

Memo

To: Docketing Division
From: Jill Henry, Rail Specialist, Rail Division
Cc: PUCO Legal Department
Date: 11/28/17

Re: PUCO Case No. 17-2414-RR-FED- In the Matter of a Request for Upgrades to the Active Warning Devices at CSX Transportation Inc. Grade Crossing, DOT# 228-816S, on US 6 in Wood County, Ohio.

On September 29, 2016, the Ohio Rail Development Commission (ORDC) authorized funding for CSX Transportation, Inc. (CSX) to install cantilevers and LED flashing lights at the US 6, DOT#228-816S, grade crossing in Wood County, Ohio. The crossing was surveyed, on June 15, 2016, and was found to warrant the upgrades. The electric utility provider for this crossing is the Hancock Wood Electric Cooperative.

The project will be paid for with federal funds and is actual cost. The plans and estimates for the project in the amount of \$463,620.00 have been approved. Construction may commence at once. **Staff requests a Finding & Order with completion of the project in nine 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
CSX Public Projects
500 Meijer Drive
Suite 305
Florence, KY 41042

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

Ohio Department of Transportation
District #2
Aaron Behrman
District Railroad Coordinator
317 East Poe Road
Bowling Green, Ohio 43402-1330

Hancock Wood Electric Cooperative
1399 Business Park Drive South
P.O. Box 190
North Baltimore, Ohio 45872-0190

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

TO: Randall Schumacher, Rail Division Chief, PUCO

FROM: Cathy Stout, Manager, Safety Section, ORDC

BY: Don Damron, Project Manager, ORDC

SUBJECT: Wood County, US 6-24.19 / CSX Transportation
DOT# 228816S
PID# 103872

DATE: October 30, 2017

The Ohio Rail Development Commission (ORDC) established a Diagnostic Review Team Survey at the subject highway/railroad crossing location on 6/15/2016. The Public Utilities Commission of Ohio (PUCO) attended the Diagnostic Survey. The Diagnostic Review Team recommended that the existing automatic warning devices be upgraded to include cantilevers and LED lights. Copies of the Diagnostic Review Team Survey form and the railroad plan and estimate are attached.

The PE has already been provided by the railroad. ORDC approved 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.

Attachments:

Diagnostic Review Team Survey dated 6/15/2016
CSX Force Account Estimate dated 4/26/2016

cc: Jill Henry, Rail Specialist, PUCO
ORDC Project Manager (file)



OHIO RAIL DEVELOPMENT COMMISSION

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

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

October 30, 2017

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

RE: Grade Crossing Warning Device Improvement – Construction Authorization
Wood County, US 6-24.19
DOT# 228816S
PID# 103872
CSX ACCT. CODE: OH1144

Dear Ms. DeCesare:

The Force Account Estimate dated 4/26/2017 for the referenced project has been reviewed and is acceptable. CSX Transportation may proceed with the construction of the proposed grade crossing warning system in accordance with the abbreviated plan. This authorization is made with the stipulation and understanding that the approved estimate may contain entries for items or activities that may be cited and found to be ineligible for federal participation during the project audit. Reimbursement of eligible actual cost is limited to \$463,620.00. Additional costs must be approved in writing by the Ohio Rail Development Commission (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 Transportation accepting the following instructions:

1. CSX's project foreman will furnish written notification five (5) working days prior to the date work will start at the project site to Don Damron, ORDC, Mail Stop #3140, 1980 West Broad Street, 2nd Floor, Columbus Ohio 43223, or email don.damron@dot.state.oh.us, or Fax 614-728-4520, (cell phone: 614-917-8466; desk phone: 614-466-2509), and to the Public Utilities Commission of Ohio at jill.henry@puc.ohio.gov (phone 614-466-0435). The CSX 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.



www.rail.ohio.gov

phone: 614.644.0306

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3. The CSX project foremen will notify Don Damron at 614-917-8466 (cell phone) or don.damron@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.
4. The CSX project foreman shall follow the typical application of maintenance of traffic for construction activity as defined in the Ohio Manual of Uniform Traffic Control Devices (OMUTCD) including: Typical Application 1, Work Beyond the Shoulder; Typical Application 10, Lane Closure on a Two-Lane Road using Flaggers; and Typical Application 13, Temporary Road Closure. These typical applications are described in Part 6H, Temporary Traffic Control in the OMUTCD. The link to the OMUTCD is: http://www.dot.state.oh.us/Divisions/Engineering/Roadway/DesignStandards/traffic/OhioMUTCD/Documents/2012_Part06_011312_bookmarked_013112_corrected%20page%20nos_bookmarks.pdf
5. Road closure is not anticipated, however, if closing the road should become necessary then the closure will need to be planned well in advance and the CSX project foreman will need to obtain a road detour permit from ODOT District 2 at least two weeks prior to closing the road. If a road closure permit is required then the CSX project foreman will notify ODOT, District 2, Michele A. Pennell at 614-373-4301 at michele.pennell@dot.ohio.gov and shall also notify Don Damron at 614-917-8466 or don.damron@dot.ohio.gov.
6. CSX will furnish two (2) copies of each partial bill to ORDC. Please find the enclosed ODOT Purchase Order to reference when billing.
7. 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.

Thank you for your assistance with these matters.

Sincerely,



Donald J. Damron
Project Manager

C: Randall Schumacher, Rail Division Chief, PUCO
Jill Henry, Rail Specialist, PUCO
ORDC (file)

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

Page 1

ACCT. CODE : 709 - OH1144

ESTIMATE SUBJECT TO REVISION AFTER: 10/23/2017
CITY: Bradner **COUNTY:** Wood
DESCRIPTION: US 6 - 2419 - Installation of CFLS&G, with CWT.

DOT NO.: 228816S
STATE: OH

DIVISION: Louisville **SUB-DIV:** Pemberville **MILE POST:** CD - 100.98
AGENCY PROJECT NUMBER: PID 103872

PRELIMINARY ENGINEERING:

212 Contracted & Administrative Engineering Services	\$ 6,000
Subtotal	\$ 6,000

CONSTRUCTION ENGINEERING/INSPECTION:

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

FLAGGING SERVICE: (Contract Labor)

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

<u>SIGNAL & COMMUNICATIONS WORK:</u>	(Details Attached)	\$ 456,120
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<u>TRACK WORK:</u>	(Details Attached)	\$ -
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<u>PROJECT SUBTOTAL</u>	\$ 463,620
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900 <u>CONTINGENCIES:</u>	\$ -
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GRAND TOTAL *****	\$ 463,620
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DIVISION OF COST:

Agency	<u>100.00%</u>	\$ 463,620
Railroad		\$ -
TOTAL *****		\$ 463,620

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: 4/26/2017	REVISED:	DATE: 4/26/2017

Estimate No. 129380
CSX Transportation

US 6 - Install 12" LED upgrade and CFLS(cantilevered flashing light signals) for US 6-24.19

Bradner, OH

DOT: 228816S

OP: OH1144

CSX Project: OH2016044

Summary

Material	\$ 141,986
Sales Tax	\$ 0
Labor:	
Construction Labor (247 man-days).....	\$ 93,860
Shop Labor (7 man-days).....	\$ 2,660
Subsistence (247 man-days).....	\$ 37,050
Railroad Engineering, Preliminary	\$ 4,133
Railroad Engineering, Construction	\$ 14,079
Additives to Construction Labor	\$ 111,562
Additives to Shop Labor	\$ 3,162
Additives to Track Labor	\$ 0
Additives to Engineering	\$ 0
Equipment Expenses (0 work days).....	\$ 0
Waste Management (50 work days).....	\$ 600
Contract Engineering	\$ 23,309
Freight	\$ 9,719
Poleline Removal	\$ 0
AC Power Service	\$ 2,500
Salvage	\$ 0
VAC-TRUCK	\$ 8,000
Cantliever Foundation Shoring Boxes	\$ 3,500
TOTAL ESTIMATE COST	\$ 456,120

Date: 04/26/2017

Estimated By: Olonda McIver

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

Shop Material List for CSX Project: OH2016044 (Effective: 04/26/2017)
Installation of FLS&Gs with 1 bells, new 6x6 house with remote monitoring and GCP 4000C
BRADNER, OH - CD 100.98

Catalog Num	Cond	Unit Price	Qty	Cost	Description
020-0017120	1	11.52	6	69.12	BLOCK TERMINAL 12 POST SINGLE STRIP AAR 14.1.6 WITH 1 AAR
020-0017125	1	3.26	6	19.56	BLOCK TERMINAL 2 POST AAR 14.1.8 WITH 1 AAR 14.1.11
020-0018234	1	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	2	213.40	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 D 20 AMP 10-19.9 VDC ROTARY SW
020-0055602	1	11.39	2	22.78	RELAY POTTER BRUMFIELD KHAU17D12-12V 160 OHMS
020-0056514	1	6.27	2	12.54	SOCKET RELAY POTTER & BRUMFIELD 27E894 NEWARK
020-0064060	1	16.12	1	16.12	PLATE RELAY MOUNTING FOR 2 EACH TYPE KHAU OR OCTAL RELAY
020-0167501	1	38.51	40	1540.40	ARRESTER HYBRID LOW VOLTAGE,2, 0-30V DC OR 0-24V
020-0660077	1	603.13	1	603.13	ARRESTER GE 9L10KAC213 FOR 240 VOLT SINGLE PHASE 3 WIRE
020-0750090	1	0.11	3	0.33	NUT INSULATED USE ON AAR BINDING POST TERMINAL FOR
020-0770060	1	15.46	12	185.52	ARRESTER US&S N451552-0201 TRACK SERIES RED LABEL USGA
020-0770105	1	22.40	4	89.60	ARRESTER HARMON 202217-000 AGE-1 TRACK AIR GAP EQUALIZER
020-1000354	1	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 TUBE HOLDER CIRCUIT PRINT PLAN 24" SCHD 20 4" PVC
020-2503073	1	1091.71	1	1091.71	MODULE SAFETRAN VHF COMMUNICATOR (A80276-3) USED
020-2503079	1	492.48	2	984.96	MODULE SAFETRAN GROUND FAULT DETECTOR (A80297-2) USED WITH
020-2503090	1	1081.54	1	1081.54	CONVERTER PROTOCOL/MEDIA WAYSIDE ACCESS GATEWAY (WAG)
020-2503200	1	909.80	1	909.80	KIT SAFETRAN GCP-4000 ILOD PKG. FOR USE WITH SEAR-III
020-2503220	1	14073.70	1	14073.70	PREDICTOR SAFETRAN GCP-4000 2-TRACK DUAL CASE W/RECORDER
020-3430110	1	363.23	1	363.23	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
020-3652615	1	61.32	1	61.32	RESISTOR ADJUSTABLE 0.340 TO 3.00 OHMS 2.24A 15W SAFETRAN

Shop Material List for CSX Project: OH2016044 (Effective: 04/26/2017)
Installation of FLS&Gs with 1 bells, new 6x6 house with remote monitoring and GCP 4000C
BRADNER, OH - CD 100.98

Catalog Num	Cond	Unit Price	Qty	Cost	Description
020-4200340	1	1.74	12	20.88	LINK TEST ASSEMBLY 1" CENTERS YELLOW INSULATOR ON OFFSET
020-4200350	1	2.06	11	22.66	LINK TEST ASSEMBLY 2-3/8" CENTERS YELLOW INSULATOR ON
020-4201045	1	0.15	400	60.00	NUT HEX CLAMP (FLAT NUT) AAR 14.1.11-7 14-24 NS-2 THD FLAT
020-8000067	1	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	DEVICE, VOLTAGE MONITOR, BENDER P/N VME420-D1
Total Cost: \$				30,674.12	

Field Material List for CSX Project: OH2016044 (Effective: 04/26/2017)
Installation of FLS&Gs with 1 bells, new 6x6 house with remote monitoring and GCP 4000C
BRADNER, OH - CD 100.98

Catalog Num	Cond	Unit Price	Qty	Cost	Description
N/A		20069.00	2	40138.00	COMBO: CANTI 16' GATE 20' QUOTE#QSO9630
014-8006169	1	10.62	2	21.24	SIGN PERMANENT EMERGENCY NOTIFICATION (VEHICLE
020-0000530	1	306.88	2	613.76	BOX JUNCTION 19 WAY ASSEMBLY SERRMI 40237 15"W X 24"H X
020-0010442	1	11.63	4	46.52	ROD GROUND 5/8" X 8' SECTIONAL COPPERWELD JOSLYN
020-0010443	1	4.29	2	8.58	COUPLING BRONZE FOR 5/8" SECTIONAL COPPERWELD GROUND
020-0010447	1	9.83	3	29.49	BOX GROUND ROD CONNECTION ENCLOSURE COMPLETE WITH 7"
020-0013686	1	68.90	8	551.20	BOOTLEG KIT CSX RAIL CONN W/15 FT 3/16 IN BDSTRAND 6/64
020-0013908	1	6.36	500	3180.00	CABLE UG COMPOSITE 19 CONDUCTOR INCLUDES 13
020-0013910	1	3.68	1000	3680.00	CABLE UG 19 COND NO 14 AWG SOLID C CSX SPEC SS796 SHOW
020-0014335	1	7.76	1	7.76	CONNECTOR ONE SHOT FOR TYPE GT 5/8" GROUND ROD 2 WAY #6
020-0014605	1	2990.00	2	5980.00	FOUNDATION CONCRETE GCWD 5' - 10" SECT PRECAST ASSY BLT
020-0014645	1	685.00	10	6850.00	WALL RETAINING STEEL 4' HIGH X 5' LONG ASSEMBLIES WITH
020-0014649	1	1210.00	5	6050.00	WALL RETAINING STEEL 6' HIGH X 5' LONG ASSEMBLIES WITH
020-0017120	1	11.52	4	46.08	BLOCK TERMINAL 12 POST SINGLE STRIP AAR 14.1.6 WITH 1 AAR
020-0017490	1	1.85	100	185.00	WIRE GUY STRANDED 3/8" CC STEEL CSX SPEC S-1541 MIN
020-0025145	1	371.02	4	1484.08	SHUNT ENCLOSURE WAYSIDE MOUNT ASSEMBLY COMPLETE WITH LOCK
020-0053220	1	2.29	1200	2748.00	CABLE POWER UG 3 COND NO 6 AWG - SHOW LENGTH ON EACH
020-0054075	1	1001.28	2	2002.56	GATE SAVER COMPLETE WITH SHEAR PIN AND RETURN SPRING
020-0055424	1	76.17	4	304.68	BRACKET SIGN 10" MAST W/SPLIT BOLTS FOR ALL SIGNS REQUIRING
020-0056131	1	32.44	2	64.88	SIGN MULTIPLE TRACK "2 TRACKS" NO HARDWARE CSX DWG
020-0056424	1	81.95	8	655.60	BRACKET SIGN 10" MAST W/SPLIT BOLTS FOR ALL SIGNS REQUIRING
020-0057275	1	1.02	600	612.00	WIRE UG TRACK TWISTED PAIR NO. 6 AWG SOLID CONDUCTOR
020-0063963	1	16.58	2	33.16	MARKER GUY CHANCE C-96FRPM-YEL 8 LONG 1-1/2"
020-0600190	1	46.26	4	185.04	CROSSARM 10 PIN WOOD TREATED W/PENTACHLOROPHENOL OLD CSX
020-1040322	1	127.92	29	3709.68	BATTERY SAFT SPL165, 165 AH POCKET PLATE NICKEL CADMIUM

Field Material List for CSX Project: OH2016044 (Effective: 04/26/2017)
Installation of FLS&Gs with 1 bells, new 6x6 house with remote monitoring and GCP 4000C
BRADNER, OH - CD 100.98

Catalog Num	Cond	Unit Price	Qty	Cost	Description
020-1040540	1	31.36	2	62.72	TRAY BATTERY FIBER CO 82687-1-P 12" WIDTH 24" LONG
020-1040550	1	45.92	3	137.76	TRAY BATTERY FIBER CO 82687-3-P 12" WIDTH 38"
020-1150750	1	1.00	400	400.00	BOND STRAND 3/16" DIA 7 STRANDS OF 19 STR EACH 6 WITH
020-1304014	1	5.40	16	86.40	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 FOR BURCO CONTAINERS COMPLETE WITH ONE
020-1360104	1	1312.25	1	1312.25	LAYOUT AC METER SERVICE WITH 30' POLE CSX DWG SS351 SH 2
020-2500620	1	319.85	4	1279.40	SHUNT SAFETRAN 62775-211 NARROW BAND 211HZ
020-2900180	1	2.97	60	178.20	INSULATOR PORCELAIN SPOOL SILEN BROWN GLAZE ANSI CLASS
020-3260200	1	52.86	2	105.72	ANCHOR STEELWING HUBBELL 7528 5-1/2 LONG 8" WING BLD 60
020-3260760	1	1.68	60	100.80	BOLT CROSSARM 1/2" X 6" SQUARE HEAD ROLLED THREADS
020-3260914	1	6.10	2	12.20	BOLT GUY WIRE THIMBLEYE 45 DEGREE ANGLE 5/8" X 14" WITH
020-3261850	1	1.14	60	68.40	CONNECTOR SPLIT BOLT 9-14 TO 9 TO TAKE 9 LINE WIRE & 14 TO
020-3262072	1	112.88	3	338.64	GUARD CABLE 3 1/2" OPENING W/STRAPS HUBBARD
020-3262076	1	1.21	20	24.20	STRAP CABLE GUARD HUBBARD 6540 3 1/2" 2 HOLE
020-3262300	1	0.90	60	54.00	SCREW LAG 3/8 X 3" PILOT POINT GALVANIZED CHANCE
020-3262360	1	1.26	60	75.60	SCREW LAG 1/2" X 4-1/2" FETTER DRIVE LAG HOT DIP GALV
020-3262600	1	13.09	40	523.60	PIN CROSSARM 1/2" X 9-1/4" HOT DIP GALVANIZE 1/2"
020-3263200	1	10.86	60	651.60	SHACKLE DEADEND COMPLETE W/CLEVIS PIN & COTTER HUBBARD
020-3263437	1	1.81	12	21.72	SLEEVE NICOTAP 10 AWG LINE TO 14 AWG TAP SOLID COPPER OR
020-3263681	1	0.42	30	12.60	STAPLE COPPERCOATED CUT POINT (SLASH) 2" LONG, 1/2" SPREAD,
020-3263720	1	3.82	16	61.12	STEP POLE 5/8 X 10" HOT GALV HUBBARD 7125 JOSLYN J1118
020-3264000	1	8.03	2	16.06	THIMBLEYE ANGLE CHANCE 0100 GALV STEEL 5/8" BOLT FOR DOWN
020-3264190	1	0.54	15	8.10	WASHER 2-1/4" SQUARE 11/16" HOLE GALV 5/8" BOLT JOSLYN
020-3900455	1	5.60	4	22.40	BOLT JUNCTION BOX MOUNTING 5/8" - 11 X 6" HEX HEAD

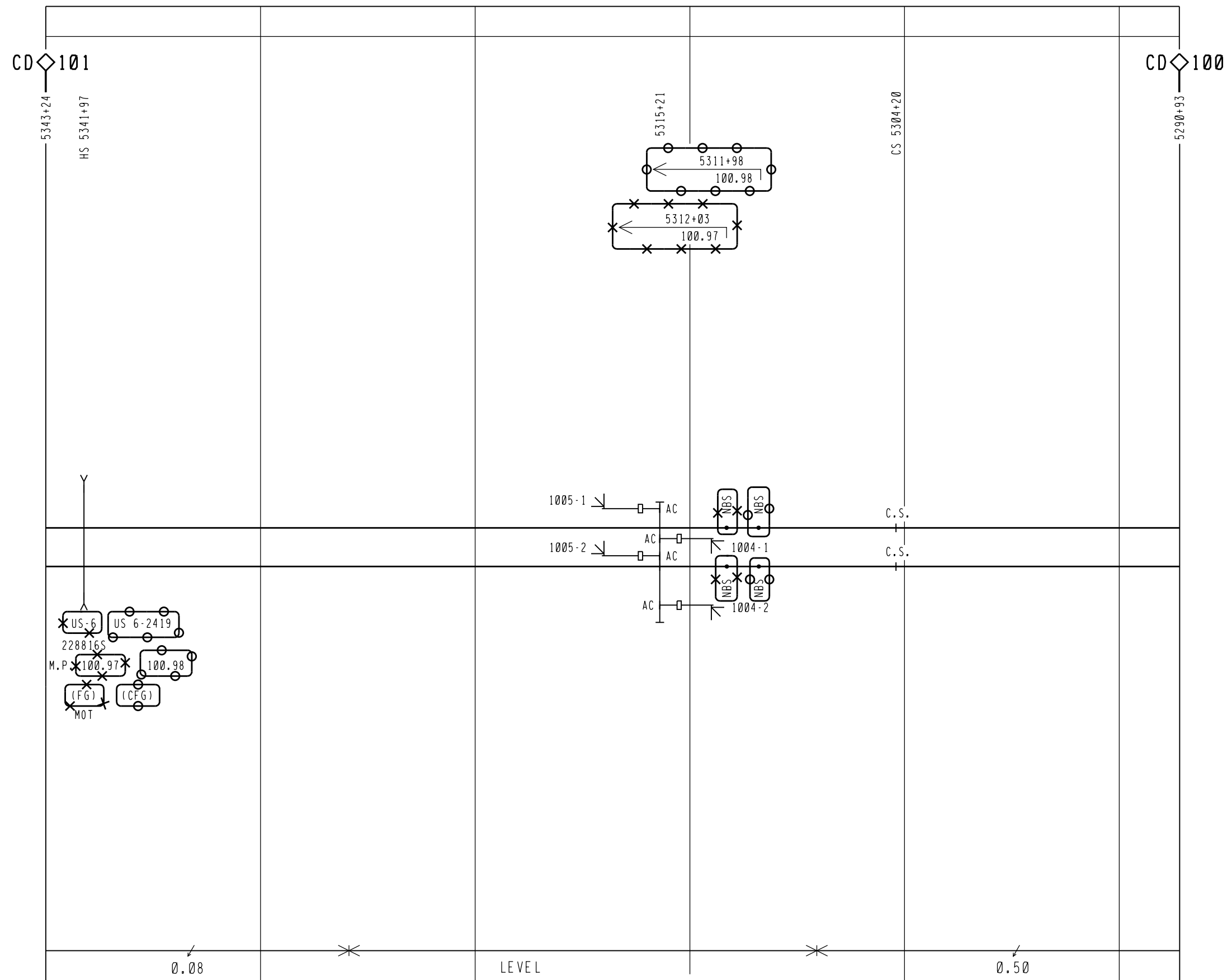
Field Material List for CSX Project: OH2016044 (Effective: 04/26/2017)
Installation of FLS&Gs with 1 bells, new 6x6 house with remote monitoring and GCP 4000C
BRADNER, OH - CD 100.98

Catalog Num	Cond	Unit Price	Qty	Cost	Description
020-3901895	1	100.52	2	201.04	TIP FLEX HWY CROSSING GATE 24 IN LONG ENGINEERING GRADE RED
020-3920200	1	178.76	1	178.76	BELL GCWD ELECTRONIC 4" OR 5" MAST 8 TO 13 VOLTS DC GSI PN
020-3930010	1	3.70	2	7.40	KIT GATE ARM WARNING STICKER KIT INCLUDES 1-EA 5"X3"
020-4101642	1	14610.00	1	14610.00	PLATFORM ASSY 2 POST TRACKSIDE FOR 8' X 8' AND
020-4200100	1	7.45	2	14.90	CONNECTOR BUS 1" CENTERS 1/2" X 36" 18 GAGE PUNCHED 1/4" X
020-4200340	1	1.74	29	50.46	LINK TEST ASSEMBLY 1" CENTERS YELLOW INSULATOR ON OFFSET
020-4200900	1	0.18	6	1.08	CONNECTOR SHEATHING AMP 329860 FOR NO. 14 WIRE
020-4600170	1	0.45	35	15.75	WIRE GROUND AWG #6 SOFT DRAWN BARE SOLID COPPER SHOW LENGTH
020-4802010	1	20.37	4	81.48	STRANDWISE RELIABLE 5102 RANGE .360 TO .405 SHORT BAIL
020-7300030	1	189.28	1	189.28	BRACKET BELL FITS SAFETRAN JUNCTION BOX MOUNT, 5" BENT
020-8000067	1	15.18	2	30.36	LOCK AMERICAN H10SIGRA CSX SIGNAL PADLOCK WITH BLACK
020-9999991	1	100.00	1	100.00	BLOCKING AND BRACING FOR PROJECTS BURCO DIST
022-0000930	1	1.04	12	12.48	BOLT CROSSARM BRACE CARRIAGE 3/8" X 4-1/2", W/SQ SHOULDER
022-0000990	1	4.61	6	27.66	BOLT CROSSARM DOUBLE ARMING 5/8" - 11 N.C. X 18", WITH 4
022-0001830	1	7.53	6	45.18	BRACE CROSSARM 1/4X1-1/4X28 AAR 1-A-20 DWG C-1747 JOSLYN
024-0973202	1	5.11	1	5.11	BOLT CROSSARM 5/8" - 11 N.C. X 20" WITH SQUARE
250-0001836	1	15.21	1	15.21	BREAKER CIRCUIT SQ D QO260
250-0007145	1	4.40	3	13.20	CEMENT PVC PINT BRUSH TOP CARLON CAT NO VC9923
250-0007228	1	7.00	2	14.00	WEATHERHEAD 2" CLAMP ON TYPE SERVICE ENTRANCE CROUSE HINDS
250-0010780	1	11.66	30	349.80	CONDUIT GALV RIGID 4"STL 10 LENGTH W/TAPERED THREADS ON
250-1710040	1	1.61	50	80.50	CONDUIT PVC 4IN SCH 40 HVY HALL RIGID CARLON 49015 10
250-1750080	1	3.72	20	74.40	CONDUIT GALV IRON PIPE 2" X 10'
250-1813130	1	3.37	4	13.48	STRAP PIPE MI T&B 1281 2" 1 HOLE
360-0006100	1	35.07	1	35.07	STOOL STEP WOOD 14"X 20" SIGNAL MAINTAINERS CSXT
360-0800145	1	7.54	1	7.54	BROOM WAREHOUSE CORN HVY DUTY 1-1/8" DIA HANDLE
450-0019212	1	0.40	50	20.00	SCREW SHEETMETAL PAN HD 10 X 1" TYPE A COARSE THREAD

Total Cost: \$ 101,892.66
Estimate ID: 129380

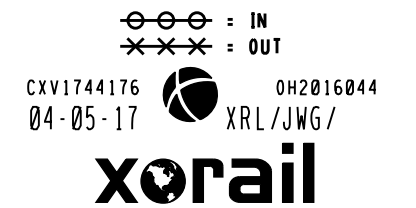
Consumables List for CSX Project: OH2016044 (Effective: 04/26/2017)
Installation of FLS&Gs with 1 bells, new 6x6 house with remote monitoring and GCP 4000C
BRADNER, OH - CD 100.98

Catalog Num	Cond	Unit Price	Qty	Cost Description
N/A		50.00	40	2000.00 FILL MATERIAL, 1 CUBIC YARD
N/A		500.00	1	500.00 RAVEN AIR-LINK
N/A		800.00	2	1600.00 WALKWAY ROCK, 10 CUBIC YARDS
020-0017605	1	0.27	350	94.50 WIRE CASE 10 AWG FLEX CSX SPEC SS796 OKONITE P/N
020-0017607	1	0.65	500	325.00 WIRE CASE TW PR NO 10 AWG FLEX CSX SPEC SS796 TWIST 2
020-0017625	1	0.44	150	66.00 WIRE CASE TWISTED PAIR AWG #14 FLEX TWIST 2 TURNS PER FT
020-0017630	1	0.13	200	26.00 WIRE CASE NO 16 AWG FLEX CSX SPEC SS796 FURN 1000 FT SPOOL
020-0017636	1	0.82	130	106.60 WIRE SIGNAL AWG 6 STRANDED COPPER, T&C BLUE, FOR BATTERY
020-0028610	1	0.23	100	23.00 TERMINAL RING PANDUIT PN12-14HDR-D YELLOW NYLON HVY
020-0053510	1	208.13	1	208.13 KIT 240V AC EMERGENCY GENERATOR CABLE AND
020-1360540	1	71.65	1	71.65 BREAKER MAIN/GENERATOR BACKFEED RETAINING GENERATOR
020-1710055	1	2.00	2000	4000.00 CONDUIT SDR 13.5 4" ORANGE POLYETHYLENE 750 FT REELS W/
020-3254700	1	12.75	4	51.00 PIPE PUSHER MATERIAL BORE-GEL BAROID 00753-0050-BAG
020-3254705	1	54.80	1	54.80 PIPE PUSHER MATERIAL CONDET BAROIID 00140-0005-CAN
020-3254710	1	135.50	1	135.50 PIPE PUSHER MATERIAL EZ MUD BAROID 00177-0005-CAN
020-3261970	1	9.41	2	18.82 DECAL (DO NOT ORDER, CALL SIGNAL SHOP) ASSY 2" BLACK
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 PANDUIT PV10-14RD YELLOW VINYL SIZE
020-4251290	1	0.53	30	15.90 TERMINAL RING PANDUIT PV6-14R-T BLUE VINYL SIZE 6
020-4251295	1	0.53	6	3.18 TERMINAL RING PANDUIT PV6-38R-T BLUE VINYL SIZE 6
020-9999992	1	50.00	1	50.00 HOUSE SIGNAL HANDLING CHARGE BURCO DISTRIBUTION
450-0019212	1	0.40	100	40.00 SCREW 10 X 1" SHT METAL PAN HD TYPE A COARSE THREAD
Total Cost: \$				9,418.93

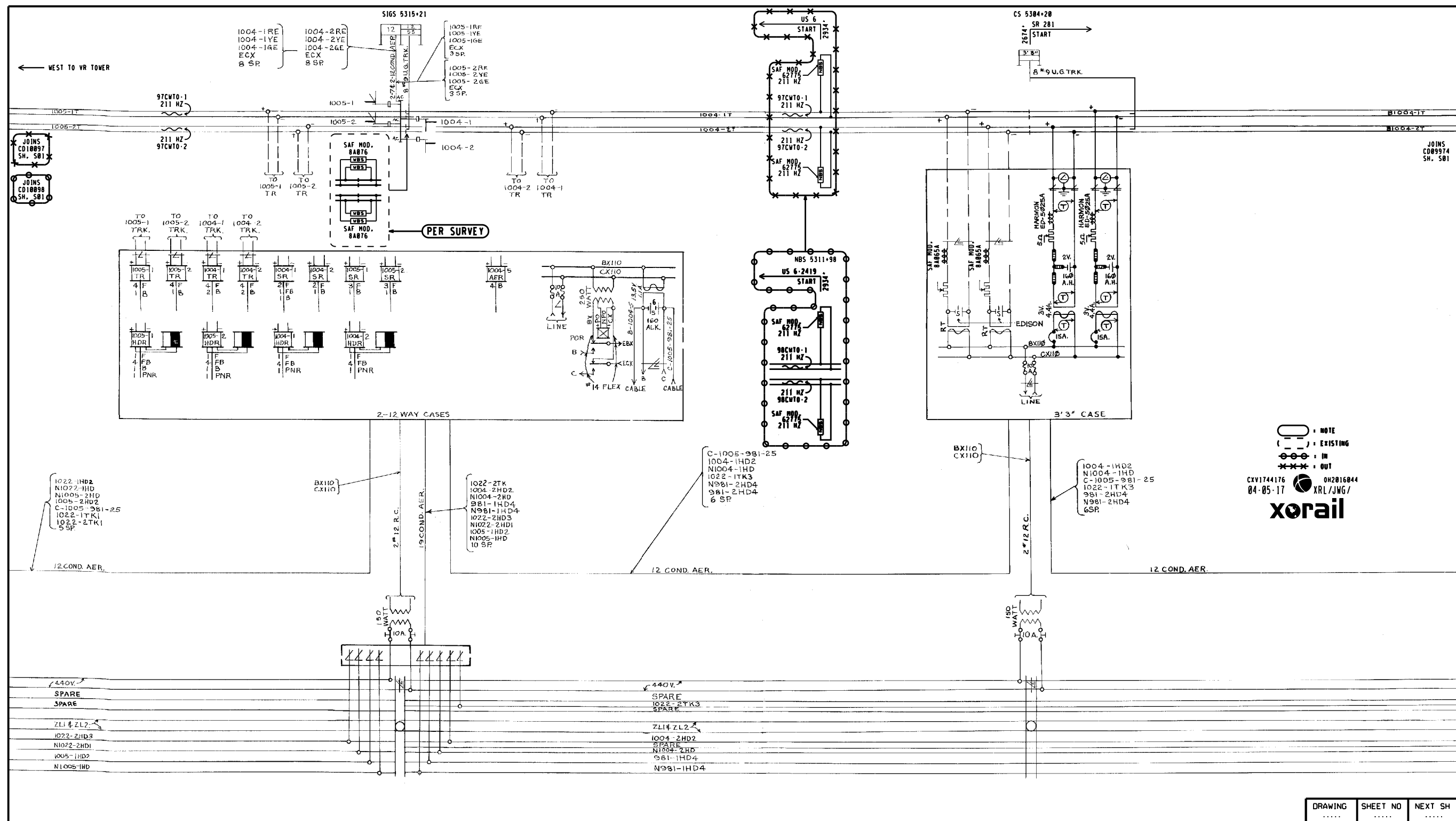


○○○ = IN
 ××× = OUT
 CXV1744176 0H2016044
 04-05-17 XRL/JWG/
xorail

REVISIONS 09-26-12 IRC 0H2012009	TRACK PLAN HORIZONTAL SCALE: 1 INCH = 500 FEET						
	DESIGNED CSX	DIGITIZED RWM	CHECKED CSX	DATE 09-26-12	NEXT FILE CD10100	NEXT SH T01	FILE CD10000
				SHEET T01			

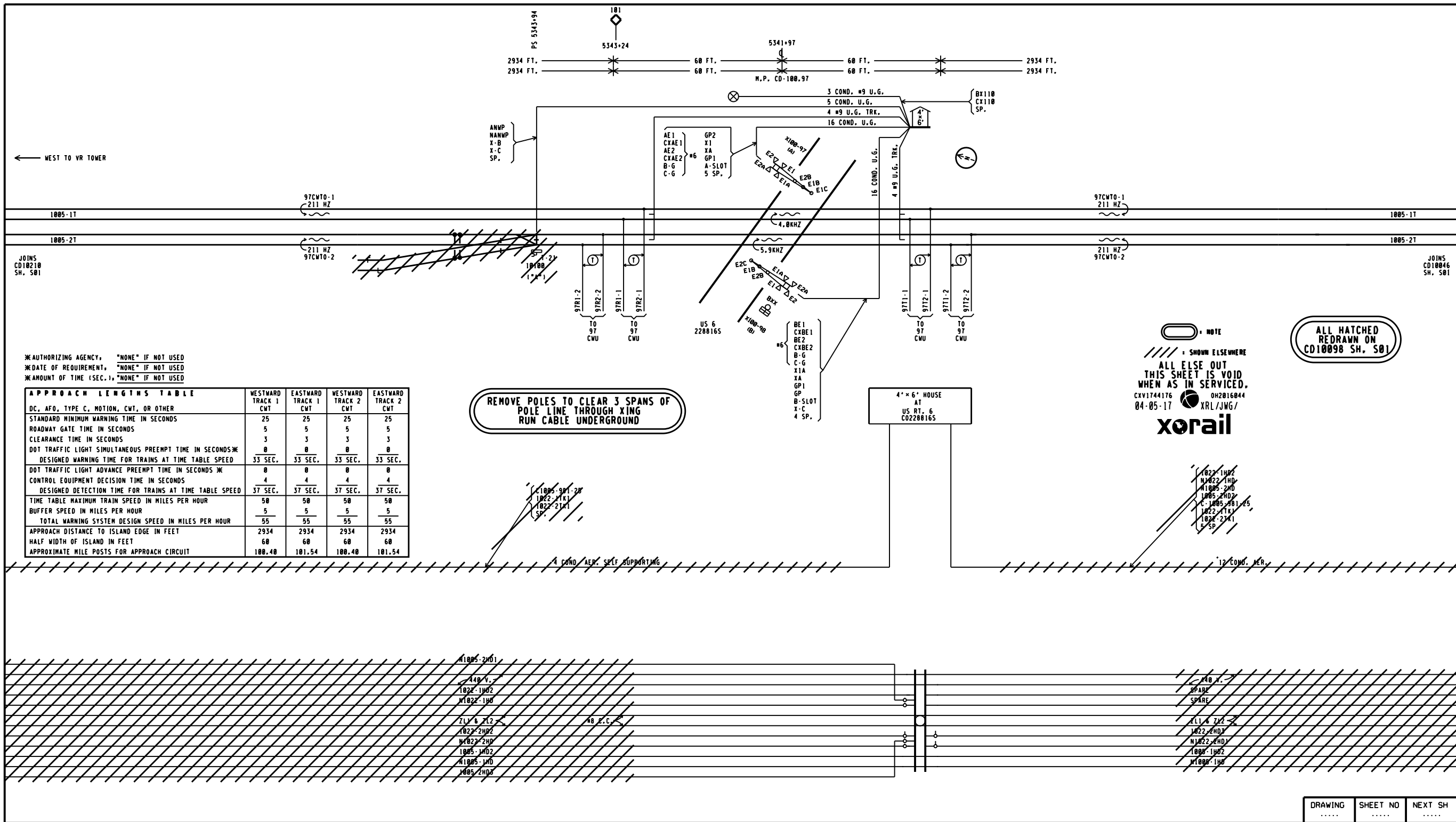


REVISIONS 09-26-12 IRC 01/2012/009											TRACK PLAN HORIZONTAL SCALE, 1 INCH = 500 FEET		 RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS	
	DESIGNED CSX	DIGITIZED RWM	CHECKED CSX	DATE 09-26-12	NEXT FILE CD10200	NEXT SH T01	FILE CD10100	SHEET T01						



REVISIONS			
03-14-96	URS/JBM	01995014	
07-08-96	FCS	01994104	
01-23-02	SWE	012001025	
05-23-05	SAF	012004003A	
CREATE VECTOR 07-01-08		IRS 012007105	
10-12-11	IRS	012011039	

RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
SIGNALS 1004-1/2 & 1005-1/2 CUT SECTION N.P. CD-100.25 TRACK, SIGNAL, CIRCUIT AND POLELINE PLAN BRADNER, OH			
DESIGNED CSX	DIGITIZED IRS/JER	CHECKED IRS/LLB	DATE 07-01-08
NEXT FILE CD10046	NEXT SH C01	FILE CD10046	SHEET S01



* AUTHORIZING AGENCY, "NONE" IF NOT USED
* DATE OF REQUIREMENT, "NONE" IF NOT USED
* AMOUNT OF TIME (SEC.), "NONE" IF NOT USED

APPROACH LENGTHS TABLE				
DC, AFO, TYPE C, MOTION, CWT, OR OTHER	WESTWARD TRACK 1 CWT	EASTWARD TRACK 1 CWT	WESTWARD TRACK 2 CWT	EASTWARD TRACK 2 CWT
STANDARD MINIMUM WARNING TIME IN SECONDS	25	25	25	25
ROADWAY GATE TIME IN SECONDS	5	5	5	5
CLEARANCE TIME IN SECONDS	3	3	3	3
DOT TRAFFIC LIGHT SIMULTANEOUS PREEMPT TIME IN SECONDS*	0	0	0	0
DESIGNED WARNING TIME FOR TRAINS AT TIME TABLE SPEED	33 SEC.	33 SEC.	33 SEC.	33 SEC.
DOT TRAFFIC LIGHT ADVANCE PREEMPT TIME IN SECONDS *	0	0	0	0
CONTROL EQUIPMENT DECISION TIME IN SECONDS	4	4	4	4
DESIGNED DETECTION TIME FOR TRAINS AT TIME TABLE SPEED	37 SEC.	37 SEC.	37 SEC.	37 SEC.
TIME TABLE MAXIMUM TRAIN SPEED IN MILES PER HOUR	50	50	50	50
BUFFER SPEED IN MILES PER HOUR	5	5	5	5
TOTAL WARNING SYSTEM DESIGN SPEED IN MILES PER HOUR	55	55	55	55
APPROACH DISTANCE TO ISLAND EDGE IN FEET	2934	2934	2934	2934
HALF WIDTH OF ISLAND IN FEET	60	60	60	60
APPROXIMATE MILE POSTS FOR APPROACH CIRCUIT	100.40	101.54	100.40	101.54

REVISIONS

02-15-93 HAR OH98004

01-23-02 SWE OH2001025

07-01-08 IRS OH2007105

10-12-11 IRS OH2011039

NOTE

1. 20 WATT BULBS ON GATE ARMS, ALL OTHERS TO BE 25 WATT BULBS.

2. GATE LENGTH (A) XX' (B) XX'

3. APPROXIMATE COMPASS NORTH.

4. TRANSMITTER LEADS FOR MOTION OR PREDICTOR EQUIPMENT SHOULD BE CONNECTED ON THE BUNGALOW OR SHORT LEAD SIDE OF THE CROSSING.

5. ISLAND TRACK LEADS SHOULD BE CONNECTED 50 FEET FROM ROAD EDGE BUT ON NARROW ROADS (20' OR LESS) ISLAND LENGTH SHALL BE 120 FEET.

6. WARNING SYSTEM APPROACH CIRCUIT DISTANCES ARE TO BE MEASURED FROM THE ISLAND TRACK CONNECTIONS.

CSX TRANSPORTATION

RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS

US 6 2280165

TRACK, SIGNAL AND POLELINE PLAN

BRADNER, OH M.P. CD-100.97

DESIGNED TAT JMD

DIGITIZED TAT JMD

CHECKED JMD

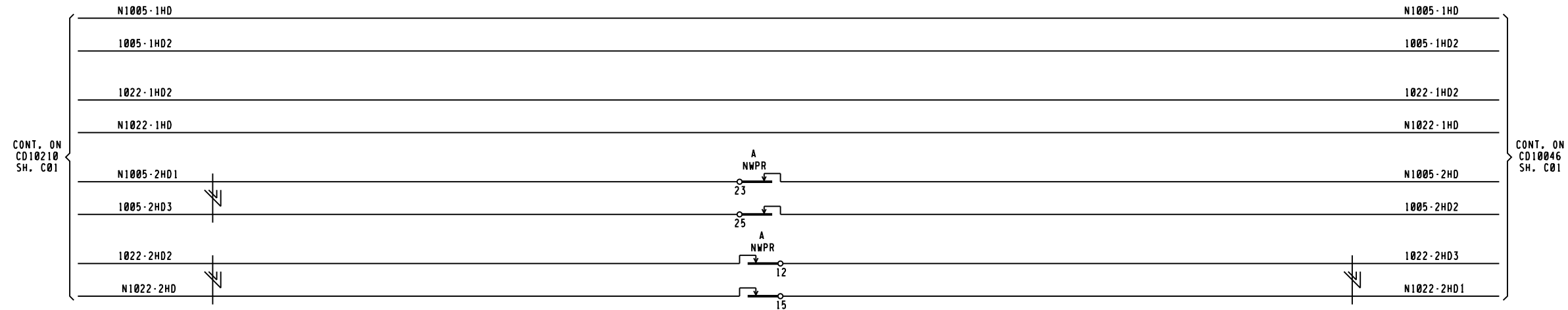
DATE 4-3-86

NEXT FILE CD10097

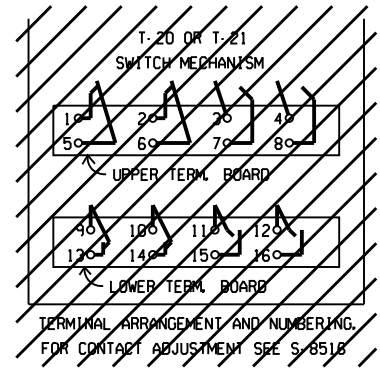
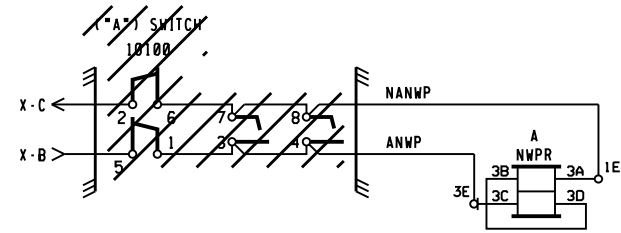
NEXT SH E01

FILE CD10097

SHEET S01

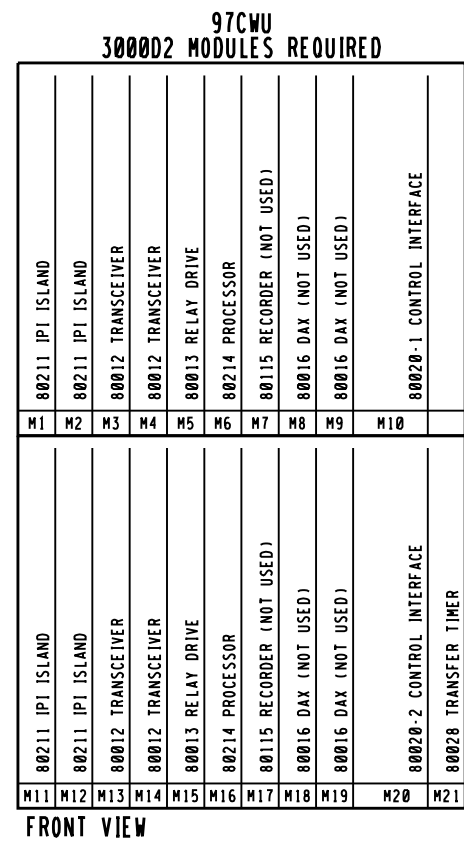


ALL HATCHED
REDRAWN ON
CD10098 SH. C01



○ = NOTE
//// = SHOWN ELSEWHERE
ALL ELSE OUT
THIS SHEET IS VOID
WHEN AS IN SERVICED.
CXV1744176 0H2016044
04-05-17 XRL/JWG/
xorail

REVISIONS			CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
02-15-93 HAR 0H90004			US 6 228816S			
07-01-08 IRS 0H2007105						
10-12-11 IRS 0H2011039						
			CIRCUITS BRADNER, OH M.P. CD-100.97			
			DESIGNED TAT	DIGITIZED TAT	CHECKED JMD	DATE 4-3-86
			NEXT FILE CD10097	NEXT SH C02	FILE CD10097	SHEET C01
DRAWING *****	SHEET NO *****	NEXT SH *****				



MODULE 80028
S1 DIP SWITCH POSITIONS

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

LEFT INDICATES DAX USED

REVISIONS			CSXTRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
10-12-11 IRS 0H2011039			US 6 228816S CROSSING DETECTION CIRCUITRY BRADNER, OH M.P. CD-100.97			
DESIGNED IRS/MSB	DIGITIZED IRS/MSB	CHECKED IRS/LEK	DATE 05-25-11			
DRAWING *****	SHEET NO *****	NEXT SH *****	NEXT FILE CD10097	NEXT SH C03	FILE CD10097	SHEET C02

3000 GCP APPLICATION DESIGN CARD

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

ISLAND FREQUENCY: T1: 4.0 KHZ T2: 5.9 KHZ 97 CWU

SOFTWARE LEVEL	☆☆	
(DISPLAYED DURING BOOT-UP)		
NUMBER OF TRACKS (NUMBER OF TRANSCIVER MODULES, 1 OR 2)	1 ☐	2 ☒
FREQUENCY (MS/GCP)	T1: 211 HZ	T2: 211 HZ
UNIDIRECTIONAL / BIDIRECTIONAL	T1: UNI ☐ BI ☒	T2: UNI ☐ BI ☒
XMIT LEVEL	T1: HI ☐ MED ☒	T2: HI ☐ MED ☒
PREDICTOR/MOTION SENSOR	T1: PRED ☒ MS ☐	T2: PRED ☒ MS ☐
WARNING TIME SELECTED	T1: 33 SEC.	T2: 33 SEC.
APPROACH DISTANCE SELECTED	T1: 2934 FT.	T2: 2934 FT.
APPROACH DISTANCE COMPUTED	T1: NOT REQUIRED *	T2: NOT REQUIRED *
UAX PICKUP DELAY (UAX1) (0 = OFF)...	0 SEC.	
ENA/UAX2 DELAY (0 = ENA)	0 SEC.	
ISLAND DISTANCE (BETWEEN FEED WIRES) T1:	50'+50'+**' OR ☆ FT.	
T2:	50'+50'+**' OR ☆ FT.	
NUMBER OF DAX'S	0 ☒ 1 ☐ 2 ☐ 3 ☐ 4 ☐	
DAX A TRACK ASSIGNMENT	T1 ☐	T2 ☐
DAX A DISTANCE (0 = PREEMPT)	FT.	
DAX A WARNING TIME	SEC.	
DAX B TRACK ASSIGNMENT	T1 ☐	T2 ☐
DAX B DISTANCE (0 = PREEMPT)	FT.	
DAX B WARNING TIME	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 ☐ EVEN ☐ SPACE ☐
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 MS (ENTER EZ VALUE)	T1: 10 EZ	T2: 10 EZ
TRANSFER DELAY MS 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	0 SEC.	
PICKUP DELAY DAX B	0 SEC.	
PICKUP DELAY DAX C	0 SEC.	
PICKUP DELAY DAX D	0 SEC.	
COMPENSATION VALUE	T1: NOT REQUIRED **	
COMPENSATION VALUE	T2: NOT REQUIRED **	
ENHANCED DETECTION (ED)	T1: ON ☐ OFF ☒	T2: ON ☐ OFF ☒
BACK TO BACK T1 AND T2	NO ☒ YES ☐	
STATION STOP TIMER	T1: N/A (SEE NOTE1) SEC.	T2: N/A (SEE NOTE1) SEC.
NUMBER OF TRACK WIRES - 4 OR 6	T1: 4 ☒ 6 ☐	T2: 4 ☒ 6 ☐
LOW EZ ADJUSTMENT	T1: 0	T2: 0
LOW EZ DETECTION	T1: ON ☐ OFF ☒	T2: ON ☐ OFF ☒
LOW EZ DETECTION TIMER	T1: N/A (SEE NOTE2) MIN.	T2: N/A (SEE NOTE2) MIN.
POSITIVE START (0 = OFF)	T1: 0 EZ	T2: 0 EZ
POSITIVE START TIMEOUT (0 = NONE) ..	T1: 0 MIN.	T2: 0 MIN.
SET AT OPERATION	NORMAL ☒ DIAGNOSTIC ☐	
DIAGNOSTIC MESSAGES	ON ☐ OFF ☒	
DAX MESSAGES	ON ☐ OFF ☒	
ADVANCE PREEMP TIMER (0 = OFF)	0 SEC.	

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

* PROGRAMMED AT INSTALLATION DURING CALIBRATION PROCEDURE
☆ = 120' MINIMUM ISLAND DISTANCE TO BE ENTERED BY FIELD PERSONNEL FOR NON-DAXING APPLICATIONS WHEN ROAD IS 20' OR LESS WIDE.
☆☆ = INDICATE ON AS-IN-SERVICE DRAWINGS

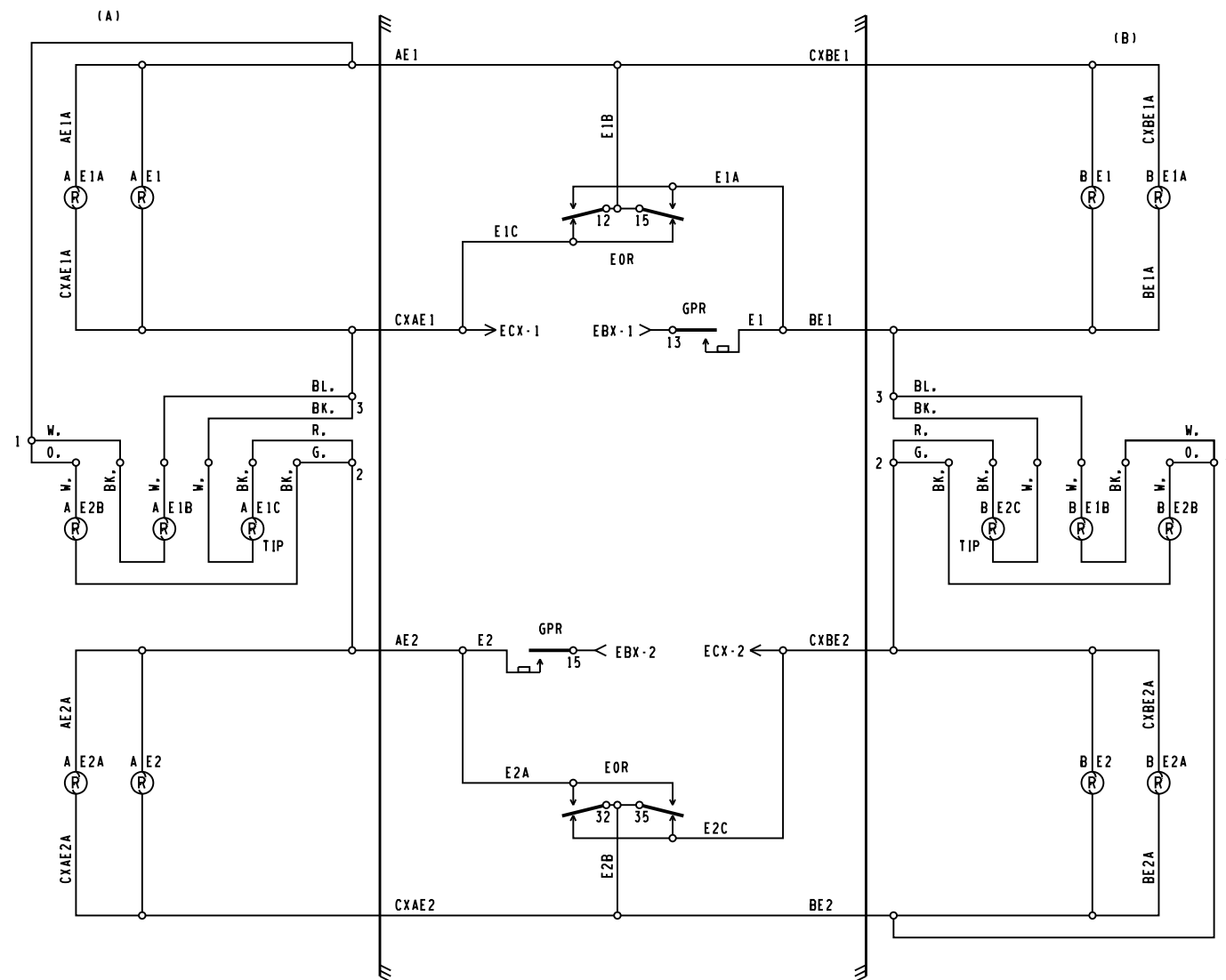
NOTES:

1. WHEN ED SET TO OFF, DEFAULT NOT DISPLAYED WHEN ED SET TO ON, DEFAULT IS 10 SEC.
2. WHEN LOW EZ DETECTION SET TO OFF, DEFAULT NOT DISPLAYED WHEN LOW EZ DETECTION SET TO ON, DEFAULT IS 10 MIN.

ALL OUT
THIS SHEET IS VOID
WHEN AS IN SERVICED.
CXV1744176 04-05-17 XRL/JWG/

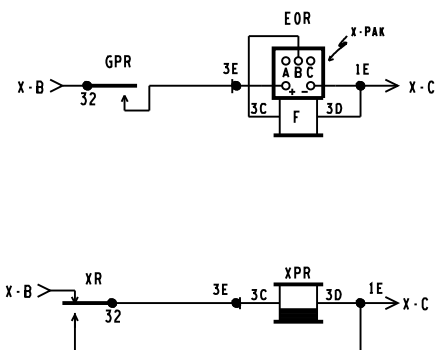
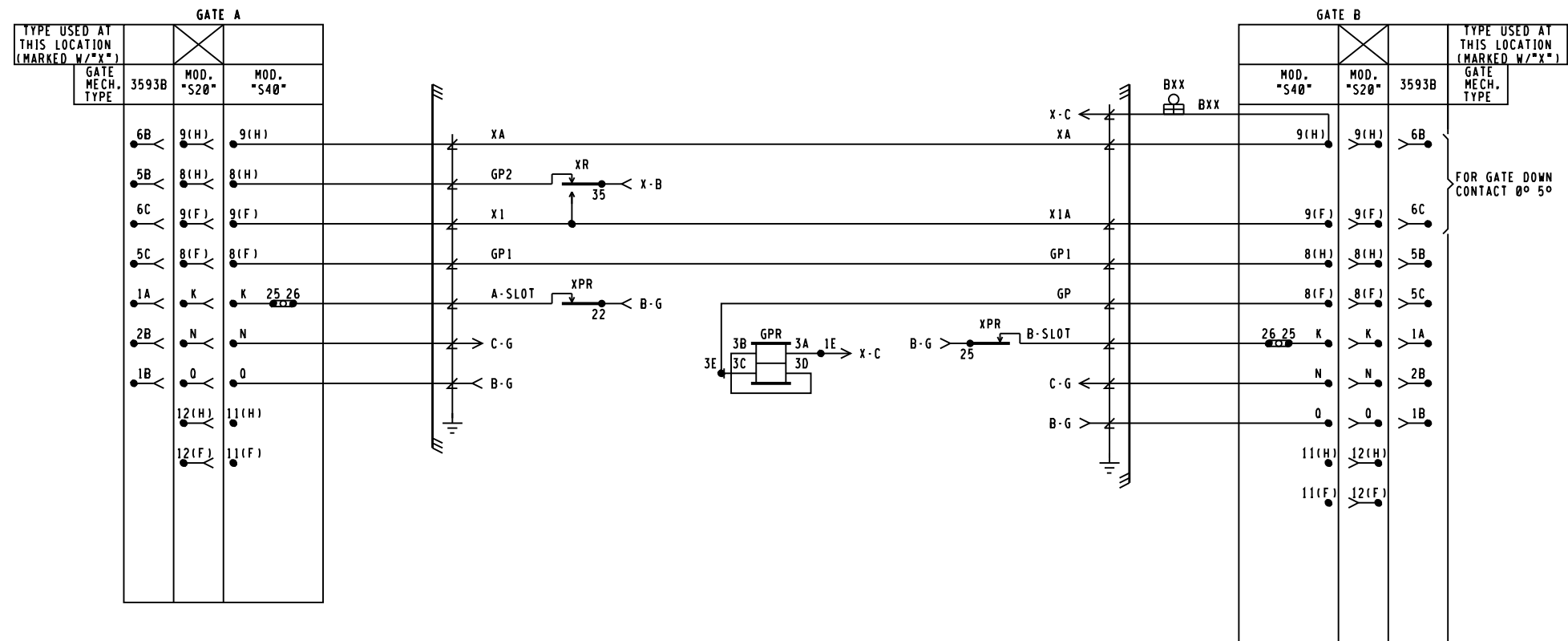
xorail

REVISIONS			CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
10-12-11 IRS 0H2011039			US 6 228816S			
			DETECTION DEVICE PROGRAM BRADNER, OH M.P. CD-100.97			
DESIGNED IRS/MSB		DIGITIZED IRS/MSB		CHECKED IRS/LEK	DATE 05-25-11	
DRAWING	SHEET NO	NEXT SH	NEXT FILE CD10097	NEXT SH C04	FILE CD10097	SHEET C03



ALL OUT
THIS SHEET IS VOID
WHEN AS IN SERVICED.
CXV1744176 0H2016044
04-05-17 XRL/JWG/
xorail

REVISIONS			 RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
02-15-93	HAR	0H90004	US 6 228816S CIRCUITS BRADNER, OH M.P. CD-100.97			
07-01-08	IRS	0H2007105				
10-12-11	IRS	0H2011039				
			DESIGNED TAT	DIGITIZED TAT	CHECKED JMD	DATE 4-3-86
DRAWING	SHEET NO	NEXT SH	NEXT FILE CD10097	NEXT SH C05	FILE CD10097	SHEET C04



ALL OUT
THIS SHEET IS VOID
WHEN AS IN SERVICED.
CXV1744176 0H2016044
04-05-17 XRL/JWG/
xorail

REVISIONS			CSXTRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
10-12-11 IRS 0H2011039						
			US 6 228816S			
			CIRCUITS BRADNER, OH M.P. CD-100.97			
			DESIGNED CSX	DIGITIZED IRS/TLM	CHECKED IRS/LLB	DATE 10-12-11
DRAWING *****	SHEET NO *****	NEXT SH *****	NEXT FILE *****	NEXT SH *****	FILE CD10097	SHEET C05

INDEX CONTENTS		REVISION NO.								
SH. NO.		1	2	3	4	5	6	7	8	9
I01	INDEX AND REVISIONS									
S01	TRACK AND SIGNAL PLAN									
P01	MINIMUM PROGRAM STEPS REPORT CWE-98									
E01	POWER DISTRIBUTION									
C01	SWITCH CIRCUIT									
C02	DETECTION DEVICE CONSIST CWE-98									
C03	DETECTION CIRCUITRY CWE-98									
C04	DETECTION CIRCUITRY CWE-98									
C05	CROSSING WARNING DEVICE GATE CIRCUITRY									
C06	CROSSING WARNING DEVICE LIGHT CIRCUITRY									
C07	CROSSING WARNING DEVICE CIRCUITRY									
C08	SEAR II ₁ CONFIGURATION & FUNCTIONS									

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

= NOTE

NEW WORK

CXV174417604-05-17

0H2016044XRL/JWG/

xorail

DESIGN DATE	REV. NO.
04-05-17	1

REVISIONS

REV. NO.	PROJECT NO.	DESIGN DATE	IN SERVICE DATE	REVISION DATE
1	0H2016044	04-05-17		

TO BE COMPLETED ON A.I.S.

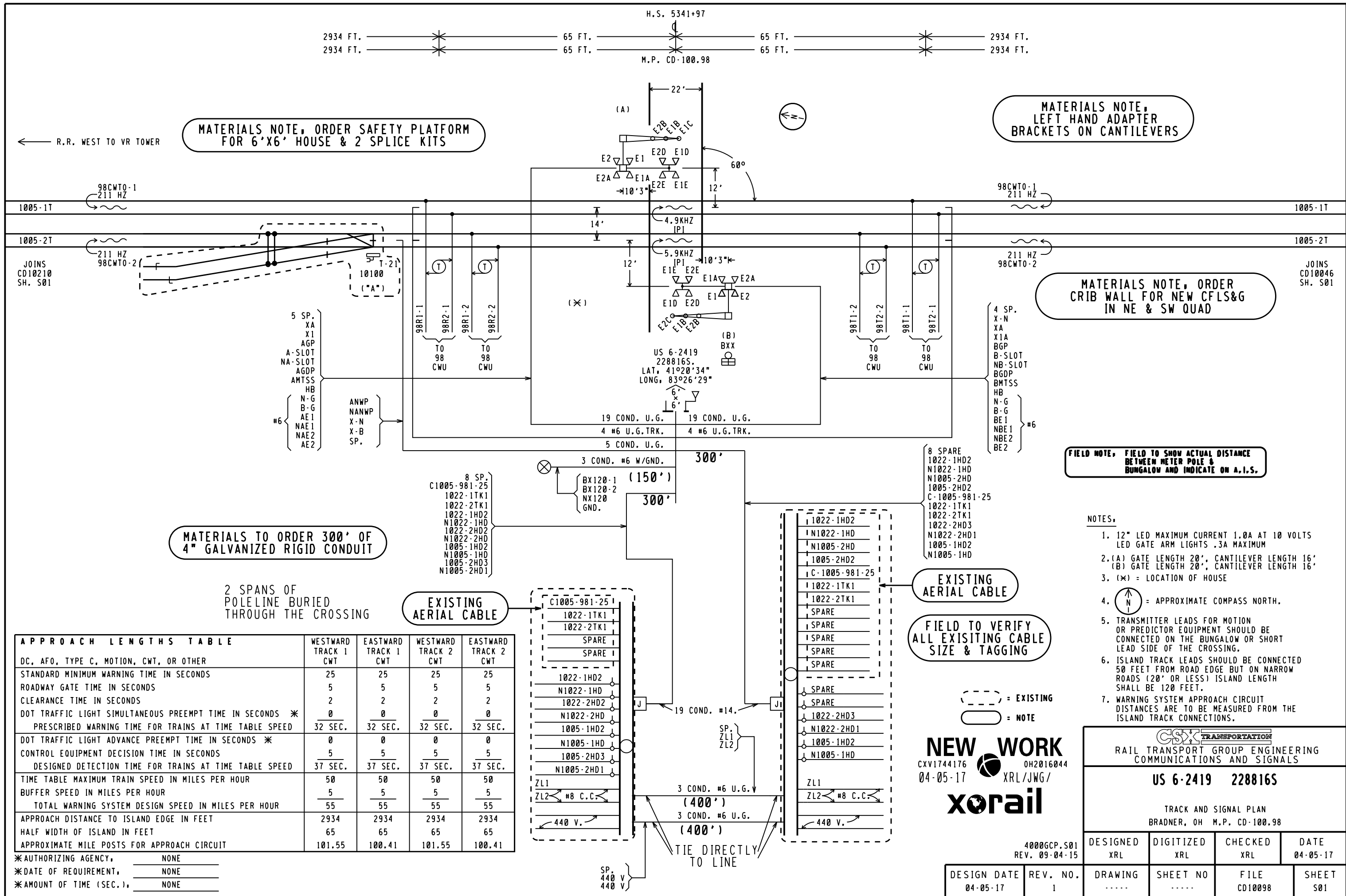
CSX TRANSPORTATION

RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

US 6-2419 228816S

INDEX AND REVISIONS
BRADNER, OH M.P. CD-100.98

DESIGNED XRL	DIGITIZED XRL	CHECKED XRL	DATE 04-05-17
DRAWING	SHEET NO	FILE CD10098	SHEET 101



Minimum Program Steps Report

Location and SIN

DOT Number, 228816S
Milepost Number, CD-100.98
Site Name, US 6-2419

SIN, 712534000116 *

* 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

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

TEMPLATE, track 1-B1, Island
Track 1 , GCP Frequency = 211 Hz (OCCN) *
Track 1 , Approach Distance = 2934 ft (OCCN) *
Track 1 , Prime Warning Time = 32 sec (OCCN) *
Track 1 , GCP Transmit Level = High (Set in Field,TCN)
Track 1 , Isl Frequency = 4.9 kHz (OCCN) *

TEMPLATE, track 2-B1, Island
Track 2 , GCP Frequency = 211 Hz (OCCN) *
Track 2 , Approach Distance = 2934 ft (OCCN) *
Track 2 , Prime Warning Time = 32 sec (OCCN) *
Track 2 , GCP Transmit Level = High (Set in Field,TCN)
Track 2 , Isl Frequency = 5.9 kHz (OCCN) *

TEMPLATE, SSCC
SSCC-1 Number of GDS = 1 (OCCN) *
SSCC-2 Number of GPs = 1 (OCCN) *
SSCC-2 Number of GDS = 1 (OCCN) *

TEMPLATE, OOS
OOS Control = Display+OOS IPs (OCCN) *
OOS Timeout = 1 hrs (Set in Field)
T2 OOS Control = OOS Input 1 (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 2
Track 2 , 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, 4EDD1033
Config. Check Number, 6B91210B
(Based on MCF Revision 26)

Parameters not part of office check number calculation:

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

Comments

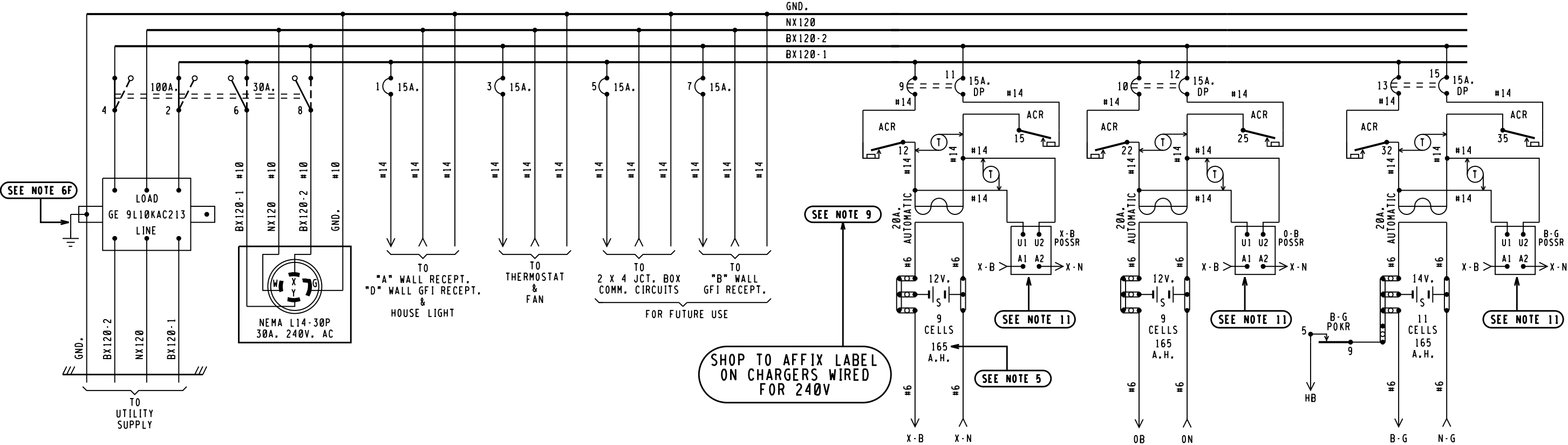
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CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
US 6-2419 228816S			
MINIMUM PROGRAM STEPS REPORT CWE-98 BRADNER, OH M.P. CD-100.98			
DESIGNED XRL	DIGITIZED XRL	CHECKED XRL	DATE 04-05-17
DESIGN DATE 04-05-17	REV. NO. 1	DRAWING	SHEET P01

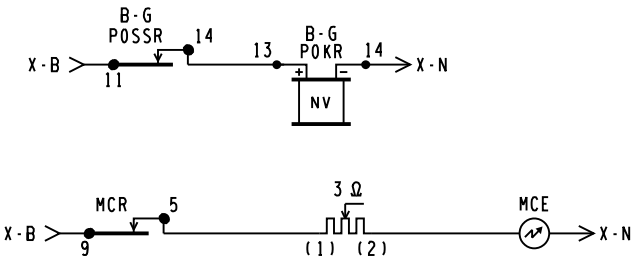
4000GCP.P01
REV. 09-04-15

TOP ROW											
ACR				MCR				ANWPR			
12	B	B77 C30		9	F	11	N41	12	F	B8	
15	B			10		12	C48	15	F	C30	
22	B						C49	22			
25	B			B-G POKR				23	F		
32	B			9	F	11	N41	25	F		
35	B			10	F	12	C48	32			
								35			



BX120-1	BX120-2
11.0 AMPS	11.0 AMPS
MAXIMUM LOAD CALCULATED PER SS360	

- NOTES:
- 1 - REFERENCES ARE PER SCMS-13.
 - 2 - ARRESTERS ARE PER SS382.
 - 3 - SHELF RELAY PLACEMENT ON CONSIST CHART HAS NO SIGNIFICANCE.
 - 4 - PLUG-IN RELAYS ARE VIEWED FROM THE FRONT OF RACK.
 - 5 - BATTERY A.H. CAPACITY SHOWN IS THE MINIMUM REQUIREMENT.
 - 6 - WIRING
 - A - FEED TO ALL BUSSES, LIGHT CIRCUITS, MOTOR CIRCUITS TO BE #10 FLEX.
 - B - 120-VOLT FEED FROM ENTRANCE TO POWER BUSS TO BE #10 FLEX.
 - C - ALL TRACK WIRES TO BE #10 FLEX.
 - D - ALL OTHERS TO BE #16 FLEX UNLESS NOTED.
 - E - ALL BATTERY OUTPUTS TO BE #6 PER SS360.
 - F - GROUND WIRE NOT NECESSARY WHEN GE ARRESTER IS MOUNTED ON GROUND PLANE OR METAL ENCLOSURE AFFIXED DIRECTLY TO BUNGALOW METALLIC STRUCTURAL MEMBER.
 - 7 - CIRCUIT INTERRUPTERS 2 & 4 ARE MECHANICALLY INTERLOCKED WITH CIRCUIT INTERRUPTERS 6 & 8.
 - 8 - LABEL ALL PRIMARY POWER WIRES WITH RED TAGS.
 - 9 - CHARGERS WIRED FOR 240VAC
 - 10 - CIRCUIT BREAKERS PANEL: 00124L125G (24 SPACES)
 - 11 - SOLID STATE VOLTAGE MONITOR BENDER MOD. VME 420-DW-1 DIN RAIL MOUNTED. OUTPUTS CONFIGURED NORMALLY CLOSED(NC). UNDERVOLTAGE SENSING MINIMUM OF 216 VOLTS AC.



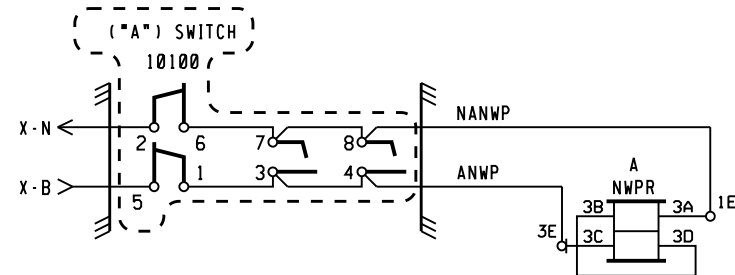
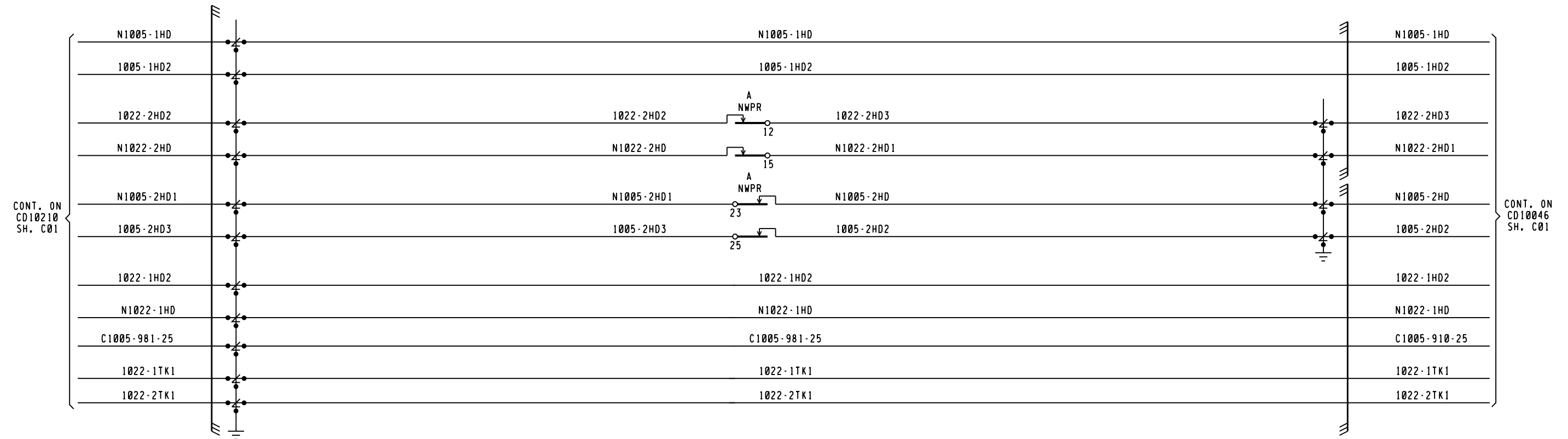
X-B POSSR					OB POSSR					B-G POSSR				
11	F	21	F	N70	11	F	21	F	N70	11	F	21	F	N70

WALL/DIN RAIL MOUNTED

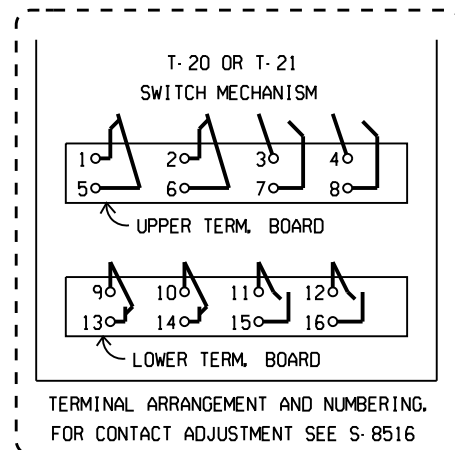
(---) = EXISTING
○ = NOTE
NEW WORK
CXV1744176 OH2016044
04-05-17 XRL/JWG/
xorail

DESIGN DATE	REV. NO.
04-05-17	1

6'X 6' PTC CROSSING HOUSE			
CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
US 6-2419 2288165			
POWER DISTRIBUTION BRADNER, OH M.P. CD-100.98			
DESIGNED XRL	DIGITIZED XRL	CHECKED XRL	DATE 04-05-17
DRAWING	SHEET NO	FILE CD10098	SHEET E01



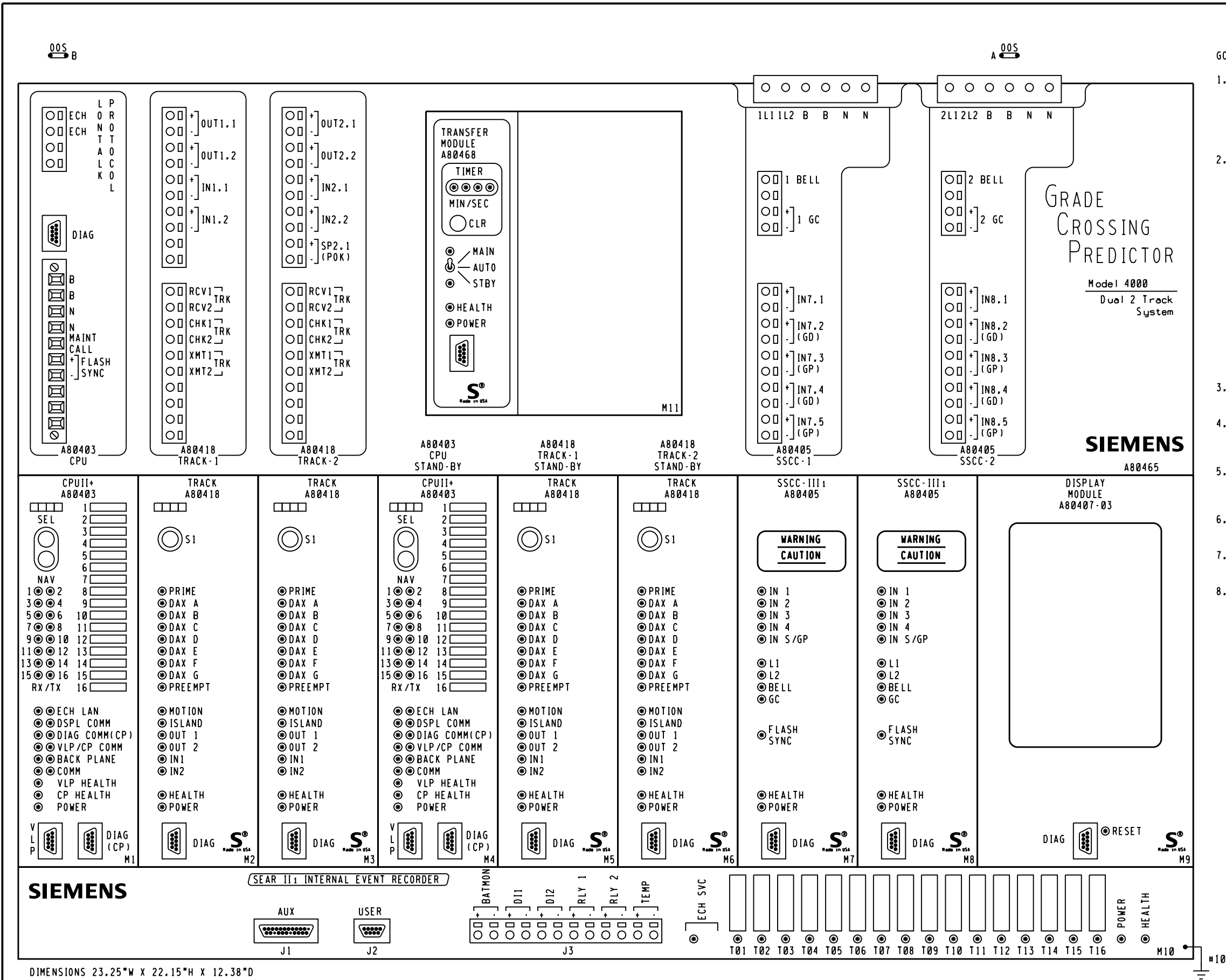
ALL EXISTING
REDRAWN FROM
CD10097 SH. C01



NEW WORK
CXV1744176 04-05-17
OH2016044 XRL/JWG/
xorail

CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
US 6-2419 228816S			
SWITCH CIRCUIT BRADNER, OH M.P. CD-100.98			
DESIGNED XRL	DIGITIZED XRL	CHECKED XRL	DATE 04-05-17
DRAWING	SHEET NO	FILE CD10098	SHEET C01

DESIGN DATE 04-05-17	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 II₁ 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-III ₁	A SIGNAL	A80405
M8	SSCC-III ₁	B SIGNAL	A80405
M9	DISPLAY MODULE		A80407-03
TOP CENTER LOWER BAY	TRANSFER UNIT SEAR II ₁	RECORDER	A80468 A80410

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

4. THE SEAR II₁ 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.

NEW WORK

CVX1744176 0H2016044

04-05-17 XRL/JWG/

xorail

CSX TRANSPORTATION

RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS

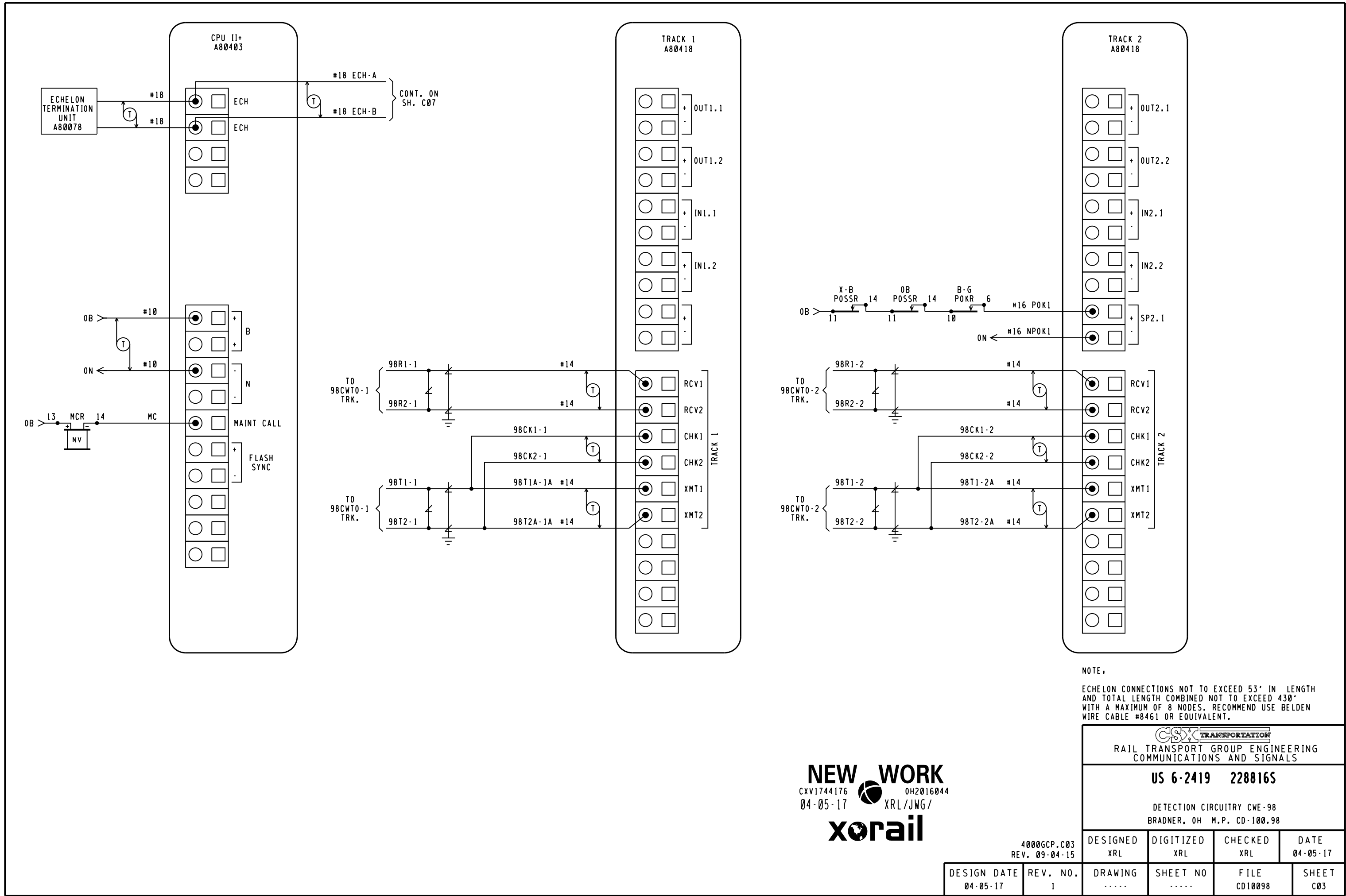
US 6-2419 2288165

DETECTION DEVICE CONSIST CWE-98
BRADNER, OH M.P. CD-100.98

DESIGNED XRL	DIGITIZED XRL	CHECKED XRL	DATE 04-05-17
DRAWING	SHEET NO	FILE CD10098	SHEET C02

4000GCP.C01
REV. 09-04-15

DESIGN DATE 04-05-17	REV. NO. 1
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NEW WORK
CXV1744176 0H2016044
04-05-17 XRL/JWG/
xorail

4000GCP.C03
REV. 09-04-15

DESIGN DATE
04-05-17

REV. NO.
1

DESIGNED
XRL

DIGITIZED
XRL

CHECKED
XRL

DATE
04-05-17

DRAWING
.....

SHEET NO
.....

FILE
CD10098

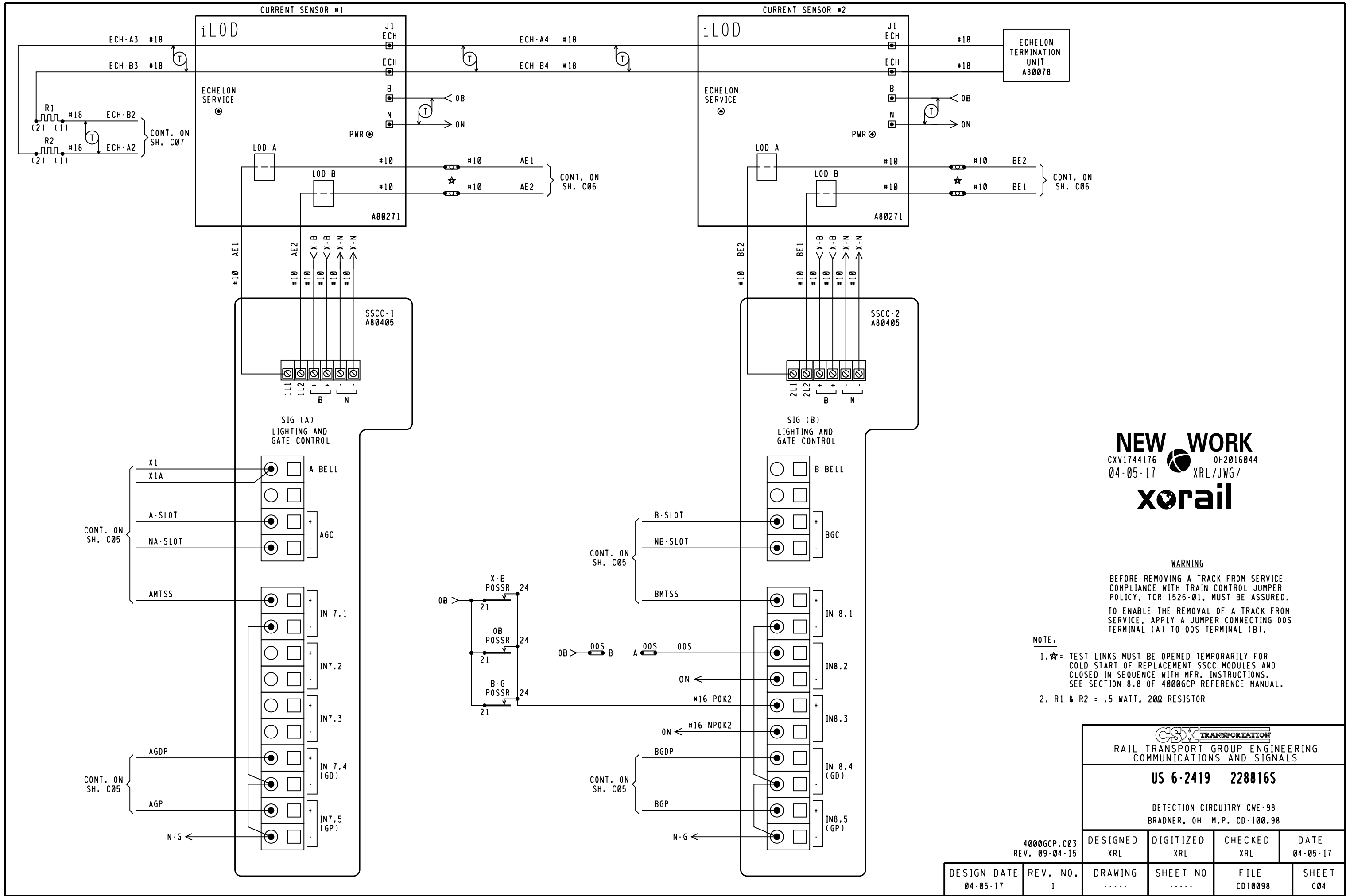
SHEET
C03

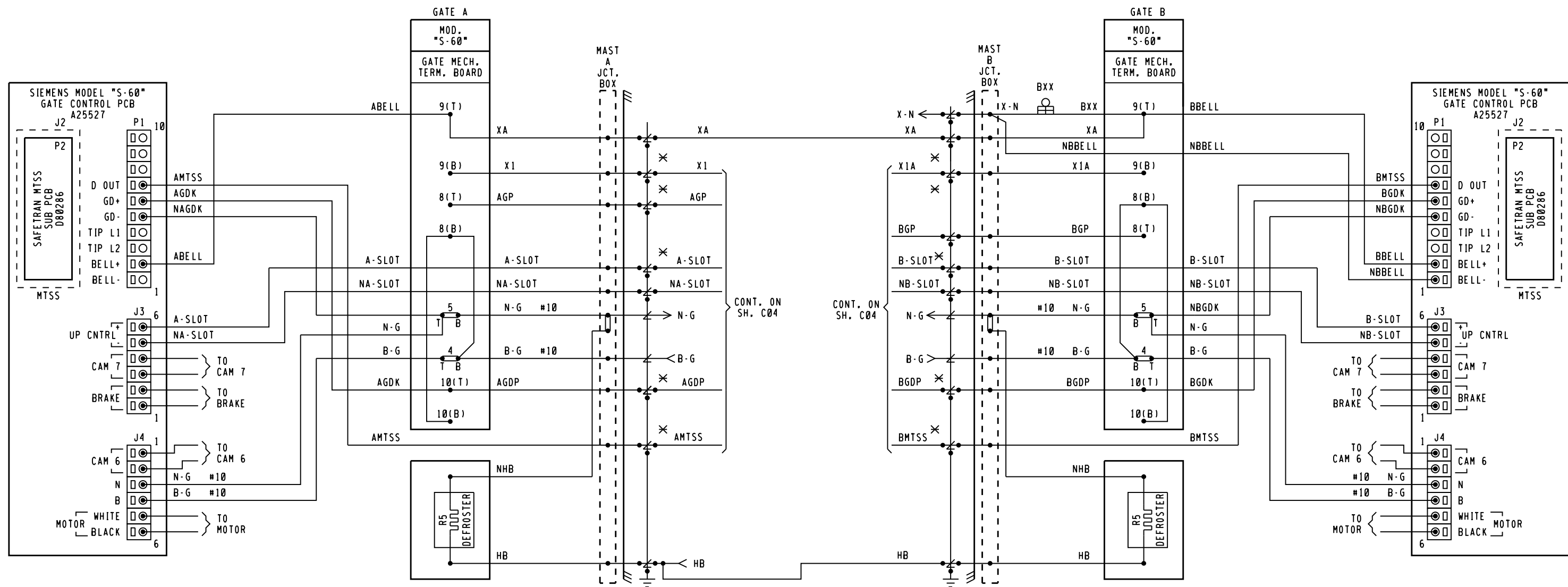
CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

US 6-2419 228816S

DETECTION CIRCUITRY CWE-98
BRADNER, OH M.P. CD-100.98

DESIGNED XRL	DIGITIZED XRL	CHECKED XRL	DATE 04-05-17
DRAWING	SHEET NO	FILE CD10098	SHEET C03

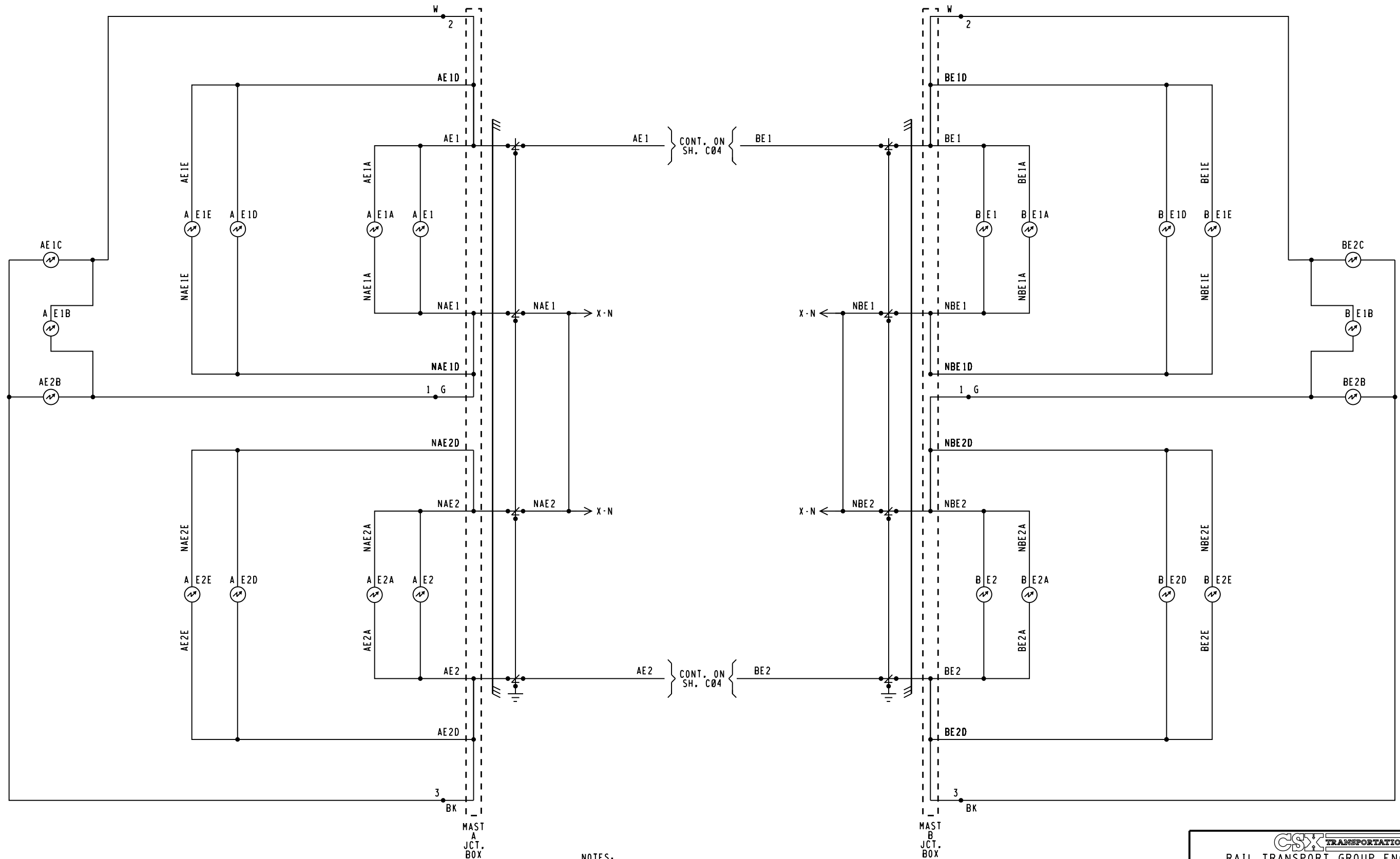




- NOTES:
1. ✕ = TEST LINKS MUST BE OPEN TEMPORARILY FOR COLD START OF REPLACEMENT SSCC MODULES AND CLOSED IN SEQUENCE WITH MFR. INSTRUCTIONS. SEE SECTION 8.8 OF 4000GCP REFERENCE MANUAL.
 2. = TERMINAL IN JCT. BOX BASE
 3. ALL WIRING #16 UNLESS NOTED OTHERWISE.

NEW WORK
CXV1744176 0H2016044
04-05-17 XRL/JWG/
xorail

CSX TRANSPORTATION			
RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
US 6-2419 228816S			
CROSSING WARNING DEVICE GATE CIRCUITRY BRADNER, OH M.P. CD-100.98			
DESIGNED XRL	DIGITIZED XRL	CHECKED XRL	DATE 04-05-17
DESIGN DATE 04-05-17	REV. NO. 1	DRAWING	SHEET C05



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 BUSSES AND LIGHT CIRCUITS ARE #10 FLEX
4. UNLESS NOTED ALL OTHER WIRING #16
5. CABLING SPECIFICATIONS SHOWN ON SH. S01

NEW WORK
CXV1744176 0H2016044
04-05-17 XRL/JWG/
xorail

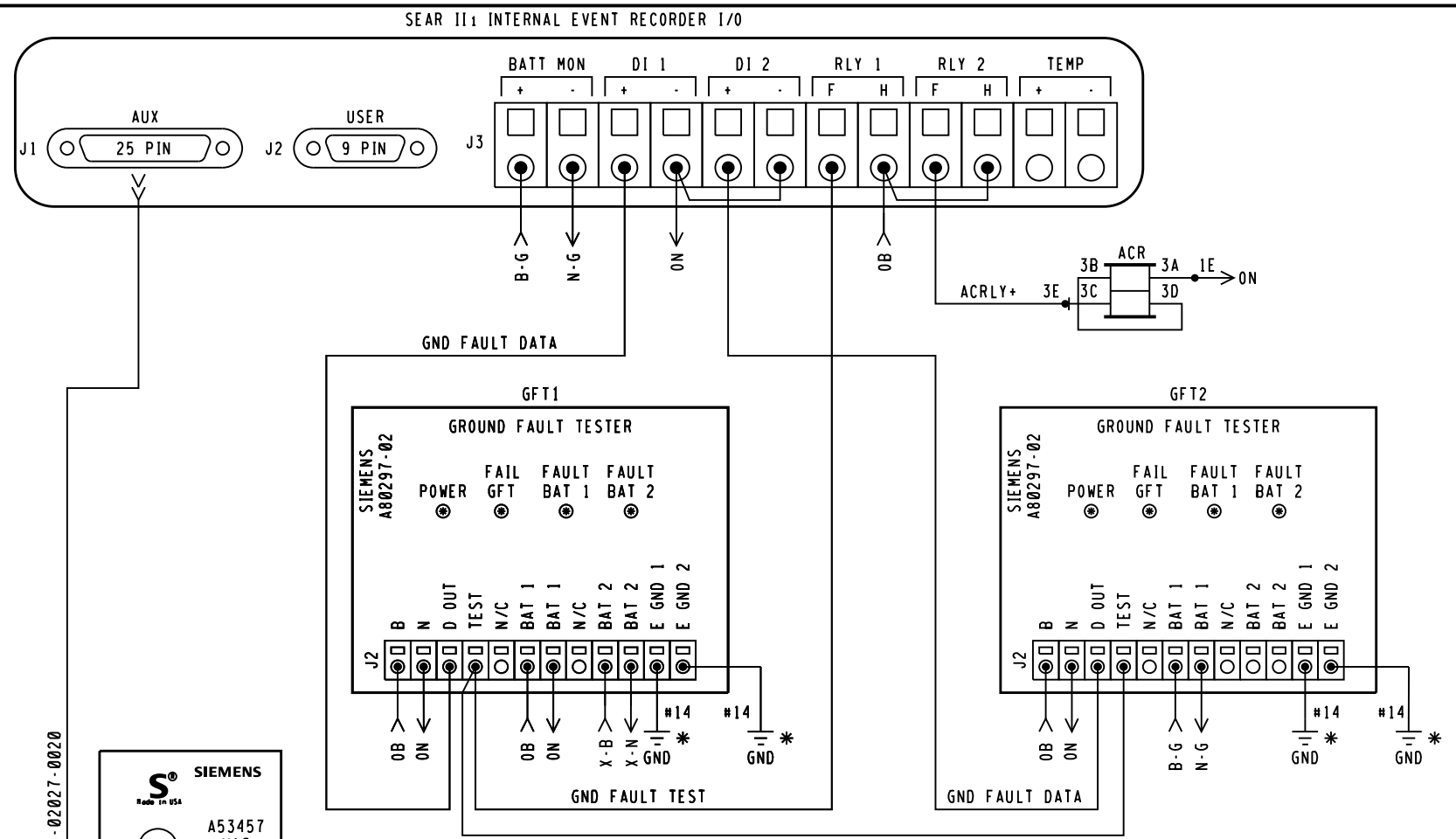
4000GCP.C05
REV. 09-04-15

DESIGN DATE 04-05-17	REV. NO. 1	DRAWING	SHEET NO	FILE CD10098	SHEET C06
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CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
US 6-2419 228816S			
CROSSING WARNING DEVICE LIGHT CIRCUITRY BRADNER, OH M.P. CD-100.98			
DESIGNED XRL	DIGITIZED XRL	CHECKED XRL	DATE 04-05-17

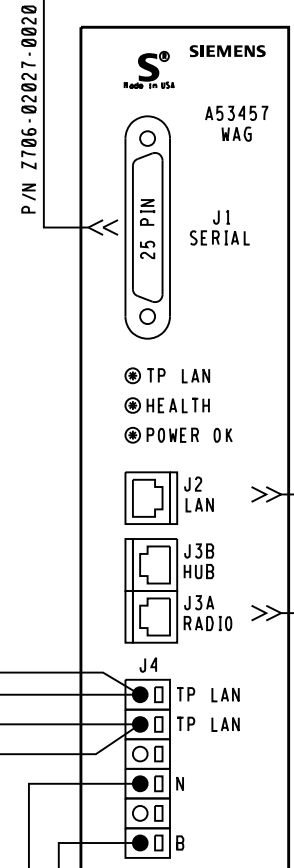
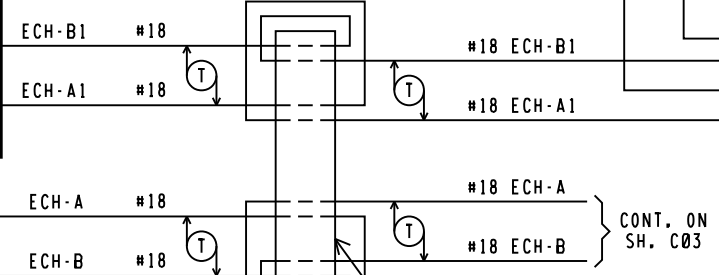
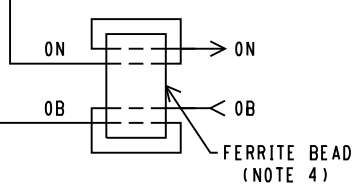
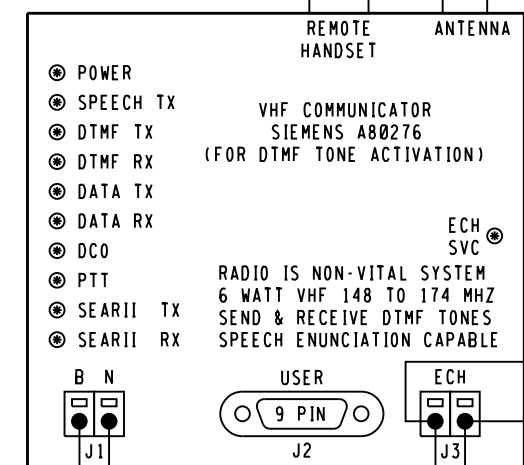
WAYSIDE ACCESS GATEWAY CONFIGURATION	
SITE ATCS ADDRESS	7.125.340.001.07.01 7.125.LLL.GGG.SS.DD
SERIAL INTERFACE	38,400,NONE,8,1/NOFLOW
SERIAL FORMAT	RAW
WAG TEST MODE	DISABLED
ECHELON ADDRESS	01.07
UDP PORTS	5000, 5001, 5002, 5003
ROUTE TABLE EXPIRY	5400 SEC
BROADCAST MEDIUM	IP ETHERNET
TCP PORTS	23, 10023, 6001, 6002
DHCP SERVER	DISABLED
IP ADDRESS	192.168.13.1
TYPE 7 ROUTE LENGTH	12--7RRLLGGGSS
IP NETWORK MASK	255.255.255.0
WAG CIRCUIT ID	DISABLE
ROUTING REGION DOMAIN 1	OCGSERVER1.JAX.COM
ATCS SERVER UDP PORT NUMBER	6001
TELNET NUMBERS	WAG 6002, SERIAL 10023
DEFAULT GATEWAY IP	192.168.013.031

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



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

** SHIELDED COAXIAL
CABLE TO ANTENNA



NEW WORK

CXV1744176 04-05-17

OH2016044 XRL/JWG/

xorail

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

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

COMM NOTES,

1. WAG J3A PINOUTS,
4 & 5 = +12VDC RADIO OUT
7 & 8 = GND RADIO RETURN

2. WAG AND SEARII: ECHELON COMM THROUGH GCP4000 LONTALK PROTOCOL CONNECTION

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

GCP PROGRAMMING FOR VHF RADIO

REMOTE DTMF CROSSING ACTIVATION
(ACTIVATES ENTIRE CROSSING)

TO ACTIVATE PRESS, 816#

TO DE-ACTIVATE PRESS, 816*

(ACTIVATION WILL TIME OUT AFTER 60 SEC.)

NOTES,

1. ALL WIRING #16 UNLESS NOTED OTHERWISE.

2. * = EARTH GROUND REF. TERMINALS REQUIRED FOR DETECTION. DO NOT JUMPER TERMINALS. MUST BE CONNECTED TO DIFFERENT POINTS OF BUNGALOW.

3. ** = TO BE PROVIDED BY COMMUNICATIONS

4. LOOP WIRE THROUGH FERRITE BEAD TWICE.

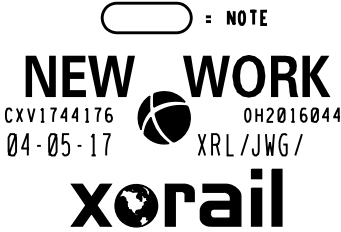
CSX TRANSPORTATION			
RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
US 6-2419 2288165			
CROSSING WARNING DEVICE CIRCUITRY BRADNER, OH M.P. CD-100.98			
DESIGNED XRL	DIGITIZED XRL	CHECKED XRL	DATE 04-05-17
DRAWING	SHEET NO	FILE CD10098	SHEET C07

DESIGN DATE
04-05-17

REV. NO.
1

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	US 6-2419	
MILEPOST	CD-100.98	
DOT NUMBER	228816S	
TESTER TYPE	CROSSING	
DATE FORMAT	MM-DD-YYYY	
TEMP FORMAT	FAHRENHEIT	
INDICATE HOLD (SEC)	0	
INDICATE REFRESH (SEC)	60	
SITE ATCS ADDRESS	7.125.340.001.99.01 (7.RRR.LLL.GGG.99.01)	
SITE TYPE	COLLECTOR	
OFFICE ADDRESS	2.125.00.0000 (2.RRR.NN.DDDD)	
POLL ID	1	
MODE	GEN/ATCS	
WAMS XID	DISABLED	
OFFICE COMM. DEVICE	☒ WAG (ECHELON) ☐ DIRECT (RS232) ☐ MCM (ECHELON) ☐ MCM (RS232) ☐ DIAL MODEM ☐ S200 RADIO (RS422)	
RADIO ATCS ADDR	7.125.340.001.07.01 (7.RRR.LLL.GGG.NN.01)	
FIELD COMM. DEVICE	☐ WAG (ECHELON) ☒ NONE ☐ VHF COMM. (ECHELON) ☐ VHF COMM. (RS232) ☐ SPREAD-SPECTRUM (RS232)	
USER PORT BAUD	57,600	
USER PORT DATA BITS	8	
USER PORT PARITY	NONE	
USER PORT STOP BITS	1	
USER PORT FLOW CONTROL	NONE	
AUX PORT BAUD	38,400	
AUX PORT DATA BITS	8	
AUX PORT PARITY	NONE	
AUX PORT STOP BITS	1	
AUX PORT FLOW CONTROL	NONE	

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



INSPECTOR NOTE,
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	6	☐ BULBS ☒ LED	X.X
CURRENT SENSOR (1) AE2, LAMP SET UP	6	☐ BULBS ☒ LED	X.X
CURRENT SENSOR (2) BE1, LAMP SET UP	6	☐ BULBS ☒ LED	X.X
CURRENT SENSOR (2) BE2, LAMP SET UP	6	☐ 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

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.

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

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

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	816
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

DESIGN DATE 04-05-17	REV. NO. 1	DESIGNED XRL	DIGITIZED XRL	CHECKED XRL	DATE 04-05-17
DRAWING	SHEET NO	FILE CD10098	SHEET C08		

CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS				
US 6-2419 228816S				
SEAR II: CONFIGURATION & FUNCTIONS BRADNER, OH M.P. CD-100.98				
4000GCP.C07	DESIGNED XRL	DIGITIZED XRL	CHECKED XRL	DATE 04-05-17
	DRAWING	SHEET NO	FILE CD10098	SHEET C08



OHIO RAIL DEVELOPMENT COMMISSION

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

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

September 29, 2016

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

RE: Authorization for PE for Grade Crossing Warning Device Upgrade
Wood County, US 6 – 24.9
DOT# 228816S
PID# 103872

Dear Ms. DeCesare:

A diagnostic review was held at the above grade crossing on 6/15/16. As a result of the review, the existing active warning devices were determined to need modification. The active warning devices will receive cantilevers and LED lights upgrade.

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

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

The diagnostic review form is attached. Please note any recommendations, 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 ORDC Project Manager for this project is Don Damron. Don can be reached at 614-466-2509 (office), or 614-917-8466 (cell), or don.damron@dot.state.oh.us, if you have any questions.

Sincerely,

Donald J. Damron
Project Manager

C: Randall Schumacher, Supervisor, Rail Division, Transportation Department, PUCO
Jill Henry, Grade Crossing Specialist, PUCO
ORDC (file)

Attachments: Diagnostic Review Team Survey form dated 6/16/2016
ORDC Letter Agreement dated 9/6/16



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 • Mark Policinski, ORDC Chairman

September 6, 2016

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

Subject: Grade Crossing Warning Device Modifications
Wood County, US 6-24.19, DOT # 228816S, PID 103872

Dear Ms. DeCesare:

A diagnostic review was conducted at the subject grade crossing on 6/15/2016. As a result of the review, the warning devices were determined to need modification. The devices will receive cantilevers and LED lights upgrade.

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 one hundred percent (100%) by ORDC. 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. 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



www.rail.ohio.gov

phone: 614.644.0306

IMPROVING RAIL TODAY FOR TOMORROW'S ECONOMY

CSX Transportation:

By: Tony C. Bellamy

Title: Director Project Management - Public Projects

Date: 9/16/16

WOO US 6 228816S, PID 103872 CSX

Diagnostic Review

(WOO – US 6-24.19, DOT # 228816S)

6/15/2016

Please print:

[illegible]

High Hazard Crossing With Active Warning Devices			
Street Name: US 6 – 24.19		County: WOO	
LHA: State		USDOT#: 229916S	
Nearest City: Bradner		Hazard Rank: 6	
Roadway Information			
ADT: 6630 (2011)		Posted Speed Limit: 55 mph	
Railroad: CSX Transportation		Number of Tracks: 2	
Train Count: 23		Speed Over Crossing: 50 mph	
Storage Distance (Ft.): Not listed.		Train Detection Type: CWT	
Accidents			
Accident Factors		3 of Accident in Last 5 Years:	
		0 of Fatalities in Last 5 Years:	
Accident Date	1/12/2016	10/4/2013	10/5/2011
Position of Accident	Moving over crossing	Moving over crossing	Moving over crossing
Circumstance	Rail equipment struck by highway user	Rail equipment struck by highway user	Rail equipment struck by highway user
Visibility/Time of Day	Day	Day	Day
Weather Conditions	Clear	Cloudy	Clear
Crossing Interconnect.	No	No	No
Crossing Illuminated	No	No	No
Drove Around Train	No	No	No
Highway User Action	Went around the gate.	Car brakes failed.	Truck stalled on tracks.
Alcohol/Drug Related?			
Driver Speeding?			
Other Notes: 1/12/2016 – Train was struck by an eastbound Tractor-Trailer. 10/4/2013 – Car struck the side of CSX train with articulated cars at crossing; resulted in injuries to the driver. It was thought that the vehicle had braking problems. 10/5/2011 – Train was eastbound, Tractor-Trailer slammed on brakes stalled in crossing, train struck truck in driver side door; truck driver and train crew were injured.			
Recommendations: LED UPGRADE; PAWLEVERS; EXPLORE CONSIDER STREET LIGHT ILLUMINATION			

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		
Inventory Tags	☒ Yes	☐ No		
Interconnected Highway Traffic Signal	Yes	☒ No		
Mast-Mounted Flashing Lights	☒ Yes	☐ No		
Cantilever Flashing Lights	Yes	☒ No	Number:	Length:
Side Lights	Yes	☒ No		
Automatic Gates	☒ Yes	☐ No	Number: 2	Length:
Bells	☒ Yes	☐ No	Number: 1) AUDIO MAY BE OUT	
Sidewalk Gate Arms	Yes	☒ No		
'No Turn' Signs	Yes	☒ No		
Illumination	Yes	☒ No		
Is crossing flagged by train crew?	Yes	☒ No	SWITCHING MAY CLOSE	
Other	Yes	☐ No	X-ING FOR 15-30 MIN	

Railroad Data

Railroad Characteristics	Initial Information (from database)	Revised
Total trains per day	23	OK
< 1 per day		
Day thru trains	10	OK
Night thru trains	10	OK
Daytime switching movements	3 → 2 LOCALS / WEEK	2 REVISED
Nighttime switching movements	12 / TRAINS YEAR	AUG - APRIL
Total number of tracks	2	3-4 / MONTH
Number of main tracks	2	
Number of other tracks		
Maximum train speed	50	OK
Typical train speed	50	OK
Amtrak		

If multiple tracks, can two trains occupy crossing at the same time? ☒ Yes ☐ NoCan one train block the motorists' view of another train at crossing? ☒ Yes (Explain below) ☐ NoCan one or more tracks be eliminated through the crossing? Yes ☒ NoAre there other track(s) crossing this same roadway within 100 ft of this crossing? Yes ☒ No

If yes, Crossing DOT # (if different) _____

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

County: WOO

Route: US 6 - 24.19

DOT#: 228816S

Date: 6/15/2016

Roadway Data

Local Highway Authority: State

Roadway Characteristics	Initial Information (from database)	Revised
Average daily traffic	6630 (2011)	OK 20-30% TRUCKS
Highway paved	☒ Yes X No	Yes No
Roadway Surface: ☒ Blacktop Gravel Concrete Other _____		
Roadway width: 11 ft.		
Number of highway lanes	2	OK
Urban or Rural	Rural	
Vehicle Speed: 55 MPH		
School Bus Operation: No ☒ Yes Amount 2AM/2PM EASTWOOD - LUCKEY		
Hazardous Materials Trucks: No ☒ Yes X Amount 32 FARM CHEMICALS		
Shoulders: No ☒ Yes 4 FT		
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 SW Curb and Gutter: Functional (Curb height = 4" or more) Non-functional (Curb height = Less than 4") ☒ None	Quadrant NE Curb and Gutter: Functional (Curb height = 4" or more) Non-functional (Curb height = Less than 4") ☒ None	
Pedestrians: ☒ No Yes		
Is sidewalk present? ☒ No Yes		
Is there a nearby intersection that could cause queuing over the crossing? ☒ No Yes		
If yes, Street Name _____ Distance _____ Is this intersection signalized? No Yes Are the signals currently interconnected with the existing crossing warning devices? No Yes Is there a 'Do not Stop on Track' sign? No Yes		
Is a roadway improvement project (e.g. widening, turn lanes, nearby new or upgraded traffic signal, sidewalk) planned at or near this location in the foreseeable future? ☒ No Yes If yes, Improvement type _____ Lead Agency _____ Timeline/completion _____		
Is it the consensus of the Diagnostic Review Team that this is a potential closure project? ☒ No Yes Explain reasons:		

Type of Development

☒ Open Space Institutional ☒ Industrial Commercial Residential	OPEN INDUSTRIAL	Location of nearby schools: LUCKEY
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County: WOO

Route: US 6 – 24.19

DOT#: 228816S

Date: 6/15/2016

Potential Red Flags / Project Challenges

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

NA

Crossing Consolidation or Closure:

NA

Real Estate or ROW:

NA

Culverts / Drainage / Ballast Conditions:

NA

Roadway and/or Sidewalks:

NA

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

NA

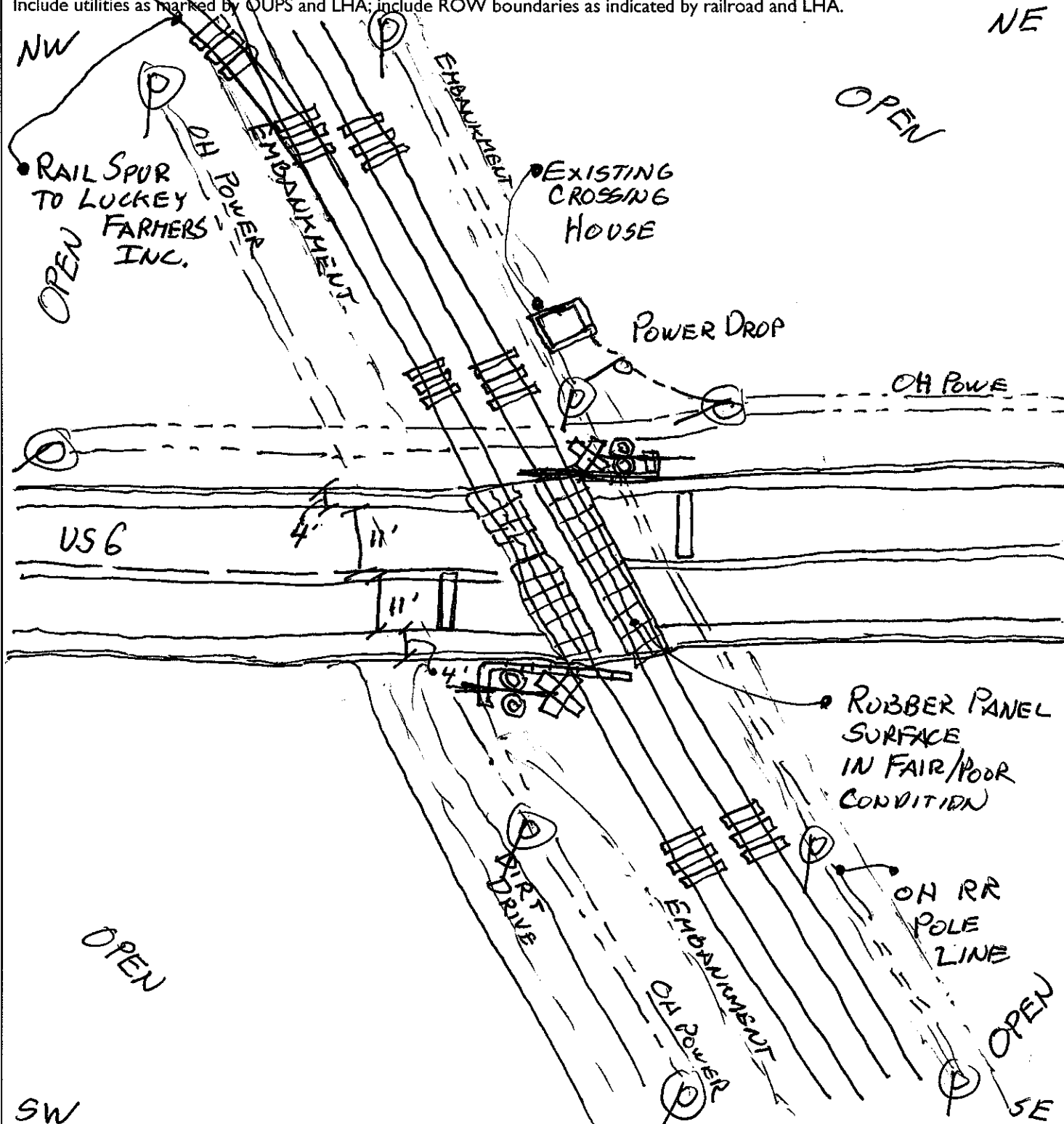
Environmental:

NA

Other:

Field Sketch

Include utilities as marked by OUPS and LHA; include ROW boundaries as indicated by railroad and LHA.



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

Sketch by: D7D 6-16-16

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.

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.

This foregoing document was electronically filed with the Public Utilities

Commission of Ohio Docketing Information System on

11/29/2017 9:51:41 AM

in

Case No(s). 17-2414-RR-FED

Summary: Application In the Matter of a Request for Upgrades to the Active Warning Devices at CSX Transportation Inc. Grade Crossing, DOT# 228-816S, on US 6 in Wood County, Ohio. electronically filed by Mrs. Jill A Henry on behalf of PUCO/Rail Division