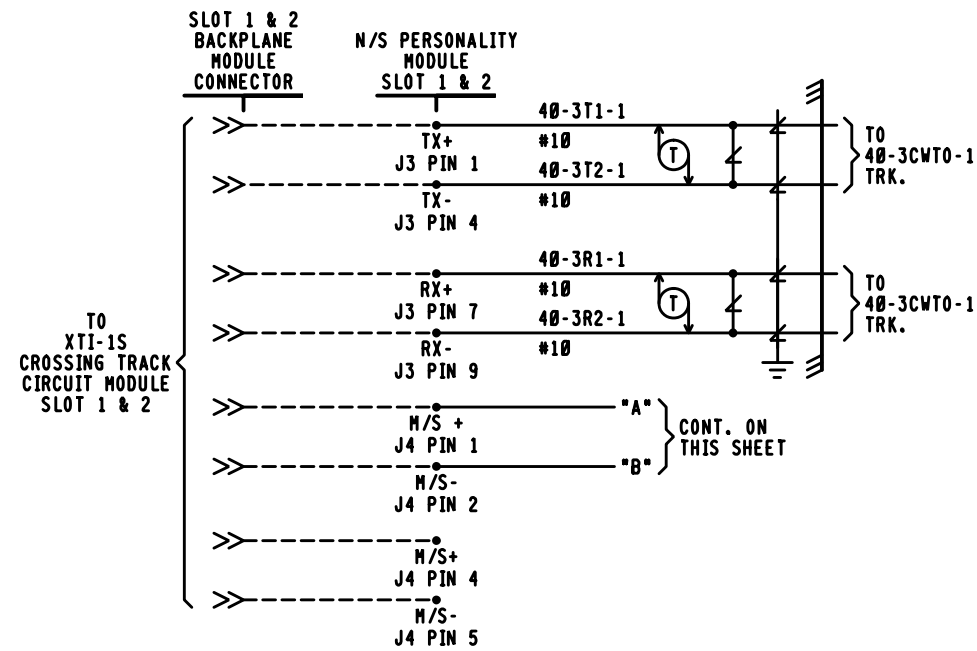
LOCATION B

CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
CP 101			
WAGO TERMINAL BOARDS RACK 1 MARION, OH M.P. QI-101.40			
DESIGNED GET/KJM	DIGITIZED GET/SAT	CHECKED GET/KMQ	DATE 12-12-11
DRAWING -----	SHEET NO -----	FILE QI10140	SHEET C31

PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 05/25/17
CSX # 0H2017030
0H2017031
PRS/TDF/SAF
NO CHANGES

PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 10/26/16
CSX # 0H2016046
0H2016047
0H2016048
0H2016049
0H2016050
0H2016051
0H2017010
0H2017011
PRS/TDF/SAF
NO CHANGES

DESIGN DATE 06-02-15	REV. NO. 2
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NOTES
1. ALL WIRE THIS SHEET #16 AWG UNLESS NOTED.

REMOTE DAX HOUSE (40-3CWU)

PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 05/25/17
CSX # 0H2017030
0H2017031
PRS/TDF/SAF
NO CHANGES

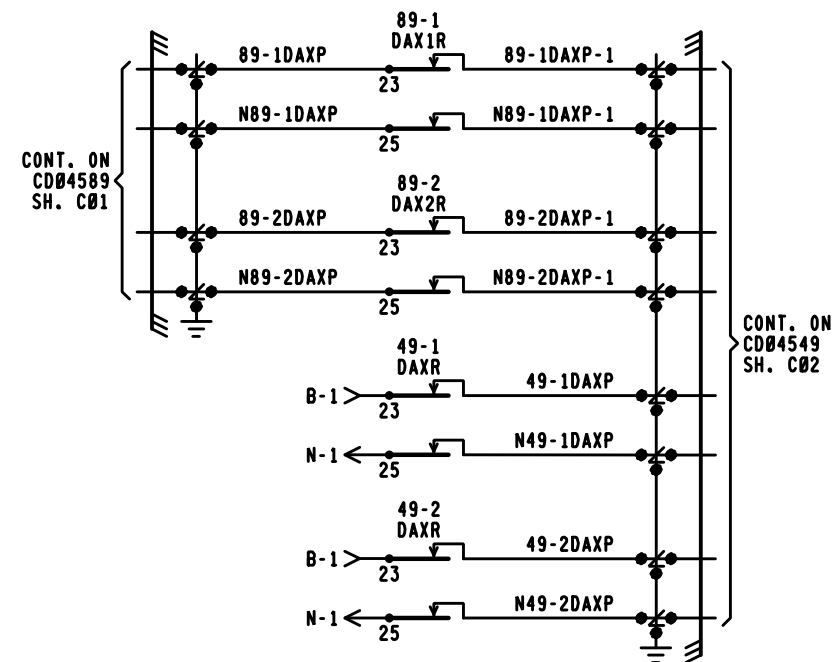
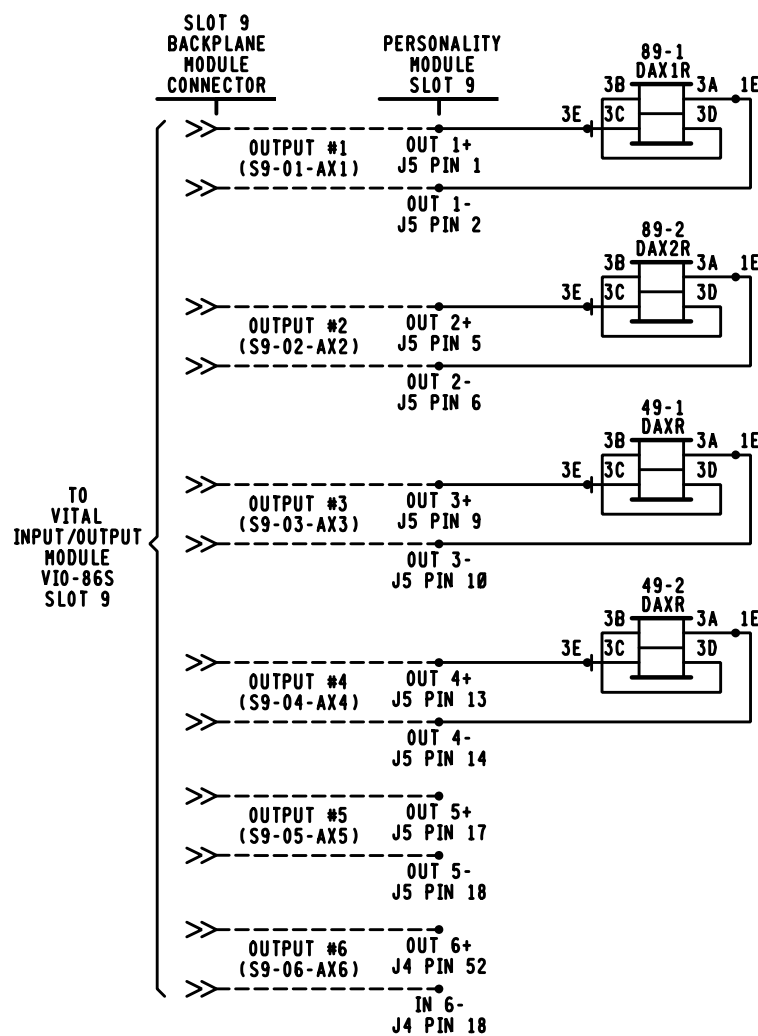
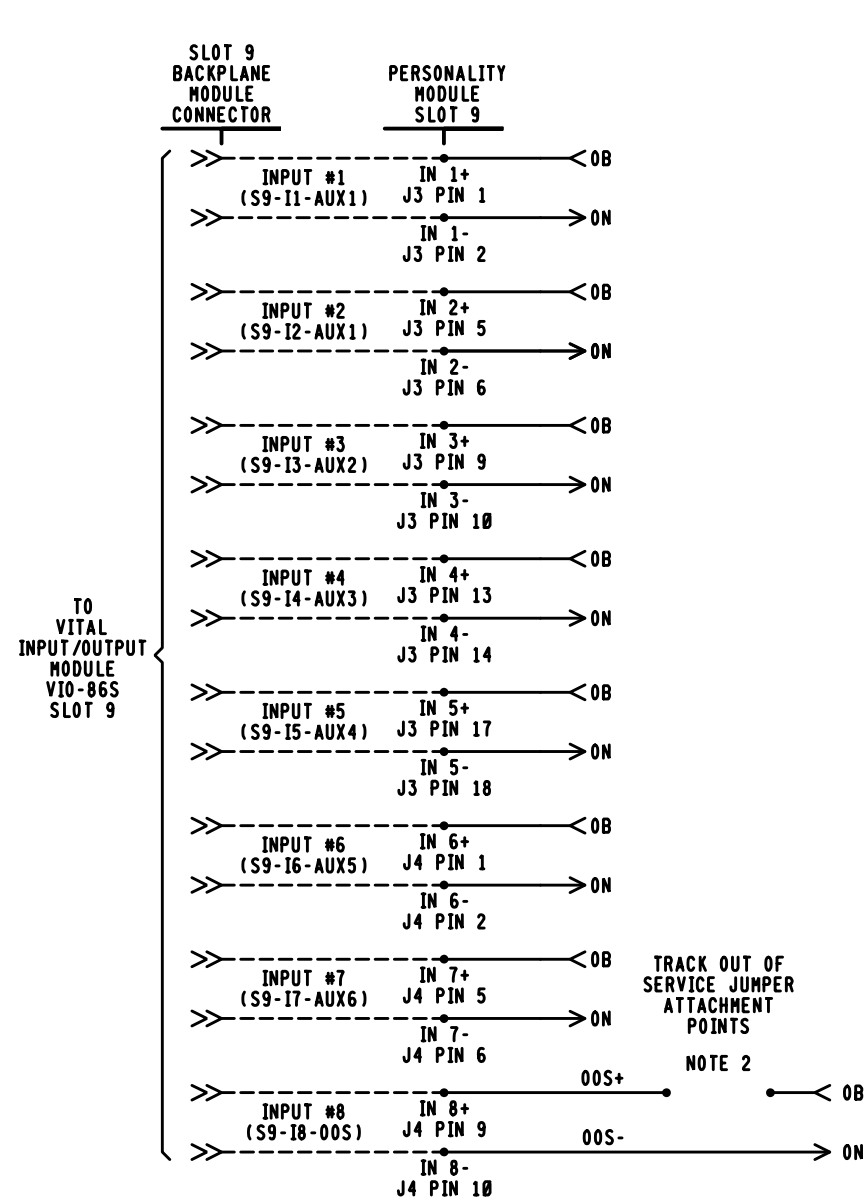
PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 10/26/16
CSX # 0H2016046
0H2016047
0H2016048
0H2016049
0H2016050
0H2016051
0H2017010
0H2017011
PRS/TDF/SAF
NO CHANGES

CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

CP 101

XP4 CROSSING DETECTION CIRCUITS
MARION, OH M.P. Q1-101.40

DESIGNED IRS/RHW	DIGITIZED IRS/RLB	CHECKED IRS/LEK	DATE 06-02-14
DESIGN DATE -----	REV. NO. 3	DRAWING -----	SHEET C32



SLOT 9 I/O	
INPUT 1	POSITIVE CONTROL AUXILIARY INPUT 1 (AUX 1)
INPUT 2	POSITIVE CONTROL AUXILIARY INPUT 1 (AUX 1)
INPUT 3	POSITIVE CONTROL AUXILIARY INPUT 2 (AUX 2)
INPUT 4	POSITIVE CONTROL AUXILIARY INPUT 3 (AUX 3)
INPUT 5	POSITIVE CONTROL AUXILIARY INPUT 4 (AUX 4)
INPUT 6	POSITIVE CONTROL AUXILIARY INPUT 5 (AUX 5)
INPUT 7	POSITIVE CONTROL AUXILIARY INPUT 6 (AUX 6)
INPUT 8	OUT OF SERVICE JUMPER INPUT (OOS)
OUTPUT 1	DAX RELAY OUTPUT TRK. 1
OUTPUT 2	DAX RELAY OUTPUT TRK. 2
OUTPUT 3	DAX RELAY OUTPUT TRK. 3
OUTPUT 4	DAX RELAY OUTPUT TRK. 4
OUTPUT 5	AX5 OUTPUT (OPTIONAL)
OUTPUT 6	AX6 OUTPUT (OPTIONAL)

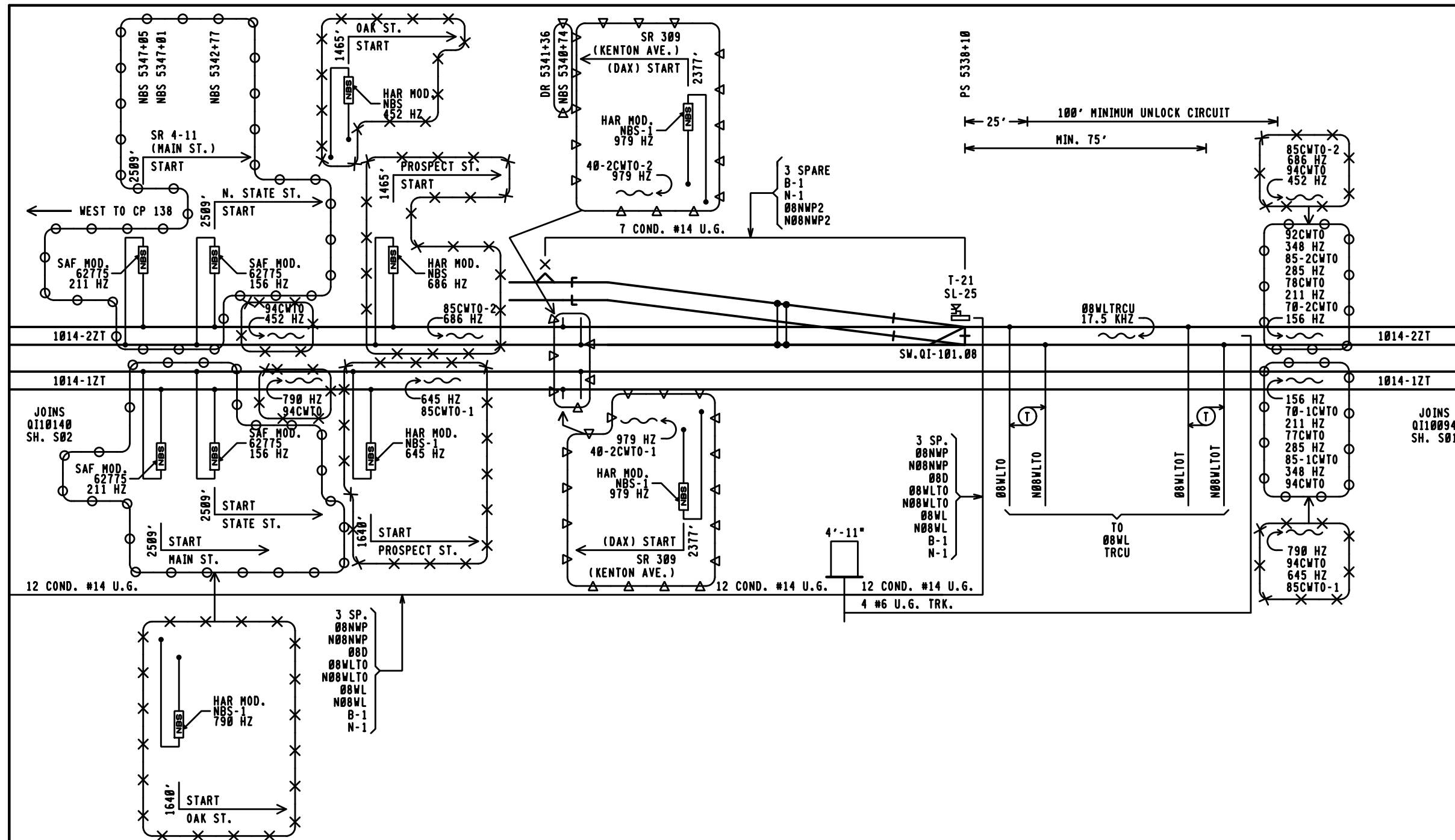
PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 05/25/17
CSX# 0H2017030
0H2017031
PRS/TDF/SAF
NO CHANGES

PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 10/26/16
CSX# 0H2016046
0H2016047
0H2016048
0H2016049
0H2016050
0H2016051
0H2017010
0H2017011
PRS/TDF/SAF
NO CHANGES

NOTES
1. ALL WIRE THIS SHEET #16 AWG UNLESS NOTED.
2. APPROACH DISABLE JUMPER INPUT. THIS INPUT IS USED IN COMBINATION WITH THE SOFT APPROACH DISABLE ACCESSED THROUGH THE CDU-1 KEYPAD. BOTH BITS MUST BE HIGH TO DISABLE AN APPROACH. THE OPERATOR IS SOLELY RESPONSIBLE FOR CROSSING PROTECTION WHEN THE APPROACH DISABLE FUNCTION IS ACTIVATED.

REMOTE DAX HOUSE (40-3CWU)

CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
CP 101			
XP4 I/O CIRCUITS MARION, OH M.P. Q1-101.40			
DESIGNED IRS/RHW	DIGITIZED IRS/RLB	CHECKED IRS/LEK	DATE 06-02-14
DESIGN DATE -----	REV. NO. 3	DRAWING -----	SHEET C33



REVISIONS				
REV. NO.	PROJECT NO.	DESIGN DATE	IN SERVICE DATE	REVISION DATE
1	0H2011021A	04-18-12	04-24-13	06-10-14
2	0H2014093	06-02-15	03-29-16	09-12-16
3	0H2016046 0H2016047 0H2016048 0H2016049 0H2016050 0H2016051 0H2017010 0H2017011	10-26-16		
4	0H2017030 0H2017031	05-25-17		

TO BE COMPLETED ON A.I.S.

TO BE COMPLETED ON A.I.S.

CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

ELECTRIC LOCK

TRACK AND SIGNAL PLAN
MARION, OH M.P. Q1-101.00

DESIGNED	DIGITIZED	CHECKED	DATE
GET/DPL	GET/SAT	GET/GOJ	02-15-12

DESIGN DATE	REV. NO.	NEXT FILE	NEXT SH	FILE	SHEET
06-02-15	2	Q110108	C01	Q110108	S01

THIS PLAN DOES ☐ DOES NOT ☒
SUPERSEDE PLAN DATED 10/26/16
CSX PROJECT # 0H2016046
CSX PROJECT # 0H2016047
CSX PROJECT # 0H2016048
CSX PROJECT # 0H2016049
CSX PROJECT # 0H2016050
CSX PROJECT # 0H2016051
CSX PROJECT # 0H2017010
CSX PROJECT # 0H2017011

PROGRESS
RAIL SERVICES
A Caterpillar Company

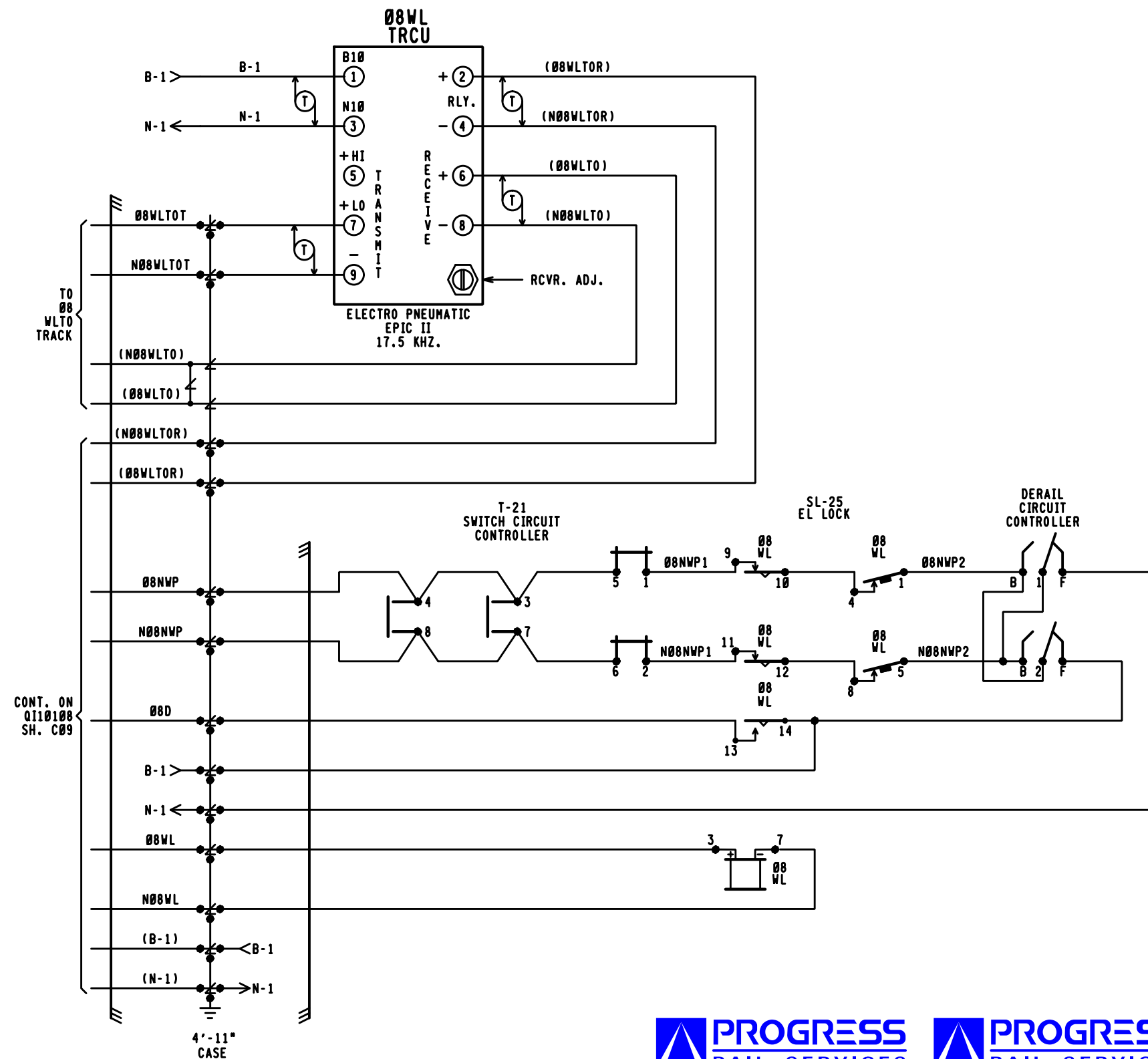
DATE 05/25/17
CSX # 0H2017030
PRS/TDF/SAF

OUT = IN =

PROGRESS
RAIL SERVICES
A Caterpillar Company

DATE 10/26/16
CSX # 0H2016046
0H2016047
0H2016048
0H2016049
0H2016050
0H2016051
0H2017010
0H2017011
PRS/TDF/SAF

OUT = IN =



PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 05/25/17
CSX# 0H2017030
0H2017031
PRS/TDF/SAF
NO CHANGES

PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 10/26/16
CSX# 0H2016046
0H2016047
0H2016048
0H2016049
0H2016050
0H2016051
0H2017010
0H2017011
PRS/TDF/SAF
NO CHANGES

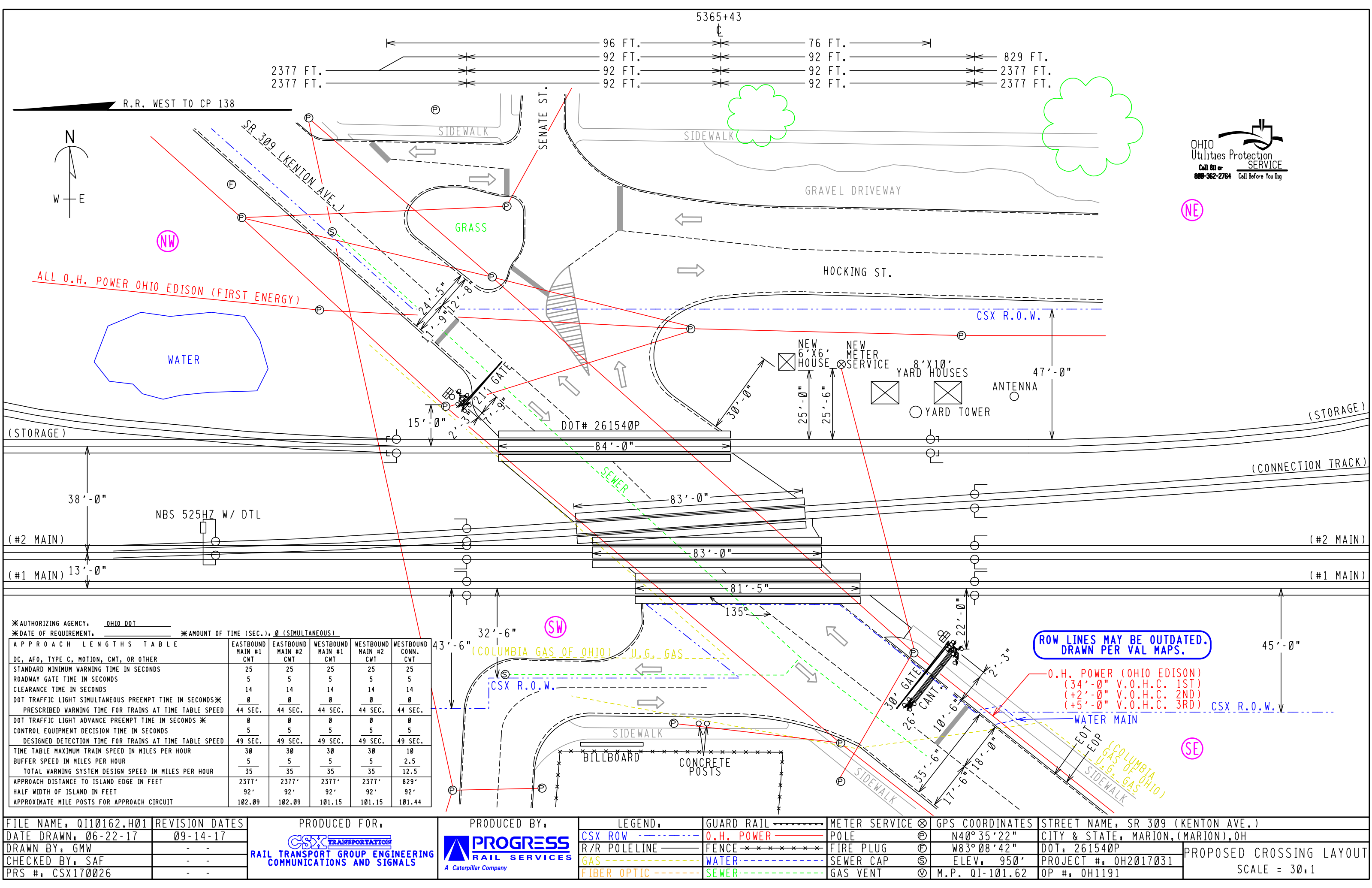
4'-11" CASE (TRACK 2)

CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

ELECTRIC LOCK

EPIC II
MARION, OH M.P. Q1-101.00

DESIGNED XRL	DIGITIZED XRL	CHECKED XRL	DATE 06-02-15
DESIGN DATE 06-02-15	REV. NO. 2	NEXT FILE -----	SHEET C01



* AUTHORIZING AGENCY, OHIO DOT
* DATE OF REQUIREMENT, * AMOUNT OF TIME (SEC.), 0 (SIMULTANEOUS)

APPROACH LENGTHS TABLE	EASTBOUND MAIN #1 CWT	EASTBOUND MAIN #2 CWT	WESTBOUND MAIN #1 CWT	WESTBOUND MAIN #2 CWT	WESTBOUND CONN. CWT
DC, AFO, TYPE C, MOTION, CWT, OR OTHER	25	25	25	25	25
STANDARD MINIMUM WARNING TIME IN SECONDS	5	5	5	5	5
ROADWAY GATE TIME IN SECONDS	14	14	14	14	14
CLEARANCE TIME IN SECONDS	0	0	0	0	0
DOT TRAFFIC LIGHT SIMULTANEOUS PREEMPT TIME IN SECONDS*	44 SEC.	44 SEC.	44 SEC.	44 SEC.	44 SEC.
DOT TRAFFIC LIGHT ADVANCE PREEMPT TIME IN SECONDS *	0	0	0	0	0
CONTROL EQUIPMENT DECISION TIME IN SECONDS	5	5	5	5	5
DESIGNED DETECTION TIME FOR TRAINS AT TIME TABLE SPEED	49 SEC.	49 SEC.	49 SEC.	49 SEC.	49 SEC.
TIME TABLE MAXIMUM TRAIN SPEED IN MILES PER HOUR	30	30	30	30	10
BUFFER SPEED IN MILES PER HOUR	5	5	5	5	2.5
TOTAL WARNING SYSTEM DESIGN SPEED IN MILES PER HOUR	35	35	35	35	12.5
APPROACH DISTANCE TO ISLAND EDGE IN FEET	2377'	2377'	2377'	2377'	829'
HALF WIDTH OF ISLAND IN FEET	92'	92'	92'	92'	92'
APPROXIMATE MILE POSTS FOR APPROACH CIRCUIT	102.09	102.09	101.15	101.15	101.44

FILE NAME, Q110162.H01
DATE DRAWN, 06-22-17
DRAWN BY, GMW
CHECKED BY, SAF
PRS #, CSX170026

REVISION DATES
09-14-17

PRODUCED FOR,
CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

PRODUCED BY,
PROGRESS RAIL SERVICES
A Caterpillar Company

LEGEND,
CSX ROW
R/R POLELINE
GAS
FIBER OPTIC

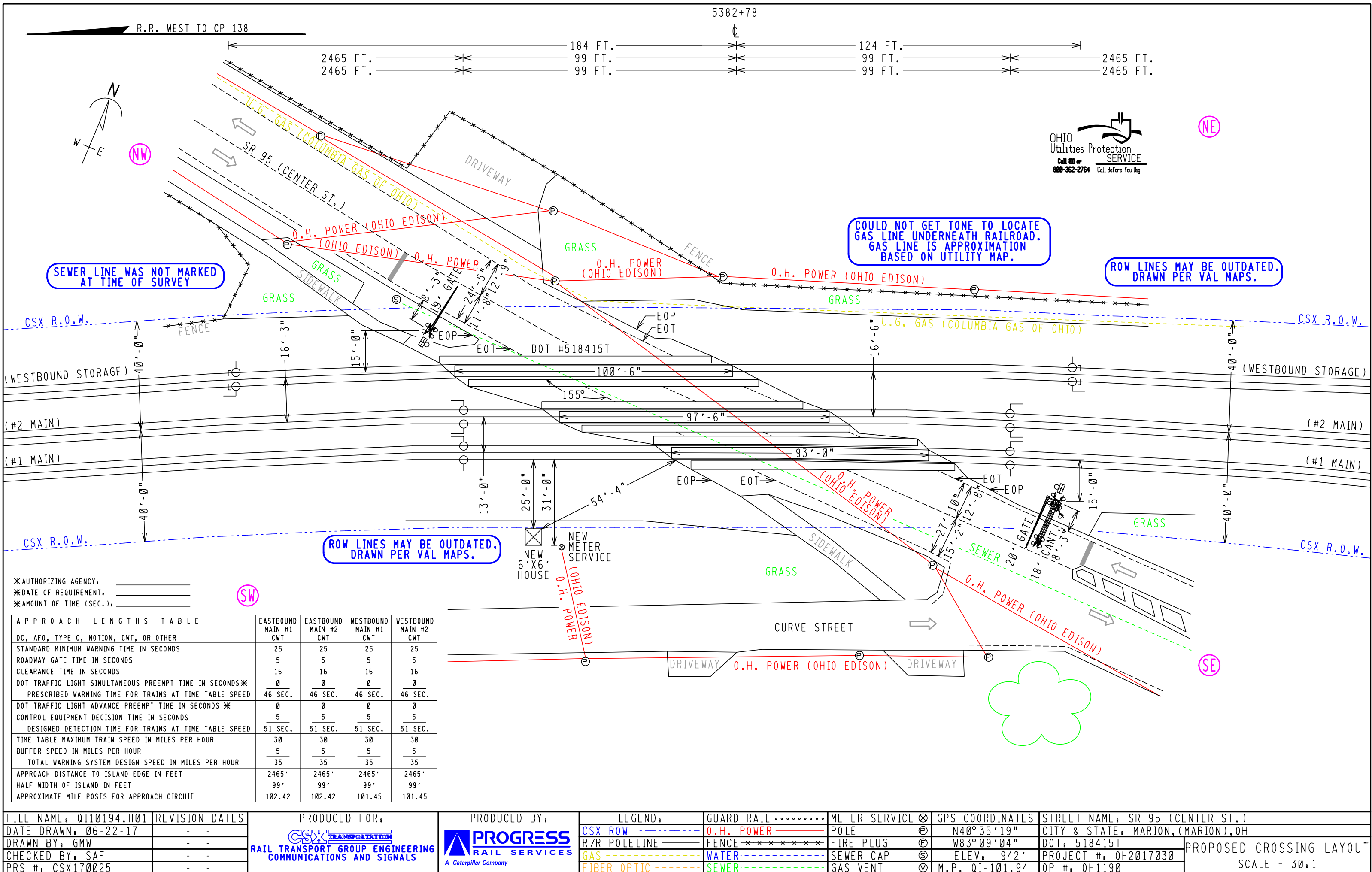
GUARD RAIL
O.H. POWER
FENCE
WATER
SEWER

METER SERVICE
POLE
FIRE PLUG
SEWER CAP
GAS VENT

GPS COORDINATES
N40°35'22"
W83°08'42"
ELEV, 950'
M.P. Q1-101.62

STREET NAME, SR 309 (KENTON AVE.)
CITY & STATE, MARION, (MARION), OH
DOT, 261540P
PROJECT #, OH2017031
OP #, OH1191

PROPOSED CROSSING LAYOUT
SCALE = 30:1





OHIO RAIL DEVELOPMENT COMMISSION

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

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

May 24, 2017

CSX Transportation
Ms. Amanda DeCesare
Project Manager – Public Projects
500 Meijer Drive
Suite 305
Florence, KY 41042

Subject: CSX Grade Crossing Warning Device Improvements PE Authorization
Marion County, SR95 Center Street 518415T, PID 96927
Marion County, SR309 Kenton Ave 261540P, PID 96926

Dear Ms. DeCesare:

Diagnostic reviews were held at the above grade crossings on 8/29/2013. The crossings have been recommended for the installation of lights and gates as well as cantilevers.

CSX Transportation is authorized to proceed with the site plane 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 Eric Neff. He can be reached at (614) 752.0399, or Eric.Neff@dot.ohio.gov, if you have any questions.

Sincerely,

Eric T. Neff

Eric Neff
Project Manager

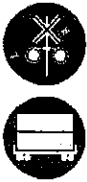
C: Nicole Henning, CSX Transportation
Jill Henry, PUCO, Grade Crossing Planner
ORDC (file)



www.rail.ohio.gov

phone: 614.644.0306

IMPROVING RAIL TODAY FOR TOMORROW'S ECONOMY



OHIO RAIL DEVELOPMENT COMMISSION

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

John R. Kasich, Governor • James G. Bradley, Chairman

May 9, 2017

CSX Transportation
Ms. Amanda DeCesare
Project Manager – Public Projects
1717 Dixie Highway
Suite 400
Fort Wright, KY 41011

Subject: Grade Crossing Warning Device Improvements in Marion County;
SR 95 Center Street, DOT# 518415T, PID 96927
SR 309 Kenton Avenue, DOT# 261540P, PID 96926

Dear Ms. DeCesare:

The Ohio Rail Development Commission (ORDC) and CSX Transportation (CSX) identified the above-referenced grade crossings on the Union City Corridor for modernization of warning devices. Diagnostic reviews were conducted at the subject grade crossings on 8/29/2013. The Kenton Avenue crossing improvement will include simultaneous preemption.

This project shall be completed in compliance with Agreement No. 17427, dated May 3, 2013, entered into by the State of Ohio and CSX Transportation (CSX) and incorporated as if fully rewritten herein. This construction shall also meet the general terms and conditions under the Moving Ahead for Progress in the 21st Century Act (MAP-21) and subsequent amendments and the State of Ohio's Federally Funded Warning Device Program.

Preliminary engineering (PE) and construction costs shall be borne seventy-five percent (75%) by ORDC and twenty-five percent (25%) by CSX. Reimbursable costs will be limited by the ORDC based on approved estimates and bid tabulations, if applicable. These limits will be quantified by the ORDC in its construction authorization to CSX and may be amended by the ORDC based on revised estimates and bid tabulations.

This Letter Agreement and the approved plans constitute the scope of the project. CSX shall notify ORDC in writing of any changes in the scope of work which are not in the approved plans and estimates and secure approval in writing of same before the work is performed.

PE will not be commenced by CSX prior to ORDC issuing a PE authorization. PE will be submitted by CSX to ORDC within ninety (90) days or other time specified by ORDC in the PE authorization. Construction will not be commenced by CSX prior to ORDC issuing a construction authorization. Construction will be completed by CSX within nine (9) months or other time specified in the time specified by ORDC in the construction authorization.

Please indicate your acceptance of the terms and conditions of this Letter Agreement by signing and returning one (1) copy to me at the address listed above and retain a copy for your files.



www.rail.ohio.gov

phone: 614.644.0306

IMPROVING RAIL TODAY FOR TOMORROW'S ECONOMY

This Agreement may be executed in one or more counterparts, each of which shall be deemed to be a duplicate original, but all of which taken together shall be deemed to constitute a single Agreement.

Sincerely,



Matthew R. Dietrich
Executive Director

CSX Transportation:

By: Tony C. Bellamy
Tony C. Bellamy

Title: Director Project Management - Public Projects

Date: 5/15/17

MAR SR 95 Center Street, DOT# 518415T, PID 96927
MAR SR 309 Kenton Avenue, DOT# 261540P, PID 96926

RECEIVED
ORDC
2017 MAY 22 PM 12:12



Diagnostic Review Team Survey

Reason for Survey:

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

Galion Corridor

Date: 8/29/2013

Location Data

Street or Road Name: Kenton Ave			
Route/Road Number (i.e. Twp., Co., SR or US) SR 309		US DOT No.: 261540P	
County: MAR	Township:	City: (In or Near) Marion	
Railroad Name: CSX Transportation	Railroad Division: Great Lakes	Branch/Line Name: Indianapolis Line	
Nearest RR Timetable Station: Marion		RR Milepost: 101.62	

On-Site Review Team

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

1. Joe Benbadis ORDC 614-644-0291
2. Prober Watson PUCO 614-752-9107
3. Amanda DeCesare CSX 859-426-6924
4. Tom Furey City of Marion 740-387-7240
5. _____
6. _____
7. _____
8. _____
9. _____

Existing Traffic Control Devices

Type of Warning Devices	Installed?		Quantity/Comments	
Advance Warning Signs (condition?)	☒ Yes	☐ No		
'Stop' Signs	☐ Yes	☒ No		
'Stop Ahead' Signs	☐ Yes	☒ No		
Pavement Markings (condition?)	☒ Yes	☐ No		
Crossbucks	☒ Yes	☐ No		
Number of Tracks Signs	☒ Yes	☐ No	2	
Inventory Tags	☒ Yes	☐ No	Emergency	
Interconnected Highway Traffic Signal	☒ Yes	☐ No		
Mast-Mounted Flashing Lights	☒ Yes	☐ No	1	
Cantilever Flashing Lights	☒ Yes	☐ No	Number: 1	Length:
Side Lights	☒ Yes	☐ No	1	
Automatic Gates	☒ Yes	☐ No	Number: 2	Length:
Bells	☒ Yes	☐ No	Number: 2	
Sidewalk Gate Arms	☐ Yes	☒ No		
'No Turn' Signs	☐ Yes	☒ No		
Illumination	☒ Yes	☐ No	2	
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	1 (1/23/2011)	
Hazard Ranking	71	Date Run: 7/30/2013

Railroad Data

Railroad Characteristics	Initial Information (from database)	Revised
Total trains per day	30	
< 1 per day		
Day thru trains	11	
Night thru trains	15	
Daytime switching movements	4	
Nighttime switching movements	0	
Total number of tracks	4	
Number of main tracks	2	
Number of other tracks	2	
Maximum train speed	30	
Typical train speed	25	
Amtrak		

If non-gated crossing, is clearing sight distance adequate in all quadrants? (See Table 1) ☐ Yes ☐ No

If multiple tracks, can two trains occupy crossing at the same time? ☒ Yes ☐ No

Can one train block the motorists' view of another train at crossing? ☒ Yes (Explain below) ☐ No

Can one or more tracks be eliminated through the crossing? ☐ Yes ☒ No

Are 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:	City of Marion	
Roadway Characteristics	Initial Information (from database)	Revised
Average daily traffic	3480 (2012)	
Highway paved	☒ Yes ☐ No	☐ Yes ☐ No
Roadway Surface:	☒ Blacktop ☐ Gravel ☐ Concrete ☐ Other _____	
Roadway width:	45 ft.	
Number of highway lanes	2	
Urban or Rural	Urban	
Vehicle Speed: MPH	35	
School Bus Operation:	No ☒ Yes <u>1</u> Amount	
Hazardous Materials Trucks:	☐ No ☒ Yes _____ 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 EASTSIDE ONLY	
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 ☒ Industrial ☐ Residential	☐ Institutional ☐ Commercial Location of nearby schools: _____
Utility Information	
Is commercial power available? ☐ No ☒ Yes Utility Provider (Company Name) <u>First Energy</u> Phone Number _____ Nearest Available Power Source _____	
What other utilities are present? (add locations to sketch) ☒ Gas ☐ Cable ☐ Telephone ☐ Fiber Optic Cable ☐ Petroleum ☒ Water ☐ Sanitary Sewer ☐ Other <u>AQUA REPLACING WATERLINE ON EASTSIDE PROJECT BEING DONE SOON.</u>	
Is(are) there potential utility conflict(s) ☐ Yes ☐ No ☒ Unknown Comments: <u>Josh Pruitt</u> <u>740-341-5582</u>	

Potential Red Flags / Project Challenges

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

• Davis & Center St., Traffic Light Location

Crossing Consolidation or Closure:

Real Estate or ROW:

Culverts / Drainage / Ballast Conditions:

Roadway and/or Sidewalks:

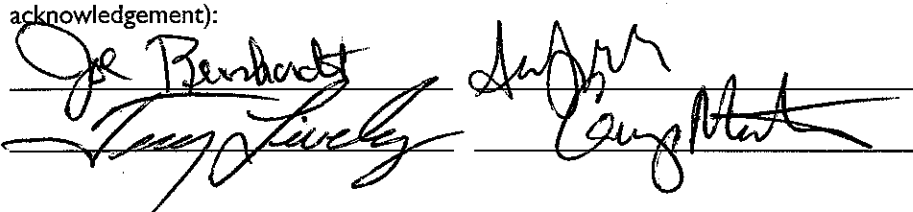
Inside Cart / Gate Location, No Problem

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

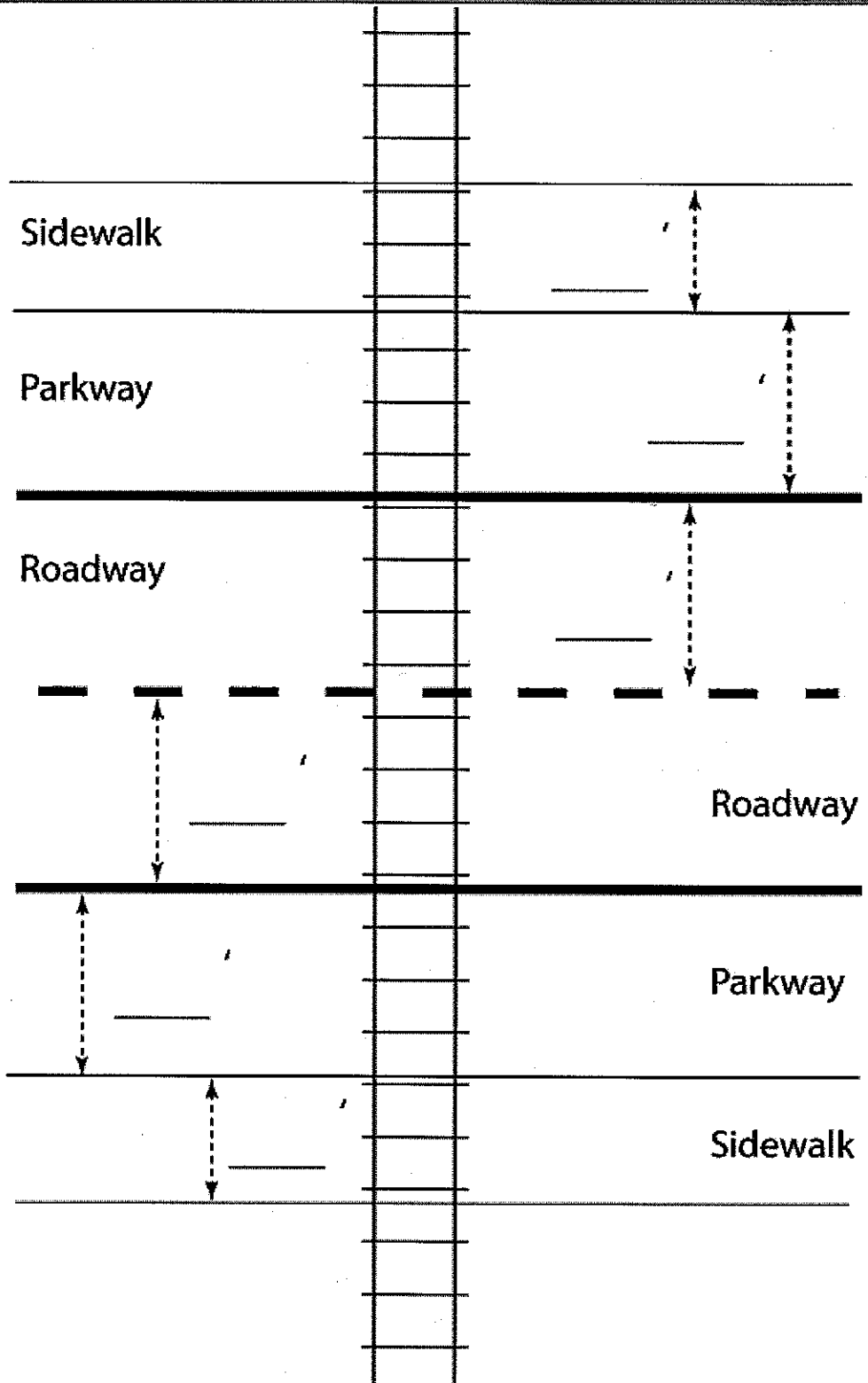
Environmental:

Other:

028-13
JNR

Diagnostic Team Recommendations	
	Quadrants Needed
☒ Install/upgrade active devices	
☐ Automatic Flashing Lights (AFLS)	
AFLS / C	
☒ AFLS / Gates	1 @ Current Locations
☒ AFLS / Gates / Cants	1 @ CURRENT LOCATIONS
☒ Bells / number	2
☐ Upgrade circuitry / type	
☒ Sidelights	@ 2 BOTH QUADS
☐ Guardrail Needed	
☐ Install/Replace curb	
☐ Bungalow placement & offset from rail & highway	
☐ Other (define)	
Comments:	
☒ Install/upgrade traffic signal preemption	
☐ No improvements needed	
☐ Other (define)	
Acknowledgement of Recommendations (each entity represented at the diagnostic must have at least one signature acknowledgement): 	

Field Dimensions



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

Measurements by *[Signature]*

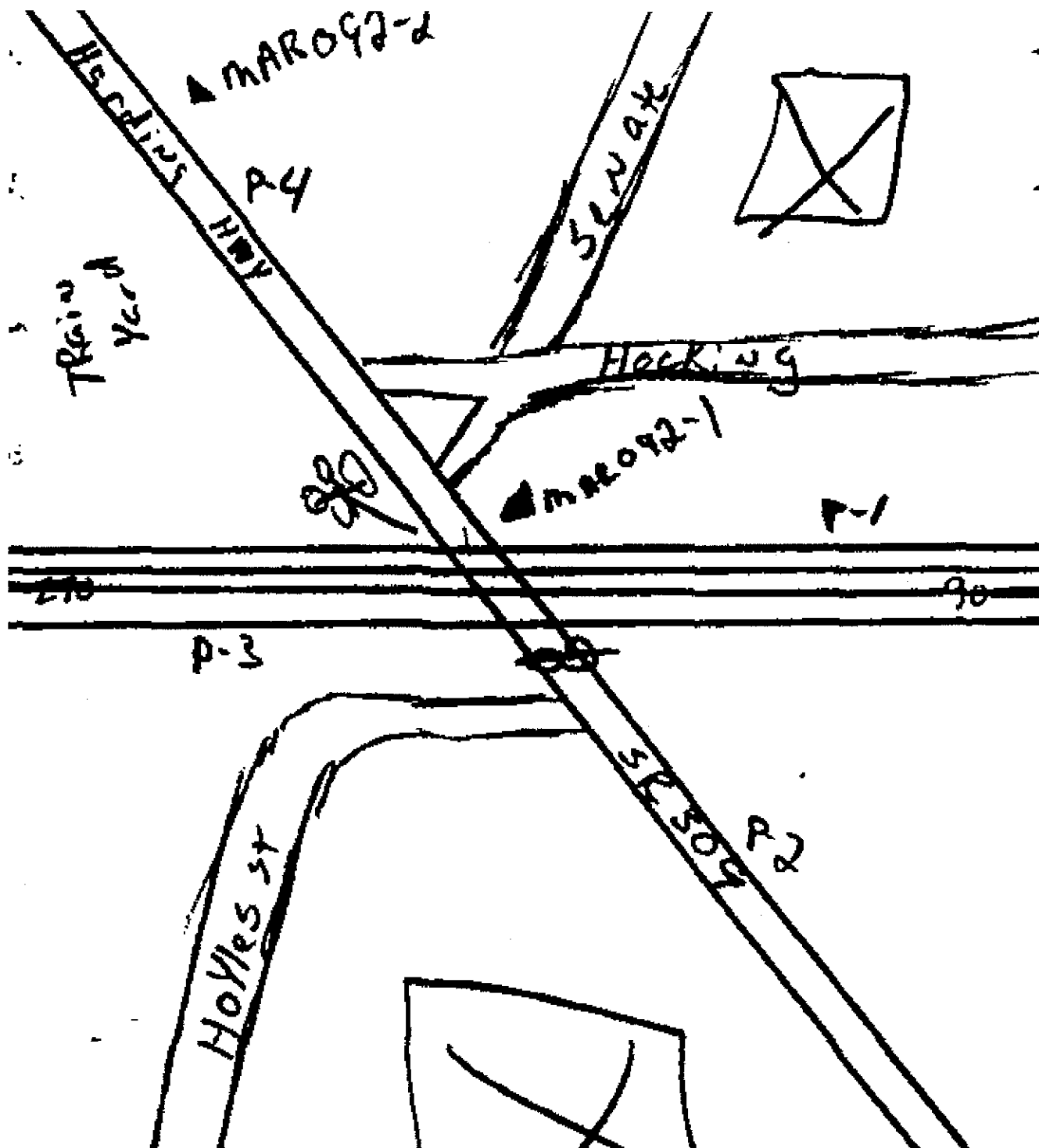


TABLE 1

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)

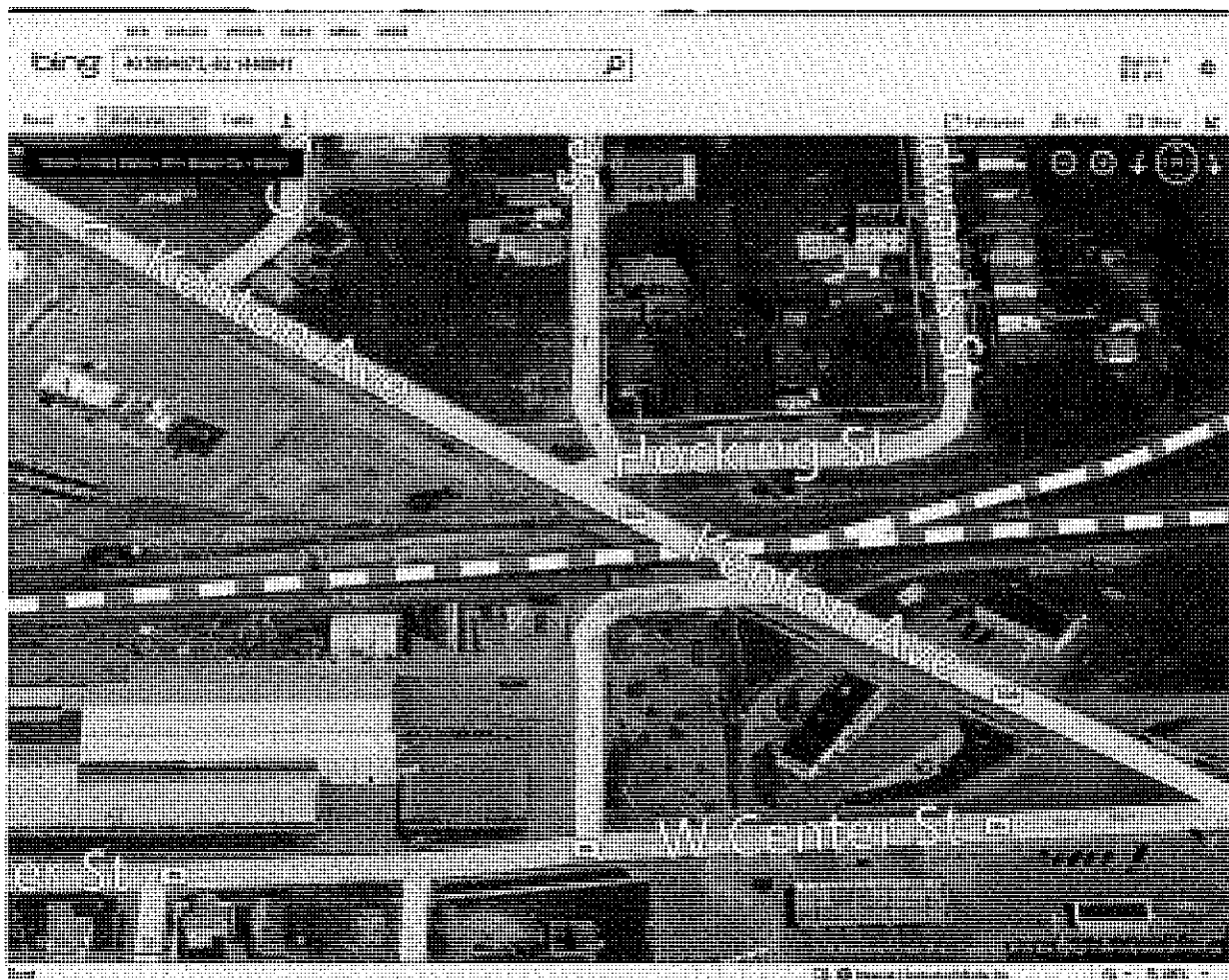
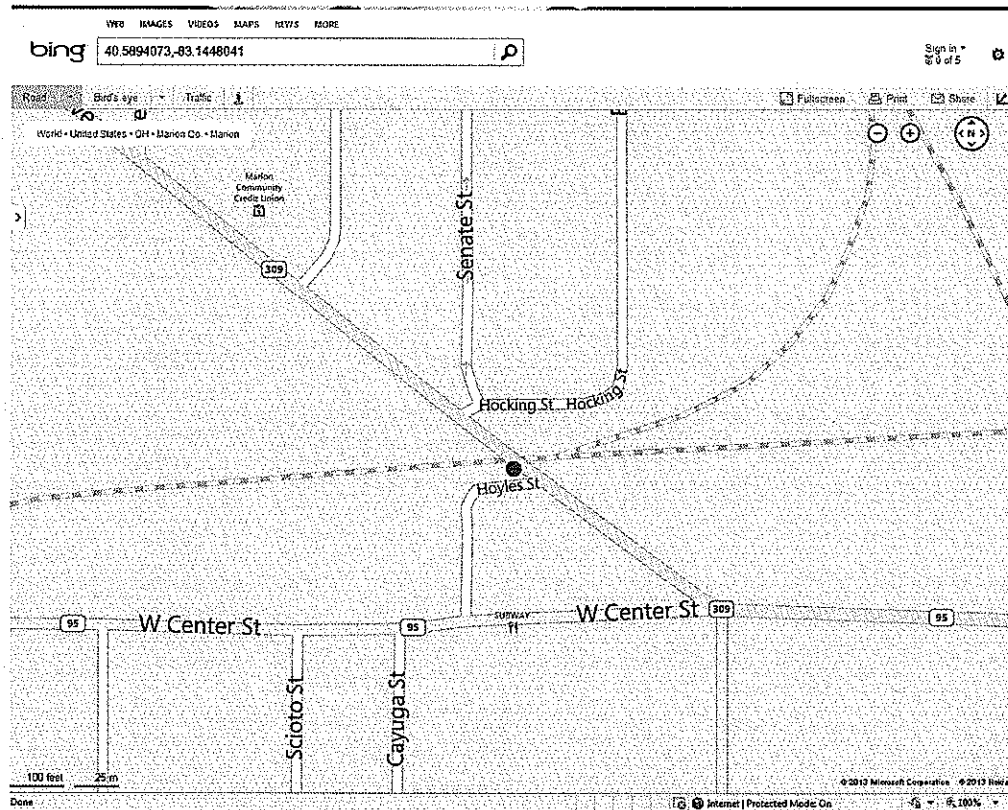
Notes:

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.

MAR Kenton Ave SR 309 261540P





Diagnostic Review Team Survey

Reason for Survey:

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

Galion Corridor

Date: 8/29/2013

Location Data

Street or Road Name: Center St			
Route/Road Number (i.e. Twp., Co., SR or US) SR 95		US DOT No.: 518415T	
County: MAR	Township:	City: (In or Near) Marion	
Railroad Name: CSX Transportation	Railroad Division: Great Lakes	Branch/Line Name: Indianapolis Line	
Nearest RR Timetable Station: Marion		RR Milepost: 101.94	

On-Site Review Team

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

1. Joe Berhardt, ORDC, 614-644-0291
2. Amanda DeGarcia, CSX, 819 426 6924
3. Gary M... P... 614-752-9107
4. Tony... City of Marion 740-387-2240
- 5.
- 6.
- 7.
- 8.
- 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	2
Crossbucks	☒ Yes	☐ No	
Number of Tracks Signs	☒ Yes	☒ No	NONE
Inventory Tags	☒ Yes	☐ No	EMERGENCY
Interconnected Highway Traffic Signal	☐ Yes	☒ No	
Mast-Mounted Flashing Lights	☒ Yes	☐ No	2
Cantilever Flashing Lights	☐ Yes	☒ No	Number: Length:
Side Lights	☒ Yes	☐ No	
Automatic Gates	☒ Yes	☐ No	Number: 1 Length:
Bells	☒ Yes	☐ No	Number: 1
Sidewalk Gate Arms	☐ Yes	☒ No	
'No Turn' Signs	☐ Yes	☒ No	
Illumination	☒ Yes	☐ No	2
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	None	
Hazard Ranking	352	Date Run: 7/30/2013

Railroad Data		
Railroad Characteristics	Initial Information (from database)	Revised
Total trains per day	25	
< 1 per day		
Day thru trains	11	
Night thru trains	13	
Daytime switching movements	1	
Nighttime switching movements	0	
Total number of tracks	3	
Number of main tracks	2	
Number of other tracks	1	
Maximum train speed	30	
Typical train speed	25	
Amtrak		

If non-gated crossing, is clearing sight distance adequate in all quadrants? (See Table I) ☐ Yes ☐ No

If multiple tracks, can two trains occupy crossing at the same time? ☒ Yes ☐ No

Can one train block the motorists' view of another train at crossing? ☒ Yes (Explain below) ☐ No

Can one or more tracks be eliminated through the crossing? ☐ Yes ☒ No

Are 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:		City of Marion
Roadway Characteristics	Initial Information (from database)	Revised
Average daily traffic	5480 (2012)	
Highway paved	☒ Yes ☐ No	☐ Yes ☐ No
Roadway Surface:	☒ Blacktop ☐ Gravel ☐ Concrete ☐ Other _____	
Roadway width:	20 ft.	
Number of highway lanes	2	
Urban or Rural	Urban	
Vehicle Speed: MPH	35	
School Bus Operation: No ☐ X Yes ☒ Amount ☐ 1		
Hazardous Materials Trucks: ☐ No ☒ Yes 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 <i>Southside only</i>	
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 ☒ Industrial ☐ Residential	☐ Institutional ☐ Commercial Location of nearby schools: _____
Utility Information	
Is commercial power available? ☐ No ☒ Yes Utility Provider (Company Name) <u>First Energy</u> Phone Number _____ Nearest Available Power Source _____	
What other utilities are present? (add locations to sketch) ☒ 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:

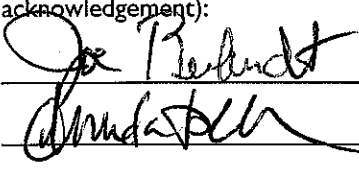
Roadway and/or Sidewalks:

Southside Only

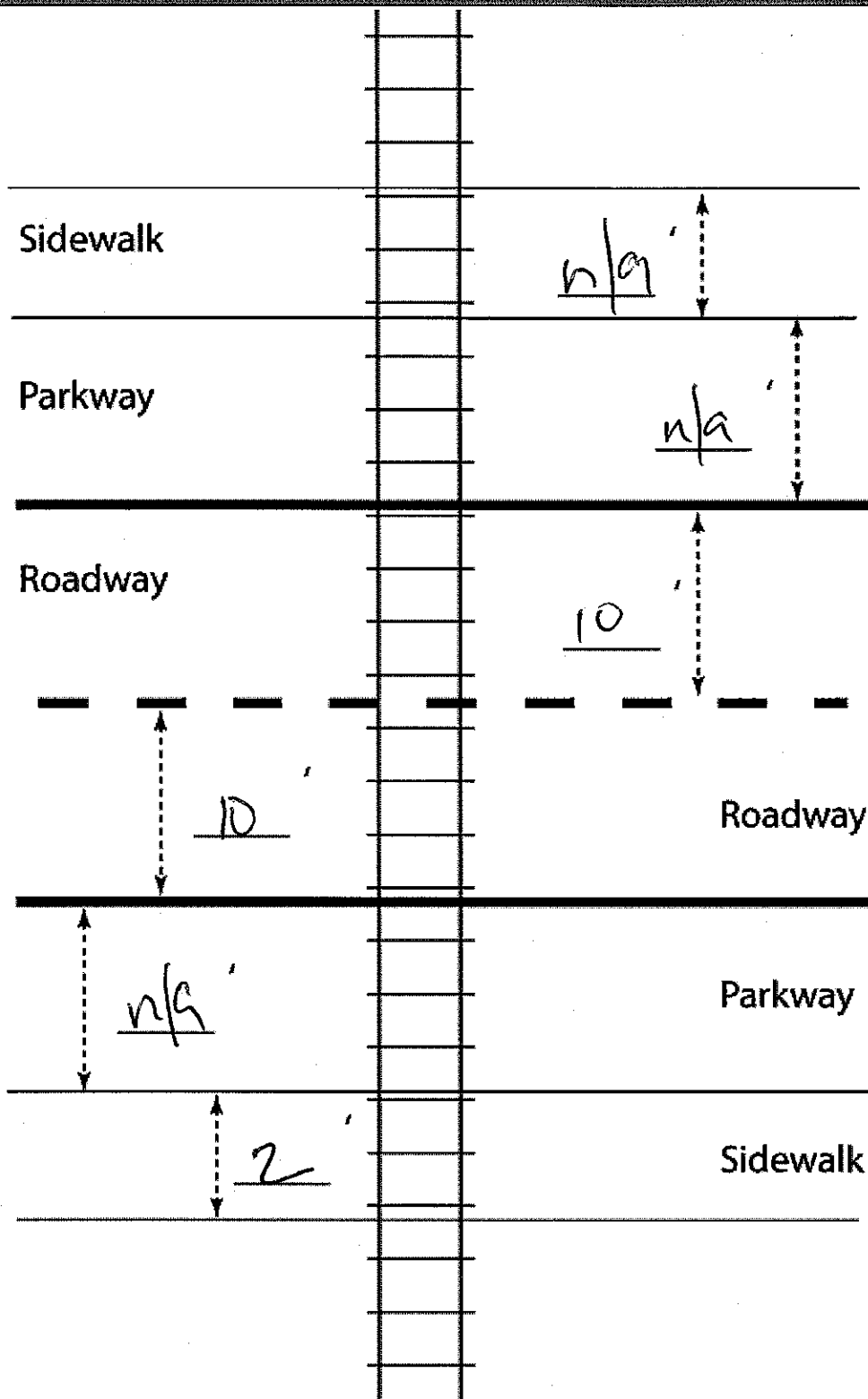
Circuitry (e.g. reaches out to other crossings, specific needs, etc.):

Environmental:

Other:

Diagnostic Team Recommendations	
	Quadrants Needed
☒ Install/upgrade active devices	
☐ Automatic Flashing Lights (AFLS)	
☐ AFLS / Cants	
☒ AFLS / Gates	SW
☒ AFLS / Gates / Cants	NE
☒ Bells / number	2
☐ Upgrade circuitry / type	
☒ Sidelights	ON CANT NE
☐ Guardrail Needed	
☐ Install/Replace curb	
☐ Bungalow placement & offset from rail & highway	
☐ Other (define)	
Comments:	
☐ Install/upgrade traffic signal preemption	
☐ No improvements needed	
☐ Other (define)	
Acknowledgement of Recommendations (each entity represented at the diagnostic must have at least one signature acknowledgement):    	

Field Dimensions



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

Measurements by: QJL

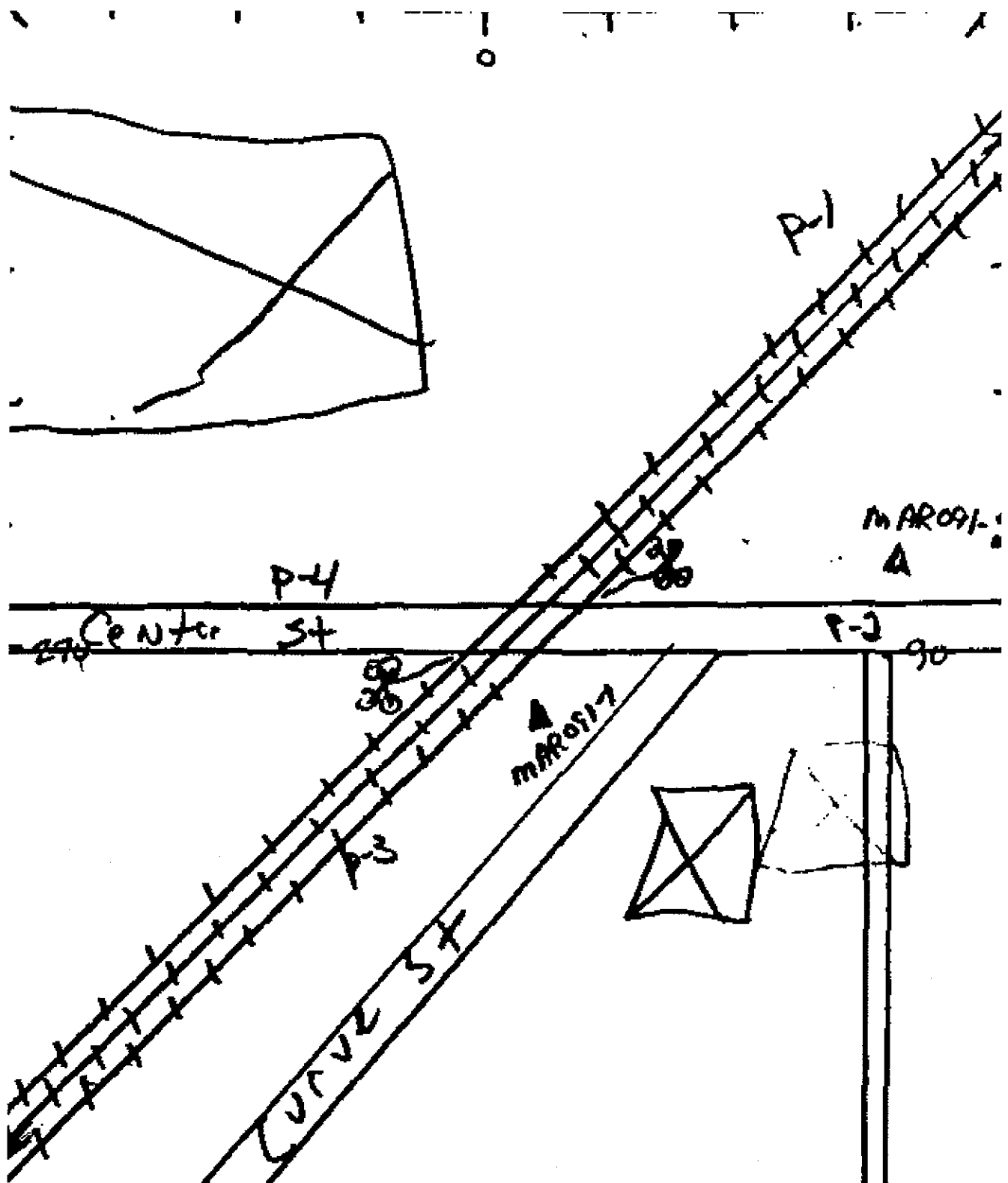


TABLE 1

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)

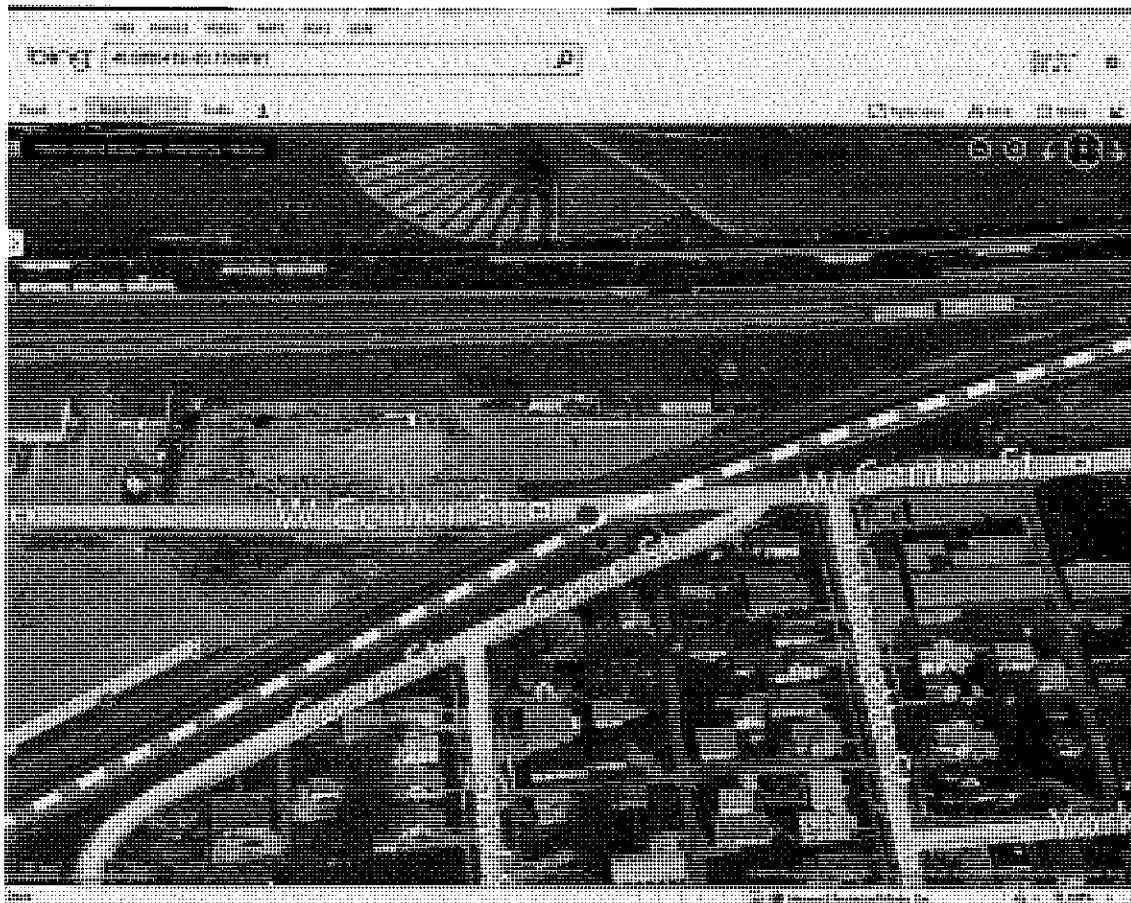
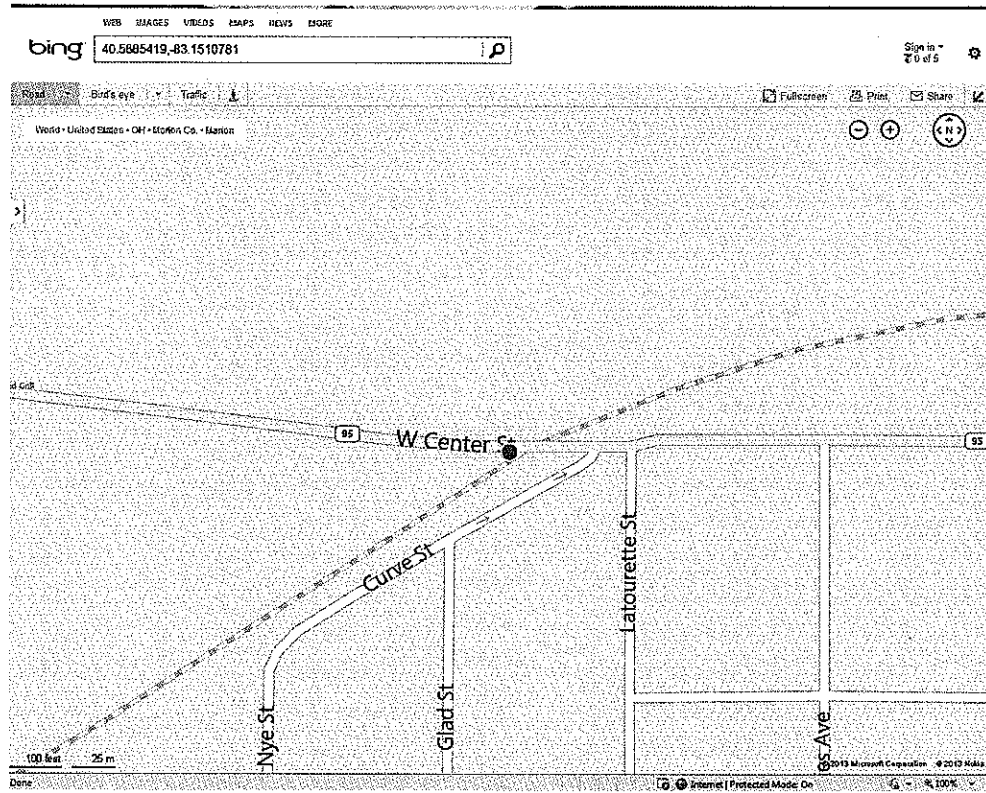
Notes:

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.

MAR Center St SR 95 518415T



This foregoing document was electronically filed with the Public Utilities

Commission of Ohio Docketing Information System on

12/13/2017 9:15:53 AM

in

Case No(s). 17-2491-RR-FED

Summary: Application In the Matter of a Request for Upgrades to the Active Warning Devices at Center Street/SR 95 (DOT#518-415T) and Kenton Avenue/SR 309 (DOT#261-540P) in Marion County, Ohio. electronically filed by Mrs. Jill A Henry on behalf of PUCO/Rail Division