

Memo

To: Docketing Division
From: Jill Henry, Rail Specialist, Rail Division
Cc: PUCO Legal Department
Date: 3/18/19

Re: PUCO Case No. 19-646-RR-FED- In the Matter of a Request for the Installation of Active Warning Devices at the CSX Transportation, Inc. Crossings, E. Sharon Road (DOT#152-376N) and Oak Road (DOT#152-374A), and the Closure of Albion Avenue (DOT#152-375G) and the Pedestrian Crossing (DOT#153-617D) in the Village of Glendale, Hamilton County, Ohio.

On April 5, 2018, the Ohio Rail Development Commission (ORDC) authorized funding for CSX Transportation, Inc. (CSX) to install 4 quadrant lights and gates at E. Sharon Road (DOT#152-376N) and Oak Road (DOT#152-374A), and close Albion Avenue (DOT#152-375G) and the Pedestrian Crossing (DOT#153-617D) in the Village of Glendale, Hamilton County, Ohio.. The crossing was surveyed, on July 19, 2016, and was found to warrant the upgrade. The electric utility provider for this crossing is Duke Energy.

The project will be paid for with federal funds and is actual cost. The plans and estimates for the project in the amount of \$1,442,609.00 have been approved with the actual reimbursable amount limited to \$1,417,922.04. Additionally, CSX will pay the Village \$50,000 to be used for any purpose in exchange for the crossing closures. ORDC will pay \$5,000 for expenses related to the closing of Albion Avenue.

The Village of Glendale will be responsible for the following:

- 1) The installation and continued maintenance of vehicle detection loops for the crossings at E. Sharon Road and Oak Road.
- 2) Converting North Greenville Avenue to a one way street so that warning devices can be placed in the NW quadrant on E. Sharon Road.
- 3) Curbing for light and gate installations on E. Sharon Road and Oak Road and lane and turning restrictions on North Greenville Avenue.
- 4) Elimination of the closed crossings and installation of treatments at the pedestrian crossing to discourage trespassing between the municipal parking lot and the town square.

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

Village of Glendale
Walter Cordes
Village Administrator
30 Village Square
Glendale, OH 45246

Duke Energy

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

TO: Randall Schumacher, Supervisor, Rail Division, PUCO
FROM: Cathy Stout, Manager, Safety Section, ORDC
BY: Michael Lynch, Project Manager, ORDC *ML*
SUBJECT: HAM Glendale Consolidation 106297
DATE: 2/25/2019

The Ohio Rail Development Commission (ORDC) established a diagnostic survey at the subject location on 7/19/2016. The Public Utilities Commission of Ohio (PUCO) attended the review. The Diagnostic Team recommended the improvement of warning devices to flashing lights and 4 quad roadway gates for quiet zone. 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. ORDC recommends a nine (9) month construction timeline. 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
Letter Agreement
PE Authorization
Plan, Estimate & Material List
Construction Authorization

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

Mike DeWine, Governor • Mark Policinski, ORDC Chairman

March 13, 2019

CSX Transportation, Inc
500 Meijer Drive, Suite 305
Florence, KY 41042

RE: Hamilton, Glendale Consolidation, DOT# 152374A, 152376N
PID# 106297, RR ref # OH1245

Dear Ms. DeCesare:

The following is an addendum/amendment to the construction authorization issued by ORDC on 2/25/2019. The purpose of this amendment is to clarify the approved costs of the warning device modifications.

The following estimates have been reviewed and are acceptable:

- 1) E. Sharon Road DOT# 152376N dated 1/22/2019 for \$658,630.00. Reimbursement of eligible actual cost is limited to \$645,403.02. Fuel cells system components are not included in the reimbursement amount and if installed are to be installed at CSX expense.
- 2) Oak Road DOT# 152374A dated 1/24/2019 for \$582,269.00. Reimbursement of eligible actual cost is limited to \$569,042.02. Fuel cells system components are not included in the reimbursement amount and if installed are to be installed at CSX expense.
- 3) Oak road DOT# 152374A dated 1/24/2019 for \$203,477.00. Reimbursement of eligible actual cost is limited to \$203,477.00.

Approved total estimate amount is \$1,442,609.00 with a reimbursable amount of eligible actual cost limited to \$1,417,922.04.

Other instructions and provisions of the construction authorization remain in effect.

Thank you for your assistance with these matters.

Regards,

Catherine Stout
Manager, Grade Crossing Safety Programs

C. Randall Schumacher, Rail Division Supervisor, PUCO
Jill Henry, Rail Division Specialist, PUCO
Heather Hamilton, ORDC





OHIO RAIL DEVELOPMENT COMMISSION

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

Mike DeWine, Governor • Mark Policinski, ORDC Chairman

2/25/2019

CSX Transportation, Inc
500 Meijer Dr, Suite 305
Florence, KY 41042

RE: Hamilton, Glendale Consolidation, DOT# 152374A, 152376N
PID# 106297 , RR ref # OH1245

Dear Amanda DeCesare:

The plan and estimate dated 12/18/2018, for the referenced project is acceptable. **Please note that the railroad must provide ORDC with a plan stamped by a professional engineer licensed in the State of Ohio prior to acceptance and close out of the project.** 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. Hydrogen cell batteries are not an eligible expense. Reimbursement of eligible actual cost is limited to \$1,418,862.04. 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 Transportation's project foreman will furnish written notification five (5) working days prior to the date work will start at the project site to Michael Lynch, ORDC, email Michael.Lynch@dot.ohio.gov , and to the Public Utilities Commission of Ohio at Jill.henry@puc.state.oh.us. CSX Transportation'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 Transportation 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 Transportation .
3. CSX Transportation's project foremen will notify Michael Lynch at 614-395-1824 (telephone) or Michael.Lynch@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

IMPROVING RAIL TODAY FOR TOMORROW'S ECONOMY

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 Transportation will furnish two (2) copies of each partial bill to ORDC. Please find the enclosed ODOT Purchase Order to reference when billing.
6. CSX Transportation 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.
8. CSX will work diligently with the Village of Glendale to give access to Village contractors to perform work associated with curbs and traffic loops in a timely manner.

This project is authorized for construction under the master agreement between Ohio Rail Development Commission, Public Utilities Commission of Ohio.

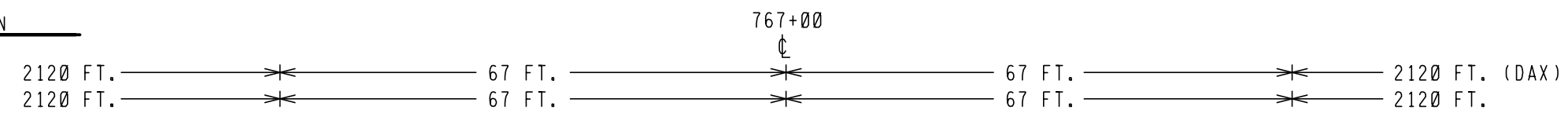
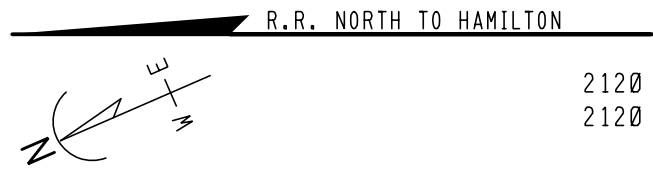
Thank you for your assistance with these matters.

Sincerely,

A handwritten signature in black ink that reads "Michael Lynch". The signature is written in a cursive, flowing style.

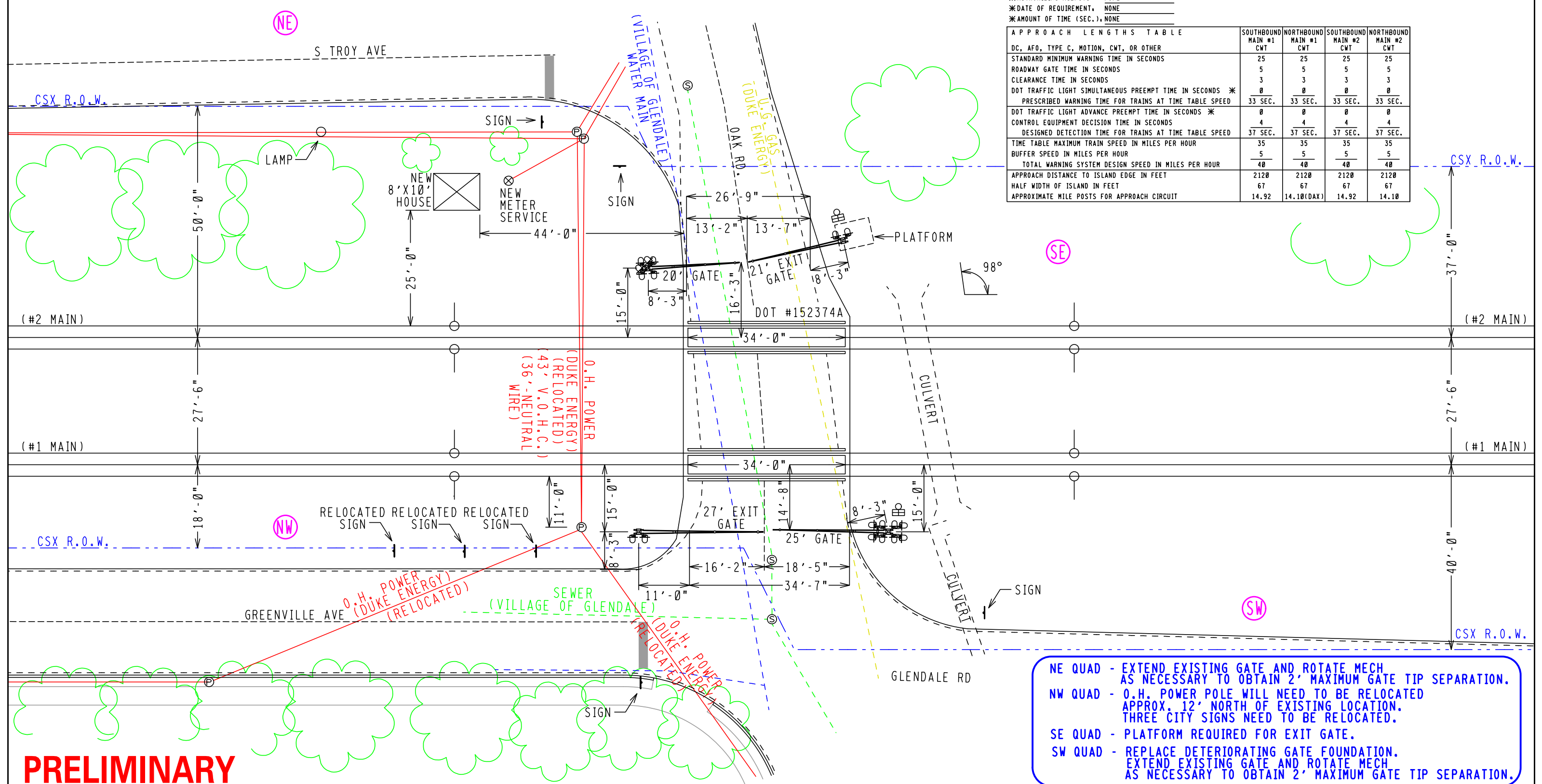
Project Manager

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



* AUTHORIZING AGENCY, NONE
* DATE OF REQUIREMENT, NONE
* AMOUNT OF TIME (SEC.), NONE

APPROACH LENGTHS TABLE	SOUTHBOUND MAIN #1 CWT	NORTHBOUND MAIN #1 CWT	SOUTHBOUND MAIN #2 CWT	NORTHBOUND MAIN #2 CWT
DC, AFO, TYPE C, MOTION, CWT, OR OTHER	25	25	25	25
STANDARD MINIMUM WARNING TIME IN SECONDS	5	5	5	5
ROADWAY GATE TIME IN SECONDS	3	3	3	3
CLEARANCE TIME IN SECONDS	0	0	0	0
DOT TRAFFIC LIGHT SIMULTANEOUS PREEMPT TIME IN SECONDS *	33 SEC.	33 SEC.	33 SEC.	33 SEC.
PRESCRIBED WARNING TIME FOR TRAINS AT TIME TABLE SPEED	0	0	0	0
DOT TRAFFIC LIGHT ADVANCE PREEMPT TIME IN SECONDS *	4	4	4	4
CONTROL EQUIPMENT DECISION TIME IN SECONDS	37 SEC.	37 SEC.	37 SEC.	37 SEC.
DESIGNED DETECTION TIME FOR TRAINS AT TIME TABLE SPEED	35	35	35	35
TIME TABLE MAXIMUM TRAIN SPEED IN MILES PER HOUR	5	5	5	5
BUFFER SPEED IN MILES PER HOUR	40	40	40	40
TOTAL WARNING SYSTEM DESIGN SPEED IN MILES PER HOUR	2120	2120	2120	2120
APPROACH DISTANCE TO ISLAND EDGE IN FEET	67	67	67	67
HALF WIDTH OF ISLAND IN FEET	14.92	14.10 (DAX)	14.92	14.10
APPROXIMATE MILE POSTS FOR APPROACH CIRCUIT				



PRELIMINARY

- NE QUAD - EXTEND EXISTING GATE AND ROTATE MECH AS NECESSARY TO OBTAIN 2' MAXIMUM GATE TIP SEPARATION.
- NW QUAD - O.H. POWER POLE WILL NEED TO BE RELOCATED APPROX. 12' NORTH OF EXISTING LOCATION. THREE CITY SIGNS NEED TO BE RELOCATED.
- SE QUAD - PLATFORM REQUIRED FOR EXIT GATE.
- SW QUAD - REPLACE DETERIORATING GATE FOUNDATION. EXTEND EXISTING GATE AND ROTATE MECH AS NECESSARY TO OBTAIN 2' MAXIMUM GATE TIP SEPARATION.

FILE NAME, BE01451.H01	REVISION DATES	PRODUCED FOR,	PRODUCED BY,	LEGEND,	GUARD RAIL	METER SERVICE	GPS COORDINATES	STREET NAME, OAK RD
DATE DRAWN, 05-17-18	- -	CSX TRANSPORTATION	PROGRESS RAIL SERVICES	CSX ROW - - - - -	O.H. POWER - - - - -	POLE	N39°15'53"	CITY & STATE, GLENDALE, (HAMILTON), OH
DRAWN BY, GMW	- -	RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS	A Caterpillar Company	R/R POLELINE - - - - -	FENCE x x x x x	FIRE PLUG	W84°27'44"	DOT, 152374A
CHECKED BY, SAF	- -			GAS - - - - -	WATER - - - - -	SEWER CAP	ELEV, 610'	PROJECT #, OH2018655
PRS #, CSX180029	- -			FIBER OPTIC - - - - -	SEWER - - - - -	GAS VENT	M.P. BE-14.51	OP #, OH1245

PROPOSED CROSSING LAYOUT
SCALE = 20:1

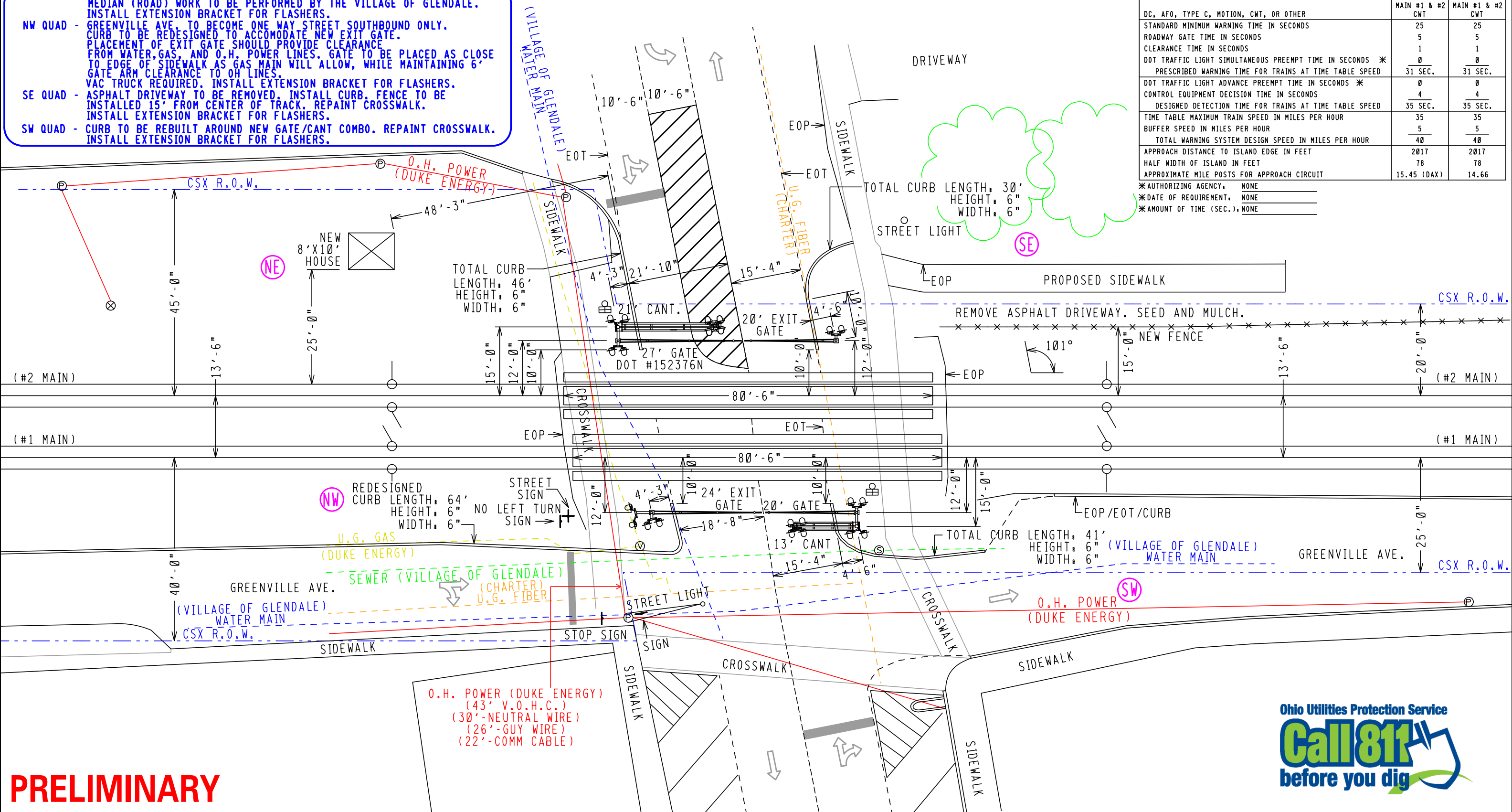
R.R. NORTH TO HAMILTON

(DAX) 2017 FT. 78 FT. 795+75 78 FT. 2017 FT.
(DAX) 2017 FT. 78 FT. 78 FT. 2017 FT.

- NE QUAD** - INSTALL GATE/CANT COMBO. INSTALL NEW CURB. HASHED OUT MEDIAN (ROAD) WORK TO BE PERFORMED BY THE VILLAGE OF GLENDALE. INSTALL EXTENSION BRACKET FOR FLASHERS.
- NW QUAD** - GREENVILLE AVE. TO BECOME ONE WAY STREET SOUTHBOUND ONLY. CURB TO BE REDESIGNED TO ACCOMMODATE NEW EXIT GATE. PLACEMENT OF EXIT GATE SHOULD PROVIDE CLEARANCE FROM WATER, GAS, AND O.H. POWER LINES. GATE TO BE PLACED AS CLOSE TO EDGE OF SIDEWALK AS GAS MAIN WILL ALLOW, WHILE MAINTAINING 6' GATE ARM CLEARANCE TO OH LINES. VAC TRUCK REQUIRED. INSTALL EXTENSION BRACKET FOR FLASHERS.
- SE QUAD** - ASPHALT DRIVEWAY TO BE REMOVED. INSTALL CURB. FENCE TO BE INSTALLED 15' FROM CENTER OF TRACK. REPAINT CROSSWALK. INSTALL EXTENSION BRACKET FOR FLASHERS.
- SW QUAD** - CURB TO BE REBUILT AROUND NEW GATE/CANT COMBO. REPAINT CROSSWALK. INSTALL EXTENSION BRACKET FOR FLASHERS.

APPROACH LENGTHS TABLE		SOUTHBOUND MAIN #1 & #2 CWT	NORTHBOUND MAIN #1 & #2 CWT
DC, AFO, TYPE C, MOTION, CWT, OR OTHER			
STANDARD MINIMUM WARNING TIME IN SECONDS		25	25
ROADWAY GATE TIME IN SECONDS		5	5
CLEARANCE TIME IN SECONDS		1	1
DOT TRAFFIC LIGHT SIMULTANEOUS PREEMPT TIME IN SECONDS *		0	0
PRESCRIBED WARNING TIME FOR TRAINS AT TIME TABLE SPEED		31 SEC.	31 SEC.
DOT TRAFFIC LIGHT ADVANCE PREEMPT TIME IN SECONDS *		0	0
CONTROL EQUIPMENT DECISION TIME IN SECONDS		4	4
DESIGNED DETECTION TIME FOR TRAINS AT TIME TABLE SPEED		35 SEC.	35 SEC.
TIME TABLE MAXIMUM TRAIN SPEED IN MILES PER HOUR		35	35
BUFFER SPEED IN MILES PER HOUR		5	5
TOTAL WARNING SYSTEM DESIGN SPEED IN MILES PER HOUR		40	40
APPROACH DISTANCE TO ISLAND EDGE IN FEET		2017	2017
HALF WIDTH OF ISLAND IN FEET		78	78
APPROXIMATE MILE POSTS FOR APPROACH CIRCUIT		15.45 (DAX)	14.66

*AUTHORIZING AGENCY, NONE
*DATE OF REQUIREMENT, NONE
*AMOUNT OF TIME (SEC.), NONE

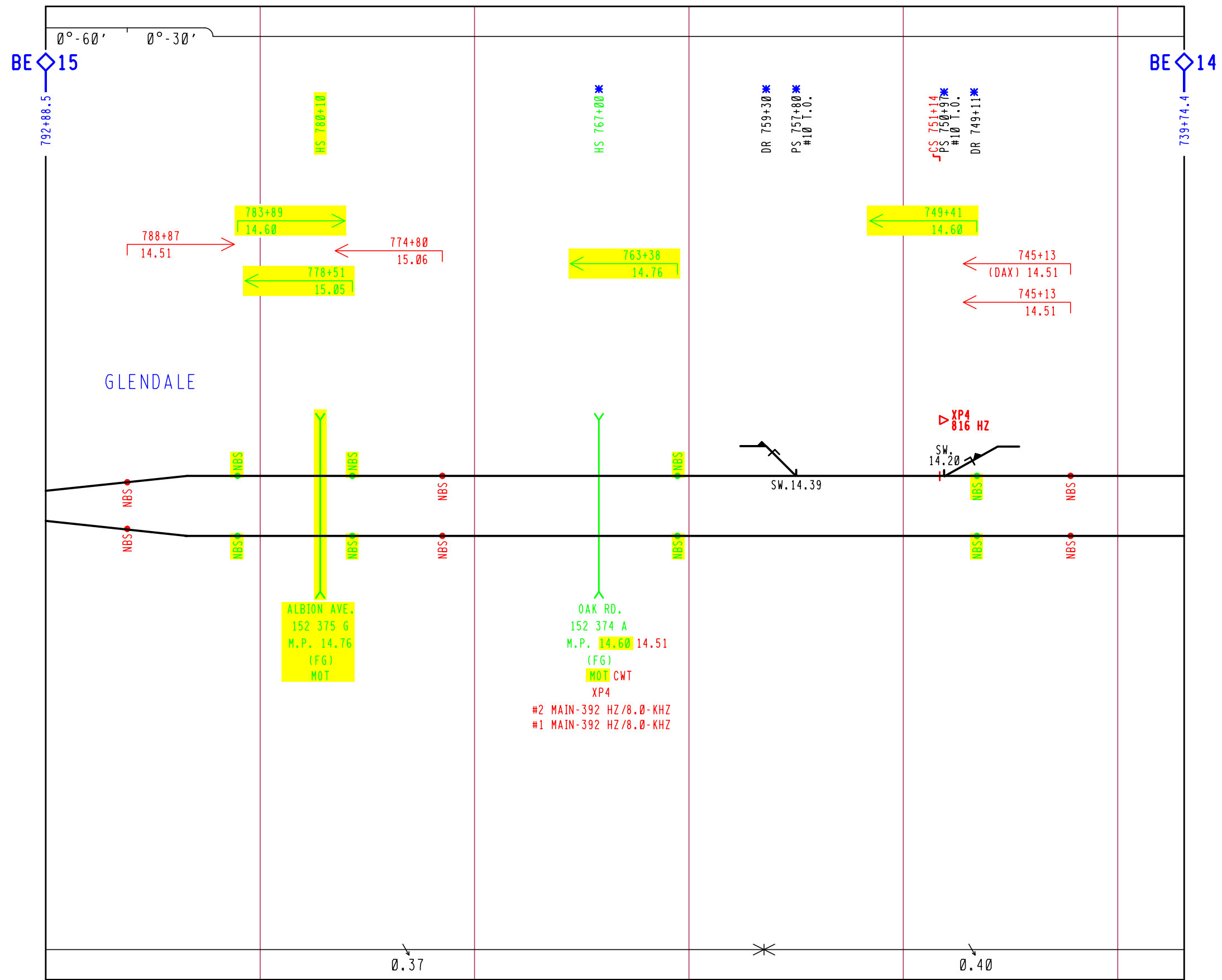


PRELIMINARY



FILE NAME, BE01506.H01	REVISION DATES	PRODUCED FOR,	PRODUCED BY,	LEGEND,	GUARD RAIL	METER SERVICE	GPS COORDINATES	STREET NAME, E. SHARON AVE.
DATE DRAWN, 05-17-18	12-12-18	CSX TRANSPORTATION	PROGRESS RAIL SERVICES	CSX ROW	O.H. POWER	POLE	N39°16'20"	CITY & STATE, GLENDALE, (HAMILTON), OH
DRAWN BY, GMW	02-07-19	RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS	A Caterpillar Company	R/R POLELINE	FENCE	FIRE PLUG	W84°27'31"	DOT, 152376N
CHECKED BY, SAF	-			GAS	WATER	SEWER CAP	ELEV, 636'	PROJECT #, OH2018655
PRS #, CSX180030	-			FIBER OPTIC	SEWER	GAS VENT	M.P. BE-15.06	OP #, OH1245

PROPOSED CROSSING LAYOUT
SCALE = 20:1



* = PER SURVEY

PRELIMINARY

NOTE

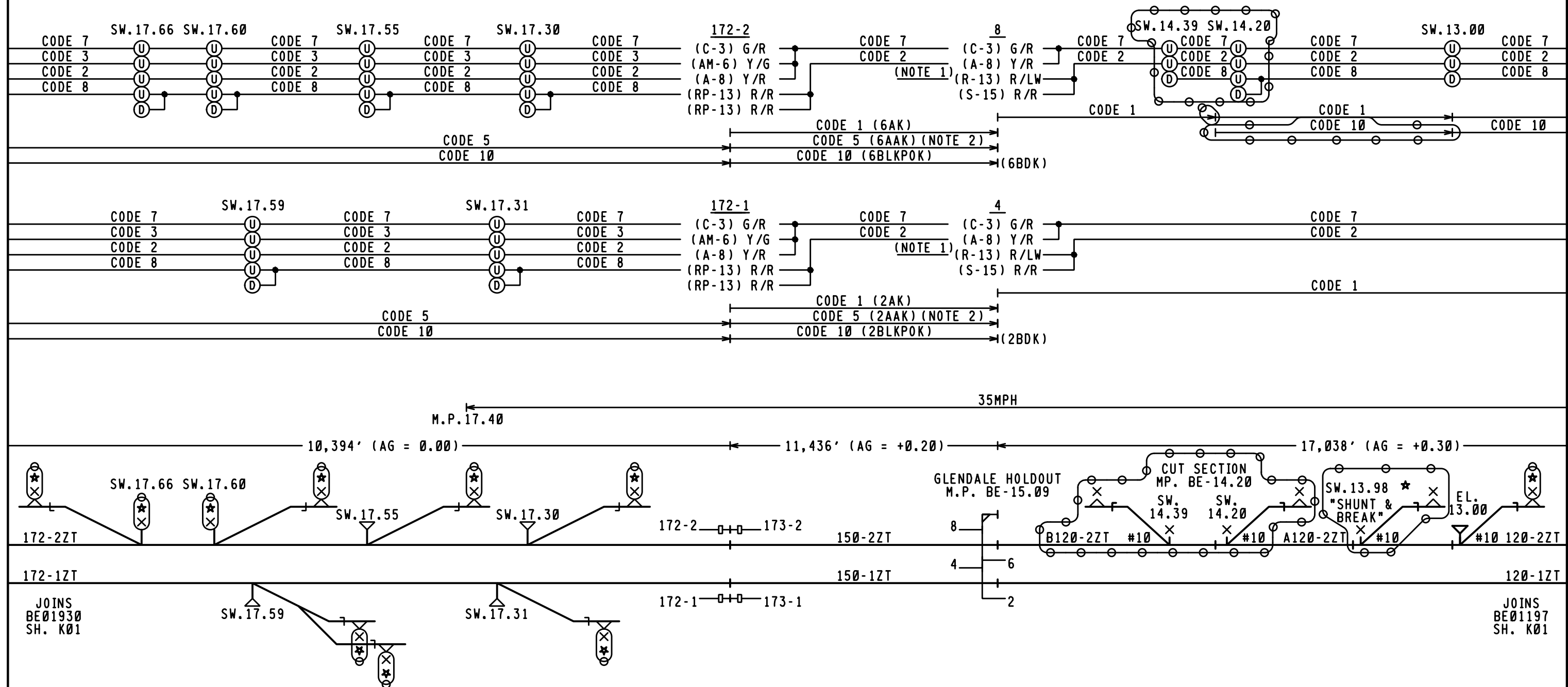


A Caterpillar Company
DATE: 08/15/18
CSX #0H2018655
PRS/GMW/SAF

YELLOW = OUT
RED = IN

REVISIONS	TRACK PLAN									
	HORIZONTAL SCALE.									
	1 INCH = 500 FEET									
	CSX TRANSPORTATION									
	RAIL TRANSPORT GROUP ENGINEERING									
	COMMUNICATIONS AND SIGNALS									
	DESIGNED	DIGITIZED	CHECKED	DATE	NEXT FILE	NEXT SH	FILE	SHEET		
	CDR	DNY			BE01300	T01	BE01400	T01		

← NORTHBOUND ASPECTS



PRELIMINARY

SIGNAL ASPECT RULES 1281-1298

GENERAL NOTES.		
AG = AVERAGE GRADE	ADJ. AG = ADJUSTED AVERAGE GRADE	(LC-18) = LIMITED CLEAR
EQ = EQUATED DISTANCE	(C-3) = CLEAR	(LA-10) = LIMITED APPROACH
FS = FOLLOWING STICK	(AL-4) = APPROACH LIMITED	(MAA-9) = MEDIUM ADVANCE APPROACH
ERS = ENGINE RETURN STICK	(AM-6) = APPROACH MEDIUM	(MC-2) = MEDIUM CLEAR
G = GREEN	(AA-5) = ADVANCE APPROACH	(MAM-11) = MEDIUM APPROACH MEDIUM
FG = FLASHING GREEN	(AS-19) = APPROACH SLOW	(MAS-26) = MEDIUM APPROACH SLOW
Y = YELLOW	(A-8) = APPROACH	(MA-17) = MEDIUM APPROACH
FY = FLASHING YELLOW	(R-13) = RESTRICTING	(SC-24) = SLOW CLEAR
R = RED	(RP-13) = RESTRICTED PROCEED	(SAS-12) = SLOW APPROACH SLOW
LW = LUNAR WHITE	(S-15) = STOP	(SA-20) = SLOW APPROACH
DWF = DWARF SIGNAL	U = NWP UP	N = P.O. SWITCH NORMAL
	D = NWP DOWN	R = P.O. SWITCH REVERSE

NOTES.	
(1) RESTRICTING ASPECTS FOR FOLLOWING MOVES & ENGINE RETURNS AVAILABLE FOR ALL SIGNED ROUTES.	
(2) INDICATED ON LOCAL CONTROL PANEL ONLY.	
45 MPH MAXIMUM AUTHORIZED SPEED FREIGHT.	
AUTHORITY FOR MOVEMENT (CPS-261/ABS-261) X	
TIMETABLE #7 DATED 01-01-11 X	

REVISIONS	
05-12-14	IRS 0H2012016
07-27-18	IRS 0H2012090C
★ = DRAFTING ERROR CORRECTION	
A Caterpillar Company	
DATE: 08/15/18	
CSX# 0H2018655	
PRS/GMW/SAF	

CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
H.T. SWITCH TO ELECTRIC LOCK			
NORTHBOUND ASPECT CHART M.P. BE-17.66 TO M.P. BE-13.00			
DESIGNED IRS/JTD	DIGITIZED IRS/JTD	CHECKED IRS/LEK	DATE 07-24-12
DRAWING	SHEET NO	FILE BE01766	SHEET K01

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S01	TRACK AND SIGNAL PLAN	X	X	Ø						
P01	ELECTROLOGIXS PROGRAM	X	X							
G01	ELECTROLOGIXS I/O EQUIVALENT CIRCUITS	X	X							
G02	OFFICE CONTROL AND INDICATION EQUIVALENT CIRCUITS	X	X							
E01	POWER DISTRIBUTION	X		Ø						
E02	TRACK CIRCUITS	X								
E03	RACK 1 LAYOUT	X	X	Ø						
E04	ELECTROLOGIXS MODULE CONFIGURATION	X	X							
C01	ELECTROLOGIXS CIRCUITS	X	X							
C02	PTC COMMUNICATION CIRCUITS	X	X							
C03	PTC COMMUNICATION OPTIONS	X	X							
C04	ELECTROLOGIXS TRACK CIRCUITS	X		Ø						
C05	SIGNALS 2 AND 4 LIGHTING CIRCUITS	X	X							
C06	SIGNALS 6 AND 8 LIGHTING CIRCUITS	X	X							
C07	ELECTROLOGIXS I/O CIRCUITS	X	X							
C08	WAGO TERMINAL BOARD	X	X							
C09	LOCAL CONTROL PANEL LAYOUT	X	X							
C10	LOCAL CONTROL AND EXPANSION PANELS	X	X							
C11	LOCAL CONTROL AND EXPANSION PANEL I/O CARDS	X	X							
C12	CROSSING DETECTION DEVICE CIRCUITRY	X		Ø						
C13	CROSSING DETECTION DEVICE PROGRAM	X		Ø						
C14	CROSSING DETECTION DEVICE CIRCUITRY	X		Ø						
C15	CROSSING DETECTION DEVICE PROGRAM	X		Ø						

 = DESIGN COMPLETED
 = REVISION COMPLETED

PRELIMINARY

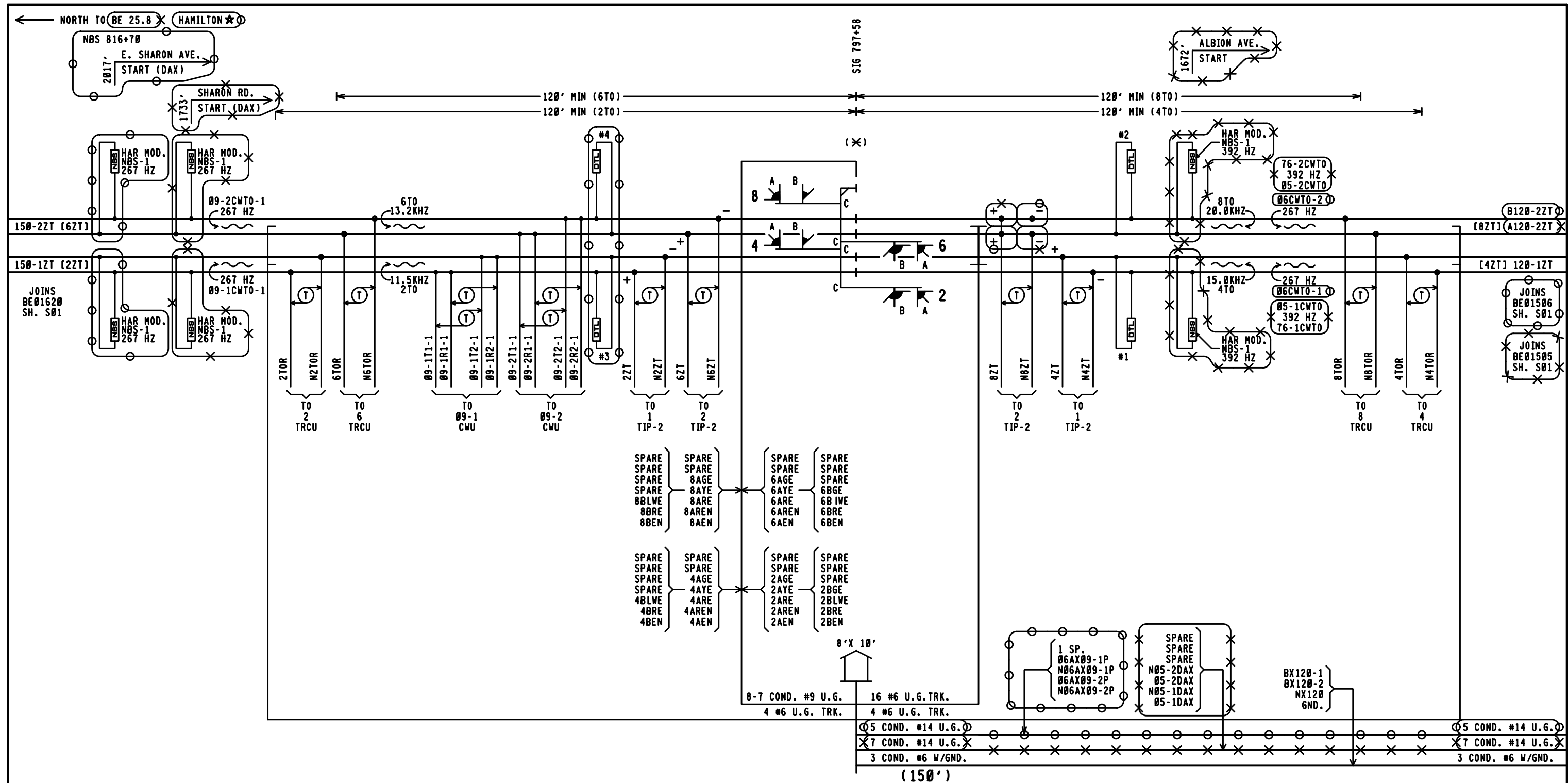
A Caterpillar Company
DATE: 08/15/18
CSX# 0H2018655
PRS/GHW/SAF

DESIGN DATE	REV. NO.	DRAWING	SHEET NO	FILE	SHEET
Ø 08-15-18 Ø	Ø 2 Ø	Ø Ø Ø Ø Ø	Ø Ø Ø Ø Ø	BE01509	Ø 1 Ø

REVISIONS				
REV. NO.	PROJECT NO.	DESIGN DATE	IN SERVICE DATE	REVISION DATE
1	0H2012016	07-24-12	04-17-14	05-12-14
2	0H2012090C	11-21-16	10-20-17	07-27-18
3	0H2018655	08-15-18		

TO BE COMPLETED ON A.I.S.

CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS				
GLENDALE HOLDOUT				
INDEX AND REVISIONS GLENDALE, OH M.P. BE-15.09				
DESIGNED IRS/JTD	DIGITIZED IRS/JTD	CHECKED IRS/LEK	DATE 07-24-12	
DRAWING Ø Ø Ø Ø Ø	SHEET NO Ø Ø Ø Ø Ø	FILE BE01509	SHEET Ø 1 Ø	



NOTES:

1. (X) = LOCATION OF HOUSE
2. [] = TAGGING PURPOSE ONLY

PRELIMINARY

★ = DRAFTING ERROR CORRECTION

PROGRESS
RAIL SERVICES

A Caterpillar Company

DATE: 08/15/18
CSX# 0H2018655
PRS/GMV/SAF

X = OUT
O = IN

CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

GLENDALD HOLDOUT

TRACK AND SIGNAL PLAN
GLENDALD, OH M.P. BE-15.09

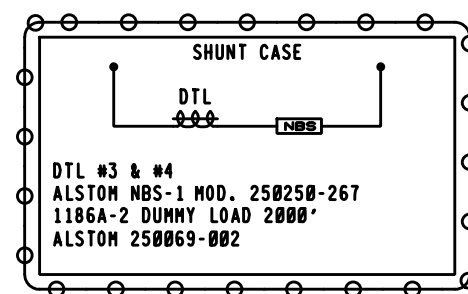
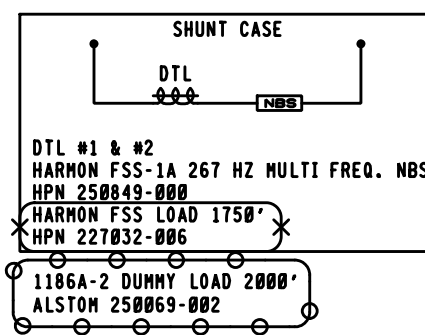
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DESIGN DATE
X-----X

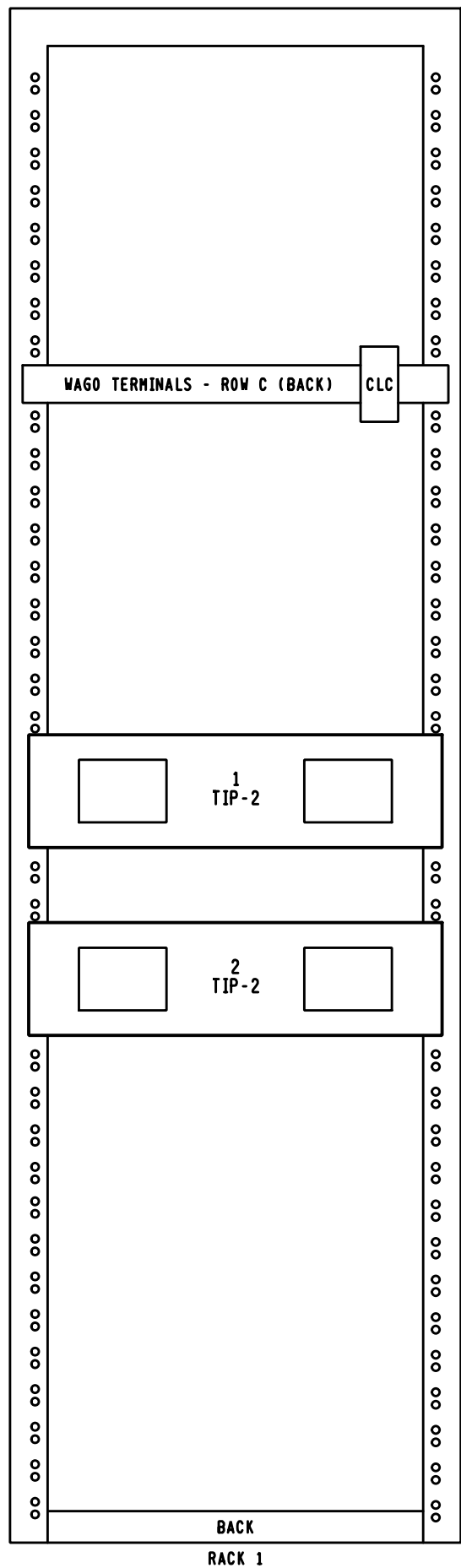
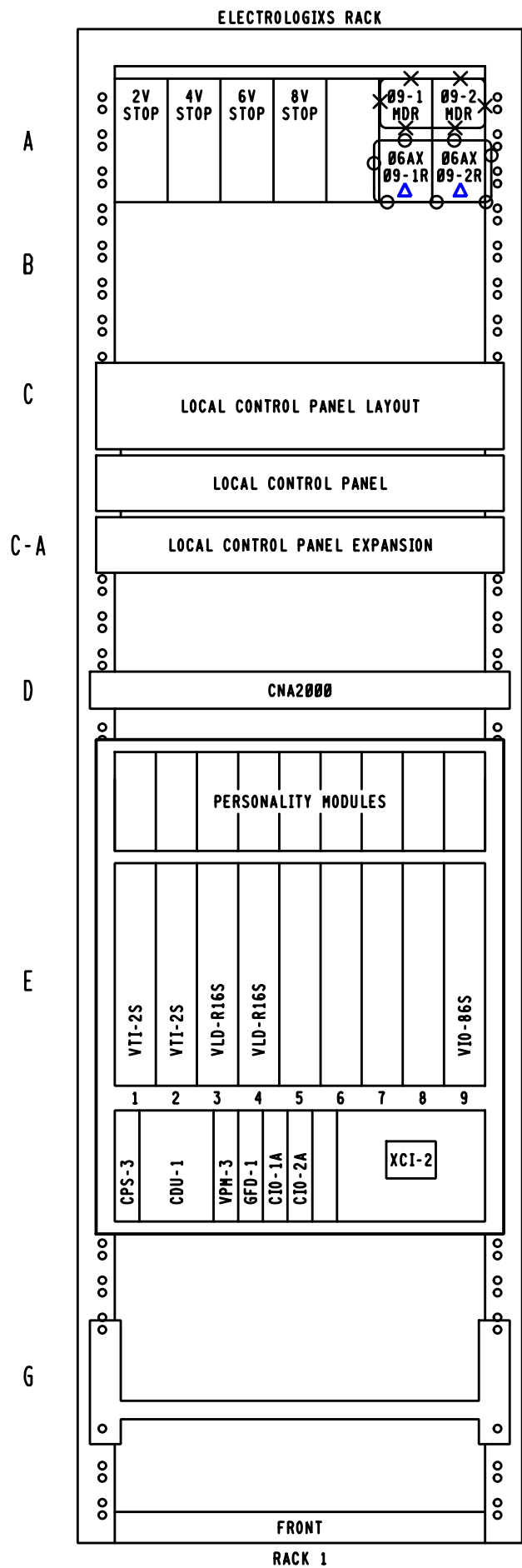
REV. NO.
X2X

08-15-18

3



ELECTROLOGIXS RACK																					
2VSTOP			4VSTOP			6VSTOP			8VSTOP						06AX09-1R 0			06AX09-2R 0			ROW A
09-1NDR X			09-2NDR X																		
12	FB	B77	12	FB	B77	12	FB	B77	12	FB	B77	12	F	B8	12	F	B8				
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			22						
25			25			25			25			25			25						
32	F		32	F		32	F		32	F		32			32						
35	F		35	F		35	F		35	F		35			35						
																				ROW B	



BACK

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	007062-003	6 EA.
A	KIT RLY FL E-POST MOD	005634-000	6 EA.
A	BAR MTG 19" W/BLU PAINT	122272-001	2 EA.
A	TIE BAR RELAY 19" W/BLU PAINT	123160-002	1 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 LCP CPU)	201876-005	1 EA.
(C)	DIN RAIL 35 X 7.5 FOR 19" RACK	124422-000	1 EA.
ROW C	SYSTEM LCP	250726-000	1 EA.
ROW C-A	LOCAL CONTROL PANEL EXPANSION UNIT	250726-001	1 EA.
ROW D	CNA2000 COMMUNICATIONS NETWORK ADAPTER	SUPPLIED BY CSX	1 EA.
ROW E	ELECTROLOGIXS CHASSIS (9-SLOT)	300752-000	1 EA.
E1-E2	VTI-2S PERSONALITY MODULE	227442-000	2 EA.
E1-E2	VTI-2S MODULE	251123-000	2 EA.
E3-E4	VLD-R16S PERSONALITY MODULE	227539-000	2 EA.
E3-E4	VLD-R16S MODULE	251381-000	2 EA.
E9	VIO-86S PERSONALITY MODULE	227537-000	1 EA.
E9	VIO-86S MODULE	251380-000	1 EA.
ROW E	CPS-3 MODULE	251456-000	1 EA.
ROW E	CDU-1	251124-000	1 EA.
ROW E	VPM-3 MODULE	251432-100	1 EA.
ROW E	GFD-1 MODULE	251333-000	1 EA.
ROW E	CIO-1A MODULE	251329-000	1 EA.
ROW E	CIO-2A MODULE	251330-000	1 EA.
ROW E	XCI-2 MODULE	251442-000	1 EA.
ROW E (BACK)	TIP-2	800-096000-011	2 EA.

Δ = NOMENCLATURE CHANGE ONLY

PRELIMINARY

○ = NOTE

PROGRESS
RAIL SERVICES
A Caterpillar Company

DATE: 08/15/18
CSX# 0H2018655
PRS/GHV/SAF

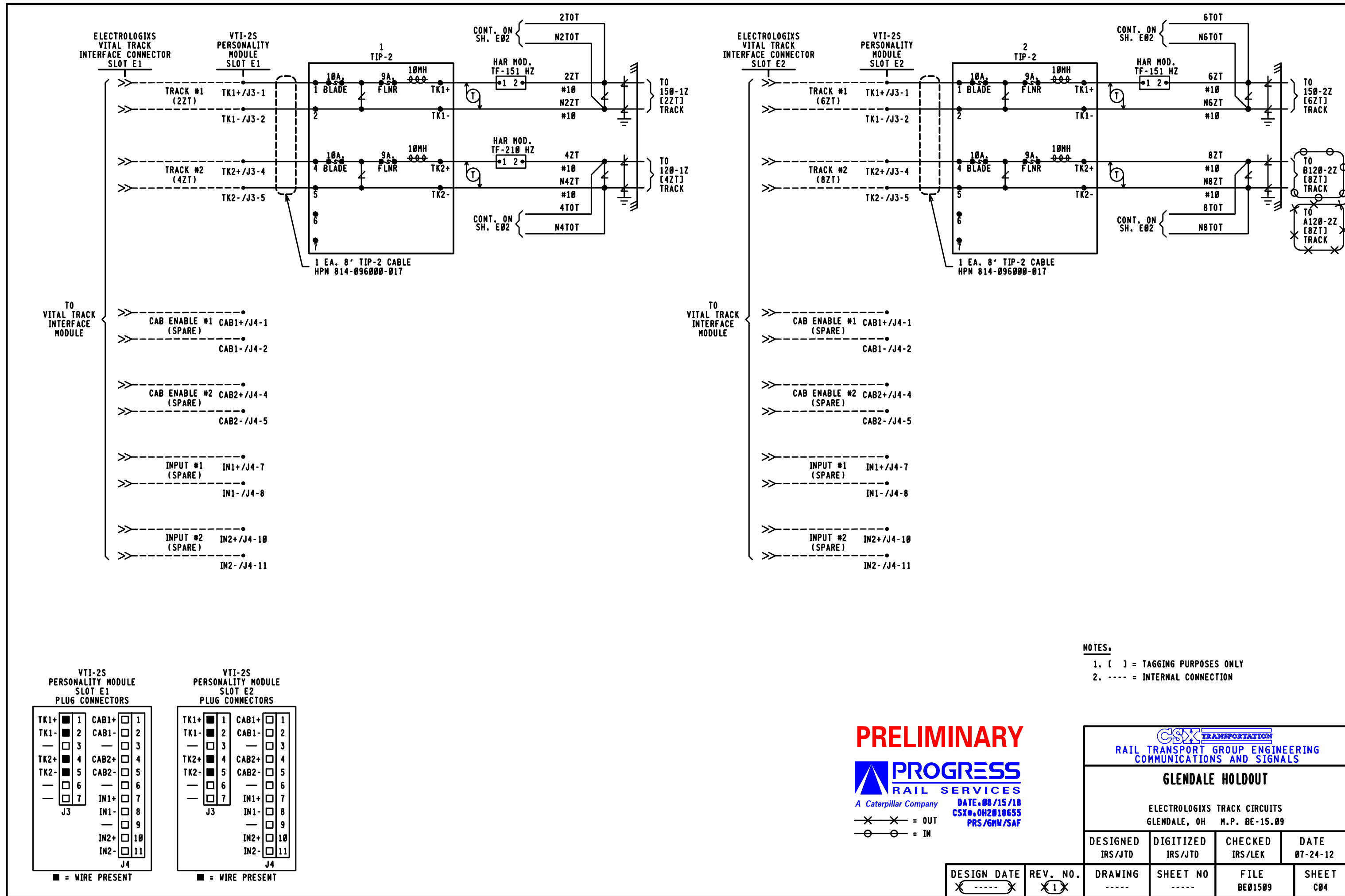
✕ ✕ = OUT
○ ○ = IN

CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

GLENDALE HOLDOUT

RACK 1 LAYOUT
GLENDALE, OH M.P. BE-15.09

DESIGNED IRS/JTD	DIGITIZED IRS/JTD	CHECKED IRS/LEK	DATE 07-24-12
DRAWING -----	SHEET NO -----	FILE BE01509	SHEET E03



PRELIMINARY

PROGRESS
RAIL SERVICES
A Caterpillar Company

DATE: 08/15/18
CSX# 0H2018655
PRS/GMV/SAF

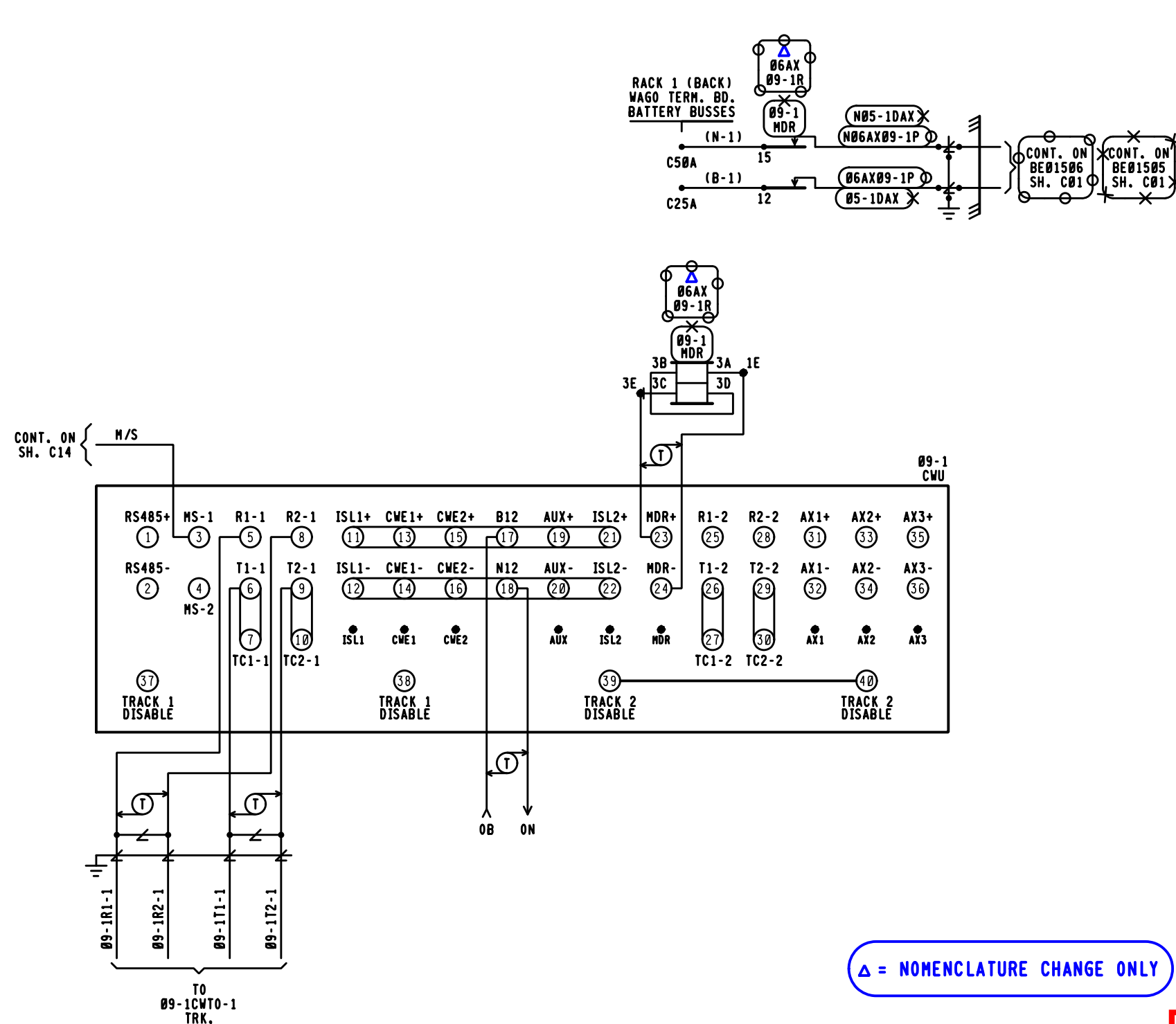
⊗ ⊗ = OUT
⊙ ⊙ = IN

NOTES:

- 1. [] = TAGGING PURPOSES ONLY
- 2. ---- = INTERNAL CONNECTION

CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
GLENDALD HOLDOUT			
ELECTROLOGIXS TRACK CIRCUITS GLENDALD, OH M.P. BE-15.09			
DESIGNED IRS/JTD	DIGITIZED IRS/JTD	CHECKED IRS/LEK	DATE 07-24-12
DRAWING -----	SHEET NO -----	FILE BE01509	SHEET C04

DESIGN DATE: 08-15-18
REV. NO.: 1



09-1CWU
HXP-3 MODULES REQUIRED

RMH MODULE (RECORDER MEMORY) (X)	TRM MODULE TRACK 1 (TRANSCIVER)	TRM MODULE TRACK 2 (TRANSCIVER) (X)	CPU MODULE (CENTRAL PROCESSOR UNIT)
SIM MODULE (SERIAL INTERFACE)	RSI MODULE TRACK 1 (ISLAND) (X)	RSI MODULE TRACK 2 (ISLAND) (X)	AXD MODULE (AUX. XING RELAY DRIVER)
RYD MODULE (RELAY DRIVE)			

FRONT VIEW

09-1 CWU

CABINET SWITCHES
THESE SWITCHES ARE LOCATED ON MOTHERBOARD

MASTER/SLAVE

MASTER SLAVE MASTER SLAVE

S1 TRACK 1 S1 TRACK 2

SYSTEM CONFIGURATION

S5 & S6 DIP SWITCH POSITIONS

SWITCH	1	2	3	4
SWITCH POSITION	ON	OFF	OFF	OFF
APPROACH	NORMAL	(NOT USED)		

FREQUENCY SELECT

S3 & S4 DIP SWITCH POSITIONS 267 HZ

SWITCH	1	2	3	4	5
SWITCH POSITION	OFF	OFF	OFF	ON	OFF

S7 & S8 DIP SWITCH POSITIONS 267 HZ

SWITCH	1	2	3	4	5
SWITCH POSITION	OFF	OFF	OFF	ON	OFF

PRELIMINARY

PROGRESS RAIL SERVICES

A Caterpillar Company

DATE: 08/15/18
CSX# 0H2018655
PRS/GHV/SAF

○ = NOTE

✕ = OUT
○ = IN

- NOTES:
- (X) = MODULE NOT INSTALLED
 - TRACK 2 DISABLE JUMPER INSTALLED.

CSX TRANSPORTATION

RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

GLENDALDE HOLDOUT

CROSSING DETECTION DEVICE CIRCUITRY
GLENDALDE, OH M.P. BE-15.09

DESIGNED IRS/JTD	DIGITIZED IRS/JTD	CHECKED IRS/LEK	DATE 07-24-12
DRAWING	SHEET NO	FILE BE01509	SHEET C12

09-1CWU

HXP-3 APPLICATION DESIGN CARD

OPTION 90 (CABINET #)		CABINET #		
PASSWORD(_*_ _)(SEE MANUAL 100052-001 AAO 1-27		TRACK 1	TRACK 2	DEFAULT
APPROACH LENGTH ADJUSTMENT		X 1550'	1912'	N/A
WARNING TIME ADJUSTMENT		X 30 SEC.	31 SEC.	N/A
LUMPED IMPEDANCE ADJUSTMENT (LIA)		*	N/A	0
TRANSMITTER CHECK ADJUSTMENT (TC)		*	N/A	0
MOTION DETECT RESTART (MD RESTART)		0	*	N/A
OPTION 1 TRACK ENABLE (TK-ENA)		UP	N/A	UP (ALWAYS ENABLED)
OPTION 2 TRACK FREQUENCY (TK F0)		STRAP	◇	N/A
OPTION 3 CONSTANT WARNING/MOTION (CW/MD)		CW	N/A	d (Motion)
OPTION 4 UNI/BIDIRECTIONAL (UNI-BI)		X UNI	BI	N/A
OPTION 5 NARROW BAND COMPENSATION (NBS-C)		⊗	N/A	9,999 FT.
OPTION 6 CWE WARNING TIME (CWEWT)		80 SEC.	N/A	80 SEC.
OPTION 7 LOSS OF SHUNT TIME (LOS)		16 SEC.	N/A	16 SEC.
OPTION 8 LOS W/JOINTS NEAR ISLAND (IJ-LOS)		5 SEC. **	N/A	5 SEC.
OPTION 9 BALLAST COMPENSATION (BC)		*	N/A	FREQUENCY DEPENDANT ⊙
OPTION 10 PHASE COMPENSATION ADJUSTMENT (P-COMP)		-X-X-	N/A	0°
AX OPTIONS Δ		OPTION 11 AX DRIVE #1	OPTION 12 AX DRIVE #2	OPTION 13 AX DRIVE #3
ITEM 1	TRACK ASSIGNMENT (TK-ASN)	N/A	N/A	N/A
ITEM 2	OFFSET DISTANCE TRACK 1 (OF-TK1)	0000'	0000'	0000'
ITEM 3	OFFSET DISTANCE TRACK 2 (OF-TK2)	N/A	N/A	N/A
ITEM 4	WARNING TIME (WT)	99 SEC.	99 SEC.	99 SEC.
ITEM 5	MOTION DETECT RESTART (MD-RST)	99 %	99 %	99 %
ITEM 6	CONSTANT WARNING/MOTION (CW/MD)	CW	d	d
ITEM 7	CLEAR JOINTS LOS (CJ-LOS)	00 SEC.	00 SEC.	00 SEC.
ITEM 8	POST JOINT DETECTION (PJ-DET)	15 SEC.	15 SEC.	15 SEC.
ITEM 9	POST JOINT RX (PJ-RX)	15	15	15
ITEM 10	POSITIVE START	dn	dn	dn
OPTION 17 MDR DRIVE OR AX RELAY DRIVE SELECTION (MDR-AX)		⊙	N/A	dn (STATUS ONLY) ⊕
OPTION 17 SUB-MENU		TRACK 1	TRACK 2	DEFAULT
ITEM 1	MDR-AX OFFSET DISTANCE TRK. 1(OF-TK1) & TRK. 2(OF-TK2)	X 163'	105'	N/A
ITEM 2	MDR-AX CLEAR JOINT LOS TIME (CJ-LOS)	00 SEC.	N/A	0 SEC.
ITEM 3	MDR-AX POST JOINT DETECTION TIME (PJ-DET)	15 SEC.	N/A	15 SEC.
ITEM 4	POST JOINT RX (PJ-RX)	15	N/A	15 (0 = DISABLE)
OPTION 18 MOTION DETECTOR TIMER (MD-TMR)		10 MIN.	N/A	10 MIN. (0 = DISABLE)
OPTION 19 MINIMUM WARNING TIME WITH ADVANCED PREEMPTION (MIN-WT)		00 SEC.	N/A	00 SEC. (0 = DISABLE)
OPTION 20 FALSE SHUNT TIMER ADJUSTMENT (FS-TMR)				
ITEM 1	FALSE SHUNT RX (FS-RX)	0	N/A	0, 0 = DISABLE
ITEM 2	FALSE SHUNT TIMER ADJUSTMENT (FS-TM)	10	N/A	10
OPTION 21 POSITIVE START RX & TIMER ADJUSTMENT (POS-ST)				
ITEM 1	POSITIVE START RX (POS-RX)	0	N/A	0, 0 = DISABLE
ITEM 2	POSITIVE START TIMER (POS-TM)	10	N/A	10
OPTION 22 APPROACH RELEASE RX (AR-TM)				
ITEM 1	APPROACH RELEASE RX (AR-RX)	0	N/A	0, 0 = DISABLE
ITEM 2	APPROACH RELEASE TIMER (AR-TM)	10	N/A	10
OPTION 47 AUTO RX ADJUSTMENT (ATO-RX)		dn	N/A	dn = DISABLE
OPTION 48 PREDICTIVE FILTER ENABLE/DISABLE (PF-ENA)		dn	N/A	dn = DISABLE
OPTION 49 RESET LOCAL PARAMETERS TO DEFAULT SETTINGS (RESET)				PAGE 3-14 & 3-41
OPTION 50 RECORDER PRINTER CONTROL (PRNTR)				PAGE 1-47 & 3-41
OPTION 51 CLOCK ADJUSTMENT (CLOCK)				PAGE 3-32
OPTION 70 LOCAL SERIAL I/O PORT ADJUSTMENT (LSP)				
ITEM 1	BAUD RATE	38.4	⬆	PAGE 1-47 & 3-42
ITEM 2	DBITS (DATA BITS)	8	⬆	PAGE 1-47 & 3-42
ITEM 3	PA (PARITY)	NO(=NO PARITY)	⬆	PAGE 1-47 & 3-42
OPTION 90 CABINET NUMBER DISPLAY (CAB)		*		PAGE 1-47 & 3-41
OPTION 91 HXP-3 OPERATING PROGRAM VERSION NUMBER (VERS)		*		VERSION 35.0
OPTION 99 RESET PASSWORD TIMER (TIMER)			⬆	PAGE 3-30

NOTES.

* = ENTRY TO BE DONE ON AS-IN-SERVICE.

☆ = NORMALLY SET AT "0" SEE MANUAL 100052-001 AAO PG. 1-46 & 3-41.

◇ = THE WORD STRAP IS DISPLAYED WHEN FREQUENCY SELECT DIP SWITCHES USED TO SELECT A STANDARD FREQUENCY.

⊗ = ADJUSTMENT NECESSARY ONLY WHEN AX RELAY DRIVE MODULE USED.

** = ADJUSTMENT NECESSARY IF INSULATED JOINTS ARE LOCATED NEAR ISLAND CIRCUIT.

-X-X- = ADJUSTMENT NECESSARY ONLY IF VERY POOR BALLAST CONDITIONS NEED TO BE COMPENSATED.

⊙ = OPTION 17 SUB-MENU USED ONLY WHEN AX RELAY DRIVE OPERATION IS SELECTED. ENTERING AN OFFSET DISTANCE VALUE OTHER THAN ZERO ASSIGNS A MDR AS AN AX DRIVE.

Δ 1. WHEN AXD MODULES ARE NOT INSTALLED, THEIR ASSOCIATED OPTIONS AND ADJUSTMENTS ARE NOT DISPLAYED.

2. PROGRAM UNUSED AX OPTION(S) SAME AS OPTION 11. IF AX OPTION 12 OR 13 IS USED IN FUTURE THEN REPROGRAM AS APPLICABLE.

⊙ = FREQUENCY DEPENDANT, RANGE BETWEEN 50-250 TO BE SUPPLIED ON AS-IN-SERVICE.

⬆ = OPTIONS 50-99 ARE NON-VITAL AND NOT REQUIRED FOR INITIAL SETUP. SEE MANUAL 100052-001 AAO. FOR OPTIONS 49 TO 99 SEE PAGES AS LISTED IN DEFAULT COLUMN.

⊕ = SET CORRECT LOCAL TIME AND DATE. TIME OF DAY SHOULD BE SYNCHRONIZED WITH TIME SHOWN BY EXTERNAL EVENT RECORDER.

PRELIMINARY

PROGRESS

RAIL SERVICES

A Caterpillar Company

DATE: 08/15/18
CSX# 0H2018655
PRS/GMV/SAF

CSX TRANSPORTATION

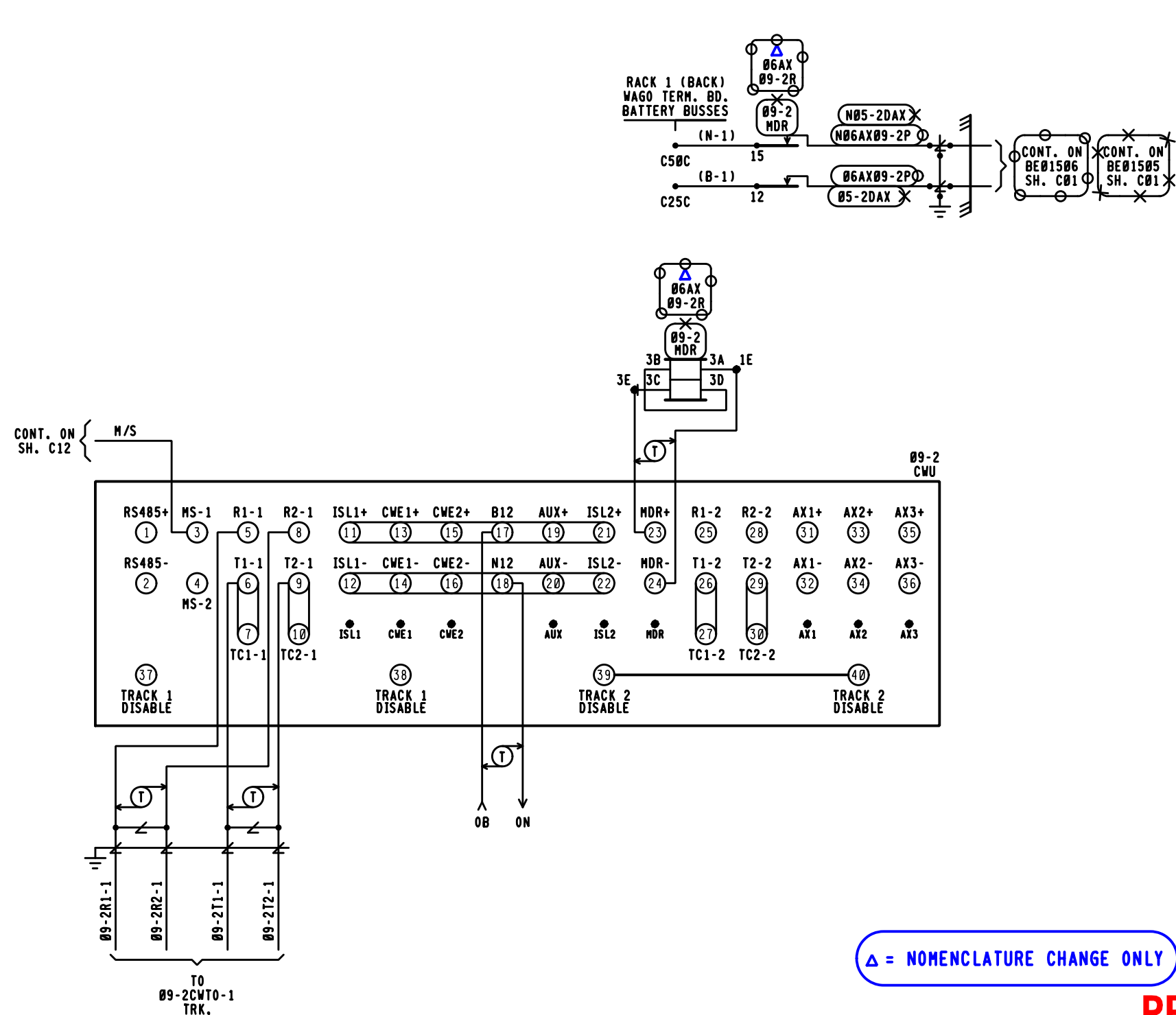
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

GLENDALE HOLDOUT

CROSSING DETECTION DEVICE PROGRAM
GLENDALE, OH M.P. BE-15.09

DESIGNED IRS/JTD	DIGITIZED IRS/JTD	CHECKED IRS/LEK	DATE 07-24-12
DRAWING -----	SHEET NO -----	FILE BE01509	SHEET C13

DESIGN DATE	REV. NO.
X -----	X 1
08-15-18	3



**09-2CWU
HXP-3 MODULES REQUIRED**

RMH MODULE (RECORDER MEMORY) (X)	TRM MODULE TRACK 1 (TRANSCIVER)	TRM MODULE TRACK 2 (TRANSCIVER) (X)	CPU MODULE (CENTRAL PROCESSOR UNIT)
SIM MODULE (SERIAL INTERFACE)	RSI MODULE TRACK 1 (ISLAND) (X)	RSI MODULE TRACK 2 (ISLAND) (X)	AXD MODULE (AUX. XING RELAY DRIVER) (X)
	RYD MODULE (RELAY DRIVE)		

FRONT VIEW

**09-2
CWU**

CABINET SWITCHES
THESE SWITCHES ARE LOCATED ON MOTHERBOARD

MASTER/SLAVE

MASTER SLAVE MASTER SLAVE

S1 TRACK 1 S1 TRACK 2

SYSTEM CONFIGURATION
S5 & S6 DIP SWITCH POSITIONS

SWITCH	1	2	3	4
SWITCH POSITION	ON	OFF	OFF	OFF
APPROACH	NORMAL	(NOT USED)		

FREQUENCY SELECT

TRACK 1

S3 & S4 DIP SWITCH POSITIONS 267 HZ				
SWITCH	1	2	3	4
SWITCH POSITION	OFF	OFF	OFF	ON

TRACK 2

S7 & S8 DIP SWITCH POSITIONS 267 HZ				
SWITCH	1	2	3	4
SWITCH POSITION	OFF	OFF	OFF	ON

Δ = NOMENCLATURE CHANGE ONLY

PRELIMINARY

PROGRESS
RAIL SERVICES
A Caterpillar Company

DATE: 08/15/18
CSX# 0H2018655
PRS/GNW/SAF

○ = NOTE

✕ = OUT
○ = IN

- NOTES:**
- (X) = MODULE NOT INSTALLED
 - TRACK 2 DISABLE JUMPER INSTALLED.

CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

GLENDALE HOLDOUT

CROSSING DETECTION DEVICE CIRCUITRY
GLENDALE, OH M.P. BE-15.09

DESIGNED IRS/JTD	DIGITIZED IRS/JTD	CHECKED IRS/LEK	DATE 07-24-12
DRAWING	SHEET NO	FILE BE01509	SHEET C14

09-2CWU

HXP-3 APPLICATION DESIGN CARD

OPTION 90 (CABINET #)		CABINET #		
PASSWORD(_*_ _)(SEE MANUAL 100052-001 AAO 1-27		TRACK 1	TRACK 2	DEFAULT
APPROACH LENGTH ADJUSTMENT		1550'	1912'	9,999 FT.
WARNING TIME ADJUSTMENT		30 SEC.	31 SEC.	99 SEC.
LUMPED IMPEDANCE ADJUSTMENT (LIA)		*	N/A	0
TRANSMITTER CHECK ADJUSTMENT (TC)		*	N/A	0
MOTION DETECT RESTART (MD RESTART)		0	*	99%
OPTION 1 TRACK ENABLE (TK-ENA)		UP	N/A	UP (ALWAYS ENABLED)
OPTION 2 TRACK FREQUENCY (TK F0)		STRAP	◇	0 HZ
OPTION 3 CONSTANT WARNING/MOTION (CW/MD)		CW	N/A	d (Motion)
OPTION 4 UNI/BIDIRECTIONAL (UNI-BI)		UNI	BI	b (b1)
OPTION 5 NARROW BAND COMPENSATION (NBS-C)		⊗	N/A	9,999 FT.
OPTION 6 CWE WARNING TIME (CWEWT)		80 SEC.	N/A	80 SEC.
OPTION 7 LOSS OF SHUNT TIME (LOS)		16 SEC.	N/A	16 SEC.
OPTION 8 LOS W/JOINTS NEAR ISLAND (IJ-LOS)		5 SEC. **	N/A	5 SEC.
OPTION 9 BALLAST COMPENSATION (BC)		*	N/A	FREQUENCY DEPENDANT ⊙
OPTION 10 PHASE COMPENSATION ADJUSTMENT (P-COMP)		-*-*-	N/A	0°
AX OPTIONS Δ		OPTION 11 AX DRIVE #1	OPTION 12 AX DRIVE #2	OPTION 13 AX DRIVE #3
ITEM 1	TRACK ASSIGNMENT (TK-ASN)	N/A	N/A	N/A
ITEM 2	OFFSET DISTANCE TRACK 1 (OF-TK1)	0000'	0000'	0000'
ITEM 3	OFFSET DISTANCE TRACK 2 (OF-TK2)	N/A	N/A	N/A
ITEM 4	WARNING TIME (WT)	99 SEC.	99 SEC.	99 SEC.
ITEM 5	MOTION DETECT RESTART (MD-RST)	99 %	99 %	99 %
ITEM 6	CONSTANT WARNING/MOTION (CW/MD)	CW	d	d
ITEM 7	CLEAR JOINTS LOS (CJ-LOS)	00 SEC.	00 SEC.	00 SEC.
ITEM 8	POST JOINT DETECTION (PJ-DET)	15 SEC.	15 SEC.	15 SEC.
ITEM 9	POST JOINT RX (PJ-RX)	15	15	15
ITEM 10	POSITIVE START	dn	dn	dn
OPTION 17 MDR DRIVE OR AX RELAY DRIVE SELECTION (MDR-AX)		⊙	N/A	dn (STATUS ONLY) ⊕
OPTION 17 SUB-MENU		TRACK 1	TRACK 2	DEFAULT
ITEM 1	MDR-AX OFFSET DISTANCE TRK. 1(OF-TK1) & TRK. 2(OF-TK2)	163'	105'	0 FT.= CONFIGURED AS MDR
ITEM 2	MDR-AX CLEAR JOINT LOS TIME (CJ-LOS)	00 SEC.	N/A	0 SEC.
ITEM 3	MDR-AX POST JOINT DETECTION TIME (PJ-DET)	15 SEC.	N/A	15 SEC.
ITEM 4	POST JOINT RX (PJ-RX)	15	N/A	15 (0 = DISABLE)
OPTION 18 MOTION DETECTOR TIMER (MD-TMR)		10 MIN.	N/A	10 MIN. (0 = DISABLE)
OPTION 19 MINIMUM WARNING TIME WITH ADVANCED PREEMPTION (MIN-WT)		00 SEC.	N/A	00 SEC. (0 = DISABLE)
OPTION 20 FALSE SHUNT TIMER ADJUSTMENT (FS-TMR)				
ITEM 1	FALSE SHUNT RX (FS-RX)	0	N/A	0, 0 = DISABLE
ITEM 2	FALSE SHUNT TIMER ADJUSTMENT (FS-TM)	10	N/A	10
OPTION 21 POSITIVE START RX & TIMER ADJUSTMENT (POS-ST)				
ITEM 1	POSITIVE START RX (POS-RX)	0	N/A	0, 0 = DISABLE
ITEM 2	POSITIVE START TIMER (POS-TM)	10	N/A	10
OPTION 22 APPROACH RELEASE RX (AR-TM)				
ITEM 1	APPROACH RELEASE RX (AR-RX)	0	N/A	0, 0 = DISABLE
ITEM 2	APPROACH RELEASE TIMER (AR-TM)	10	N/A	10
OPTION 47 AUTO RX ADJUSTMENT (ATO-RX)		dn	N/A	dn = DISABLE
OPTION 48 PREDICTIVE FILTER ENABLE/DISABLE (PF-ENA)		dn	N/A	dn = DISABLE
OPTION 49 RESET LOCAL PARAMETERS TO DEFAULT SETTINGS (RESET)				PAGE 3-14 & 3-41
OPTION 50 RECORDER PRINTER CONTROL (PRNTR)				PAGE 1-47 & 3-41
OPTION 51 CLOCK ADJUSTMENT (CLOCK)				PAGE 3-32
OPTION 70 LOCAL SERIAL I/O PORT ADJUSTMENT (LSP)				
ITEM 1	BAUD RATE	38.4	⬆	PAGE 1-47 & 3-42
ITEM 2	DBITS (DATA BITS)	8	⬆	PAGE 1-47 & 3-42
ITEM 3	PA (PARITY)	NO(=NO PARITY)	⬆	PAGE 1-47 & 3-42
OPTION 90 CABINET NUMBER DISPLAY (CAB)		*		PAGE 1-47 & 3-41
OPTION 91 HXP-3 OPERATING PROGRAM VERSION NUMBER (VERS)		*		VERSION 35.0
OPTION 99 RESET PASSWORD TIMER (TIMER)			⬆	PAGE 3-30

NOTES.

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** = ADJUSTMENT NECESSARY IF INSULATED JOINTS ARE LOCATED NEAR ISLAND CIRCUIT.

-*-*- = ADJUSTMENT NECESSARY ONLY IF VERY POOR BALLAST CONDITIONS NEED TO BE COMPENSATED.

⊙ = OPTION 17 SUB-MENU USED ONLY WHEN AX RELAY DRIVE OPERATION IS SELECTED. ENTERING AN OFFSET DISTANCE VALUE OTHER THAN ZERO ASSIGNS A MDR AS AN AX DRIVE.

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2. PROGRAM UNUSED AX OPTION(S) SAME AS OPTION 11. IF AX OPTION 12 OR 13 IS USED IN FUTURE THEN REPROGRAM AS APPLICABLE.

⊙ = FREQUENCY DEPENDANT, RANGE BETWEEN 50-250 TO BE SUPPLIED ON AS-IN-SERVICE.

⬆ = OPTIONS 50-99 ARE NON-VITAL AND NOT REQUIRED FOR INITIAL SETUP. SEE MANUAL 100052-001 AAO. FOR OPTIONS 49 TO 99 SEE PAGES AS LISTED IN DEFAULT COLUMN.

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PRELIMINARY



PROGRESS
RAIL SERVICES

A Caterpillar Company

DATE: 08/15/18
CSX# 0H2018655
PRS/GMV/SAF

-*-*- = OUT

⊙ = IN

CSX TRANSPORTATION

RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

GLENDALE HOLDOUT

CROSSING DETECTION DEVICE PROGRAM
GLENDALE, OH M.P. BE-15.09

DESIGNED IRS/JTD	DIGITIZED IRS/JTD	CHECKED IRS/LEK	DATE 07-24-12
DRAWING -----	SHEET NO -----	FILE BE01509	SHEET C15

DESIGN DATE
08-15-18

REV. NO.
1

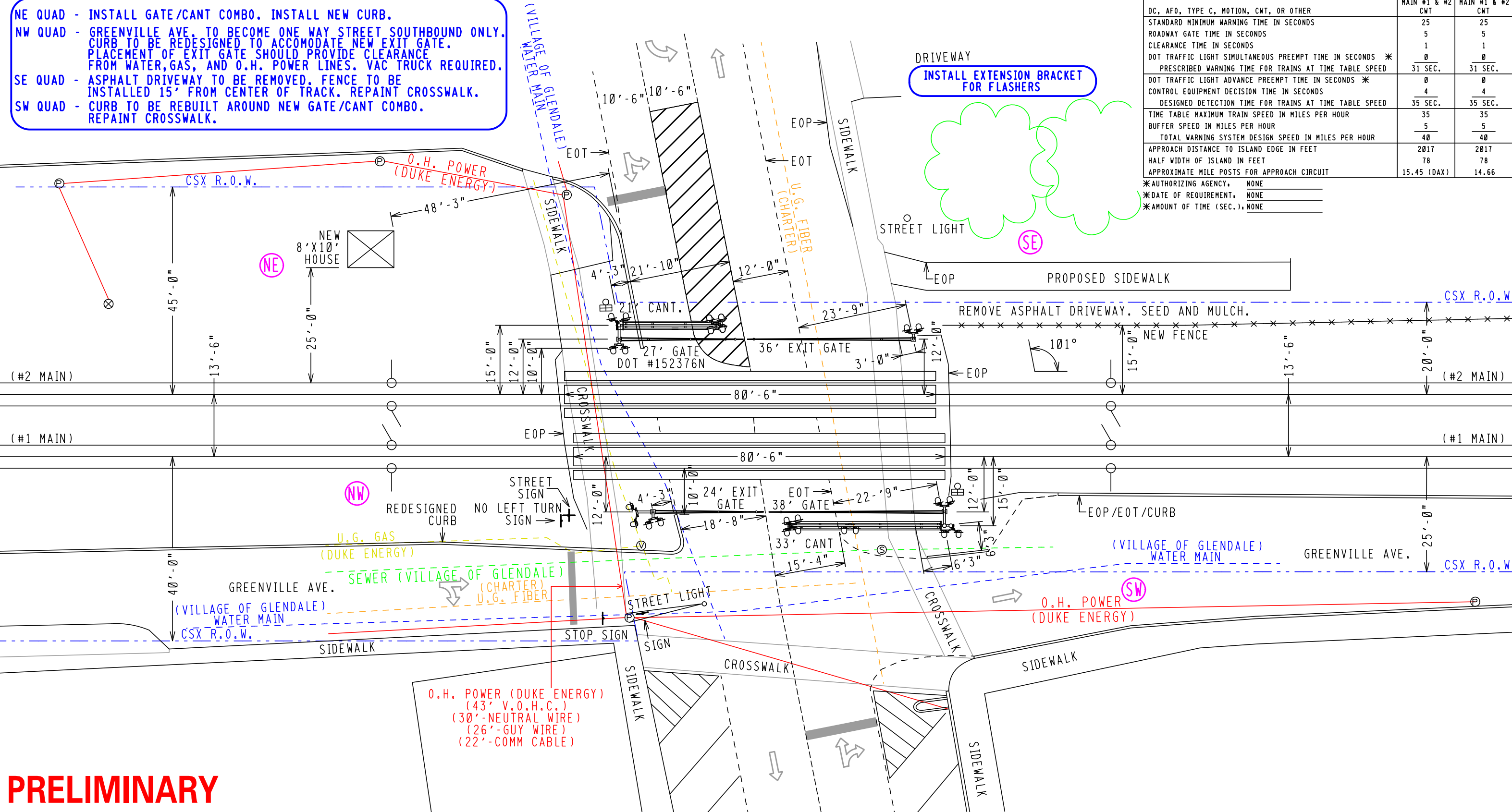
R.R. NORTH TO HAMILTON

(DAX) 2017 FT. 78 FT. 78 FT. 2017 FT.
(DAX) 2017 FT. 78 FT. 78 FT. 2017 FT.

- NE QUAD - INSTALL GATE/CANT COMBO. INSTALL NEW CURB.
NW QUAD - GREENVILLE AVE. TO BECOME ONE WAY STREET SOUTHBOUND ONLY. CURB TO BE REDESIGNED TO ACCOMMODATE NEW EXIT GATE. PLACEMENT OF EXIT GATE SHOULD PROVIDE CLEARANCE FROM WATER, GAS, AND O.H. POWER LINES. VAC TRUCK REQUIRED.
SE QUAD - ASPHALT DRIVEWAY TO BE REMOVED. FENCE TO BE INSTALLED 15' FROM CENTER OF TRACK. REPAINT CROSSWALK.
SW QUAD - CURB TO BE REBUILT AROUND NEW GATE/CANT COMBO. REPAINT CROSSWALK.

APPROACH LENGTHS TABLE		SOUTHBOUND MAIN #1 & #2 CWT	NORTHBOUND MAIN #1 & #2 CWT
DC, AFO, TYPE C, MOTION, CWT, OR OTHER			
STANDARD MINIMUM WARNING TIME IN SECONDS		25	25
ROADWAY GATE TIME IN SECONDS		5	5
CLEARANCE TIME IN SECONDS		1	1
DOT TRAFFIC LIGHT SIMULTANEOUS PREEMPT TIME IN SECONDS *		0	0
PRESCRIBED WARNING TIME FOR TRAINS AT TIME TABLE SPEED		31 SEC.	31 SEC.
DOT TRAFFIC LIGHT ADVANCE PREEMPT TIME IN SECONDS *		0	0
CONTROL EQUIPMENT DECISION TIME IN SECONDS		4	4
DESIGNED DETECTION TIME FOR TRAINS AT TIME TABLE SPEED		35 SEC.	35 SEC.
TIME TABLE MAXIMUM TRAIN SPEED IN MILES PER HOUR		35	35
BUFFER SPEED IN MILES PER HOUR		5	5
TOTAL WARNING SYSTEM DESIGN SPEED IN MILES PER HOUR		40	40
APPROACH DISTANCE TO ISLAND EDGE IN FEET		2017	2017
HALF WIDTH OF ISLAND IN FEET		78	78
APPROXIMATE MILE POSTS FOR APPROACH CIRCUIT		15.45 (DAX)	14.66

*AUTHORIZING AGENCY, NONE
*DATE OF REQUIREMENT, NONE
*AMOUNT OF TIME (SEC.), NONE



PRELIMINARY

FILE NAME, BE01506.H01	REVISION DATES
DATE DRAWN, 05-17-18	12-12-18
DRAWN BY, GMW	-
CHECKED BY, SAF	-
PRS #, CSX180030	-

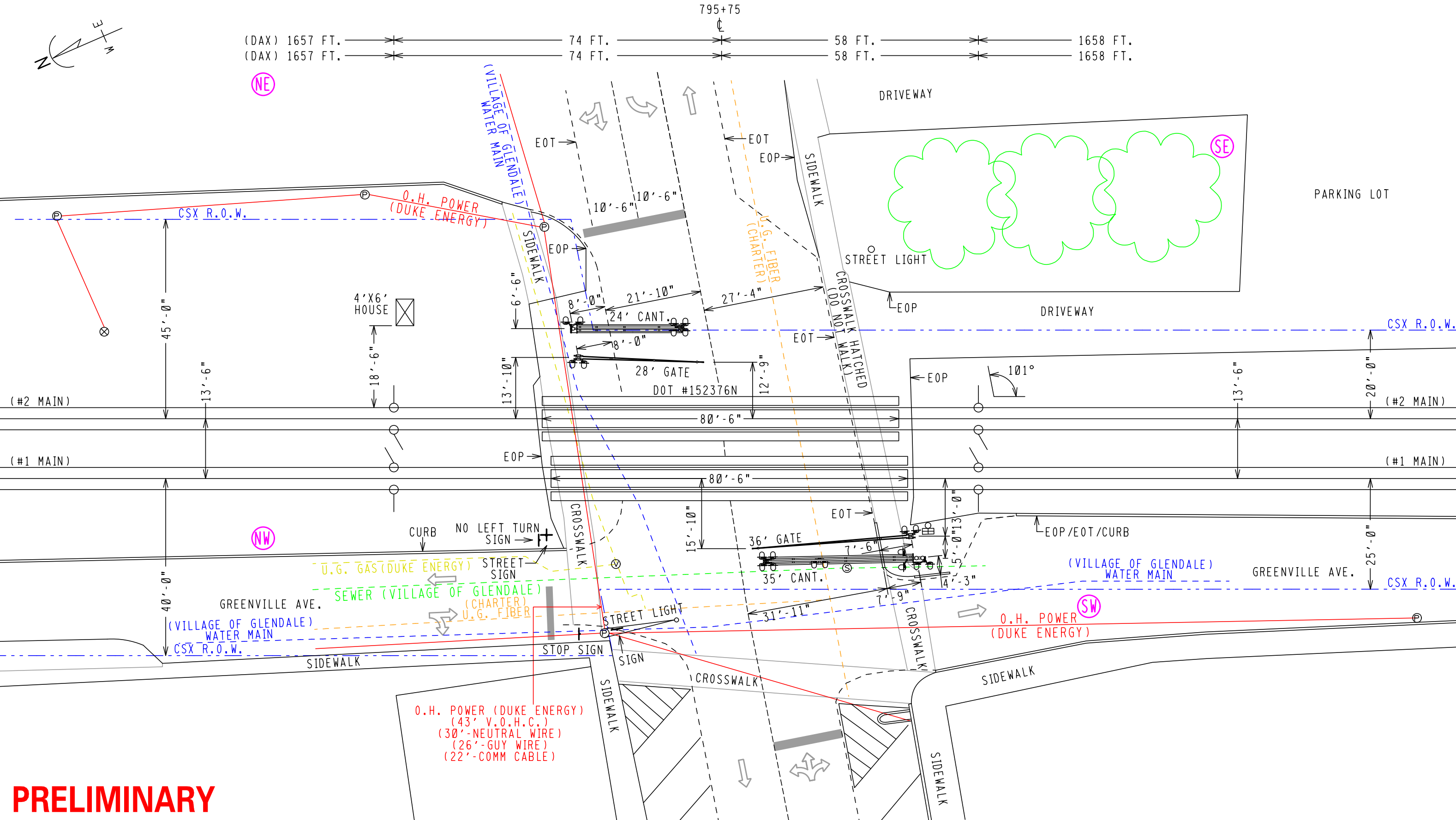
PRODUCED FOR,
CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

PRODUCED BY,
PROGRESS
RAIL SERVICES
A Caterpillar Company

LEGEND	GUARD RAIL	METER SERVICE	GPS COORDINATES
CSX ROW	O.H. POWER	POLE	N39°16'20"
R/R POLELINE	FENCE	FIRE PLUG	W84°27'31"
GAS	WATER	SEWER CAP	ELEV, 636'
FIBER OPTIC	SEWER	GAS VENT	M.P. BE-15.06

STREET NAME, E. SHARON AVE.	CITY & STATE, GLENDALE, (HAMILTON), OH
DOT, 152376N	PROJECT #, OH2018655
OP #, OH1245	SCALE = 20:1

R.R. NORTH TO HAMILTON



PRELIMINARY

FILE NAME, BE01506.H02	REVISION DATES	PRODUCED FOR,	PRODUCED BY,	LEGEND,	GUARD RAIL	METER SERVICE	GPS COORDINATES	STREET NAME, E. SHARON AVE.	
DATE DRAWN, 05-17-18	- -	 RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS	 A Caterpillar Company	CSX ROW	O.H. POWER	POLE	N39°16'20"	CITY & STATE, GLENDALE, (HAMILTON), OH	
DRAWN BY, GMW	- -			R/R POLELINE	FENCE	FIRE PLUG	W84°27'31"	DOT, 152376N	EXISTING CROSSING LAYOUT SCALE = 20:1
CHECKED BY, SAF	- -			GAS	WATER	SEWER CAP	ELEV, 636'	PROJECT #, OH2018655	
PRS #, CSX180030	- -			FIBER OPTIC	SEWER	GAS VENT	M.P. BE-15.06	OP #, OH1245	

R.R. NORTH TO HAMILTON



GLENDALE HOLDOUT
 M.P. BE-15.09
 8'X10' HOUSE
 ELECTROLOGIXS
 HXP-3
 09-2CWU-267 HZ
 09-1CWU-267 HZ
 DWG# BE01509

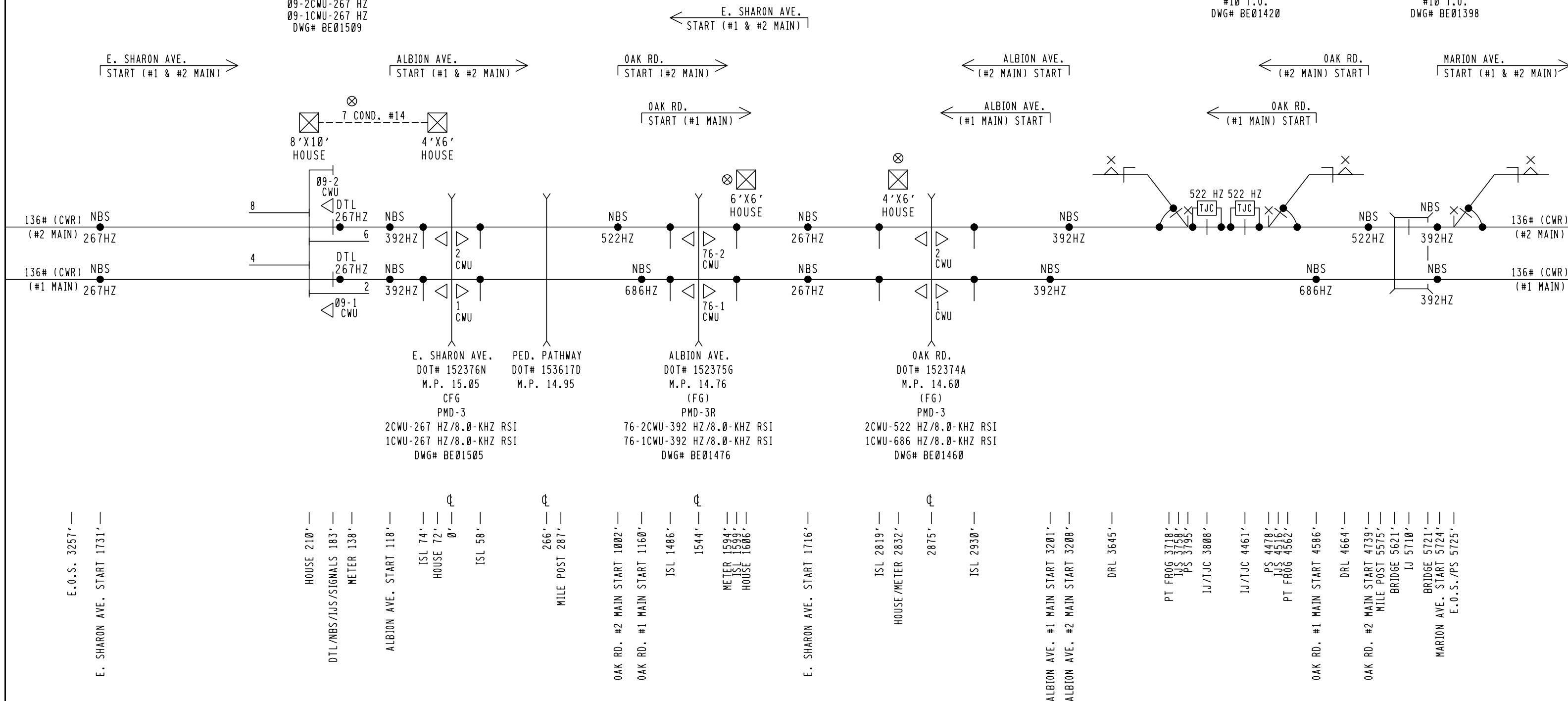
BE  15

H.T. SWITCH
M.P. BE-14.39
#10 T.O.
DWG# BE01439

H.T. SWITCH
M.P. BE-14.20
#10 T.O.
DWG# BE01420

H.T. SWITCH
M.P. BE-13.98
#10 T.O.
DWG# BE01398

BE  14



PRELIMINARY

FILE NAME, BE01506.H03	REVISION DATES	PRODUCED FOR,	PRODUCED BY,	LEGEND,	GUARD RAIL	METER SERVICE	GPS COORDINATES	STREET NAME, E. SHARON AVE.	
DATE DRAWN, 05-17-18	- -	 RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS	 A Caterpillar Company	CSX ROW -- -- -- --	O.H. POWER	POLE	N39°16'20"	CITY & STATE, GLENDALE, (HAMILTON), OH	
DRAWN BY, GMW	- -			R/R POLELINE	FENCE x x x x x	FIRE PLUG	W84°27'31"	DOT, 152376N	PROJECT #, 0H2018655 EXISTING CROSSING LAYOUT
CHECKED BY, SAF	- -			GAS	WATER	SEWER CAP	ELEV, 636'		
PRS #, CSX180030	- -			FIBER OPTIC	SEWER	GAS VENT	M.P. BE-15.06	OP #, 0H1245	

R.R. NORTH TO HAMILTON



GLENDALD HOLDOUT

M.P. BE-15.09
8'X10' HOUSE
ELECTROLOGIXS
HXP-3
09-2CWU-267 HZ
09-1CWU-267 HZ
DWG# BE01509

E. SHARON AVE.

(DAX) START (#1 & #2 MAIN)

OAK RD.

START (#1 & #2 MAIN)

E. SHARON AVE.

START (#1 & #2 MAIN)

CUT SECTION

M.P. BE-14.20
6'X6' HOUSE
ELECTROLOGIXS
XP4
20CWU-816 HZ
DWG# BE01420

BE 14

H.T. SWITCH
M.P. BE-13.98
#10 T.O.
DWG# BE01398

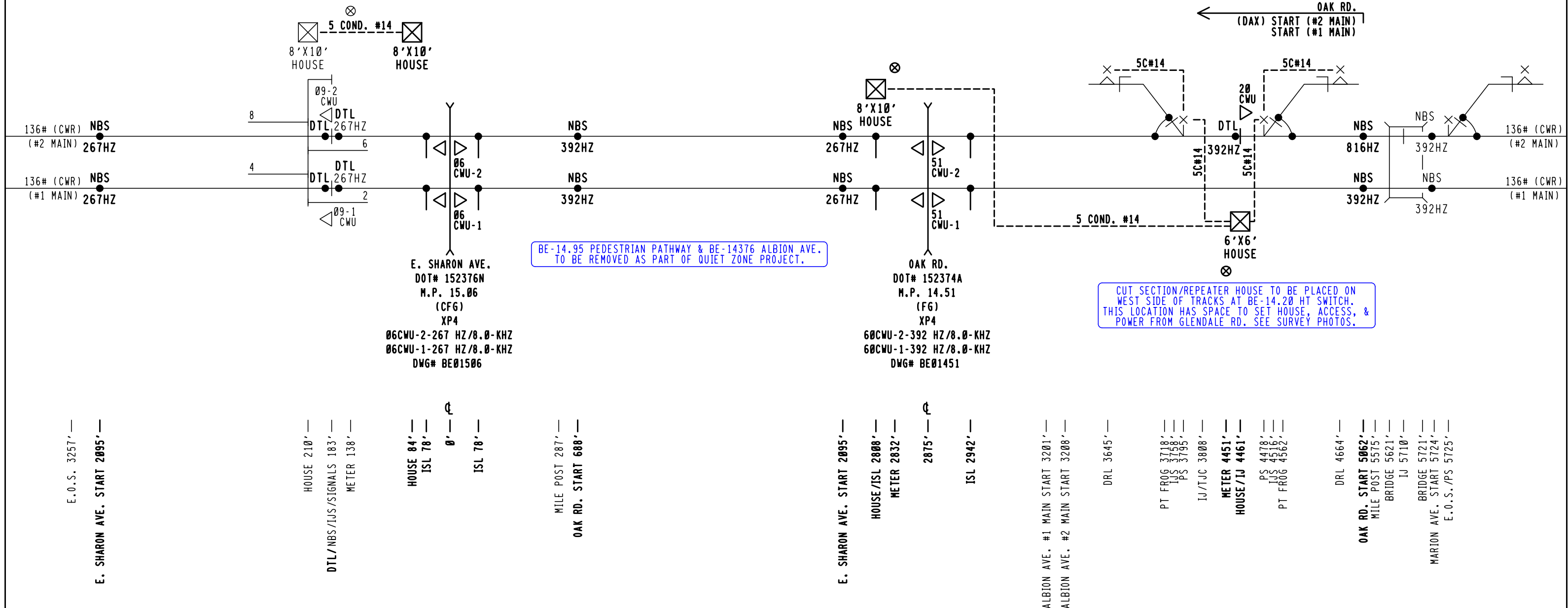
H.T. SWITCH	H.T. SWITCH
M.P. BE-14.39	M.P. BE-14.20
#10 T.O.	#10 T.O.
DWG# BE01420	DWG# BE01420

MARION AVE.

START (#1 & #2 MAIN)

OAK RD.

```
(DAX) START (#2 MAIN)
      START (#1 MAIN)
```



PRELIMINARY

FILE NAME, BE01506.H04	REVISION DATES	PRODUCED FOR,	PRODUCED BY,	LEGEND,	GUARD RAIL	METER SERVICE	GPS COORDINATES	STREET NAME, E. SHARON AVE.	
DATE DRAWN, 05-17-18	12-12-18	 RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS	 A Caterpillar Company	CSX ROW	O.H. POWER	POLE	N39°16'20"	CITY & STATE, GLENDALE, (HAMILTON), OH	
DRAWN BY, GMW	-			R/R POLELINE	FENCE	FIRE PLUG	W84°27'31"	DOT, 152376N	PROPOSED CROSSING LAYOUT
CHECKED BY, SAF	-			GAS	WATER	SEWER CAP	ELEV, 636'	PROJECT #, 0H2018655	
PRS #, CSX180030	-			FIBER OPTIC	SEWER	GAS VENT	M.P. BE-15.06	OP #, 0H1245	

SH. NO.	INDEX CONTENTS	REVISION NO.								
		1	2	3	4	5	6	7	8	9
I01	INDEX AND REVISIONS	/								
S01	TRACK AND SIGNAL PLAN	/								
E01	POWER DISTRIBUTION	/								
E02	RELAY DETAIL	/								
E03	RACK 1 LAYOUT	/								
E04	RACK 2 LAYOUT	/								
E05	ELECTROLOGIXS XP4 MODULE LAYOUT	/								
C01	XP4 CROSSING DETECTION AND I/O CIRCUITS	/								
C02	XP4 SET UP INFORMATION	/								
C03	CROSSING WARNING DEVICE GATE CIRCUITRY	/								
C04	CROSSING WARNING DEVICE GATE CIRCUITRY	/								
C05	CROSSING WARNING DEVICE LIGHT CIRCUITRY	/								
C06	CROSSING WARNING DEVICE LIGHT CIRCUITRY	/								
C07	WAGO TERMINAL BOARD	/								
C08	SEAR II CIRCUITS	/								
C09	SEAR II CONFIGURATION AND FUNCTIONS	/								
C10	SEAR II CHANNELS	/								
C11	ANALOG AND DIGITAL I/O UNIT CIRCUITS	/								
C12	ANALOG AND DIGITAL I/O UNIT CHANNELS	/								
C13	WAYSIDE ACCESS GATEWAY	/								
C14	EGMS RACK INFORMATION	/								
C15	EGMS RACK CIRCUITRY	/								
C16	EGMS RACK CIRCUITRY	/								
C17	PRESENCE LOOP DETECTOR LAYOUT	/								

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

FOR AMPERAGES OF 15 AMPS OR LESS PER LEG USE THE FOLLOWING POWER CABLE DESIGN GUIDELINES

3 COND. #6 W/GND. (5% VD) $X \leq 402'$
3 COND. #4 W/GND. (5% VD) $403' < X \leq 618'$
* 3 COND. #2 W/GND. (10% VD) $619' < X \leq 1,856'$

* GREATER THAN 1,856' CABLE RUN CALCULATE ACTUAL CABLE SIZE REQUIREMENTS PER SS360.

PRELIMINARY

 = NOTE


A Caterpillar Company

DATE: 08/15/18
CSX # 0H2018655
PRS/GHW/SAF

NEW WORK

DESIGN DATE
08-15-18

REV. NO.
1

REVISIONS				
REV. NO.	PROJECT NO.	DESIGN DATE	IN SERVICE DATE	REVISION DATE
1	0H2018655	08-15-18		

TO BE COMPLETED ON A.I.S.

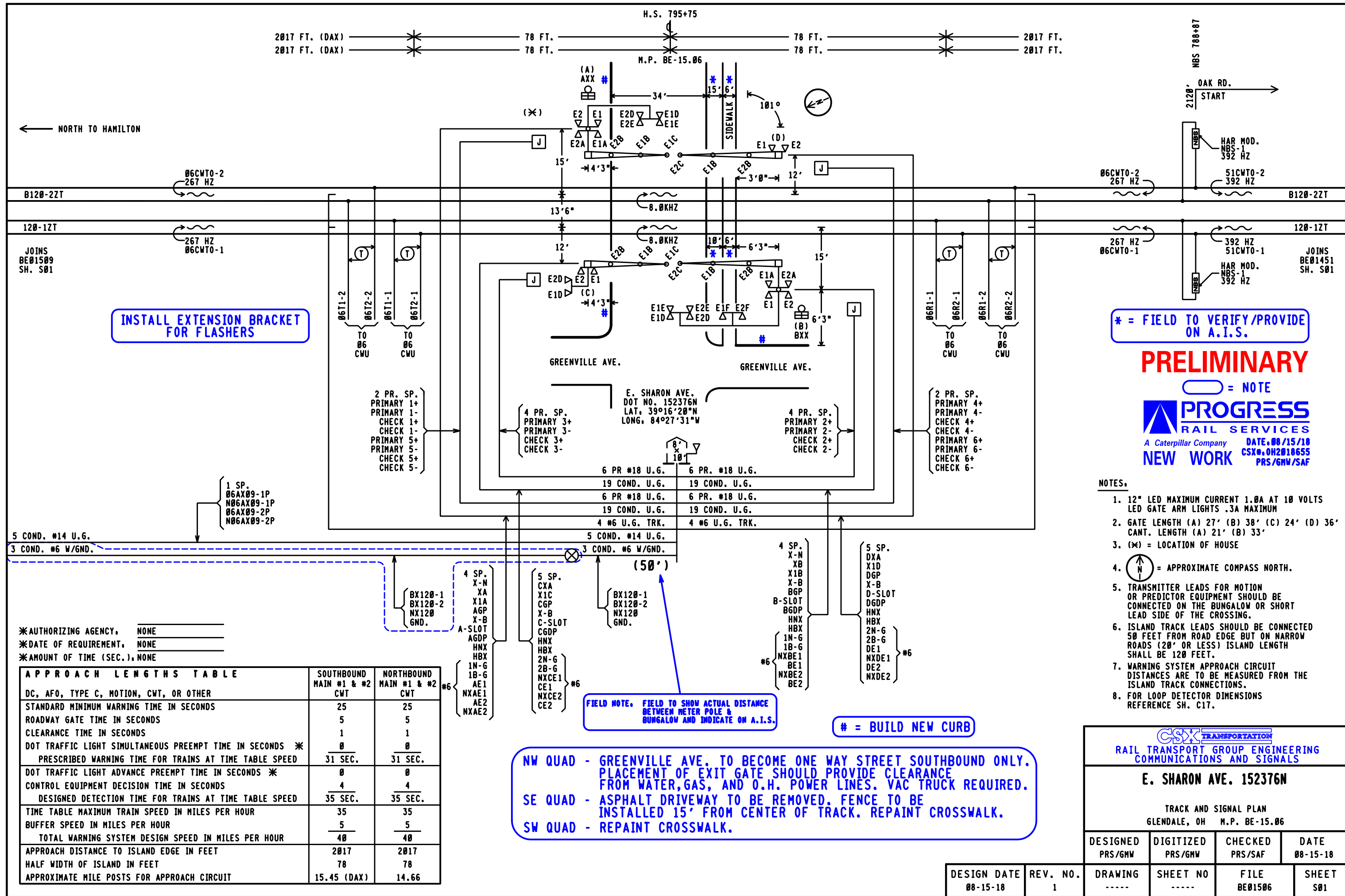


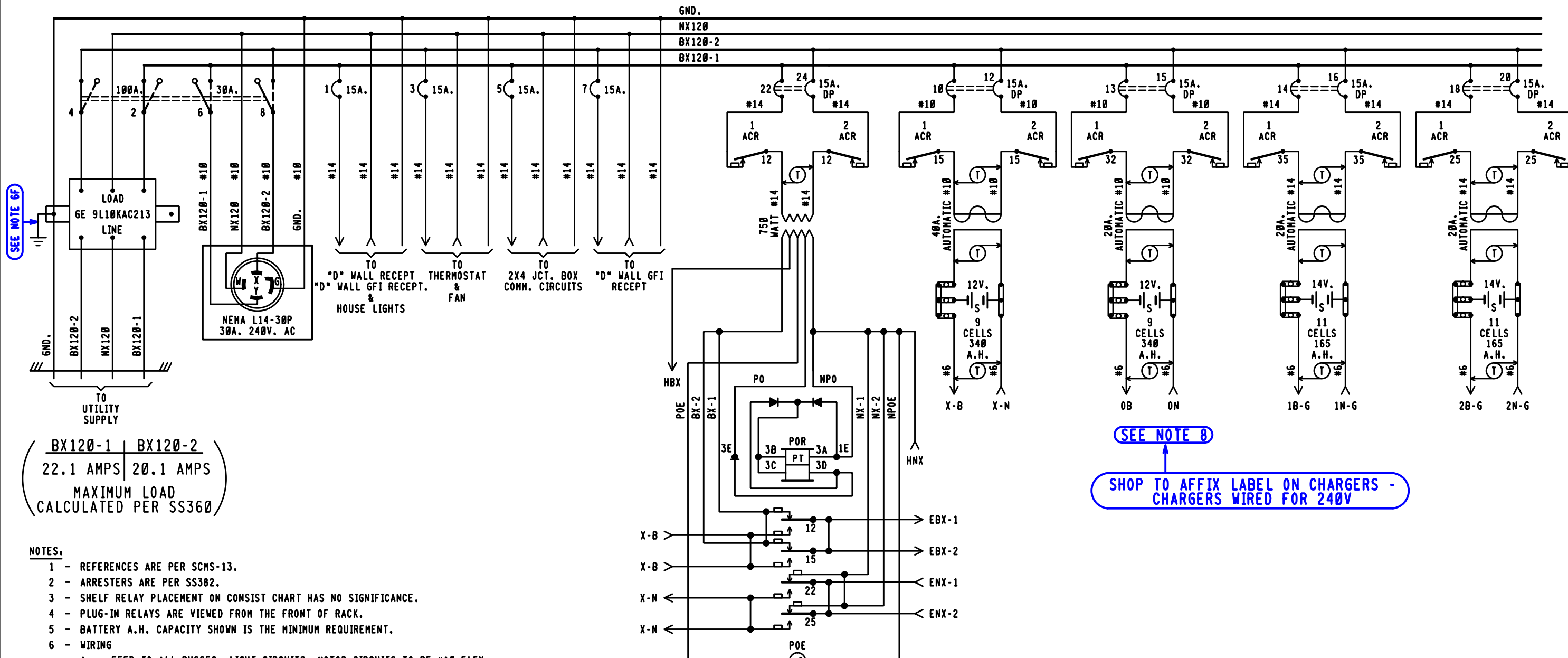

RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

E. SHARON AVE. 152376N

INDEX AND REVISIONS
GLENDALE, OH M.P. BE-15.06

DESIGNED PRS/GHW	DIGITIZED PRS/GHW	CHECKED PRS/SAF	DATE 08-15-18
DRAWING -----	SHEET NO -----	FILE BE01506	SHEET I01

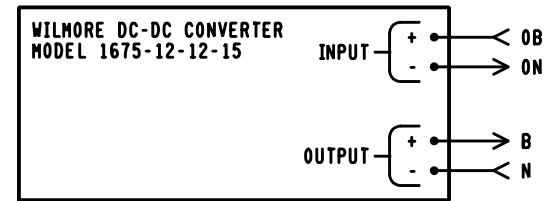




SEE NOTE 6F

BX120-1 | BX120-2
22.1 AMPS | 20.1 AMPS
MAXIMUM LOAD
CALCULATED PER SS360

- NOTES.
- 1 - REFERENCES ARE PER SCMS-13.
 - 2 - ARRESTERS ARE PER SS382.
 - 3 - SHELF RELAY PLACEMENT ON CONSIST CHART HAS NO SIGNIFICANCE.
 - 4 - PLUG-IN RELAYS ARE VIEWED FROM THE FRONT OF RACK.
 - 5 - BATTERY A.H. CAPACITY SHOWN IS THE MINIMUM REQUIREMENT.
 - 6 - WIRING
 - A - FEED TO ALL BUSSES, LIGHT CIRCUITS, MOTOR CIRCUITS TO BE #10 FLEX.
 - B - 120-VOLT FEED FROM ENTRANCE TO POWER BUSS TO BE #10 FLEX.
 - C - ALL TRACK WIRES TO BE #10 FLEX.
 - D - ALL OTHERS TO BE #16 FLEX UNLESS NOTED.
 - E - ALL BATTERY OUTPUTS TO BE #6 PER SS360.
 - F - GROUND WIRE NOT NECESSARY WHEN GE ARRESTER IS MOUNTED ON GROUND PLANE OR METAL ENCLOSURE AFFIXED DIRECTLY TO BUNGALOW METALLIC STRUCTURAL MEMBER.
 - 7 - CIRCUIT INTERRUPTERS 2 & 4 ARE MECHANICALLY INTERLOCKED WITH CIRCUIT INTERRUPTERS 6 & 8.
 - 8 - CHARGERS TO BE WIRED FOR 240VAC
 - 9 - CIRCUIT BREAKER PANEL - 00124L1256 (24 SPACES)



SEE NOTE 8

SHOP TO AFFIX LABEL ON CHARGERS -
CHARGERS WIRED FOR 240V

PRELIMINARY

= NOTE

PROGRESS
RAIL SERVICES
A Caterpillar Company
NEW WORK
DATE: 08/15/18
CSX# 0H2018655
PRS/GHW/SAF

8'X 10' PTC RELAY HOUSE

CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
E. SHARON AVE. 152376N			
POWER DISTRIBUTION GLENDALE, OH M.P. BE-15.06			
DESIGNED PRS/GMW	DIGITIZED PRS/GMW	CHECKED PRS/SAF	DATE 08-15-18
DRAWING -----	SHEET NO -----	FILE BE01506	SHEET E01

DESIGN DATE 08-15-18	REV. NO. 1
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RACK 1																				
XR			XPR			EOR			POR			1ACR			2ACR					
12	FB	B8	22	F	B36	12	FB	B81	12	FB	B62	12	B	B77	12	B	B77			
15	B	C30	25	F	C30	15	FB	C30	15	FB	C30	15	B	C30	15	B	C30			
22						32	FB		22	FB		22			22					
23	F					35	FB		25	FB		25	B		25	B				
25	F								32	F		32	B		32	B				
32	F								35			35	B		35	B				
35	F																			
06AX09-1PR			06AX09-2PR			EGHR			GPR						ISL1R			ISL2R		
12		B8	12		B8	12	F	B8	12	B	B82				12		B8	12		B8
15		C30	15		C30	15		C30	15	B	C30				15		C30	15		C30
22			22			22			22						22			22		
23	F		23	F		23			25						23	F		23	F	
25	F		25	F		25			32						25	F		25	F	
32	F		32	F		32	B		35	B					32	F		32	F	
35			35			35	B								35			35		

RACK 2																		
	AGPR			BGPR			CGPR			DGPR								
	12		B8	12		B8	12		B8	12		B8						
	15	F	C30	15	F	C30	15	F	C30	15	F	C30						
	22			22			22			22								
	23	F		23	F		23	F		23	F							
	25	F		25	F		25	F		25	F							
	32	F		32	F		32	F		32	F							
	35			35			35			35								
AGDPR			BGDPR			CGDPR			DGDPR			CXGR			DXGR			
12		B8	12		B8	12		B8	12		B8	12		B8	12		B8	
15		C30	15		C30	15		C30	15		C30	15		C30	15		C30	
22			22			22			22			22			22			
23	F		23	F		23	F		23	F		23	F		23	F		
25	F		25	F		25	F		25	F		25	F		25	F		
32	F		32	F		32	F		32	F		32			32			
35			35			35			35			35			35			

PRELIMINARY



PROGRESS
RAIL SERVICES

A Caterpillar Company

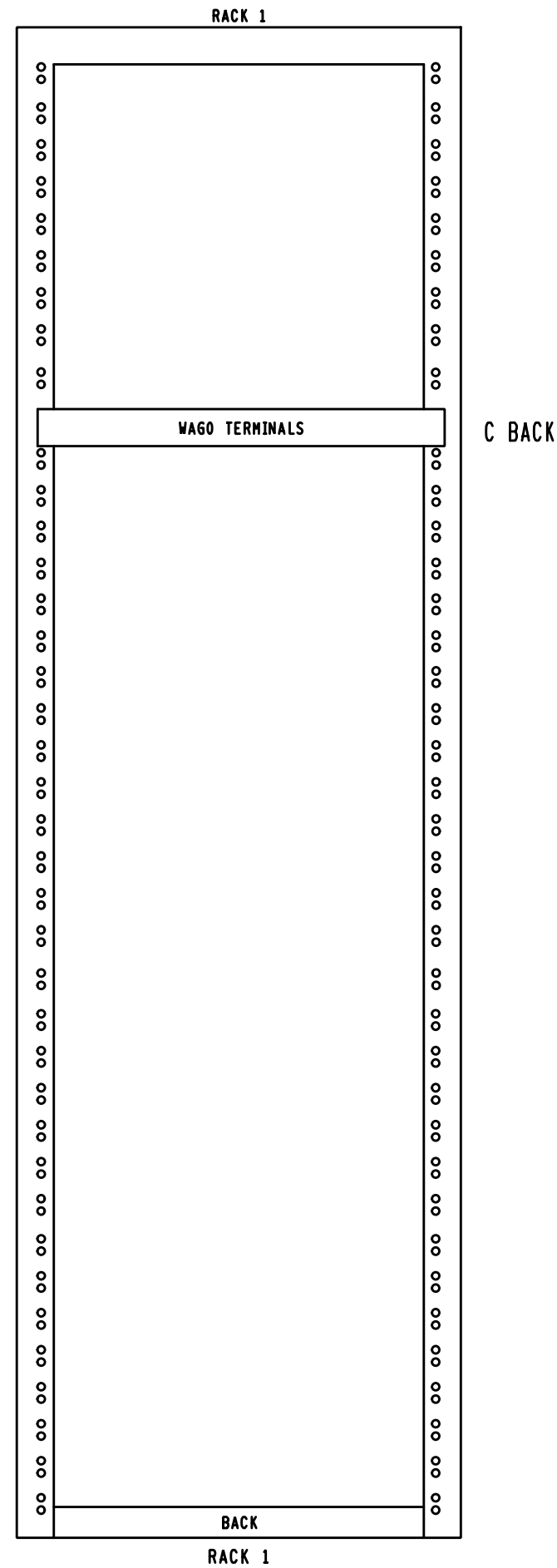
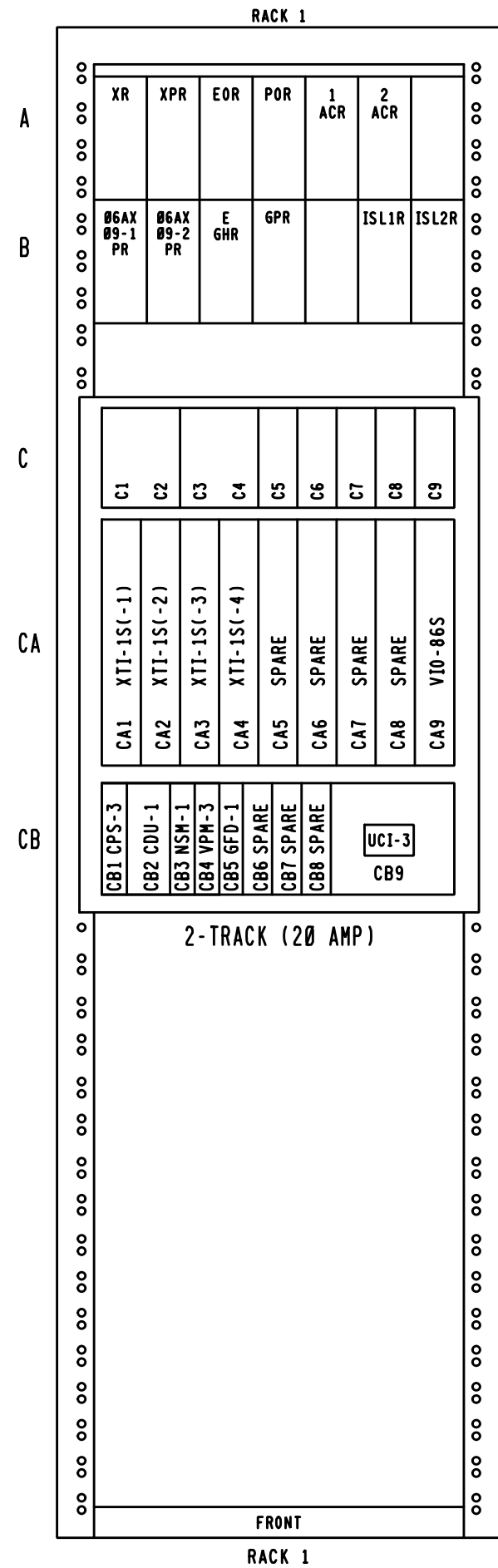
NEW WORK

DATE: 08/15/18

CSX 0.0H2010655

PRS/GMW/SAF

CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
E. SHARON AVE. 152376N			
RELAY DETAIL GLENDALE, OH M.P. BE-15.06			
DESIGNED PRS/GMW	DIGITIZED PRS/GMW	CHECKED PRS/SAF	DATE 08-15-18
DESIGN DATE 08-15-18	REV. NO. 1	DRAWING -----	SHEET E02



EQUIPMENT RACK 84" X 19"			
REF.	DESCRIPTION	P/N	QTY.
(1) ---	ASSY RACK 19" CSX	020-0065621-1	1 EA.
A-B	RLY B1 PLBD KIT W/FL E-POST MOD	020-0022651-1	12 EA.
(1) A-B	BAR MT6 19" W/BLU PAINT	020-3471120-1	3 EA.
(1) A-B	TIE BAR RELAY 19" W/BLU PAINT	020-3471121-1	2 EA.
(2) C	9-SLOT ELECTROLOGIXS CHASSIS PACKAGE	020-1622001-1	1 EA.
C BACK 1-50	WAGO TERMINALS BLOCK ASSY W/DIN RAIL	020-4809282-1	1 EA.
C BACK	WAGO OFFSET MOUNTING BRACKET	020-6509130-1	2 EA.
(2) C1-C2	XTI-1S NORMAL/STANDBY PERSONALITY MODULE	020-0018588-1	1 EA.
C3-C4	XTI-1S NORMAL/STANDBY PERSONALITY MODULE	020-0018588-1	1 EA.
C9	VIO-86S VITAL I/O PERSONALITY MODULE	020-0018582-1	1 EA.
(2) CA1-CA2	XTI-1S CROSSING TRACK INTERFACE MODULE	020-0018564-1	2 EA.
CA3-CA4	XTI-1S CROSSING TRACK INTERFACE MODULE	020-0018564-1	2 EA.
CA9	VIO-86S VITAL I/O MODULE	020-0018522-1	1 EA.
(2) CB1	CPS-3 CENTRAL POWER SUPPLY	020-0018550-1	1 EA.
(2) CB2	CDU-1 CONTROL DISPLAY UNIT	020-0017808-1	1 EA.
(2) CB3	NSM-1 NORMAL/STANDBY MODULE	020-0018598-1	1 EA.
(2) CB4	VPM-3 CROSSING PROCESSOR MODULE	020-2514321-1	1 EA.
CB5	GFD-1 GROUND FAULT DETECTOR MODULE	020-0018520-1	1 EA.
(2) CB9	UCI-3 APPLICATION EPROM/FLASH MEMORY MODULE (PTC CAPABLE)	020-2514950-1	1 EA.

- NOTES:
- EQUIPMENT INCLUDED IN 19" RACK ASSY PACKAGE. ADDITIONAL EQUIPMENT TO BE ORDERED AS NEEDED.
 - ELECTROLOGIXS MODULES INCLUDED IN CHASSIS ASSY PACKAGE.

PRELIMINARY

PROGRESS

RAIL SERVICES

A Caterpillar Company

DATE: 08/15/18

CSX # 0H2018655

PRS/GHW/SAF

NEW WORK

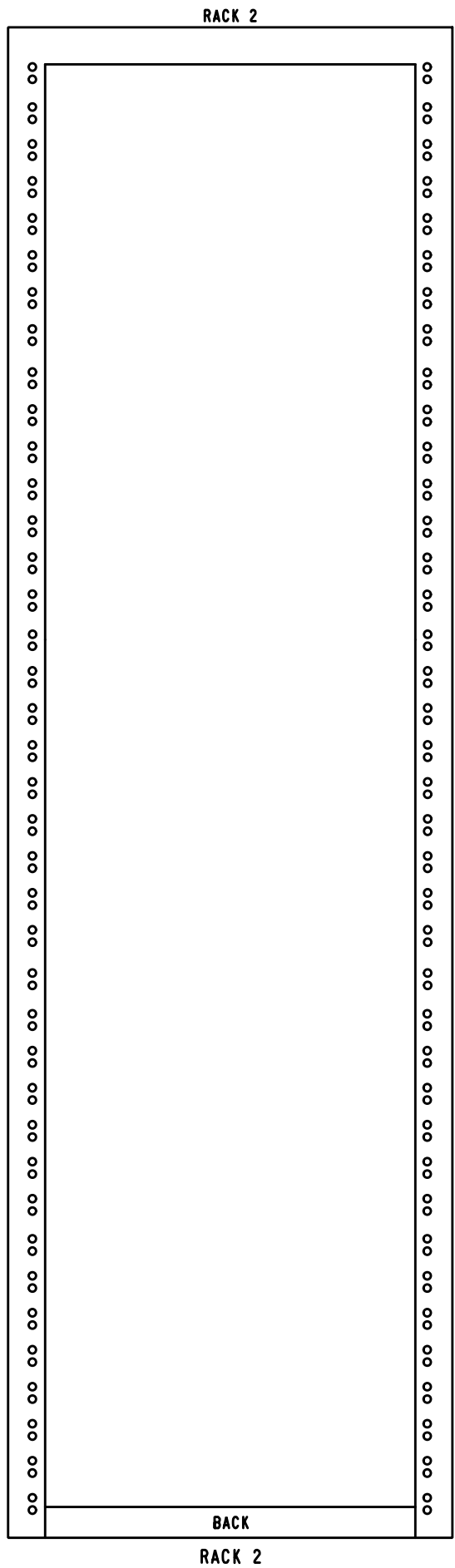
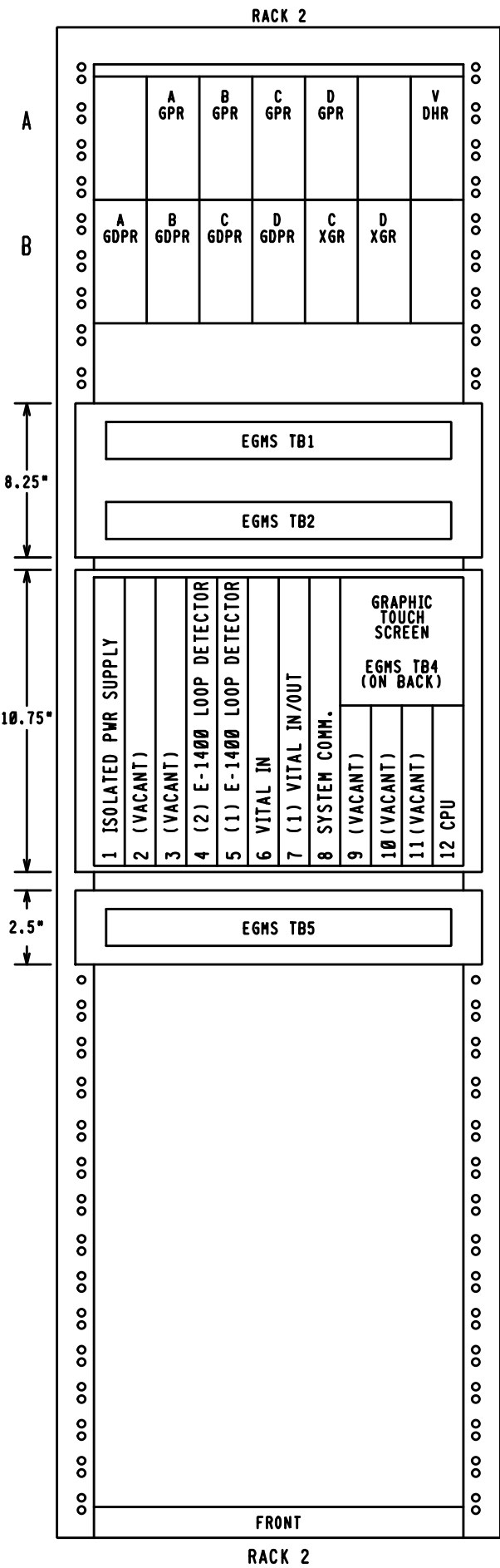
CSX TRANSPORTATION

RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

E. SHARON AVE. 152376N

RACK 1 LAYOUT
GLENDALE, OH M.P. BE-15.06

DESIGNED PRS/GHW	DIGITIZED PRS/GHW	CHECKED PRS/SAF	DATE 08-15-18
DRAWING -----	SHEET NO -----	FILE BE01506	SHEET E03



EQUIPMENT RACK 84" X 19"			
REF.	DESCRIPTION	P/N	QTY.
(1) ---	ASSY RACK 19" CSX	020-0065621-1	1 EA.
A-B	RLY B1 PLBD KIT W/FL E-POST MOD	020-0022651-1	11 EA.
(1) A-B	BAR MTG 19" W/BLU PAINT	020-3471120-1	3 EA.
(1) A-B	TIE BAR RELAY 19" W/BLU PAINT	020-3471121-1	2 EA.
C	EGMS, 8 LOOP ASSEMBLY W/ COMM. MODULE	525-0202-02 (SIEMENS)	1 EA.

NOTES:

1. EQUIPMENT INCLUDED IN 19" RACK ASSY PACKAGE. ADDITIONAL EQUIPMENT TO BE ORDERED AS NEEDED.

PRELIMINARY

PROGRESS

RAIL SERVICES

A Caterpillar Company

NEW WORK

DATE: 08/15/18

CSX# 0H2018655

PRS/GHW/SAF

CSX

TRANSPORTATION

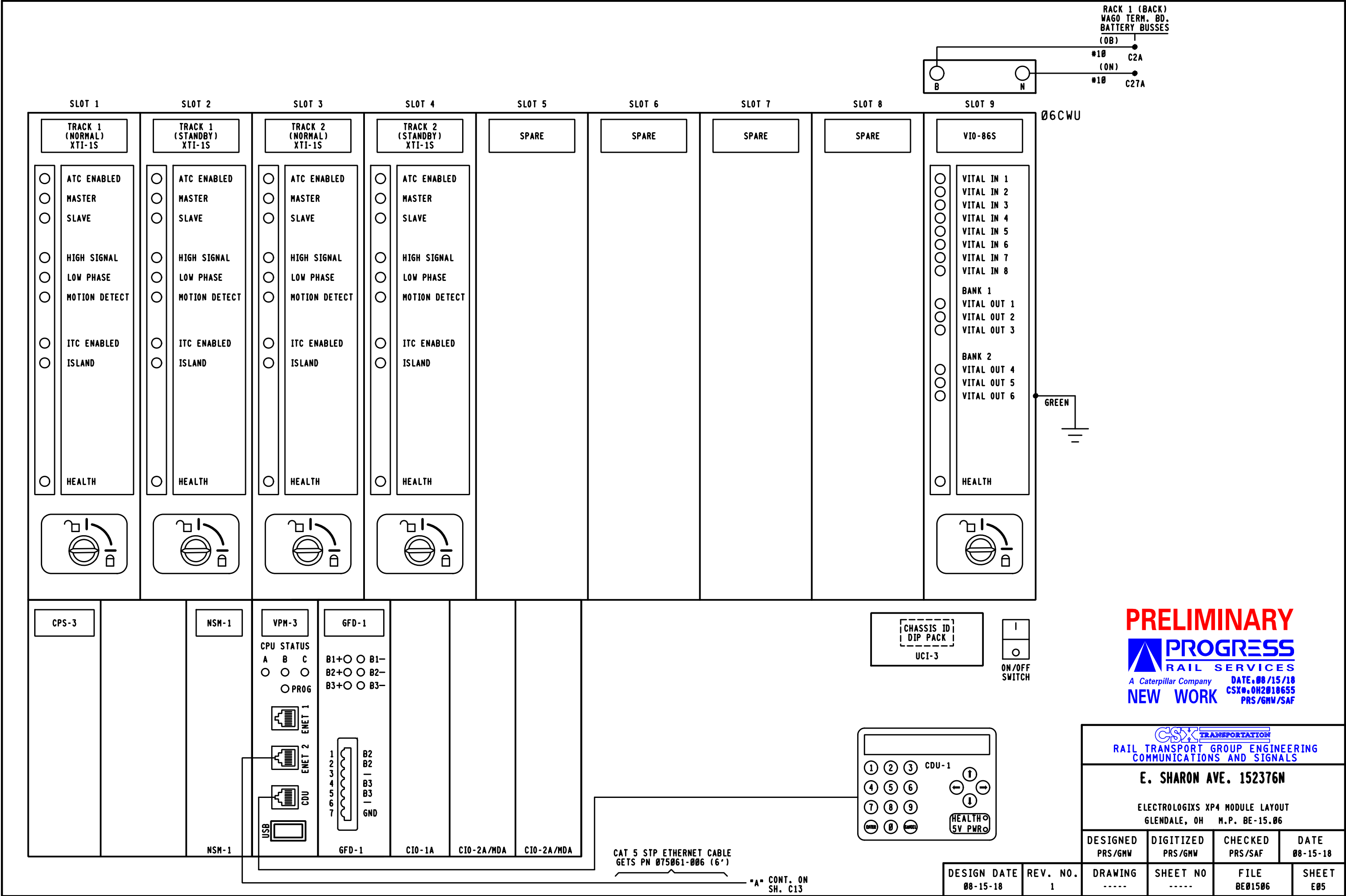
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

E. SHARON AVE. 152376N

RACK 2 LAYOUT
GLENDALE, OH M.P. BE-15.06

DESIGNED PRS/GHW	DIGITIZED PRS/GHW	CHECKED PRS/SAF	DATE 08-15-18
DRAWING -----	SHEET NO -----	FILE BE01506	SHEET E04

DESIGN DATE 08-15-18	REV. NO. 1
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PRELIMINARY

PROGRESS
RAIL SERVICES
A Caterpillar Company
NEW WORK

DATE: 08/15/18
CSX# 0H2018655
PRS/GMW/SAF

CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

E. SHARON AVE. 152376N

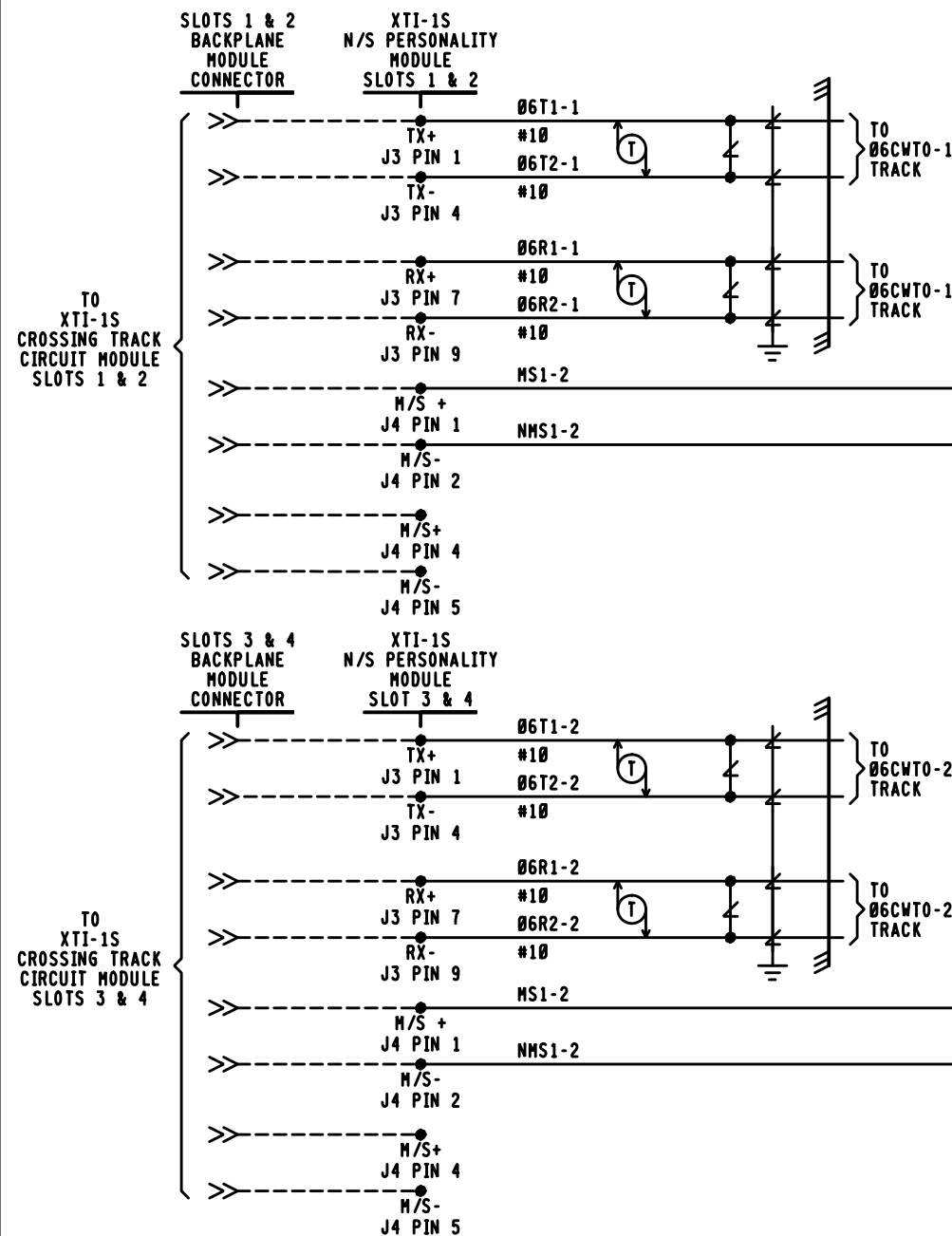
ELECTROLOGIX XP4 MODULE LAYOUT
GLENDALE, OH M.P. BE-15.06

DESIGNED PRS/GMW	DIGITIZED PRS/GMW	CHECKED PRS/SAF	DATE 08-15-18
DRAWING -----	SHEET NO -----	FILE BE01506	SHEET E05

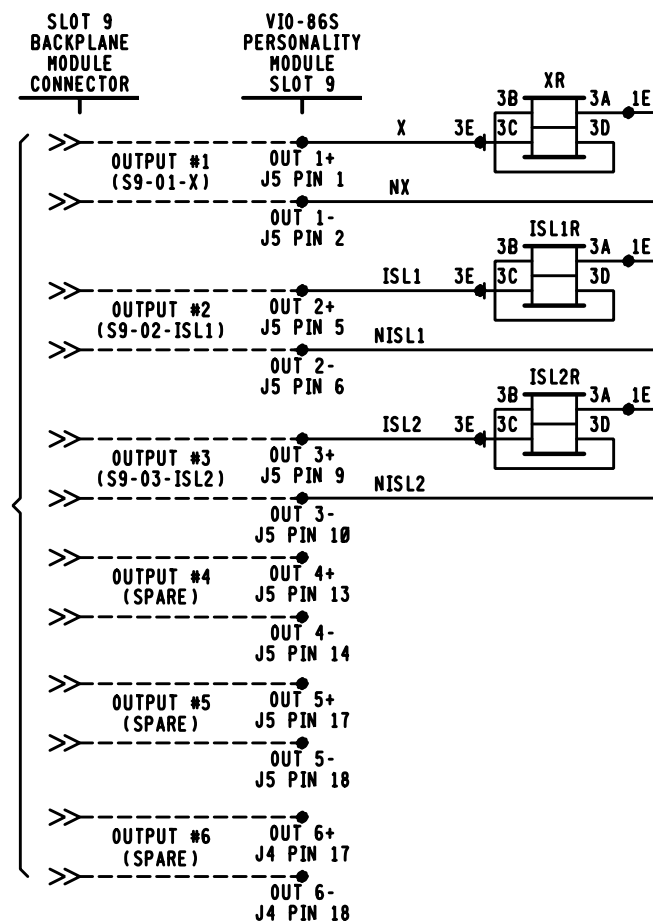
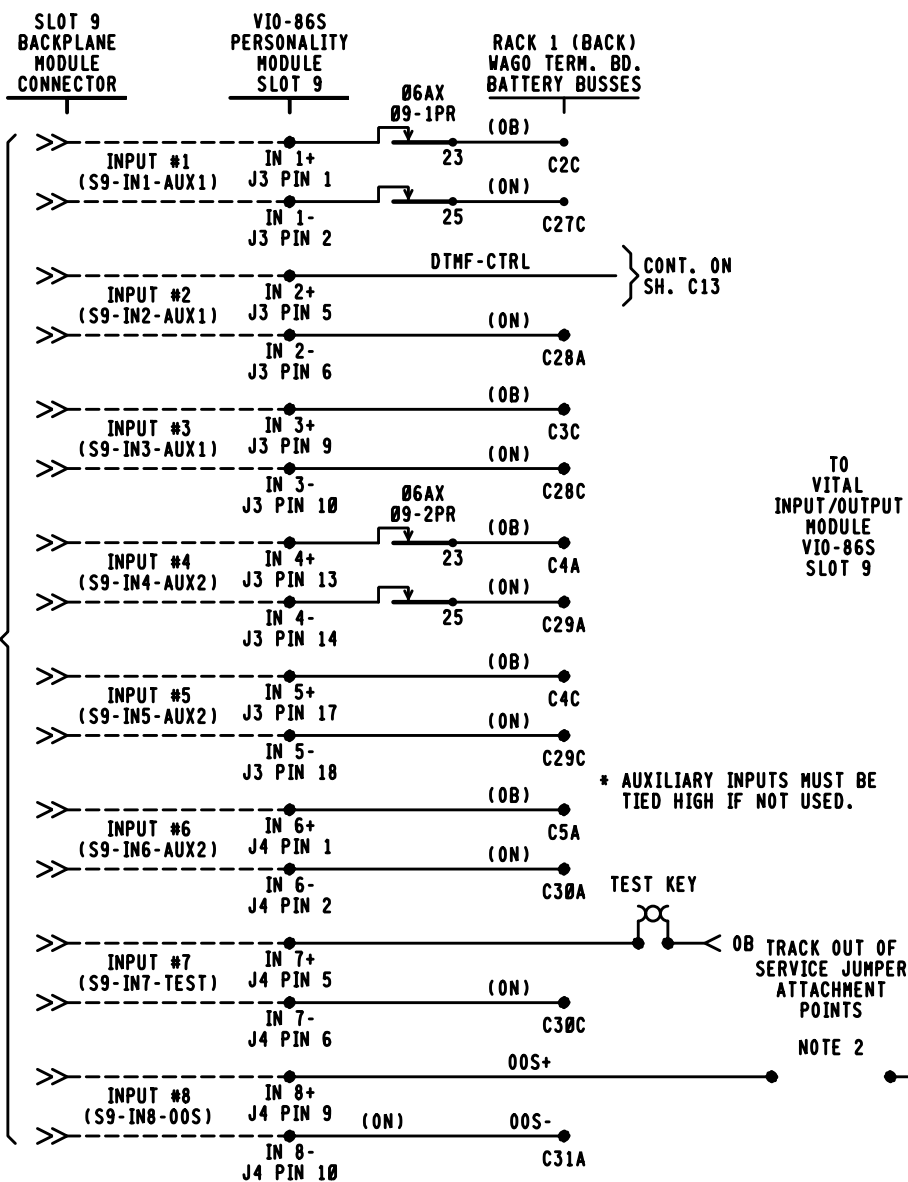
DESIGN DATE
08-15-18

REV. NO.
1

A CONT. ON
SH. C13

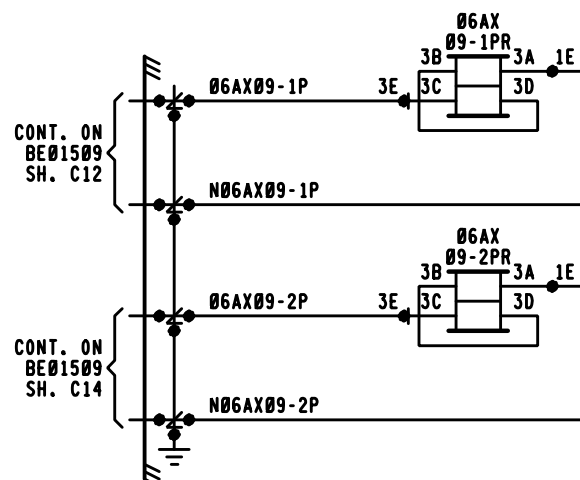


TO VITAL INPUT/OUTPUT MODULE VIO-86S SLOT 9



SLOT 9 I/O	
INPUT 1	POSITIVE AUX1 AUXILIARY
INPUT 2	POSITIVE AUX1 AUXILIARY
INPUT 3	POSITIVE AUX1 AUXILIARY
INPUT 4	POSITIVE AUX2 AUXILIARY
INPUT 5	POSITIVE AUX2 AUXILIARY
INPUT 6	POSITIVE AUX2 AUXILIARY
INPUT 7	CROSSING TEST CONTROL INPUT
INPUT 8	OUT OF SERVICE JUMPER INPUT (OOS)
OUTPUT 1	X OUTPUT
OUTPUT 2	ISL1 OUTPUT
OUTPUT 3	ISL2 OUTPUT
OUTPUT 4	(NOT USED)
OUTPUT 5	(NOT USED)
OUTPUT 6	(NOT USED)

- NOTES
- ALL WIRE THIS SHEET #16 AWG UNLESS NOTED.
 - 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.
 - HLVA2-1675-01 HYBRID LOW VOLTAGE ARRESTER, UNLESS NOTED.



PRELIMINARY

PROGRESS
RAIL SERVICES
A Caterpillar Company
NEW WORK

DATE: 08/15/18
CSX# 0H2018655
PRS/GHW/SAF

CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

E. SHARON AVE. 152376N

XP4 CROSSING DETECTION AND I/O CIRCUITS
GLENDALE, OH M.P. BE-15.06

DESIGN DATE
08-15-18

REV. NO.
1

DRAWING

SHEET NO

FILE
BE01506

SHEET
C01

SITE SPECIFIC MDR DESCRIPTIONS AND SETTINGS			
NAME		MDR1	MDR2
FUNCTION		XR	XR
WARNING TIME		31	31
CW/MD		CW	CW
AP TIME(PREEMPT)		NA	NA
CWE-WT		80	80
AUX RECOVERY DELAY		5	5
TRACK		TK 1	TK 2
TRACK ASSIGNED		ASSIGNED	ASSIGNED
OFFSET DISTANCE		0'	0'
MD RESTART		0*	0*
SUDDEN SHUNT ZONE		0*	0*
POSITIVE START	PSEN	DISABLE	DISABLE
	PSRX	NA	NA
	PST	NA	NA
POST JOINT DETECT	PJEN	ENABLE	ENABLE
	PJRX	15	15
	PJDT	4	4
CLEAR JOINT LOS	CJ-LOS MODE	STANDARD	STANDARD
	CJ-LOS RX	15	15
	CJ-LOS TIME	99	99

BASIC TRACK SETUP		
	TRACK 1	TRACK 2
FREQUENCY	267 HZ	267 HZ
MASTER/SLAVE	MASTER	SLAVE
RX ADJUST	100 *	100 *
TCA	*	*
DIRECTION MODE	BI	BI
LIA	*	*
ADVANCED APPROACH	*	*
NBS COMP RX	*	*
TRK ISLAND ASSIGN	NA	NA
APPROACH LENGTH	2017'	2017'
AUTO RX	ENABLE	ENABLE

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

ISLAND SETUP		
	TRACK 1	TRACK 2
ENABLE /DISABLE	ENABLE	ENABLE
FREQUENCY	8.0 KHZ	8.0 KHZ
LOSS OF SHUNT	2 SEC.	2 SEC.
FAULT DELAY	1	1

VPM3 ETHERNET SETUP	
	IP ADDRESS
ETHERNET PORT 1 (TOP)	192.168.0.11
ETHERNET PORT 2 (BOTTOM)	192.168.1.12

APPLICATION SOFTWARE INFORMATION	
NAME	9XXS-2.01
REV.	1.0
CHECKSUM	E49B
CRC	FF9E
CH. I.D.	225

CHASSIS ID DIP SHUNTS
LOCATED ON BACKPLANE
UNDERNEATH UCI-3 MODULE

1

2

3

4

5

6

7

8

○ = TAB INTACT (MADE)
● = TAB PUNCHED OUT (BROKEN)VITAL SELECTION DIP SHUNTS
LOCATED INSIDE UCI-3 MODULE
UNDERNEATH EPROM

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

○ = TAB INTACT (MADE)
● = TAB PUNCHED OUT (BROKEN)

VITAL SELECTION DIP SHUNTS		
#	NAME	STATE
1	ML_BELL_SW	PUNCHED OUT
2	NA	INTACT (NOT USED)
3	NA	INTACT (NOT USED)
4	NA	INTACT (NOT USED)
5	NA	INTACT (NOT USED)
6	NA	INTACT (NOT USED)
7	NA	INTACT (NOT USED)
8	NA	INTACT (NOT USED)
9	NA	INTACT (NOT USED)
10	NA	INTACT (NOT USED)
11	NA	INTACT (NOT USED)
12	NA	INTACT (NOT USED)
13	NA	INTACT (NOT USED)
14	NA	INTACT (NOT USED)
15	NA	INTACT (NOT USED)
16	NA	INTACT (NOT USED)

NOTES:
● = FIELD ADJUSTMENT
NA = NOT APPLICABLE

PRELIMINARY

PROGRESS

RAIL SERVICES

A Caterpillar Company

NEW WORK

DATE: 08/15/18
CSX#: 0H2018655
PRS/GHW/SAF

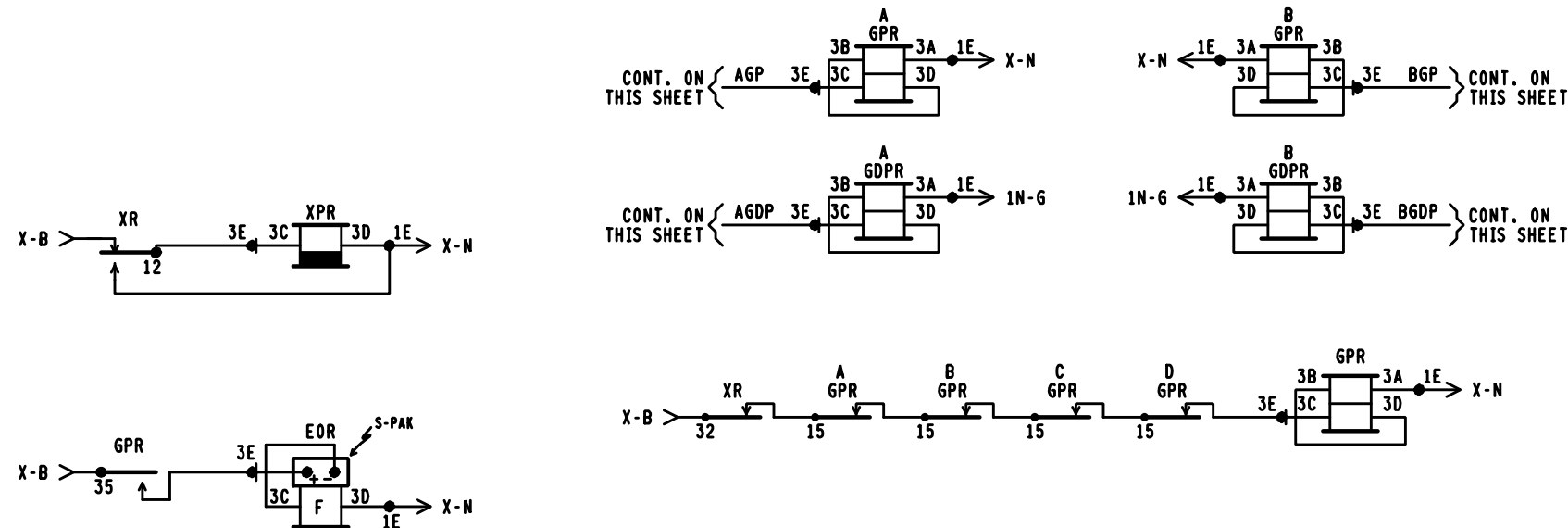
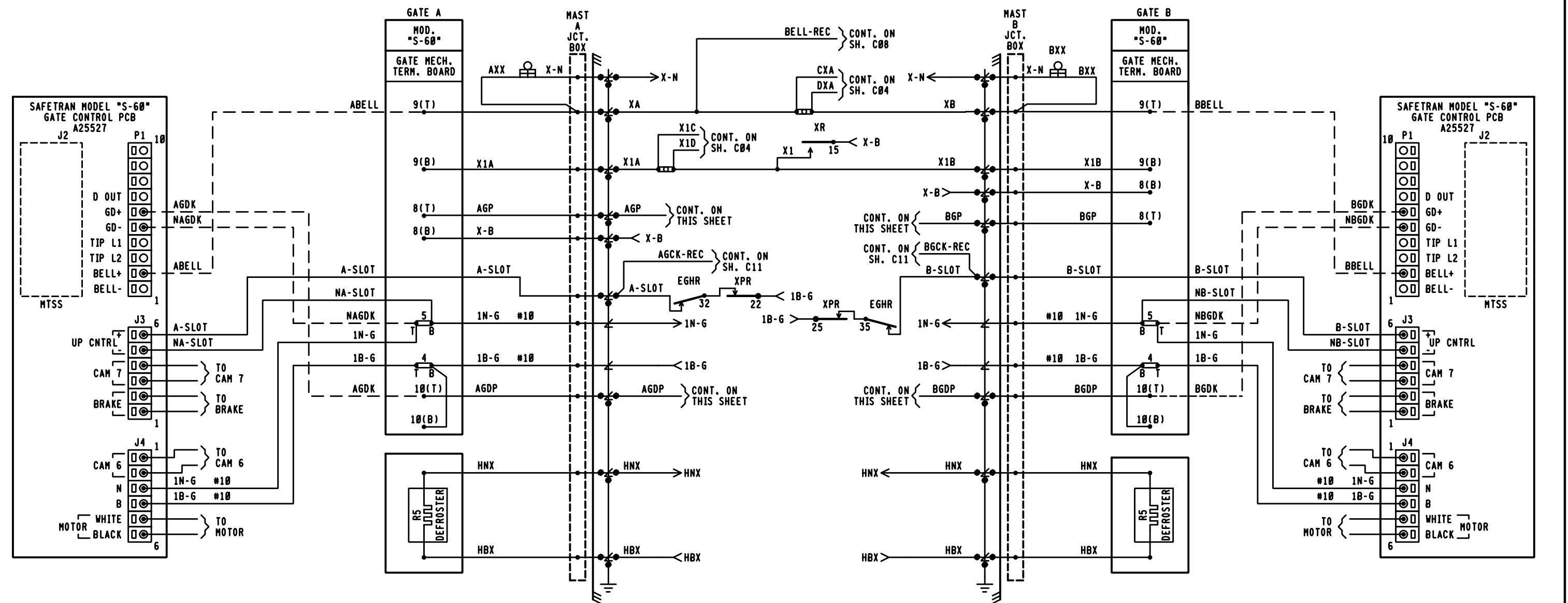
CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

E. SHARON AVE. 152376N

XP4 SET UP INFORMATION
GLENDALE, OH M.P. BE-15.06

DESIGNED PRS/GMW	DIGITIZED PRS/GMW	CHECKED PRS/SAF	DATE 08-15-18
DRAWING -----	SHEET NO -----	FILE BE01506	SHEET C02

DESIGN DATE 08-15-18	REV. NO. 1
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- NOTES:
1. = TERMINAL IN JCT. BOX BASE
 2. ALL WIRING #16 UNLESS NOTED OTHERWISE.
 3. = HLVA2-1675-01 HYBRID LOW VOLTAGE ARRESTER, UNLESS NOTED.

PRELIMINARY

PROGRESS
RAIL SERVICES
A Caterpillar Company
NEW WORK

DATE: 08/15/18
CSX# 0H2018655
PRS/GHW/SAF

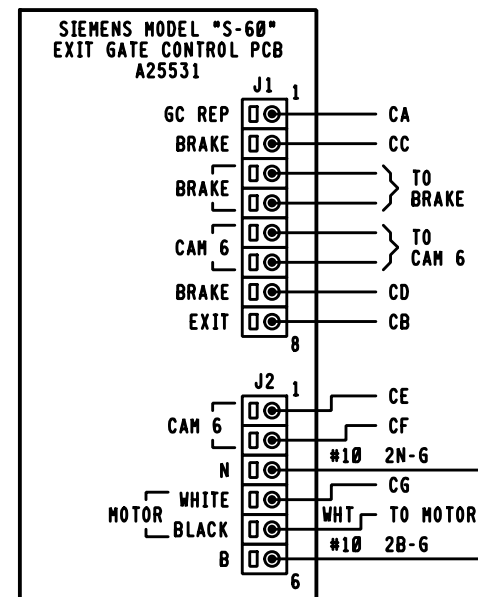
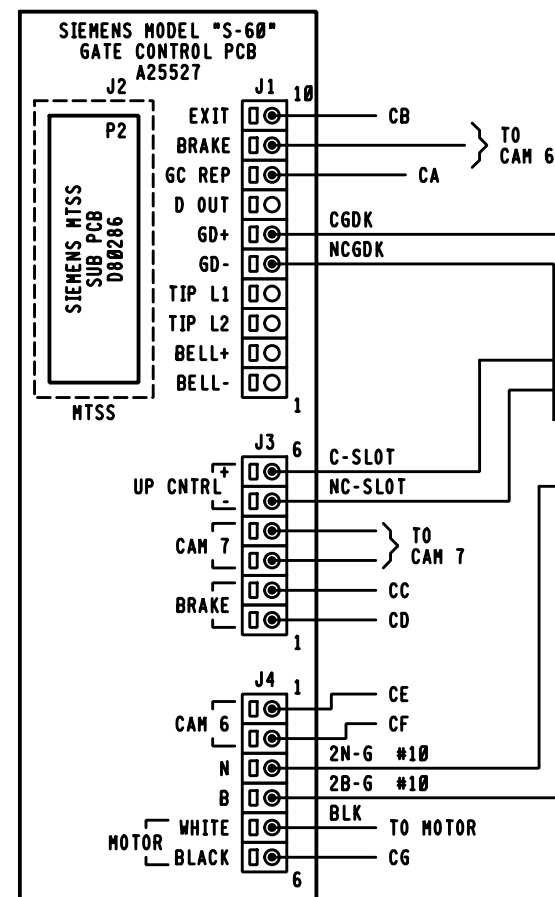
CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

E. SHARON AVE. 152376N

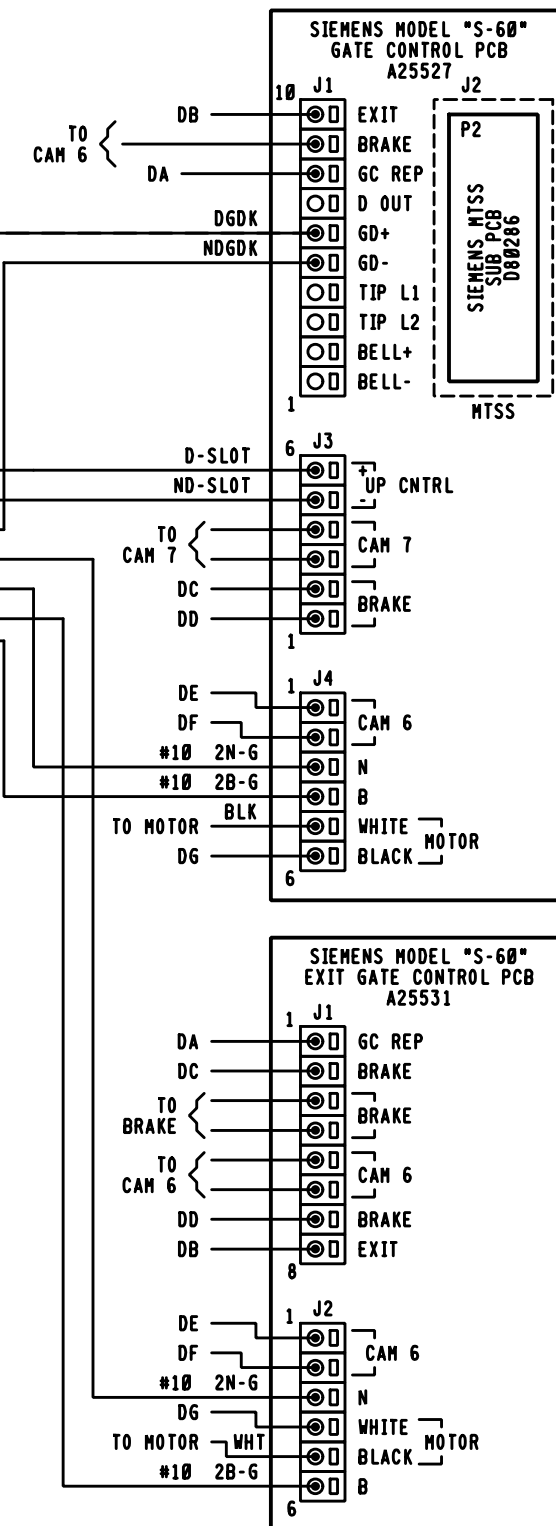
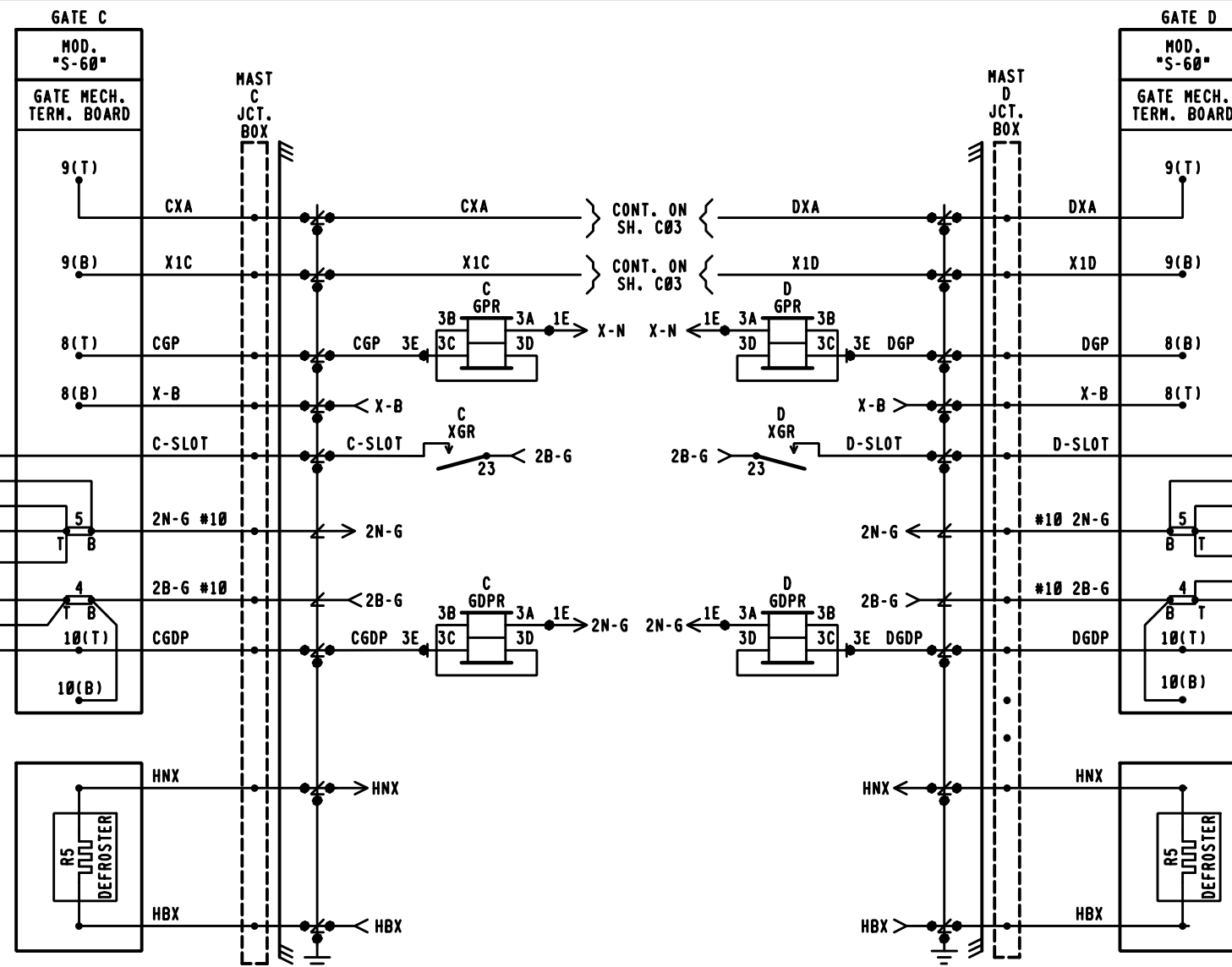
WARNING DEVICE GATE CIRCUITRY
GLENDALE, OH M.P. BE-15.06

DESIGNED PRS/GMW	DIGITIZED PRS/GMW	CHECKED PRS/SAF	DATE 08-15-18
DRAWING -----	SHEET NO -----	FILE BE01506	SHEET C03

DESIGN DATE 08-15-18	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.



PRELIMINARY

PROGRESS
RAIL SERVICES

A Caterpillar Company

DATE: 08/15/18
CSX# 0H2018655
PRS/GHW/SAF

CSX TRANSPORTATION

RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

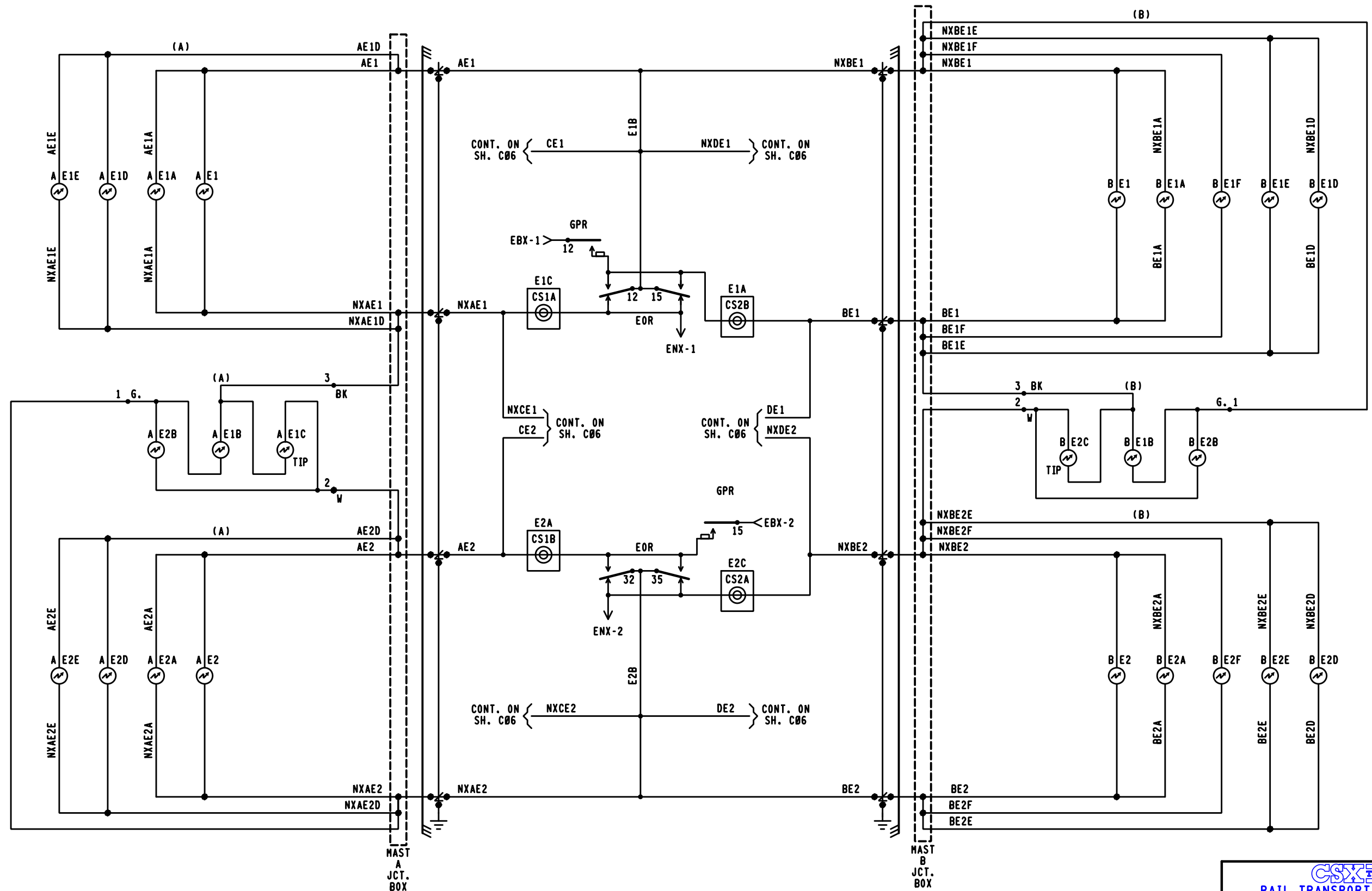
E. SHARON AVE. 152376N

CROSSING WARNING DEVICE GATE CIRCUITRY
GLENDALE, OH M.P. BE-15.06

DESIGN DATE
08-15-18

REV. NO.
1

DESIGNED PRS/GMW	DIGITIZED PRS/GMW	CHECKED PRS/SAF	DATE 08-15-18
DRAWING -----	SHEET NO -----	FILE BE01506	SHEET C04



NOTES.

1. [Symbol] = TERMINAL IN JCT. BOX
2. WHEN 7 OR MORE LIGHTS ON A SINGLE STRUCTURE REFER TO SS-382 FOR REQUIRED ARRESTER RATING.
3. [Symbol] = HLVA2-1675-01 HYBRID LOW VOLTAGE ARRESTER, UNLESS NOTED.

PRELIMINARY
PROGRESS
 RAIL SERVICES
 A Caterpillar Company
NEW WORK

DATE: 08/15/18
 CSX# 0H2018655
 PRS/GHW/SAF

DESIGN DATE
 08-15-18

REV. NO.
 1

DESIGNED
 PRS/GHW

DIGITIZED
 PRS/GHW

CHECKED
 PRS/SAF

DATE
 08-15-18

DRAWING

SHEET NO

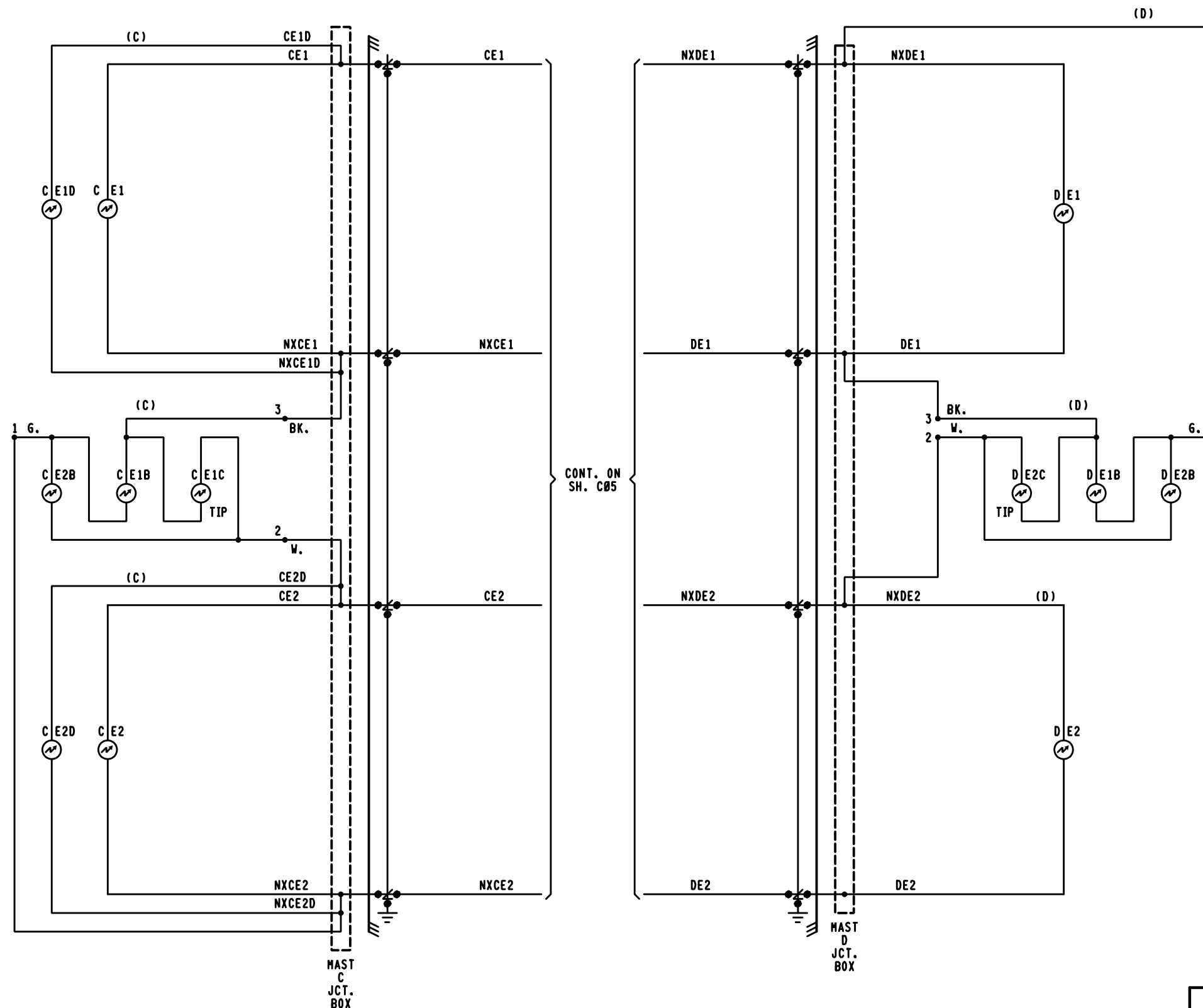
FILE
 BE01506

SHEET
 C05

CSX TRANSPORTATION
 RAIL TRANSPORT GROUP ENGINEERING
 COMMUNICATIONS AND SIGNALS

E. SHARON AVE. 152376N

CROSSING WARNING DEVICE LIGHT CIRCUITRY
 GLENDALE, OH M.P. BE-15.06



NOTES:

1.  = TERMINAL IN JCT. BOX
2. WHEN 7 OR MORE LIGHTS ON A SINGLE STRUCTURE REFER TO SS-382 FOR REQUIRED ARRESTER RATING.

PRELIMINARY

PROGRESS
RAIL SERVICES

A Caterpillar Company

NEW WORK

DATE: 08/15/18
CSX# 0H2018655
PRS/GMW/SAF

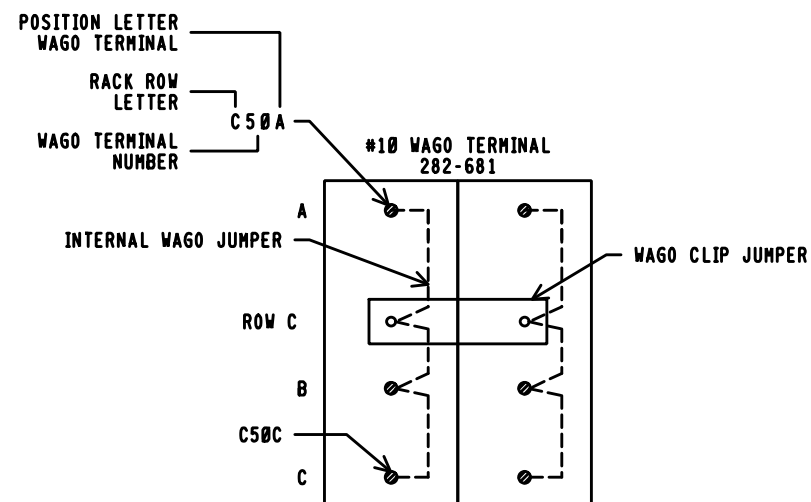
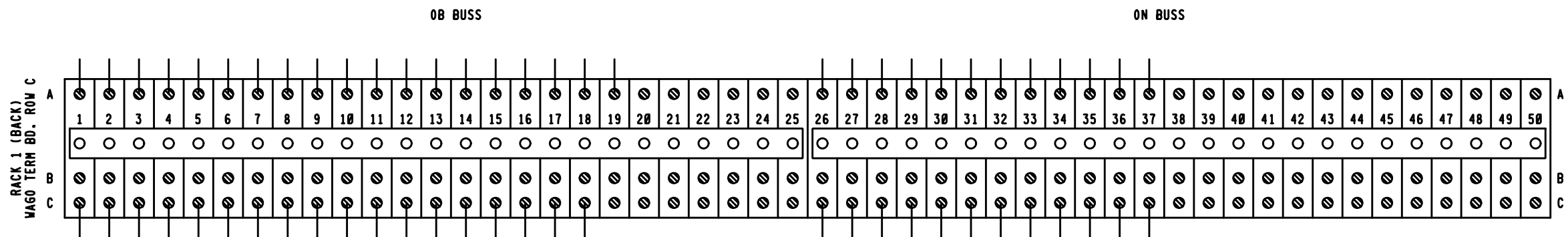
CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

E. SHARON AVE. 152376N

CROSSING WARNING DEVICE LIGHT CIRCUITRY
GLENDALE, OH M.P. BE-15.06

DESIGNED PRS/GMW	DIGITIZED PRS/GMW	CHECKED PRS/SAF	DATE 08-15-18
DRAWING -----	SHEET NO -----	FILE BE01506	SHEET C06

DESIGN DATE 08-15-18	REV. NO. 1
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NOTES:

1. C1A & C1C TO OB SUPPLY.
2. C26A & C26C TO ON SUPPLY.

PRELIMINARY

PROGRESS
RAIL SERVICES
A Caterpillar Company

NEW WORK

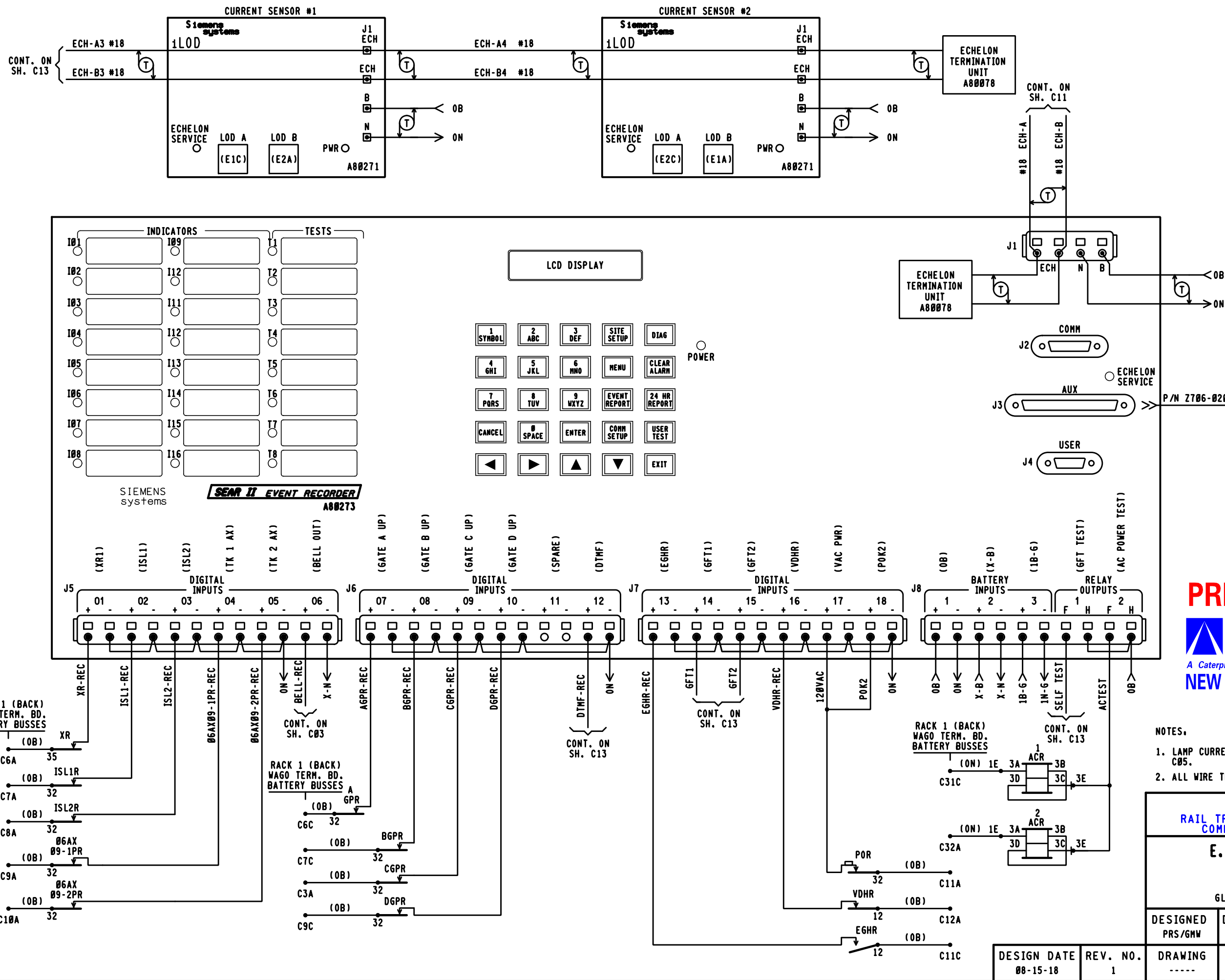
DATE: 08/15/18
CSX# 0H2018655
PRS/GMW/SAF

CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

E. SHARON AVE. 152376N

WAGO TERMINAL BOARD
GLENDALE, OH M.P. BE-15.06

DESIGN DATE 08-15-18	REV. NO. 1	DRAWING -----	SHEET NO -----	FILE BE01506	SHEET C07
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PRELIMINARY



NEW WORK
DATE: 08/15/18
CSX # 0H2010655
PRS/GMW/SAF

- NOTES:
1. LAMP CURRENT SENSOR CIRCUIT WIRING SHOWN ON SHEET C05.
 2. ALL WIRE THIS SHEET #16 UNLESS NOTED.

CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
E. SHARON AVE. 152376N			
SEAR II CIRCUITS GLENDALE, OH M.P. BE-15.06			
DESIGNED PRS/GMW	DIGITIZED PRS/GMW	CHECKED PRS/SAF	DATE 08-15-18
DRAWING -----	SHEET NO -----	FILE BE01506	SHEET C08

	DEFAULTS AND/OR STYLE	FIELD RECORD
SEAR II EXECUTIVE PROGRAM	VERSION: 9V645A01Y	VERSION:
APPLICATION PROGRAM (IF LOADED)	VERSION: _____	VERSION:

FIELD TO PROVIDE
SEARII PROGRAM
INFORMATION ON AIS

SITE SET UP OPTIONS	
OPTION	SELECTION
DATE	XX-XX-XXXX
TIME	[XX:XX:XX]
DAYLIGHT SAVINGS TIME	YES ☒ NO ☐
TIME ZONE	☒ EST ☐ CST
SITE NAME	E. SHARON AVE.
MILEPOST	BE-15.06
DOT NUMBER	152376N
TESTER TYPE	☒ CROSSING ☐ WAYSIDE
DATE FORMAT	☒ MM-DD-YYYY ☐ DD-MM-YYYY
TEMP FORMAT	☒ FAHRENHEIT ☐ CELSIUS
INDICATE HOLDOFF	0
INDICATE REFRESH	60
SITE TYPE	☐ NO COMMUNICATION ☐ DIAL-UP ☒ COLLECTOR ☐ NODE ☐ BULLHORN/MODE ☐ CDS902X
SITE ATCS ADDRESS	7.125.459.004.99.01 (7.RRR.LLL.666.99.01)
OFFICE ADDRESS	2.125.00.0000 (2.RRR.NN.DDDD)
OFFICE SITE ADDRESS	NA
BACK UP SITE ADDRESS 1	NA
BACK UP SITE ADDRESS 2	NA
POLL ID (1-99)	1
GEN/ATCS MODE	☐ GENISYS ☒ GEN/ATCS
XID DISABLED	☒ YES ☐ NO
OFFICE COM. DEVICE	☐ DIRECT ☐ MCM (RS232) ☐ MCM (ECH) ☒ WAG (ECHELON) ☐ DIAL UP ☐ S200 RADIO (RS232) (RS422)
RADIO ATCS ADDRESS	7.125.459.004.07.01
OFFICE PHONE NUMBER	1-XXX-XXX-XXXX
INIT. STRING	
FIELD COMM	☐ VHF (ECH) ☐ VHF (RS232) ☐ WAG (ECH) ☐ SS (RS232) ☒ NONE
USER PORT	BAUD RATE (9600)
AUX PORT	BAUD RATE (9600)
COMM PORT	BAUD RATE (9600)

NOTE 5

NOTE 6

NOTE 7

NOTES:

1. LARGE CONFIGURATION ASSIGNS RECORDER INPUTS FOR USE WHEN DIGITAL I/O MODULE REQUIRED.
2. IF WARNING DEVICE = NONE MAIN/STANDBY OPTION NOT SHOWN.
3. IF VHF COMMUNICATIONS = NO THEN DTMF ACTIVATION AND CHANNEL OPTIONS ARE NOT SHOWN.
4. LAST 3 DIGITS OF DOT NO. FOR FIRST ACTIVATION CODE.
5. DEFAULT ADDRESS 7.620.100.100.99.01 USED FOR STAND ALONE LOCATIONS.
6. OPTIONS NOT SHOWN IF SITE TYPE = NO COMMUNICATIONS.
7. FORMAT AS: BAUD, DATA BITS, PARITY STOP BITS, FLOW CONTROL.

FIELD TO PROVIDE
BATTERY VOLTAGES
ON AIS

LIT BULB COUNT ON EACH CIRCUIT	NO.	TYPE OF BULB	CURRENT READING IN AMP. AT APPROX. 10.0 V BULB VOLTAGE
CURRENT SENSOR (1) E1C. LAMP SET UP	10	☐ BULBS ☒ LED	X.X
CURRENT SENSOR (1) E2A. LAMP SET UP	10	☐ BULBS ☒ LED	X.X
CURRENT SENSOR (2) E2C. LAMP SET UP	10	☐ BULBS ☒ LED	X.X
CURRENT SENSOR (2) E1A. LAMP SET UP	10	☐ BULBS ☒ LED	X.X

MEASURE BATTERY VOLTAGE AT INPUT	
BATTERY VOLTAGE 0B	XXXX VOLTS
BATTERY VOLTAGE X-B	XXXX VOLTS
BATTERY VOLTAGE B-G	XXXX VOLTS

SITE SET UP OPTIONS CONT.	
OPTION	SELECTION
RAILROAD NUMBER	125
CROSSING CONFIGURATION	STANDARD ☐ LARGE ☒ REMOTE ☐ SPLIT GATE ☐ ISL ONLY ☐ CP COLLECTOR ☐
NUMBER OF XR INPUTS	0 ☐ 1 ☒ 2 ☐ 3 ☐ 4 ☐
NUMBER OF ISL INPUTS	0 ☐ 1 ☐ 2 ☒ 3 ☐ 4 ☐
CONSTANT WARNING DEVICE	GCP ☐ OTHER ☒ NONE ☐
TOTAL NUMBER OF GCP NODES	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐
NUMBER OF REDUNDANT GCP	1 ☐ 2 ☐ 3 ☐ 4 ☐
CROSSING CONTROLLER 1	SSCC IIIA / PLUS ☐ SSCC IV ☐ OTHER ☐ NONE ☒
POK2	YES ☒ NO ☐
MAIN / STANDBY	YES ☒ NO ☐
AUXILIARY TRACKS	0 ☒ 1 ☐ 2 ☐
ENTRANCE GATE	0 ☐ 1 ☐ 2 ☒ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐
EXIT GATES	0 ☐ 1 ☐ 2 ☒ 3 ☐ 4 ☐
GATE POSITION FAIL 10-60 SEC	25
NUMBER OF UAX INPUTS	0 ☐ 1 ☐ 2 ☒
BATTERY BANKS	1 ☐ 2 ☐ 3 ☒ 4 ☐ 5 ☐ 6 ☐
0B RESOLUTION	.2 ☐ .5 ☐ 1.0 ☒
X-B RESOLUTION	.2 ☐ .5 ☐ 1.0 ☒ NOT PRESENT ☐
B-G RESOLUTION	.2 ☐ .5 ☐ 1.0 ☒ NOT PRESENT ☐
X-B2 RESOLUTION	.2 ☐ .5 ☐ 1.0 ☐ NOT PRESENT ☒
B-G2 RESOLUTION	.2 ☐ .5 ☐ 1.0 ☒ NOT PRESENT ☐
X-B3 RESOLUTION	.2 ☐ .5 ☐ 1.0 ☐ NOT PRESENT ☒
PREEMPTION	NORMAL ☐ ADVANCED ☐ NO ☒
KDR INPUT	YES ☒ NO ☐
VHF COMMUNICATOR	YES ☐ NO ☒
ACTIVATION CODE 1	XXX
ACTIVATION CODE 2	XXX
ACTIVATION CODE 3	XXX
ACTIVATION TIMEOUT (30 TO 600 SECONDS)	60
LOD MODULES	0 ☐ 1 ☐ 2 ☒ 3 ☐ 4 ☐ 5 ☐ 6 ☐
ANY LED BULBS	NO ☐ YES ☒
AUTO INSPECTIONS	YES ☒ NO ☐
BELL ON	GATES LOWERING ☒ GATES MOVING ☐ ALWAYS ☐
GROUND FAULT DETECTORS	YES ☒ NO ☐
BATTERIES ON GFT1	1 ☐ 2 ☒
FULL APPROACH MOVE ALARMS	ACTIVATED ☒ DO NOT ACTIVATE ☐

DESIGN NOTE,
LEAVE XXX

PRELIMINARY
= NOTE
PROGRESS
RAIL SERVICES
A Caterpillar Company
NEW WORK
DATE: 08/15/18
CSX# 0H2010655
PRS/GMW/SAF

CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
E. SHARON AVE. 152376N			
SEAR II CONFIGURATION AND FUNCTIONS GLENDALE, OH M.P. BE-15.06			
DESIGNED PRS/GMW	DIGITIZED PRS/GMW	CHECKED PRS/SAF	DATE 08-15-18
DRAWING -----	SHEET NO -----	FILE BE01506	SHEET C09

DESIGN DATE 08-15-18	REV. NO. 1
-------------------------	---------------

DISCRETE INPUTS	DI 01	DI 02	DI 03	DI 04	DI 05	DI 06
CHANNEL	1	2	3	4	5	6
NAME	XR1 (TRACK)	ISLAND 1 (TRACK)	ISLAND 2 (TRACK)	DAX (REMOTE TK. 1)	DAX (REMOTE TK. 2)	BELL OUT (BELL PWR)
TAG	XR1 (XR)	ISL1	ISL2	DAX TK. 1	DAX TK. 2	BELL OUT (BELL PWR)
OFF NAME	DOWN (XR)	DOWN (ISL1)	DOWN (ISL2)	DOWN (DAX TK. 1)	DOWN (DAX TK. 2)	OFF (BELL PWR)
ON NAME	UP (XR)	UP (ISL1)	UP (ISL2)	UP (DAX TK. 1)	UP (DAX TK. 2)	ON (BELL PWR)
ON DEBOUNCE TIME	100 ms	100 ms	100 ms	100 ms	100 ms	100 ms
OFF DEBOUNCE TIME	100 ms	100 ms	100 ms	100 ms	100 ms	100 ms
TOGGLE PERIOD	1000 ms	1000 ms	1000 ms	1000 ms	1000 ms	1000 ms

TSS INPUTS	DI 07	DI 08	DI 09	DI 10
CHANNEL	7	8	9	10
NAME	AGP	BGP	CGP	DGP
TAG	AGP	BGP	CGP	DGP
OFF NAME	LIGHTS FLASH	LIGHTS FLASH	LIGHTS FLASH	LIGHTS FLASH
ON NAME	A GATE VERTICAL	B GATE VERTICAL	C GATE VERTICAL	D GATE VERTICAL
ON DEBOUNCE TIME	100 ms	100 ms	100 ms	100 ms
OFF DEBOUNCE TIME	100 ms	100 ms	100 ms	100 ms
TOGGLE PERIOD	1000 ms	1000 ms	1000 ms	1000 ms

DISCRETE INPUTS	DI 11	DI 12	DI 13
CHANNEL	11	12	13
NAME	SP	DTMF	EGHR
TAG	SP	DTMF-REC	EGHR
OFF NAME		OFF (NO GATE KEYED)	EGHR DOWN
ON NAME		ON (ACTIVATE)	EGHR UP
ON DEBOUNCE TIME	1000 ms	100 ms	100 ms
OFF DEBOUNCE TIME	1000 ms	100 ms	100 ms
TOGGLE PERIOD	1000 ms	1000 ms	1000 ms

GFT INPUTS	DI 14	DI 15
CHANNEL	14	15
NAME	GND FAULT TESTER 1 (GFT1,2)	GND FAULT TESTER 2 (GFT3,4)
TAG	GFT1 (GFT1 DATA)	GFT2 (GFT2 DATA)
BATTERY 1 NAME	0B (GND FAULT)	1B-G (GND FAULT)
BATTERY 1 TAG	0B (GND FAULT)	1B-G (GND FAULT)
BATTERY 2 NAME	X-B (GND FAULT)	2B-G (GND FAULT)
BATTERY 2 TAG	X-B (GND FAULT)	2B-G (GND FAULT)

DISCRETE INPUTS	DI 16	DI 17	DI 18
CHANNEL	16	17	18
NAME	VDHR	120 VAC	P0K2
TAG	VDHR	120 VAC	P0K2
OFF NAME	EGMS NOT HEALTHY	OFF (ALL POWER OFF)	OFF (ALL POWER OFF)
ON NAME	EGMS HEALTHY	ON (ALL POWER ON)	ON (ALL POWER ON)
ON DEBOUNCE TIME	100 ms	100 ms	100 ms
OFF DEBOUNCE TIME	100 ms	100 ms	100 ms
TOGGLE PERIOD	1000 ms	1000 ms	1000 ms

BATTERY INPUTS	BI1	BI2	BI3
CHANNEL	1	2	3
NAME	0B (ELECTRONIC BATT)	X-B (BULB BATT)	1B-G (GATE BATT)
TAG	0B	X-B	1B-G
SAMPLE PERIOD (ms)	500 (ms)	500 (ms)	500 (ms)
RESOLUTION (V)	0.2 (VOLTS)	0.2 (VOLTS)	1.0 (VOLTS)
AVGERAGING SAMPLES	32 SAMPLES	32 SAMPLES	32 SAMPLES

RELAYS	R01	R02
CHANNEL	1	2
NAME	GFT TEST	AC POWER TEST (ACRLY)
TAG	SELF TEST	AC POWER TEST (ACRLY)
OFF STATE NAME	NOT TESTING	OFF (ACR DN)
ON STATE NAME	TESTING	ON (ACR UP)
UNKNOWN STATE NAME	PULSE	PULSE
ON PULSE TIME (s)	1 (s)	1 (s)
OFF PULSE TIME (s)	1 (s)	1 (s)
TOGGLE PERIOD (s)	1 (s)	1 (s)
DUTY CYCLE	50	50

NOTE: () DENOTES NOMENCLATURE FOR CLARIFICATION AND WILL NOT DISPLAY ON LOG REPORTS.

PRELIMINARY

PROGRESS

RAIL SERVICES

A Caterpillar Company

NEW WORK

DATE:08/15/18

CSX#0H2018655

PRS/GMW/SAF

CSX

TRANSPORTATION

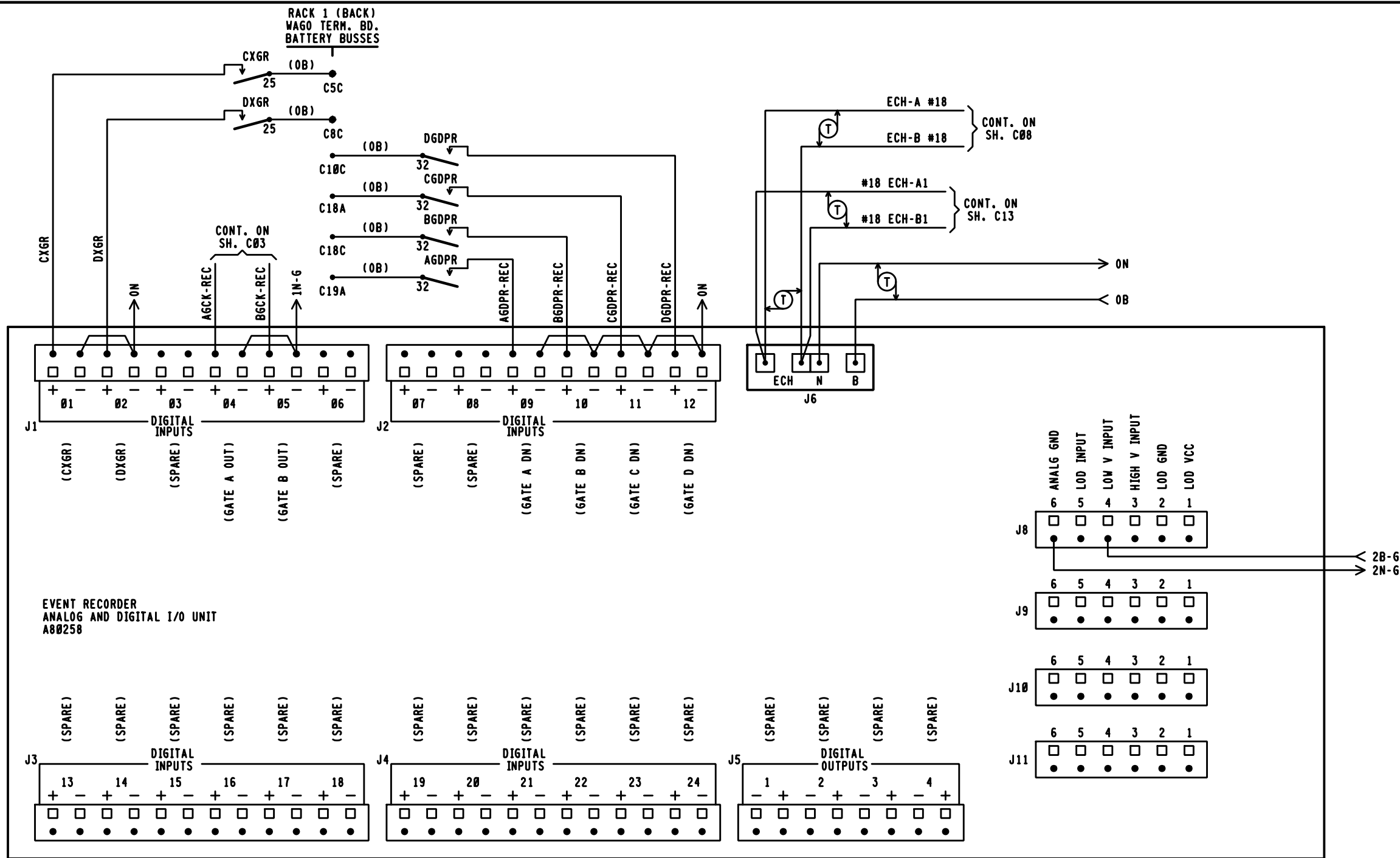
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

E. SHARON AVE. 152376N

SEAR II CHANNELS
GLENDALE, OH M.P. BE-15.06

DESIGNED PRS/GMW	DIGITIZED PRS/GMW	CHECKED PRS/SAF	DATE 08-15-18
DRAWING -----	SHEET NO -----	FILE BE01506	SHEET C10

DESIGN DATE	REV. NO.
08-15-18	1



PRELIMINARY
PROGRESS
 RAIL SERVICES
 A Caterpillar Company
NEW WORK

DATE: 08/15/18
 CSX# 0H2018655
 PRS/GMW/SAF

CSX TRANSPORTATION
 RAIL TRANSPORT GROUP ENGINEERING
 COMMUNICATIONS AND SIGNALS

E. SHARON AVE. 152376N

ANALOG AND DIGITAL I/O UNIT CIRCUITS
 GLENDALE, OH M.P. BE-15.06

DESIGNED PRS/GMW	DIGITIZED PRS/GMW	CHECKED PRS/SAF	DATE 08-15-18
DRAWING -----	SHEET NO -----	FILE BE01506	SHEET C11

DESIGN DATE 08-15-18	REV. NO. 1
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DISCRETE INPUTS	DI 01	DI 02	DI 03	DI 04	DI 05	DI 06
CHANNEL	1	2	3	4	5	6
NAME	C GATE CONTROL	D GATE CONTROL		A GATE CONTROL	B GATE CONTROL	
TAG	C GCOUT	D GCOUT	SP	A GCOUT	B GCOUT	SP
OFF NAME	OFF (ASCENT ON)	OFF (ASCENT ON)		OFF (DESCENT)	OFF (DESCENT)	
ON NAME	ON (DESCENT)	ON (DESCENT)		ON (ASCENT ON)	ON (ASCENT ON)	
ON DEBOUNCE TIME	100 ms	100 ms	1000 ms	100 ms	100 ms	1000 ms
OFF DEBOUNCE TIME	100 ms	100 ms	1000 ms	100 ms	100 ms	1000 ms
TOGGLE PERIOD	1000 ms	1000 ms	1000 ms	1000 ms	1000 ms	1000 ms

DISCRETE INPUTS	DI 07	DI 08	DI 09	DI 10	DI 11	DI 12
CHANNEL	7	8	9	10	11	12
NAME			AGDP	BGDP	CGDP	DGDP
TAG	SP	SP	AGDP	BGDP	CGDP	DGDP
OFF NAME			NOT HORIZ	NOT HORIZ	NOT HORIZ	NOT HORIZ
ON NAME			GATE HORIZ	GATE HORIZ	GATE HORIZ	GATE HORIZ
ON DEBOUNCE TIME	1000 ms	1000 ms	100 ms	100 ms	100 ms	100 ms
OFF DEBOUNCE TIME	1000 ms	1000 ms	100 ms	100 ms	100 ms	100 ms
TOGGLE PERIOD	1000 ms	1000 ms	1000 ms	1000 ms	1000 ms	1000 ms

DISCRETE INPUTS	DI 13	DI 14	DI 15	DI 16	DI 17	DI 18
CHANNEL	13	14	15	16	17	18
NAME						
TAG	SP	SP	SP	SP	SP	SP
OFF NAME						
ON NAME						
ON DEBOUNCE TIME	1000 ms	1000 ms	1000 ms	1000 ms	1000 ms	1000 ms
OFF DEBOUNCE TIME	1000 ms	1000 ms	1000 ms	1000 ms	1000 ms	1000 ms
TOGGLE PERIOD	1000 ms	1000 ms	1000 ms	1000 ms	1000 ms	1000 ms

DISCRETE INPUTS	DI 19	DI 20	DI 21	DI 22	DI 23	DI 24
CHANNEL	19	20	21	22	23	24
NAME						
TAG	SP	SP	SP	SP	SP	SP
OFF NAME						
ON NAME						
ON DEBOUNCE TIME	1000 ms	1000 ms	1000 ms	1000 ms	1000 ms	1000 ms
OFF DEBOUNCE TIME	1000 ms	1000 ms	1000 ms	1000 ms	1000 ms	1000 ms
TOGGLE PERIOD	1000 ms	1000 ms	1000 ms	1000 ms	1000 ms	1000 ms

DISCRETE OUTPUTS	D01	D02	D03	D04
CHANNEL	1	2	3	4
NAME				
TAG	SP	SP	SP	SP
OFF STATE NAME	OFF	OFF	OFF	OFF
ON STATE NAME	ON	ON	ON	ON
UNKNOWN STATE NAME	PULSE	PULSE	PULSE	PULSE
ON PULSE TIME (s)	1 (s)	1 (s)	1 (s)	1 (s)
OFF PULSE TIME (s)	1 (s)	1 (s)	1 (s)	1 (s)
TOGGLE PERIOD (s)	1 (s)	1 (s)	1 (s)	1 (s)
DUTY CYCLE	50	50	50	50

ANALOG INPUTS	J08	J09	J10	J11
CHANNEL	01 ANALOG	02 ANALOG	03 ANALOG	04 ANALOG
NAME	2B-6 [B-G2]	SP	SP	SP
TAG	2B-6 [B-G2]	SP	SP	SP
RESOLUTION	1.0 (VOLTS)	SP	SP	SP

- NOTES:
- 1. () DENOTES NOMENCLATURE FOR CLARIFICATION AND WILL NOT DISPLAY ON LOG REPORTS.
 - 2. [] DENOTES NOMENCLATURE FOR RECORDER ONLY.

PRELIMINARY

PROGRESS
RAIL SERVICES

A Caterpillar Company

NEW WORK

DATE: 08/15/18

CSX# 0H2018655

PRS/GMW/SAF

CSX

TRANSPORTATION

RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

E. SHARON AVE. 152376N

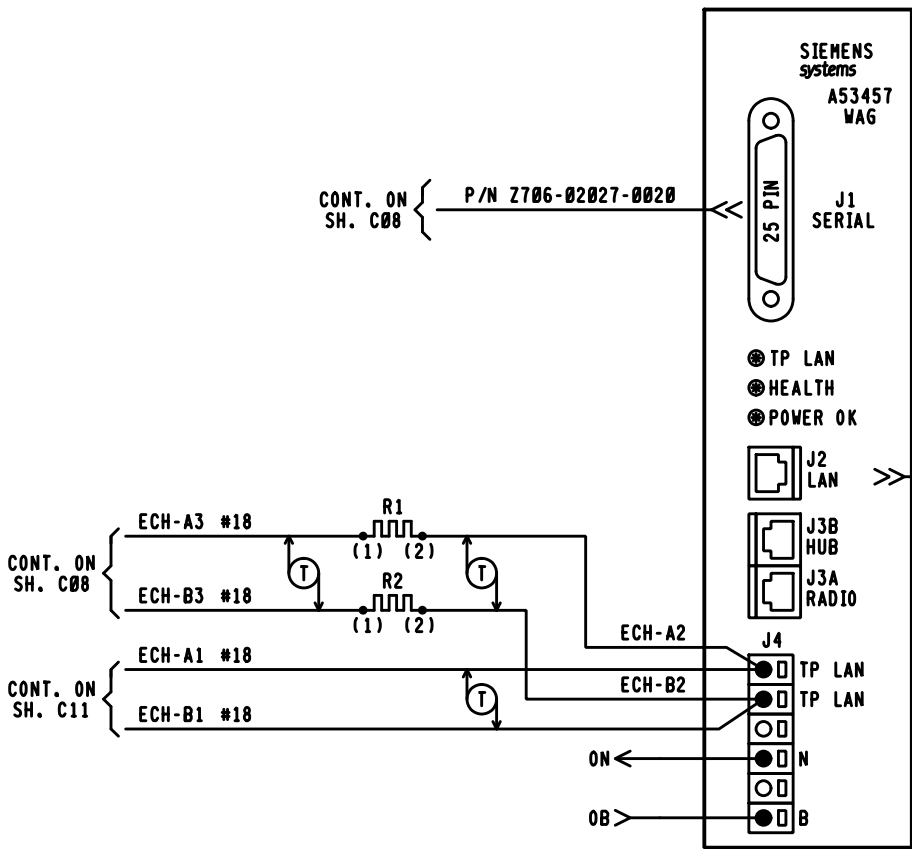
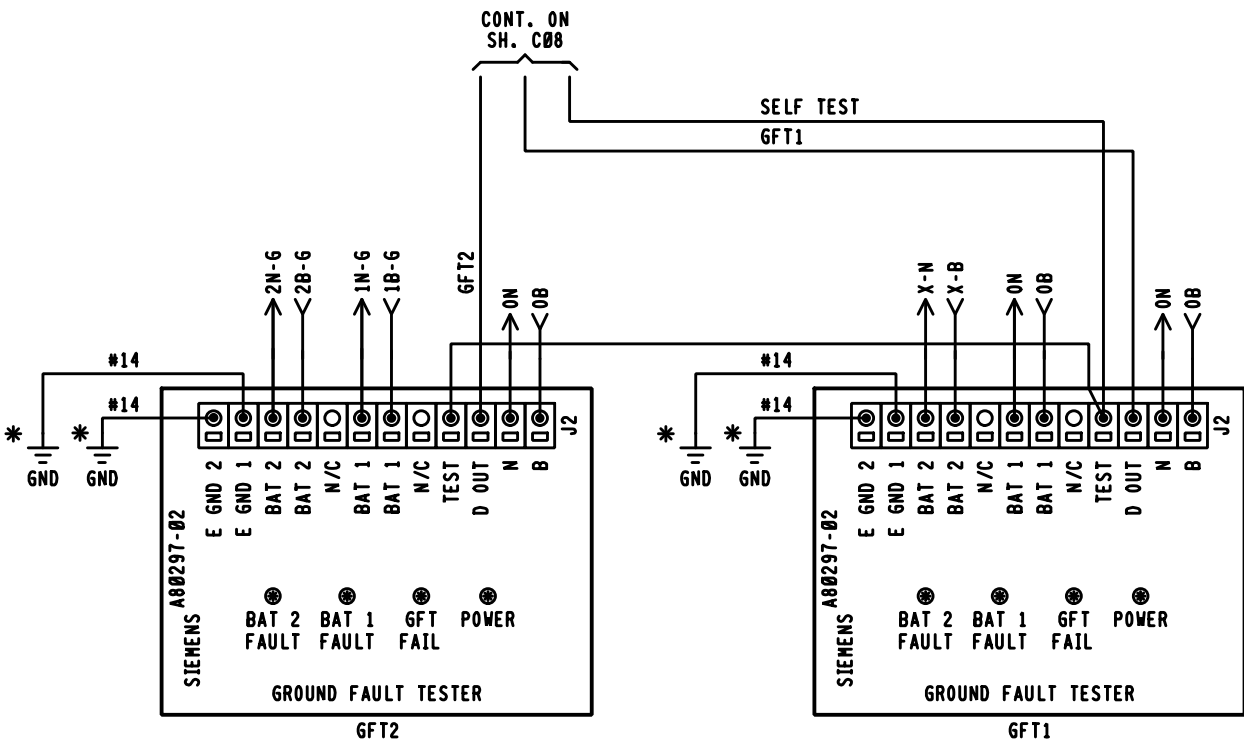
ANALOG AND DIGITAL I/O UNIT CHANNELS
GLENDALE, OH M.P. BE-15.06

DESIGNED PRS/GMW	DIGITIZED PRS/GMW	CHECKED PRS/SAF	DATE 08-15-18
DRAWING -----	SHEET NO -----	FILE BE01506	SHEET C12

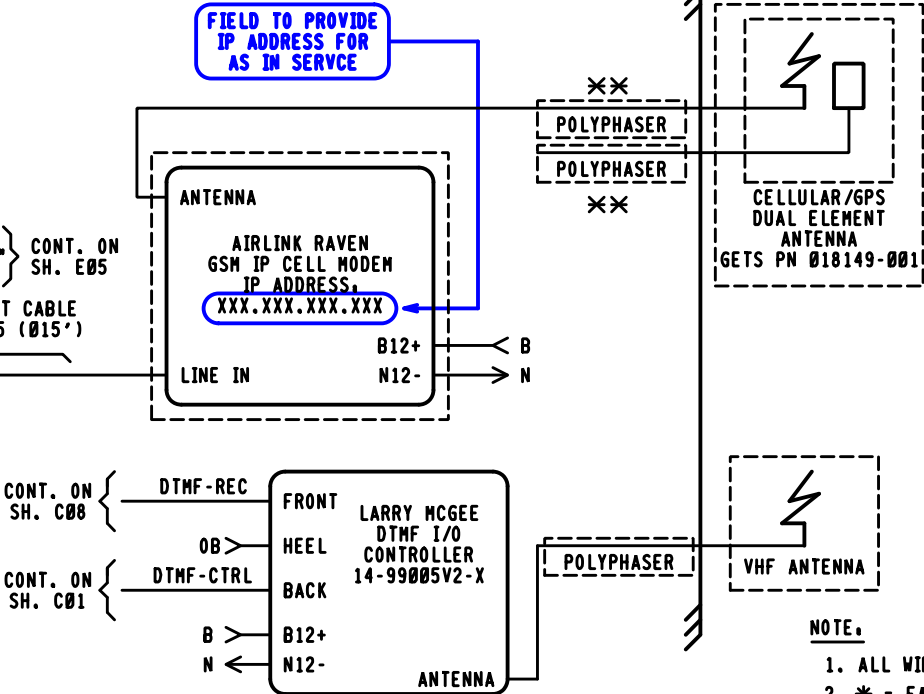
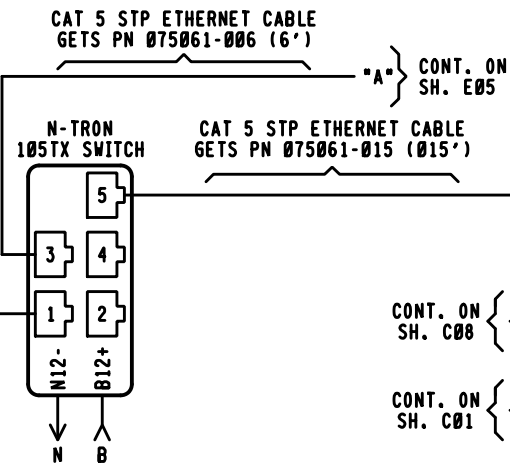
DESIGN DATE	REV. NO.
08-15-18	1

WAYSIDE ACCESS GATEWAY CONFIGURATION	
SITE ATCS ADDRESS	7.125.459.004.01.01 7.125.LLL.666.SS.DD
SERIAL INTERFACE	9600,NONE,8,1/NOFLOW
SERIAL FORMAT	RAW
WAG TEST MODE	DISABLED
ECHELON ADDRESS	01.01
UDP PORTS	5000, 5001, 5002, 5003
ROUTE TABLE EXPIRY	5400 SEC
BROADCAST MEDIUM	IP ETHERNET
TCP PORTS	6001
DHCP SERVER	DISABLED
IP ADDRESS	192.168.13.1
TYPE 7 ROUTE LENGTH	12--7RRRLLL66GSS
IP NETWORK MASK	255.255.255.000

NOTE TO INSPECTOR,
AT INSTALLATION OF CDMA BY COM.
MARK-UP CONFIGURATION TABLE FOR
AS IN SERVICE PLANS



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



PROGRAMMING FOR DTMF RADIO
REMOTE DTMF CROSSING ACTIVATION
(ACTIVATES ENTIRE CROSSING)
TO ACTIVATE PRESS. 376 #
TO DE-ACTIVATE PRESS. 376 *
(ACTIVATION WILL TIME OUT AFTER 60 SEC.)

PRELIMINARY
= NOTE
PROGRESS
RAIL SERVICES
A Caterpillar Company
NEW WORK
DATE: 08/15/18
CSX*.0H2018655
PRS/GMW/SAF

- NOTE.
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. R1 & R2 = .5 WATT, 200Ω RESISTOR
 4. ** = COMMUNICATIONS TO SUPPLY.

CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
E. SHARON AVE. 152376N			
WAYSIDE ACCESS GATEWAY GLENDALE, OH M.P. BE-15.06			
DESIGNED PRS/GMW	DIGITIZED PRS/GMW	CHECKED PRS/SAF	DATE 08-15-18
DRAWING -----	SHEET NO -----	FILE BE01506	SHEET C13

EGMS
PROGRAM INFORMATION
PROGRAM VERSION 4.5 *

EGMS DISPLAY PARAMETERS

PARAMETER	
STARTUP LOGO	CSX
BACKLIGHT TIMEOUT	015
BUZZER ENABLE	YES
DIRECTION INDICATORS	↓ W ↑ E
BUNGALOW QUAD	NORTH ENTRANCE
DISPLAY QZI	NO
LOCAL PREFIX	NO
REMOTE PREFIX	NO
CROSSING NAME	E. SHARON AVE.
CROSSING DESCRIPTION	MAIN
CROSSING DOT #	152376N

EGMS OPERATIONAL PARAMETERS

PARAMETER	
PRIMARY MODE	DYNAMIC
SECONDARY MODE	NONE
DIS ENTR DETS	NO
DELAY ON DOWN	01.0
REV DET ENABLE	NO
DYNAMIC EGCT	000
TIMED EGCT	012
ISLAND INHIBIT TIME	012
XR DET DISABLE	YES
BIDIR DELAY	04.0
DYN ENTRANCE MONITOR	YES
ENTRANCE DOWN REQ	YES
EXIT UP REQ	NO
EGH SENSE	B12 HOLDS
ISL 2 ENABLE	NO
DUAL EGMS ENABLED	NO

EGMS ALARM PARAMETERS

PARAMETER	
GATO ALARM DELAY	000
GATO GATE DELAY	000
MAX GATE RELEASE	09.0 *
MAX GATE RESPONSE	03.0 *
CYCLE RESTORE	001
MTCD PRESENCE	000
DET FAIL ALARM	YES
DET RESTORE DELAY	000
MAX DET FAILS	000
AUX IN 1 ENABLE	NO
AUX IN 1 RESTORE	000
AUX IN 2 ENABLE	NO
AUX IN 2 RESTORE	000
AUX IN 3 ENABLE	NO
AUX IN 3 RESTORE	000
AUX IN 4 ENABLE	NO
AUX IN 4 RESTORE	000

* ADJUST GATE RELEASE, AND RESPONSE TIMES IN FIELD BASED ON ACTUAL GATE OPERATIONS, AS NECESSARY.

EGMS AUX OUTPUT MAPPING

PARAMETER	
AUX OUT 1 FUNCTION	DET XRISL
AUX OUT 1 SOURCE	LOCAL
AUX OUT 2 FUNCTION	DET HLTH
AUX OUT 2 SOURCE	LOCAL
AUX OUT 3 FUNCTION	GP
AUX OUT 3 SOURCE	LOCAL
AUX OUT 4 FUNCTION	ALARM
AUX OUT 4 SOURCE	LOCAL

GATE PARAMETERS

GATE	1	2	3	4	5	6	7	8
GATE TYPE	ENTRANCE	ENTRANCE	EXIT	EXIT	NONE*	NONE*	NONE*	NONE*
GATE DIRECTION	↓ W	↑ E	↓ W	↑ E	↓ S	↓ S	↓ S	↓ S
VERTICAL CHATTER TIME	02.0	02.0	02.0	02.0	02.0	02.0	02.0	02.0
HORIZONTAL CHATTER TIME	02.0	02.0	02.0	02.0	02.0	02.0	02.0	02.0
MINIMUM ASCENT TIME	003	003	003	003	003	003	003	003
MAXIMUM ASCENT TIME	015	015	015	015	015	015	015	015
MINIMUM DESCENT TIME	003	003	003	003	003	003	003	003
MAXIMUM DESCENT TIME	015	015	015	015	015	015	015	015

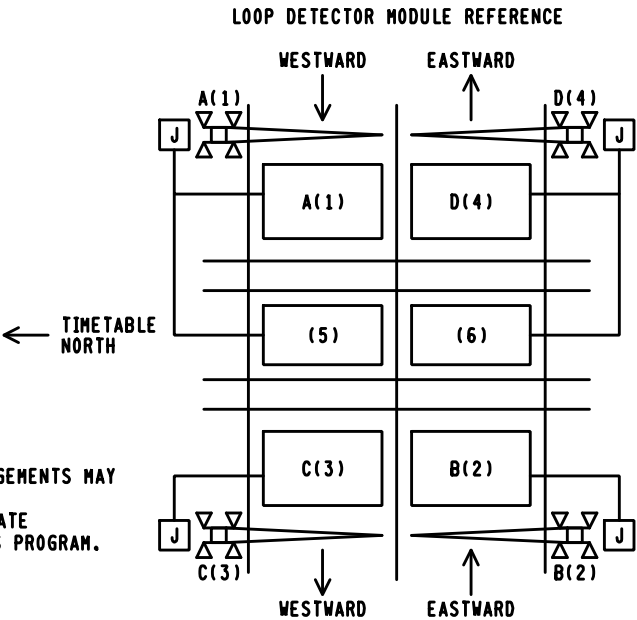
* GATE TYPE = "NONE" ALL OTHER PARAMETERS IGNORED

DETECTOR PARAMETERS

	(1) E-1400				(2) E-1400				(3) E-1400				(4) E-1400			
DETECTOR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
DETECTOR TYPE	ENTR	ENTR	EXIT	EXIT	INT	INT	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
DETECTOR DIRECTION	↓ W	↑ E	↓ W	↑ E	↓ W	↑ E	↓ S	↓ S	↓ S	↓ S	↓ S	↓ S	↓ S	↓ S	↓ S	↓ S
STRETCH TIME*	01.0	01.0	01.0	01.0	01.0	01.0	01.0	01.0	01.0	01.0	01.0	01.0	01.0	01.0	01.0	01.0
LONG-TERM OBSTRUCTION	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000
DISABLE ON DOWN	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
AUX OUTPUT 1	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
AUX OUTPUT 2	NO	NO	NO	NO	NO	NO	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
AUX OUTPUT 3	NO	NO	NO	NO	NO	NO	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
AUX OUTPUT 4	NO	NO	NO	NO	NO	NO	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

* INCREASE STRETCH TIME AS NECESSARY TO MAINTAIN VEHICLE DETECTION FROM LOOP TO LOOP.

** DETECTORS 5 - 16 DEFAULT TO "NONE" AND MUST BE CONFIGURED MANUALLY
DETECTORS 5 & 6 DEFAULT TO "INT" WHEN 2TK DEFAULT CONFIGURATION IS SELECTED.
WHEN DETECTOR TYPE IS "NONE", ALL OTHER PARAMETERS IGNORED.



- NOTES:
- SPECIAL LOOP AND GATE ARRANGEMENTS MAY REQUIRE A UNIQUE PROGRAM.
 - NUMBERS IN PARENTHESIS INDICATE GATE NUMBERS WITHIN THE EGMS PROGRAM.

* = FIELD TO VERIFY/PROVIDE ON A.I.S.

PRELIMINARY

○ = NOTE

PROGRESS
RAIL SERVICES
A Caterpillar Company

DATE: 08/15/18
CSX#: 0H2018655
PRS/GHW/SAF

CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

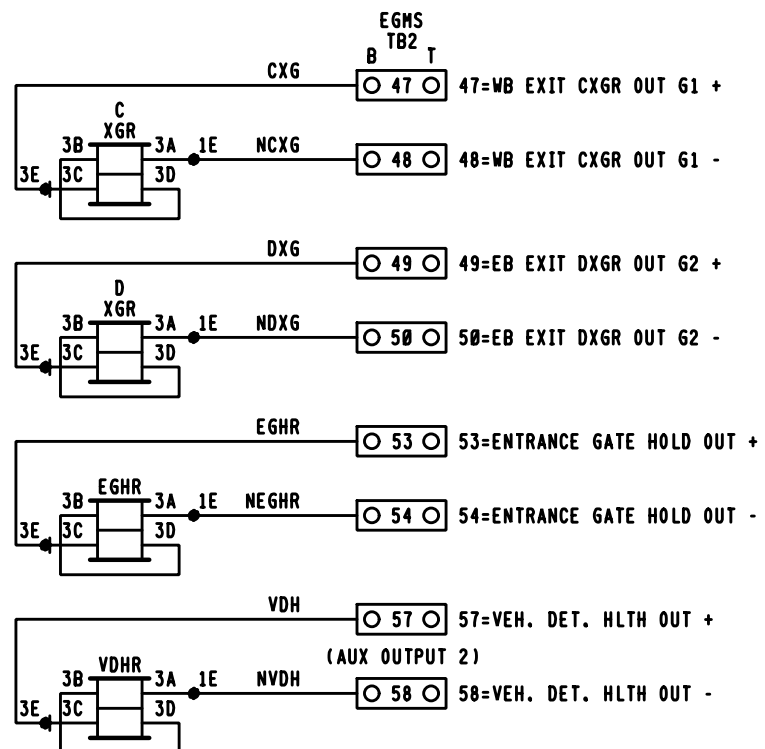
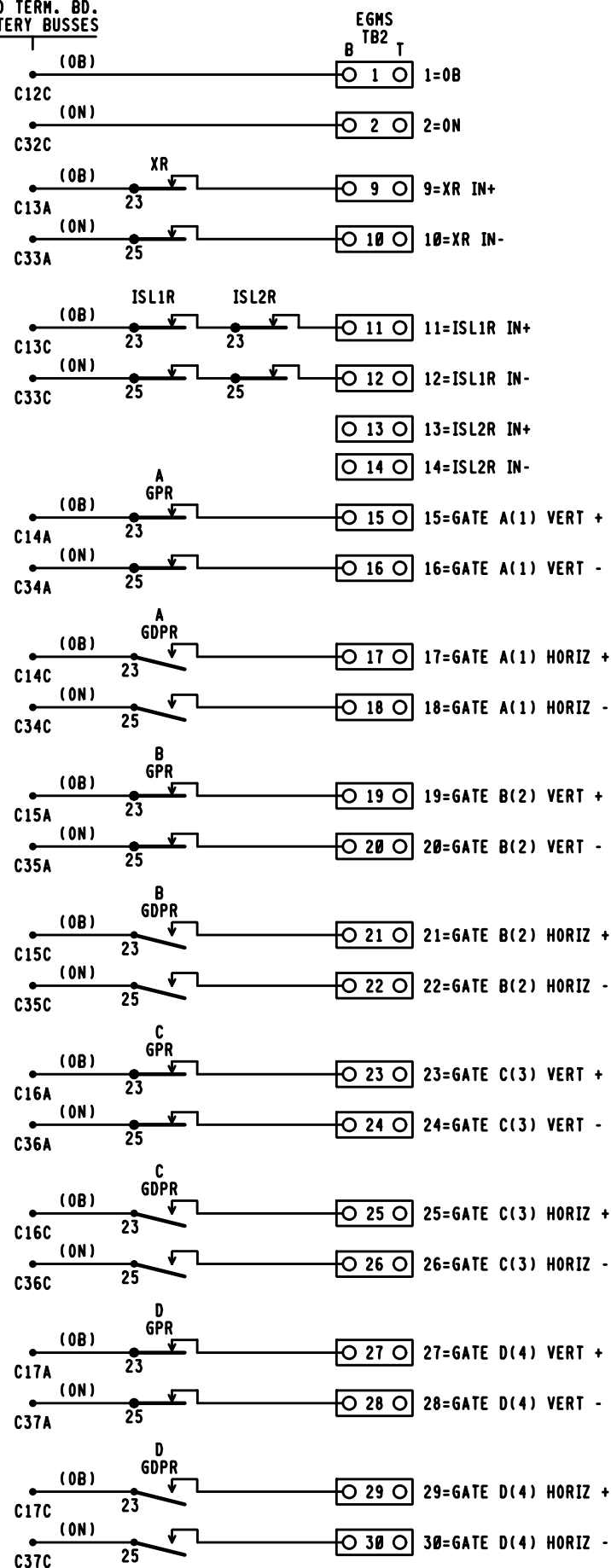
E. SHARON AVE. 152376N

EGMS PROGRAM INFORMATION
GLENDALE, OH M.P. BE-15.06

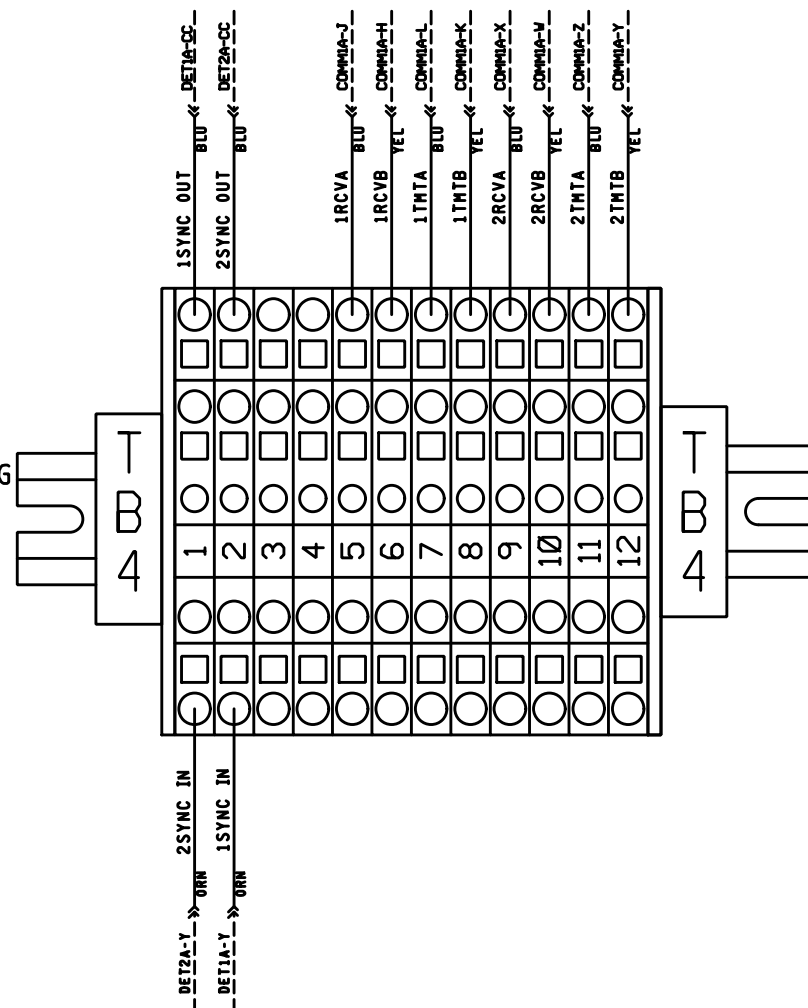
DESIGNED PRS/GHW	DIGITIZED PRS/GHW	CHECKED PRS/SAF	DATE 08-15-18
DRAWING -----	SHEET NO -----	FILE BE01506	SHEET C14

DESIGN DATE 08-15-18	REV. NO. 1
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RACK 1 (BACK)
WAGO TERM. BD.
BATTERY BUSSES



E-1400 SYNC WIRING
DETAIL FOR (2)
DETECTOR MODULES



EGMS NOTES.

- EGMS ISL1 INPUT. "AND" ISLAND INPUTS FROM ALL TRACKS. NOTE THAT WHEN THIS INPUT IS DE-ENERGIZED, THE XR INPUT ON 9 + 10 MUST ALSO BE DE-ENERGIZED BEFORE THE EXIT GATES CAN BE DRIVEN DOWN.
- EGMS ISL2 INPUT. MAY BE USED FOR STAND ALONE ISLAND INPUT. THIS INPUT IS NOT DEPENDENT UPON THE STATUS OF XR INPUT ON 9 + 10. THIS INPUT MUST BE FIELD SELECTED AND ENABLED DURING EGMS SETUP.
- ALL WIRING TO EGMS TO BE #16 AWG FLEX.

○ **○ = 2 POSITION WAGO BLOCK

PRELIMINARY

PROGRESS
RAIL SERVICES
A Caterpillar Company
NEW WORK
DATE: 08/15/18
CSX# 0H2018655
PRS/GHW/SAF

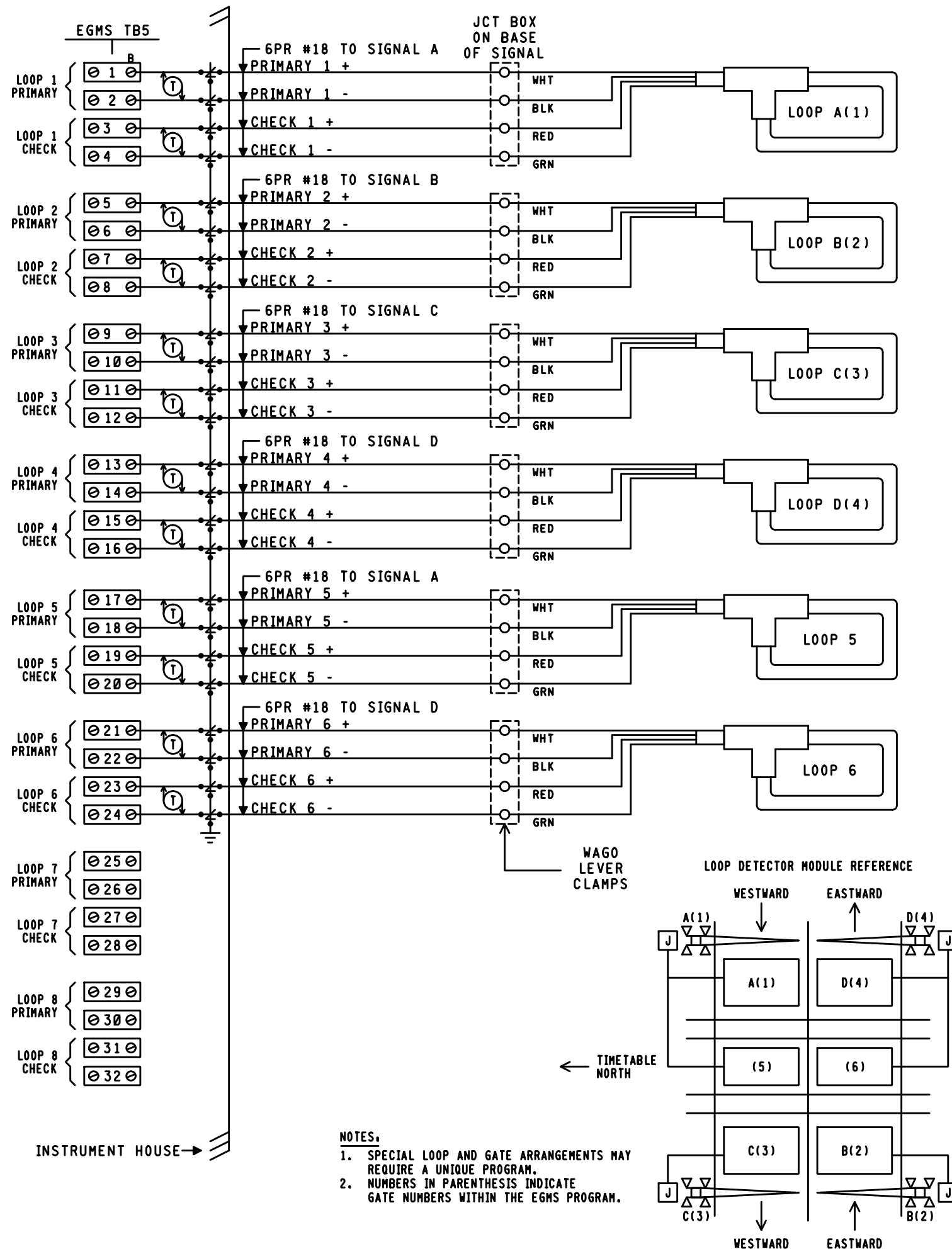
CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

E. SHARON AVE. 152376N

EGMS RACK CIRCUITRY
GLENDALE, OH M.P. BE-15.06

DESIGNED PRS/GMW	DIGITIZED PRS/GMW	CHECKED PRS/SAF	DATE 08-15-18
DRAWING -----	SHEET NO -----	FILE BE01506	SHEET C15

DESIGN DATE 08-15-18	REV. NO. 1
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(1) E-1400 DETECTOR MODULE

FUNCTION	CH. 1	CH. 2	CH. 3	CH. 4
FREQUENCY SETTING	2	4	6	8
SENSITIVITY SETTING	6*	6*	6*	6*
OPTION 1 (TEMP L DISPLAY)	OFF			
OPTION 2 (TEMP ΔL/L DISPLAY)	OFF			
OPTION 3 (NOISE FILTER)	3.00	3.00	3.00	3.00
OPTION 4 (TRACKING)	4.02	4.02	4.02	4.02
OPTION 5 (SENSITIVITY BOOST)	5.00	5.00	5.00	5.00
OPTION 6 (TEMP AUDIBLE SIGNAL)	OFF	OFF	OFF	OFF
CHECKLOOP INTERVAL	005	005	005	005
DETECTOR ID (DL=255)	000			
OPTION 7 (SYNC) (DL=700)	7.01			
OPTION 8 (ISLAND FUNCTION)	OFF			
OPTION 9 (SHUNT ENHANCEMENT)	OFF	OFF	OFF	OFF
MAIN VITAL OUTPUT DELAY	00.0	00.0	00.0	00.0
MAIN VITAL OUTPUT EXTENSION	00.0	00.0	00.0	00.0
MAIN VITAL OUTPUT MAPPING (DL=00)	10	20	40	80
AUX VITAL OUTPUT MAPPING (DL=000)	001	002	004	008
LOOP FREQUENCY (KHZ)				
LOOP INDUCTANCE (MICRO HENRIES)				
SOFTWARE VERSION				

(2) E-1400 DETECTOR MODULE

FUNCTION	CH. 1	CH. 2	CH. 3	CH. 4
FREQUENCY SETTING	2	4	6	8
SENSITIVITY SETTING	6*	6*	6*	6*
OPTION 1 (TEMP L DISPLAY)	OFF			
OPTION 2 (TEMP ΔL/L DISPLAY)	OFF			
OPTION 3 (NOISE FILTER)	3.00	3.00	3.00	3.00
OPTION 4 (TRACKING)	4.02	4.02	4.02	4.02
OPTION 5 (SENSITIVITY BOOST)	5.00	5.00	5.00	5.00
OPTION 6 (TEMP AUDIBLE SIGNAL)	OFF	OFF	OFF	OFF
CHECKLOOP INTERVAL	005	005	005	005
DETECTOR ID (DL=255)	001			
OPTION 7 (SYNC) (DL=700)	7.01			
OPTION 8 (ISLAND FUNCTION)	OFF			
OPTION 9 (SHUNT ENHANCEMENT)	OFF	OFF	OFF	OFF
MAIN VITAL OUTPUT DELAY	00.0	00.0	00.0	00.0
MAIN VITAL OUTPUT EXTENSION	00.0	00.0	00.0	00.0
MAIN VITAL OUTPUT MAPPING (DL=00)	10	20	40	80
AUX VITAL OUTPUT MAPPING (DL=000)	001	002	004	008
LOOP FREQUENCY (KHZ)				
LOOP INDUCTANCE (MICRO HENRIES)				
SOFTWARE VERSION				

* = FIELD VERIFY

PRELIMINARY

PROGRESS

RAIL SERVICES

A Caterpillar Company

NEW WORK

DATE: 08/15/18
CSX# 0H2018655
PRS/GHW/SAF

CSX TRANSPORTATION

RAIL TRANSPORT GROUP ENGINEERING

COMMUNICATIONS AND SIGNALS

E. SHARON AVE. 152376N

EGMS RACK CIRCUITRY

GLENDAL, OH M.P. BE-15.06

DESIGN DATE
08-15-18

REV. NO.
1

DRAWING

SHEET NO

FILE
BE01506

SHEET
C16

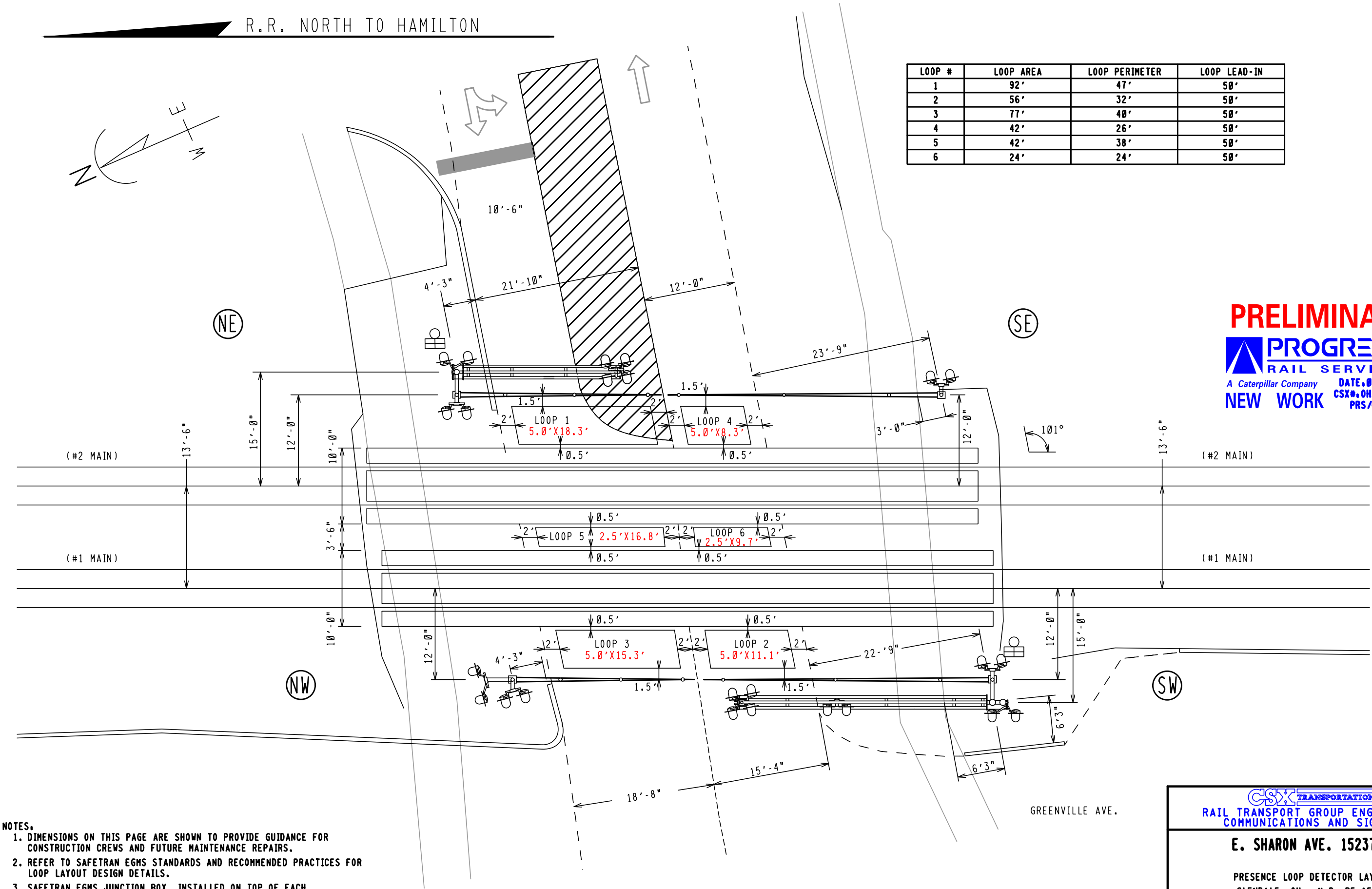
R.R. NORTH TO HAMILTON

LOOP #	LOOP AREA	LOOP PERIMETER	LOOP LEAD-IN
1	92'	47'	50'
2	56'	32'	50'
3	77'	40'	50'
4	42'	26'	50'
5	42'	38'	50'
6	24'	24'	50'

PRELIMINARY

PROGRESS
RAIL SERVICES

A Caterpillar Company
NEW WORK
DATE: 08/15/18
CSX#: OH2018655
PRS/GMW/SAF



- NOTES:
- DIMENSIONS ON THIS PAGE ARE SHOWN TO PROVIDE GUIDANCE FOR CONSTRUCTION CREWS AND FUTURE MAINTENANCE REPAIRS.
 - REFER TO SAFETRAN EGMS STANDARDS AND RECOMMENDED PRACTICES FOR LOOP LAYOUT DESIGN DETAILS.
 - SAFETRAN EGMS JUNCTION BOX INSTALLED ON TOP OF EACH FOUNDATION.
 - INSTALL SAFETRAN 6 PAIR #18 CABLE FROM JUNCTION BOX TO BUNGALOW.

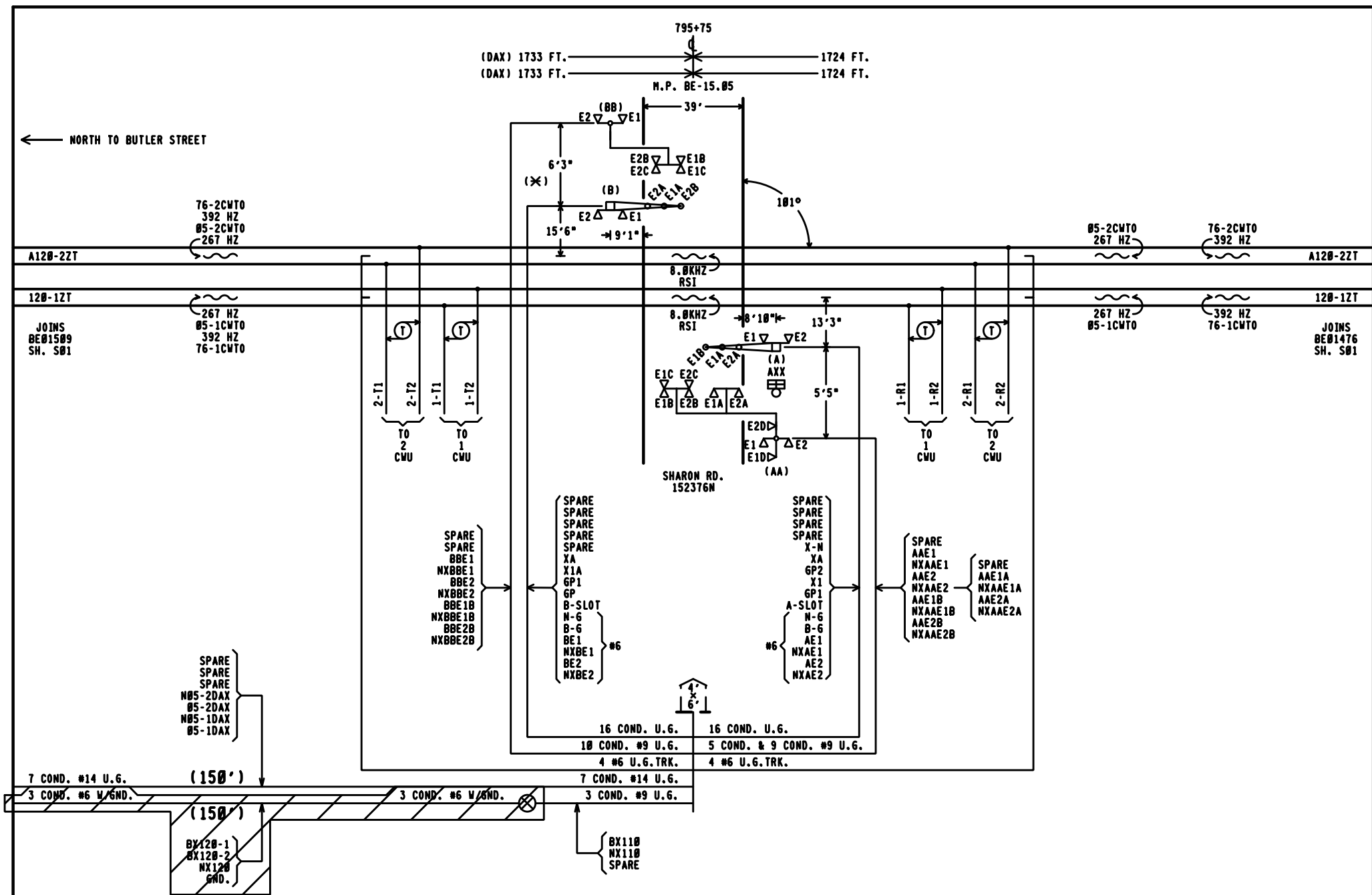
CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

E. SHARON AVE. 152376N

PRESENCE LOOP DETECTOR LAYOUT
GLENDALE, OH M.P. BE-15.06

DESIGNED PRS/GMW	DIGITIZED PRS/GMW	CHECKED PRS/SAF	DATE 08-15-18
DRAWING -----	SHEET NO -----	FILE BE01506	SHEET C17

DESIGN DATE 08-15-18	REV. NO. 1
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APPROACH LENGTHS TABLE				
DC, AFO, TYPE C, MOTION, CWT, OR OTHER	NORTHWARD TRACK 1 CWT	SOUTHWARD TRACK 1 CWT	NORTHWARD TRACK 2 CWT	SOUTHWARD TRACK 2 CWT
STANDARD MINIMUM WARNING TIME IN SECONDS	25	25	25	25
ROADWAY GATE TIME IN SECONDS	0	0	0	0
CLEARANCE TIME IN SECONDS	1	1	1	1
DOT TRAFFIC LIGHT SIMULTANEOUS PREEMPT TIME IN SECONDS *	0	0	0	0
DESIGNED WARNING TIME FOR TRAINS AT TIME TABLE SPEED	26 SEC.	26 SEC.	26 SEC.	26 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	30 SEC.	30 SEC.	30 SEC.	30 SEC.
TIME TABLE MAXIMUM TRAIN SPEED IN MILES PER HOUR	35	35	35	35
BUFFER SPEED IN MILES PER HOUR	5	5	5	5
TOTAL WARNING SYSTEM DESIGN SPEED IN MILES PER HOUR	40	40	40	40
APPROACH DISTANCE TO ISLAND EDGE IN FEET	1733	1724	1733	1724
HALF WIDTH OF ISLAND IN FEET	72	50	72	50
APPROXIMATE MILE POSTS FOR APPROACH CIRCUIT	15.38	14.73	15.38	14.73

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

PRELIMINARY

ALL ELSE OUT
THIS SHEET IS VOID
WHEN AS IN SERVICED.



NOTES:

1. (X) = LOCATION OF HOUSE
2. GATE LENGTH (A) 38' (B) 28'
3. CANTILEVER LENGTH (AA) 34' (BB) 24'
4. TRANSMITTER LEADS FOR MOTION OR PREDICTOR EQUIPMENT SHOULD BE CONNECTED ON THE BUNGALOW OR SHORT LEAD SIDE OF THE CROSSING.

REVISIONS

05-12-14 IRS 0H2012016

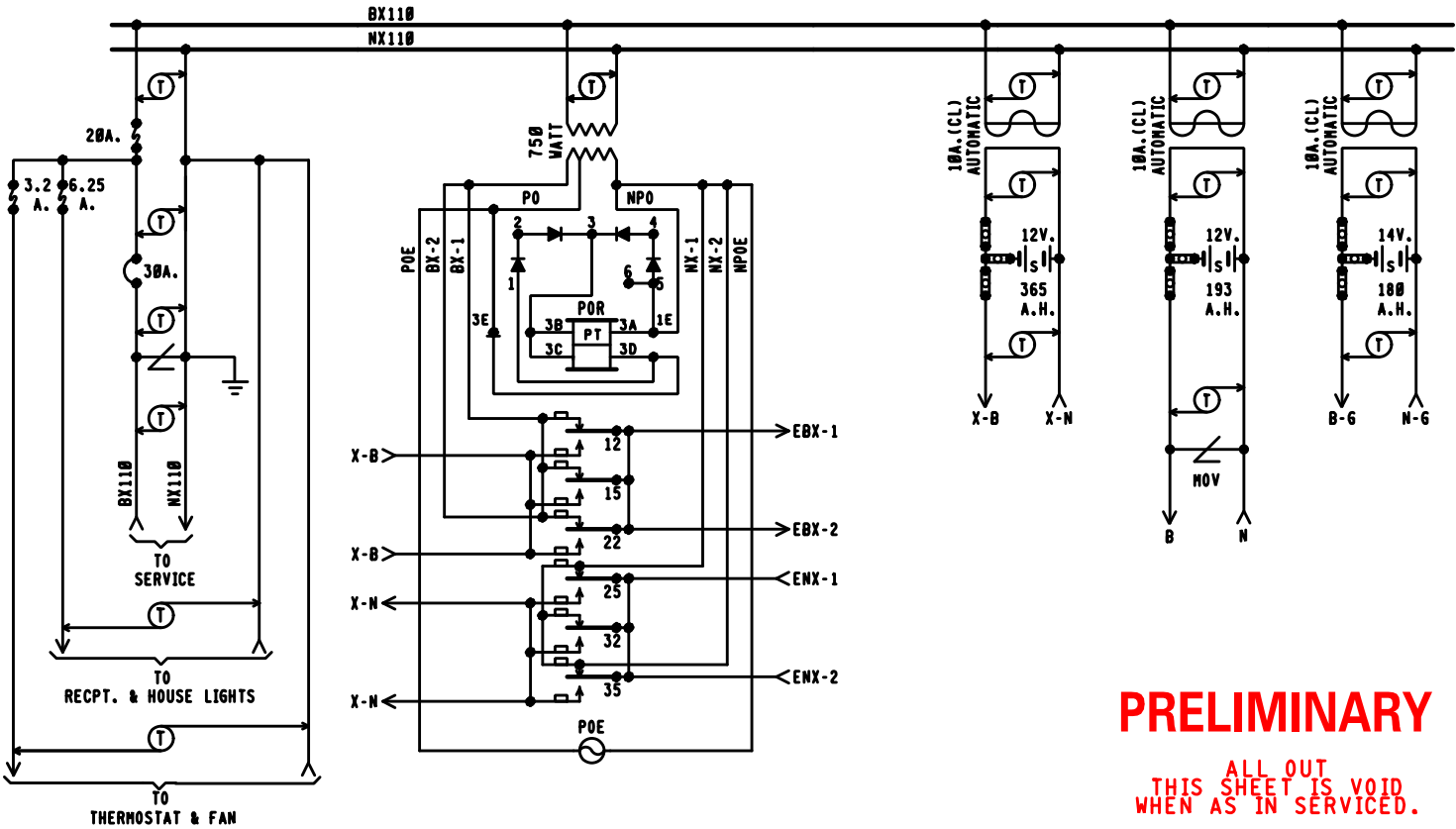
CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

SHARON RD. 152376N

TRACK AND SIGNAL PLAN
GLENDALE, OH M.P. BE-15.05

DESIGNED IRS/JTD	DIGITIZED IRS/JTD	CHECKED IRS/LEK	DATE 07-24-12
NEXT FILE BE01505	NEXT SH E01	FILE BE01505	SHEET S01

TOP ROW									
1CWR		2CWR						XR	
12		12						12	FB
15	B8	15	B8					15	FB
22	C30	22	C30					22	C30
23	F	23	F					23	
25		25						25	
32		32						32	
35		35						35	
								XPR	
								22	F
								25	F
									B36
									C30
								GPR	
								12	B
								15	B
								22	B
								25	B
								32	B
								35	
								EOR	
								12	FB
								15	FB
								32	FB
								35	FB
								POR	
								12	FB
								15	FB
								22	FB
								25	FB
								32	FB
								35	FB



- NOTES:
- REFERENCES ARE PER SCHS-13.
 - ARRESTERS ARE PER SCHS-22.
 - GROUND CONNECTIONS ARE PER SCHS-18.
 - SHELF RELAY PLACEMENT ON CONSIST CHART HAS NO SIGNIFICANCE.
 - PLUG-IN RELAYS ARE VIEWED FROM THE FRONT OF RACK.
 - ALL FUSES TO BE SLOW BLOW.
 - WIRING
 - A - FEED TO ALL BUSSES, LIGHT CIRCUITS, MOTOR CIRCUITS AND 110-VOLT FEED FROM ENTRANCE TO POWER BUSS, TO BE #10 FLEX.
 - B - FROM POWER BUSS TO RECTIFIER AND TRANSFORMER TO BE #14 FLEX.
 - C - ALL OTHERS TO BE #16 FLEX UNLESS NOTED.

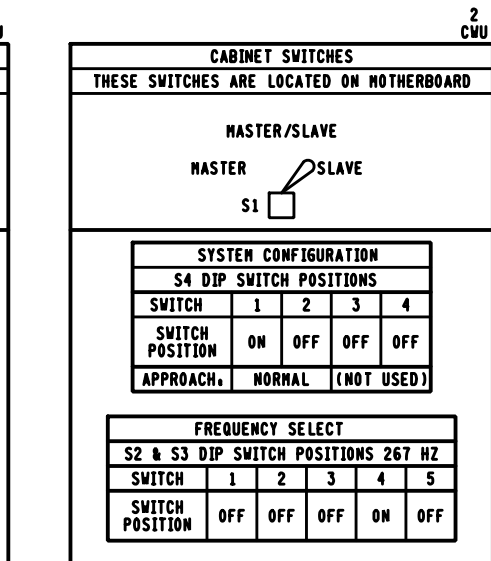
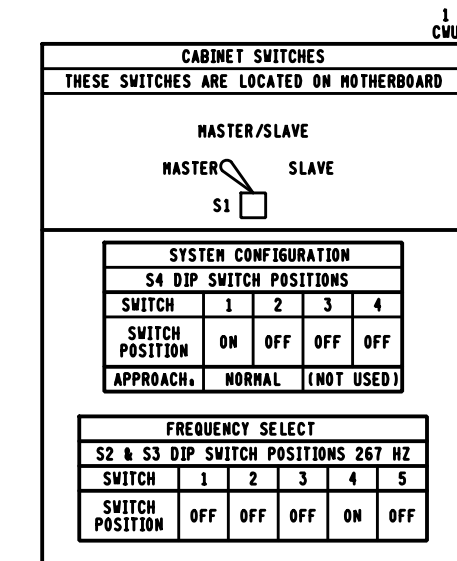
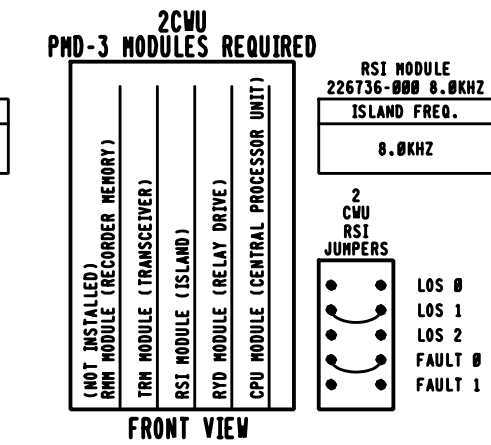
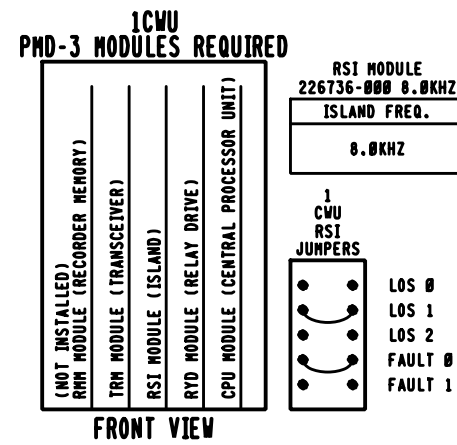
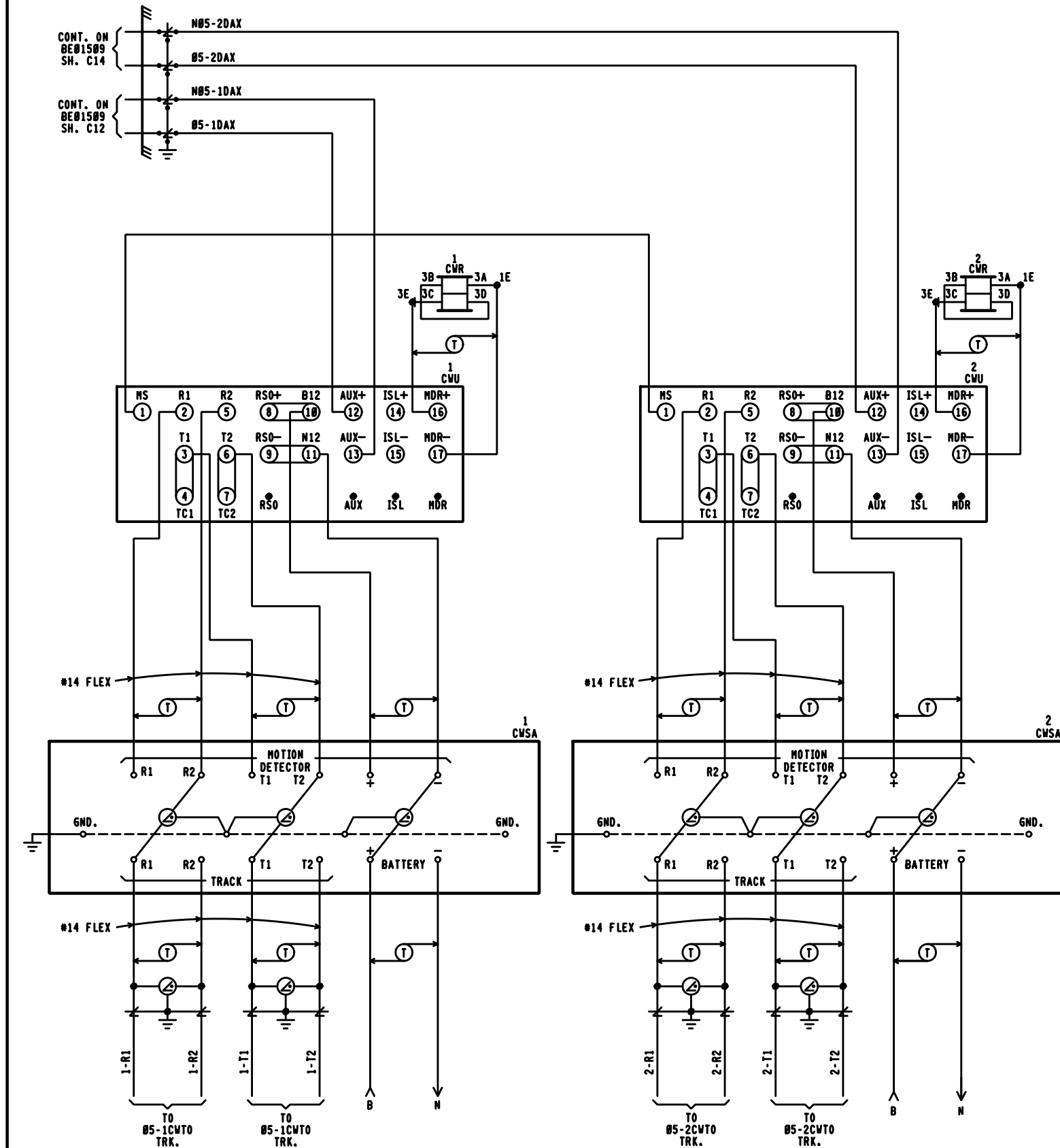
PRELIMINARY

ALL OUT
THIS SHEET IS VOID
WHEN AS IN SERVICED.

PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 08/15/18
CSX: 0H2010655
PRS/GNV/SAF

4' X 6' RELAY HOUSE

REVISIONS			CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
1-25-94	SAF	0H93031 0H91000				
01-05-2000	SWE	0H1994001	SHARON RD. 152376N			
07-16-07	SWE	0H2000041				
05-12-14	IRS	0H2012016	EQUIPMENT GLENDALE, OH M.P. BE-15.05			
			DESIGNED SAFETRAN	DIGITIZED SAFETRAN	CHECKED SAFETRAN	DATE 12-22-09
DRAWING -----	SHEET NO -----	NEXT SH -----	NEXT FILE BE01505	NEXT SH C01	FILE BE01505	SHEET E01



PRELIMINARY

ALL OUT
THIS SHEET IS VOID
WHEN AS IN SERVICED.

PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 08/15/10
CSX 082010635
PRS/GNN/SAF

REVISIONS			CSX TRANSPORTATION			
05-12-14 IRS 0H2012016			RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
			SHARON RD. 152376N			
			CROSSING DETECTION DEVICE CIRCUITRY GLENDALE, OH N.P. BE-15.05			
DESIGNED IRS/JTD	DIGITIZED IRS/JTD	CHECKED IRS/LEK	DATE 07-24-12			
DRAWING -----	SHEET NO -----	NEXT SH -----	NEXT FILE BE01505	NEXT SH C02	FILE BE01505	SHEET C01

1CWU			
TRM LOCAL PARAMETERS PMD-3 DESIGN CARD			
		DEFAULTS & /OR STYLE	FIELD RECORD
OPERATING PROGRAM PROG	VERSION AND COMPILE DATE	35.0 MM/DD/YY	45.0 04/25/14
SYSTEM MONITOR PROGRAM EPRM	VERSION AND COMPILE DATE	20.2 MM/DD/YY	20.3 04/25/14
ADJUSTMENT	RANGE	DEFAULT	TRACK 1
#1 RX	100 IS INTENDED	NA	
#2 PH (PHASE)	INTENDED ABOVE 32 (NOT ADJUSTABLE)	NA	
#3 CW / MD	CW OR MD NOT ADJUSTABLE FROM MD TOWARD CW (SEE TCR 430-01 FOR CONSTRAINTS)	MD	MD
#4 UNI/BI (IF CW IS CHOSEN IN #3)	UNI OR BI	BI	BI
#5 LIA (IF CW IS CHOSEN IN #3)	-9 TO +9	LIA=0	NA
#6 WT (IF CW IS CHOSEN IN #3)	23 TO 99	WT=99	NA
#7 TC	WHEN IN CONFORMANCE WITH PMD-3 MANUAL, ADJUST TC FOR A TRANSMITTER CHECK MONITOR VALUE LESS THAN 470	NA	
#8 B (BALLAST COMPENSATION)	50 TO 250 (FIELD ADJUSTMENT - ADJUST ONLY WHEN IN CONFORMANCE WITH DATA ACCUMULATED AT THIS SITE AND IN COMPLIANCE WITH SUPERVISOR INSTRUCTIONS & PMD-3 MANUAL)	NA	
#9 PC (PHASE COMPENSATION)	0 TO +10 (FIELD ADJUSTMENT - ADJUST ONLY WHEN IN CONFORMANCE WITH SUPERVISOR INSTRUCTIONS & PMD-3 MANUAL)	PC=0	
#10 FREQ	REFERENCE, NOT ADJUSTABLE FROM MENU	NA	267 HZ
#11 FS-T (FALSE SHUNT TIMER)	ENTRANCE TO SUDDEN FALSE SHUNT SUB-MENU	NA	NA
#12 FR (FALSE SHUNT % OF RX APPROACH)	0 TO 80 NOT ADJUSTABLE FROM ZERO UNTIL AFTER STRICT DESIGN REVIEW FOR SITE APPLICATION CONFLICTS, FR=0 MEANS DISABLED (SEE TCR 430-01 FOR CONSTRAINTS)	FR=0	FR=0
#13 FT (FAULT TIMER)	0 TO 99 MINUTES (FACTORY DEFAULT IS 10)	FT=10	NA
#14 AR-T (APPROACH RELEASE TIMER)	ENTRANCE TO SUB-MENU FOR RESIDUAL FALSE SHUNT STARTED DURING TRAIN PASSAGE	NA	NA
#15 AR (FALSE SHUNT % OF RX APPROACH)	0 TO 80 NOT ADJUSTABLE FROM ZERO UNTIL AFTER STRICT DESIGN REVIEW FOR SITE APPLICATION CONFLICTS AR=0 MEANS DISABLED (SEE TCR 430-01 FOR CONSTRAINTS)	AR=0	AR=0
#16 AT (FAULT TIMER)	0 TO 99 MINUTES (FACTORY DEFAULT IS 10)	AT=10	AT=10
#17 HS (HIGHEST STABLE R VALUE)	REFERENCE, NOT ADJUSTABLE FROM MENU	NA	NA
#18 LP (LOWEST STABLE PHASE)	REFERENCE, NOT ADJUSTABLE FROM MENU	NA	NA
#19 SD (SELF DIAGNOSTICS)	REFERENCE, NOT ADJUSTABLE FROM MENU, BUT MENU CAN REVIEW, THEN CLEAR DIAGNOSTIC CODES	NA	NA
#20 REC (TRAIN RECORD DISPLAY)	REFERENCE, SEQUENTIAL DISPLAY OF PREVIOUS WARNING TIME RECORDS (NO ADJUSTMENT)	NA	NA
#21 PRN (PRINTER/LAPTOP READY)	STARTS DOWNLOAD OF INTERNAL TRAIN EVENT LOG WHEN SERIAL PORT CABLE CONNECTED	NA	NA
#22 LSP (LOCAL SERIAL PORT)	ENTRANCE TO SUB-MENU FOR SETTING SPEED OF SERIAL PORT DOWNLOADS	NA	NA
#23 @ (BAUD RATE)	BAUD RATE OF 38,400 IS 384 AND DEFAULT	@=384	@=384
#24 DB (DATA BITS)	7 OR 8 8 IS DEFAULT	DB=8	DB=8
#25 PA (PARITY)	0, E, OR N N IS DEFAULT	PA=N	PA=N
#26 AR (AUTO RX)	UP OR DN DN IS FACTORY DEFAULT (FIELD ADJUSTMENT - ADJUST TO "UP" ONLY WHEN BC HAS BEEN PREVIOUSLY STABILIZED THROUGH ADJUSTMENT, AND ONLY WHEN IN CONFORMANCE WITH SUPERVISOR INSTRUCTIONS AND PMD-3 MANUAL)	AR=DN	AR=DN
#27 RX (POTENTIOMETER VALUE)	REFERENCE, DISPLAY ONLY	NA	NA
#28 VERS (PROGRAM VERSION)	REFERENCE, SEQUENTIAL DISPLAY OF EPROM AND SOFTWARE VERSIONS	NA	NA

2CWU			
TRM LOCAL PARAMETERS PMD-3 DESIGN CARD			
		DEFAULTS & /OR STYLE	FIELD RECORD
OPERATING PROGRAM PROG	VERSION AND COMPILE DATE	35.0 MM/DD/YY	45.0 04/25/14
SYSTEM MONITOR PROGRAM EPRM	VERSION AND COMPILE DATE	20.2 MM/DD/YY	20.3 04/25/14
ADJUSTMENT	RANGE	DEFAULT	TRACK 2
#1 RX	100 IS INTENDED	NA	
#2 PH (PHASE)	INTENDED ABOVE 32 (NOT ADJUSTABLE)	NA	
#3 CW / MD	CW OR MD NOT ADJUSTABLE FROM MD TOWARD CW (SEE TCR 430-01 FOR CONSTRAINTS)	MD	MD
#4 UNI/BI (IF CW IS CHOSEN IN #3)	UNI OR BI	BI	BI
#5 LIA (IF CW IS CHOSEN IN #3)	-9 TO +9	LIA=0	NA
#6 WT (IF CW IS CHOSEN IN #3)	23 TO 99	WT=99	NA
#7 TC	WHEN IN CONFORMANCE WITH PMD-3 MANUAL, ADJUST TC FOR A TRANSMITTER CHECK MONITOR VALUE LESS THAN 470	NA	
#8 B (BALLAST COMPENSATION)	50 TO 250 (FIELD ADJUSTMENT - ADJUST ONLY WHEN IN CONFORMANCE WITH DATA ACCUMULATED AT THIS SITE AND IN COMPLIANCE WITH SUPERVISOR INSTRUCTIONS & PMD-3 MANUAL)	NA	
#9 PC (PHASE COMPENSATION)	0 TO +10 (FIELD ADJUSTMENT - ADJUST ONLY WHEN IN CONFORMANCE WITH SUPERVISOR INSTRUCTIONS & PMD-3 MANUAL)	PC=0	
#10 FREQ	REFERENCE, NOT ADJUSTABLE FROM MENU	NA	267 HZ
#11 FS-T (FALSE SHUNT TIMER)	ENTRANCE TO SUDDEN FALSE SHUNT SUB-MENU	NA	NA
#12 FR (FALSE SHUNT % OF RX APPROACH)	0 TO 80 NOT ADJUSTABLE FROM ZERO UNTIL AFTER STRICT DESIGN REVIEW FOR SITE APPLICATION CONFLICTS, FR=0 MEANS DISABLED (SEE TCR 430-01 FOR CONSTRAINTS)	FR=0	FR=0
#13 FT (FAULT TIMER)	0 TO 99 MINUTES (FACTORY DEFAULT IS 10)	FT=10	NA
#14 AR-T (APPROACH RELEASE TIMER)	ENTRANCE TO SUB-MENU FOR RESIDUAL FALSE SHUNT STARTED DURING TRAIN PASSAGE	NA	NA
#15 AR (FALSE SHUNT % OF RX APPROACH)	0 TO 80 NOT ADJUSTABLE FROM ZERO UNTIL AFTER STRICT DESIGN REVIEW FOR SITE APPLICATION CONFLICTS AR=0 MEANS DISABLED (SEE TCR 430-01 FOR CONSTRAINTS)	AR=0	AR=0
#16 AT (FAULT TIMER)	0 TO 99 MINUTES (FACTORY DEFAULT IS 10)	AT=10	AT=10
#17 HS (HIGHEST STABLE R VALUE)	REFERENCE, NOT ADJUSTABLE FROM MENU	NA	NA
#18 LP (LOWEST STABLE PHASE)	REFERENCE, NOT ADJUSTABLE FROM MENU	NA	NA
#19 SD (SELF DIAGNOSTICS)	REFERENCE, NOT ADJUSTABLE FROM MENU, BUT MENU CAN REVIEW, THEN CLEAR DIAGNOSTIC CODES	NA	NA
#20 REC (TRAIN RECORD DISPLAY)	REFERENCE, SEQUENTIAL DISPLAY OF PREVIOUS WARNING TIME RECORDS (NO ADJUSTMENT)	NA	NA
#21 PRN (PRINTER/LAPTOP READY)	STARTS DOWNLOAD OF INTERNAL TRAIN EVENT LOG WHEN SERIAL PORT CABLE CONNECTED	NA	NA
#22 LSP (LOCAL SERIAL PORT)	ENTRANCE TO SUB-MENU FOR SETTING SPEED OF SERIAL PORT DOWNLOADS	NA	NA
#23 @ (BAUD RATE)	BAUD RATE OF 38,400 IS 384 AND DEFAULT	@=384	@=384
#24 DB (DATA BITS)	7 OR 8 8 IS DEFAULT	DB=8	DB=8
#25 PA (PARITY)	0, E, OR N N IS DEFAULT	PA=N	PA=N
#26 AR (AUTO RX)	UP OR DN DN IS FACTORY DEFAULT (FIELD ADJUSTMENT - ADJUST TO "UP" ONLY WHEN BC HAS BEEN PREVIOUSLY STABILIZED THROUGH ADJUSTMENT, AND ONLY WHEN IN CONFORMANCE WITH SUPERVISOR INSTRUCTIONS AND PMD-3 MANUAL)	AR=DN	AR=DN
#27 RX (POTENTIOMETER VALUE)	REFERENCE, DISPLAY ONLY	NA	NA
#28 VERS (PROGRAM VERSION)	REFERENCE, SEQUENTIAL DISPLAY OF EPROM AND SOFTWARE VERSIONS	NA	NA

PRELIMINARY

ALL OUT
THIS SHEET IS VOID
WHEN AS IN SERVICED.

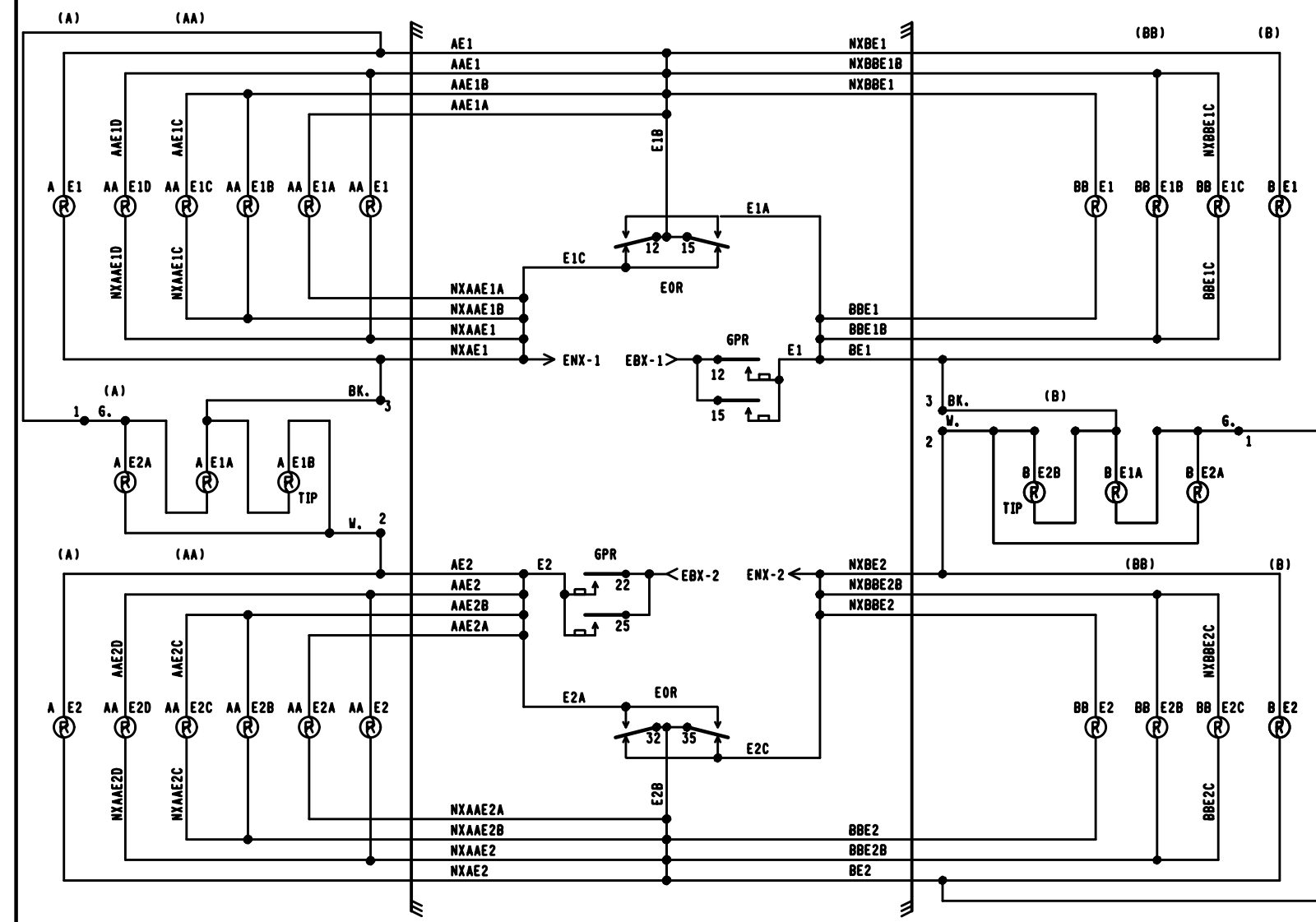


REVISIONS			CSXTRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS SHARON RD. 152376N CROSSING DETECTION DEVICE PROGRAMS GLENDALE, OH N.P. BE-15.05			
05-12-14 IRS 0H2012016						
			DESIGNED	DIGITIZED	CHECKED	DATE
			IRS/JTD	IRS/JTD	IRS/LEK	07-24-12
DRAWING	SHEET NO	NEXT SH	NEXT FILE	NEXT SH	FILE	SHEET
-----	-----	-----	BE01505	C03	BE01505	C02

GATE A			
TYPE USED AT THIS LOCATION (MARKED W/ "X")	GATE MECH. TYPE	MOD. 3593B	MOD. 75
		6B	4C
		5B	2B
		6C	4B
		5C	2C
		1A	1B
		2B	5A, 6A
		1B	3B
			A1
			A4
			A2
			9(H)
			8(H)
			9(F)
			8(F)
			K
			N
			Q

GATE B			
TYPE USED AT THIS LOCATION (MARKED W/ "X")	GATE MECH. TYPE	MOD. 3593B	MOD. 75
		6B	4C
		6C	4B
		5B	2B
		5C	2C
		1A	1B
		2B	5A, 6A
		1B	3B
			A1
			A4
			A2
			9(H)
			8(H)
			9(F)
			8(F)
			K
			N
			Q

FOR GATE DOWN CONTACT # 9



PRELIMINARY

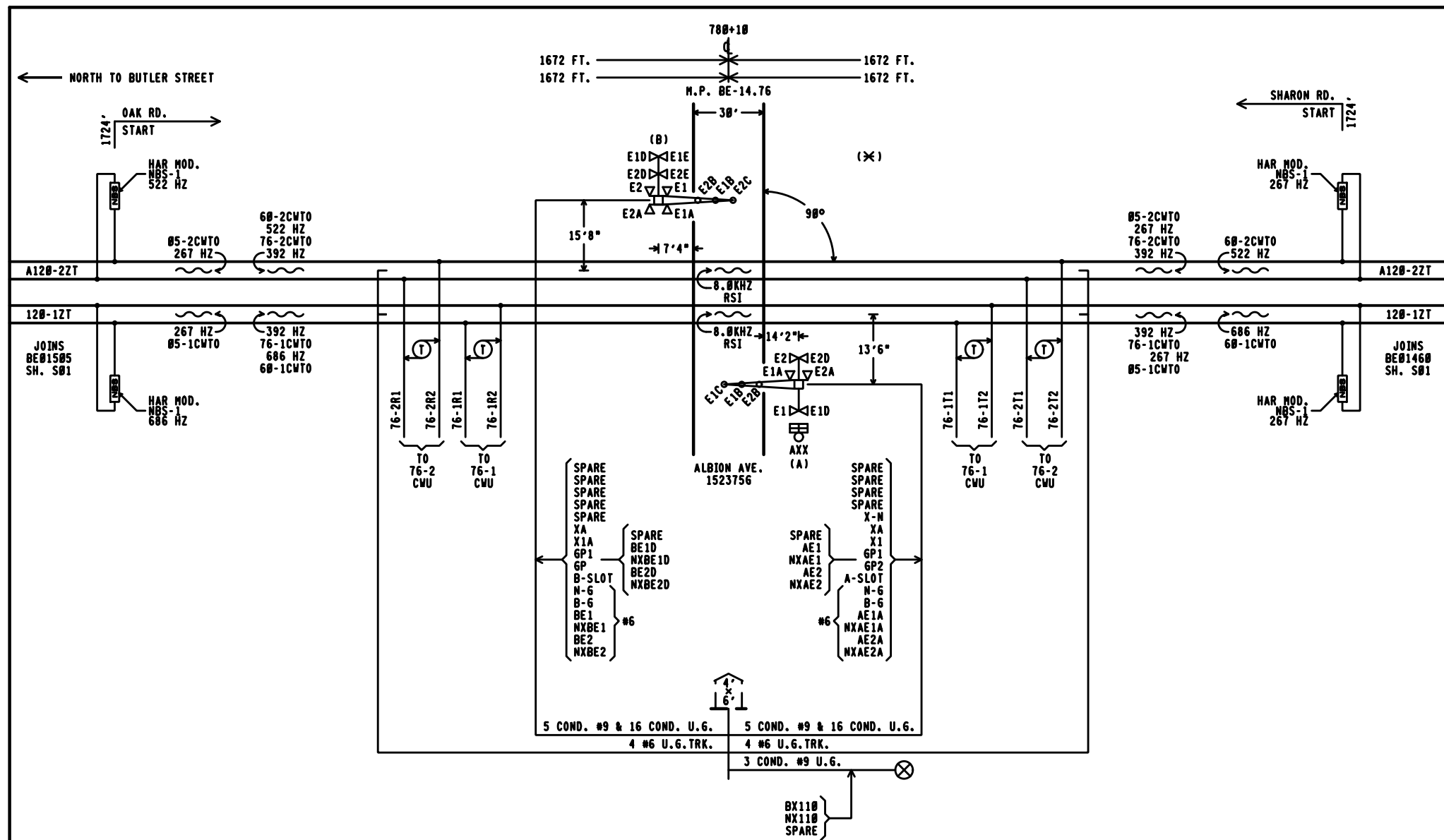
ALL OUT
THIS SHEET IS VOID
WHEN AS IN SERVICED.

PROGRESS
RAIL SERVICES
A Caterpillar Company

DATE: 08/15/10
CSX: 0H2010655
PRS/6HV/SAF

4' X 6' HOUSE

REVISIONS			CSX TRANSPORTATION			
1-25-94 SAF 0H93031 0H91000			RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
01-05-2000 SWE			SHARON RD. 152376N			
07-16-07 SWE			HIGHWAY CROSSING CIRCUITS			
05-12-14 IRS 0H2012016			GLENDALE, OH N.P. BE-15.05			
DESIGNED	DIGITIZED	CHECKED	DATE			
SAFETRAN	SAFETRAN	SAFETRAN	8-12-91			
DRAWING	SHEET NO	NEXT SH	NEXT FILE	NEXT SH	FILE	SHEET
-----	-----	-----	-----	-----	BE01505	C03



PRELIMINARY

ALL OUT
THIS SHEET IS VOID
WHEN AS IN SERVICED.



NOTES:

1. (X) = LOCATION OF HOUSE
2. GATE LENGTH (A) 33' (B) 20'
3. TRANSMITTER LEADS FOR MOTION OR PREDICTOR EQUIPMENT SHOULD BE CONNECTED ON THE BUNGALOW OR SHORT LEAD SIDE OF THE CROSSING.

REVISIONS

05-12-14 IRS 0H2016016

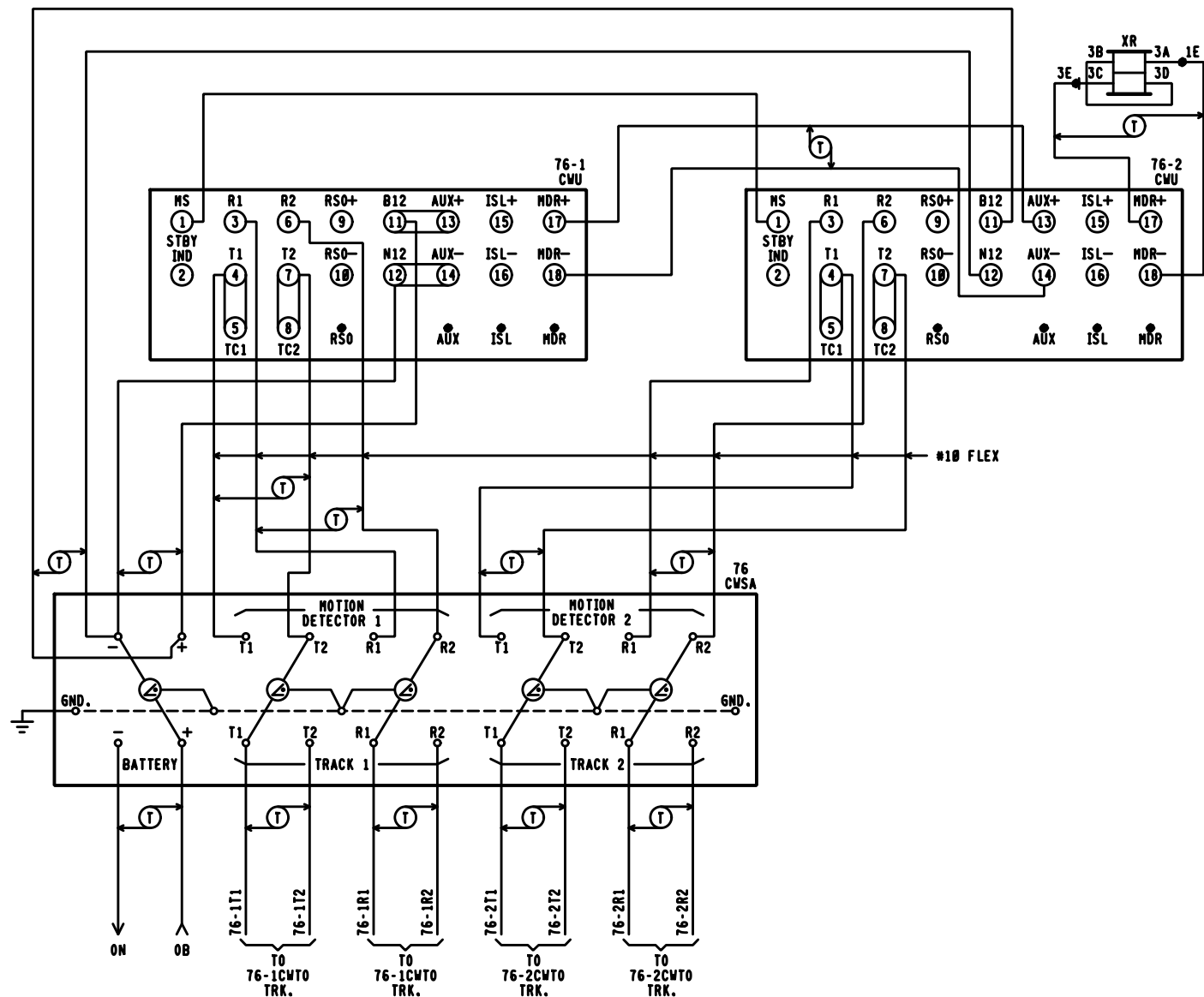
CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

ALBION AVE. 1523756

TRACK AND SIGNAL PLAN
GLENDALE, OH N.P. BE-14.76

DESIGNED	DIGITIZED	CHECKED	DATE
IRS/JTD	IRS/JTD	IRS/LEK	07-24-12
NEXT FILE	NEXT SH	FILE	SHEET
BE01476	E01	BE01476	S01

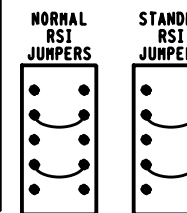
DRAWING	SHEET NO	NEXT SH
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76-1CWU PMD-3R MODULES REQUIRED

RM (RECORDER MEMORY) (NOT USED)
TRM (TRANSCIVER)
TRM (TRANSCIVER)
RSI (ISLAND)
RSI (ISLAND)
RYD (RELAY DRIVE)
RYD (RELAY DRIVE)
CPU (CENTRAL PROCESSOR UNIT)
CPU (CENTRAL PROCESSOR UNIT)
TLN (TRANSFER LOGIC)

RSI MODULE 226736-000 8.0KHZ ISLAND FREQ. 8.0KHZ



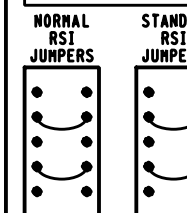
LOS 0
LOS 1
LOS 2
FAULT 0
FAULT 1

FRONT VIEW

76-2CWU PMD-3R MODULES REQUIRED

RM (RECORDER MEMORY) (NOT USED)
TRM (TRANSCIVER)
TRM (TRANSCIVER)
RSI (ISLAND)
RSI (ISLAND)
RYD (RELAY DRIVE)
RYD (RELAY DRIVE)
CPU (CENTRAL PROCESSOR UNIT)
CPU (CENTRAL PROCESSOR UNIT)
TLN (TRANSFER LOGIC)

RSI MODULE 226736-000 8.0KHZ ISLAND FREQ. 8.0KHZ



LOS 0
LOS 1
LOS 2
FAULT 0
FAULT 1

FRONT VIEW

PRELIMINARY

ALL OUT
THIS SHEET IS VOID
WHEN AS IN SERVICED.

PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 08/15/10
CSX: 0H2010655
PRS/GHW/SAF

76-1 CWU

CABINET SWITCHES
THESE SWITCHES ARE LOCATED ON MOTHERBOARD

MASTER/SLAVE
MASTER SLAVE
S1

SYSTEM CONFIGURATION				
S6 & S7 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 392 HZ					
SWITCH	1	2	3	4	5
SWITCH POSITION	OFF	OFF	ON	ON	OFF
S4 & S5 DIP SWITCH POSITIONS 392 HZ					
SWITCH	1	2	3	4	5
SWITCH POSITION	OFF	OFF	ON	ON	OFF

TLN MODULE JUMPERS AND SWITCHES

(TOGGLE MODE) W1
STANDBY ONLY 3 2 1 (*)

(ENABLE MODE) W2
ISL 1 DISABLE 3 2 1 (*)

(DISABLE MODE) W3
ISL 2 DISABLE 3 2 1 (*)

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

MINUTE TIMEOUT SWITCH
SETTING (★) 9 MINUTES

STANDBY S2
AUTO
NORMAL

76-2 CWU

CABINET SWITCHES
THESE SWITCHES ARE LOCATED ON MOTHERBOARD

MASTER/SLAVE
MASTER SLAVE
S1

SYSTEM CONFIGURATION				
S6 & S7 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 392 HZ					
SWITCH	1	2	3	4	5
SWITCH POSITION	OFF	OFF	ON	ON	OFF
S4 & S5 DIP SWITCH POSITIONS 392 HZ					
SWITCH	1	2	3	4	5
SWITCH POSITION	OFF	OFF	ON	ON	OFF

TLN MODULE JUMPERS AND SWITCHES

(TOGGLE MODE) W1
STANDBY ONLY 3 2 1 (*)

(ENABLE MODE) W2
ISL 1 DISABLE 3 2 1 (*)

(DISABLE MODE) W3
ISL 2 DISABLE 3 2 1 (*)

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

MINUTE TIMEOUT SWITCH
SETTING (★) 9 MINUTES

STANDBY S2
AUTO
NORMAL

REVISIONS			CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
11-15-96	HAR 0H93138		ALBION AVE. 1523756			
07-16-07	SWE	0H2000041	CIRCUITS GLENDALE, OH N.P. BE-14.76			
05-12-14	IRS 0H2012016		DESIGNED FCS/PEH	DIGITIZED FCS/DBS	CHECKED FCS/WJH	DATE 01-19-95
DRAWING	SHEET NO	NEXT SH	NEXT FILE BE01476	NEXT SH C02	FILE BE01476	SHEET C01

76-1CWU			
TRM LOCAL PARAMETERS PMD-3R DESIGN CARD			
		DEFAULTS & /OR STYLE	FIELD RECORD
OPERATING PROGRAM PROG	VERSION AND COMPILE DATE	35.0 MM/DD/YY	— <u> </u> — <u> </u> — <u> </u>
SYSTEM MONITOR PROGRAM EPRM	VERSION AND COMPILE DATE	20.2 MM/DD/YY	— <u> </u> — <u> </u> — <u> </u>
ADJUSTMENT	RANGE	DEFAULT	TRACK 1
#1 RX	100 IS INTENDED	NA	
#2 PH (PHASE)	INTENDED ABOVE 32 (NOT ADJUSTABLE)	NA	
#3 CW / MD	CW OR MD NOT ADJUSTABLE FROM MD TOWARD CW (SEE TCR 430-01 FOR CONSTRAINTS)	MD	MD
#4 UNI/BI (IF CW IS CHOSEN IN #3)	UNI OR BI	BI	BI
#5 LIA (IF CW IS CHOSEN IN #3)	-9 TO +9	LIA=0	NA
#6 WT (IF CW IS CHOSEN IN #3)	23 TO 99	WT=99	NA
#7 TC	WHEN IN CONFORMANCE WITH PMD-3R MANUAL, ADJUST TC FOR A TRANSMITTER CHECK MONITOR VALUE LESS THAN 470	NA	
#8 B (BALLAST COMPENSATION)	50 TO 250 (FIELD ADJUSTMENT - ADJUST ONLY WHEN IN CONFORMANCE WITH DATA ACCUMULATED AT THIS SITE AND IN COMPLIANCE WITH SUPERVISOR INSTRUCTIONS & PMD-3R MANUAL)	NA	
#9 PC (PHASE COMPENSATION)	0 TO +10 (FIELD ADJUSTMENT - ADJUST ONLY WHEN IN CONFORMANCE WITH SUPERVISOR INSTRUCTIONS & PMD-3R MANUAL)	PC=0	
#10 FREQ	REFERENCE, NOT ADJUSTABLE FROM MENU	NA	392 HZ
#11 FS-T (FALSE SHUNT TIMER)	ENTRANCE TO SUDDEN FALSE SHUNT SUB-MENU	NA	NA
#12 FR (FALSE SHUNT % OF RX APPROACH)	0 TO 80 NOT ADJUSTABLE FROM ZERO UNTIL AFTER STRICT DESIGN REVIEW FOR SITE APPLICATION CONFLICTS, FR=0 MEANS DISABLED (SEE TCR 430-01 FOR CONSTRAINTS)	FR=0	FR=0
#13 FT (FAULT TIMER)	0 TO 99 MINUTES (FACTORY DEFAULT IS 10)	FT=10	NA
#14 AR-T (APPROACH RELEASE TIMER)	ENTRANCE TO SUB-MENU FOR RESIDUAL FALSE SHUNT STARTED DURING TRAIN PASSAGE	NA	NA
#15 AR (FALSE SHUNT % OF RX APPROACH)	0 TO 80 NOT ADJUSTABLE FROM ZERO UNTIL AFTER STRICT DESIGN REVIEW FOR SITE APPLICATION CONFLICTS AR=0 MEANS DISABLED (SEE TCR 430-01 FOR CONSTRAINTS)	AR=0	AR=0
#16 AT (FAULT TIMER)	0 TO 99 MINUTES (FACTORY DEFAULT IS 10)	AT=10	AT=10
#17 HS (HIGHEST STABLE R VALUE)	REFERENCE, NOT ADJUSTABLE FROM MENU	NA	NA
#18 LP (LOWEST STABLE PHASE)	REFERENCE, NOT ADJUSTABLE FROM MENU	NA	NA
#19 SD (SELF DIAGNOSTICS)	REFERENCE, NOT ADJUSTABLE FROM MENU, BUT MENU CAN REVIEW, THEN CLEAR DIAGNOSTIC CODES	NA	NA
#20 REC (TRAIN RECORD DISPLAY)	REFERENCE, SEQUENTIAL DISPLAY OF PREVIOUS WARNING TIME RECORDS (NO ADJUSTMENT)	NA	NA
#21 PRN (PRINTER/LAPTOP READY)	STARTS DOWNLOAD OF INTERNAL TRAIN EVENT LOG WHEN SERIAL PORT CABLE CONNECTED	NA	NA
#22 LSP (LOCAL SERIAL PORT)	ENTRANCE TO SUB-MENU FOR SETTING SPEED OF SERIAL PORT DOWNLOADS	NA	NA
#23 @ (BAUD RATE)	BAUD RATE OF 38,400 IS 384 AND DEFAULT	@=384	@=384
#24 DB (DATA BITS)	7 OR 8 8 IS DEFAULT	DB=8	DB=8
#25 PA (PARITY)	0, E, OR N N IS DEFAULT	PA=N	PA=N
#26 AR (AUTO RX)	UP OR DN DN IS FACTORY DEFAULT (FIELD ADJUSTMENT - ADJUST TO "UP" ONLY WHEN BC HAS BEEN PREVIOUSLY STABILIZED THROUGH ADJUSTMENT, AND ONLY WHEN IN CONFORMANCE WITH SUPERVISOR INSTRUCTIONS AND PMD-3R MANUAL)	AR=DN	AR=DN
#27 RX (POTENTIOMETER VALUE)	REFERENCE, DISPLAY ONLY	NA	NA
#28 VERS (PROGRAM VERSION)	REFERENCE, SEQUENTIAL DISPLAY OF EPROM AND SOFTWARE VERSIONS	NA	NA

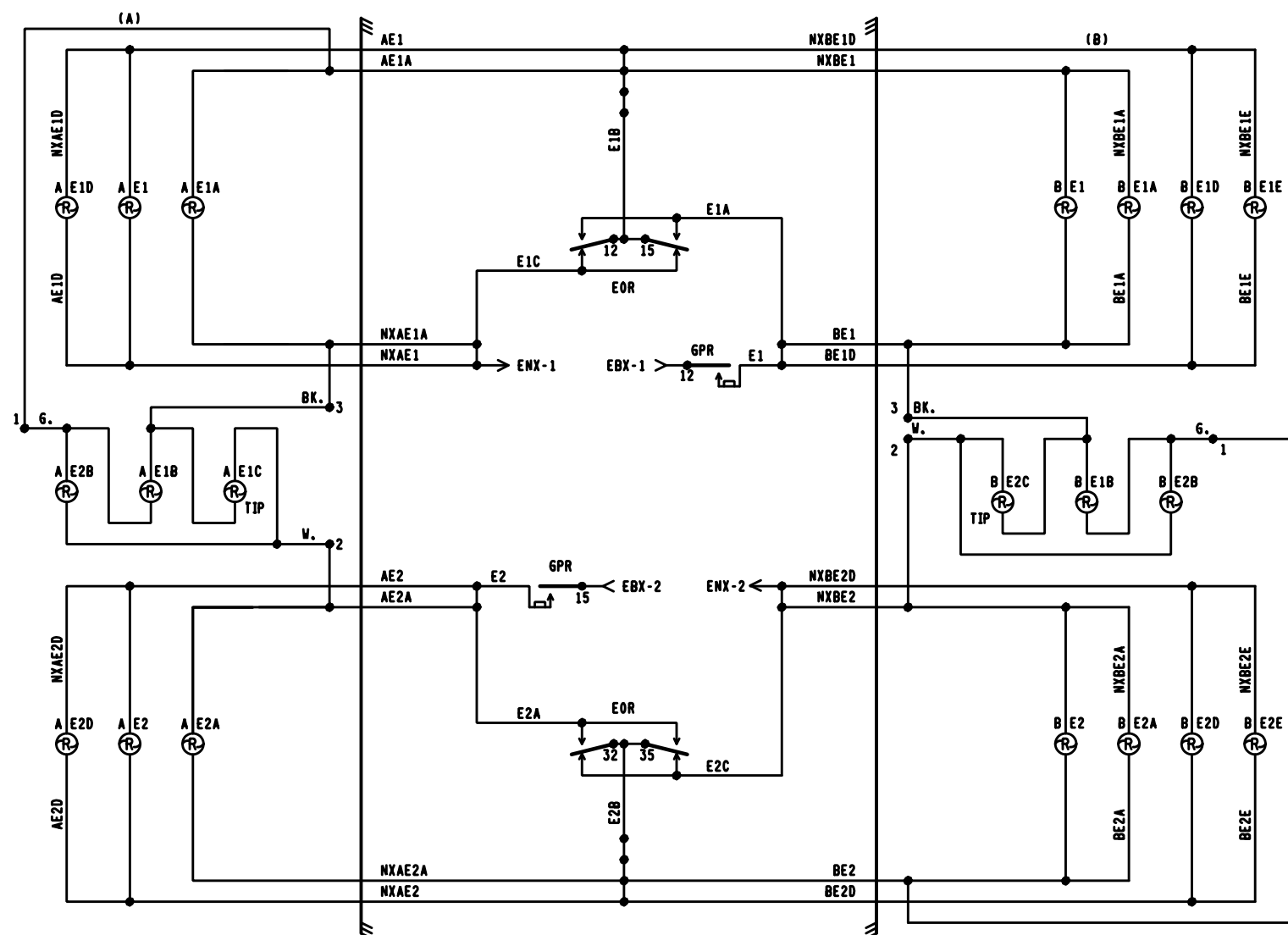
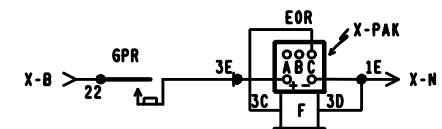
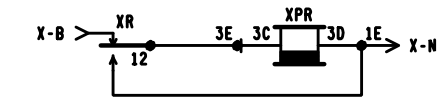
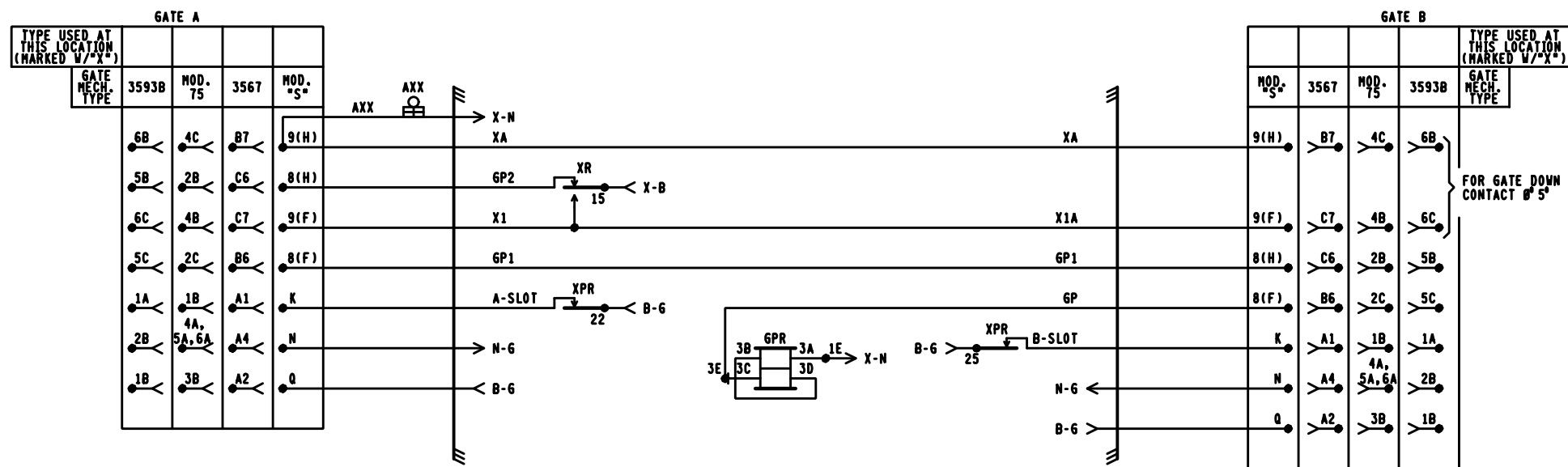
76-2CWU			
TRM LOCAL PARAMETERS PMD-3R DESIGN CARD			
		DEFAULTS & /OR STYLE	FIELD RECORD
OPERATING PROGRAM PROG	VERSION AND COMPILE DATE	35.0 MM/DD/YY	— <u> </u> — <u> </u> — <u> </u>
SYSTEM MONITOR PROGRAM EPRM	VERSION AND COMPILE DATE	20.2 MM/DD/YY	— <u> </u> — <u> </u> — <u> </u>
ADJUSTMENT	RANGE	DEFAULT	TRACK 1
#1 RX	100 IS INTENDED	NA	
#2 PH (PHASE)	INTENDED ABOVE 32 (NOT ADJUSTABLE)	NA	
#3 CW / MD	CW OR MD NOT ADJUSTABLE FROM MD TOWARD CW (SEE TCR 430-01 FOR CONSTRAINTS)	MD	MD
#4 UNI/BI (IF CW IS CHOSEN IN #3)	UNI OR BI	BI	BI
#5 LIA (IF CW IS CHOSEN IN #3)	-9 TO +9	LIA=0	NA
#6 WT (IF CW IS CHOSEN IN #3)	23 TO 99	WT=99	NA
#7 TC	WHEN IN CONFORMANCE WITH PMD-3R MANUAL, ADJUST TC FOR A TRANSMITTER CHECK MONITOR VALUE LESS THAN 470	NA	
#8 B (BALLAST COMPENSATION)	50 TO 250 (FIELD ADJUSTMENT - ADJUST ONLY WHEN IN CONFORMANCE WITH DATA ACCUMULATED AT THIS SITE AND IN COMPLIANCE WITH SUPERVISOR INSTRUCTIONS & PMD-3R MANUAL)	NA	
#9 PC (PHASE COMPENSATION)	0 TO +10 (FIELD ADJUSTMENT - ADJUST ONLY WHEN IN CONFORMANCE WITH SUPERVISOR INSTRUCTIONS & PMD-3R MANUAL)	PC=0	
#10 FREQ	REFERENCE, NOT ADJUSTABLE FROM MENU	NA	392 HZ
#11 FS-T (FALSE SHUNT TIMER)	ENTRANCE TO SUDDEN FALSE SHUNT SUB-MENU	NA	NA
#12 FR (FALSE SHUNT % OF RX APPROACH)	0 TO 80 NOT ADJUSTABLE FROM ZERO UNTIL AFTER STRICT DESIGN REVIEW FOR SITE APPLICATION CONFLICTS, FR=0 MEANS DISABLED (SEE TCR 430-01 FOR CONSTRAINTS)	FR=0	FR=0
#13 FT (FAULT TIMER)	0 TO 99 MINUTES (FACTORY DEFAULT IS 10)	FT=10	NA
#14 AR-T (APPROACH RELEASE TIMER)	ENTRANCE TO SUB-MENU FOR RESIDUAL FALSE SHUNT STARTED DURING TRAIN PASSAGE	NA	NA
#15 AR (FALSE SHUNT % OF RX APPROACH)	0 TO 80 NOT ADJUSTABLE FROM ZERO UNTIL AFTER STRICT DESIGN REVIEW FOR SITE APPLICATION CONFLICTS AR=0 MEANS DISABLED (SEE TCR 430-01 FOR CONSTRAINTS)	AR=0	AR=0
#16 AT (FAULT TIMER)	0 TO 99 MINUTES (FACTORY DEFAULT IS 10)	AT=10	AT=10
#17 HS (HIGHEST STABLE R VALUE)	REFERENCE, NOT ADJUSTABLE FROM MENU	NA	NA
#18 LP (LOWEST STABLE PHASE)	REFERENCE, NOT ADJUSTABLE FROM MENU	NA	NA
#19 SD (SELF DIAGNOSTICS)	REFERENCE, NOT ADJUSTABLE FROM MENU, BUT MENU CAN REVIEW, THEN CLEAR DIAGNOSTIC CODES	NA	NA
#20 REC (TRAIN RECORD DISPLAY)	REFERENCE, SEQUENTIAL DISPLAY OF PREVIOUS WARNING TIME RECORDS (NO ADJUSTMENT)	NA	NA
#21 PRN (PRINTER/LAPTOP READY)	STARTS DOWNLOAD OF INTERNAL TRAIN EVENT LOG WHEN SERIAL PORT CABLE CONNECTED	NA	NA
#22 LSP (LOCAL SERIAL PORT)	ENTRANCE TO SUB-MENU FOR SETTING SPEED OF SERIAL PORT DOWNLOADS	NA	NA
#23 @ (BAUD RATE)	BAUD RATE OF 38,400 IS 384 AND DEFAULT	@=384	@=384
#24 DB (DATA BITS)	7 OR 8 8 IS DEFAULT	DB=8	DB=8
#25 PA (PARITY)	0, E, OR N N IS DEFAULT	PA=N	PA=N
#26 AR (AUTO RX)	UP OR DN DN IS FACTORY DEFAULT (FIELD ADJUSTMENT - ADJUST TO "UP" ONLY WHEN BC HAS BEEN PREVIOUSLY STABILIZED THROUGH ADJUSTMENT, AND ONLY WHEN IN CONFORMANCE WITH SUPERVISOR INSTRUCTIONS AND PMD-3R MANUAL)	AR=DN	AR=DN
#27 RX (POTENTIOMETER VALUE)	REFERENCE, DISPLAY ONLY	NA	NA
#28 VERS (PROGRAM VERSION)	REFERENCE, SEQUENTIAL DISPLAY OF EPROM AND SOFTWARE VERSIONS	NA	NA

PRELIMINARY

ALL OUT
THIS SHEET IS VOID
WHEN AS IN SERVICED.



REVISIONS			CSXTRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
05-12-14 IRS 0H2012016						
			ALBION AVE. 1523756			
			DETECTION DEVICE PROGRAM GLENDALE, OH N.P. BE-14.76			
			DESIGNED CSX	DIGITIZED IRS/TGG	CHECKED IRS/LLB	DATE 05-12-14
			DRAWING -----	SHEET NO -----	NEXT SH -----	NEXT FILE BE01476

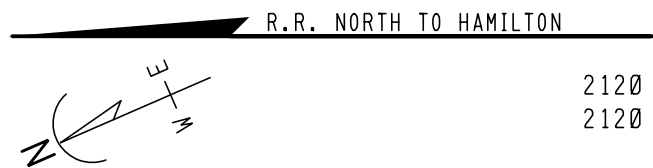


PRELIMINARY

ALL OUT
THIS SHEET IS VOID
WHEN AS IN SERVICED.

PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 08/15/10
CSX# 0H2010655
PRS/GNV/SAF

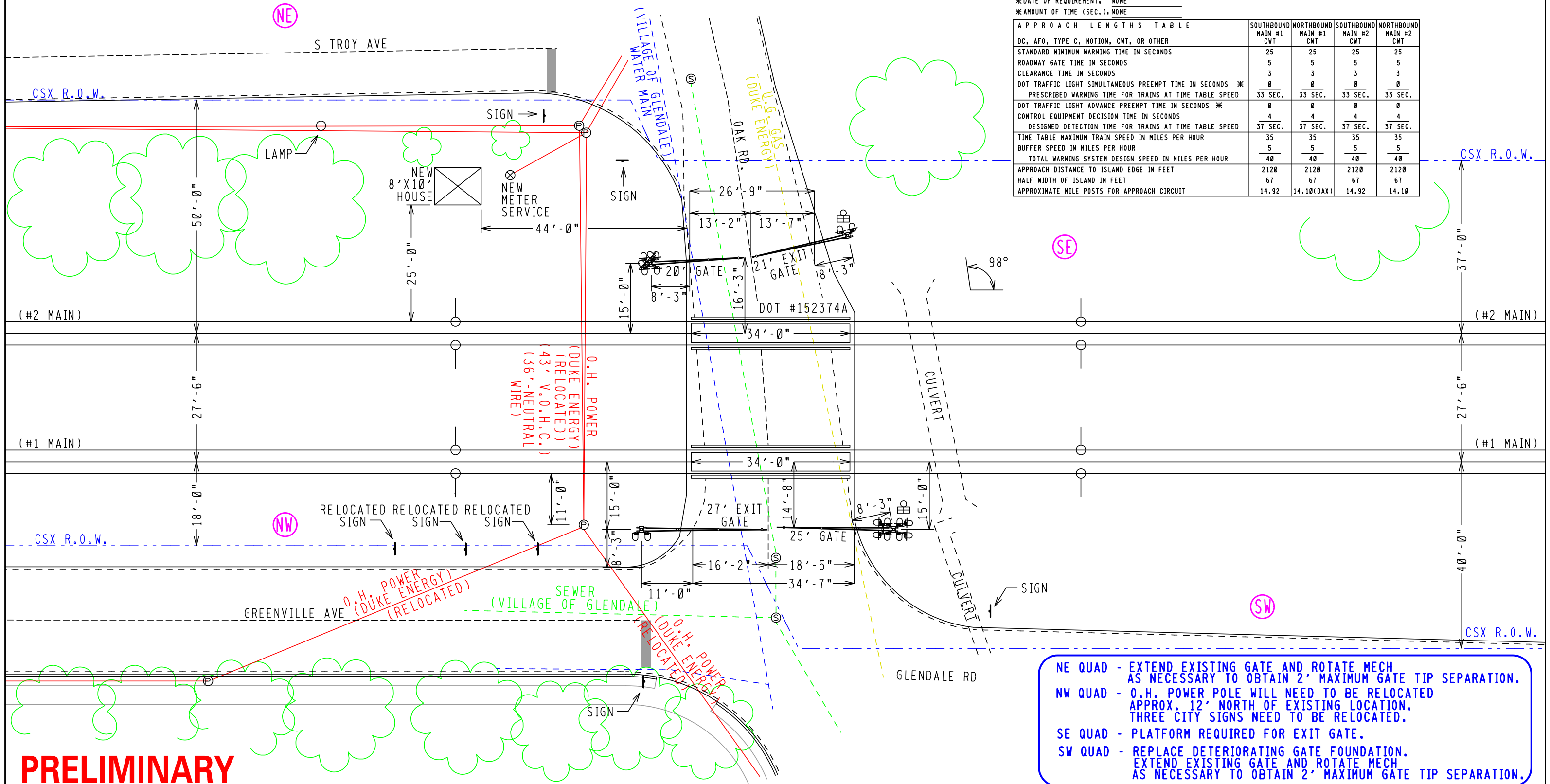
REVISIONS			CSX TRANSPORTATION			
11-15-96	HAR	0H93138	RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
07-16-07	SWE	0H2000041				
05-12-14	IRS	0H2012016				
			ALBION AVE. 1523756			
			CIRCUITS GLENDALE, OH N.P. BE-14.76			
DESIGNED FCS/PEH		DIGITIZED FCS/DBS	CHECKED FCS/WJH	DATE 01-19-95		
DRAWING -----	SHEET NO -----	NEXT SH -----	NEXT FILE -----	FILE BE01476	SHEET C03	



2120 FT. 67 FT. 67 FT. 2120 FT. (DAX)
2120 FT. 67 FT. 67 FT. 2120 FT.

* AUTHORIZING AGENCY, NONE
* DATE OF REQUIREMENT, NONE
* AMOUNT OF TIME (SEC.), NONE

APPROACH LENGTHS TABLE			
	SOUTHBOUND MAIN #1 CWT	NORTHBOUND MAIN #1 CWT	NORTHBOUND MAIN #2 CWT
DC, AFO, TYPE C, MOTION, CWT, OR OTHER	25	25	25
STANDARD MINIMUM WARNING TIME IN SECONDS	5	5	5
ROADWAY GATE TIME IN SECONDS	3	3	3
CLEARANCE TIME IN SECONDS	0	0	0
DOT TRAFFIC LIGHT SIMULTANEOUS PREEMPT TIME IN SECONDS *	33 SEC.	33 SEC.	33 SEC.
DOT TRAFFIC LIGHT ADVANCE PREEMPT TIME IN SECONDS *	0	0	0
CONTROL EQUIPMENT DECISION TIME IN SECONDS	4	4	4
DESIGNED DETECTION TIME FOR TRAINS AT TIME TABLE SPEED	37 SEC.	37 SEC.	37 SEC.
TIME TABLE MAXIMUM TRAIN SPEED IN MILES PER HOUR	35	35	35
BUFFER SPEED IN MILES PER HOUR	5	5	5
TOTAL WARNING SYSTEM DESIGN SPEED IN MILES PER HOUR	40	40	40
APPROACH DISTANCE TO ISLAND EDGE IN FEET	2120	2120	2120
HALF WIDTH OF ISLAND IN FEET	67	67	67
APPROXIMATE MILE POSTS FOR APPROACH CIRCUIT	14.92	14.10 (DAX)	14.92

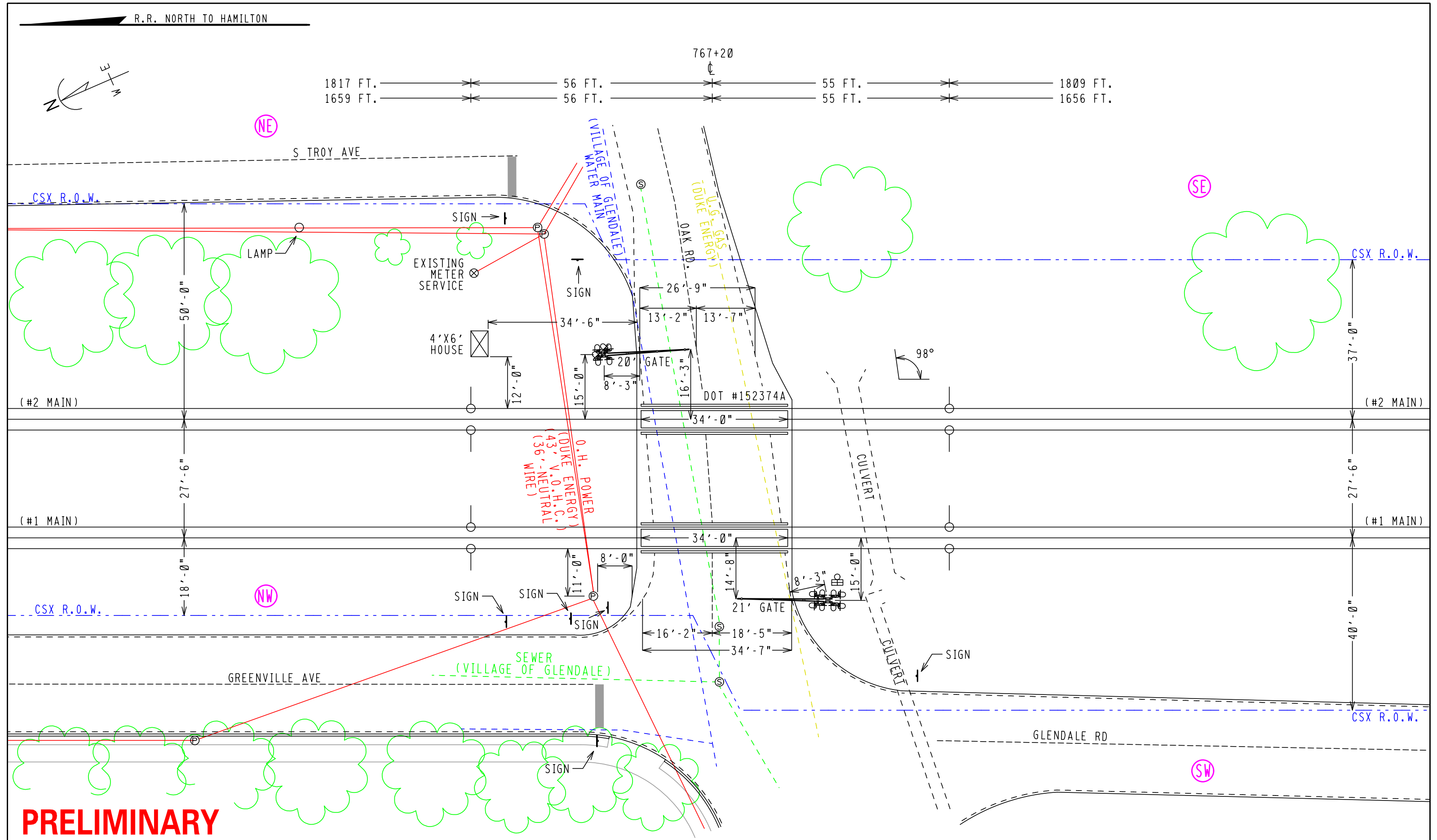


- NE QUAD - EXTEND EXISTING GATE AND ROTATE MECH AS NECESSARY TO OBTAIN 2' MAXIMUM GATE TIP SEPARATION.
- NW QUAD - O.H. POWER POLE WILL NEED TO BE RELOCATED APPROX. 12' NORTH OF EXISTING LOCATION. THREE CITY SIGNS NEED TO BE RELOCATED.
- SE QUAD - PLATFORM REQUIRED FOR EXIT GATE.
- SW QUAD - REPLACE DETERIORATING GATE FOUNDATION. EXTEND EXISTING GATE AND ROTATE MECH AS NECESSARY TO OBTAIN 2' MAXIMUM GATE TIP SEPARATION.

PRELIMINARY

FILE NAME, BE01451.H01	REVISION DATES	PRODUCED FOR,	PRODUCED BY,	LEGEND,	GUARD RAIL	METER SERVICE	GPS COORDINATES	STREET NAME, OAK RD
DATE DRAWN, 05-17-18	- -	CSX TRANSPORTATION	PROGRESS RAIL SERVICES	CSX ROW - - - - -	O.H. POWER - - - - -	POLE	N39°15'53"	CITY & STATE, GLENDALE, (HAMILTON), OH
DRAWN BY, GMW	- -	RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS	A Caterpillar Company	R/R POLELINE - - - - -	FENCE x x x x x	FIRE PLUG	W84°27'44"	DOT, 152374A
CHECKED BY, SAF	- -			GAS - - - - -	WATER - - - - -	SEWER CAP	ELEV, 610'	PROJECT #, OH2018655
PRS #, CSX180029	- -			FIBER OPTIC - - - - -	SEWER - - - - -	GAS VENT	M.P. BE-14.51	OP #, OH1245

PROPOSED CROSSING LAYOUT
SCALE = 20:1



PRELIMINARY

FILE NAME, BE01451.H02	REVISION DATES	PRODUCED FOR,	PRODUCED BY,	LEGEND,	GUARD RAIL	METER SERVICE	GPS COORDINATES	STREET NAME, OAK RD	
DATE DRAWN, 05-17-18	- -	 RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS	 A Caterpillar Company	CSX ROW	O.H. POWER	POLE	N39° 15' 53"	CITY & STATE, GLENDALE, (HAMILTON), OH	
DRAWN BY, GMW	- -			R/R POLELINE	FENCE	FIRE PLUG	W84° 27' 44"	DOT, 152374A	EXISTING CROSSING LAYOUT SCALE = 20:1
CHECKED BY, SAF	- -			GAS	WATER	SEWER CAP	ELEV, 610'	PROJECT #, 0H2018655	
PRS #, CSX180029	- -			FIBER OPTIC	SEWER	GAS VENT	M.P. BE-14.51	OP #, 0H1245	

R.R. NORTH TO HAMILTON



GLENDALD HOLDOUT

M.P. BE-15.09
8'X10' HOUSE
ELECTROLOGIXS
HXP-3
09-2CWU-267 HZ
09-1CWU-267 HZ
DWG# BE01509

BE  15

E. SHARON AVE.

START (#1 & #2 MAIN)

CUT SECTION

M.P. BE-14.20
6'X6' HOUSE
ELECTROLOGIXS
XP4
20CWU-816 HZ
DWG# BE01420

BE  14

H.T. SWITCH
M.P. BE-13.98
#10 T.O.
DWG# BE01398

H.T. SWITCH	H.T. SWITCH
M.P. BE-14.39	M.P. BE-14.20
#10 T.O.	#10 T.O.
DWG# BE01420	DWG# BE01420

MARION AVE.

START (#1 & #2 MAIN)

E. SHARON AVE.

(DAX) START (#1 & #2 MAIN)

OAK RD.

START (#1 & #2 MAIN)

OAK RD.
(DAX) START (#2 MAIN)
START (#1 MAIN)

BE-14.95 PEDESTRIAN PATHWAY & BE-14376 ALBION AVE.
TO BE REMOVED AS PART OF QUIET ZONE PROJECT.

CUT SECTION/REPEATER HOUSE TO BE PLACED ON
WEST SIDE OF TRACKS AT BE-14.20 HT SWITCH.
THIS LOCATION HAS SPACE TO SET HOUSE, ACCESS, &
POWER FROM GLENDALE RD. SEE SURVEY PHOTOS.

PRELIMINARY

FILE NAME, BE01451.H04	REVISION DATES	PRODUCED FOR,	PRODUCED BY,	LEGEND,	GUARD RAIL	METER SERVICE	GPS COORDINATES	STREET NAME, OAK RD.	
DATE DRAWN, 05-17-18	12-12-18	 RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS	 A Caterpillar Company	CSX ROW	O.H. POWER	POLE	N39°15'53"	CITY & STATE, GLENDALE, (HAMILTON), OH	
DRAWN BY, GMW	-			R/R POLELINE	FENCE	FIRE PLUG	W84°27'44"	DOT, 152374A	PROPOSED CROSSING LAYOUT
CHECKED BY, SAF	-			GAS	WATER	SEWER CAP	ELEV, 610'	PROJECT #, 0H2018655	
PRS #, CSX180029	-			FIBER OPTIC	SEWER	GAS VENT	M.P. BE-14.51	OP #, 0H1245	

SH. NO.	INDEX CONTENTS	REVISION NO.								
		1	2	3	4	5	6	7	8	9
I01	INDEX AND REVISIONS	/								
S01	TRACK AND SIGNAL PLAN	/								
E01	POWER DISTRIBUTION	/								
E02	RELAY DETAIL	/								
E03	RACK 1 LAYOUT	/								
E04	RACK 2 LAYOUT	/								
E05	ELECTROLOGIXS XP4 MODULE LAYOUT	/								
C01	XP4 CROSSING DETECTION AND I/O CIRCUITS	/								
C02	XP4 SET UP INFORMATION	/								
C03	CROSSING WARNING DEVICE GATE CIRCUITRY	/								
C04	CROSSING WARNING DEVICE GATE CIRCUITRY	/								
C05	CROSSING WARNING DEVICE LIGHT CIRCUITRY	/								
C06	CROSSING WARNING DEVICE LIGHT CIRCUITRY	/								
C07	WAGO TERMINAL BOARD	/								
C08	SEAR II CIRCUITS	/								
C09	SEAR II CONFIGURATION AND FUNCTIONS	/								
C10	SEAR II CHANNELS	/								
C11	ANALOG AND DIGITAL I/O UNIT CIRCUITS	/								
C12	ANALOG AND DIGITAL I/O UNIT CHANNELS	/								
C13	WAYSIDE ACCESS GATEWAY	/								
C14	EGMS PROGRAM INFORMATION	/								
C15	EGMS RACK CIRCUITRY	/								
C16	EGMS RACK CIRCUITRY	/								
C17	EGMS RACK CIRCUITRY	/								
C18	PRESENCE LOOP DETECTOR LAYOUT	/								

= PLANS SENT TO FIELD (DISTRIBUTED)

= PLANS AS-IN-SERVICED (UP TO DATE)

FOR AMPERAGES OF 15 AMPS OR LESS PER LEG USE THE FOLLOWING POWER CABLE DESIGN GUIDELINES

3 COND. #6 W/GND. (5% VD) $X \leq 402'$
3 COND. #4 W/GND. (5% VD) $403' < X \leq 618'$
* 3 COND. #2 W/GND. (10% VD) $619' < X \leq 1,856'$

* GREATER THAN 1,856' CABLE RUN
CALCULATE ACTUAL CABLE SIZE
REQUIREMENTS PER SS360.

PRELIMINARY

= NOTE

PROGRESS

RAIL SERVICES

A Caterpillar Company

DATE: 08/15/18

CSX# 0H2018655

PRS/GHW/SAF

NEW WORK

DESIGN DATE	REV. NO.
08-15-18	1

REVISIONS

REV. NO.	PROJECT NO.	DESIGN DATE	IN SERVICE DATE	REVISION DATE
1	0H2018655	08-15-18		

TO BE COMPLETED ON A.I.S.

CSX

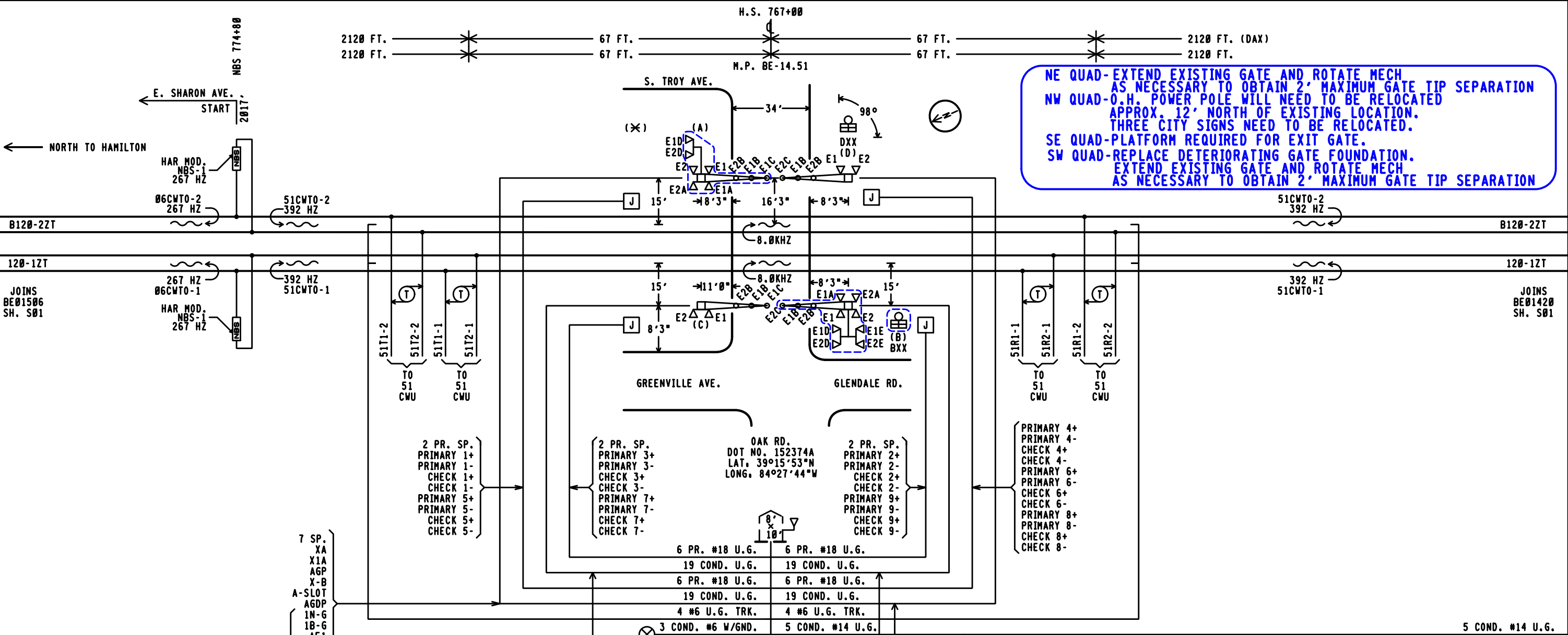
TRANSPORTATION

RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

OAK RD. 152374A

INDEX AND REVISIONS
GLENDALE, OH M.P. BE-14.51

DESIGNED PRS/GHW	DIGITIZED PRS/GHW	CHECKED PRS/SAF	DATE 08-15-18
DRAWING -----	SHEET NO -----	FILE BE01451	SHEET I01



*AUTHORIZING AGENCY. NONE
*DATE OF REQUIREMENT. NONE
*AMOUNT OF TIME (SEC.). NONE

APPROACH LENGTHS TABLE				
DC, AFO, TYPE C, MOTION, CWT, OR OTHER	SOUTHBOUND MAIN #1 CWT	NORTHBOUND MAIN #1 CWT	SOUTHBOUND MAIN #2 CWT	NORTHBOUND MAIN #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
PRESCRIBED 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	35	35	35	35
BUFFER SPEED IN MILES PER HOUR	5	5	5	5
TOTAL WARNING SYSTEM DESIGN SPEED IN MILES PER HOUR	40	40	40	40
APPROACH DISTANCE TO ISLAND EDGE IN FEET	2120	2120	2120	2120
HALF WIDTH OF ISLAND IN FEET	67	67	67	67
APPROXIMATE MILE POSTS FOR APPROACH CIRCUIT	14.92	14.10(DAX)	14.92	14.10

FIELD NOTE. FIELD TO SHOW ACTUAL DISTANCE BETWEEN METER POLE & BUNGALOW AND INDICATE ON A.I.S.

- NOTES.
- 12" LED MAXIMUM CURRENT 1.0A AT 10 VOLTS
LED GATE ARM LIGHTS .3A MAXIMUM
 - GATE LENGTH (A) 20' (B) 25' (C) 27' (D) 21'
 - (X) = LOCATION OF HOUSE
 - ↑ = 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.

PRELIMINARY

= EXISTING
= NOTE

PROGRESS
RAIL SERVICES

A Caterpillar Company
NEW WORK
DATE: 08/15/18
CSX# 0H2018655
PRS/GNW/SAF

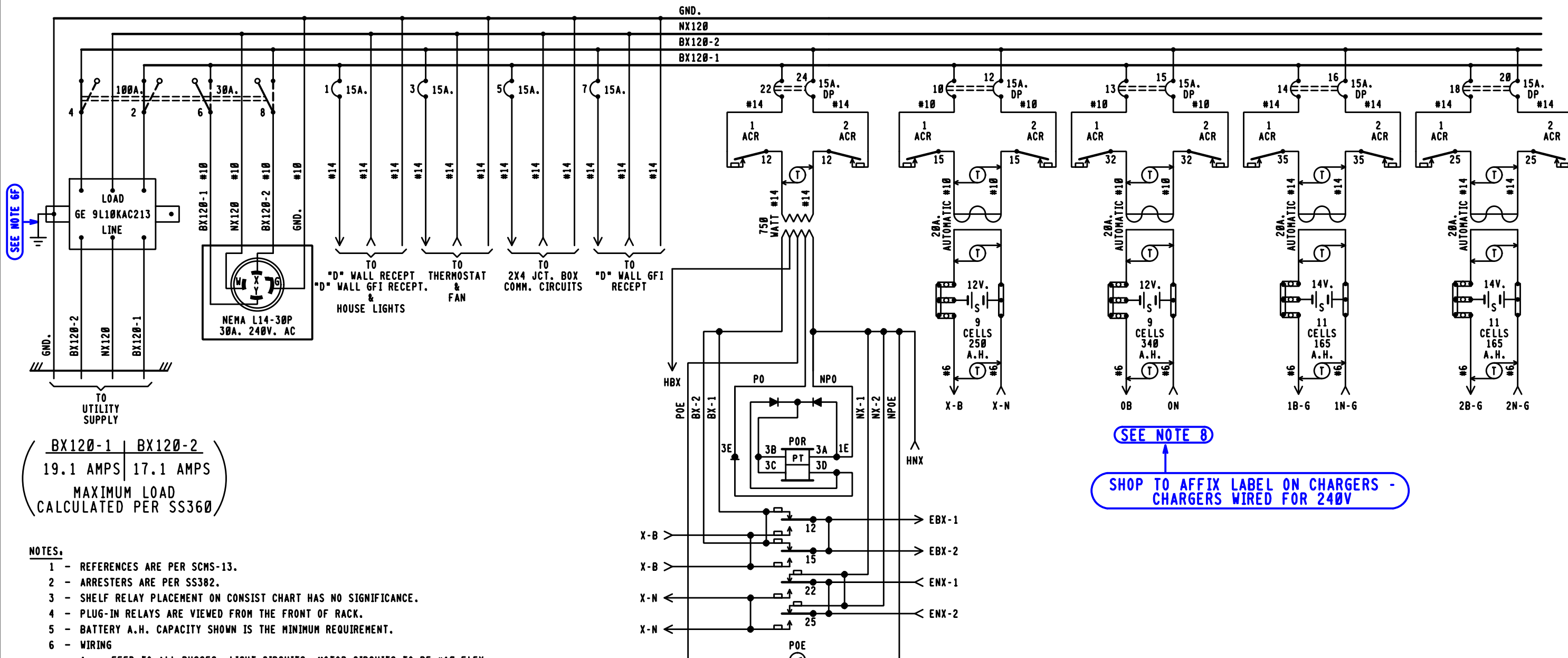
CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

OAK RD. 152374A

TRACK AND SIGNAL PLAN
GLENDALE, OH M.P. BE-14.51

DESIGNED PRS/GNW	DIGITIZED PRS/GNW	CHECKED PRS/SAF	DATE 08-15-18
DRAWING -----	SHEET NO -----	FILE BE01451	SHEET S01

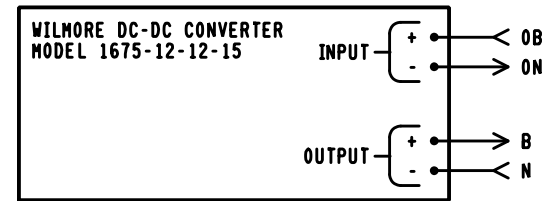
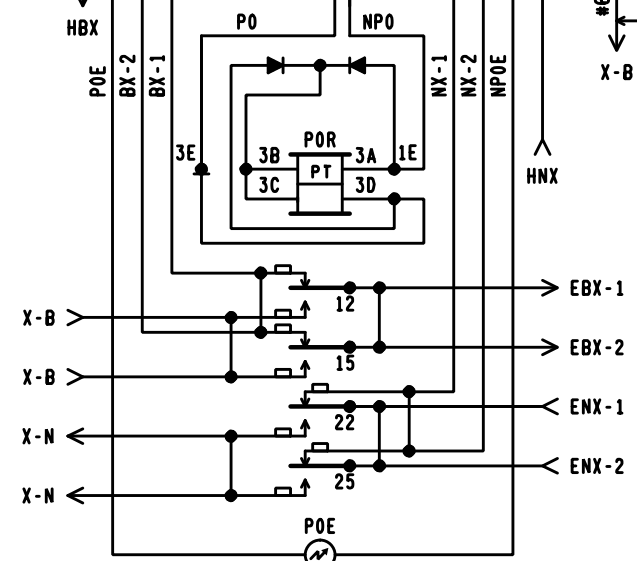
DESIGN DATE 08-15-18	REV. NO. 1
-------------------------	---------------



SEE NOTE 6F

BX120-1	BX120-2
19.1 AMPS	17.1 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 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 OUTPUTS TO BE #6 PER SS360.
 - F - GROUND WIRE NOT NECESSARY WHEN GE ARRESTER IS MOUNTED ON GROUND PLANE OR METAL ENCLOSURE AFFIXED DIRECTLY TO BUNGALOW METALLIC STRUCTURAL MEMBER.
 - 7 - CIRCUIT INTERRUPTERS 2 & 4 ARE MECHANICALLY INTERLOCKED WITH CIRCUIT INTERRUPTERS 6 & 8.
 - 8 - CHARGERS TO BE WIRED FOR 240VAC
 - 9 - CIRCUIT BREAKER PANEL - 00124L1256 (24 SPACES)



SEE NOTE 8

SHOP TO AFFIX LABEL ON CHARGERS -
CHARGERS WIRED FOR 240V

PRELIMINARY

= NOTE

PROGRESS
RAIL SERVICES
A Caterpillar Company
NEW WORK
DATE: 08/15/18
CSX# 0H2018655
PRS/GHW/SAF

DESIGN DATE	REV. NO.
08-15-18	1

8'X 10' PTC RELAY HOUSE

CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
OAK RD. 152374A			
POWER DISTRIBUTION GLENDALE, OH M.P. BE-14.51			
DESIGNED PRS/GMW	DIGITIZED PRS/GMW	CHECKED PRS/SAF	DATE 08-15-18
DRAWING -----	SHEET NO -----	FILE BE01451	SHEET E01

RACK 1						
XR			XPR			
12	FB	B8	22	F	B36	
15	B	C30	25	F	C30	
22						
23	F					
25	F					
32	F					
35	F					
51AX20PR			EGHR			
12		B8	12	F	B8	
15		C30	15		C30	
22			22			
23	F		23			
25	F		25			
32	F		32	B		
35			35	B		
			GPR			
12	B	B02	12	B	B02	
15	B	C30	15	B	C30	
22			22			
25			25			
32			32			
35	B		35	B		
12	B	B77	12	B	B77	
15	B	C30	15	B	C30	
22			22			
25	B		25	B		
32	B		32	B		
35	B		35	B		
			ISL1R			
12		B8	12		B8	
15		C30	15		C30	
22			22			
23	F		23	F		
25	F		25	F		
32	F		32	F		
35			35			
			ISL2R			
12		B8	12		B8	
15		C30	15		C30	
22			22			
23	F		23	F		
25	F		25	F		
32	F		32	F		
35			35			

ROW A

ROW B

RACK 2						
	AGPR			BGPR		
	12		B8	12		B8
	15	F	C30	15	F	C30
	22			22		
	23	F		23	F	
	25	F		25	F	
	32	F		32	F	
	35			35		
	CGPR			DGPR		
	12		B8	12		B8
	15	F	C30	15	F	C30
	22			22		
	23	F		23	F	
	25	F		25	F	
	32	F		32	F	
	35			35		
	VDHR					
	12	F	B8	12		B8
	15		C30	15		C30
	22			22		
	23			23		
	25			25		
	32			32		
	35			35		
AGDPR			BGDPR			
12		B8	12		B8	
15		C30	15		C30	
22			22			
23	F		23	F		
25	F		25	F		
32	F		32	F		
35			35			
			CGDPR			
12		B8	12		B8	
15		C30	15		C30	
22			22			
23	F		23	F		
25	F		25	F		
32	F		32	F		
35			35			
			DGDPR			
12		B8	12		B8	
15		C30	15		C30	
22			22			
23	F		23	F		
25	F		25	F		
32	F		32	F		
35			35			
			CXGR			
12		B8	12		B8	
15		C30	15		C30	
22			22			
23	F		23	F		
25	F		25	F		
32			32			
35			35			
			DXGR			
12		B8	12		B8	
15		C30	15		C30	
22			22			
23	F		23	F		
25	F		25	F		
32			32			
35			35			

ROW A

ROW B

PRELIMINARY



PROGRESS
RAIL SERVICES

A Caterpillar Company

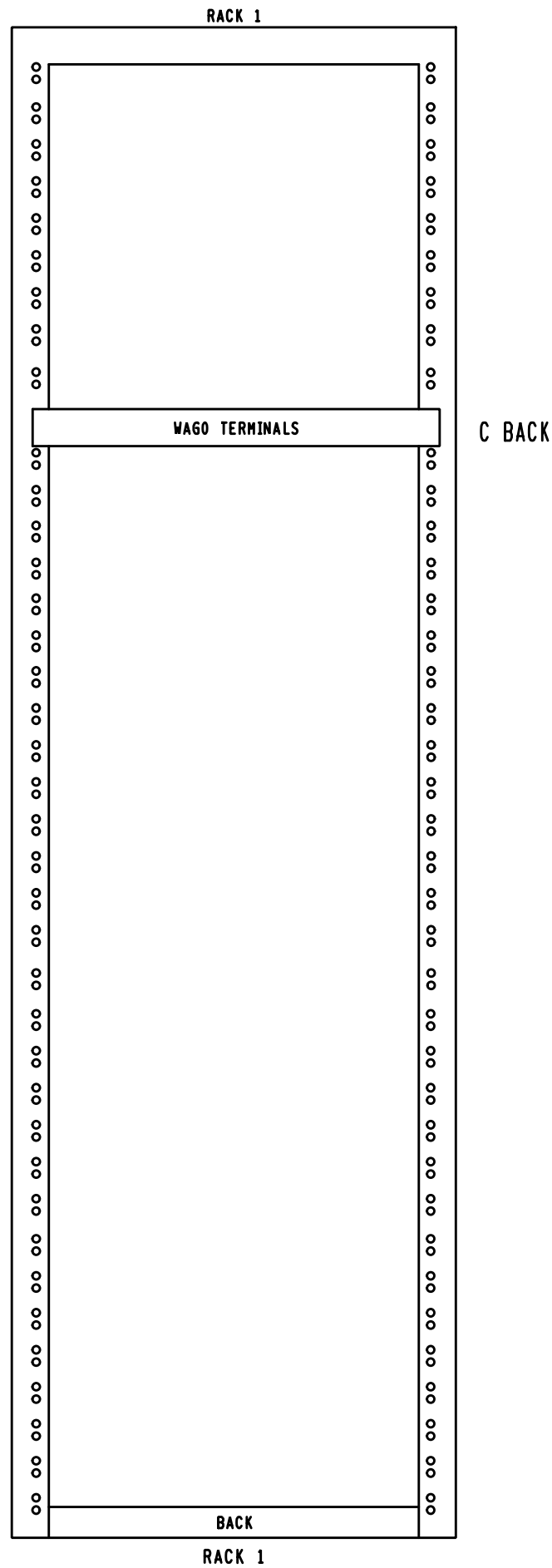
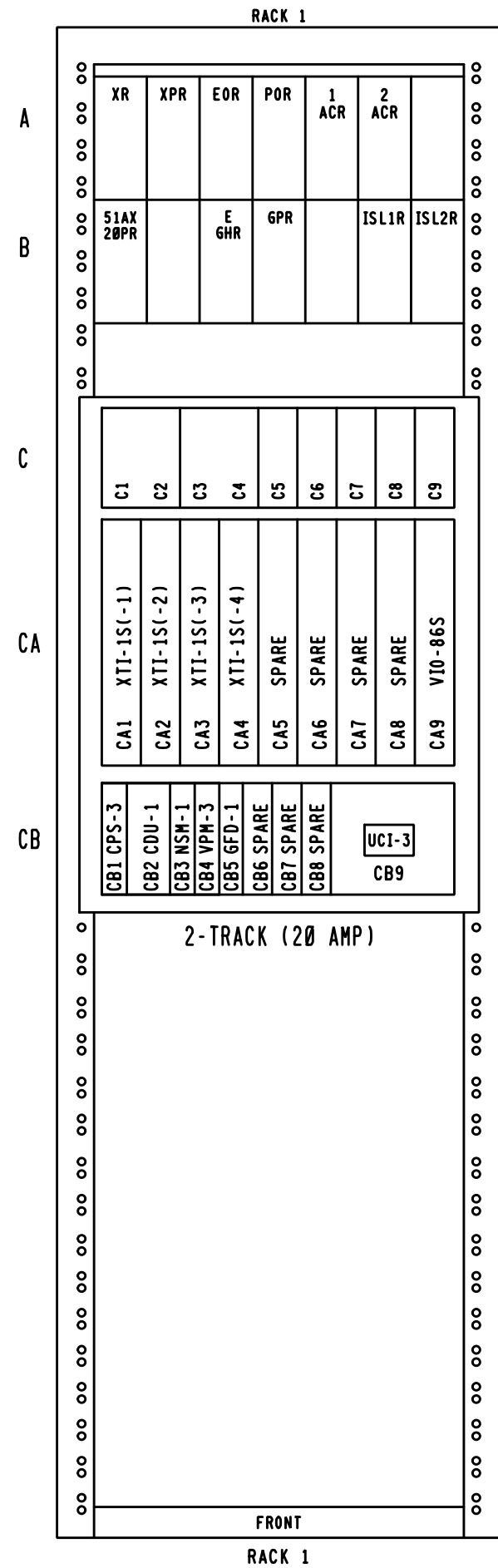
NEW WORK

DATE: 08/15/18

CSX 0.0H2010655

PRS/GMW/SAF

CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
OAK RD. 152374A			
RELAY DETAIL GLENDALE, OH M.P. BE-14.51			
DESIGNED PRS/GMW	DIGITIZED PRS/GMW	CHECKED PRS/SAF	DATE 08-15-18
DESIGN DATE 08-15-18	REV. NO. 1	DRAWING -----	SHEET E02



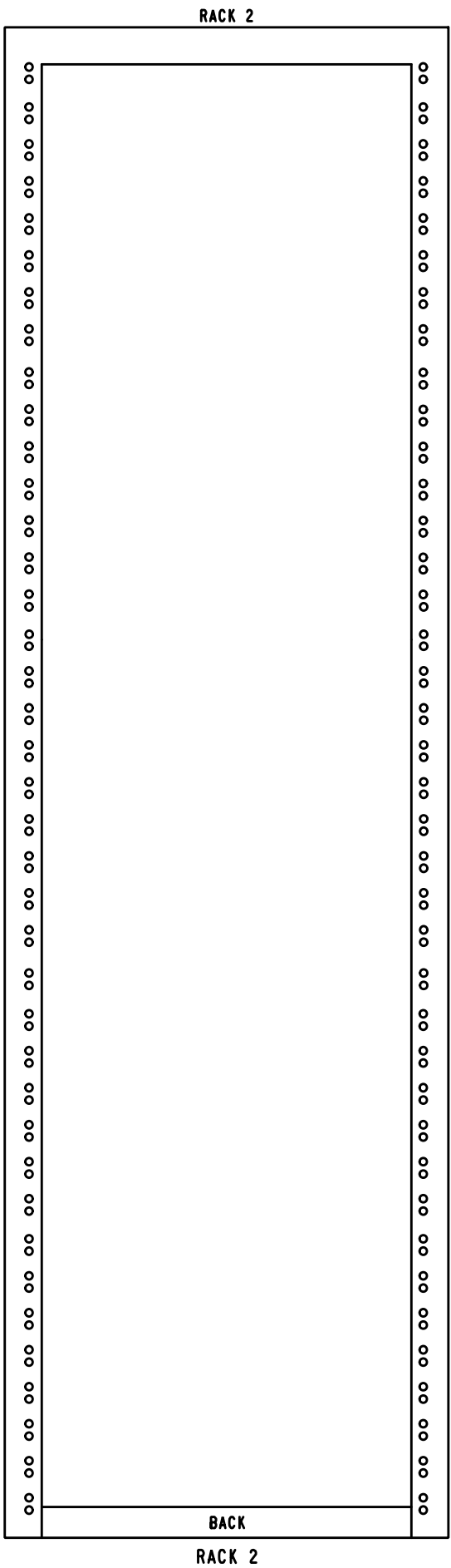
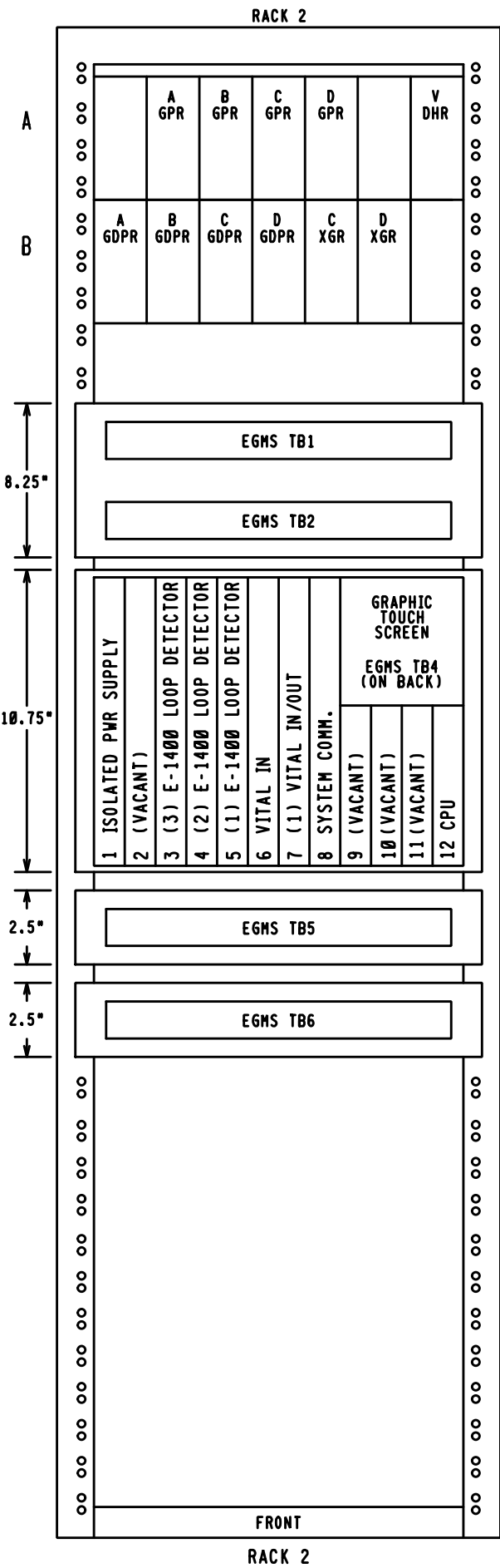
EQUIPMENT RACK 84" X 19"			
REF.	DESCRIPTION	P/N	QTY.
(1) ---	ASSY RACK 19" CSX	020-0065621-1	1 EA.
A-B	RLY B1 PLBD KIT W/FL E-POST MOD	020-0022651-1	11 EA.
(1) A-B	BAR MT6 19" W/BLU PAINT	020-3471120-1	3 EA.
(1) A-B	TIE BAR RELAY 19" W/BLU PAINT	020-3471121-1	2 EA.
(2) C	9-SLOT ELECTROLOGIXS CHASSIS PACKAGE	020-1622001-1	1 EA.
C BACK 1-50	WAGO TERMINALS BLOCK ASSY W/DIN RAIL	020-4809282-1	1 EA.
C BACK	WAGO OFFSET MOUNTING BRACKET	020-6509130-1	2 EA.
(2) C1-C2	XTI-1S NORMAL/STANDBY PERSONALITY MODULE	020-0018588-1	1 EA.
C3-C4	XTI-1S NORMAL/STANDBY PERSONALITY MODULE	020-0018588-1	1 EA.
C9	VIO-86S VITAL I/O PERSONALITY MODULE	020-0018582-1	1 EA.
(2) CA1-CA2	XTI-1S CROSSING TRACK INTERFACE MODULE	020-0018564-1	2 EA.
CA3-CA4	XTI-1S CROSSING TRACK INTERFACE MODULE	020-0018564-1	2 EA.
CA9	VIO-86S VITAL I/O MODULE	020-0018522-1	1 EA.
(2) CB1	CPS-3 CENTRAL POWER SUPPLY	020-0018550-1	1 EA.
(2) CB2	CDU-1 CONTROL DISPLAY UNIT	020-0017808-1	1 EA.
(2) CB3	NSM-1 NORMAL/STANDBY MODULE	020-0018598-1	1 EA.
(2) CB4	VPM-3 CROSSING PROCESSOR MODULE	020-2514321-1	1 EA.
CB5	GFD-1 GROUND FAULT DETECTOR MODULE	020-0018520-1	1 EA.
(2) CB9	UCI-3 APPLICATION EPROM/FLASH MEMORY MODULE (PTC CAPABLE)	020-2514950-1	1 EA.

- NOTES:
- EQUIPMENT INCLUDED IN 19" RACK ASSY PACKAGE. ADDITIONAL EQUIPMENT TO BE ORDERED AS NEEDED.
 - ELECTROLOGIXS MODULES INCLUDED IN CHASSIS ASSY PACKAGE.

PRELIMINARY



CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
OAK RD. 152374A			
RACK 1 LAYOUT GLENDALE, OH M.P. BE-14.51			
DESIGNED PRS/GMW	DIGITIZED PRS/GMW	CHECKED PRS/SAF	DATE 08-15-18
DESIGN DATE 08-15-18	REV. NO. 1	DRAWING -----	SHEET E03



EQUIPMENT RACK 84" X 19"			
REF.	DESCRIPTION	P/N	QTY.
(1) ---	ASSY RACK 19" CSX	020-0065621-1	1 EA.
A-B	RLY B1 PLBD KIT W/FL E-POST MOD	020-0022651-1	11 EA.
(1) A-B	BAR MTG 19" W/BLU PAINT	020-3471120-1	3 EA.
(1) A-B	TIE BAR RELAY 19" W/BLU PAINT	020-3471121-1	2 EA.
C	EGMS, 12 LOOP ASSEMBLY W/ COMM. MODULE	525-0202-03 (SIEMENS)	1 EA.

NOTES:

1. EQUIPMENT INCLUDED IN 19" RACK ASSY PACKAGE. ADDITIONAL EQUIPMENT TO BE ORDERED AS NEEDED.

PRELIMINARY

PROGRESS
RAIL SERVICES
A Caterpillar Company

NEW WORK

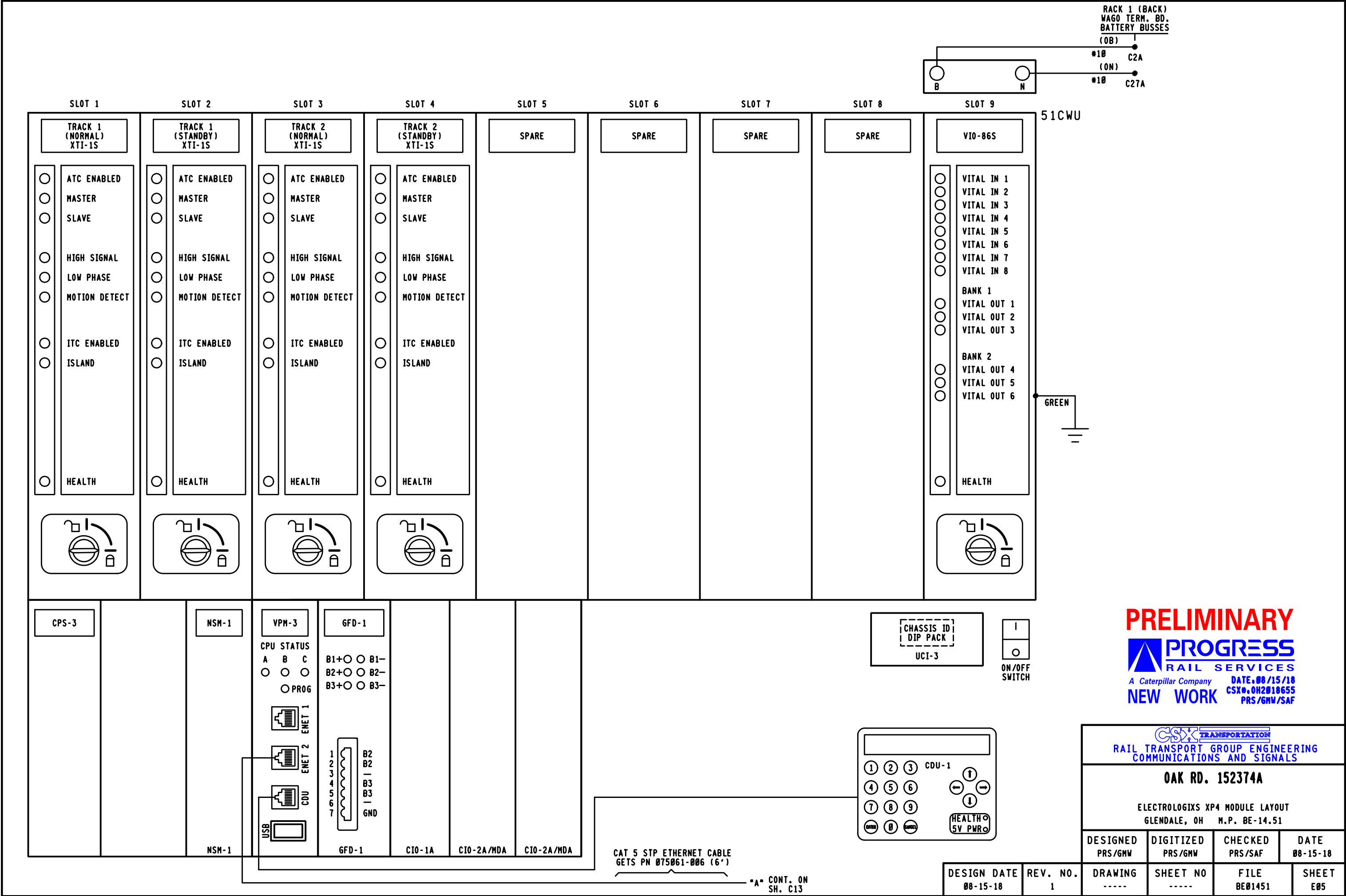
DATE: 08/15/18
CSX# 0H2018655
PRS/GHW/SAF

CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

OAK RD. 152374A

RACK 2 LAYOUT
GLENDALE, OH M.P. BE-14.51

DESIGNED PRS/GHW	DIGITIZED PRS/GHW	CHECKED PRS/SAF	DATE 08-15-18
DESIGN DATE 08-15-18	REV. NO. 1	DRAWING -----	SHEET E04



PRELIMINARY

PROGRESS

RAIL SERVICES

A Caterpillar Company

NEW WORK

DATE: 08/15/18

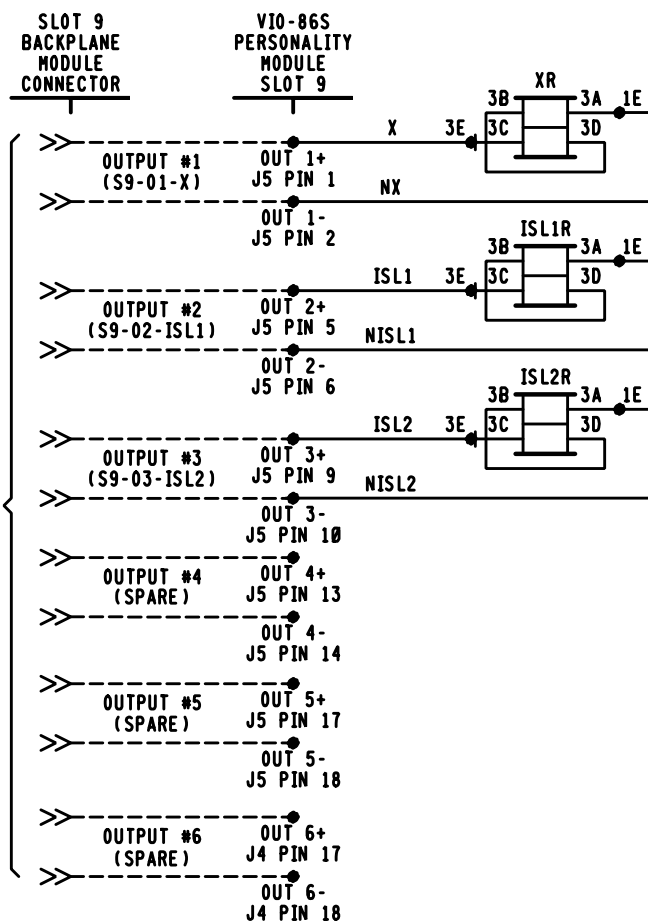
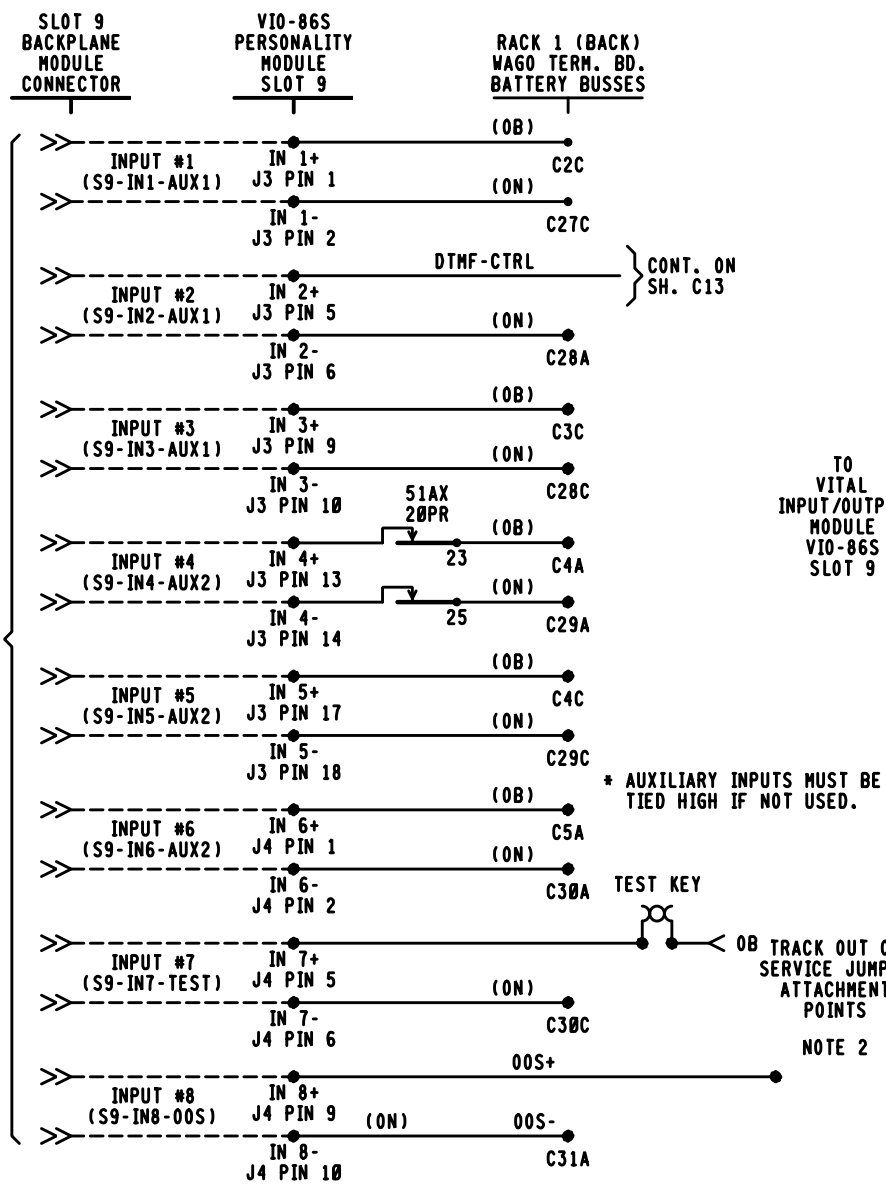
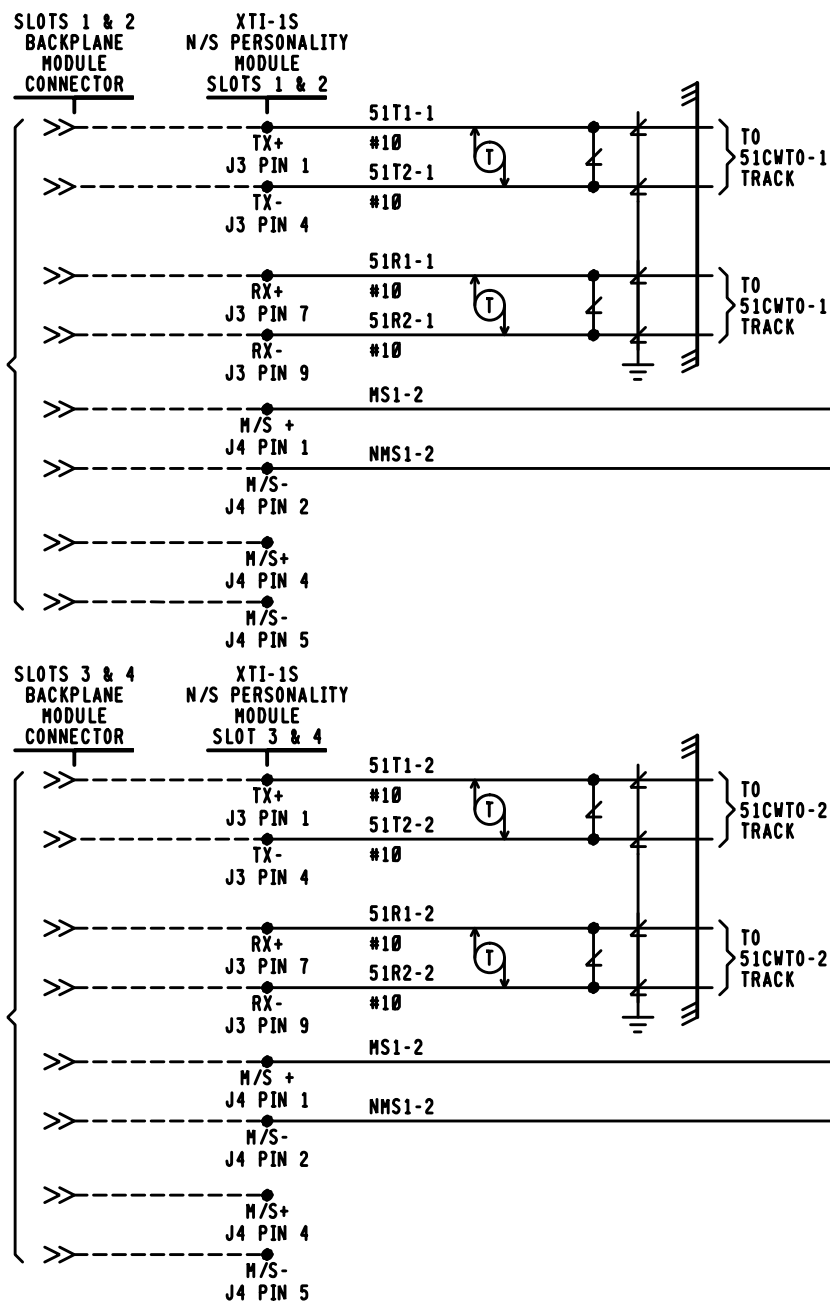
CSX# 0H2018655

PRS/GMW/SAF

CSX TRANSPORTATION			
RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
OAK RD. 152374A			
ELECTROLOGIX XP4 MODULE LAYOUT GLENDALE, OH M.P. BE-14.51			
DESIGNED PRS/GMW	DIGITIZED PRS/GMW	CHECKED PRS/SAF	DATE 08-15-18
DRAWING -----	SHEET NO -----	FILE BE01451	SHEET E05

DESIGN DATE 08-15-18	REV. NO. 1
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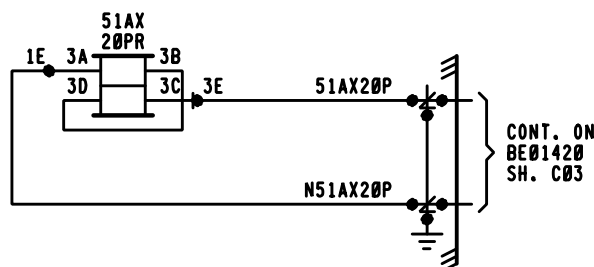
A CONT. ON
SH. C13



SLOT 9 I/O	
INPUT 1	POSITIVE AUX1 AUXILIARY
INPUT 2	POSITIVE AUX1 AUXILIARY
INPUT 3	POSITIVE AUX1 AUXILIARY
INPUT 4	POSITIVE AUX2 AUXILIARY
INPUT 5	POSITIVE AUX2 AUXILIARY
INPUT 6	POSITIVE AUX2 AUXILIARY
INPUT 7	CROSSING TEST CONTROL INPUT
INPUT 8	OUT OF SERVICE JUMPER INPUT (OOS)
OUTPUT 1	X OUTPUT
OUTPUT 2	ISL1 OUTPUT
OUTPUT 3	ISL2 OUTPUT
OUTPUT 4	(NOT USED)
OUTPUT 5	(NOT USED)
OUTPUT 6	(NOT USED)

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 ACCESSSED 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.
3.  = HLVA2-1675-Ø1 HYBRID LOW VOLTAGE ARRESTER, UNLESS NOTED.



PRELIMINARY



DATE: 08/15/18

CSX#.0H2#18655

PPS /ENM /SAE

DESIGN DATE
08-15-18

REV. NO.
1

DRAWING
- - - -

SHEET NO

FILE
BE01451

	SHEET C01
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CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

OAK RD. 152374A

XP4 CROSSING DETECTION AND I/O CIRCUITS
GLENDALE, OH M.P. BE-14.51

DESIGNED
PRS/GMW

DIGITIZED
PRS/GMW

CHECKED
PRS/SAF

DATE	08-15-18
------	----------

DRAWING
- - - -

SHEET NO

FILE
BE01451

	SHEET C01
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SITE SPECIFIC MDR DESCRIPTIONS AND SETTINGS			
NAME		MDR1	MDR2
FUNCTION		XR	XR
WARNING TIME		33	33
CW/MD		CW	CW
AP TIME(PREEMPT)		NA	NA
CWE-WT		80	80
AUX RECOVERY DELAY		5	5
TRACK		TK 1	TK 2
TRACK ASSIGNED		ASSIGNED	ASSIGNED
OFFSET DISTANCE		0'	0'
MD RESTART		0*	0*
SUDDEN SHUNT ZONE		0*	0*
POSITIVE START	PSEN	DISABLE	DISABLE
	PSRX	NA	NA
	PST	NA	NA
POST JOINT DETECT	PJEN	ENABLE	ENABLE
	PJRX	15	15
	PJDT	4	4
CLEAR JOINT LOS	CJ-LOS MODE	STANDARD	STANDARD
	CJ-LOS RX	15	15
	CJ-LOS TIME	99	99

BASIC TRACK SETUP		
	TRACK 1	TRACK 2
FREQUENCY	392 HZ	392 HZ
MASTER/SLAVE	MASTER	SLAVE
RX ADJUST	100 *	100 *
TCA	*	*
DIRECTION MODE	BI	BI
LIA	*	*
ADVANCED APPROACH	*	*
NBS COMP RX	*	*
TRK ISLAND ASSIGN	NA	NA
APPROACH LENGTH	2120'	2120'
AUTO RX	ENABLE	ENABLE

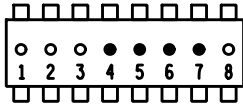
ADVANCED TRACK SETUP			
		TRACK 1	TRACK 2
MOTION DET TIMER	MDEN	DISABLE	DISABLE
	MDTT	10 MIN	10 MIN
FALSE SHUNT	FSEN	DISABLE	DISABLE
	FSRX	NA	NA
	FST	NA	NA
APPROACH RELEASE	AREN	DISABLE	DISABLE
	ARRX	NA	NA
	ART	NA	NA
LOS TIME		16 SEC	16 SEC
IJ-LOS TIME		5 SEC	5 SEC
NRML*SHRT*VRYSHRT		*	*

ISLAND SETUP		
	TRACK 1	TRACK 2
ENABLE /DISABLE	ENABLE	ENABLE
FREQUENCY	8.0 KHZ	8.0 KHZ
LOSS OF SHUNT	2 SEC.	2 SEC.
FAULT DELAY	1	1

VPM3 ETHERNET SETUP	
	IP ADDRESS
ETHERNET PORT 1 (TOP)	192.168.0.11
ETHERNET PORT 2 (BOTTOM)	192.168.1.12

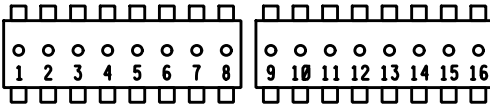
APPLICATION SOFTWARE INFORMATION	
NAME	9XXS-2.01
REV.	1.0
CHECKSUM	E49B
CRC	FF9E
CH. I.D.	225

CHASSIS ID DIP SHUNTS
LOCATED ON BACKPLANE
UNDERNEATH UCI-3 MODULE



- = TAB INTACT (MADE)
● = TAB PUNCHED OUT (BROKEN)

VITAL SELECTION DIP SHUNTS
LOCATED INSIDE UCI-3 MODULE
UNDERNEATH EPROM



- = TAB INTACT (MADE)
● = TAB PUNCHED OUT (BROKEN)

VITAL SELECTION DIP SHUNTS		
#	NAME	STATE
1	ML_BELL_SW	PUNCHED OUT
2	NA	INTACT (NOT USED)
3	NA	INTACT (NOT USED)
4	NA	INTACT (NOT USED)
5	NA	INTACT (NOT USED)
6	NA	INTACT (NOT USED)
7	NA	INTACT (NOT USED)
8	NA	INTACT (NOT USED)
9	NA	INTACT (NOT USED)
10	NA	INTACT (NOT USED)
11	NA	INTACT (NOT USED)
12	NA	INTACT (NOT USED)
13	NA	INTACT (NOT USED)
14	NA	INTACT (NOT USED)
15	NA	INTACT (NOT USED)
16	NA	INTACT (NOT USED)

NOTES:
● = FIELD ADJUSTMENT
NA = NOT APPLICABLE

PRELIMINARY



CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

OAK RD. 152374A

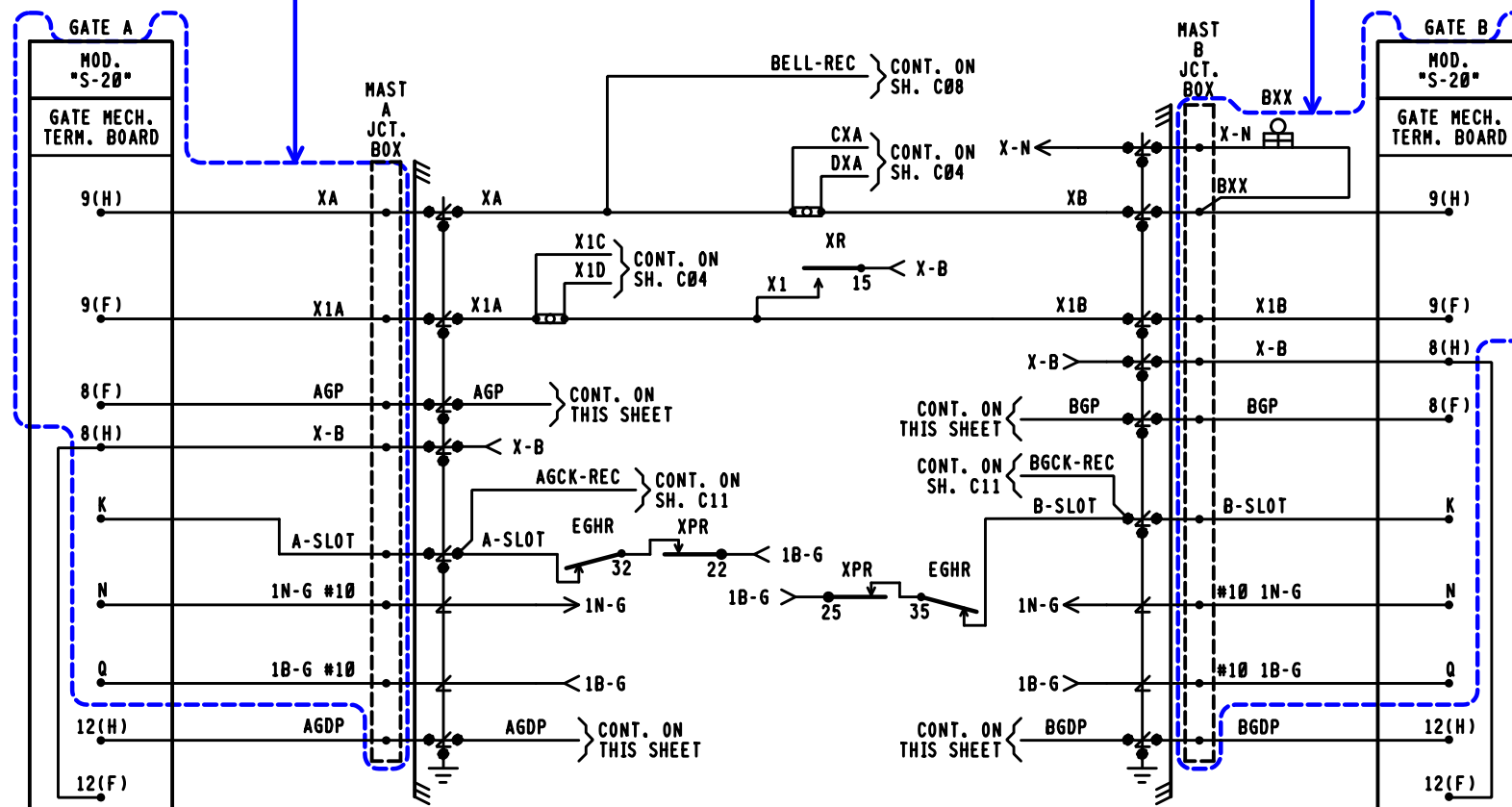
XP4 SET UP INFORMATION
GLENDALE, OH M.P. BE-14.51

DESIGNED PRS/GMW	DIGITIZED PRS/GMW	CHECKED PRS/SAF	DATE 08-15-18
DRAWING -----	SHEET NO -----	FILE BE01451	SHEET C02

DESIGN DATE 08-15-18	REV. NO. 1
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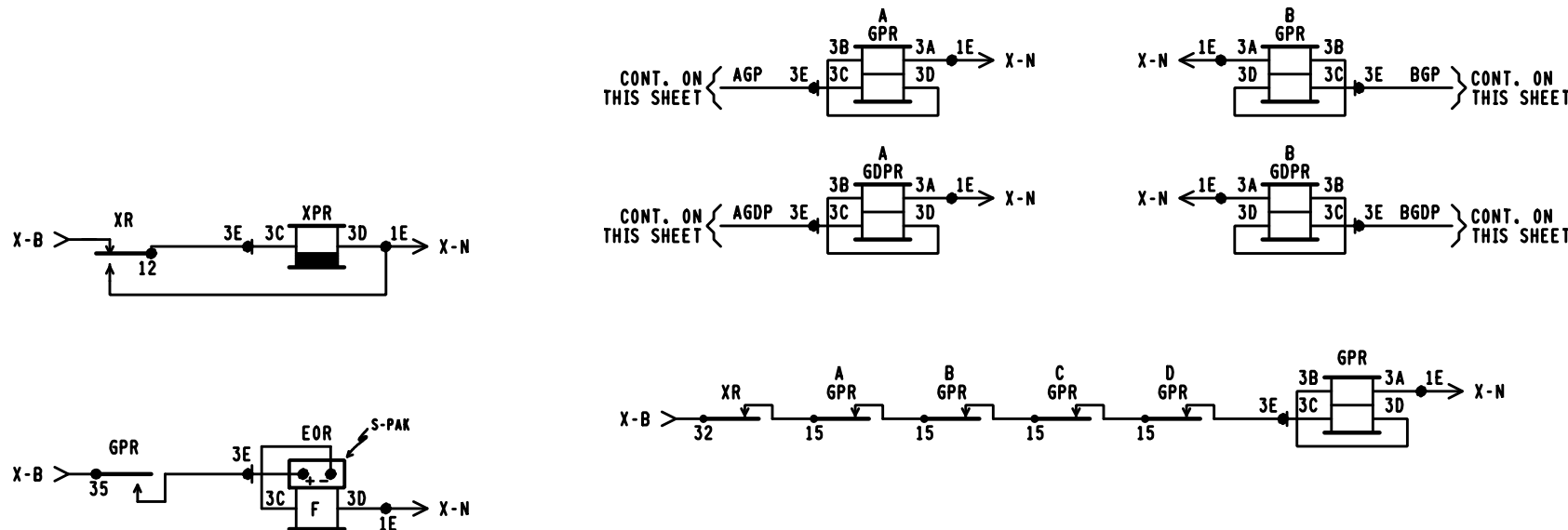
CHANGE EXISTING GATE B
TO GATE A. FIELD TO MAKE
WIRE TAG CHANGES.

CHANGE EXISTING GATE A
TO GATE B. FIELD TO MAKE
WIRE TAG CHANGES.



FIELD TO INSTALL CIRCUIT CONTROLLER CAM
AND CONTACT ON TERMINAL 12 TO BE USED
FOR GATE DOWN INDICATION 0°-5°

FIELD TO INSTALL CIRCUIT CONTROLLER CAM
AND CONTACT ON TERMINAL 12 TO BE USED
FOR GATE DOWN INDICATION 0°-5°



PRELIMINARY

NOTE

EXISTING

PROGRESS
RAIL SERVICES
A Caterpillar Company
NEW WORK
DATE: 08/15/18
CSX# 0H2018655
PRS/GHW/SAF

- NOTES:
1. = TERMINAL IN JCT. BOX BASE
 2. ALL WIRING #16 UNLESS NOTED OTHERWISE.
 3. = HLVA2-1675-01 HYBRID LOW VOLTAGE ARRESTER, UNLESS NOTED.

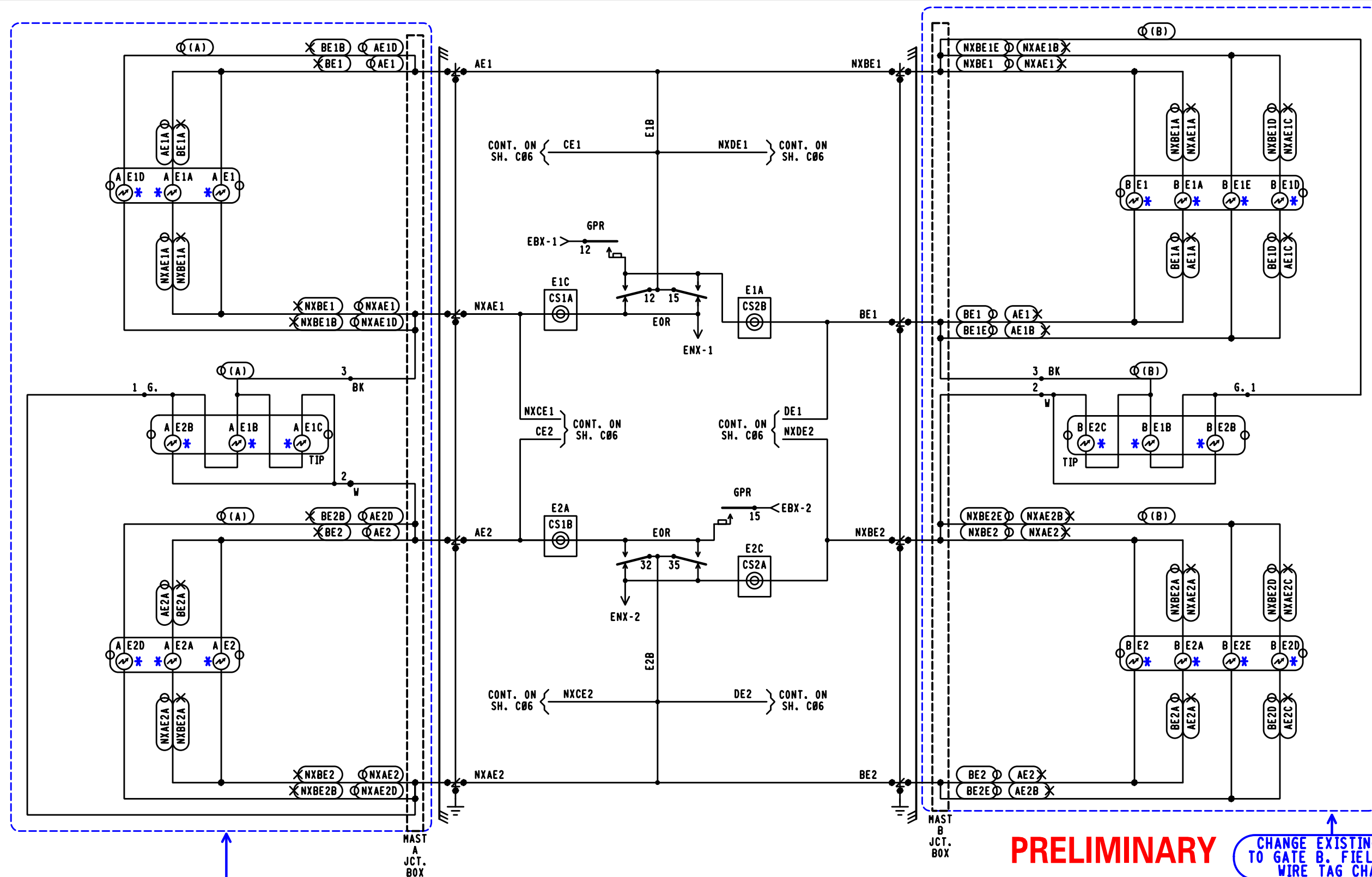
CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

OAK RD. 152374A

CROSSING WARNING DEVICE GATE CIRCUITRY
GLENDALE, OH M.P. BE-14.51

DESIGNED PRS/GMW	DIGITIZED PRS/GMW	CHECKED PRS/SAF	DATE 08-15-18
DRAWING -----	SHEET NO -----	FILE BE01451	SHEET C03

DESIGN DATE 08-15-18	REV. NO. 1
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CHANGE EXISTING GATE B TO GATE A. FIELD TO MAKE WIRE TAG CHANGES.

* = REPLACE EXISTING INCANDESCENT BULBS WITH NEW L.E.D. LIGHTS

NOTES.

1. [Symbol] = TERMINAL IN JCT. BOX
2. WHEN 7 OR MORE LIGHTS ON A SINGLE STRUCTURE REFER TO SS-382 FOR REQUIRED ARRESTER RATING.
3. [Symbol] = HLVA2-1675-01 HYBRID LOW VOLTAGE ARRESTER, UNLESS NOTED.

PRELIMINARY

[Symbol] = NOTE
[Symbol] = EXISTING

PROGRESS
RAIL SERVICES
A Caterpillar Company
NEW WORK
DATE: 08/15/18
CSX # 0H2018655
PRS/GMV/SAF

DESIGN DATE
08-15-18

REV. NO.
1

DRAWING

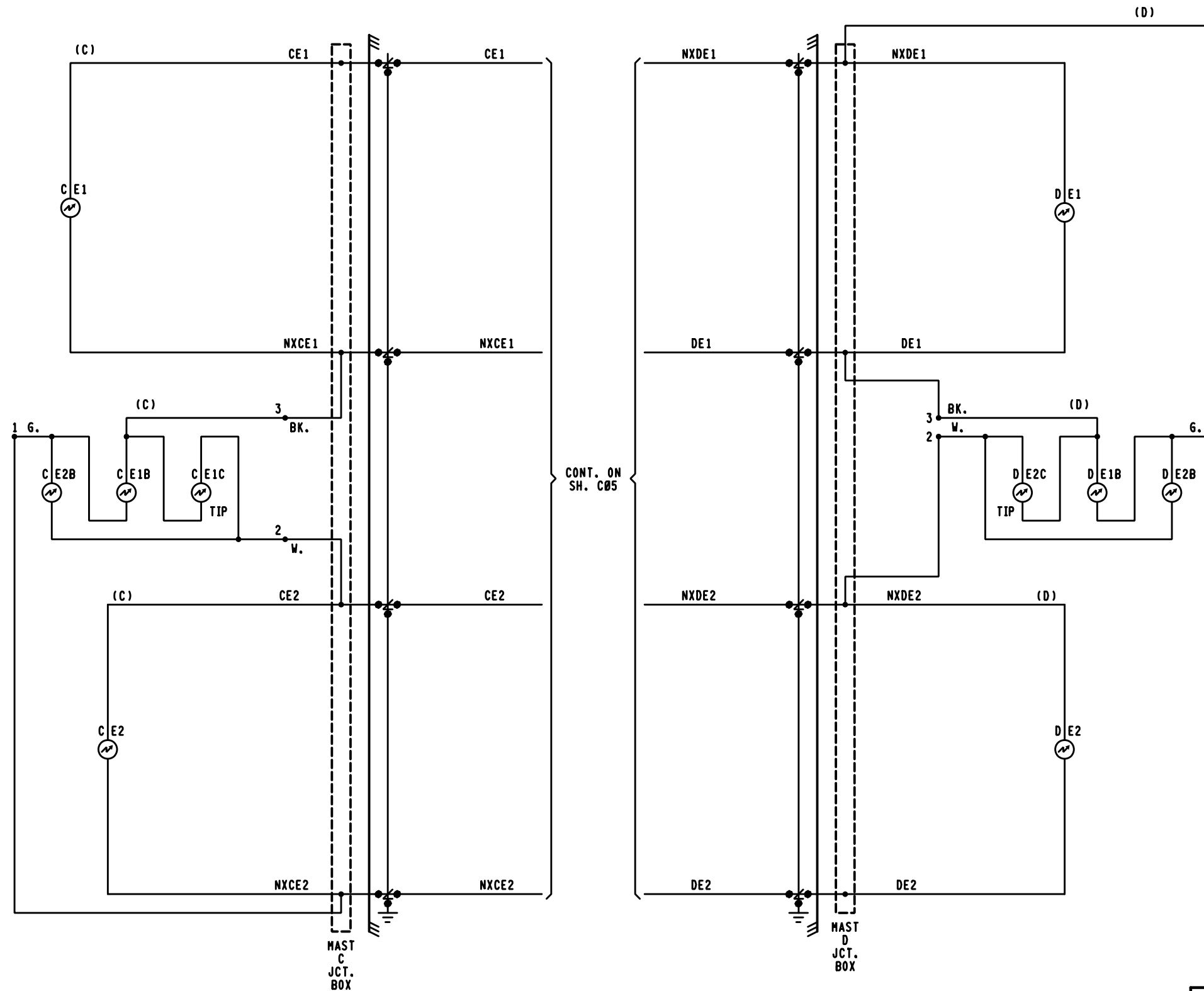
SHEET NO

FILE
BE01451

SHEET
C05

CHANGE EXISTING GATE A TO GATE B. FIELD TO MAKE WIRE TAG CHANGES.

CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
OAK RD. 152374A			
CROSSING WARNING DEVICE LIGHT CIRCUITRY GLENDALE, OH M.P. BE-14.51			
DESIGNED PRS/GMW	DIGITIZED PRS/GMW	CHECKED PRS/SAF	DATE 08-15-18
DRAWING -----	SHEET NO -----	FILE BE01451	SHEET C05



NOTES:

1.  = TERMINAL IN JCT. BOX
2. WHEN 7 OR MORE LIGHTS ON A SINGLE STRUCTURE REFER TO SS-382 FOR REQUIRED ARRESTER RATING.

PRELIMINARY

PROGRESS
RAIL SERVICES

A Caterpillar Company

NEW WORK

DATE: 08/15/18
CSX# 0H2018655
PRS/GMW/SAF

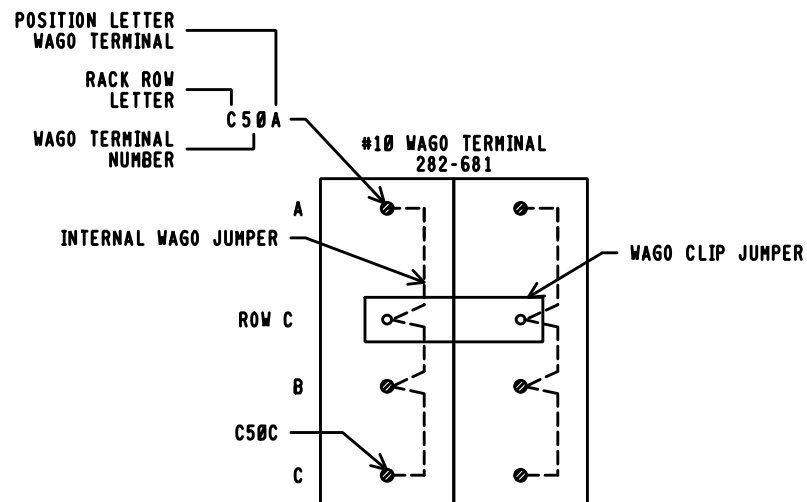
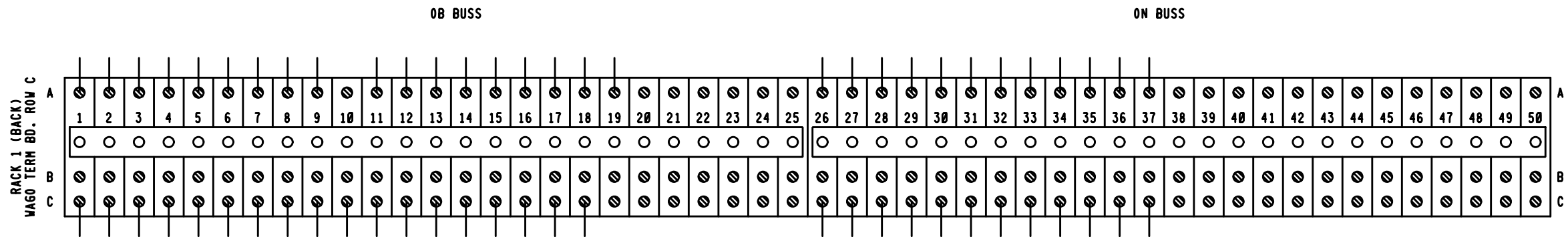
CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

OAK RD. 152374A

CROSSING WARNING DEVICE LIGHT CIRCUITRY
GLENDALE, OH M.P. BE-14.51

DESIGNED PRS/GMW	DIGITIZED PRS/GMW	CHECKED PRS/SAF	DATE 08-15-18
DRAWING -----	SHEET NO -----	FILE BE01451	SHEET C06

DESIGN DATE 08-15-18	REV. NO. 1
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NOTES:

1. C1A & C1C TO OB SUPPLY.
2. C26A & C26C TO ON SUPPLY.

PRELIMINARY

PROGRESS
RAIL SERVICES
A Caterpillar Company

NEW WORK

DATE: 08/15/18
CSX# 0H2018655
PRS/GMW/SAF

CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

OAK RD. 152374A

WAGO TERMINAL BOARD
GLENDALE, OH M.P. BE-14.51

DESIGN DATE
08-15-18

REV. NO.
1

DESIGNED
PRS/GMW

DIGITIZED
PRS/GMW

CHECKED
PRS/SAF

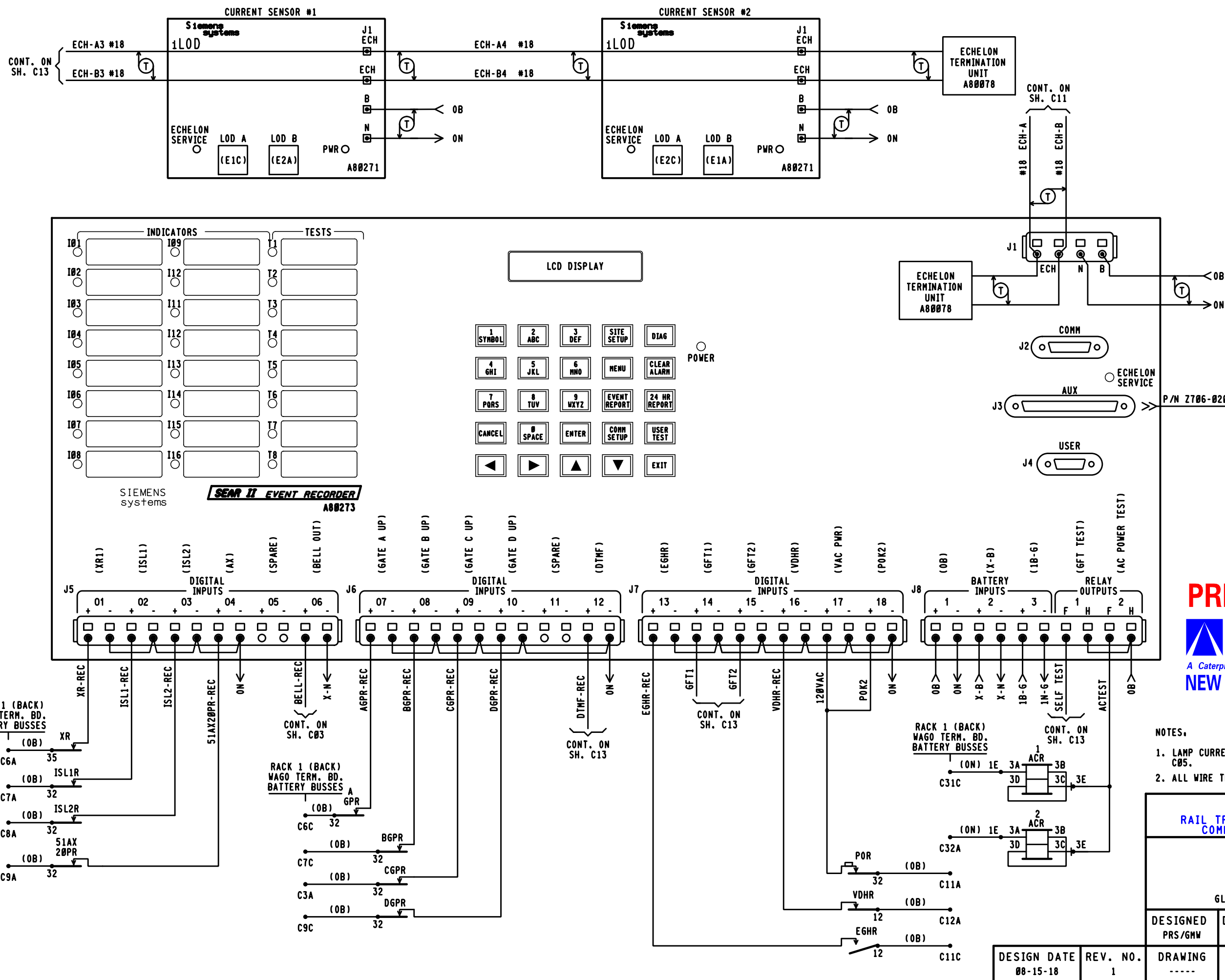
DATE
08-15-18

DRAWING

SHEET NO

FILE
BE01451

SHEET
C07



PRELIMINARY

PROGRESS

RAIL SERVICES

A Caterpillar Company

DATE: 08/15/18

CSX # 0H2010655

PRG/GMW/SAF

NEW WORK

- NOTES:
- LAMP CURRENT SENSOR CIRCUIT WIRING SHOWN ON SHEET C05.
 - ALL WIRE THIS SHEET #16 UNLESS NOTED.

CSX TRANSPORTATION			
RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
OAK RD. 152374A			
SEAR II CIRCUITS GLENDALE, OH M.P. BE-14.51			
DESIGNED PRG/GMW	DIGITIZED PRG/GMW	CHECKED PRG/SAF	DATE 08-15-18
DRAWING -----	SHEET NO -----	FILE BE01451	SHEET C08

	DEFAULTS AND/OR STYLE	FIELD RECORD
SEAR II EXECUTIVE PROGRAM	VERSION: 9V645A01Y	VERSION:
APPLICATION PROGRAM (IF LOADED)	VERSION: _____	VERSION:

FIELD TO PROVIDE
SEARII PROGRAM
INFORMATION ON AIS

SITE SET UP OPTIONS	
OPTION	SELECTION
DATE	XX-XX-XXXX
TIME	XX:XX:XX
DAYLIGHT SAVINGS TIME	YES ☐ NO ☐
TIME ZONE	☒ EST ☐ CST
SITE NAME	OAK RD.
MILEPOST	BE-14.51
DOT NUMBER	152374A
TESTER TYPE	☒ CROSSING ☐ WAYSIDE
DATE FORMAT	☒ MM-DD-YYYY ☐ DD-MM-YYYY
TEMP FORMAT	☒ FAHRENHEIT ☐ CELSIUS
INDICATE HOLDOFF	0
INDICATE REFRESH	60
SITE TYPE	☐ NO COMMUNICATION ☐ DIAL-UP ☒ COLLECTOR ☐ NODE ☐ BULLHORN/MODE ☐ CDS902X
SITE ATCS ADDRESS	7.125.459.003.99.01 (7.RRR.LLL.666.99.01)
OFFICE ADDRESS	2.125.00.0000 (2.RRR.NN.DDDD)
OFFICE SITE ADDRESS	NA
BACK UP SITE ADDRESS 1	NA
BACK UP SITE ADDRESS 2	NA
POLL ID (1-99)	1
GEN/ATCS MODE	☐ GENISYS ☒ GEN/ATCS
XID DISABLED	☒ YES ☐ NO
OFFICE COM. DEVICE	☐ DIRECT ☐ MCM (RS232) ☐ MCM (ECH) ☒ WAG (ECHELON) ☐ DIAL UP ☐ S200 RADIO (RS232) (RS422)
RADIO ATCS ADDRESS	7.125.459.003.07.01
OFFICE PHONE NUMBER	1-XXX-XXX-XXXX
INIT. STRING	
FIELD COMM	☐ VHF (ECH) ☐ VHF (RS232) ☐ WAG (ECH) ☐ SS (RS232) ☒ NONE
USER PORT	BAUD RATE (9600)
AUX PORT	BAUD RATE (9600)
COMM PORT	BAUD RATE (9600)

NOTE 5

NOTE 6

NOTE 7

NOTES:

1. LARGE CONFIGURATION ASSIGNS RECORDER INPUTS FOR USE WHEN DIGITAL I/O MODULE REQUIRED.
2. IF WARNING DEVICE = NONE MAIN/STANDBY OPTION NOT SHOWN.
3. IF VHF COMMUNICATIONS = NO THEN DTMF ACTIVATION AND CHANNEL OPTIONS ARE NOT SHOWN.
4. LAST 3 DIGITS OF DOT NO. FOR FIRST ACTIVATION CODE.
5. DEFAULT ADDRESS 7.620.100.100.99.01 USED FOR STAND ALONE LOCATIONS.
6. OPTIONS NOT SHOWN IF SITE TYPE = NO COMMUNICATIONS.
7. FORMAT AS: BAUD, DATA BITS, PARITY STOP BITS, FLOW CONTROL.

FIELD TO PROVIDE
BATTERY VOLTAGES
ON AIS

LIT BULB COUNT ON EACH CIRCUIT	NO.	TYPE OF BULB	CURRENT READING IN AMP. AT APPROX. 10.0 V BULB VOLTAGE
CURRENT SENSOR (1) E1C. LAMP SET UP	8	☐ BULBS ☒ LED	X.X
CURRENT SENSOR (1) E2A. LAMP SET UP	8	☐ BULBS ☒ LED	X.X
CURRENT SENSOR (2) E2C. LAMP SET UP	9	☐ BULBS ☒ LED	X.X
CURRENT SENSOR (2) E1A. LAMP SET UP	9	☐ BULBS ☒ LED	X.X

MEASURE BATTERY VOLTAGE AT INPUT	
BATTERY VOLTAGE 0B	XXXX VOLTS
BATTERY VOLTAGE X-B	XXXX VOLTS
BATTERY VOLTAGE B-G	XXXX VOLTS

SITE SET UP OPTIONS CONT.	
OPTION	SELECTION
RAILROAD NUMBER	125
CROSSING CONFIGURATION	STANDARD ☐ LARGE ☒ REMOTE ☐ SPLIT GATE ☐ ISL ONLY ☐ CP COLLECTOR ☐
NUMBER OF XR INPUTS	0 ☐ 1 ☒ 2 ☐ 3 ☐ 4 ☐
NUMBER OF ISL INPUTS	0 ☐ 1 ☐ 2 ☒ 3 ☐ 4 ☐
CONSTANT WARNING DEVICE	GCP ☐ OTHER ☒ NONE ☐
TOTAL NUMBER OF GCP NODES	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐
NUMBER OF REDUNDANT GCP	1 ☐ 2 ☐ 3 ☐ 4 ☐
CROSSING CONTROLLER 1	SSCC IIIA / PLUS ☐ SSCC IV ☐ OTHER ☐ NONE ☒
POK2	YES ☒ NO ☐
MAIN / STANDBY	YES ☒ NO ☐
AUXILIARY TRACKS	0 ☒ 1 ☐ 2 ☐
ENTRANCE GATE	0 ☐ 1 ☐ 2 ☒ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐
EXIT GATES	0 ☐ 1 ☐ 2 ☒ 3 ☐ 4 ☐
GATE POSITION FAIL 10-60 SEC	25
NUMBER OF UAX INPUTS	0 ☐ 1 ☒ 2 ☐
BATTERY BANKS	1 ☐ 2 ☐ 3 ☒ 4 ☐ 5 ☐ 6 ☐
0B RESOLUTION	.2 ☐ .5 ☐ 1.0 ☒
X-B RESOLUTION	.2 ☐ .5 ☐ 1.0 ☒ NOT PRESENT ☐
B-G RESOLUTION	.2 ☐ .5 ☐ 1.0 ☒ NOT PRESENT ☐
X-B2 RESOLUTION	.2 ☐ .5 ☐ 1.0 ☐ NOT PRESENT ☒
B-G2 RESOLUTION	.2 ☐ .5 ☐ 1.0 ☒ NOT PRESENT ☐
X-B3 RESOLUTION	.2 ☐ .5 ☐ 1.0 ☐ NOT PRESENT ☒
PREEMPTION	NORMAL ☐ ADVANCED ☐ NO ☒
KDR INPUT	YES ☒ NO ☐
VHF COMMUNICATOR	YES ☐ NO ☒
ACTIVATION CODE 1	XXX
ACTIVATION CODE 2	XXX
ACTIVATION CODE 3	XXX
ACTIVATION TIMEOUT (30 TO 600 SECONDS)	60
LOD MODULES	0 ☐ 1 ☐ 2 ☒ 3 ☐ 4 ☐ 5 ☐ 6 ☐
ANY LED BULBS	NO ☐ YES ☒
AUTO INSPECTIONS	YES ☒ NO ☐
BELL ON	GATES LOWERING ☒ GATES MOVING ☐ ALWAYS ☐
GROUND FAULT DETECTORS	YES ☒ NO ☐
BATTERIES ON GFT1	1 ☐ 2 ☒
FULL APPROACH MOVE ALARMS	ACTIVATED ☒ DO NOT ACTIVATE ☐

NOTE 1

NOTE 2

NOTE 3

NOTE 4

DESIGN NOTE,
LEAVE XXX

PRELIMINARY



CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
OAK RD. 152374A			
SEAR II CONFIGURATION AND FUNCTIONS GLENDALE, OH M.P. BE-14.51			
DESIGNED PRS/GMW	DIGITIZED PRS/GMW	CHECKED PRS/SAF	DATE 08-15-18
DESIGN DATE 08-15-18	REV. NO. 1	DRAWING -----	SHEET C09

DISCRETE INPUTS	DI 01	DI 02	DI 03	DI 04	DI 05	DI 06
CHANNEL	1	2	3	4	5	6
NAME	XR1 (TRACK)	ISLAND 1 (TRACK)	ISLAND 2 (TRACK)	DAX (REMOTE TRACK)	SP	BELL OUT (BELL PWR)
TAG	XR1 (XR)	ISL1	ISL2	DAX	SP	BELL OUT (BELL PWR)
OFF NAME	DOWN (XR)	DOWN (ISL1)	DOWN (ISL2)	DOWN (DAX)		OFF (BELL PWR)
ON NAME	UP (XR)	UP (ISL1)	UP (ISL2)	UP (DAX)		ON (BELL PWR)
ON DEBOUNCE TIME	100 ms	100 ms	100 ms	100 ms	1000 ms	100 ms
OFF DEBOUNCE TIME	100 ms	100 ms	100 ms	100 ms	1000 ms	100 ms
TOGGLE PERIOD	1000 ms	1000 ms	1000 ms	1000 ms	1000 ms	1000 ms

TSS INPUTS	DI 07	DI 08	DI 09	DI 10
CHANNEL	7	8	9	10
NAME	AGP	BGP	CGP	DGP
TAG	AGP	BGP	CGP	DGP
OFF NAME	LIGHTS FLASH	LIGHTS FLASH	LIGHTS FLASH	LIGHTS FLASH
ON NAME	A GATE VERTICAL	B GATE VERTICAL	C GATE VERTICAL	D GATE VERTICAL
ON DEBOUNCE TIME	100 ms	100 ms	100 ms	100 ms
OFF DEBOUNCE TIME	100 ms	100 ms	100 ms	100 ms
TOGGLE PERIOD	1000 ms	1000 ms	1000 ms	1000 ms

DISCRETE INPUTS	DI 11	DI 12	DI 13
CHANNEL	11	12	13
NAME	SP	DTMF	EGHR
TAG	SP	DTMF-REC	EGHR
OFF NAME		OFF (NO GATE KEYED)	EGHR DOWN
ON NAME		ON (ACTIVATE)	EGHR UP
ON DEBOUNCE TIME	1000 ms	100 ms	100 ms
OFF DEBOUNCE TIME	1000 ms	100 ms	100 ms
TOGGLE PERIOD	1000 ms	1000 ms	1000 ms

GFT INPUTS	DI 14	DI 15
CHANNEL	14	15
NAME	GND FAULT TESTER 1 (GFT1,2)	GND FAULT TESTER 2 (GFT3,4)
TAG	GFT1 (GFT1 DATA)	GFT2 (GFT2 DATA)
BATTERY 1 NAME	0B (GND FAULT)	1B-G (GND FAULT)
BATTERY 1 TAG	0B (GND FAULT)	1B-G (GND FAULT)
BATTERY 2 NAME	X-B (GND FAULT)	2B-G (GND FAULT)
BATTERY 2 TAG	X-B (GND FAULT)	2B-G (GND FAULT)

DISCRETE INPUTS	DI 16	DI 17	DI 18
CHANNEL	16	17	18
NAME	VDHR	120 VAC	P0K2
TAG	VDHR	120 VAC	P0K2
OFF NAME	EGMS NOT HEALTHY	OFF (ALL POWER OFF)	OFF (ALL POWER OFF)
ON NAME	EGMS HEALTHY	ON (ALL POWER ON)	ON (ALL POWER ON)
ON DEBOUNCE TIME	100 ms	100 ms	100 ms
OFF DEBOUNCE TIME	100 ms	100 ms	100 ms
TOGGLE PERIOD	1000 ms	1000 ms	1000 ms

BATTERY INPUTS	BI1	BI2	BI3
CHANNEL	1	2	3
NAME	0B (ELECTRONIC BATT)	X-B (BULB BATT)	1B-G (GATE BATT)
TAG	0B	X-B	1B-G
SAMPLE PERIOD (ms)	500 (ms)	500 (ms)	500 (ms)
RESOLUTION (V)	0.2 (VOLTS)	0.2 (VOLTS)	1.0 (VOLTS)
AVGERAGING SAMPLES	32 SAMPLES	32 SAMPLES	32 SAMPLES

RELAYS	R01	R02
CHANNEL	1	2
NAME	GFT TEST	AC POWER TEST (ACRLY)
TAG	SELF TEST	AC POWER TEST (ACRLY)
OFF STATE NAME	NOT TESTING	OFF (ACR DN)
ON STATE NAME	TESTING	ON (ACR UP)
UNKNOWN STATE NAME	PULSE	PULSE
ON PULSE TIME (s)	1 (s)	1 (s)
OFF PULSE TIME (s)	1 (s)	1 (s)
TOGGLE PERIOD (s)	1 (s)	1 (s)
DUTY CYCLE	50	50

NOTE: () DENOTES NOMENCLATURE FOR CLARIFICATION AND WILL NOT DISPLAY ON LOG REPORTS.

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RAIL SERVICES

A Caterpillar Company

NEW WORK

DATE: 08/15/18

CSX# 0H2018655

PRS/GMW/SAF



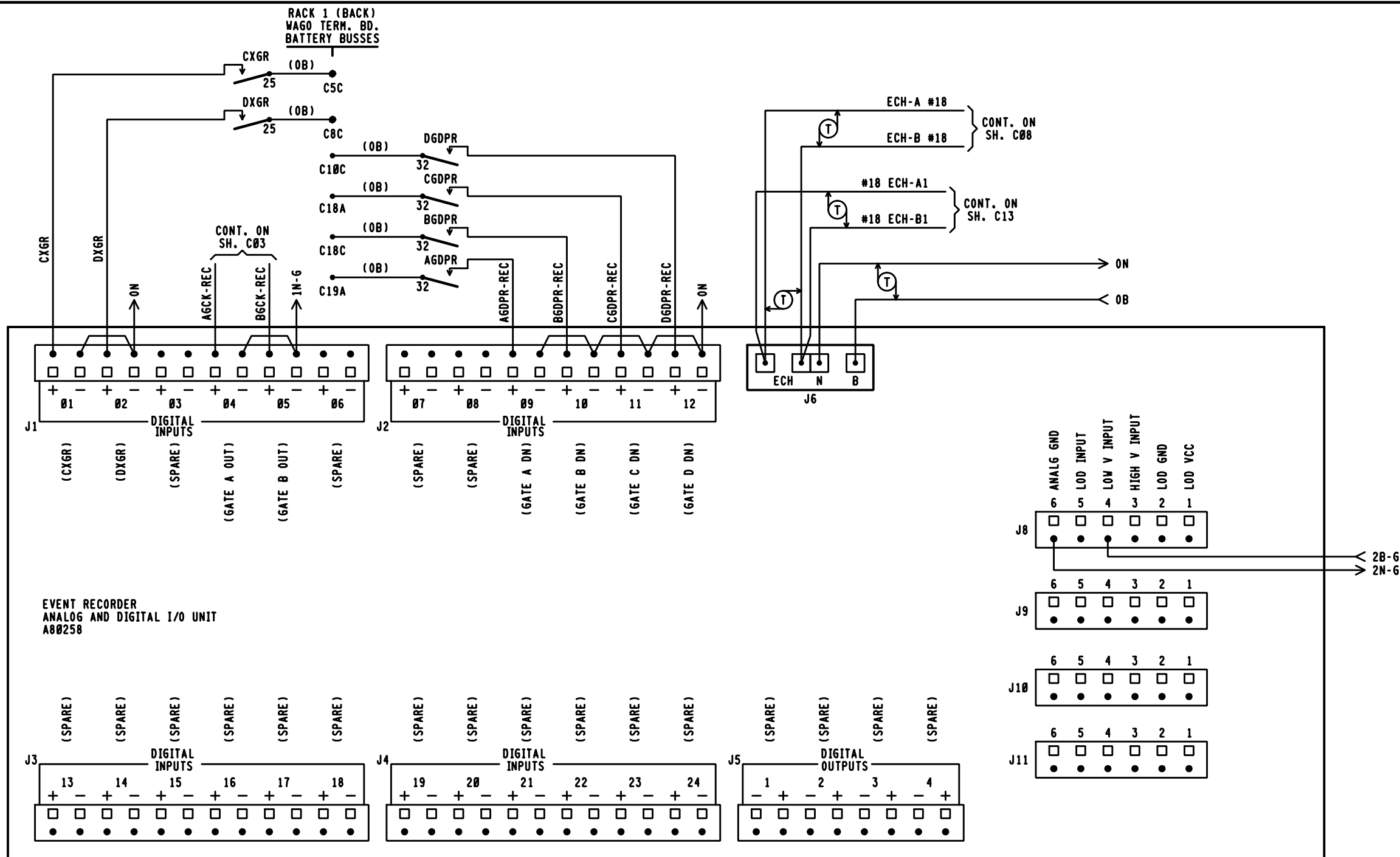
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

OAK RD. 152374A

SEAR II CHANNELS
GLENDALE, OH M.P. BE-14.51

DESIGNED PRS/GMW	DIGITIZED PRS/GMW	CHECKED PRS/SAF	DATE 08-15-18
DRAWING -----	SHEET NO -----	FILE BE01451	SHEET C10

DESIGN DATE	REV. NO.
08-15-18	1



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DATE: 08/15/18
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CSX TRANSPORTATION
 RAIL TRANSPORT GROUP ENGINEERING
 COMMUNICATIONS AND SIGNALS

OAK RD. 152374A

ANALOG AND DIGITAL I/O UNIT CIRCUITS
 GLENDALE, OH M.P. BE-14.51

DESIGN DATE
 08-15-18

REV. NO.
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DESIGNED
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DIGITIZED
 PRS/GMW

CHECKED
 PRS/SAF

DATE
 08-15-18

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SHEET NO

FILE
 BE01451

SHEET
 C11

DISCRETE INPUTS	DI 01	DI 02	DI 03	DI 04	DI 05	DI 06
CHANNEL	1	2	3	4	5	6
NAME	C GATE CONTROL	D GATE CONTROL		A GATE CONTROL	B GATE CONTROL	
TAG	C GCOUT	D GCOUT	SP	A GCOUT	B GCOUT	SP
OFF NAME	OFF (ASCENT ON)	OFF (ASCENT ON)		OFF (DESCENT)	OFF (DESCENT)	
ON NAME	ON (DESCENT)	ON (DESCENT)		ON (ASCENT ON)	ON (ASCENT ON)	
ON DEBOUNCE TIME	100 ms	100 ms	1000 ms	100 ms	100 ms	1000 ms
OFF DEBOUNCE TIME	100 ms	100 ms	1000 ms	100 ms	100 ms	1000 ms
TOGGLE PERIOD	1000 ms	1000 ms	1000 ms	1000 ms	1000 ms	1000 ms

DISCRETE INPUTS	DI 07	DI 08	DI 09	DI 10	DI 11	DI 12
CHANNEL	7	8	9	10	11	12
NAME			AGDP	BGDP	CGDP	DGDP
TAG	SP	SP	AGDP	BGDP	CGDP	DGDP
OFF NAME			NOT HORIZ	NOT HORIZ	NOT HORIZ	NOT HORIZ
ON NAME			GATE HORIZ	GATE HORIZ	GATE HORIZ	GATE HORIZ
ON DEBOUNCE TIME	1000 ms	1000 ms	100 ms	100 ms	100 ms	100 ms
OFF DEBOUNCE TIME	1000 ms	1000 ms	100 ms	100 ms	100 ms	100 ms
TOGGLE PERIOD	1000 ms	1000 ms	1000 ms	1000 ms	1000 ms	1000 ms

DISCRETE INPUTS	DI 13	DI 14	DI 15	DI 16	DI 17	DI 18
CHANNEL	13	14	15	16	17	18
NAME						
TAG	SP	SP	SP	SP	SP	SP
OFF NAME						
ON NAME						
ON DEBOUNCE TIME	1000 ms	1000 ms	1000 ms	1000 ms	1000 ms	1000 ms
OFF DEBOUNCE TIME	1000 ms	1000 ms	1000 ms	1000 ms	1000 ms	1000 ms
TOGGLE PERIOD	1000 ms	1000 ms	1000 ms	1000 ms	1000 ms	1000 ms

DISCRETE INPUTS	DI 19	DI 20	DI 21	DI 22	DI 23	DI 24
CHANNEL	19	20	21	22	23	24
NAME						
TAG	SP	SP	SP	SP	SP	SP
OFF NAME						
ON NAME						
ON DEBOUNCE TIME	1000 ms	1000 ms	1000 ms	1000 ms	1000 ms	1000 ms
OFF DEBOUNCE TIME	1000 ms	1000 ms	1000 ms	1000 ms	1000 ms	1000 ms
TOGGLE PERIOD	1000 ms	1000 ms	1000 ms	1000 ms	1000 ms	1000 ms

DISCRETE OUTPUTS	D01	D02	D03	D04
CHANNEL	1	2	3	4
NAME				
TAG	SP	SP	SP	SP
OFF STATE NAME	OFF	OFF	OFF	OFF
ON STATE NAME	ON	ON	ON	ON
UNKNOWN STATE NAME	PULSE	PULSE	PULSE	PULSE
ON PULSE TIME (s)	1 (s)	1 (s)	1 (s)	1 (s)
OFF PULSE TIME (s)	1 (s)	1 (s)	1 (s)	1 (s)
TOGGLE PERIOD (s)	1 (s)	1 (s)	1 (s)	1 (s)
DUTY CYCLE	50	50	50	50

ANALOG INPUTS	J08	J09	J10	J11
CHANNEL	01 ANALOG	02 ANALOG	03 ANALOG	04 ANALOG
NAME	2B-G [B-G2]	SP	SP	SP
TAG	2B-G [B-G2]	SP	SP	SP
RESOLUTION	1.0 (VOLTS)	SP	SP	SP

- NOTES:
- () DENOTES NOMENCLATURE FOR CLARIFICATION AND WILL NOT DISPLAY ON LOG REPORTS.
 - [] DENOTES NOMENCLATURE FOR RECORDER ONLY.

PRELIMINARY



PROGRESS

RAIL SERVICES

A Caterpillar Company

NEW WORK

DATE:08/15/18

CSX#.0H2010655

PRS/GMW/SAF

CSX

TRANSPORTATION

RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

OAK RD. 152374A

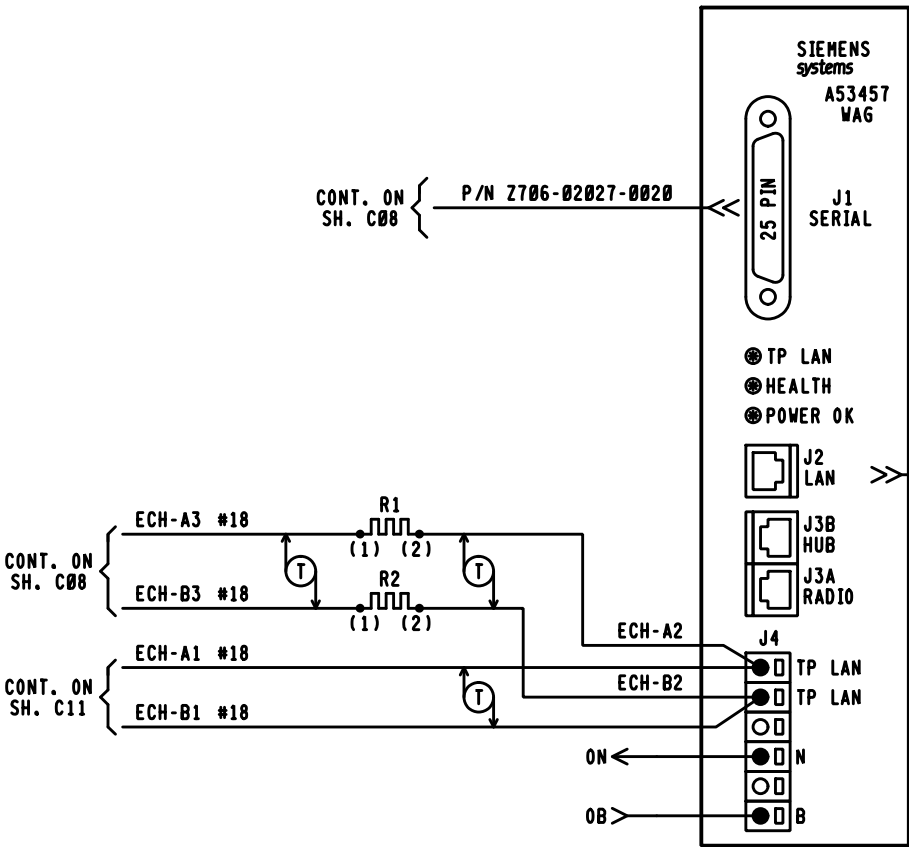
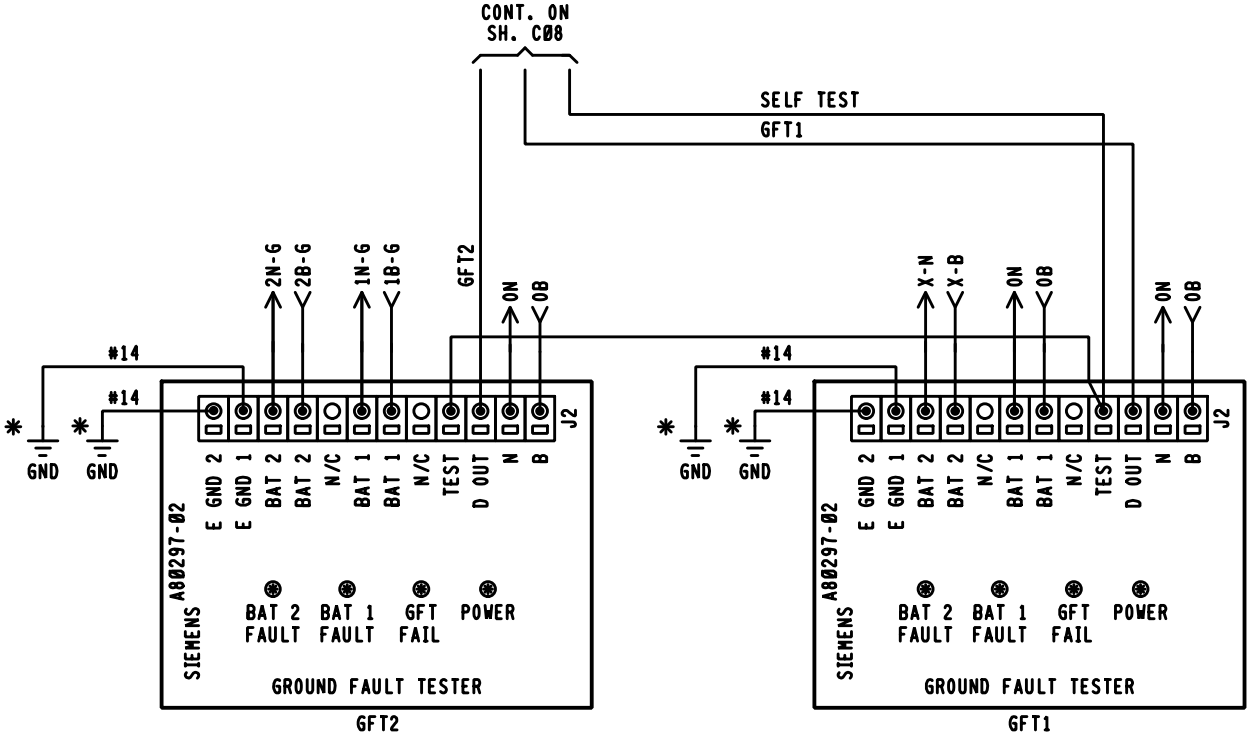
ANALOG AND DIGITAL I/O UNIT CHANNELS
GLENDALE, OH M.P. BE-14.51

DESIGNED PRS/GMW	DIGITIZED PRS/GMW	CHECKED PRS/SAF	DATE 08-15-18
DRAWING -----	SHEET NO -----	FILE BE01451	SHEET C12

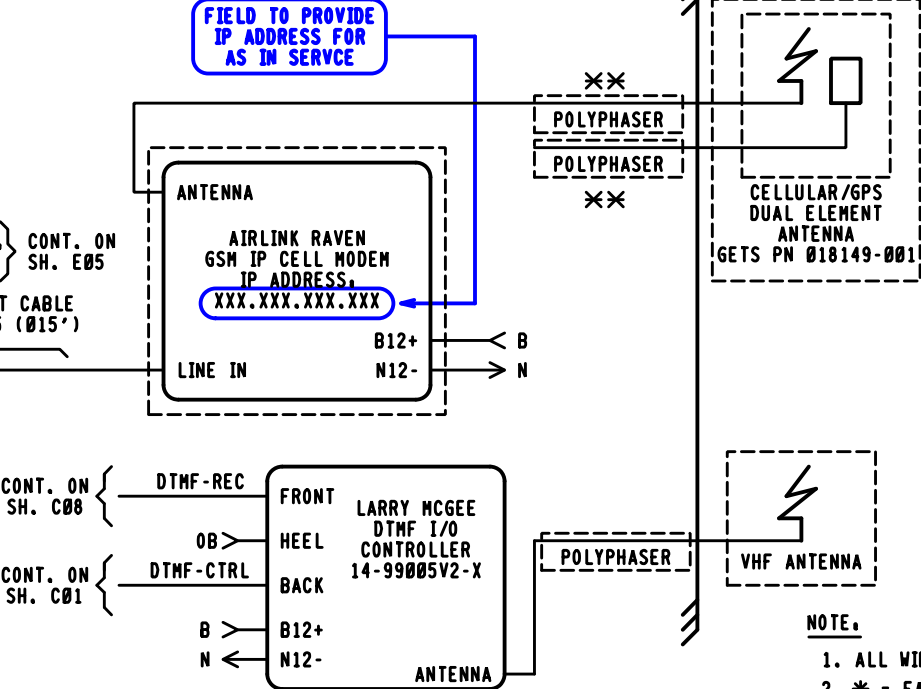
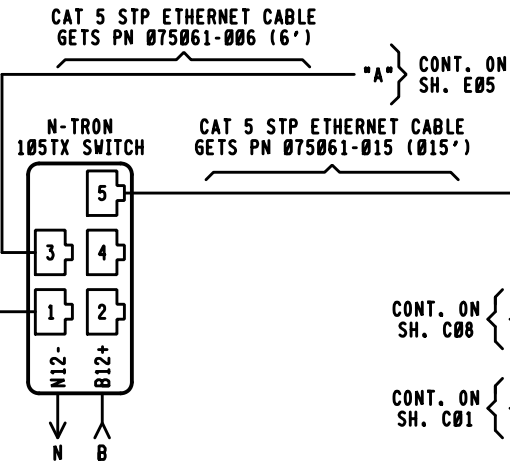
DESIGN DATE	REV. NO.
08-15-18	1

WAYSIDE ACCESS GATEWAY CONFIGURATION	
SITE ATCS ADDRESS	7.125.459.003.01.01 7.125.LLL.666.SS.DD
SERIAL INTERFACE	9600,NONE,8,1/NOFLOW
SERIAL FORMAT	RAW
WAG TEST MODE	DISABLED
ECHELON ADDRESS	01.01
UDP PORTS	5000, 5001, 5002, 5003
ROUTE TABLE EXPIRY	5400 SEC
BROADCAST MEDIUM	IP ETHERNET
TCP PORTS	6001
DHCP SERVER	DISABLED
IP ADDRESS	192.168.13.1
TYPE 7 ROUTE LENGTH	12--7RRRLLL66GSS
IP NETWORK MASK	255.255.255.000

NOTE TO INSPECTOR,
AT INSTALLATION OF CDMA BY COM.
MARK-UP CONFIGURATION TABLE FOR
AS IN SERVICE PLANS



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



PROGRAMMING FOR DTMF RADIO
REMOTE DTMF CROSSING ACTIVATION
(ACTIVATES ENTIRE CROSSING)
TO ACTIVATE PRESS. 374 #
TO DE-ACTIVATE PRESS. 374 *
(ACTIVATION WILL TIME OUT AFTER 60 SEC.)

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= NOTE
PROGRESS
RAIL SERVICES
A Caterpillar Company
NEW WORK
DATE: 08/15/18
CSX*.0H2018655
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- NOTE.
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. R1 & R2 = .5 WATT, 200Ω RESISTOR
 4. ** = COMMUNICATIONS TO SUPPLY.

CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
OAK RD. 152374A			
WAYSIDE ACCESS GATEWAY GLENDALE, OH M.P. BE-14.51			
DESIGNED PRS/GMW	DIGITIZED PRS/GMW	CHECKED PRS/SAF	DATE 08-15-18
DRAWING -----	SHEET NO -----	FILE BE01451	SHEET C13

DESIGN DATE
08-15-18

REV. NO.
1

EGMS
PROGRAM INFORMATION
PROGRAM VERSION 4.5 *

EGMS DISPLAY PARAMETERS

PARAMETER	
STARTUP LOGO	CSX
BACKLIGHT TIMEOUT	015
BUZZER ENABLE	YES
DIRECTION INDICATORS	↓ W ↑ E
BUNGALOW QUAD	NORTH ENTRANCE
DISPLAY QZI	NO
LOCAL PREFIX	NO
REMOTE PREFIX	NO
CROSSING NAME	OAK RD.
CROSSING DESCRIPTION	MAIN
CROSSING DOT #	152374A

EGMS OPERATIONAL PARAMETERS

PARAMETER	
PRIMARY MODE	DYNAMIC
SECONDARY MODE	NONE
DIS ENTR DETS	NO
DELAY ON DOWN	01.0
REV DET ENABLE	NO
DYNAMIC EGCT	000
TIMED EGCT	012
ISLAND INHIBIT TIME	012
XR DET DISABLE	YES
BIDIR DELAY	04.0
DYN ENTRANCE MONITOR	YES
ENTRANCE DOWN REQ	YES
EXIT UP REQ	NO
EGH SENSE	B12 HOLDS
ISL 2 ENABLE	NO
DUAL EGMS ENABLED	NO

EGMS ALARM PARAMETERS

PARAMETER	
GATO ALARM DELAY	000
GATO GATE DELAY	000
MAX GATE RELEASE	09.0 *
MAX GATE RESPONSE	03.0 *
CYCLE RESTORE	001
MTCD PRESENCE	000
DET FAIL ALARM	YES
DET RESTORE DELAY	000
MAX DET FAILS	000
AUX IN 1 ENABLE	NO
AUX IN 1 RESTORE	000
AUX IN 2 ENABLE	NO
AUX IN 2 RESTORE	000
AUX IN 3 ENABLE	NO
AUX IN 3 RESTORE	000
AUX IN 4 ENABLE	NO
AUX IN 4 RESTORE	000

* ADJUST GATE RELEASE, AND RESPONSE TIMES IN FIELD BASED ON ACTUAL GATE OPERATIONS, AS NECESSARY.

EGMS AUX OUTPUT MAPPING

PARAMETER	
AUX OUT 1 FUNCTION	DET XRISL
AUX OUT 1 SOURCE	LOCAL
AUX OUT 2 FUNCTION	DET HLTH
AUX OUT 2 SOURCE	LOCAL
AUX OUT 3 FUNCTION	GP
AUX OUT 3 SOURCE	LOCAL
AUX OUT 4 FUNCTION	ALARM
AUX OUT 4 SOURCE	LOCAL

GATE PARAMETERS

GATE	1	2	3	4	5	6	7	8
GATE TYPE	ENTRANCE	ENTRANCE	EXIT	EXIT	NONE*	NONE*	NONE*	NONE*
GATE DIRECTION	↓ W	↑ E	↓ W	↑ E	↓ S	↓ S	↓ S	↓ S
VERTICAL CHATTER TIME	02.0	02.0	02.0	02.0	02.0	02.0	02.0	02.0
HORIZONTAL CHATTER TIME	02.0	02.0	02.0	02.0	02.0	02.0	02.0	02.0
MINIMUM ASCENT TIME	003	003	003	003	003	003	003	003
MAXIMUM ASCENT TIME	015	015	015	015	015	015	015	015
MINIMUM DESCENT TIME	003	003	003	003	003	003	003	003
MAXIMUM DESCENT TIME	015	015	015	015	015	015	015	015

* GATE TYPE = "NONE" ALL OTHER PARAMETERS IGNORED

DETECTOR PARAMETERS

	(1) E-1400				(2) E-1400				(3) E-1400				(4) E-1400			
DETECTOR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
DETECTOR TYPE	ENTR	ENTR	EXIT	EXIT	INT	EXIT	INT	INT	INT	NONE	NONE	NONE	NONE	NONE	NONE	NONE
DETECTOR DIRECTION	↓ W	↑ E	↓ W	↑ E	↓ W	↑ E	↓ W	↑ E	↑ E	↓ S	↓ S	↓ S	↓ S	↓ S	↓ S	↓ S
STRETCH TIME*	01.0	01.0	01.0	01.0	01.0	01.0	01.0	01.0	01.0	01.0	01.0	01.0	01.0	01.0	01.0	01.0
LONG-TERM OBSTRUCTION	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000
DISABLE ON DOWN	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
AUX OUTPUT 1	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
AUX OUTPUT 2	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	YES	YES	YES	YES	YES	YES
AUX OUTPUT 3	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	YES	YES	YES	YES	YES	YES
AUX OUTPUT 4	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	YES	YES	YES	YES	YES	YES

* INCREASE STRETCH TIME AS NECESSARY TO MAINTAIN VEHICLE DETECTION FROM LOOP TO LOOP.

** DETECTORS 5 - 16 DEFAULT TO "NONE" AND MUST BE CONFIGURED MANUALLY
DETECTORS 5 & 6 DEFAULT TO "INT" WHEN 2TK DEFAULT CONFIGURATION IS SELECTED.
WHEN DETECTOR TYPE IS "NONE", ALL OTHER PARAMETERS IGNORED.

* = FIELD TO VERIFY/PROVIDE ON A.I.S.

PRELIMINARY

○ = NOTE
PROGRESS
RAIL SERVICES
A Caterpillar Company
NEW WORK
DATE: 08/15/18
CSX#: 0H2018655
PRS/GHW/SAF

CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

OAK RD. 152374A

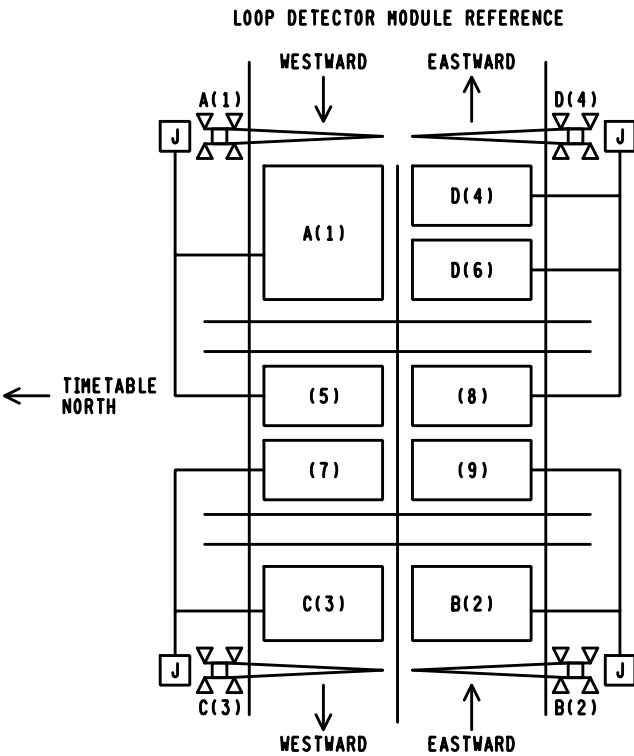
EGMS PROGRAM INFORMATION
GLENDALE, OH M.P. BE-14.51

DESIGNED PRS/GMW	DIGITIZED PRS/GMW	CHECKED PRS/SAF	DATE 08-15-18
DRAWING -----	SHEET NO -----	FILE BE01451	SHEET C14

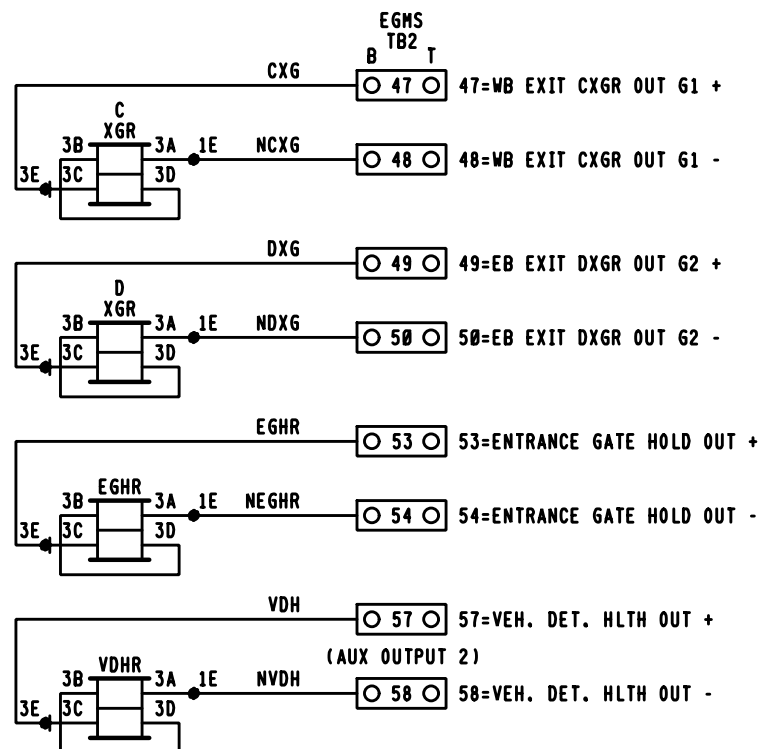
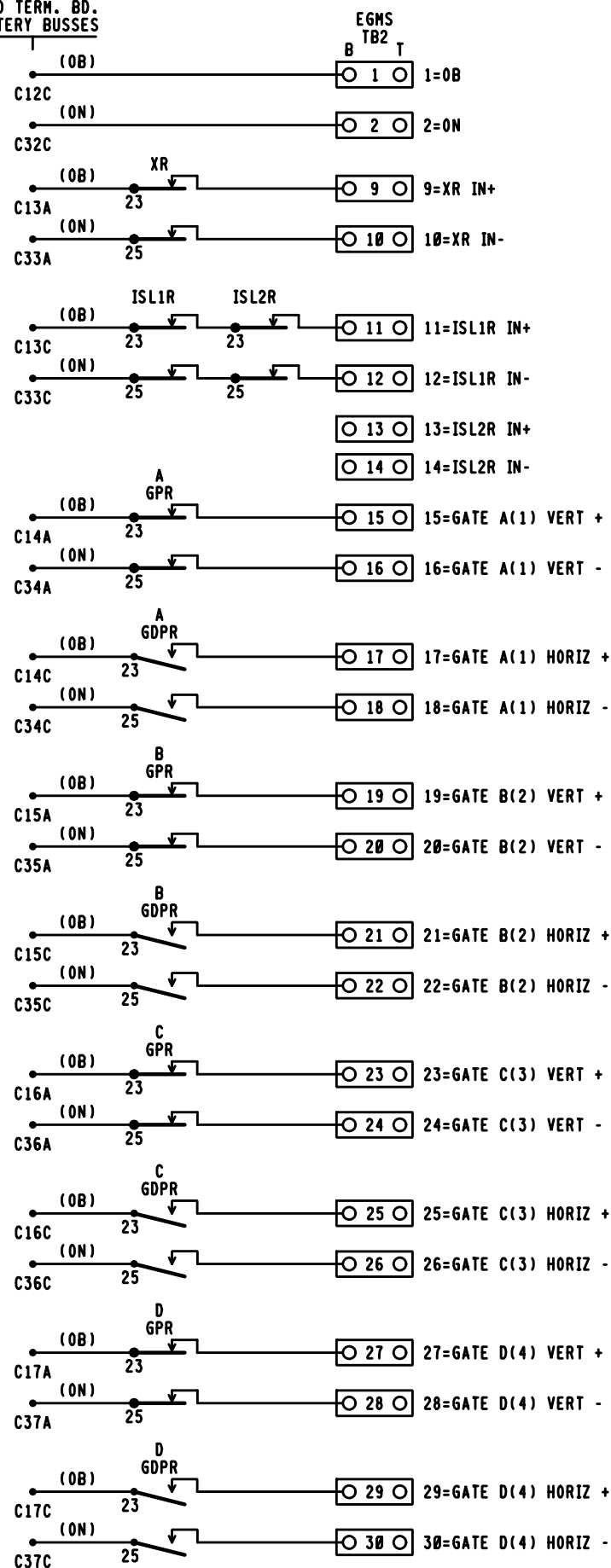
DESIGN DATE 08-15-18	REV. NO. 1
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NOTES:

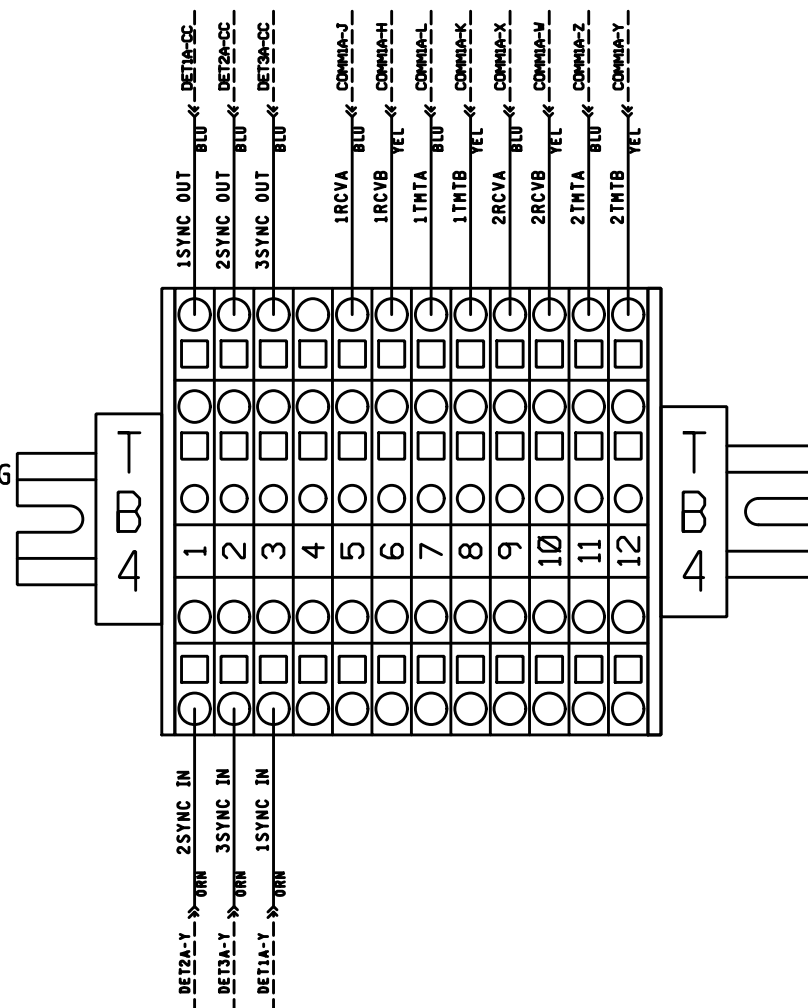
- SPECIAL LOOP AND GATE ARRANGEMENTS MAY REQUIRE A UNIQUE PROGRAM.
- NUMBERS IN PARENTHESIS INDICATE GATE NUMBERS WITHIN THE EGMS PROGRAM.



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



E-1400 SYNC WIRING
DETAIL FOR (3)
DETECTOR MODULES



EGMS NOTES.

- EGMS ISL1 INPUT. "AND" ISLAND INPUTS FROM ALL TRACKS. NOTE THAT WHEN THIS INPUT IS DE-ENERGIZED, THE XR INPUT ON 9 + 10 MUST ALSO BE DE-ENERGIZED BEFORE THE EXIT GATES CAN BE DRIVEN DOWN.
- EGMS ISL2 INPUT. MAY BE USED FOR STAND ALONE ISLAND INPUT. THIS INPUT IS NOT DEPENDENT UPON THE STATUS OF XR INPUT ON 9 + 10. THIS INPUT MUST BE FIELD SELECTED AND ENABLED DURING EGMS SETUP.
- ALL WIRING TO EGMS TO BE #16 AWG FLEX.

○ **○ = 2 POSITION WAGO BLOCK

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RAIL SERVICES
A Caterpillar Company
NEW WORK
DATE: 08/15/18
CSX# 0H2018655
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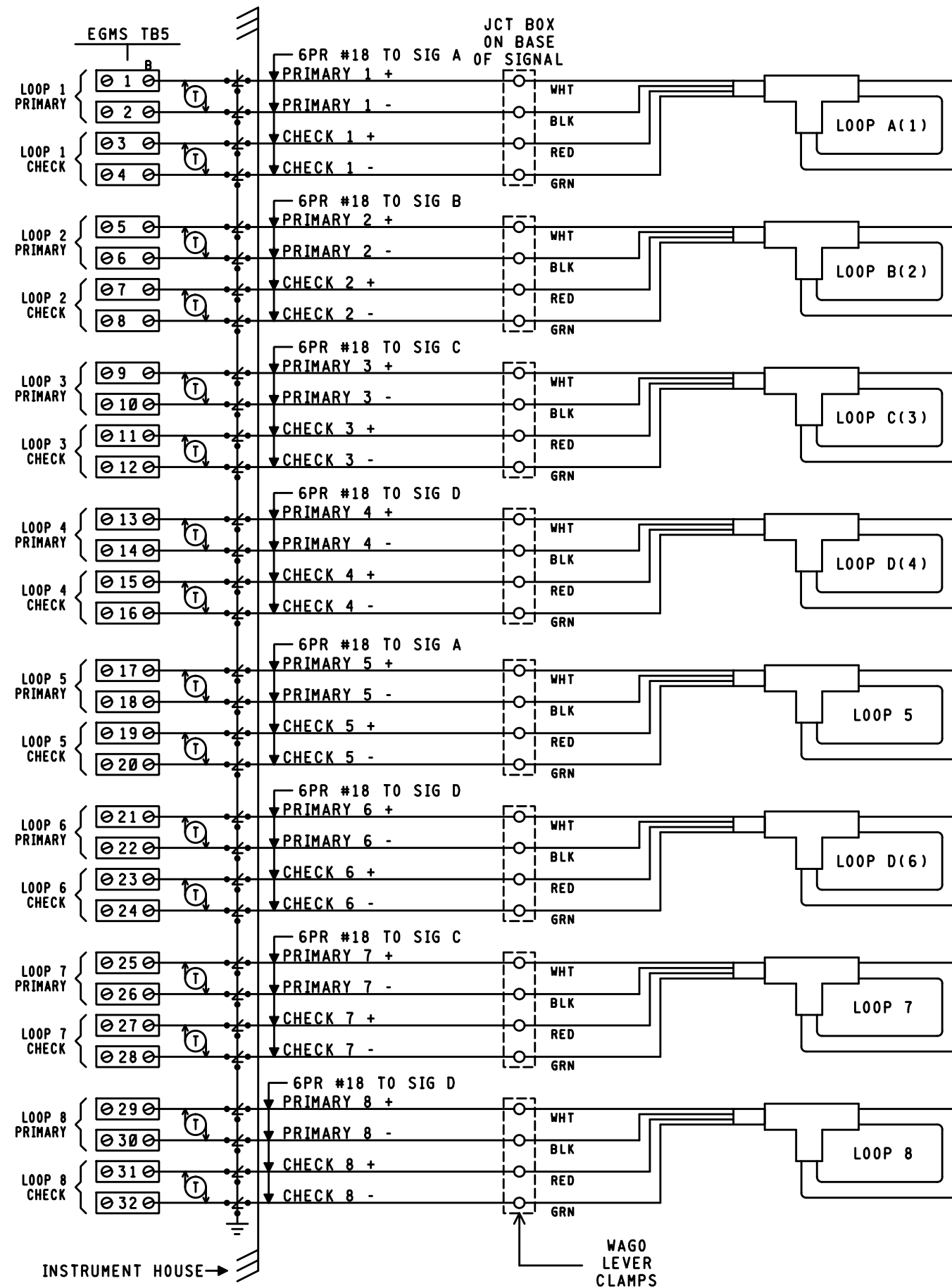
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RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

OAK RD. 152374A

EGMS RACK CIRCUITRY
GLENDALE, OH M.P. BE-14.51

DESIGNED PRS/GMW	DIGITIZED PRS/GMW	CHECKED PRS/SAF	DATE 08-15-18
DRAWING -----	SHEET NO -----	FILE BE01451	SHEET C15

DESIGN DATE 08-15-18	REV. NO. 1
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- NOTES:**
- SPECIAL LOOP AND GATE ARRANGEMENTS MAY REQUIRE A UNIQUE PROGRAM.
 - NUMBERS IN PARENTHESIS INDICATE GATE NUMBERS WITHIN THE EGMS PROGRAM.

(1) E-1400 DETECTOR MODULE

FUNCTION	CH. 1	CH. 2	CH. 3	CH. 4
FREQUENCY SETTING	2	4	6	8
SENSITIVITY SETTING	6*	6*	6*	6*
OPTION 1 (TEMP L DISPLAY)	OFF			
OPTION 2 (TEMP ΔL/L DISPLAY)	OFF			
OPTION 3 (NOISE FILTER)	3.00	3.00	3.00	3.00
OPTION 4 (TRACKING)	4.02	4.02	4.02	4.02
OPTION 5 (SENSITIVITY BOOST)	5.00	5.00	5.00	5.00
OPTION 6 (TEMP AUDIBLE SIGNAL)	OFF	OFF	OFF	OFF
CHECKLOOP INTERVAL	005	005	005	005
DETECTOR ID (DL=255)	000			
OPTION 7 (SYNC) (DL=700)	7.01			
OPTION 8 (ISLAND FUNCTION)	OFF			
OPTION 9 (SHUNT ENHANCEMENT)	OFF	OFF	OFF	OFF
MAIN VITAL OUTPUT DELAY	00.0	00.0	00.0	00.0
MAIN VITAL OUTPUT EXTENSION	00.0	00.0	00.0	00.0
MAIN VITAL OUTPUT MAPPING (DL=00)	10	20	40	80
AUX VITAL OUTPUT MAPPING (DL=000)	001	002	004	008
LOOP FREQUENCY (KHZ)				
LOOP INDUCTANCE (MICRO HENRIES)				
SOFTWARE VERSION				

(2) E-1400 DETECTOR MODULE

FUNCTION	CH. 1	CH. 2	CH. 3	CH. 4
FREQUENCY SETTING	2	4	6	8
SENSITIVITY SETTING	6*	6*	6*	6*
OPTION 1 (TEMP L DISPLAY)	OFF			
OPTION 2 (TEMP ΔL/L DISPLAY)	OFF			
OPTION 3 (NOISE FILTER)	3.00	3.00	3.00	3.00
OPTION 4 (TRACKING)	4.02	4.02	4.02	4.02
OPTION 5 (SENSITIVITY BOOST)	5.00	5.00	5.00	5.00
OPTION 6 (TEMP AUDIBLE SIGNAL)	OFF	OFF	OFF	OFF
CHECKLOOP INTERVAL	005	005	005	005
DETECTOR ID (DL=255)	001			
OPTION 7 (SYNC) (DL=700)	7.01			
OPTION 8 (ISLAND FUNCTION)	OFF			
OPTION 9 (SHUNT ENHANCEMENT)	OFF	OFF	OFF	OFF
MAIN VITAL OUTPUT DELAY	00.0	00.0	00.0	00.0
MAIN VITAL OUTPUT EXTENSION	00.0	00.0	00.0	00.0
MAIN VITAL OUTPUT MAPPING (DL=00)	10	20	40	80
AUX VITAL OUTPUT MAPPING (DL=000)	001	002	004	008
LOOP FREQUENCY (KHZ)				
LOOP INDUCTANCE (MICRO HENRIES)				
SOFTWARE VERSION				

* = FIELD VERIFY

PRELIMINARY

PROGRESS

RAIL SERVICES

A Caterpillar Company

NEW WORK

DATE: 08/15/18
CSX# 0H2018655
PRS/GHW/SAF

CSX TRANSPORTATION

RAIL TRANSPORT GROUP ENGINEERING

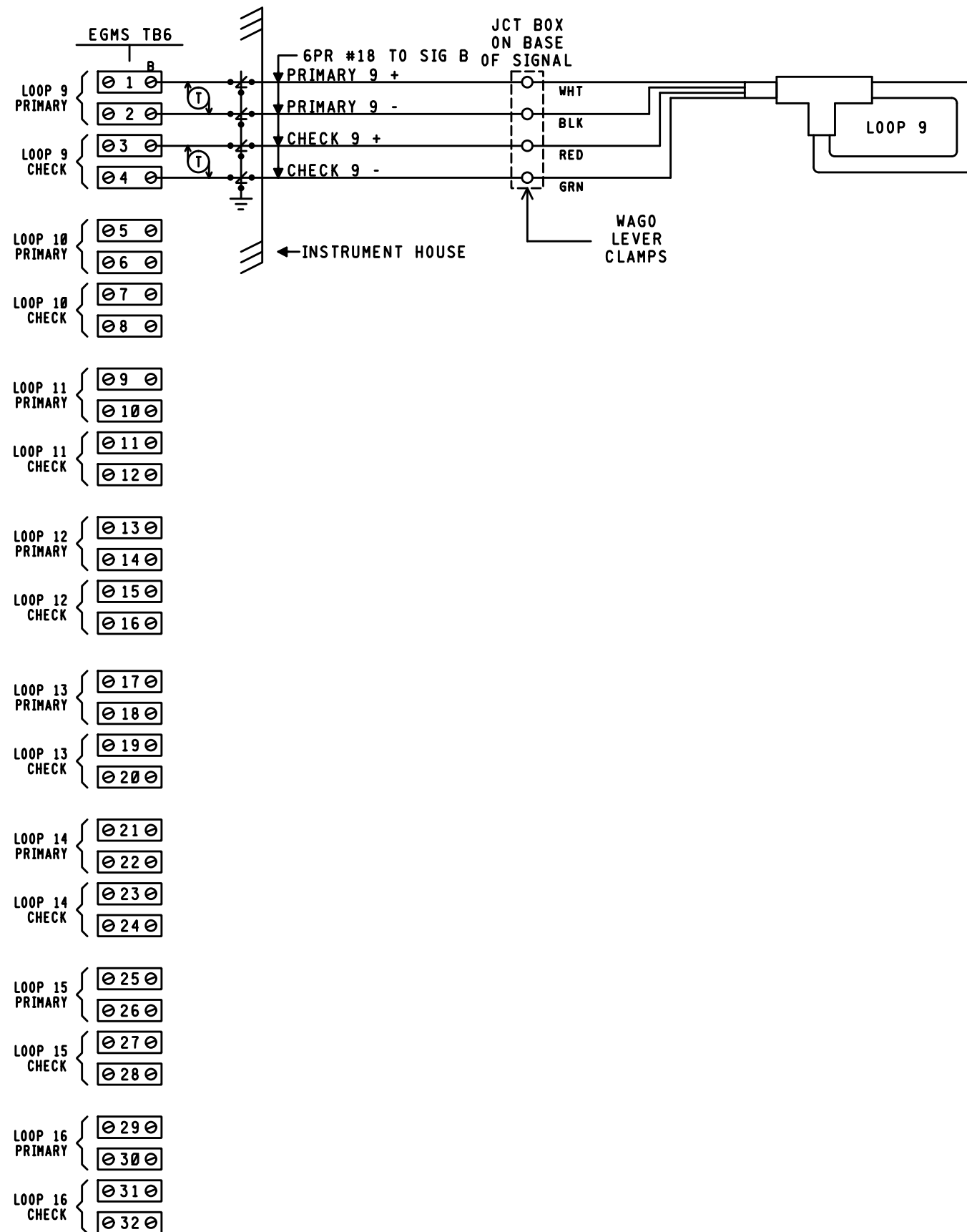
COMMUNICATIONS AND SIGNALS

OAK RD. 152374A

EGMS RACK CIRCUITRY

GLENDAL, OH M.P. BE-14.51

DESIGNED PRS/GMW	DIGITIZED PRS/GMW	CHECKED PRS/SAF	DATE 08-15-18
DESIGN DATE 08-15-18	REV. NO. 1	DRAWING -----	SHEET C16



- NOTES:
- SPECIAL LOOP AND GATE ARRANGEMENTS MAY REQUIRE A UNIQUE PROGRAM.
 - NUMBERS IN PARENTHESIS INDICATE GATE NUMBERS WITHIN THE EGMS PROGRAM.

(3) E-1400 DETECTOR MODULE

FUNCTION	CH. 1	CH. 2	CH. 3	CH. 4
FREQUENCY SETTING	2	4	6	8
SENSITIVITY SETTING	6 *	6 *	6 *	6 *
OPTION 1 (TEMP L DISPLAY)	OFF			
OPTION 2 (TEMP ΔL/L DISPLAY)	OFF			
OPTION 3 (NOISE FILTER)	3.00	3.00	3.00	3.00
OPTION 4 (TRACKING)	4.02	4.02	4.02	4.02
OPTION 5 (SENSITIVITY BOOST)	5.00	5.00	5.00	5.00
OPTION 6 (TEMP AUDIBLE SIGNAL)	OFF	OFF	OFF	OFF
CHECKLOOP INTERVAL	005	005	005	005
DETECTOR ID (DL=255)	002			
OPTION 7 (SYNC) (DL=700)	7.01			
OPTION 8 (ISLAND FUNCTION)	OFF			
OPTION 9 (SHUNT ENHANCEMENT)	OFF	OFF	OFF	OFF
MAIN VITAL OUTPUT DELAY	00.0	00.0	00.0	00.0
MAIN VITAL OUTPUT EXTENSION	00.0	00.0	00.0	00.0
MAIN VITAL OUTPUT MAPPING (DL=00)	10	20	40	80
AUX VITAL OUTPUT MAPPING (DL=000)	001	002	004	008
LOOP FREQUENCY (KHZ)				
LOOP INDUCTANCE (MICRO HENRIES)				
SOFTWARE VERSION				

PRELIMINARY
PROGRESS
RAIL SERVICES
A Caterpillar Company
NEW WORK

DATE: 08/15/18
CSX# 0H2018655
PRS/GHW/SAF

CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

OAK RD. 152374A

EGMS RACK CIRCUITRY
GLENDALE, OH M.P. BE-14.51

DESIGN DATE
08-15-18

REV. NO.
1

DESIGNED
PRS/GMW

DIGITIZED
PRS/GMW

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PRS/SAF

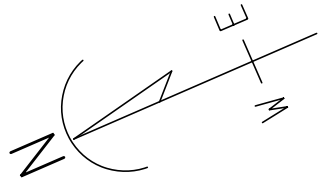
DATE
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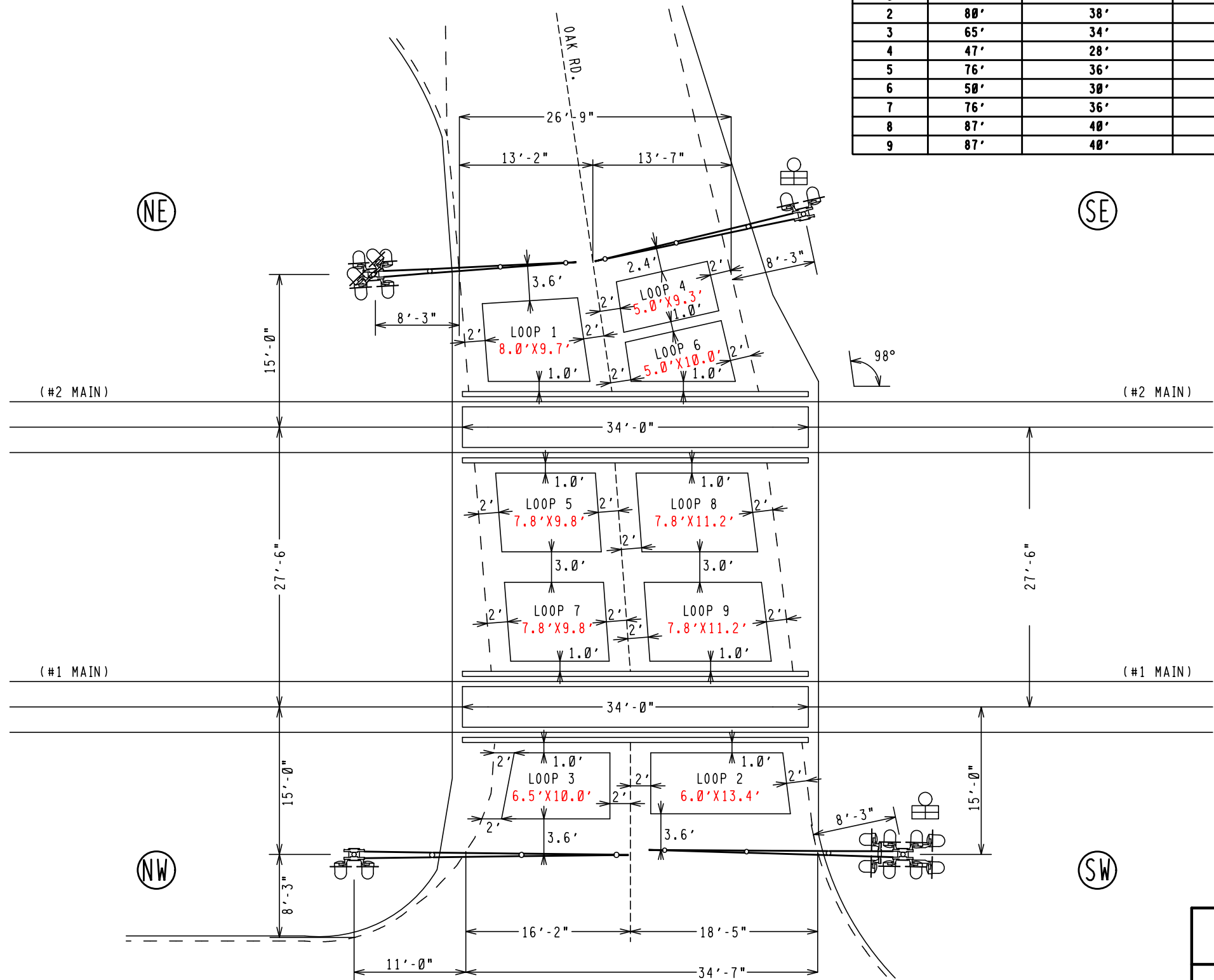
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FILE
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SHEET
C17



LOOP #	LOOP AREA	LOOP PERIMETER	LOOP LEAD-IN
1	76'	36'	50'
2	80'	38'	50'
3	65'	34'	50'
4	47'	28'	50'
5	76'	36'	50'
6	50'	30'	50'
7	76'	36'	50'
8	87'	40'	50'
9	87'	40'	50'



- NOTES:
1. DIMENSIONS ON THIS PAGE ARE SHOWN TO PROVIDE GUIDANCE FOR CONSTRUCTION CREWS AND FUTURE MAINTENANCE REPAIRS.
 2. REFER TO SAFETRAN EGMS STANDARDS AND RECOMMENDED PRACTICES FOR LOOP LAYOUT DESIGN DETAILS.
 3. SAFETRAN EGMS JUNCTION BOX INSTALLED ON TOP OF EACH FOUNDATION.
 4. INSTALL SAFETRAN 6 PAIR #18 CABLE FROM JUNCTION BOX TO BUNGALOW.

PRELIMINARY

PROGRESS
RAIL SERVICES
A Caterpillar Company

NEW WORK

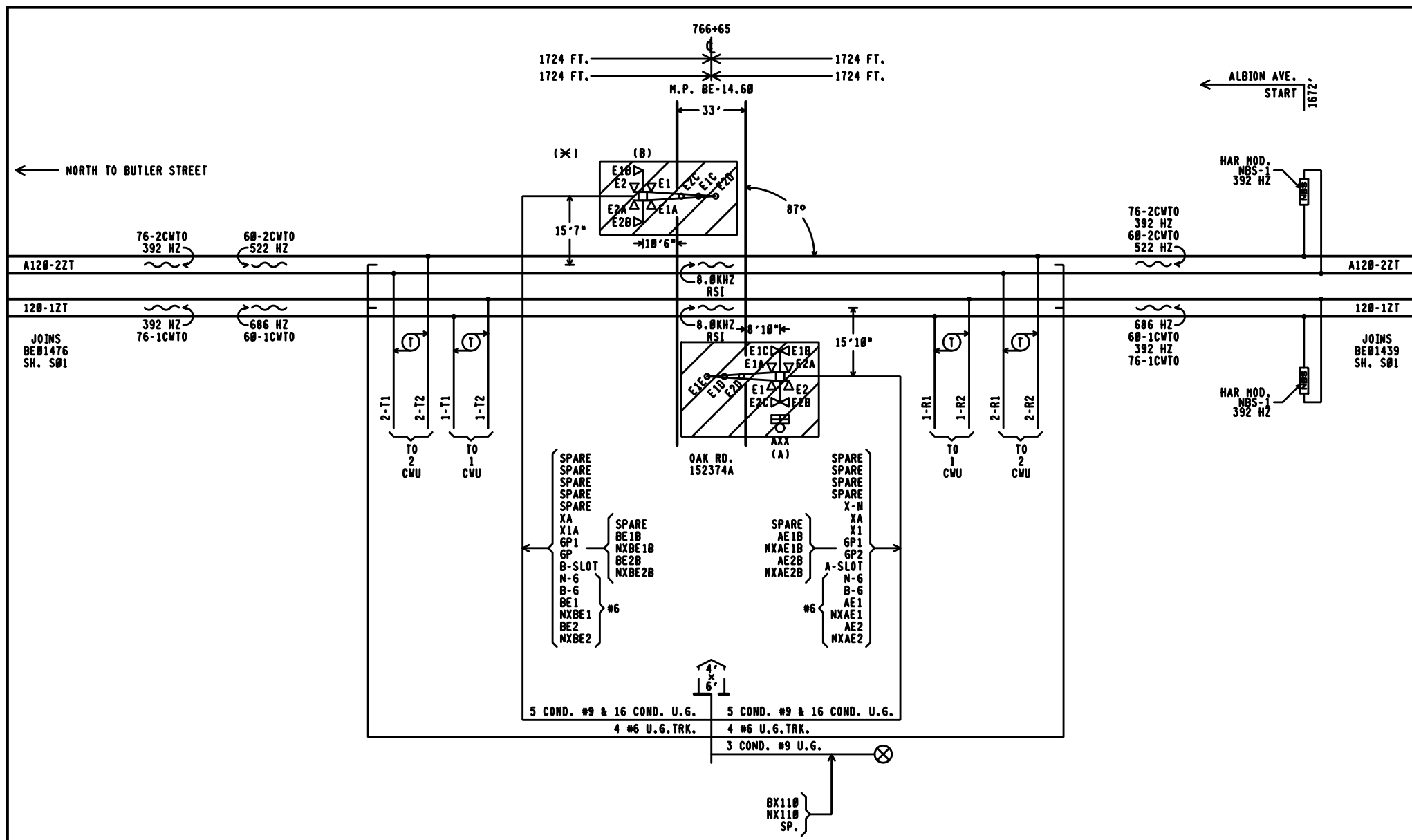
DATE: 08/15/18
CSX#: 0H2018655
PRS/GMW/SAF

CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

OAK RD. 152374A

PRESENCE LOOP DETECTOR LAYOUT
GLENDALE, OH M.P. BE-14.51

DESIGNED PRS/GMW	DIGITIZED PRS/GMW	CHECKED PRS/SAF	DATE 08-15-18
DESIGN DATE 08-15-18	REV. NO. 1	DRAWING -----	SHEET NO -----
FILE BE01451	SHEET C18		



APPROACH LENGTHS TABLE	NORTHWARD TRACK 1 CWT	SOUTHWARD TRACK 1 CWT	NORTHWARD TRACK 2 CWT	SOUTHWARD 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	0	0	0	0
CLEARANCE TIME IN SECONDS	1	1	1	1
DOT TRAFFIC LIGHT SIMULTANEOUS PREEMPT TIME IN SECONDS *	0	0	0	0
DESIGNED WARNING TIME FOR TRAINS AT TIME TABLE SPEED	26 SEC.	26 SEC.	26 SEC.	26 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	30 SEC.	30 SEC.	30 SEC.	30 SEC.
TIME TABLE MAXIMUM TRAIN SPEED IN MILES PER HOUR	35	35	35	35
BUFFER SPEED IN MILES PER HOUR	5	5	5	5
TOTAL WARNING SYSTEM DESIGN SPEED IN MILES PER HOUR	35	35	35	35
APPROACH DISTANCE TO ISLAND EDGE IN FEET	1724	1724	1724	1724
HALF WIDTH OF ISLAND IN FEET	54	62	54	62
APPROXIMATE MILE POSTS FOR APPROACH CIRCUIT	14.83	14.18	14.83	14.18

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

PRELIMINARY

ALL ELSE OUT
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PROGRESS
RAIL SERVICES

A Caterpillar Company
DATE: 08/15/18
CSX: 082010655
PNS/6NU/SAF

NOTES:

- (X) = LOCATION OF HOUSE
- GATE LENGTH (A) 19' (B) 19'
- TRANSMITTER LEADS FOR MOTION OR PREDICTOR EQUIPMENT SHOULD BE CONNECTED ON THE BUNGALOW OR SHORT LEAD SIDE OF THE CROSSING.

REVISIONS

05-12-14 IRS 0H2012016

CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

OAK RD. 152374A

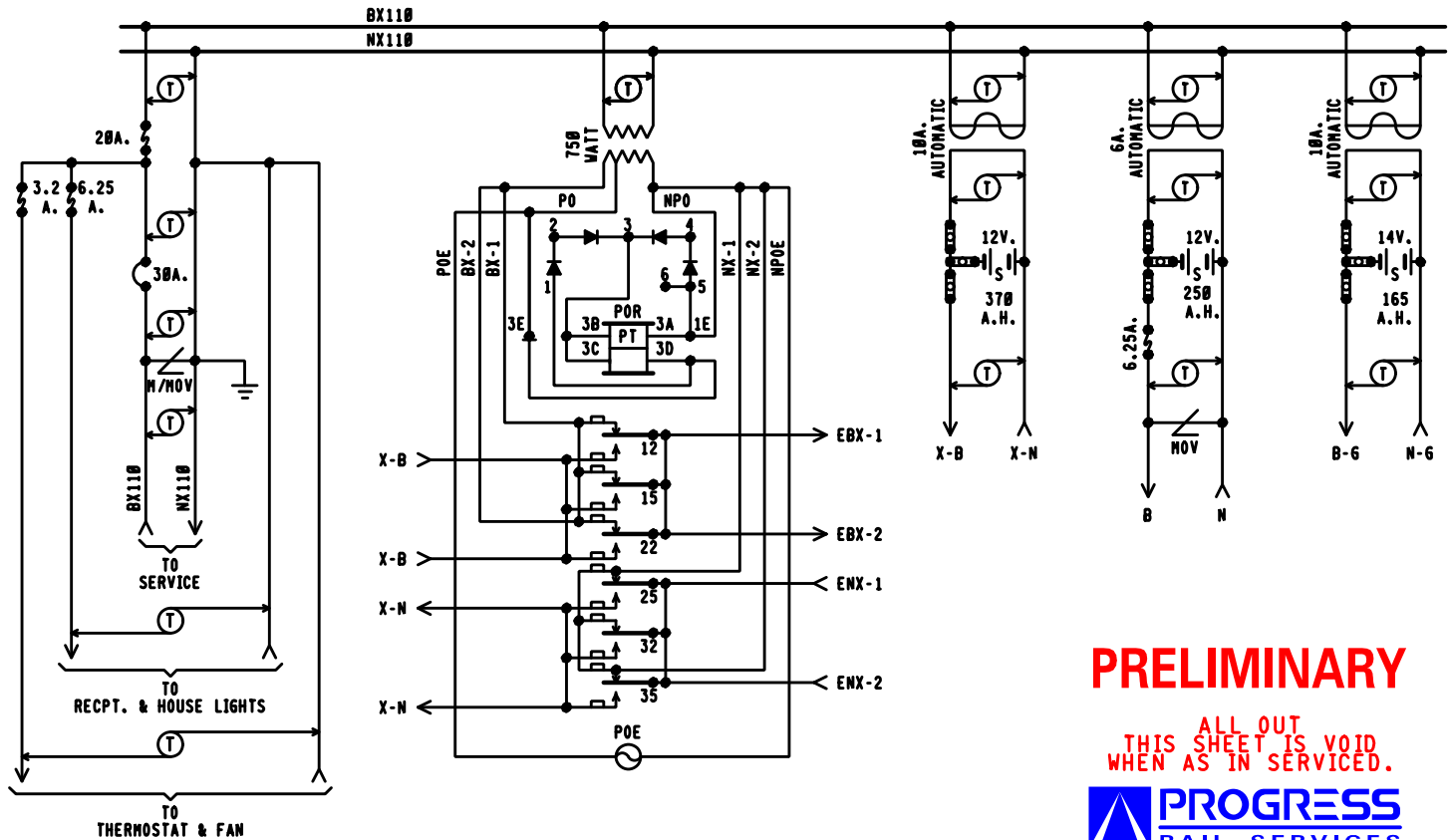
TRACK AND SIGNAL PLAN
GLENDALE, OH M.P. BE-14.60

DESIGNED IRS/JTD	DIGITIZED IRS/JTD	CHECKED IRS/LEK	DATE 07-24-12
NEXT FILE BE01460	NEXT SH E01	FILE BE01460	SHEET S01

DRAWING -----	SHEET NO -----	NEXT SH -----
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TOP ROW											
1CWR			2CWR			XR			XPR		
12		B8	12		B8	12	FB	B8	22	F	B36
15		C30	15		C30	15	FB	B8	23	F	C30
22			22			22		C30			
23	F		23	F		23					
25			25			25					
32			32			32					
35			35			35					

EQUIPMENT		
REF.	NOMENCLATURE	TYPE
	1CWU	HARMON PHASE MOTION DETECTOR PHD-3 FREQ. 606HZ., WITH 0.0KHZ RANDOM SIGNATURE ISLAND (R.S.I.)
	2CWU	HARMON PHASE MOTION DETECTOR PHD-3 FREQ. 522HZ., WITH 0.0KHZ RANDOM SIGNATURE ISLAND (R.S.I.)
	1CWSA	MOTION DETECTOR SURGE ARRESTER, HARMON MODEL HDSA-1
	2CWSA	MOTION DETECTOR SURGE ARRESTER, HARMON MODEL HDSA-1



- NOTES:
- 1 - REFERENCES ARE PER SCMS-13.
 - 2 - ARRESTERS ARE PER SCMS-22.
 - 3 - GROUND CONNECTIONS ARE PER SCMS-18.
 - 4 - SHELF RELAY PLACEMENT ON CONSIST CHART HAS NO SIGNIFICANCE.
 - 5 - PLUG-IN RELAYS ARE VIEWED FROM THE FRONT OF RACK.
 - 6 - ALL FUSES TO BE SLOW BLOW.
 - 7 - WIRING
 - A - FEED TO ALL BUSSES, LIGHT CIRCUITS, MOTOR CIRCUITS, IN-HOUSE TRACK LEADS AND 110-VOLT FEED FROM ENTRANCE TO POWER BUSS, TO BE #10 FLEX.
 - B - FROM POWER BUSS TO RECTIFIER AND TRANSFORMER TO BE #14 FLEX.
 - C - ALL OTHERS TO BE #16 FLEX UNLESS NOTED.

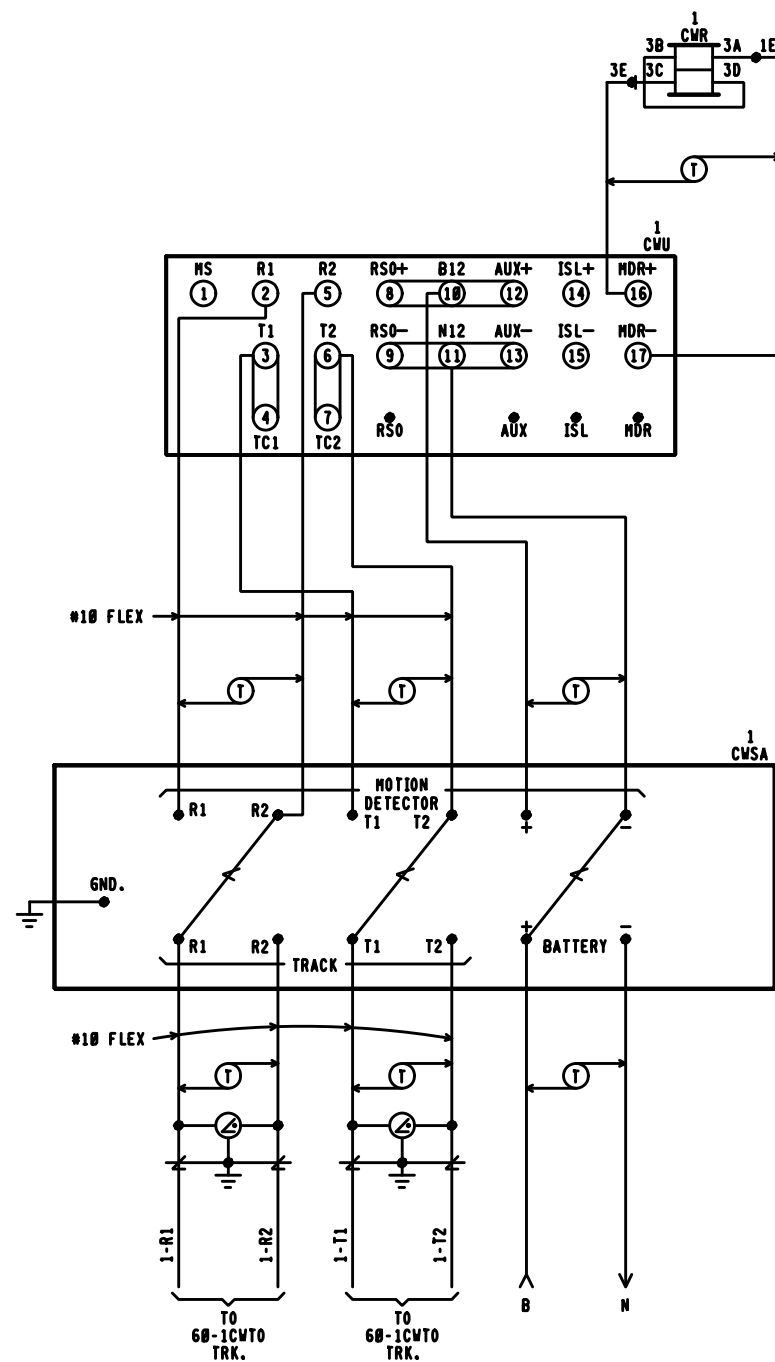
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PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 08/15/10
CSX: 0H2010655
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4' X 6' RELAY HOUSE

REVISIONS			CSXTRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
11-15-96 HAR 0H92186			OAK RD. 152374A			
02-08-11 IRS 0H2011010						
			EQUIPMENT GLENDALE, OH N.P. BE-14.60			
			DESIGNED HAR./D.E.V.	DIGITIZED HAR./J.K.B.	CHECKED HAR./P.E.H.	DATE 08-17-92
			DRAWING -----	SHEET NO -----	NEXT SH -----	NEXT FILE BE01460



1CWU
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)

RSI MODULE
226736-000 8.0KHZ
ISLAND FREQ.

8.0KHZ

RSI JUMPERS

LOS 0
LOS 1
LOS 2
FAULT 0
FAULT 1

FRONT VIEW

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 686 HZ

SWITCH	1	2	3	4	5
SWITCH POSITION	OFF	OFF	ON	OFF	ON

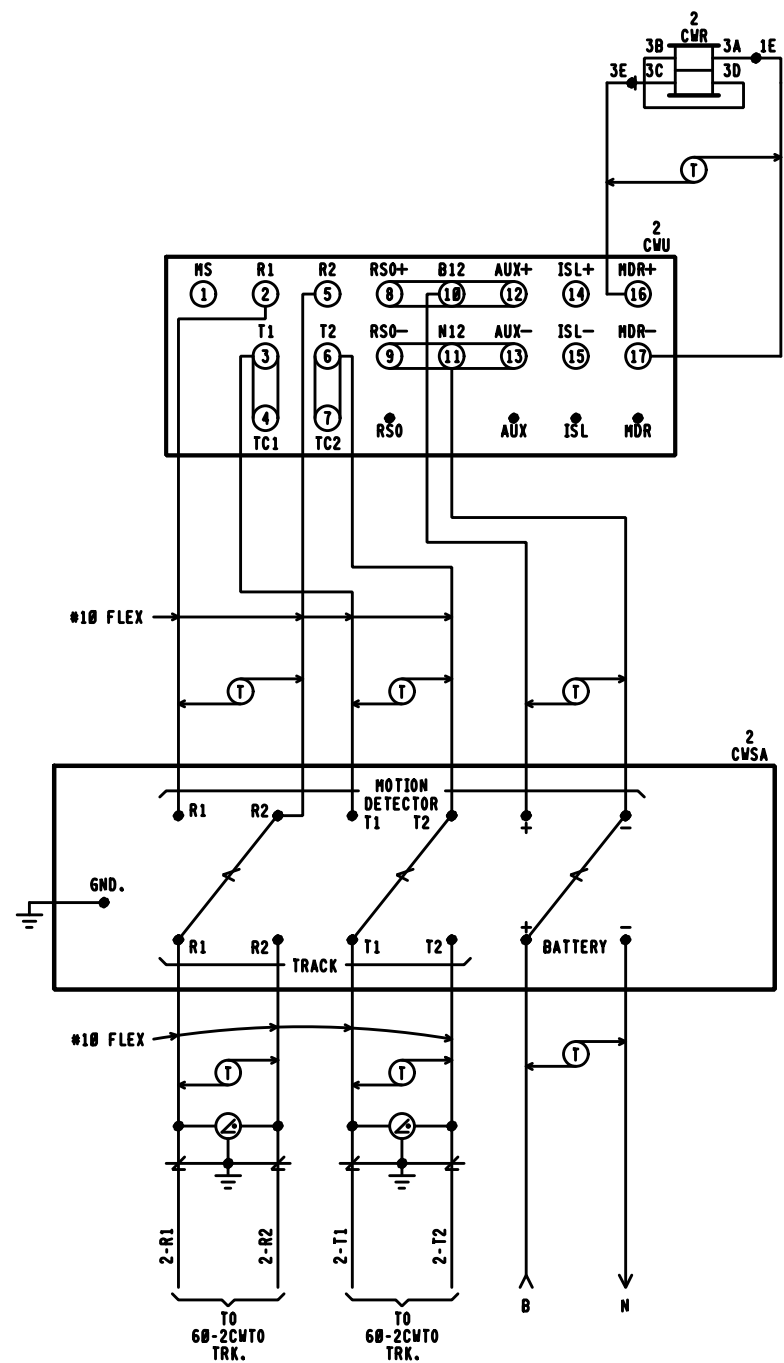
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WHEN AS IN SERVICED.

PROGRESS
RAIL SERVICES
A Caterpillar Company

DATE: 08/15/10
CSX: 0H2010655
PRS/GNW/SAF

REVISIONS			CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
02-08-11 IRS 0H2011010			OAK RD. 152374A			
			CROSSING DETECTION CIRCUITRY GLENDALE, OH N.P. BE-14.60			
			DESIGNED CSX	DIGITIZED IRS/TLN	CHECKED IRS/LLB	DATE 02-08-11
DRAWING -----	SHEET NO -----	NEXT SH -----	NEXT FILE BE01460	NEXT SH C02	FILE BE01460	SHEET C01



2CWU PMD-3 MODULES REQUIRED

(NOT INSTALLED)	TRM MODULE (RECORDING MEMORY)	TRM MODULE (TRANSMITTER)	RSI MODULE (ISLAND)	RYD MODULE (RELAY DRIVE)	CPU MODULE (CENTRAL PROCESSOR UNIT)
-----------------	-------------------------------	--------------------------	---------------------	--------------------------	-------------------------------------

FRONT VIEW

RSI MODULE 226736-000 8.0KHZ ISLAND FREQ.
8.0KHZ

RSI JUMPERS	LOS 0
	LOS 1
	LOS 2
	FAULT 0
	FAULT 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 522 HZ				
SWITCH	1	2	3	4
SWITCH POSITION	ON	ON	ON	OFF

PRELIMINARY

ALL OUT
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WHEN AS IN SERVICED.

PROGRESS
RAIL SERVICES
A Caterpillar Company
DATE: 08/15/10
CSX: 0H2010655
PRS/GNU/SAF

REVISIONS			CSX TRANSPORTATION			
02-00-11 IRS 0H2011010			RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
			OAK RD. 152374A			
			CROSSING DETECTION CIRCUITRY GLENDALE, OH N.P. BE-14.60			
DESIGNED	DIGITIZED	CHECKED	DATE			
CSX	IRS/TLN	IRS/LLB	02-00-11			
DRAWING	SHEET NO	NEXT SH	NEXT FILE	NEXT SH	FILE	SHEET
-----	-----	-----	BE01460	C03	BE01460	C02

1CWU			
TRM LOCAL PARAMETERS PMD-3 DESIGN CARD			
		DEFAULTS & /OR STYLE	FIELD RECORD
OPERATING PROGRAM PROG	VERSION AND COMPILE DATE	35.0 MM/DD/YY	45.0 04/25/14
SYSTEM MONITOR PROGRAM EPRM	VERSION AND COMPILE DATE	20.2 MM/DD/YY	20.3 04/25/14
ADJUSTMENT	RANGE	DEFAULT	TRACK 1
#1 RX	100 IS INTENDED	NA	100
#2 PH (PHASE)	INTENDED ABOVE 32 (NOT ADJUSTABLE)	NA	74
#3 CW / MD	CW OR MD NOT ADJUSTABLE FROM MD TOWARD CW (SEE TCR 430-01 FOR CONSTRAINTS)	MD	CW
#4 UNI/BI (IF CW IS CHOSEN IN #3)	UNI OR BI	BI	BI
#5 LIA (IF CW IS CHOSEN IN #3)	-9 TO +9	LIA=0	NA
#6 WT (IF CW IS CHOSEN IN #3)	23 TO 99	WT=99	NA
#7 TC	WHEN IN CONFORMANCE WITH PMD-3 MANUAL, ADJUST TC FOR A TRANSMITTER CHECK MONITOR VALUE LESS THAN 470	NA	435
#8 B (BALLAST COMPENSATION)	50 TO 250 (FIELD ADJUSTMENT - ADJUST ONLY WHEN IN CONFORMANCE WITH DATA ACCUMULATED AT THIS SITE AND IN COMPLIANCE WITH SUPERVISOR INSTRUCTIONS & PMD-3 MANUAL)	NA	149
#9 PC (PHASE COMPENSATION)	0 TO +10 (FIELD ADJUSTMENT - ADJUST ONLY WHEN IN CONFORMANCE WITH SUPERVISOR INSTRUCTIONS & PMD-3 MANUAL)	PC=0	PC=0
#10 FREQ	REFERENCE, NOT ADJUSTABLE FROM MENU	NA	686 HZ
#11 FS-T (FALSE SHUNT TIMER)	ENTRANCE TO SUDDEN FALSE SHUNT SUB-MENU	NA	NA
#12 FR (FALSE SHUNT % OF RX APPROACH)	0 TO 80 NOT ADJUSTABLE FROM ZERO UNTIL AFTER STRICT DESIGN REVIEW FOR SITE APPLICATION CONFLICTS, FR=0 MEANS DISABLED (SEE TCR 430-01 FOR CONSTRAINTS)	FR=0	FR=0
#13 FT (FAULT TIMER)	0 TO 99 MINUTES (FACTORY DEFAULT IS 10)	FT=10	FT=10
#14 AR-T (APPROACH RELEASE TIMER)	ENTRANCE TO SUB-MENU FOR RESIDUAL FALSE SHUNT STARTED DURING TRAIN PASSAGE	NA	NA
#15 AR (FALSE SHUNT % OF RX APPROACH)	0 TO 80 NOT ADJUSTABLE FROM ZERO UNTIL AFTER STRICT DESIGN REVIEW FOR SITE APPLICATION CONFLICTS AR=0 MEANS DISABLED (SEE TCR 430-01 FOR CONSTRAINTS)	AR=0	AR=0
#16 AT (FAULT TIMER)	0 TO 99 MINUTES (FACTORY DEFAULT IS 10)	AT=10	AT=10
#17 HS (HIGHEST STABLE R VALUE)	REFERENCE, NOT ADJUSTABLE FROM MENU	NA	NA
#18 LP (LOWEST STABLE PHASE)	REFERENCE, NOT ADJUSTABLE FROM MENU	NA	NA
#19 SD (SELF DIAGNOSTICS)	REFERENCE, NOT ADJUSTABLE FROM MENU, BUT MENU CAN REVIEW, THEN CLEAR DIAGNOSTIC CODES	NA	NA
#20 REC (TRAIN RECORD DISPLAY)	REFERENCE, SEQUENTIAL DISPLAY OF PREVIOUS WARNING TIME RECORDS (NO ADJUSTMENT)	NA	NA
#21 PRN (PRINTER/LAPTOP READY)	STARTS DOWNLOAD OF INTERNAL TRAIN EVENT LOG WHEN SERIAL PORT CABLE CONNECTED	NA	NA
#22 LSP (LOCAL SERIAL PORT)	ENTRANCE TO SUB-MENU FOR SETTING SPEED OF SERIAL PORT DOWNLOADS	NA	NA
#23 @ (BAUD RATE)	BAUD RATE OF 38,400 IS 384 AND DEFAULT	@=384	@=384
#24 DB (DATA BITS)	7 OR 8 8 IS DEFAULT	DB=8	DB=8
#25 PA (PARITY)	0, E, OR N N IS DEFAULT	PA=N	PA=N
#26 AR (AUTO RX)	UP OR DN DN IS FACTORY DEFAULT (FIELD ADJUSTMENT - ADJUST TO "UP" ONLY WHEN BC HAS BEEN PREVIOUSLY STABILIZED THROUGH ADJUSTMENT, AND ONLY WHEN IN CONFORMANCE WITH SUPERVISOR INSTRUCTIONS AND PMD-3 MANUAL)	AR=DN	AR=DN
#27 RX (POTENTIOMETER VALUE)	REFERENCE, DISPLAY ONLY	NA	NA
#28 VERS (PROGRAM VERSION)	REFERENCE, SEQUENTIAL DISPLAY OF EPROM AND SOFTWARE VERSIONS	NA	NA

2CWU			
TRM LOCAL PARAMETERS PMD-3 DESIGN CARD			
		DEFAULTS & /OR STYLE	FIELD RECORD
OPERATING PROGRAM PROG	VERSION AND COMPILE DATE	35.0 MM/DD/YY	45.0 04/25/14
SYSTEM MONITOR PROGRAM EPRM	VERSION AND COMPILE DATE	20.2 MM/DD/YY	20.3 04/25/14
ADJUSTMENT	RANGE	DEFAULT	TRACK 2
#1 RX	100 IS INTENDED	NA	100
#2 PH (PHASE)	INTENDED ABOVE 32 (NOT ADJUSTABLE)	NA	73
#3 CW / MD	CW OR MD NOT ADJUSTABLE FROM MD TOWARD CW (SEE TCR 430-01 FOR CONSTRAINTS)	MD	CW
#4 UNI/BI (IF CW IS CHOSEN IN #3)	UNI OR BI	BI	BI
#5 LIA (IF CW IS CHOSEN IN #3)	-9 TO +9	LIA=0	NA
#6 WT (IF CW IS CHOSEN IN #3)	23 TO 99	WT=99	WT=20
#7 TC	WHEN IN CONFORMANCE WITH PMD-3 MANUAL, ADJUST TC FOR A TRANSMITTER CHECK MONITOR VALUE LESS THAN 470	NA	464
#8 B (BALLAST COMPENSATION)	50 TO 250 (FIELD ADJUSTMENT - ADJUST ONLY WHEN IN CONFORMANCE WITH DATA ACCUMULATED AT THIS SITE AND IN COMPLIANCE WITH SUPERVISOR INSTRUCTIONS & PMD-3 MANUAL)	NA	147
#9 PC (PHASE COMPENSATION)	0 TO +10 (FIELD ADJUSTMENT - ADJUST ONLY WHEN IN CONFORMANCE WITH SUPERVISOR INSTRUCTIONS & PMD-3 MANUAL)	PC=0	PC=0
#10 FREQ	REFERENCE, NOT ADJUSTABLE FROM MENU	NA	522 HZ
#11 FS-T (FALSE SHUNT TIMER)	ENTRANCE TO SUDDEN FALSE SHUNT SUB-MENU	NA	NA
#12 FR (FALSE SHUNT % OF RX APPROACH)	0 TO 80 NOT ADJUSTABLE FROM ZERO UNTIL AFTER STRICT DESIGN REVIEW FOR SITE APPLICATION CONFLICTS, FR=0 MEANS DISABLED (SEE TCR 430-01 FOR CONSTRAINTS)	FR=0	FR=0
#13 FT (FAULT TIMER)	0 TO 99 MINUTES (FACTORY DEFAULT IS 10)	FT=10	FT=10
#14 AR-T (APPROACH RELEASE TIMER)	ENTRANCE TO SUB-MENU FOR RESIDUAL FALSE SHUNT STARTED DURING TRAIN PASSAGE	NA	NA
#15 AR (FALSE SHUNT % OF RX APPROACH)	0 TO 80 NOT ADJUSTABLE FROM ZERO UNTIL AFTER STRICT DESIGN REVIEW FOR SITE APPLICATION CONFLICTS AR=0 MEANS DISABLED (SEE TCR 430-01 FOR CONSTRAINTS)	AR=0	AR=0
#16 AT (FAULT TIMER)	0 TO 99 MINUTES (FACTORY DEFAULT IS 10)	AT=10	AT=10
#17 HS (HIGHEST STABLE R VALUE)	REFERENCE, NOT ADJUSTABLE FROM MENU	NA	NA
#18 LP (LOWEST STABLE PHASE)	REFERENCE, NOT ADJUSTABLE FROM MENU	NA	NA
#19 SD (SELF DIAGNOSTICS)	REFERENCE, NOT ADJUSTABLE FROM MENU, BUT MENU CAN REVIEW, THEN CLEAR DIAGNOSTIC CODES	NA	NA
#20 REC (TRAIN RECORD DISPLAY)	REFERENCE, SEQUENTIAL DISPLAY OF PREVIOUS WARNING TIME RECORDS (NO ADJUSTMENT)	NA	NA
#21 PRN (PRINTER/LAPTOP READY)	STARTS DOWNLOAD OF INTERNAL TRAIN EVENT LOG WHEN SERIAL PORT CABLE CONNECTED	NA	NA
#22 LSP (LOCAL SERIAL PORT)	ENTRANCE TO SUB-MENU FOR SETTING SPEED OF SERIAL PORT DOWNLOADS	NA	NA
#23 @ (BAUD RATE)	BAUD RATE OF 38,400 IS 384 AND DEFAULT	@=384	@=384
#24 DB (DATA BITS)	7 OR 8 8 IS DEFAULT	DB=8	DB=8
#25 PA (PARITY)	0, E, OR N N IS DEFAULT	PA=N	PA=N
#26 AR (AUTO RX)	UP OR DN DN IS FACTORY DEFAULT (FIELD ADJUSTMENT - ADJUST TO "UP" ONLY WHEN BC HAS BEEN PREVIOUSLY STABILIZED THROUGH ADJUSTMENT, AND ONLY WHEN IN CONFORMANCE WITH SUPERVISOR INSTRUCTIONS AND PMD-3 MANUAL)	AR=DN	AR=DN
#27 RX (POTENTIOMETER VALUE)	REFERENCE, DISPLAY ONLY	NA	NA
#28 VERS (PROGRAM VERSION)	REFERENCE, SEQUENTIAL DISPLAY OF EPROM AND SOFTWARE VERSIONS	NA	NA

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REVISIONS			CSXTRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
02-00-11 IRS 0H2011010						
05-12-14 IRS 0H2012016			OAK RD. 152374A DETECTION DEVICE PROGRAM GLENDALE, OH N.P. BE-14.60			
DESIGNED CSX	DIGITIZED IRS/TLN	CHECKED IRS/LLB	DATE 02-00-11			
DRAWING -----	SHEET NO -----	NEXT SH -----	NEXT FILE BE01460	NEXT SH C04	SHEET C03	

INDEX
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S01	TRACK & SIGNAL PLAN									
P01	ELECTROLOGIXS PROGRAM									
E01	POWER DISTRIBUTION									
E02	ELECTROLOGIXS MODULE CONFIGURATION									
E03	ELECTROLOGIXS XP4 MODULE LAYOUT									
C01	ELECTROLOGIXS CIRCUITS									
C02	ELECTROLOGIXS TRACK CIRCUITS									
C03	XP4 CROSSING DETECTION AND I/O CIRCUITS									
C04	XP4 SET UP INFORMATION									

 = DESIGN COMPLETED
 = REVISION COMPLETED

PRELIMINARY

 = NOTE


A Caterpillar Company

NEW WORK

DATE: 08/15/18
CSX # 0H2018655
PRS/GMW/SAF

DESIGN DATE 08-15-18	REV. NO. 1	DRAWING -----	SHEET NO -----	FILE BE01420	SHEET 101
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REVISIONS

REV. NO.	PROJECT NO.	DESIGN DATE	IN SERVICE DATE	REVISION DATE
1	0H2018655	08-15-18		

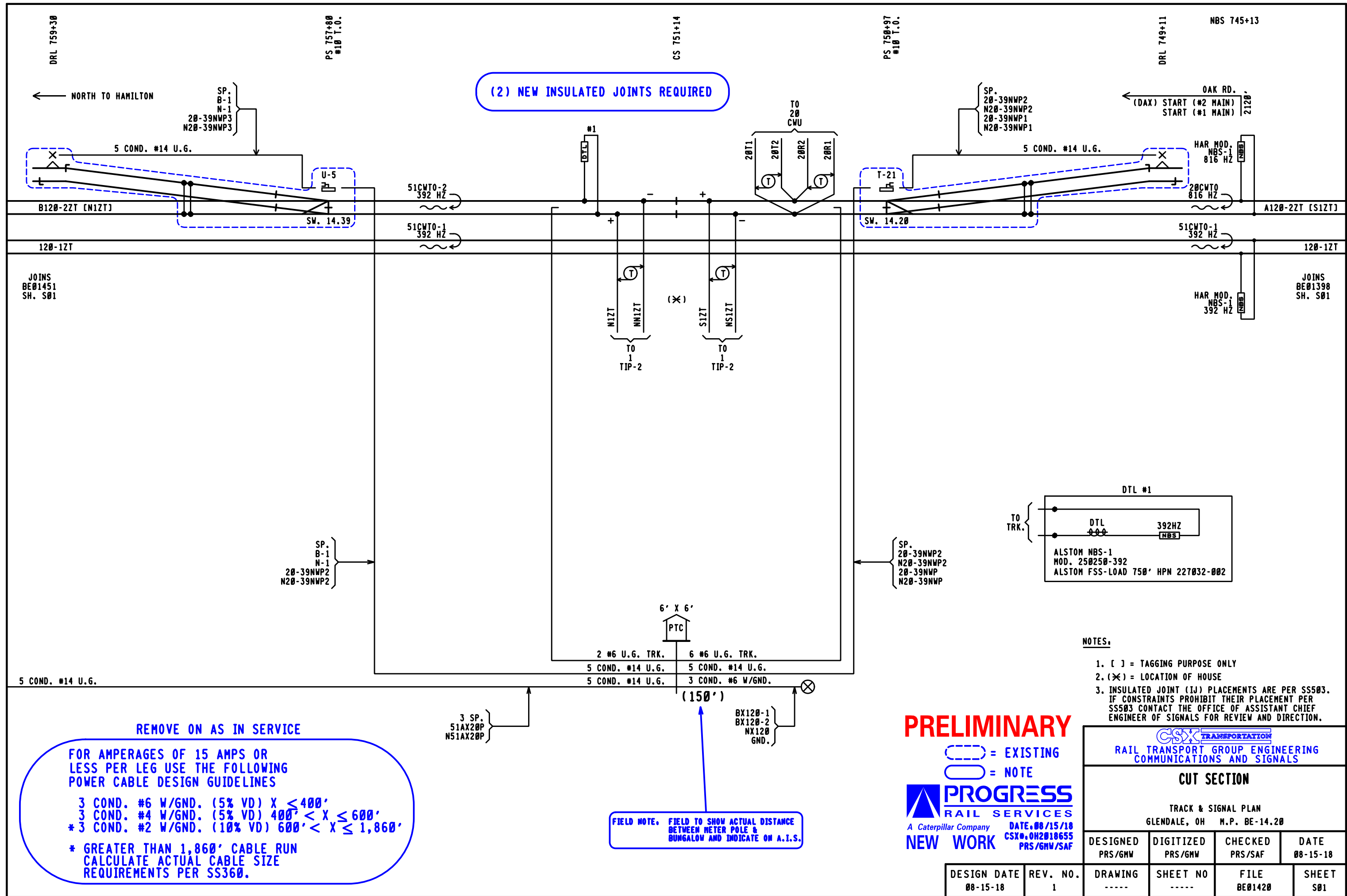
TO BE COMPLETED ON A.I.S.


RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

CUT SECTION

TITLE, NOTES, INDEX & REVISIONS
GLENDALE, OH M.P. BE-14.20

DESIGNED PRS/GMW	DIGITIZED PRS/GMW	CHECKED PRS/SAF	DATE 08-15-18
DRAWING -----	SHEET NO -----	FILE BE01420	SHEET 101



GENERAL CONFIGURATION	
ITEM	SETTING
SITE ID	CUT SECTION
CHASSIS ID	250

VITAL APPLICATION INFORMATION	
ITEM	SETTING
NAME	CSX1RPT4_VX
EPT CRC	XXXX
EPT CHECKSUM	XXXX

FIELD TO PROVIDE ON A.I.S.

VITAL SELECTION SETTINGS				
SETT.	BIT NAME	TRUE	FALSE	BIT MEANING
1	N_W1MCODE		X	TRUE IF MAINTENANCE CODE WILL BE RECEIVED FROM THE NORTH/WEST AND WILL BE PASSED SOUTH/EAST. FALSE IF NO MAINTENANCE CODE IS RECEIVED FROM THE NORTH/WEST AND IT IS TO BE INITIATED TO THE SOUTH/EAST.
2	S_E1MCODE	X		TRUE IF MAINTENANCE CODE WILL BE RECEIVED FROM THE SOUTH/EAST AND WILL BE PASSED NORTH/WEST. FALSE IF NO MAINTENANCE CODE IS RECEIVED FROM THE SOUTH/EAST AND IT IS TO BE INITIATED TO THE NORTH/WEST.
3	N_W1C1SW		X	(FOR SETTING, SEE CHART BELOW)
4	N_W1C5SW		X	(FOR SETTING, SEE CHART BELOW)
5	S_E1C1SW		X	(FOR SETTING, SEE CHART BELOW)
6	S_E1C5SW		X	(FOR SETTING, SEE CHART BELOW)
7	BDE0_MODE1	X		TRUE WHEN LIMITED TUMBLEDOWN (BDE0) MODE REQUIRED. FALSE WHEN TRADITIONAL TUMBLEDOWN (TMDAT) MODE REQUIRED.
8	SLOT3_ON		X	TRUE WHEN SLOT 3 IS BEING USED FOR ELECTRIC LOCK. FALSE WHEN SLOT 3 IS NOT USED FOR ELECTRIC LOCK.
9	S_EP0K	X		SETTING 9 TRUE AND SETTING 10 FALSE MAINTENANCE CODE FOR BLOCK POWER-OFF INDICATION WILL BE TRANSMITTED INTO THE SOUTH/EAST TRACK. IF BOTH SETTING ARE TRUE OR BOTH FALSE MAINTENANCE CODE WILL NOT BE TRANSMITTED IN EITHER DIRECTION.
10	N_WP0K		X	SETTING 9 FALSE AND SETTING 10 TRUE MAINTENANCE CODE FOR BLOCK POWER-OFF INDICATION WILL BE TRANSMITTED INTO THE NORTH/WEST TRACK. IF BOTH SETTING ARE TRUE OR BOTH FALSE MAINTENANCE CODE WILL NOT BE TRANSMITTED IN EITHER DIRECTION.

GFD-1 SETTINGS	
ITEM	SETTING
BATTERY 1 NAME	B-1
BATTERY 1 FAULT STATUS	NO FAULT
BATTERY 1 CALIBRATED VOLTAGE	13.5
BATTERY 1 GROUND FAULT THRESHOLD	8
BATTERY 1 GROUND FAULT TIME	30
BATTERY 1 LOW BATTERY ALARM VOLTAGE	8.0
BATTERY 1 HIGH BATTERY ALARM VOLTAGE	16.5
BATTERY 2 NAME	WHEN APPLICABLE
BATTERY 2 FAULT STATUS	NO FAULT
BATTERY 2 CALIBRATED VOLTAGE	13.5
BATTERY 2 GROUND FAULT THRESHOLD	8
BATTERY 2 GROUND FAULT TIME	30
BATTERY 2 LOW BATTERY ALARM VOLTAGE	8.0
BATTERY 2 HIGH BATTERY ALARM VOLTAGE	16.5
BATTERY 3 NAME	WHEN APPLICABLE
BATTERY 3 FAULT STATUS	NO FAULT
BATTERY 3 CALIBRATED VOLTAGE	13.5
BATTERY 3 GROUND FAULT THRESHOLD	8
BATTERY 3 GROUND FAULT TIME	30
BATTERY 3 LOW BATTERY ALARM VOLTAGE	8.0
BATTERY 3 HIGH BATTERY ALARM VOLTAGE	16.5

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

- NOTES,
- ✖ = STATUS SET/CHANGED USING THE CDU-1, ALL OTHERS SET IN THE ACE PROGRAM.
 - VPM-3 ETHERNET PORT ENET1 IP ADDRESS IS 192.168.0.11, ENET2 IS 192.168.1.12.
 - X = TO BE FILLED OUT DURING FIELD/FACTORY TESTING.

PRELIMINARY

= NOTE

PROGRESS

RAIL SERVICES

A Caterpillar Company

NEW WORK

DATE:08/15/18
CSX#.0H2018655
PRS/GHW/SAF

DESIGN DATE 08-15-18	REV. NO. 1	DRAWING -----	SHEET NO -----	FILE BE01420	SHEET P01
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CSX TRANSPORTATION

RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

CUT SECTION

ELECTROLOGIXS PROGRAM
GLENDALE, OH M.P. BE-14.20

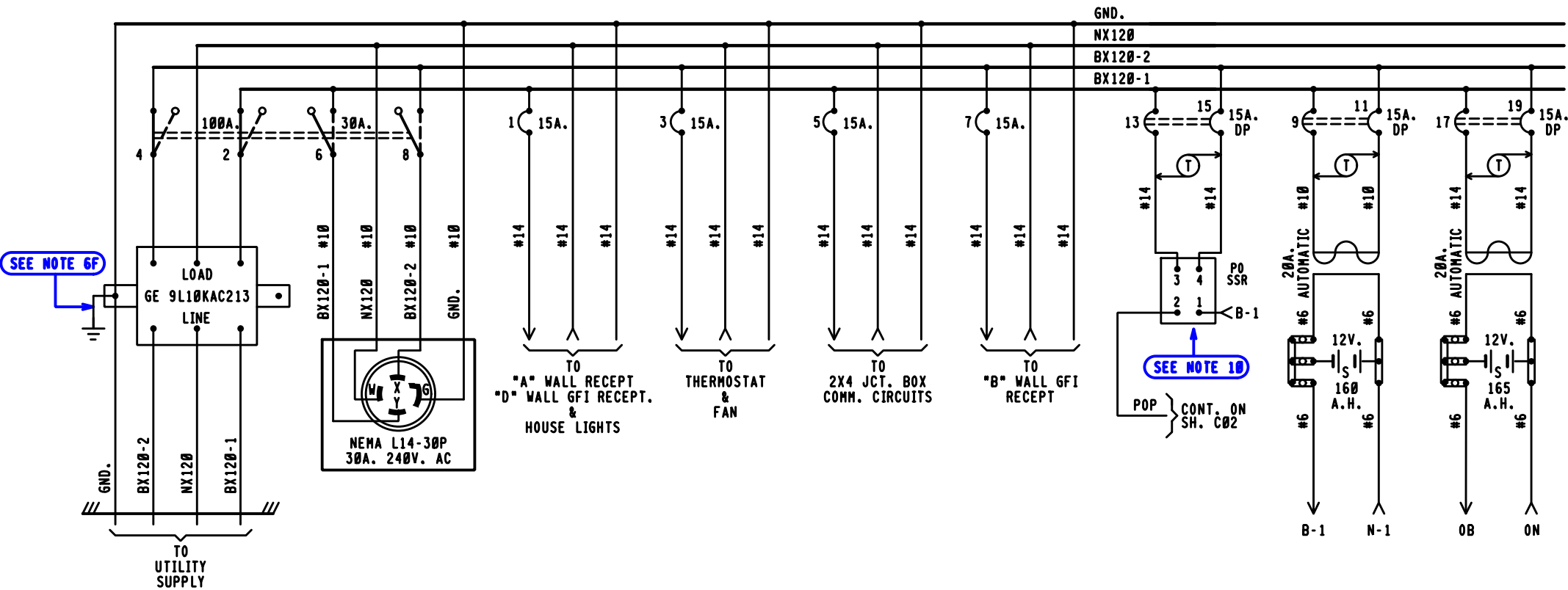
DESIGNED PRS/GMW	DIGITIZED PRS/GMW	CHECKED PRS/SAF	DATE 08-15-18
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51AX20R		
12	_____	B8
15	_____	C30
22	_____	
23	F	
25	F	
32	_____	
35	_____	

(TOP ROW)

POSSR		
1	F	(X)

WALL MOUNTED



BX120-1	BX120-2
8.0 AMPS	8.0 AMPS
MAXIMUM LOAD CALCULATED PER SS360	

INCLUDES
WORST CASE PTC COMMS
SOLUTION OF 14 AMPS

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.
- CHARGERS TO BE WIRED FOR 240VAC
- CIRCUIT BREAKER PANEL - Q0124L1256 (24 SPACES)
- (X) = SOLID STATE VOLTAGE MONITOR CRYDOM DC60SA3 WALL (020-0386003-1) WITH COVER (020-0300101-1).

PRELIMINARY
= NOTE
PROGRESS
RAIL SERVICES
A Caterpillar Company
NEW WORK
DATE: 08/15/18
CSX# 0H2018655
PRS/GHW/SAF

6'X 6' PTC RELAY HOUSE

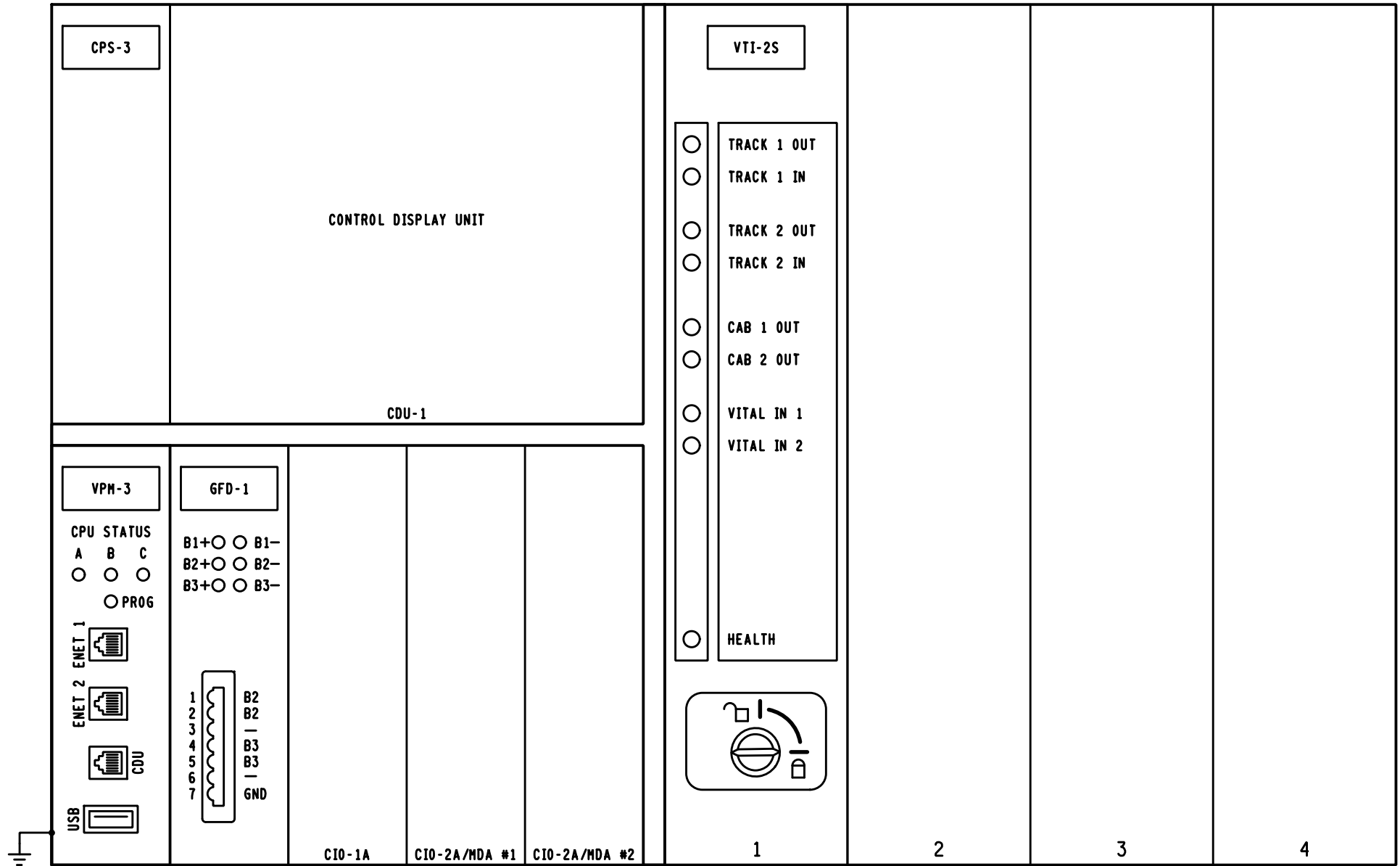
CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

CUT SECTION

POWER DISTRIBUTION
GLENDALE, OH M.P. BE-14.20

DESIGNED PRS/GMW	DIGITIZED PRS/GMW	CHECKED PRS/SAF	DATE 08-15-18
DRAWING -----	SHEET NO -----	FILE BE01420	SHEET E01

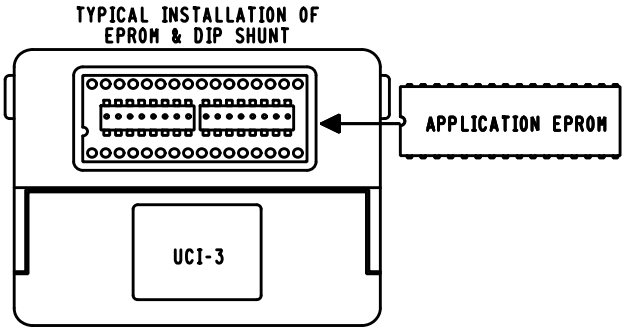
DESIGN DATE 08-15-18	REV. NO. 1
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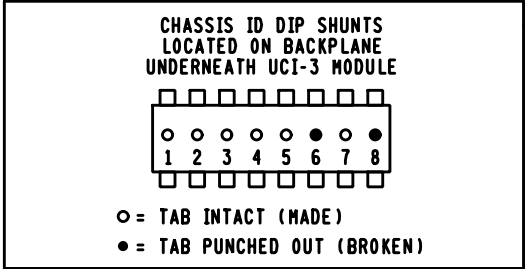
ELECTROLOGIXS 4-SLOT CHASSIS

MODULE LEGEND:

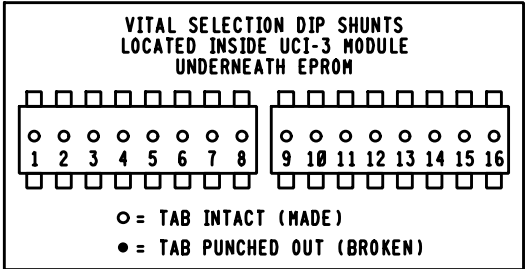
- CDU-1 = CONTROL DISPLAY UNIT
- CPS-3 = CENTRAL POWER SUPPLY
- VPM-3 = VITAL PERIPHERAL MASTER
- GFD-1 = GROUND FAULT DETECTOR
- CIO-1A = COMMUNICATION INPUT/OUTPUT
- CIO-2A = COMMUNICATION INPUT/OUTPUT
- CIO-MDA = COMMUNICATION INPUT/OUTPUT
- UCI-3 = CHASSIS INFORMATION
- VTI-2S = VITAL TRACK INTERFACE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



CHASSIS ID - 250



VITAL SELECTION ID-N/A



PRELIMINARY



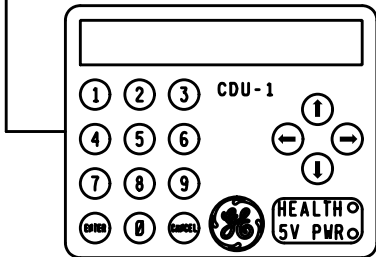
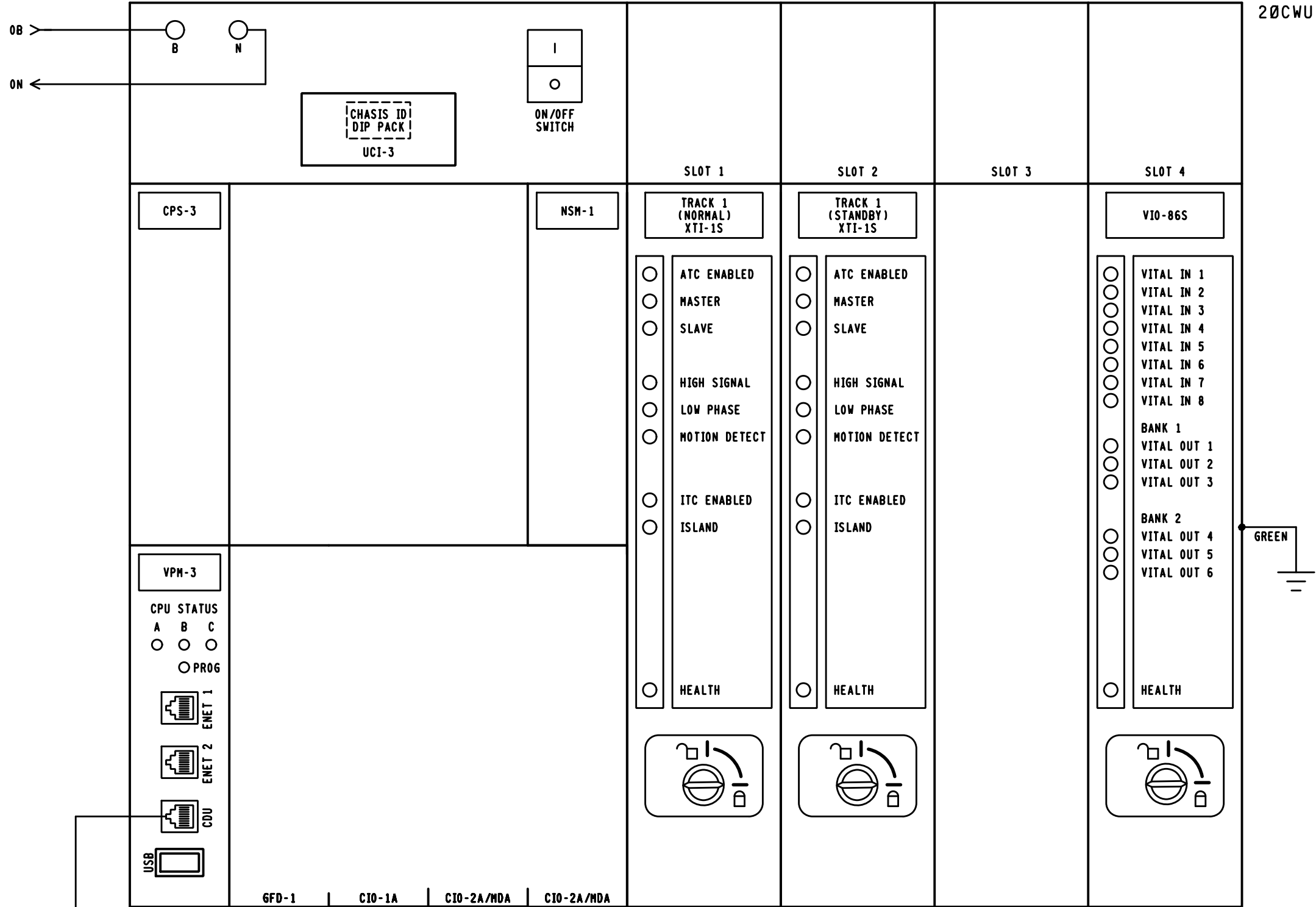
DATE: 08/15/18
CSX# 0H2018655
PRS/GHW/SAF

CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

CUT SECTION

ELECTROLOGIXS MODULE CONFIGURATION
GLENDALE, OH M.P. BE-14.20

DESIGNED PRS/GHW	DIGITIZED PRS/GHW	CHECKED PRS/SAF	DATE 08-15-18
DESIGN DATE 08-15-18	REV. NO. 1	DRAWING -----	SHEET E02



PRELIMINARY



DATE: 08/15/18
CSX# 0H2018655
PRS/GHW/SAF

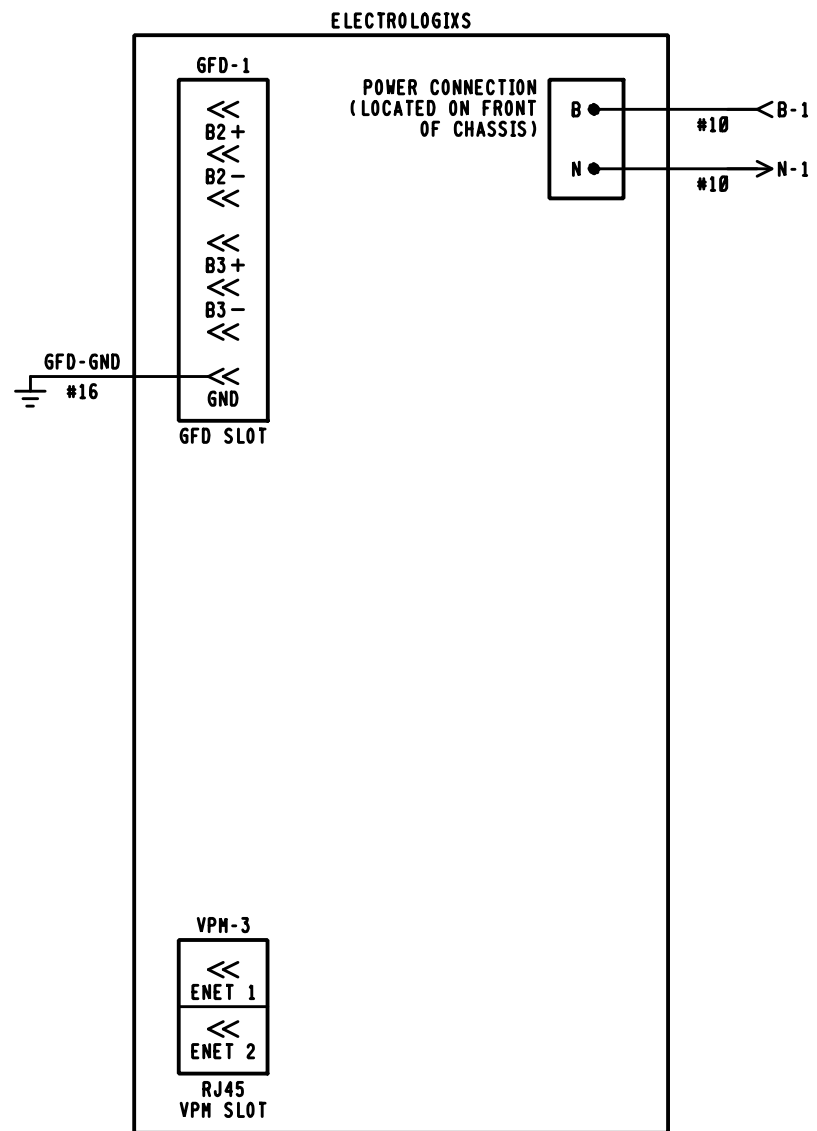
CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

CUT SECTION

ELECTROLOGIXS XP4 MODULE LAYOUT
GLENDALE, OH M.P. BE-14.20

DESIGNED PRS/GHW	DIGITIZED PRS/GHW	CHECKED PRS/SAF	DATE 08-15-18
DRAWING -----	SHEET NO -----	FILE BE01420	SHEET E03

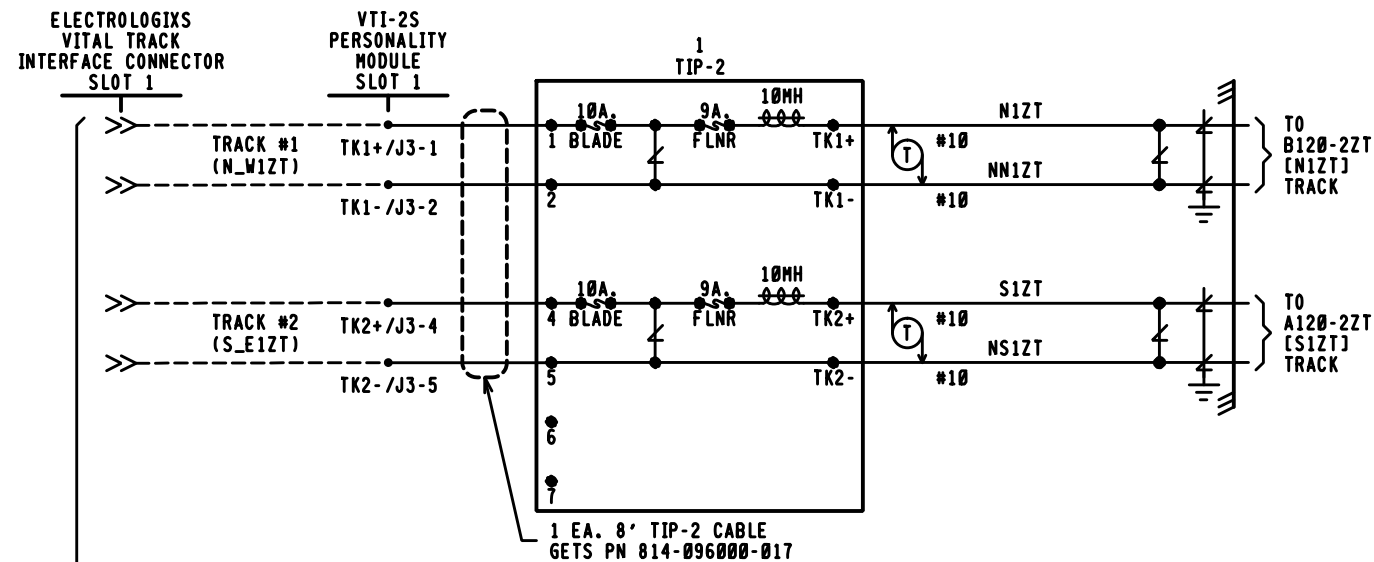
DESIGN DATE 08-15-18	REV. NO. 1
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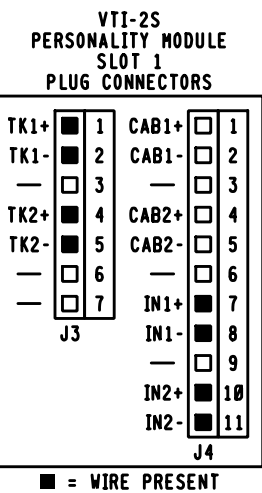
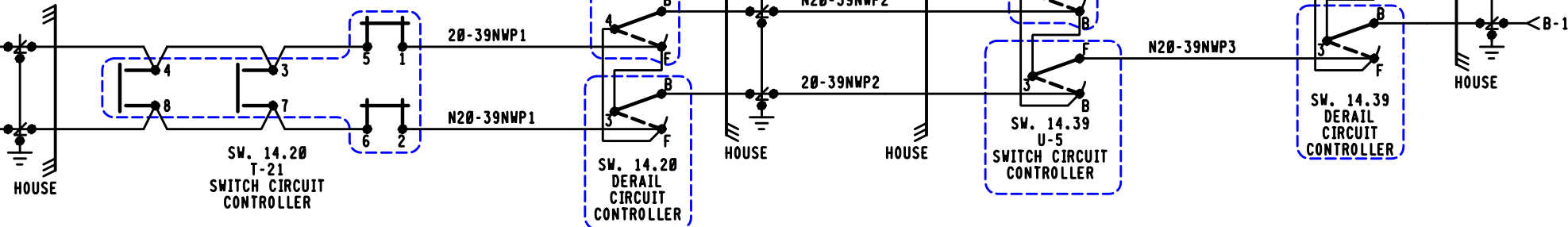
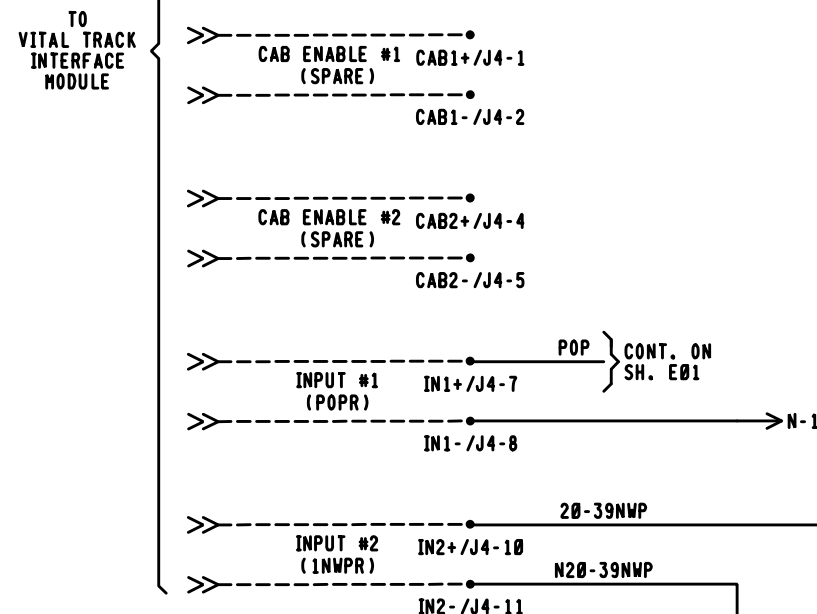
PRELIMINARY



CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
CUT SECTION			
ELECTROLOGIXS CIRCUITS GLENDALE, OH M.P. BE-14.20			
DESIGNED PRS/GMW	DIGITIZED PRS/GMW	CHECKED PRS/SAF	DATE 08-15-18
DESIGN DATE 08-15-18	REV. NO. 1	DRAWING -----	SHEET C01



THE ROUTING OF TRACK WIRES WITHIN THE BUNGALOW SHOULD BE AS SHORT AND DIRECT AS POSSIBLE, ESPECIALLY FOR THE LONGER TRACK CIRCUITS.



- NOTES:
1. ---- = INTERNAL CONNECTION
 2. [] = TAGGING PURPOSE ONLY
 3. ●/● = HLVA2-1675-01 HYBRID LOW VOLTAGE ARRESTER, UNLESS NOTED.

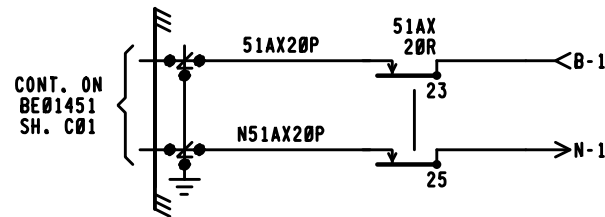
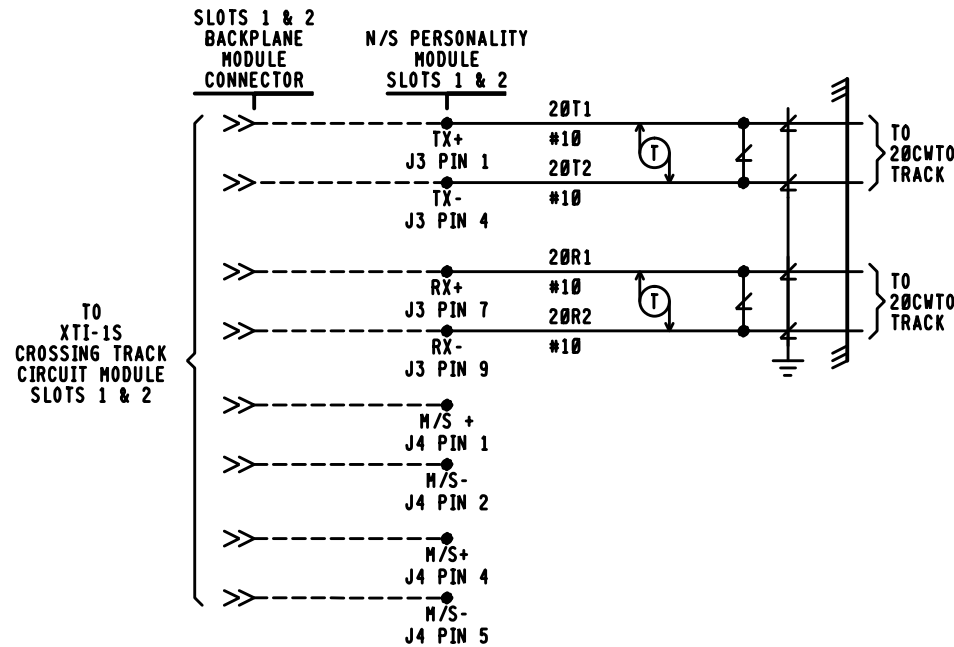
PRELIMINARY

--- = EXISTING
 --- = NOTE

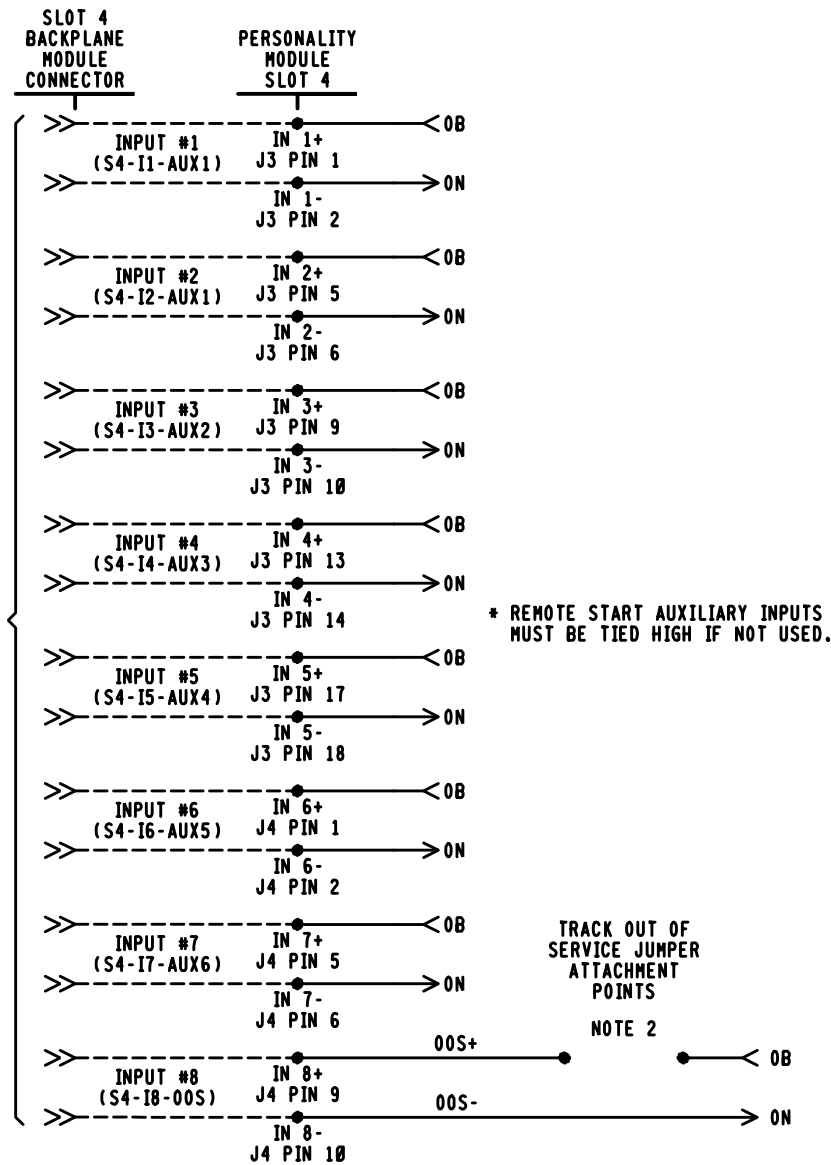
PROGRESS
 RAIL SERVICES
 A Caterpillar Company
 NEW WORK
 DATE: 08/15/18
 CSX# 0H2018655
 PRS/GMW/SAF

CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS			
CUT SECTION			
ELECTROLOGIXS TRACK CIRCUITS GLENDALE, OH M.P. BE-14.20			
DESIGNED PRS/GMW	DIGITIZED PRS/GMW	CHECKED PRS/SAF	DATE 08-15-18
DRAWING -----	SHEET NO -----	FILE BE01420	SHEET C02

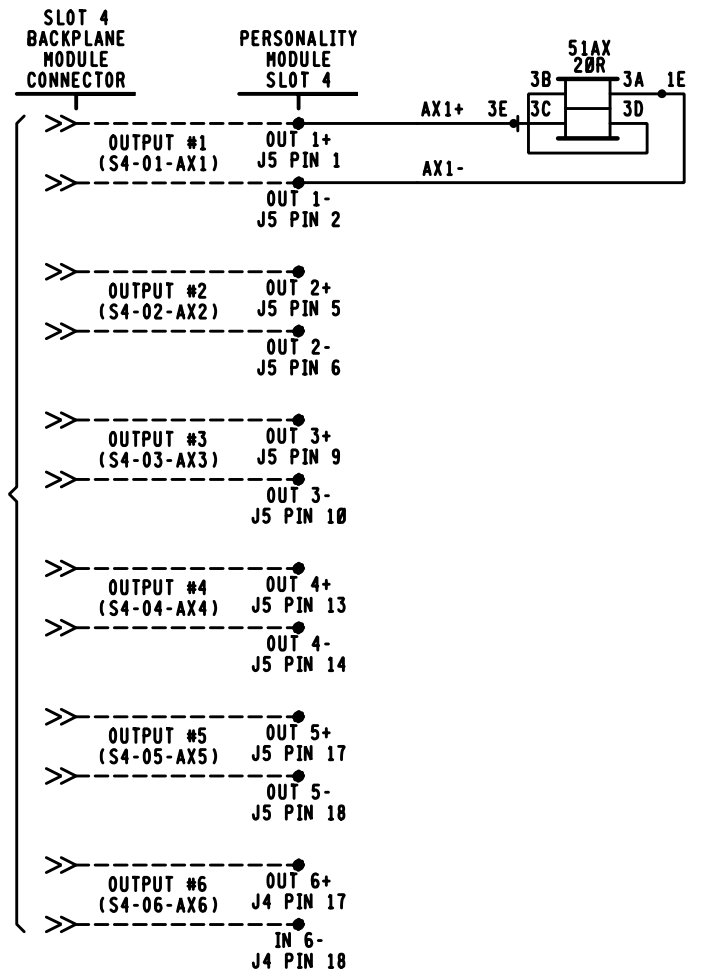
DESIGN DATE 08-15-18	REV. NO. 1
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TO VITAL INPUT/OUTPUT MODULE VIO-86S SLOT 4



TO VITAL INPUT/OUTPUT MODULE VIO-86S SLOT 4



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

SLOT 4 I/O	
INPUT 1	POSITIVE CONTROL AUXILIARY INPUT 1 (AUX1)
INPUT 2	POSITIVE CONTROL AUXILIARY INPUT 2 (AUX1)
INPUT 3	POSITIVE CONTROL AUXILIARY INPUT 3 (AUX 2)
INPUT 4	POSITIVE CONTROL AUXILIARY INPUT 4 (AUX 3)
INPUT 5	POSITIVE CONTROL AUXILIARY INPUT 5 (AUX 4)
INPUT 6	POSITIVE CONTROL AUXILIARY INPUT 6 (AUX 5)
INPUT 7	POSITIVE CONTROL AUXILIARY INPUT 7 (AUX 6)
INPUT 8	OUT OF SERVICE JUMPER INPUT (OOS)
OUTPUT 1	AX1 OUTPUT
OUTPUT 2	AX2 OUTPUT (NOT USED)
OUTPUT 3	AX3 OUTPUT (NOT USED)
OUTPUT 4	AX4 OUTPUT (NOT USED)
OUTPUT 5	AX5 OUTPUT (NOT USED)
OUTPUT 6	AX6 OUTPUT (NOT USED)

PRELIMINARY

PROGRESS

RAIL SERVICES

A Caterpillar Company

NEW WORK

DATE: 08/15/18

CSX 0.0H2018655

PRS/GMW/SAF

CSX TRANSPORTATION

RAIL TRANSPORT GROUP ENGINEERING

COMMUNICATIONS AND SIGNALS

CUT SECTION

XP4 CROSSING DETECTION AND I/O CIRCUITS

GLENDAL, OH M.P. BE-14.20

DESIGNED PRS/GMW	DIGITIZED PRS/GMW	CHECKED PRS/SAF	DATE 08-15-18
DESIGN DATE 08-15-18	REV. NO. 1	DRAWING -----	SHEET C03

SITE SPECIFIC MDR DESCRIPTIONS AND SETTINGS						
NAME	MDR1	MDR2	MDR3	MDR4	MDR5	MDR6
FUNCTION	AX1	AX2	AX3	AX4	AX5	AX6
WARNING TIME	33	NA	NA	NA	NA	NA
CV/MD	CV	NA	NA	NA	NA	NA
AP TIME(PREEMPT)	NA	NA	NA	NA	NA	NA
CWE-WT	80	NA	NA	NA	NA	NA
AUX RECOVERY DELAY	0	NA	NA	NA	NA	NA
TRACK	TK 1	TK 1	TK 1	TK 1	TK 1	TK 1
TRACK ASSIGNED	ASSIGNED	UNASSIGNED	UNASSIGNED	UNASSIGNED	UNASSIGNED	UNASSIGNED
OFFSET DISTANCE	1519'	NA	NA	NA	NA	NA
MD RESTART	0*	NA	NA	NA	NA	NA
SUDDEN SHUNT ZONE	0*	NA	NA	NA	NA	NA
POSITIVE START	PSEN	DISABLE	NA	NA	NA	NA
	PSRX	NA	NA	NA	NA	NA
	PST	NA	NA	NA	NA	NA
POST JOINT DETECT	PJEN	ENABLE	NA	NA	NA	NA
	PJRX	15	NA	NA	NA	NA
	PJDT	15	NA	NA	NA	NA
CLEAR JOINT LOS	CJ-LOS MODE	STANDARD	NA	NA	NA	NA
	CJ-LOS RX	15	NA	NA	NA	NA
	CJ-LOS TIME	99	NA	NA	NA	NA

BASIC TRACK SETUP	
	TRACK 1
FREQUENCY	816 HZ
MASTER/SLAVE	MASTER
RX ADJUST	100 *
TCA	*
DIRECTION MODE	UNI
LIA	*
ADVANCED APPROACH	*
NBS COMP RX	*
TRK ISLAND ASSIGN	NA
APPROACH LENGTH	601'
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
LOS TIME		16 SEC
IJ-LOS TIME		5 SEC
NRML*SHRT*VRYSHRT		*

VPM3 ETHERNET SETUP	
	IP ADDRESS
ETHERNET PORT 1 (TOP)	192.168.0.11
ETHERNET PORT 2 (BOTTOM)	192.168.1.12

APPLICATION SOFTWARE INFORMATION	
NAME	4RS-1.01
REV.	1.0
CHECKSUM	161E
CRC	5025
CH. I.D.	201
CHASSIS ID DIP SHUNTS LOCATED ON BACKPLANE UNDERNEATH UCI-3 MODULE	
1 2 3 4 5 6 7 8	
○ = TAB INTACT (MADE) ● = TAB PUNCHED OUT (BROKEN)	
VITAL SELECTION DIP SHUNTS LOCATED INSIDE UCI-3 MODULE UNDERNEATH EPROM	
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	
○ = TAB INTACT (MADE) ● = TAB PUNCHED OUT (BROKEN)	

VITAL SELECTION DIP SHUNTS		
#	NAME	STATE
1	NA	INTACT (NOT USED)
2	NA	INTACT (NOT USED)
3	NA	INTACT (NOT USED)
4	NA	INTACT (NOT USED)
5	NA	INTACT (NOT USED)
6	NA	INTACT (NOT USED)
7	NA	INTACT (NOT USED)
8	NA	INTACT (NOT USED)
9	NA	INTACT (NOT USED)
10	NA	INTACT (NOT USED)
11	NA	INTACT (NOT USED)
12	NA	INTACT (NOT USED)
13	NA	INTACT (NOT USED)
14	NA	INTACT (NOT USED)
15	NA	INTACT (NOT USED)
16	NA	INTACT (NOT USED)

NOTES:
● = FIELD ADJUSTMENT
NA = NOT APPLICABLE

PRELIMINARY



CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

CUT SECTION

XP4 SET UP INFORMATION
GLENDALE, OH M.P. BE-14.20

DESIGN DATE
08-15-18

REV. NO.
1

DRAWING

SHEET NO

FILE
BE01420

SHEET
C04

ESTIMATE SUBJECT TO REVISION AFTER: 6/9/2019

DOT NO.: 152376N

CITY: Glendale

COUNTY: Hamilton

STATE: OH

DESCRIPTION: E. Sharon Rd. - Installation of CFLS&G's, exit gates and obstruction detection.

REGION: Louisville

SUB-DIV: Cincinnati Terminal

MILE POST: BE-15.06

AGENCY PROJECT NUMBER: PID#106297

PRELIMINARY ENGINEERING:

212	Contracted & Administrative Engineering Services	\$	11,000
	Subtotal	\$	11,000

CONSTRUCTION ENGINEERING/INSPECTION:

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

FLAGGING SERVICE: (Contract Labor)

70	Labor (Conductor-Flagman)	0	Days @	\$ 350.00	\$	-
50	Labor (Foreman/Inspector)	0	Days @	\$ 504.00	\$	-
70	Additive 153.20% (Transportation Department)				\$	-
50	Additive 149.90% (Engineering Department)				\$	-
230	Expenses (Engineering Department)	0	Days @	\$ 75.00	\$	-
230	Expenses (Transportation Department)	0	Days @	\$ 45.00	\$	-
	Subtotal				\$	-

<u>SIGNAL & COMMUNICATIONS WORK:</u>	\$	641,630
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<u>TRACK WORK:</u>	\$	-
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<u>PROJECT SUBTOTAL:</u>	\$	658,629.79
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900	<u>CONTINGENCIES:</u> 0.00%	\$	-
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<u>PROJECT TOTAL:</u>	*****	\$	658,629.79
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<u>CURRENT AUTHORIZED BUDGET:</u>	*****	\$	-
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<u>TOTAL SUPPLEMENT REQUESTED:</u>	*****	\$	658,629.79
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DIVISION OF COST:

Agency	<u>100.00%</u>	\$	658,630
Railroad	<u>0.00%</u>	\$	-
		\$	658,630

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 Chief Engineer Public Projects--Jacksonville, Florida

Estimated prepared by: SE

Approved by: A/D CSXT Public Project Group

DATE: 01/21/19 REVISED: 12/11/18 DATE: 01/22/19

CSX TRANSPORTATION

Outside Party Estimate

Warning Device Modification For E. Sharon Ave.

Glendale, Ohio

DOT: 152376N

OP: OH1245

CSX Project: OH2018655

Summary

Material	\$262,542
Sales Tax	\$18,903
Labor:	
Construction Labor (273 man-days)	\$103,740
Shop Labor (10 man-days)	\$3,800
Subsistence (0 man-days)	\$0
Railroad Engineering, Construction	\$15,561
Railroad Engineering, Preliminary	\$8,244
Additives to Construction Labor	\$155,506
Additives to Shop Labor	\$5,696
Additives to Track Labor	\$0
Additives to Engineering	\$0
Equipment Expense (0 work days)	\$0
Waste Management (55 work days)	\$660
Contract Engineering	\$28,526
Freight	\$16,953
Poleline Removal	\$0
AC Power Service	\$0
Salvage	-\$1
VAC TRUCK	\$8,000
Curb/Fence Work	\$10,000
Cantilever Shoring Box	\$3,500
TOTAL ESTIMATE COST	\$641,630

Date: 11/28/2018

Estimated By: Adam Ronsick

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

CSX TRANSPORTATION

Signal Project Estimation

Shop Material List for CSX Project: OH2018655 (Effective: 11/28/2018)
BE 15.06 - Location 1 - E. Sharon Ave.

CATALOG_NUM	QTY	Unit Price	COST	SHORT_DESC
020.0017120.1	6	11.31	67.86	BLOCK TERMINAL 12 POST SINGLE STRIP AAR 14.1.6 WITH 1 AAR 14.1.11 WASHER AND 1 AAR 14.1.11 CLAMP NUT TORQUED ONTO EACH TERMINAL AT 40 IN/LBS, 12 AAR 14.1.11 WASHERS AND 24 AAR 14.1.11 BINDING NUTS UNASSEMBLED SAFE 023390-11X TDH 800-0001
020.0017125.1	6	3.20	19.20	BLOCK TERMINAL 2 POST AAR 14.1.8 WITH 1 AAR 14.1.11 WASHER AND 1 AAR 14.1.11 CLAMP NUT TORQUED ONTO EACH TERMINAL AT 40 IN/LBS, 2 AAR 14.1.11 WASHERS AND 4 AAR 14.1.11 BINDING NUTS UNASSEMBLED SAFE 023612-1X TDH 800-0002
020.0017211.1	1	1093.72	1093.72	TRANSFORMER LIGHT 750VA 010520-50X MODEL SLT-50 PRIMARY 115-230VAC SECONDARY .5 - 15.5V AC 50A INDOOR SERVICE ONLY AREMA MANUAL PART 14.2.10 OLSUN P/N 5995-50-RR
020.0018520.1	1	647.63	647.63	MODULE GETS GFD-1 GROUND FAULT DETECTOR USE IN GE ELECTROLOGIXS RACK SYSTEM GETS P/N 251333-000
020.0018522.1	1	2339.32	2339.32	MODULE GETS VIO-86S USE IN GE ELECTROLOGIXS RACK SYSTEM GETS P/N 251380-000
020.0018564.1	2	3378.24	6756.48	MODULE GETS XTI-15 CROSSING TRACK INTERFACE USE IN GE ELECTROLOGIXS RACK SYSTEM GETS P/N 251336-000 (BURCO P/N 238-0346)
020.0018582.1	1	439.17	439.17	MODULE GETS VIO-86S PERSONALITY (PM) USE IN GE ELECTROLOGIXS RACK SYSTEM GETS P/N 227537-000
020.0018588.1	1	422.83	422.83	MODULE GETS XTI-15 PERSONALITY (PM) NORMAL/STANDBY USE IN GE ELECTROLOGIXS RACK SYSTEM GETS P/N 227481-000 (BURCO P/N 238-0341)
020.0021965.1	1	8.96	8.96	EXTRACTOR DWG 59688-4 TERMINAL GRS CAT P3-308 REF 18 1/16" STEEL WIRE COVERED W/INSULATING TUBING BILMAR 59688
020.0022651.1	23	106.70	2454.10	PLUGBOARD KIT TYPE B1 OR ST1 RELAY ASSEMBLY WITH 12 EACH 14-10 CRIMP TERMINALS, 1 EACH VOLT/CURRENT (3E) AND (1E) TEST TERMINALS, INSULATORS AND CLIPS CSX REF NO C30 ALSTOM 59686-5 GR1, SAFETRAN P/N 420000-78X
020.0025595.1	1	20.41	20.41	WRENCH DWG 55393-3 GR1 "E" TERMINAL POST NUT GRS CAT P3-320 REF G NATIONAL ELEC GATE P/N EDG-5951
020.0053360.1	3	387.88	1163.64	CHARGER BATTERY ELC 12/20 D 20 AMP 10-19.9 VDC ROTARY SW VOLTAGE ADJ W/ 10' TEMP COMPENSATION PROBE 0.1 TO 0.25 V RIPPLE AT BATTERY TERMINALS 120V/240V AC INPUT ONLY NRS P/N 22290-10
020.0053361.1	1	574.08	574.08	CHARGER BATTERY ELC 12/40 D 40 AMP 10-19.9 VDC ROTARY SW VOLTAGE ADJ W/ 10' TEMP COMPENSATION PROBE 0.1 TO 0.25 V RIPPLE AT BATTERY TERMINALS 120V/240V AC INPUT ONLY NRS P/N 22400-10
020.0065621.1	2	236.68	473.36	087426 ANIXTER RACK COMPLETE INCLUDES 3 EACH 020.3471120.1 AND 2 EACH 020.3471121.1 RELAY MOUNTING AND WIRE TIE BARS
020.0167501.1	78	38.51	3003.78	ARRESTER HYBRID LOW VOLTAGE,2, 0-30V DC OR 0-24V AC RATED AT 15 AMP COMPLETE WITH FAIL SAFE OPEN
020.0660077.1	1	617.00	617.00	ARRESTER GE 9L10KAC213L FOR 240 VOLT SINGLE PHASE 3 WIRE CIRCUIT PROTECTOR INCLUDES LINE TO LINE AND LINE TO GROUND PROTECTION
020.0750090.1	3	0.11	0.33	NUT INSULATED USE ON AAR BINDING POST TERMINAL FOR VOLTAGES 120V AC/DC AND HIGHER RED COLOR TDH SOLUTIONS P/N 800-0009, CAPPLUGS P/N VFC-521-16RED
020.0770060.1	16	15.17	242.72	ARRESTER US&S N451552-0201 TRACK SERIES RED LABEL USGA 250V DC 175V AC W/O BASE (DO NOT USE ON AC CIRCUITS FOR NEW WORK, SEE SS382) US&S RSE-17A1
020.0770105.1	4	22.06	88.24	ARRESTER HARMON 202217-000 AGE-1 TRACK AIR GAP EQUALIZER 18 VOLT
020.1622001.1	1	9838.85	9838.85	ELECTROLOGIXS, XING (XP4) / 9 SLOT REDUNDANT XING WITH 2 EA XTI-2S IN SLOT 1 & 2 (PN 16-220000000-00)
020.1940055.1	1	14.50	14.50	CONTAINER TUBE HOLDER CIRCUIT PRINT PLAN 24" SCHD 20 4" PVC PIPE WITH SOLID PVC CAP GLUED ONE END AND VENTED PVC CAP VENT MUST BE NON CORROSIVE NON CONDUCTIVE MATERIAL REMOVABLE ON OTHER END CONTAINER MUST BE CLEANED OF ALL MILL MARK
020.2501400.1	1	1181.28	1181.28	CONTROLLER DTMF RADIO KEY DOWN MODE 6 SET TIMER TO 60 SECONDS COMPLETE WITH 50 OHM ANTENNA
020.2503071.1	1	1934.66	1934.66	MODULE SAFETRAN (EXPANSION FOR SEAR 11) ANALOG & DIGITAL I/O UNIT (A80258) USE WITH GCP-3000 FOR (9V736-A02A), (2) ILODS (80271), (1) ECH (80078), (2) GFD (80297), (1) WAG (9000-53457-0001) & CABLE 20FT (Z706-02027-00200)
020.3180290.1	1	5154.93	5154.93	RELAY SAFETRAN 400004 500 OHMS CONTACTS 4FB-2F-1B CSX REFERENCE S3 SOC 1252 NEUTRAL (REPLACES GRS 56001-783 GR2 TYPE B1 CAT A62-277 REF B8)
020.3430110.1	17	363.23	6174.91	RELAY SAFETRAN 400005 500 OHMS CONTACTS 4FB HEAVY DUTY 10 AMP 2FB CSX REFERENCE S4 SOC 1253 NEUTRAL (REPLACES 020.0022872.1, GRS 56001-983 GR1 TYPE B1 CAT A62-0741 REF B82)
020.3430115.1	1	464.77	464.77	RELAY SAFETRAN 400023 500 OHMS CONTACTS 6FB HEAVY DUTY CSX REFERENCE S7
020.3430130.1	2	409.74	819.48	RELAY SAFETRAN 400213 460 OHMS CONTACTS 2FB CSX REFERENCE S8 SOC 1257 SLOW RELEASE (REPLACES GRS 56001-830 GR1 TYPE B1 CAT A62-353 REF B36)
020.3430135.1	1	560.76	560.76	POWER TRANSFER COMPLETE WITH RECTIFIER 590000-X (REPLACES GRS 56001-745 GR1 TYPE B1 CATALOG A62-406 REF B62)
020.3430170.1	1	464.35	464.35	

CSX TRANSPORTATION

Signal Project Estimation

Shop Material List for CSX Project: OH2018655 (Effective: 11/28/2018)
BE 15.06 - Location 1 - E. Sharon Ave.

[illegible]

Total Cost: \$ 92,915.24

CSX TRANSPORTATION

Signal Project Estimation

Field Material List for CSX Project: OH2018655 (Effective: 11/28/2018)
BE 15.06 - Location 1 - E. Sharon Ave.

CATALOG_NUM	QTY	Unit Price	COST	SHORT_DESC
014.8006169.1	2	9.80	19.60	SIGN PERMANENT EMERGENCY NOTIFICATION (VEHICLE BLOCKING RD CRSSING) ALUM BLADE WHI HIGH INTENSITY PRISMATIC LTRS ON BLU BACKGROUND COMPLETE W/DOT ID AND MP PER CSX DWG 2719 ENTER DOT ID & MP IN REQ NOTE TO SUPPLIER USE 014.8006170.1
020.0010447.1	2	10.32	20.64	BOX GROUND ROD CONNECTION ENCLOSURE COMPLETE WITH 7" COVER TWO HEX HEAD 3/8" SS BOLTS AND 10" X 9" ENCLOSURE WITH 2 KNOCKOUTS FOR GROUND WIRE ENTRY AND EXIT PENCELL P/N PE-6HDKH-BLA
020.0012330.1	2	41.38	82.76	BRACKET FLASHING LAMP MOUNTING 16-5/8" EXTENSION SAFETRAN P/N 042027-3
020.0013375.1	20	4.89	97.80	BOND FROG LEG (MAIN) RAIL PLUG 10" X 3/16" SINGLE BARE CONDUCTOR ERICO P/N SBPMJ310, D&W P/N BSB-6CH-10
020.0013550.1	4	405.18	1620.72	BOX JUNCTION 20 WAY ALUMINUM INCLUDES 4 EACH 10 POST TERMINALS W/NUTS AND WASHERS, 1 EACH 1-1/2" X 4" NIPPLE W/BUSHING AND LOCK NUT, 26-3/4" PEDESTAL, BOX INSIDE DIMENSIONS 12" X 14" X 3-3/4" DEEP, G&B P/N 998922-040-01
020.0013686.1	4	76.27	305.08	BOOTLEG KIT CSX RAIL CONN W/15 FT 3/16 IN BDSTRAND 6/64 IN JKT 2 TK CONN ERICO SBPAC3-A/2 CLIP ERICO SBA248A 4 RL PT CDWELD STPL 3/8 X 1 3/4 IN 2 ERICO SBA2363 SLVES 2 RAYCHEM OR AMP 6 IN TUBIN 2 PLEXICO 3408 DWG&WILSON P/N BLTS-8-80B
020.0013870.1	200	1.33	266.00	CABLE UG 5 COND NO 14 AWG SOLID C CSX SPEC SS796 SHOW LENGTH ON EACH REEL FURNISH IN 1000 FT LENGTHS OKONITE 206-11-6885
020.0013908.1	700	7.22	5054.00	CABLE UG COMPOSITE 19 CONDUCTOR INCLUDES 13 CONDUCTOR #14 AWG SOLID AND 6 CONDUCTOR #6 AWG SOLID CSX SS360 SHOW LENGTH ON EACH REEL FURNISH IN 1000 FT LENGTHS OKONITE P/N 206-11-6283
020.0014605.1	2	3145.00	6290.00	NUTS & WSHRS STL HDWR, TOP & 4 PC BASE, 1 SPIDER & 1 DONUT PALLETIZED FOR GCWD WALKOUT AL CANT SIGS W/ CANT ARMS TO & INCL 30FT DIXIE DP4-B
020.0025145.1	4	363.99	1455.96	SHUNT ENCLOSURE WAYSIDE MOUNT ASSEMBLY COMPLETE WITH LOCK AND LABELS, DOES NOT INCLUDE ARRESTERS, SEE SS227 INTERRAIL P/N IRS-SEC8
020.0052475.1	4	11.03	44.12	AND NUT 2 EA SS FLAT WASH 1 EA SS LK WASH USE TO OFFSET SIGN FROM MAST CSX SS225 DETAIL 225XX KORMAN P/N CCSX2473
020.0053220.1	150	2.60	390.00	CABLE POWER UG 3 COND NO 6 AWG - SHOW LENGTH ON EACH REEL - FURNISH IN 1000 FT LENGTHS - OKOSEAL 45 MM PVC JACKET, OKONITE 112-10-3854
020.0054073.1	2	269.41	538.82	BRACKET ASSY GATE ARM CONVERSION INCLS BRKT MTG HDWARE ALUM CAST ADAPTER 8 OF 3 COND SO CORD
020.0054075.1	2	989.66	1979.32	GATE SAVER COMPLETE WITH SHEAR PIN AND RETURN SPRING USE WITH 18' TO 32' GATE ARMS RIGHT OR LEFT OF TRAFFIC DIRECTION, NEG P/N NEG385102GS
020.0055421.1	6	23.59	141.54	BRACKET SIGN 4" OR 5" MAST W/1/2" U-BOLT FOR ALL SIGNS REQUIRING 5/16" BOLT L&W P/N 7A1041-1X1
020.0055424.1	6	80.47	482.82	BRACKET SIGN 10" MAST W/SPLIT BOLTS FOR ALL SIGNS REQUIRING 5/16" BOLT L&W P/N 7A1047-10X1
020.0056181.1	4	46.37	185.48	SIGN MULTIPLE TRACK "2 TRACKS" COMPLETE WITH 2 EACH 10-1/2" SHORT EXTENSION ARMS AND HARDWARE CSX DWG SS225 DETAIL 2254 ALUMINUM DIAMOND GRADE REFLECTIVE SHEETING ORDER MAST BRACKETS SEPARATELY
020.0056421.1	4	23.96	95.84	BRACKET SIGN 4" OR 5" MAST FOR ALL SIGNS REQUIRING 5/8" BOLT L&W P/N 7A1041-1X
020.0056424.1	4	81.95	327.80	BRACKET SIGN 10" MAST W/SPLIT BOLTS FOR ALL SIGNS REQUIRING 5/8" BOLT L&W P/N 7A1047-10X
020.0056650.1	1	7001.12	7001.12	1-WAY RIGHT SIDE IND 12" LGTS ON EXT ARM 24" BACKGS&HOODS LED LAMPS 5" ALUM MAST JCT BOX BASE SIGN PINNACLE & WIND BRK SAFE P/N 074000-02265-L
020.0056697.1	1	7581.39	7581.39	SIGNAL 02286-EXIT-L GCWD EXIT GATE ASSY LEFT HAND DWG SS222 INCL ADJ 29FT TO 38FT ALUM/FBGL ARM W/3 LTS 1-WAY MAIN BACK LGT 12" LGTS 24" AL BCKS&HDS LED LAMPS 5" AL MAST JT BOX BASE SIGN PNNCL WIND BRKT & BUFFER LEG ASSY BURCO P/N 131-0496
020.0056823.1	2	17.57	35.14	TAPE UG RED CABLE MARKER IMPRINT TO READ "CAUTION BURIED SIGNAL CABLE BELOW CSX TRANSPORTATION" REEF IND INC TERRATAPE 0911456 1000 ROLL
020.0057275.1	700	1.21	847.00	WIRE UG TRACK TWISTED PAIR NO. 6 AWG SOLID CONDUCTOR WITH ONE RED AND ONE BLACK NEOPRENE JACKET SHOW LENGTH ON EACH REEL FURNISH IN 1050 FT REELS OKONITE P/N 150-12-3933
020.1040322.1	22	118.29	2602.38	BATTERY SAFT SPL165, 165 AH POCKET PLATE NICKEL CADMIUM BATTERY FEATURING ULTRA LOW MAINTENANCE, GAS RECOMBINATION TECHNOLOGY
020.1040326.1	18	226.74	4081.32	BATTERY SAFT SPL340, 340 AH POCKET PLATE NICKEL CADMIUM BATTERY FEATURING ULTRA LOW MAINTENANCE, GAS RECOMBINATION TECHNOLOGY
020.1040540.1	2	31.00	62.00	TRAY BATTERY FIBER CO 82687-1-P 12" WIDTH 24" LONG CSX DWG 82687 USE IN 4X6 HOUSE SEE SS390

CSX TRANSPORTATION

Signal Project Estimation

Field Material List for CSX Project: OH2018655 (Effective: 11/28/2018)

BE 15.06 - Location 1 - E. Sharon Ave.

[illegible]

Total Cost: \$ 153,267.37

CSX TRANSPORTATION

Signal Project Estimation

Consumable Material List for CSX Project: OH2018655 (Effective: 11/28/2018)

BE 15.06 - Location 1 - E. Sharon Ave.

[illegible]

Signal Project Estimation

Consumable Material List for CSX Project: OH2018655 (Effective: 11/28/2018)

BE 15.06 - Location 1 - E. Sharon Ave.

[illegible]

Total Cost: \$ 16,359.43

ESTIMATE SUBJECT TO REVISION AFTER: 6/9/2019

DOT NO.: 152374A

CITY: Glendale

COUNTY: Hamilton

STATE: OH

DESCRIPTION: Oak Rd. - Install 4 quadrant FLS&Gs, with obstruction detection.

REGION: Louisville

SUB-DIV: Cincinnati Terminal

MILE POST: BE-14.51

AGENCY PROJECT NUMBER: PID#106297

PRELIMINARY ENGINEERING:

212	Contracted & Administrative Engineering Services	\$	11,000
	Subtotal	\$	11,000

CONSTRUCTION ENGINEERING/INSPECTION:

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

FLAGGING SERVICE: (Contract Labor)

70	Labor (Conductor-Flagman)	0	Days @	\$ 350.00	\$	-
50	Labor (Foreman/Inspector)	0	Days @	\$ 504.00	\$	-
70	Additive	153.20%	(Transportation Department)		\$	-
50	Additive	149.90%	(Engineering Department)		\$	-
230	Expenses		(Engineering Department)	0	Days @	\$ 75.00
230	Expenses		(Transportation Department)	0	Days @	\$ 45.00
	Subtotal				\$	-

<u>SIGNAL & COMMUNICATIONS WORK:</u>	\$	565,269
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<u>TRACK WORK:</u>	\$	-
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<u>PROJECT SUBTOTAL:</u>	\$	582,268.90
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900	<u>CONTINGENCIES:</u>	0.00%	\$	-
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<u>PROJECT TOTAL:</u>	*****	\$	582,268.90
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<u>CURRENT AUTHORIZED BUDGET:</u>	*****	\$	-
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<u>TOTAL SUPPLEMENT REQUESTED:</u>	*****	\$	582,268.90
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DIVISION OF COST:

Agency	<u>100.00%</u>	\$	582,269
Railroad	<u>0.00%</u>	\$	-
		\$	582,269

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 Chief Engineer Public Projects--Jacksonville, Florida

Estimated prepared by: SE

Approved by: **AJD** CSXT Public Project Group

DATE: 01/23/19 REVISED: 12/11/18 DATE: 01/24/19

CSX TRANSPORTATION

Outside Party Estimate

Warning Device Modification For Oak Rd.

Glendale, Ohio

DOT: 152374A

OP: OH1245

CSX Project: OH2018655

Summary

Material	\$134,187
Sales Tax	\$9,661
Labor:	
Construction Labor (340 man-days)	\$129,200
Shop Labor (17 man-days)	\$6,460
Subsistence (0 man-days)	\$0
Railroad Engineering, Construction	\$19,380
Railroad Engineering, Preliminary	\$6,701
Additives to Construction Labor	\$193,671
Additives to Shop Labor	\$9,684
Additives to Track Labor	\$0
Additives to Engineering	\$0
Equipment Expense (0 work days)	\$0
Waste Management (68 work days)	\$816
Contract Engineering	\$28,259
Freight	\$9,251
Poleline Removal	\$0
AC Power Service	\$10,000
Salvage	-\$1
VAC TRUCK	\$8,000

TOTAL ESTIMATE COST	\$565,269
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Date: 11/28/2018

Estimated By: Adam Ronsick

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

CSX TRANSPORTATION

Signal Project Estimation

Shop Material List for CSX Project: OH2018655 (Effective: 11/28/2018)
BE 14.20 - Location 1 - Remote House

CATALOG_NUM	QTY	Unit Price	COST	SHORT_DESC
020.0017120.1	6	11.31	67.86	BLOCK TERMINAL 12 POST SINGLE STRIP AAR 14.1.6 WITH 1 AAR 14.1.11 WASHER AND 1 AAR 14.1.11 CLAMP NUT TORQUED ONTO EACH TERMINAL AT 40 IN/LBS, 12 AAR 14.1.11 WASHERS AND 24 AAR 14.1.11 BINDING NUTS UNASSEMBLED SAFE 023390-11X TDH 800-0001
020.0017125.1	6	3.20	19.20	BLOCK TERMINAL 2 POST AAR 14.1.8 WITH 1 AAR 14.1.11 WASHER AND 1 AAR 14.1.11 CLAMP NUT TORQUED ONTO EACH TERMINAL AT 40 IN/LBS, 2 AAR 14.1.11 WASHERS AND 4 AAR 14.1.11 BINDING NUTS UNASSEMBLED SAFE 023612-1X TDH 800-0002
020.0017800.1	1	682.00	682.00	PANEL GE TIP-2 TRACK SURGE PANEL USE IN GE ELECTROLOGIXS RACK SYSTEM WITH VTI-2S MODULE GETS P/N 800-096000-011
020.0017814.1	1	59.40	59.40	CABLE EC5 TRACK INDUCTOR PANEL CABLE ASSEMBLY 8' GETS P/N 814-096000-017
020.0018522.1	1	2339.32	2339.32	MODULE GETS VIO-865 USE IN GE ELECTROLOGIXS RACK SYSTEM GETS P/N 251380-000
020.0018582.1	1	439.17	439.17	MODULE GETS VIO-865 PERSONALITY (PM) USE IN GE ELECTROLOGIXS RACK SYSTEM GETS P/N 227537-000
020.0022651.1	1	106.70	106.70	PLUGBOARD KIT TYPE B1 OR ST1 RELAY ASSEMBLY WITH 12 EACH 14-10 CRIMP TERMINALS, 1 EACH VOLT/CURRENT (3E) AND (1E) TEST TERMINALS, INSULATORS AND CLIPS CSX REF NO C30 ALSTOM 59686-5 GR1, SAFETRAN P/N 420000-78X
020.0053360.1	2	387.88	775.76	CHARGER BATTERY ELC 12/20 D 20 AMP 10-19.9 VDC ROTARY SW VOLTAGE ADJ W/ 10' TEMP COMPENSATION PROBE 0.1 TO 0.25 V RIPPLE AT BATTERY TERMINALS 120V/240V AC INPUT ONLY NRS P/N 22290-10
020.0167501.1	8	38.51	308.08	ARRESTER HYBRID LOW VOLTAGE, 2, 0-30V DC OR 0-24V AC RATED AT 15 AMP COMPLETE WITH FAIL SAFE OPEN MECHANISM, FUSED SEMICONDUCTOR, TEST EYE WITH NUT, 6" BLUE LEAD, SEE SS382 BOURNS P/N 1675-01
020.0660077.1	1	617.00	617.00	ARRESTER GE 9L10KAC213L FOR 240 VOLT SINGLE PHASE 3 WIRE CIRCUIT PROTECTOR INCLUDES LINE TO LINE AND LINE TO GROUND PROTECTION
020.0308101.1	1	3.06	3.06	COVER, RELAY FOR CRYDOM DC60SA3 SOLID-STATE RELAY, P/N KS101
020.0386003.1	1	18.90	18.90	RELAY, SOLID STATE, 90-280 VAC/DC, 3 AMPS, CRYDOM P/N DC60SA3 (DC60SA5 AND DC60SA7 ARE EQUIVALENT AND CAN BE USED AS SUBSTITUTES).
020.0770060.1	8	15.17	121.36	ARRESTER US&S N451552-0201 TRACK SERIES RED LABEL USGA 250V DC 175V AC W/O BASE (DO NOT USE ON AC CIRCUITS FOR NEW WORK, SEE SS382) US&S RSE-17A1
020.0770105.1	4	22.06	88.24	ARRESTER HARMON 202217-000 AGE-1 TRACK AIR GAP EQUALIZER 18 VOLT
020.1622000.1	1	8940.19	8940.19	ELECTROLOGIXS, XING (XP4) / 4 SLOT REDUNDANT XING WITH 2 EA XTI-2S IN SLOT 1 & 2 (PN 16-2200-00)
020.1940055.1	1	14.50	14.50	AND VENTED PVC CAP VENT MUST BE NON CORROSIVE NON CONDUCTIVE MATERIAL REMOVABLE ON OTHER END CONTAINER MUST BE CLEANED OF ALL MILL MARK
020.2690006.1	1	8119.78	8119.78	4 SLOT ELEX VPM-3 W/UCI-3 VTI- 2S GETS PN:26-9000-10 (BURCO P/N 238-0349)
020.3430110.1	1	363.23	363.23	RELAY SAFETRAN 400004 500 OHMS CONTACTS 4FB-2F-1B CSX REFERENCE S3 SOC 1252 NEUTRAL (REPLACES
020.4200340.1	8	1.74	13.92	LINK TEST ASSEMBLY 1" CENTERS YELLOW INSULATOR ON OFFSET LINK DOES NOT REQUIRE BRASS TEST NUT, TDH SOLUTIONS P/N 800-0112
020.4200350.1	4	1.89	7.56	LINK TEST ASSEMBLY 2-3/8" CENTERS YELLOW INSULATOR ON OFFSET LINK DOES NOT REQUIRE BRASS TEST NUT, TDH SOLUTIONS P/N 800-0114
020.8000067.1	2	14.21	28.42	LOCK AMERICAN H10SIGRA CSX SIGNAL PADLOCK WITH BLACK CHROME SHACKLE W/O KEY USE ON VITAL SWITCH AND SIGNAL EQUIPMENT

Total Cost: \$ 23,133.65

CSX TRANSPORTATION

Signal Project Estimation

Field Material List for CSX Project: OH2018655 (Effective: 11/28/2018)

BE 14.20 - Location 1 - Remote House

CATALOG_NUM	QTY	Unit Price	COST	SHORT_DESC
020.0010442.1	4	11.63	46.52	ROD GROUND 5/8" X 8' SECTIONAL COPPERWELD JOSLYN J9158 ERICO P/N 635880
020.0010443.1	2	4.29	8.58	COUPLING BRONZE FOR 5/8" SECTIONAL COPPERWELD GROUND ROD
020.0010447.1	3	10.32	30.96	BOX GROUND ROD CONNECTION ENCLOSURE COMPLETE WITH 7" COVER TWO HEX HEAD 3/8" SS BOLTS AND 10" X 9" ENCLOSURE WITH 2 KNOCKOUTS FOR GROUND WIRE ENTRY AND EXIT PENCELL P/N PE-6HDK-BLA
020.0010449.1	4	15.78	63.12	BOX, 9 INCH DIA. "FLOWER POT" ENCLOSURE WITH HD POLYETHYLENE LID WITH HEX HEAD BOLT AND KNOCKOUTS PENCELL P/N PE-9HDK-CSX
020.0013375.1	12	4.89	58.68	BOND FROG LEG (MAIN) RAIL PLUG 10" X 3/16" SINGLE BARE CONDUCTOR ERICO P/N SBPMJ310, D&W P/N BSB-6CH-10
020.0013687.1	4	37.02	148.08	SPLICE TRACK WIRE TO BONDSTRAND (FLOWER POT KIT) CONTAINS 4 EA. NICOPRESS SLEEVES, 4 EA. SHRINK TUBE, 4 EA. TRACK CLIPS, 8 EA. STAPLES, DOES NOT INCLUDE RAIL CONNECTORS OR WEB WELDS, ERICO P/N SBK060SP
020.0013870.1	3500	1.33	4655.00	CABLE UG 5 COND NO 14 AWG SOLID C CSX SPEC SS796 SHOW LENGTH ON EACH REEL FURNISH IN 1000 FT LENGTHS OKONITE 206-11-6885
020.0014080.1	4	1.54	6.16	POWDER INCLUDES MOLD DISCS FOR 3/16" TRACK BOND OR SURGE PROTECTION ORDER IN MULTIPLES OF 50 ERICO P/N SB25 DWIGHT & WILSON P/N PB-25
020.0014335.1	2	7.76	15.52	CONNECTOR ONE SHOT FOR TYPE GT 5/8" GROUND ROD 2 WAY #6 AWG SOLID COPPER WIRE ERICO P/N SBGT1161G
020.0017605.1	50	0.26	13.00	WIRE CASE 10 AWG FLEX CSX SPEC SS796 OKONITE P/N 152-11-3038 FURNISH 1000 FT SPOOL SHOW LENGTH ON EACH SPOOL
020.0017630.1	50	0.13	6.50	WIRE CASE NO 16 AWG FLEX CSX SPEC SS796 FURN 1000 FT SPOOL SHOW LENGTH ON EACH SPOOL OKONITE P/N 152-11-3002
020.0025145.1	1	363.99	363.99	SHUNT ENCLOSURE WAYSIDE MOUNT ASSEMBLY COMPLETE WITH LOCK AND LABELS, DOES NOT INCLUDE ARRESTERS, SEE SS227 INTERRAIL P/N IRS-SEC8
020.0028610.1	50	0.23	11.50	TERMINAL RING PANDUIT PN12-14HDR-D YELLOW NYLON HVY DUTY 1/4 IN STUD WIRE SIZE 16-14 AWG DO NOT
020.0053220.1	150	2.60	390.00	CABLE POWER UG 3 COND NO 6 AWG - SHOW LENGTH ON EACH REEL - FURNISH IN 1000 FT LENGTHS - OKOSEAL 45 MM PVC JACKET, OKONITE 112-10-3854
020.0057275.1	600	1.21	726.00	WIRE UG TRACK TWISTED PAIR NO. 6 AWG SOLID CONDUCTOR WITH ONE RED AND ONE BLACK NEOPRENE JACKET SHOW LENGTH ON EACH REEL FURNISH IN 1050 FT REELS OKONITE P/N 150-12-3933
020.0750090.1	15	0.11	1.65	NUT INSULATED USE ON AAR BINDING POST TERMINAL FOR VOLTAGES 120V AC/DC AND HIGHER RED COLOR TDH SOLUTIONS P/N 800-0009, CAPPLUGS P/N VFC-521-16RED
020.1040225.1	6	180.13	1080.78	HARDWARE, NO-OX GREASE, CARRYING HANDLE, FLAME ARRESTOR/ELECTROLYTE LEVEL INDICATING VENT, 2.15 TO 2.22 VPC FLOAT CHARGE, 35 LBS, NRS P/N 403762-CW
020.1040322.1	9	118.29	1064.61	BATTERY SAFT SPL165, 165 AH POCKET PLATE NICKEL CADMIUM BATTERY FEATURING ULTRA LOW MAINTENANCE, GAS RECOMBINATION TECHNOLOGY
020.1040540.1	2	31.00	62.00	TRAY BATTERY FIBER CO 82687-1-P 12" WIDTH 24" LONG CSX DWG 82687 USE IN 4X6 HOUSE SEE SS390
020.1040550.1	2	45.39	90.78	TRAY BATTERY FIBER CO 82687-3-P 12" WIDTH 38" LENGTH CSX DWG 82687 FOR USE WITH FLOODED (NON-VALVE REGULATED) CELLS SS390
020.1040660.1	2	8.12	16.24	NUMBERS EXIDE 802360 CELL 1 TO 12 1" FOR BATTERIES 1 SET OF SELF-ADHESIVE PLASTIC NUMBERS SS390
020.1150750.1	300	1.05	315.00	TINNED THE 6 TWISTED AROUND 1" CENTERS YELLOW INSULATOR ON OFFSET LINK DOES NOT REQUIRE BRASS TEST NUT, ORANGE JACKET INSULATION ERICO SBS8TINS664
020.1153550.1	8	3.88	31.04	CLIP TRACK WIRE RETAINER UNIVERSAL RAIL BASE WRAP AROUND USE W/INSULATED BONDSTRAND UP TO 1/2" O.D. ERICO P/N SBA206 DWIGHT & WILSON P/N BLC-2010
020.1304014.1	8	6.45	51.60	KIT BOND, CADWELD PLUS WEB OF RAIL BOND 3/16 DIA. 4" LARGE TAB STYLE 100 EACH INCLUDES 5 EA. 4-1/2" COMBO GRINDING/CLEANING WHEEL, NEW MOLDS (L & R), PACKAGE OF 100, ERICO P/N SBTBBU4ACWPW2
020.1304017.1	25	6.16	154.00	KIT BOND, CADWELD PLUS HEAD OF RAIL 3/16" DIA 6.5" LONG XS STYLE, 60 BONDS (120 WELD POWDERS) EACH,
020.2500652.1	1	252.22	252.22	SHUNT SAFETRAN P/N 6000-62775-0816 NARROW BAND 816HZ 10 FT LEADS
020.3263656.1	4	1.91	7.64	SLEEVE BONDSTRAND 3/16" TO 3/16" 100 PER BOX, NICOPRESS P/N 2367-J, ERICO P/N SBA2367J
020.4200340.1	10	1.74	17.40	LINK TEST ASSEMBLY 1" CENTERS YELLOW INSULATOR ON OFFSET LINK DOES NOT REQUIRE BRASS TEST NUT,
020.4200900.1	4	0.26	1.04	CONNECTOR SHEATHING AMP 329860 FOR NO. 14 WIRE
020.4201042.1	20	0.13	2.60	NUT HEX BINDING (RSA NUT) AAR 14.1.11-6 14-24 NS-2 THD CONE SHAPE BRASS NICKLE PLATED FOR AAR
020.4201043.1	300	0.09	27.00	NUT HEX CLAMP (FLAT NUT) AAR 14.1.11-7 14-24 NS-2 THD FLAT BRASS NICKEL PLATED FOR AAR BINDING POST
020.4201044.1	300	0.08	24.00	WASHER AAR 14.1.11 ROUND COPPER NICKEL PLATED FOR AAR NO 14 BINDING POST SAFETRAN 023834 TDH SOLUTIONS 800-0007

Field Material List for CSX Project: OH2018655 (Effective: 11/28/2018)
BE 14.20 - Location 1 - Remote House

Total Cost: \$ 10,012.85

CSX TRANSPORTATION

Signal Project Estimation

Consumable Material List for CSX Project: OH2018655 (Effective: 11/28/2018)

BE 14.20 - Location 1 - Remote House

[illegible]

Total Cost: \$ 16,568.70

CSX TRANSPORTATION

Signal Project Estimation

Shop Material List for CSX Project: OH2018655 (Effective: 11/28/2018)
BE 14.51 - Location 2 - Oak Rd.

CATALOG_NUM	QTY	Unit Price	COST	SHORT_DESC
020.0017120.1	6	11.31	67.86	BLOCK TERMINAL 12 POST SINGLE STRIP AAR 14.1.6 WITH 1 AAR 14.1.11 WASHER AND 1 AAR 14.1.11 CLAMP NUT TORQUED ONTO EACH TERMINAL AT 40 IN/LBS, 12 AAR 14.1.11 WASHERS AND 24 AAR 14.1.11 BINDING NUTS UNASSEMBLED SAFE 023390-11X TDH 800-0001
020.0017125.1	6	3.20	19.20	BLOCK TERMINAL 2 POST AAR 14.1.8 WITH 1 AAR 14.1.11 WASHER AND 1 AAR 14.1.11 CLAMP NUT TORQUED ONTO EACH TERMINAL AT 40 IN/LBS, 2 AAR 14.1.11 WASHERS AND 4 AAR 14.1.11 BINDING NUTS UNASSEMBLED SAFE 023612-1X TDH 800-0002
020.0017211.1	1	1093.72	1093.72	TRANSFORMER LIGHT 750VA 010520-50X MODEL SLT-50 PRIMARY 115-230VAC SECONDARY .5 - 15.5V AC 50A INDOOR SERVICE ONLY AREMA MANUAL PART 14.2.10 OLSUN P/N 5995-50-RR
020.0018520.1	1	647.63	647.63	MODULE GETS GFD-1 GROUND FAULT DETECTOR USE IN GE ELECTROLOGIXS RACK SYSTEM GETS P/N 251333-000
020.0018522.1	1	2339.32	2339.32	MODULE GETS VIO-86S USE IN GE ELECTROLOGIXS RACK SYSTEM GETS P/N 251380-000
020.0018564.1	2	3378.24	6756.48	MODULE GETS XTI-15 CROSSING TRACK INTERFACE USE IN GE ELECTROLOGIXS RACK SYSTEM GETS P/N 251336-000 (BURCO P/N 238-0346)
020.0018582.1	1	439.17	439.17	MODULE GETS VIO-86S PERSONALITY (PM) USE IN GE ELECTROLOGIXS RACK SYSTEM GETS P/N 227537-000
020.0018588.1	1	422.83	422.83	MODULE GETS XTI-15 PERSONALITY (PM) NORMAL/STANDBY USE IN GE ELECTROLOGIXS RACK SYSTEM GETS P/N 227481-000 (BURCO P/N 238-0341)
020.0021965.1	1	8.96	8.96	EXTRACTOR DWG 59688-4 TERMINAL GRS CAT P3-308 REF 18 1/16" STEEL WIRE COVERED W/INSULATING TUBING BILMAR 59688
020.0022651.1	10	106.70	1067.00	PLUGBOARD KIT TYPE B1 OR ST1 RELAY ASSEMBLY WITH 12 EACH 14-10 CRIMP TERMINALS, 1 EACH VOLT/CURRENT (3E) AND (1E) TEST TERMINALS, INSULATORS AND CLIPS CSX REF NO C30 ALSTOM 59686-5 GR1, SAFETRAN P/N 420000-78X
020.0025595.1	1	20.41	20.41	WRENCH DWG 55393-3 GR1 "E" TERMINAL POST NUT GRS CAT P3-320 REF G NATIONAL ELEC GATE P/N EDG-5951
020.0053360.1	3	387.88	1163.64	CHARGER BATTERY ELC 12/20 D 20 AMP 10-19.9 VDC ROTARY SW VOLTAGE ADJ W/ 10' TEMP COMPENSATION PROBE 0.1 TO 0.25 V RIPPLE AT BATTERY TERMINALS 120V/240V AC INPUT ONLY NRS P/N 22290-10
020.0065621.1	1	236.68	236.68	087426 ANIXTER RACK COMPLETE INCLUDES 3 EACH 020.3471120.1 AND 2 EACH 020.3471121.1 RELAY MOUNTING AND WIRE TIE BARS
020.0167501.1	67	38.51	2580.17	ARRESTER HYBRID LOW VOLTAGE, 2, 0-30V DC OR 0-24V AC RATED AT 15 AMP COMPLETE WITH FAIL SAFE OPEN MECHANISM, FUSED SEMICONDUCTOR, TEST EYE WITH NUT, 6" BLUE LEAD, SEE SS382 BOURNS P/N 1675-01
020.0660077.1	1	617.00	617.00	ARRESTER GE 9L10KAC213L FOR 240 VOLT SINGLE PHASE 3 WIRE CIRCUIT PROTECTOR INCLUDES LINE TO LINE
020.0750090.1	3	0.11	0.33	NUT INSULATED USE ON AAR BINDING POST TERMINAL FOR VOLTAGES 120V AC/DC AND HIGHER RED COLOR
020.0770060.1	16	15.17	242.72	ARRESTER US&S N451552-0201 TRACK SERIES RED LABEL USGA 250V DC 175V AC W/O BASE (DO NOT USE ON AC CIRCUITS FOR NEW WORK, SEE SS382) US&S RSE-17A1
020.0770105.1	4	22.06	88.24	ARRESTER HARMON 202217-000 AGE-1 TRACK AIR GAP EQUALIZER 18 VOLT
020.1622001.1	1	9838.85	9838.85	ELECTROLOGIXS, XING (XP4) / 9 SLOT REDUNDANT XING WITH 2 EA XTI-2S IN SLOT 1 & 2 (PN 16-220000000-00)
020.1940055.1	1	14.50	14.50	AND VENTED PVC CAP VENT MUST BE NON CORROSIVE NON CONDUCTIVE MATERIAL REMOVABLE ON OTHER END CONTAINER MUST BE CLEANED OF ALL MILL MARK
020.2501400.1	1	1181.28	1181.28	CONTROLLER DTMF RADIO KEY DOWN MODE 6 SET TIMER TO 60 SECONDS COMPLETE WITH 50 OHM ANTENNA AND ANTENNA SHORTING PLUG WALL MOUNT FREQUENCIES(MHZ) - 160.560, 160.710, 160.785, 160.860, 160.875, 161.130, 161.550 LARRY MCGEE P/N 14-99005V2-B6
020.2503071.1	1	1934.66	1934.66	MODULE SAFETRAN (EXPANSION FOR SEAR 11) ANALOG & DIGITAL I/O UNIT (A80258) USE WITH GCP-3000 FOR KEYDOWN CAPABILITY SAFETRAN P/N 8000-80258-0001
020.3180290.1	1	5154.93	5154.93	RECORDER SEAR II REMOTE MONITORING INCLUDES THE FOLLOWING KIT ALARMS & TESTING, (80290) APP SW (9V736-A02A), (2) ILODS (80271), (1) ECH (80078), (2) GFD (80297), (1) WAG (9000-53457-0001) & CABLE 20FT (Z706-02027-00200)
020.3430110.1	4	363.23	1452.92	RELAY SAFETRAN 400004 500 OHMS CONTACTS 4FB-2F-1B CSX REFERENCE S3 SOC 1252 NEUTRAL (REPLACES
020.3430115.1	1	464.77	464.77	RELAY SAFETRAN 400005 500 OHMS CONTACTS 4FB HEAVY DUTY 10 AMP 2FB CSX REFERENCE S4 SOC 1253
020.3430130.1	2	409.74	819.48	RELAY SAFETRAN 400023 500 OHMS CONTACTS 6FB HEAVY DUTY CSX REFERENCE S7
020.3430135.1	1	560.76	560.76	RELAY SAFETRAN 400213 460 OHMS CONTACTS 2FB CSX REFERENCE S8 SOC 1257 SLOW RELEASE (REPLACES GRS 56001-830 GR1 TYPE B1 CAT A62-353 REF B36)
020.3430170.1	1	464.35	464.35	POWER TRANSFER COMPLETE WITH RECTIFIER 590000-X (REPLACES GRS 56001-745 GR1 TYPE B1 CATALOG A62-406 REF B62)
020.3430185.1	1	483.80	483.80	FLASHER MODULE 400700-1X (REPLACES GRS 56001-985 GR1 TYPE B1 AND FLASH X-PAK MODULE 30733-1 GR4 CAT A62-673 REF B81)

CSX TRANSPORTATION

Signal Project Estimation

Field Material List for CSX Project: OH2018655 (Effective: 11/28/2018)
BE 14.51 - Location 2 - Oak Rd.

CATALOG_NUM	QTY	Unit Price	COST	SHORT_DESC
014.8006169.1	2	9.80	19.60	SIGN PERMANENT EMERGENCY NOTIFICATION (VEHICLE BLOCKING RD CRSSING) ALUM BLADE WHI HIGH INTENSITY PRISMATIC LTRS ON BLU BACKGROUND COMPLETE W/DOT ID AND MP PER CSX DWG 2719 ENTER DOT ID & MP IN REQ NOTE TO SUPPLIER USE 014.8006170.1
020.0010447.1	2	10.32	20.64	BOX GROUND ROD CONNECTION ENCLOSURE COMPLETE WITH 7" COVER TWO HEX HEAD 3/8" SS BOLTS AND 10" X 9" ENCLOSURE WITH 2 KNOCKOUTS FOR GROUND WIRE ENTRY AND EXIT PENCELL P/N PE-6HDKH-BLA
020.0013375.1	20	4.89	97.80	BOND FROG LEG (MAIN) RAIL PLUG 10" X 3/16" SINGLE BARE CONDUCTOR ERICO P/N SBPMJ310, D&W P/N BSB-6CH-10
020.0013686.1	4	76.27	305.08	BOOTLEG KIT CSX RAIL CONN W/15 FT 3/16 IN BDSTRAND 6/64 IN JKT 2 TK CONN ERICO SBPAC3-A/2 CLIP ERICO SBA248A 4 RL PT CDWELD STPL 3/8 X 1 3/4 IN 2 ERICO SBA2363 SLVES 2 RAYCHEM OR AMP 6 IN TUBIN 2 PLEXICO 3408 DWG&WILSON P/N BLTS-8-80B
020.0013908.1	350	7.22	2527.00	CABLE UG COMPOSITE 19 CONDUCTOR INCLUDES 13 CONDUCTOR #14 AWG SOLID AND 6 CONDUCTOR #6 AWG SOLID CSX SS360 SHOW LENGTH ON EACH REEL FURNISH IN 1000 FT LENGTHS OKONITE P/N 206-11-6283
020.0025145.1	4	363.99	1455.96	SHUNT ENCLOSURE WAYSIDE MOUNT ASSEMBLY COMPLETE WITH LOCK AND LABELS, DOES NOT INCLUDE ARRESTERS, SEE SS227 INTERRAIL P/N IRS-SEC8
020.0053220.1	50	2.60	130.00	CABLE POWER UG 3 COND NO 6 AWG - SHOW LENGTH ON EACH REEL - FURNISH IN 1000 FT LENGTHS - OKOSEAL 45 MM PVC JACKET, OKONITE 112-10-3854
020.0055421.1	6	23.59	141.54	BRACKET SIGN 4" OR 5" MAST W/1/2" U-BOLT FOR ALL SIGNS REQUIRING 5/16" BOLT L&W P/N 7A1041-1X1 CSX DWG SS225 DETAIL 2254 ALUMINUM DIAMOND GRADE REFLECTIVE SHEETING ORDER MAST BRACKETS SEPARATELY
020.0056181.1	2	46.37	92.74	TAPE UG RED CABLE MARKER IMPRINT TO READ "CAUTION BURIED SIGNAL CABLE BELOW CSX TRANSPORTATION" REEF IND INC TERRATAPE 0911456 1000 ROLL
020.0056823.1	1	17.57	17.57	WIRE UG TRACK TWISTED PAIR NO. 6 AWG SOLID CONDUCTOR WITH ONE RED AND ONE BLACK NEOPRENE JACKET SHOW LENGTH ON EACH REEL FURNISH IN 1050 FT REELS OKONITE P/N 150-12-3933
020.0057275.1	700	1.21	847.00	BATTERY SAFT SPL165, 165 AH POCKET PLATE NICKEL CADMIUM BATTERY FEATURING ULTRA LOW MAINTENANCE, GAS RECOMBINATION TECHNOLOGY
020.1040322.1	11	118.29	1301.19	BATTERY SAFT SPL250, 250 AH POCKET PLATE NICKEL CADMIUM BATTERY FEATURING ULTRA LOW MAINTENANCE, GAS RECOMBINATION TECHNOLOGY
020.1040324.1	9	183.65	1652.85	BATTERY SAFT SPL340, 340 AH POCKET PLATE NICKEL CADMIUM BATTERY FEATURING ULTRA LOW MAINTENANCE, GAS RECOMBINATION TECHNOLOGY
020.1040326.1	9	226.74	2040.66	TRAY BATTERY FIBER CO 82687-1-P 12" WIDTH 24" LONG CSX DWG 82687 USE IN 4X6 HOUSE SEE SS390
020.1040540.1	2	31.00	62.00	TRAY BATTERY FIBER CO 82687-3-P 12" WIDTH 38" LENGTH CSX DWG 82687 FOR USE WITH FLOODED (NON-VALVE REGULATED) CELLS SS390
020.1040550.1	4	45.39	181.56	BOND STRAND 3/16" DIA 7 STRANDS OF 19 STR EACH 6 WITH 12 STRS TINNED OUTER WIRES AROUND 7 NOT TINNED THE 6 TWISTED AROUND 1 CENTER STRAND OF 19 STRS NOT TINNED WITH 6/64" PVC FLORESCENT ORANGE JACKET INSULATION ERICO SBS8TINS664
020.1150750.1	700	1.05	735.00	KIT BOND, CADWELD PLUS WEB OF RAIL BOND 3/16 DIA. 4" LARGE TAB STYLE 100 EACH INCLUDES 5 EA. 4-1/2" COMBO GRINDING/CLEANING WHEEL, NEW MOLDS (L & R), PACKAGE OF 100, ERICO P/N SBTBBU4ACWPW2
020.1304014.1	20	6.45	129.00	PACKAGE FOREMANS CARE FOR ALUMINUM TYPICAL BOM FOR USE ON ALL MAJOR HIGHWAY CROSSING SIGNAL PROJECTS INCL GROUNDING MATERIALS BOOTLEGS BITS CASE WIRE DUCT SEAL AMP TERMINALS TAPE NO-OX-ID GREASE PADLOCKS TAGS PAINT PAINT BRUSHES
020.1360014.1	1	841.27	841.27	PACKAGE SAFETY FOR BURCO CONTAINERS COMPLETE WITH ONE EACH SAFETY LOCK TAG 3-1/4" X 4-1/4" DOUBLE SIDED RED WITH WHITE LETTERS AND ONE EACH SIGNAL H10 PADLOCK (020.8000067.1) BURCO P/N 846-0003
020.1360016.1	1	24.41	24.41	LAYOUT AC METER SERVICE WITH 30' POLE CSX DWG SS351 SH 2 ITEMS 1 TO 40 W/100A LOAD CTR WITH UP TO #2 AWG WIRE CAPABILITY -INCLUDES 2P70A BREAKER-P/N 212-0009
020.1360104.1	1	1559.40	1559.40	INDUCTOR 227032-001 500 DUMMY LOAD HARMON
020.2541316.1	1	84.00	84.00	
020.2500632.1	4	267.48	1069.92	SHUNT SAFETRAN P/N 6000-62775-0392 NARROW BAND 392HZ 10 FT LEADS
020.4200340.1	25	1.74	43.50	LINK TEST ASSEMBLY 1" CENTERS YELLOW INSULATOR ON OFFSET LINK DOES NOT REQUIRE BRASS TEST NUT,
020.4200900.1	6	0.26	1.56	CONNECTOR SHEATHING AMP 329860 FOR NO. 14 WIRE
020.4201042.1	20	0.13	2.60	NUT HEX BINDING (RSA NUT) AAR 14.1.11-6 14-24 NS-2 THD CONE SHAPE BRASS NICKLE PLATED FOR AAR BINDING POST W/14-24 THD SAFETRAN 023831 TDH SOLUTIONS 800-0005
020.4201043.1	150	0.09	13.50	NUT HEX CLAMP (FLAT NUT) AAR 14.1.11-7 14-24 NS-2 THD FLAT BRASS NICKEL PLATED FOR AAR BINDING POST
020.4201044.1	100	0.08	8.00	WASHER AAR 14.1.11 ROUND COPPER NICKEL PLATED FOR AAR NO 14 BINDING POST SAFETRAN 023834 TDH SOLUTIONS 800-0007

CSX TRANSPORTATION

Signal Project Estimation

Consumables Material List for CSX Project: OH2018655 (Effective: 11/28/2018)

BE 14.51 - Location 2 - Oak Rd.

[illegible]

Total Cost: \$ 14,551.43

ESTIMATE SUBJECT TO REVISION AFTER: 6/9/2019

DOT NO.: 152374A

CITY: Glendale

COUNTY: Hamilton

STATE: OH

DESCRIPTION: Oak Rd. - Install 4 quadrant FLS&Gs, with obstruction detection.

REGION: Louisville

SUB-DIV: Cincinnati Terminal

MILE POST: BE-14.51

AGENCY PROJECT NUMBER: PID#106297

PRELIMINARY ENGINEERING:

212	Contracted & Administrative Engineering Services	\$	-
	Subtotal	\$	-

CONSTRUCTION ENGINEERING/INSPECTION:

212	Contracted & Administrative Engineering Services	\$	-
	Subtotal	\$	-

FLAGGING SERVICE: (Contract Labor)

70	Labor (Conductor-Flagman)	0	Days @	\$ 350.00	\$	-
50	Labor (Foreman/Inspector)	0	Days @	\$ 504.00	\$	-
70	Additive 153.20% (Transportation Department)				\$	-
50	Additive 149.90% (Engineering Department)				\$	-
230	Expenses (Engineering Department)	0	Days @	\$ 75.00	\$	-
230	Expenses (Transportation Department)	0	Days @	\$ 45.00	\$	-
	Subtotal				\$	-

<u>SIGNAL & COMMUNICATIONS WORK:</u>	\$	203,477
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<u>TRACK WORK:</u>	\$	-
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<u>PROJECT SUBTOTAL:</u>	\$	203,476.51
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900	<u>CONTINGENCIES:</u> 0.00%	\$	-
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<u>PROJECT TOTAL:</u>	*****	\$	203,476.51
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<u>CURRENT AUTHORIZED BUDGET:</u>	*****	\$	-
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<u>TOTAL SUPPLEMENT REQUESTED:</u>	*****	\$	203,476.51
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DIVISION OF COST:

Agency	<u>100.00%</u>	\$	203,477
Railroad	<u>0.00%</u>	\$	-
		\$	203,477

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 Chief Engineer Public Projects--Jacksonville, Florida

Estimated prepared by: SE

Approved by: A/D CSXT Public Project Group

DATE: 01/23/19 REVISED: 12/11/18 DATE: 01/24/19

CSX TRANSPORTATION

Outside Party Estimate

Warning Device Modification For Oak Rd.

Glendale, Ohio

DOT: 152374A

OP: OH1245

CSX Project: OH2018655

Summary

Material	\$133,252
Sales Tax	\$9,594
Labor:	
Construction Labor (46 man-days)	\$17,480
Shop Labor (0 man-days)	\$0
Subsistence (0 man-days)	\$0
Railroad Engineering, Construction	\$2,622
Railroad Engineering, Preliminary	\$5,011
Additives to Construction Labor	\$26,203
Additives to Shop Labor	\$0
Additives to Track Labor	\$0
Additives to Engineering	\$0
Equipment Expense (0 work days)	\$0
Waste Management (10 work days)	\$120
Contract Engineering	\$0
Freight	\$9,195
Poleline Removal	\$0
AC Power Service	\$0
Salvage	\$0
VAC TRUCK	\$0

TOTAL ESTIMATE COST	\$203,477
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Date: 11/28/2018

Estimated By: Adam Ronsick

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

CSX TRANSPORTATION

Signal Project Estimation

Shop Material List for CSX Project: OH2018655 (Effective: 11/28/2018)

BE 14.51 - Location 2 - Oak Rd.

[illegible]

Total Cost: \$ 72,121.81

CSX TRANSPORTATION

Signal Project Estimation

Field Material List for CSX Project: OH2018655 (Effective: 11/28/2018)

BE 14.51 - Location 2 - Oak Rd.

[illegible]

Total Cost: \$ 58,513.97

CSX TRANSPORTATION

Signal Project Estimation

Consumables Material List for CSX Project: OH2018655 (Effective: 11/28/2018)

BE 14.51 - Location 2 - Oak Rd.

[illegible]

Total Cost: \$ 2,616.00



OHIO RAIL DEVELOPMENT COMMISSION

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

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

April 5, 2018

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

RE: Grade Crossing Warning Device Improvements
Hamilton County – PID # 106297 E. Sharon Rd DOT # 152376N and Oak Rd DOT # 152374A

Dear Ms. DeCesare:

A diagnostic review was held at the above grade crossing on July 19, 2016. The crossing has been recommended for improvements to the existing active warning devices.

CSX Transportation is authorized to proceed with the site plans and cost estimates (PE) or bid package 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 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 Greg Gronbach. Greg Gronbach can be reached at (614) 395-1824, or Greg.Gronbach@dot.ohio.gov, if you have any questions.

Sincerely,


Greg Gronbach
Project Manager

C: Randall Schumacher, Supervisor, Rail Division, PUCO
Jill Henry, Rail Specialist, PUCO
Nicole Henning, Engineering Assistant, CSX
Susan Arduini, ORDC
ORDC (file)

Attachment: 1 (diagnostic review form)



www.rail.ohio.gov

phone: 614.644.0306

IMPROVING RAIL TODAY FOR TOMORROW'S ECONOMY

IN THE MATTER OF A GRADE
CROSSING CONSOLIDATION AND
UPGRADE PROJECT IN THE VILLAGE OF
GLENDALE IN HAMILTON COUNTY
IN THE STATE OF OHIO

AGREEMENT NO. 31927

AGREEMENT

THIS AGREEMENT ("AGREEMENT") is entered into on this 22nd day
of March, 2018 by and among the Ohio Rail Development Commission
("ORDC") and the Public Utilities Commission of Ohio ("PUCO") (hereinafter collectively
referred to as the "STATE"), the Village of GLENDALE ("VILLAGE"), and CSX
Transportation ("RAILROAD").

WITNESSETH:

WHEREAS, the Public Utilities Commission of Ohio ("PUCO") has statutory authority to
regulate and promote the welfare and safety of railroad employees and the traveling public
pursuant to Ohio Revised Code ("ORC") §4905.04; and

WHEREAS, the Ohio Rail Development Commission ("ORDC") is charged with the
statutory authority under ORC §4981.03 to develop, promote, and support safe, adequate, and
efficient rail service throughout the State of Ohio; and

WHEREAS, PUCO has authority to order closure of public grade crossings to vehicular
traffic within governmental limits pursuant to ORC §4907.474; and

WHEREAS, the Moving Ahead for Progress in the 21st Century Act thereto provide
funding for the cost to eliminate hazards at public grade crossings, which funding is administered
jointly by the PUCO and ORDC pursuant to ORC §4907.476; and

WHEREAS, the Village desires to establish a Quiet Zone in the Village and to implement
supplemental safety measures in order to eliminate the hazards at public grade crossings in the
Village and to mitigate the risks associated with the absence of train horns; and

WHEREAS, the ORDC and RAILROAD agree that they do not, and will not, object to the
establishment of a Quiet Zone, provided the Quiet Zone is approved by the Federal Railroad
Administration, in the Village upon the completion of the closures and improvement identified in
this AGREEMENT; and

GRADE CROSSING CONSOLIDATION AND UPGRADE PROJECT
IN THE VILLAGE OF GLENDALE IN HAMILTON COUNTY

WHEREAS, the parties hereto propose to facilitate the modifications identified in this AGREEMENT in accordance with the Title 23 Code of Federal Regulations (“CFR”) and applicable provisions of Title 23 of the United States Code pursuant to the terms hereof; and

WHEREAS, this agreement and any information or documentation relating thereto is for the purpose of identifying, evaluating, and/or planning the safety enhancement of railway-highway crossings which may be implemented utilizing federal-aid highway funds; and

WHEREAS, the RAILROAD agrees to cooperate with the STATE in the implementation of projects in furtherance of the public safety; and

WHEREAS the STATE, VILLAGE and RAILROAD will execute this AGREEMENT to specify details for the modifications at the designated grade crossing; and

WHEREAS, the parties, intending to be legally bound, further agree that the public grade crossing identified in Section II of this AGREEMENT should be permanently closed to vehicular and pedestrian traffic as part of the safety project to be implemented by this AGREEMENT.

NOW, THEREFORE, for and in consideration of the mutual promises and covenants contained herein, the parties agree as follows:

I. GENERAL REQUIREMENTS

There are numerous public highway/grade crossings located within the limits of the VILLAGE. The purpose of this AGREEMENT is to enhance the safety of the traveling public who are required to regularly travel through these public grade crossings and to mitigate the risks associated with the absence of train horns with engineering improvements identified by the Federal Railroad Administration as Supplemental Safety Measures upon the establishment of a Quiet Zone in the Village. The ORDC and RAILROAD do not object to the establishment of such a Quiet Zone upon the completion of the closures and improvements outlined in this AGREEMENT.

The VILLAGE has authority over the grade crossings identified in Section II below.

II. GRADE CROSSING CLOSURE (“PROJECT”)

The VILLAGE agrees to permanently close, to all vehicular and pedestrian traffic of any kind, the following grade crossings:

GRADE CROSSING CONSOLIDATION AND UPGRADE PROJECT
IN THE VILLAGE OF GLENDALE IN HAMILTON COUNTY

Highway ID	DOT #
Albion Avenue	152-375G
Pedestrian Crossing	153-617D

The closing of the Albion Avenue grade crossing and pedestrian crossing shall occur after the improvements to E. Sharon Road and Oak Road as outlined in Section III of this AGREEMENT are completed.

The VILLAGE shall make modifications to the roadway on each side of the tracks, at the grade crossing to be closed to ensure elimination of the crossings. Such modifications to the roadway shall be in conformance with the Manual on Uniform Traffic Control Devices (“MUTCD”). Construction authorization will be issued upon execution of this AGREEMENT and the securing of federal funds by the ORDC.

The VILLAGE will install treatments to discourage trespassing between the municipal parking lot and the town square. VILLAGE will ensure that such treatments as may be in close proximity to the track conform to RAILROAD requirements prior to installation.

The VILLAGE shall remove the advance warning signs and pavement markings if applicable from the crossings to be closed.

RAILROAD shall remove all pavements from the crossing area within RAILROAD right-of-way and remove all existing warning devices from the crossings to be closed. This work shall be completed in conjunction with the Village’s obligation to make modifications to the roadway to ensure the elimination of the crossings.

Following receipt of public input, the VILLAGE enacted Ordinance number 2017-38, dated August 28, 2017, that expresses its commitment to this action, the form and substance of which are acceptable to ORDC and PUCO.

III. GRADE CROSSING IMPROVEMENTS

- A) In consideration of the commitment by the VILLAGE to permanently close the Albion Avenue and Pedestrian grade crossings to all vehicular and pedestrian traffic of any kind designated in Section II, grade crossing improvements will be accomplished as follows (the “improvements”):

<u>Highway ID</u>	<u>DOT #</u>	<u>Improvement</u>
E. Sharon Road	152-376N	Warning device modernization and circuitry upgrade
Oak Road	152-374A	Warning device modernization and circuitry upgrade

GRADE CROSSING CONSOLIDATION AND UPGRADE PROJECT
IN THE VILLAGE OF GLENDALE IN HAMILTON COUNTY

B) <u>Highway ID</u>	<u>DOT #</u>	<u>Improvement</u>
E. Sharon Road	152-376N	Exit gates
Oak Road	152-374A	Exit gates

Curb may be required for the light and gate installations as well as the lane and turning restrictions at North Greenville Avenue. The VILLAGE will install or otherwise contract for the installation of all such curb. Any construction cost associated with curbing will be reimbursed to the VILLAGE by ORDC. Any curb work required beyond the elements identified above will be the responsibility of the Village.

The VILLAGE will convert Greenville Avenue into a one-way street with right turn only access that will allow the placement of warning devices on the north-west corner of East Sharon Road.

C) All crossings equipped with exit gates shall be equipped with vehicle detection. The type of vehicle detection will be inductive loops unless otherwise approved by ORDC. The VILLAGE shall be responsible for the design and construction of the vehicle detection.

D) In addition, RAILROAD agrees to provide the following incentive:

\$50,000.00 of funds from RAILROAD which may be used by the VILLAGE for any purpose.

E) Upon completion of the closures set forth in Section II and improvements set forth in Section III of this AGREEMENT, ORDC and the RAILROAD will not object to the VILLAGE's application to the Federal Railroad Administration for the establishment of a quiet zone.

After completion of the improvements, RAILROAD shall operate, maintain and renew, at its sole expense, all warning devices and railroad equipment constructed or changed under the terms of this AGREEMENT in good operating order. Nothing stated herein shall deny RAILROAD the right to seek reimbursement of the costs for the maintenance and renewal of the improvements and other of its facilities constructed or changed under the terms of this AGREEMENT, if such reimbursement is then provided for by Federal Highway Administration ("FHWA") regulations and/or the ORC.

After the completion of the improvements, the VILLAGE shall operate, maintain and renew, at its sole expense, all vehicle detection equipment constructed or installed under the terms of this AGREEMENT in good operating order. Nothing stated herein shall deny the VILLAGE the right to seek reimbursement of the costs for the maintenance and renewal of the improvements

and other of its facilities constructed or changed under the terms of this AGREEMENT, if such reimbursement is then provided for by FHWA regulations and/or the ORC.

IV. COST ALLOCATION AND BILLING

As set forth in Section II of this AGREEMENT the cost of modifications to the roadway at Albion Avenue to effect the closure of the crossing shall be borne up to five thousand dollars (\$5,000.00) by ORDC on a reimbursement basis to the VILLAGE. Any additional costs shall be borne by the VILLAGE.

As set forth in Section II of this AGREEMENT the cost of modifications at the Pedestrian crossing to effect the closure of the crossing and discourage pedestrian access shall be borne 100% by the VILLAGE. The VILLAGE may at its discretion use incentive funds to effect the modifications.

As set forth in Section II of this AGREEMENT the actual costs for the removal of advance warning signs and pavement markings for the grade crossing to be closed shall be borne one hundred percent (100%) by the VILLAGE.

As set forth in Section II of this AGREEMENT, the actual costs for the removal of warning devices and crossing surface at the grade crossing to be closed will be borne one hundred percent (100%) by RAILROAD.

As set forth in Section III(A) of this AGREEMENT the actual costs for improvements will be borne one hundred percent (100%) by ORDC.

As set forth in Section III(B) of this AGREEMENT the actual costs for design of improvement (exit gates) at E. Sharon Road and Oak Street will be borne one hundred percent (100%) by ORDC.

As set forth in Section III(B) of this AGREEMENT the actual costs for materials and construction of improvement (exit gates) at E. Sharon Road will be borne one hundred percent (100%) by ORDC.

As set forth in Section III(B) of this AGREEMENT the actual costs for materials and construction of improvement (exit gates) at Oak Road will be borne one hundred percent (100%) by the VILLAGE.

As set forth in Section III(C) of this AGREEMENT, the actual cost for vehicle detection design and installation for E. Sharon Road will be borne one hundred percent (100%) by ORDC.

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As set forth in Section III(C) of this AGREEMENT, the actual cost for vehicle detection design and installation for Oak Street will be borne one hundred percent (100%) by the VILLAGE.

As set forth in Section III(D) of this AGREEMENT, the funds in the total amount of \$50,000.00 shall be borne one hundred percent (100%) by RAILROAD. The VILLAGE shall invoice RAILROAD for this amount subsequent to the permanent closure of the roadways.

In total the actual costs to be borne by ORDC set forth in Section II and Section III of this AGREEMENT shall not be greater than \$1,200,000.00 unless otherwise approved in writing by ORDC.

The costs assigned to ORDC shall be satisfied through the expenditure of federal funds administered by ORDC and subject to approval by the FHWA. In the event that delays or difficulties arise in securing necessary federal approvals which, in the opinion of ORDC, render it impracticable to utilize federal funds for the construction of this project, then at any time before RAILROAD is authorized to purchase or furnish the items included under this AGREEMENT, ORDC may serve formal notice of cancellation upon RAILROAD and the VILLAGE, and this AGREEMENT shall become null and void. ORDC shall reimburse RAILROAD and the VILLAGE for all costs and expenses reasonably incurred on account of the improvements prior to such cancellation, including costs associated with winding down the project.

RAILROAD shall be responsible for initially paying all of their actual costs to install the improvements identified in Section III. However, ORDC shall be legally bound to reimburse RAILROAD for its costs for the improvements, as set forth above, upon proper application therefore by RAILROAD, consistent with the terms of this AGREEMENT and in accordance with all applicable federal regulations.

All plans, specifications, estimates of costs, acceptance of work, and procedures in general, to facilitate the construction of the safety improvements described above, shall conform in all respects to applicable federal laws, rules, regulations, orders, and approvals applicable to federal aid projects and to RAILROADS's design and engineering standards. ORDC shall reimburse RAILROAD in accordance with FAPG 140, Subchapter B. and 23 C.F.R., Part 646, or any subsequent amendments thereto, in such amounts and form as are proper and eligible for payment from federal aid highway funds. RAILROAD shall render its billings to ORDC in accordance with said rules and regulations, and RAILROAD shall also provide and furnish such itemized records of and substantiating data for such costs as may be required.

RAILROAD may bill ORDC monthly or periodically for its costs when costs exceed \$1,000.00. RAILROAD shall submit two (2) copies of its bill and in accordance with said rules and regulations as they have been issued or as thereafter may be supplemented or revised. A final bill covering actual cost and showing details shall be submitted to ORDC within ninety (90) days

after completion of the improvements. ORDC shall pay all bills within sixty (60) days after receipt thereof, except that ORDC may hold a retainer on all bills not to exceed eight percent (8%) until final payment. Final payment for all amounts due RAILROAD shall be made by ORDC within sixty (60) days after a final audit has been performed and approved by ORDC. The audit shall occur within 180 days of submission of RAILROAD's final bill. RAILROAD agrees to cooperate and assist, as requested, in any such audit.

At any time during normal business hours upon three (3) business days written notice and as often as ORDC/PUCO may deem necessary and in such a manner as not to interfere with the normal business operations, RAILROAD shall make available to ORDC, for examination, and to appropriate state agencies or officials, all of its records with respect to matters covered by this AGREEMENT including, but not limited to, records of personnel and conditions of employment and shall permit ORDC to audit, examine and make excerpts or transcripts from such records.

In the event of a controversy as to the eligibility for reimbursement of any charges claimed against the improvement as set forth in Section III of this AGREEMENT, the decision of the ORDC regarding same shall be final. However, RAILROAD and/or the VILLAGE may appeal the decision of the ORDC to a court of competent jurisdiction for further review.

No work requiring reimbursement under this AGREEMENT shall be commenced by the parties until all of the following have occurred: (1) this AGREEMENT shall have been approved by ORDC/PUCO; (2) all financial obligations of ORDC/PUCO, as provided for in this AGREEMENT, are subject to the provisions of § 126.07 of the ORC and shall not be valid and enforceable unless funds are appropriated by the Ohio General Assembly and encumbered by ORDC/PUCO; (3) RAILROAD has been notified by ORDC/PUCO to proceed with construction of the improvements. Work on the improvements shall commence within 30 (thirty) days of the occurrence of events (1), (2) and (3) described herein. Buying and assembling of materials shall be construed as compliance with the foregoing thirty (30) day provision. Said work shall be pursued diligently by RAILROAD until completed.

RAILROAD agrees that STATE, or its duly authorized representatives, shall, during STATE normal business hours, upon reasonable notice, in accordance with RAILROAD safety rules and regulations, and accompanied by RAILROAD personnel, be permitted to examine the records and data maintained by RAILROAD related to this AGREEMENT as may be necessary to monitor RAILROAD's compliance with this AGREEMENT.

RAILROAD shall maintain all books, documents, papers, program agreements, accounting records, and other evidence pertaining to this AGREEMENT, its revenues and expenditures, and shall provide such information upon request of STATE or its designee and shall permit STATE to examine and audit those books, records, and the accounting procedures and practices of the RAILROAD relevant to this AGREEMENT. All documents and information shall be made available for review and audit at a mutually-agreeable location within the state of Ohio. The

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records shall be retained for three years after receipt of final payment to the RAILROAD from the STATE.

RAILROAD will comply with the requirements of the ODOT Railroad Audit Circulars, available at:

<http://www.dot.state.oh.us/Divisions/Finance/Auditing/Pages/RailUtilities.aspx.aspx>

V. NOTIFICATION

All notices, consents, demands, requests and other communications which may or are required to be given hereunder shall be in writing and shall be deemed duly given if personally delivered or sent by facsimile and confirmed by telephone or sent by electronic mail, or sent by United States mail, registered or certified, return receipt requested, postage prepaid, to the addresses set forth hereunder or to such other address as the other party hereto may designate in written notice transmitted in accordance with this provision.

If to VILLAGE:	Village of Glendale Attn: Donald A. Lofty, Mayor 30 Village Square Glendale, OH 45246
If to RAILROAD:	CSX Transportation, Inc. Attn: Public Projects (MI, OH, KY, IN, IL) 500 Meijer Drive, Ste. 305 Florence, KY 41042
If to PUCO:	Public Utilities Commission of Ohio Railroad Division 180 East Broad Street, 4 th Floor Columbus, Ohio 43215-3793
If to ORDC:	Ohio Rail Development Commission Mail Stop 3140 1980 West Broad Street Columbus, Ohio 43223

RAILROAD shall furnish notification to STATE and the VILLAGE at least five (5) working days prior to the date work is scheduled to start at the PROJECT site of the modifications so arrangements can be made for inspection. RAILROAD shall also notify STATE and the VILLAGE of any stoppage and resumption of the work activity, and the reasons therefore, and the date the PROJECT work on the modifications was completed. Notification to the STATE

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may be sent by email to catherine.stout@dot.ohio.gov with confirmation of receipt or by telephone to the Manager, Safety Programs at 614-644-0313.

RAILROAD shall furnish written notification to the Local Highway Authority at least fourteen (14) working days prior to starting any work requiring the establishment of a detour for highway traffic.

The VILLAGE shall furnish notification to STATE at least five (5) working days prior to the date work is scheduled to start at the PROJECT site of the modifications so arrangements can be made for inspection. Notification to the STATE may be sent by email to greg.gronbach@dot.ohio.gov with confirmation of receipt or by telephone to the Project Manager at 614-275-1346.

VI. TERMINATION

Said AGREEMENT shall terminate at the end of the present US Transportation Bill. If construction under this AGREEMENT is not completed by that date, it is the express intention of the parties to renew this AGREEMENT on each successive biennium period until such time as all work contemplated under this AGREEMENT has been satisfactorily completed. If it appears to ORDC or PUCO that RAILROAD has failed to perform satisfactorily any requirements of this AGREEMENT or if RAILROAD is in violation of any provision of this AGREEMENT, or upon just cause, ORDC or PUCO may terminate the AGREEMENT after providing RAILROAD with written notice, in accordance with the notice provisions of this AGREEMENT, of its failure to perform satisfactorily any requirement of this AGREEMENT (the "Notice"), which shall provide RAILROAD with a thirty (30) day period to cure any and all defaults under this AGREEMENT. The Village will be provided a contemporaneous copy of any such Notice.

During the thirty (30) day cure period, RAILROAD shall incur only those obligations or expenditures which are necessary to enable RAILROAD to achieve compliance as set forth in the Notice. If it is determined that RAILROAD cannot cure its default, RAILROAD shall immediately cease work under this AGREEMENT, take all necessary or appropriate steps to limit disbursements and minimize costs, and provide a report, as of the date of receipt of the Notice, setting forth the status of the work completed, the cost of the work completed and such other information as STATE shall deem pertinent.

If this AGREEMENT is terminated for breach or failure to satisfactorily perform, the breaching party shall reimburse the non-breaching party any of its costs not reimbursed by the STATE.

In the event that the VILLAGE determines that the continuation of a Quiet Zone is no longer in the best interests of the VILLAGE, it may terminate its quiet zone status as outlined in 49 CFR 222.51(d), with notice to the STATE and RAILROAD. Provided that the termination of the

quiet zone status does not affect the grade crossing closings established pursuant to this AGREEMENT, ORDC, PUCO, and/or RAILROAD will not object to the termination of the quiet zone status, request reimbursement for funds expended by ORDC, PUCO, and/or RAILROAD, or impose any other costs or penalties upon the VILLAGE for terminating the quiet zone.

It is expressly understood by the parties that none of the rights, duties, and obligations described in this AGREEMENT shall be binding on any party until all statutory provisions of the ORC, including but not limited to ORC § 126.07 and 126.08 have been complied with, and until such time that all necessary funds are made available and forthcoming from the appropriate state agency and such expenditure of funds is approved, if necessary, by the Controlling Board of the State of Ohio pursuant to ORC §127.16, or in the event that federal funds are used, until such time that the ORDC gives RAILROAD written notice that such funds have been made available to the ORDC by the ORDC's funding source.

VII. REPRESENTATIONS AND WARRANTIES

A. RAILROAD: RAILROAD for itself, represents and warrants the following:

- (1) RAILROAD has the power and authority to enter into this AGREEMENT;
- (2) RAILROAD has the authority to carry out its obligations under this AGREEMENT; and
- (3) No personnel of RAILROAD, any subcontractor of RAILROAD, public official, employee or member of the governing body of the particular locality where this AGREEMENT shall be completed, who exercises any functions or responsibilities in connection with the review or approval of the work completed under this AGREEMENT, shall prior to the completion of said work, voluntarily or involuntarily acquire any personal monetary interest, direct or indirect, which is incompatible or in conflict with the discharge or fulfillment of his functions or responsibilities with respect to the completion of the work contemplated under this AGREEMENT. Any person who, prior to or after the execution of this AGREEMENT, acquires any personal monetary interest, involuntarily or voluntarily, shall immediately disclose his interest to STATE in writing. Thereafter, such person shall not participate in any action affecting the work under this AGREEMENT unless the STATE determines that, in light of the personal monetary interest disclosed, his participation in any such action would not be contrary to the public interest.

B. ORDC/PUCO/VILLAGE: ORDC, PUCO and the VILLAGE represent and warrant that they have the power and authority to enter into this AGREEMENT and to carry out their obligations under this AGREEMENT.

VIII: OHIO ETHICS LAW REQUIREMENTS

RAILROAD affirms that it is not in violation of ORC §102.04, as that section is applicable to this AGREEMENT and RAILROAD.

IX. FALSIFICATION OF INFORMATION

Any person who provides a false statement to secure economic development assistance may be guilty of falsification, a misdemeanor of the first degree, pursuant to ORC §2921.13(D)(1), which is punishable by a fine of not more than One Thousand Dollars (\$1,000) and/or a term of imprisonment of not more than six (6) months.

X. EQUAL EMPLOYMENT OPPORTUNITY

In performing this AGREEMENT, the RAILROAD shall not discriminate against any employee, applicant for employment, or other person because of race, color, religion, gender, national origin (ancestry), military status (past, present or future), disability, age (forty (40) years of age or older), genetic information, or sexual orientation. The RAILROAD will ensure that applicants are hired and that employees are treated during employment without regard to their race, color, religion, gender, national origin (ancestry), military status (past, present or future), disability, age (forty (40) years of age or older), genetic information, or sexual orientation. The RAILROAD shall incorporate the foregoing requirements of this paragraph in all of its contracts for any of the work prescribed herein (other than subcontracts for standard commercial supplies or raw materials) and will require all of its subcontractors for any part of such work to incorporate such requirements in all such subcontracts.

XI. OHIO ELECTIONS LAW

RAILROAD represents that its participation in this AGREEMENT does not violate ORC §3517.13.

XII. DRUG FREE WORKPLACE

In the event that work performed pursuant to the terms of this AGREEMENT will be done while on state property, RAILROAD hereby certifies that its rules require all of its employees, while working on state property, will not purchase, transfer, use or possess illegal drugs or alcohol or abuse prescription drugs in any way.

XIII. INDEMNIFICATION AND RELEASE

RAILROAD agrees to indemnify and hold the ORDC and its agents harmless against any and all losses, claims, causes of action, destruction, liability (including, without limitation, strict or absolute

liability in tort or by statute), charges, costs or expenses (including, without limitation, counsel fees to the extent permitted by law) caused by RAILROAD's negligent, intentional, willful or wanton actions or inactions relating to the PROJECT, including such actions or inaction of any employees of RAILROAD, but not for any portion of the damages attributable, as determined by a court of competent jurisdiction, by the negligence or willful misconduct of the ORDC or any of its agents. RAILROAD agrees to reimburse the ORDC for any judgments which may be obtained against the ORDC to the extent covered by the foregoing sentence, and defend against any claims or legal actions if requested in writing by the ORDC relating to the PROJECT, to the extent covered by the foregoing sentence.

XIV. UNUSUAL CIRCUMSTANCES AFFECTING PERFORMANCE

In the event that RAILROAD cannot meet any or all of the obligations placed upon it by the terms of this AGREEMENT, (1) RAILROAD shall immediately notify STATE in writing, and (2) STATE may, at its sole discretion, make reasonable efforts to assist RAILROAD in meeting its obligations under the AGREEMENT.

If RAILROAD is unable to complete the PROJECT within the time period set forth in the Order issued by PUCO, RAILROAD must request an extension of time to complete the PROJECT. All such requests must be submitted to PUCO in accordance with PUCO guidelines.

XV. COMPLIANCE WITH FEDERAL, STATE AND LOCAL LAWS AND REGULATIONS

XV.01 RAILROAD agrees to comply with all applicable federal, state, and local laws in the conduct of the work hereunder. RAILROAD accepts full responsibility for payments of all applicable unemployment compensation, insurance premiums, workers' compensation premiums, all income tax deductions, social security deductions, and any and all other taxes or payroll deductions required for all employees engaged by RAILROAD on the performance of the work authorized by this AGREEMENT. Further, if RAILROAD has knowingly made a false statement to the ORDC to obtain this grant of Funds, RAILROAD shall be required to return all Funds immediately pursuant to ORC §9.66(C)(2) and shall be ineligible for any future economic development assistance from the State, any state agency or a political subdivision pursuant to ORC §9.66(C)(1). Any person who provides a false statement to secure economic development assistance may be guilty of falsification, a misdemeanor of the first degree, pursuant to ORC §2921.13(D)(1), which is punishable by a fine of not more than One Thousand Dollars (\$1,000) and/or a term of imprisonment of not more than six (6) months.

XV.02 In the conduct of the work under this AGREEMENT, the RAILROAD, for itself, its assignees, and successors in interest, agrees to comply with the following non-discrimination statutes and authorities, if and as applicable, including but not limited to:

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- a.) Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d et seq., 78 stat. 252) (prohibits discrimination on the basis of race, color, national origin); and 49 CFR Part 21;
- b.) The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (42 U.S.C. § 4601) (prohibits unfair treatment of persons displaced or whose property has been acquired because of federal or federal aid programs and projects);
- c.) Federal-Aid Highway Act of 1973 (23 U.S.C. § 324 et seq.) (prohibits discrimination on the basis of sex);
- d.) Section 504 of the Rehabilitation Act of 1973 (29 U.S.C. § 794 et seq.), as amended (prohibits discrimination on the basis of disability) and 49 CFR Part 27;
- e.) The Age Discrimination Act of 1975, as amended (42 U.S.C. § 6101 et seq.) (prohibits discrimination on the basis of age);
- f.) The Civil Rights Restoration Act of 1987 (PL 100-209) (broadened the scope, coverage, and applicability of Title VI of the Civil Rights Act of 1964, the Age Discrimination Act of 1975, and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms “programs or activities” to include all of the programs or activities of federal aid recipients, sub-recipients, and contractors, whether such programs or activities are federally funded or not);
- g.) Titles II and III of the Americans with Disabilities Act (42 U.S.C. §§ 12131-12189), as implemented by Department of Transportation regulations at 49 CFR parts 37 and 38 (prohibits discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities);
- h.) The Federal Aviation Administration’s Non-Discrimination Statute (49 U.S.C. § 47123) (prohibits discrimination on the basis of race, color, national origin, and sex);
- i.) Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (ensures non-discrimination against minority populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations);
- j.) Executive Order 13166, Improving Access to Services for People with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination because of limited English proficiency (LEP), and related regulations, as applicable.

XV.03 In the conduct of the work under this AGREEMENT, the RAILROAD for itself, its assignees and successors in interest further agrees as follows:

- a.) Compliance with Regulations: The RAILROAD (hereinafter includes consultants), with regard to the work performed by it under this AGREEMENT, will comply with applicable laws and regulations relative to non-discrimination in Federally-assisted programs of the U.S. Department of Transportation, FHWA, as they may be amended from time to time, which are herein incorporated by reference and made a part of this AGREEMENT.
- b.) Non-Discrimination: The RAILROAD, with regard to the work performed by it under this AGREEMENT, will not discriminate on the grounds of race, color, national origin, sex, age, disability, low-income status, or limited English proficiency in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The RAILROAD will not participate directly or indirectly in the discrimination prohibited by applicable laws and regulations, including employment practices when the contract covers any activity, project, or program set forth in Appendix B of 49 CFR Part 21.
- c.) Solicitations for Subcontractors, including Procurements of Materials and Equipment: In all solicitations, either by competitive bidding, or negotiation made by the RAILROAD for work to be performed under a subcontract relating to this PROJECT, including procurements of materials, or leases of equipment, each potential subcontractor or supplier will be notified by the contractor of the contractor's obligations under this AGREEMENT and under applicable laws and regulations relative to nondiscrimination on the grounds of race, color, national origin, sex, age, disability, low-income status, or limited English proficiency.
- d.) Information and Reports: The RAILROAD will provide all information and reports relating to the PROJECT as required by applicable laws and regulations, and will permit reasonable access to its books, records, accounts, other sources of information and its facilities relating to the PROJECT as may be determined by the ORDC or FHWA to be pertinent to ascertain compliance with such applicable laws and regulations.
- e.) Sanctions for Noncompliance: In the event of the RAILROAD's demonstrated noncompliance with the nondiscrimination provisions of this AGREEMENT, ORDC will impose such contract sanctions as it or FHWA may determine to be appropriate, including, but not limited to:
 - i. withholding payments to the RAILROAD under the AGREEMENT until the RAILROAD complies; and/or
 - ii. cancelling, terminating, or suspending the AGREEMENT, in whole or in part.

- f.) Incorporation of Provisions: The RAILROAD will include the provisions of this Section 18.03 in every subcontract relating to the PROJECT, including procurements of materials and leases of equipment, unless exempt by applicable laws and regulations. The RAILROAD will take action with respect to any subcontract or procurement as ORDC or FHWA may direct as a means of enforcing such provisions, including sanctions for noncompliance. Provided that, if the RAILROAD becomes involved in or is threatened with litigation by a subcontractor or supplier because of such direction, the RAILROAD may request ORDC to enter into any litigation to protect the interests of the ORDC. In addition, the RAILROAD may request the United States to enter into the litigation to protect the interests of the United States.

XV.04 Certain state and local approvals and conflicting requirements are preempted as applied to rail facilities operating in interstate commerce under the Interstate Commerce Commission Termination Act of 1995 (ICCTA), 49 U.S.C. §10501, and Federal Railway Safety Act of 1970 (FRSA), 49 U.S.C. § 20101. RAILROAD does not waive and expressly preserves any claims or defenses related to such ICCTA or FRSA preemption related to any aspect of this AGREEMENT or activities RAILROAD undertakes pursuant to this AGREEMENT.

XVI. DISPUTE RESOLUTION

In the event the RAILROAD desires clarification or explanation of, or disagrees with, any matter concerning the AGREEMENT, or the interpretation or application of any and all federal or state statutes, rules, regulations, laws or ordinances, the matter must be submitted in writing to the STATE, with a copy to the VILLAGE. If the dispute cannot be resolved, and the RAILROAD has failed to comply materially with the terms and conditions of this AGREEMENT, then procedures for suspension and/or termination may be instituted as provided for under this AGREEMENT, or this matter may be submitted to a court of competent jurisdiction for final determination.

XVI. NO WAIVER

No delay or omission to exercise any right or option accruing to the STATE upon any breach by RAILROAD shall impair any such right or option or shall be construed to be a waiver thereof, but any such right or option may be exercised from time to time and as often as may be deemed necessary by STATE. Further, if any term, provision, covenant or condition contained in this AGREEMENT is breached by either party and thereafter such breach is waived in writing by the other party, such waiver shall be limited to the particular breach so waived and shall not be deemed to waive any other breach hereunder.

XVIII. CONSTRUCTION

This AGREEMENT shall be governed by the laws of the State of Ohio as to all matters, including but not limited to, matters of validity, construction, effect and performance.

XIX. BUY AMERICA

RAILROAD shall furnish steel and iron products that are made in the United States according to the applicable provisions of federal regulations stated in 23 CFR 635.410 and State of Ohio laws, and ORC §§ 153.011 and 5525.21, and State of Ohio Department of Transportation Construction and Material Specifications, 109.09.

The RAILROAD affirms to have read and understands Executive Order 2011-12K and shall abide by those requirements in the performance of this AGREEMENT. Notwithstanding any other terms of this AGREEMENT, the STATE reserves the right to recover any funds paid for services the RAILROAD performs outside the United States for which it did not receive a waiver from the Director of the Ohio Department of Administrative Services.

XX. FORUM AND VENUE

All actions brought against the STATE regarding this AGREEMENT shall be forumed and venued in a court of competent subject matter jurisdiction in Franklin County, Ohio.

XXI. SEVERABILITY

Whenever possible, each provision of this AGREEMENT shall be interpreted in such manner as to be effective and valid under applicable law, but if any provision of this AGREEMENT is held to be prohibited by or invalid under applicable law, such provision shall be ineffective only to the extent of such prohibition or invalidity, without invalidating the remainder of such provisions of this AGREEMENT.

XXII. ENTIRE AGREEMENT

This AGREEMENT and its exhibits and any documents referred to herein constitute the complete understanding of the parties and merge and supersede any and all other discussions, agreements and understandings, either oral or written, between the parties with respect to the subject matter hereof.

XXIII. DUPLICATE COUNTERPARTS

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.

XXIV. CAPTIONS

The captions in this AGREEMENT are for the convenience of reference only and in no way define, limit or describe the scope or intent of this AGREEMENT or any part hereof and shall not be considered in any construction hereof.

XXV. AMENDMENTS OR MODIFICATIONS

Any party may at any time during the term of this AGREEMENT request amendment or modification. Requests for amendment or modification of this AGREEMENT shall be in writing to the other parties and shall specify the requested changes and the justification for such changes. All parties shall then review the request for modification. Should the parties all agree to modification of the AGREEMENT, then an amendment shall be drawn, approved, and executed in the same manner as this AGREEMENT.

Any revisions to this AGREEMENT shall be made in writing and agreed upon by all parties.

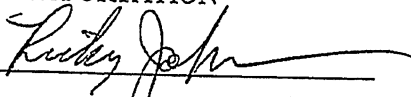
XXVI. SUCCESSORS OR ASSIGNS

This AGREEMENT shall be binding upon the successors and assigns of the RAILROAD. It is understood that this AGREEMENT, and any subsequent amendments thereto, shall apply to crossings owned by the RAILROAD that may, in the future, become subject to the PROJECT and therefore qualify for modifications as described above.

GRADE CROSSING CONSOLIDATION AND UPGRADE PROJECT
IN THE VILLAGE OF GLENDALE IN HAMILTON COUNTY

IN WITNESS WHEREOF, the parties hereto have caused this AGREEMENT to be
executed as of the date and year set forth below.

CSX TRANSPORTATION

By 

Print Name Ricky Johnson

Title Vice President Engineering

Date 3/22/18

VILLAGE OF GLENDALE

By _____

Print Name _____

Title _____

Date _____

PUBLIC UTILITIES COMMISSION
OF OHIO

By _____

Print Name _____

Title _____

Date _____

OHIO RAIL DEVELOPMENT
COMMISSION



Matthew Dietrich, Executive Director

Date March 5, 2018

GRADE CROSSING CONSOLIDATION AND UPGRADE PROJECT
IN THE VILLAGE OF GLENDALE IN HAMILTON COUNTY

IN WITNESS WHEREOF, the parties hereto have caused this AGREEMENT to be
executed as of the date and year set forth below.

CSX TRANSPORTATION

By _____

Print Name _____

Title _____

Date _____

VILLAGE OF GLENDALE

By Donald A. Lofly

Print Name Donald A. Lofly

Title Mayor

Date March 17, 2018

PUBLIC UTILITIES COMMISSION
OF OHIO

By _____

Print Name _____

Title _____

Date _____

OHIO RAIL DEVELOPMENT
COMMISSION

Matthew Dietrich

Matthew Dietrich, Executive Director

Date March 5, 2018

GRADE CROSSING CONSOLIDATION AND UPGRADE PROJECT
IN THE VILLAGE OF GLENDALE IN HAMILTON COUNTY

IN WITNESS WHEREOF, the parties hereto have caused this AGREEMENT to be
executed as of the date and year set forth below.

CSX TRANSPORTATION

By _____

Print Name _____

Title _____

Date _____

VILLAGE OF GLENDALE

By _____

Print Name _____

Title _____

Date _____

PUBLIC UTILITIES COMMISSION
OF OHIO

By *Michael J. Blawie*

Print Name *Michael J. Blawie*

Title *DIRECTOR*

Date *3/6/18*

OHIO RAIL DEVELOPMENT
COMMISSION

Matthew Dietrich

Matthew Dietrich, Executive Director

Date *March 5, 2013*



Diagnostic Review Team Survey

Reason for Survey:

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

Village of Glendale

Date: 7/19/2016

Location Data

Street or Road Name:

Oak Road

Route/Road Number

(i.e. Twp., Co., SR or US)

US DOT No.:

152374A

County:

HAM

Township:

City:

(In or Near)

Village of Glendale

Railroad Name:

CSX Transportation

Railroad Division:

Louisville

Branch/Line Name:

Nearest RR

Timetable Station:

Glendale

RR Milepost:

14.51

On-Site Review Team

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

1. GREG GRONBACH ORDC 614-395-1824 GREG.GRONBACH@DOT.OHIO.GOV
2. Brian Bendel PUCO 513-240-5926 brian.bendel@PUC.State.OH.US
3. Amanda DeCesare CSX 859-372-6124 amanda-decesare@CSX.COM
4. Bob Kooris Glendale 513-708-0933 bkooris@cici.rr.com
5. Cathy Stout ORDC 614 644 0313 catherine.stout@dot.ohio.gov
6. Isabella Culliton ORDC 614 752 6910 Isabella.Culliton@dot.ohio.gov
7. MATT DIETRICH ORDC 614 644 0295 MATT.DIETRICH@DOT.OHIO.GOV
8. Don Lofty 262-930-5125 dlofty@glendaleohio.org
9. Steve Varnora Glendale 513 309 7215 SteveV@minespring.com
10. Tom Alderfer Glendale 513-679-0207 talderfer@glendale.ohio.org

Existing Traffic Control Devices

Type of Warning Devices	Installed?		Quantity/Comments
Advance Warning Signs (condition?)	☒ Yes	☐ No	GOOD
'Stop' Signs	☒ Yes	☐ No	
'Stop Ahead' Signs	☒ Yes	☐ No	
Pavement Markings (condition?)	☒ Yes	☐ No	GOOD
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: Length:
Bells	☒ Yes	☐ No	Number:
Sidewalk Gate Arms	☐ Yes	☒ No	
'No Turn' Signs	☐ Yes	☒ No	
Illumination	☐ Yes	☒ No	
Is crossing flagged by train crew?	☐ Yes	☒ No	
Other	☐ Yes	☐ No	

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

	Initial Information (from database)	Revised
Number & dates of crashes in previous 5 years	0 (2/25/90) & (11/1/89)	
Hazard Ranking	484 Date Run: 6/24/2016	

Railroad Data

Railroad Characteristics	Initial Information (from database)	Revised
Total trains per day	64	
< 1 per day		
Day thru trains	26	
Night thru trains	29	
Daytime switching movements	✓ 4 ONLY ON TUES	
Nighttime switching movements		
Total number of tracks	2	
Number of main tracks	2	
Number of other tracks		
Maximum train speed	35	
Typical train speed	35	
✓ Amtrak + NS USE TRACK AS WELL 35 MPH		

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

If yes, Crossing DOT #(if different) _____

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

Roadway Data

Local Highway Authority: Village of Glendale

Roadway Characteristics	Initial Information (from database)	Revised
Average daily traffic	1634 (2008)	
Highway paved	X Yes ☐ No	☐ Yes ☐ No
Roadway Surface: ☒ Blacktop ☐ Gravel ☐ Concrete ☐ Other _____		
Roadway width: 28 ft.		
Number of highway lanes	2	
Urban or Rural	Urban	
Vehicle Speed: 25 MPH		
School Bus Operation: ☐ No ☒ Yes Amount PRINCETON + BETHANY		
Hazardous Materials Trucks: ☐ No X Yes .02 Amount		
Shoulders: ☐ No ☒ Yes		
Is the shoulder surfaced? ☒ No ☐ Yes		
Is there existing guardrail along roadway in crossing vicinity? ☒ No ☐ Yes		
Is stopping site distance adequate? (See Table 2) ☒ Yes ☐ No If no, deficient approach(es) _____		

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

Pedestrians: ☐ No ☒ Yes

Is sidewalk present? ☒ No ☐ Yes

Is there a nearby intersection that could cause queuing over the crossing? ☐ No ☒ Yes

If yes,
Distance 50' (EAST + WESTSIDE OF CROSSING)

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) DUKE ENERGY Phone Number _____

Nearest Available Power Source AT CROSSING

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):

NO

Crossing Consolidation or Closure:

NO

Real Estate or ROW:

NO

Culverts / Drainage / Ballast Conditions:

YES

Roadway and/or Sidewalks:

NO

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

YES

Environmental:

NO

Other:

Diagnostic Team Recommendations

Quadrants Needed

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

~~IF QUIET ZONE APPROVED~~

LED UPGRADE.

Comments: NO CONSTANT WARNING TIME @ ANY OF THESE CROSSINGS.

POWER OUT INDICATORS, IF CONSTANT WARNING TIME UPGRADE.

☐ Install/upgrade traffic signal preemption

☐ No improvements needed

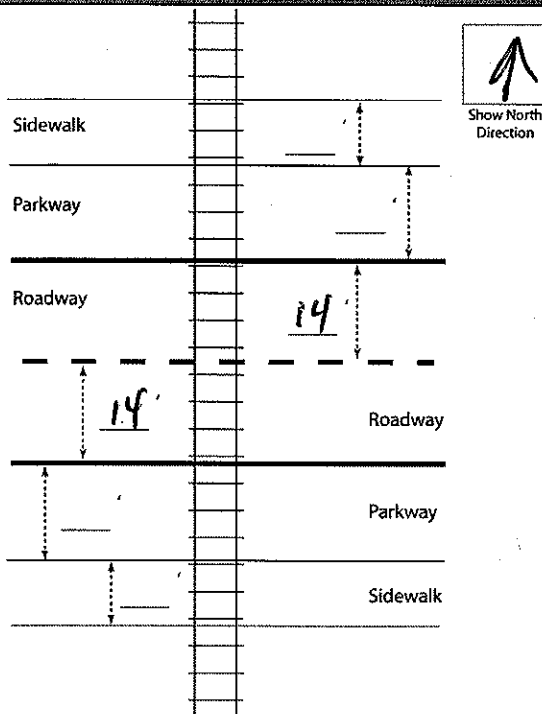
☒ Other (define) IF QUIET ZONE IS APPROVED.

- 4 QUAD GATES

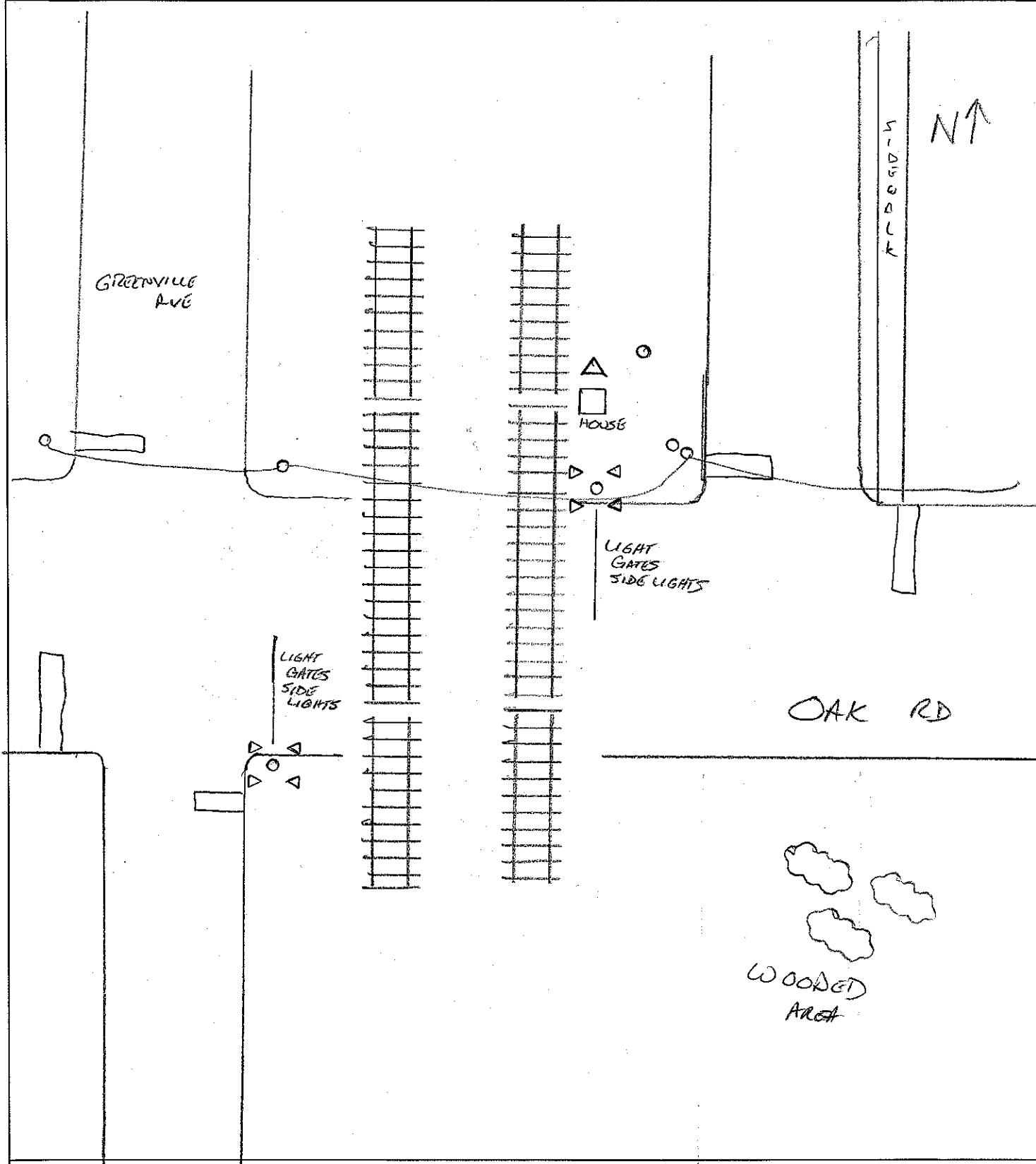
Acknowledgement of Recommendations (each entity represented at the diagnostic must have at least one signature acknowledgement):

GWG JAB AJD JWA
 MRD RAK DOH

Field Dimensions



Field Sketch



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

Sketch by: GWG

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.



Diagnostic Review Team Survey

Reason for Survey:
(e.g. formula, accident, constituent, etc.)

Village of Glendale

Date: 7/19/2016

Location Data

Street or Road Name:

E. Sharon Road

Route/Road Number

(i.e. Twp., Co., SR or US)

US DOT No.:

152376N

County:

HAM

Township:

City:

(In or Near)

Village of Glendale

Railroad
Name:

CSX Transportation

Railroad
Division:

Louisville

Branch/Line
Name:

Nearest RR

Timetable Station:

Glendale

RR Milepost:

15.06

On-Site Review Team

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

1. GREG GRONBACH ORDC 614-395-1824 GREG.GRONBACH@DOT.OHIO.GOV
2. Cathy Stout ORDC 614 644 0313 catherine.stout@dot-ohio.gov
3. Brian Bendel PUCO 513-260-6105 brian.bendel@PUC.State.OH.US
4. Steve Venunza Glendale Resident 513 309 7215 stevevenunza@windstream.com
5. Bob Keeney Glendale 513-708-0933 bkeeney@cinci.rr.com
6. Amanda DeCesare CSX 859-372-6124 amanda-decesare@CSX.com
7. MATT DIETRICH ORDC 614 644-0285 MATT.DIETRICH@DOT.OHIO.GOV
8. _____
9. _____

Existing Traffic Control Devices

Type of Warning Devices	Installed?		Quantity/Comments
Advance Warning Signs (condition?)	☒ Yes	☐ No	GOOD
'Stop' Signs	☐ Yes	☐ No	
'Stop Ahead' Signs	☐ Yes	☐ No	
Pavement Markings (condition?)	☒ Yes	☐ No	GOOD
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: Length:
Bells	☒ Yes	☐ No	Number:
Sidewalk Gate Arms	☒ Yes	☐ No	
'No Turn' Signs	☐ Yes	☒ No	
Illumination	☒ Yes	☒ No	
Is crossing flagged by train crew?	☐ Yes	☒ No	
Other	☐ Yes	☐ No	

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

	Initial Information (from database)	Revised
Number & dates of crashes in previous 5 years	0 (12/14/94)	
Hazard Ranking	191	Date Run: 6/24/2016

Railroad Data

Railroad Characteristics	Initial Information (from database)	Revised
Total trains per day	64	
< 1 per day		
Day thru trains	26	
Night thru trains	29	
Daytime switching movements	Ø Ø	
Nighttime switching movements		
Total number of tracks	2	
Number of main tracks	2	
Number of other tracks		
Maximum train speed	35	
Typical train speed	35	
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 2 TRACKS

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: Village of Glendale

Roadway Characteristics	Initial Information (from database)	Revised
Average daily traffic	10,933 (2006)	
Highway paved	X Yes ☐ No	☐ Yes ☐ No
Roadway Surface: ☒ Blacktop ☐ Gravel ☐ Concrete ☐ Other _____		
Roadway width: 53 ft.		
Number of highway lanes	4	
Urban or Rural	Urban	
Vehicle Speed: 25 MPH		
School Bus Operation: ☐ No X Yes 23 Amount		
Hazardous Materials Trucks: ☐ No X Yes .03 Amount		
Shoulders: ☐ No ☒ Yes		
Is the shoulder surfaced? ☒ No ☐ Yes		
Is there existing guardrail along roadway in crossing vicinity? ☒ No ☐ Yes		
Is stopping site distance adequate? (See Table 2) ☒ Yes ☐ No If no, deficient approach(es) _____		

Quadrant _____ Curb and Gutter: ☐ Functional (Curb height = 4" or more) ☐ Non-functional (Curb height = Less than 4") ☐ None	Quadrant _____ Curb and Gutter: ☐ Functional (Curb height = 4" or more) ☐ Non-functional (Curb height = Less than 4") ☐ None												
Pedestrians: ☐ No ☒ Yes													
Is sidewalk present? ☐ No ☒ Yes													
Is there a nearby intersection that could cause queuing over the crossing? ☐ No ☒ Yes If yes, Distance <u>20'</u> 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 <u>RESURFACE WEST OF TRACK APPROACH</u> If yes, Improvement type _____ Lead Agency <u>GLENDALE</u> Timeline/completion - <u>WITHIN 5-10 YRS</u>													
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: <u>?</u>												
Utility Information													
Is commercial power available? ☐ No ☒ Yes Utility Provider (Company Name) <u>DUKE ENERGY</u> Phone Number _____ Nearest Available Power Source <u>AT CROSSING</u> What other utilities are present? (add locations to sketch) <table style="width: 100%;"><tr><td>☒ Gas</td><td>☐ Cable</td><td>☐ Telephone</td><td>☐ Fiber Optic Cable</td></tr><tr><td>☐ Petroleum</td><td>☒ Water</td><td>☒ Sanitary Sewer</td><td></td></tr><tr><td>☐ Other _____</td><td></td><td></td><td></td></tr></table>		☒ Gas	☐ Cable	☐ Telephone	☐ Fiber Optic Cable	☐ Petroleum	☒ Water	☒ Sanitary Sewer		☐ Other _____			
☒ Gas	☐ Cable	☐ Telephone	☐ Fiber Optic Cable										
☐ Petroleum	☒ Water	☒ Sanitary Sewer											
☐ Other _____													
Is(are) there potential utility conflict(s) ☒ Yes ☐ No ☐ Unknown Comments:													

Potential Red Flags / Project Challenges

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

NO

Crossing Consolidation or Closure:

?

NO

Real Estate or ROW:

NO

Culverts / Drainage / Ballast Conditions:

NO

Roadway and/or Sidewalks:

YES

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

YES

Environmental:

NO

Other:

Diagnostic Team Recommendations

Quadrants Needed

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

CONSTANT WARNING TIME

LED S

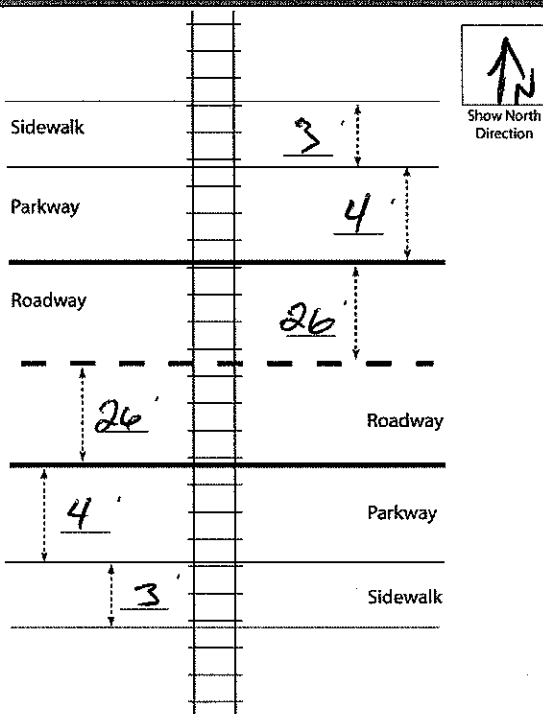
Comments: IF QUIET ZONE APPROVED - 4 QUAD GATES.
 - N. GREENVILLE - TURN INTO ONE-WAY STREET (SB ONLY). WEST TURN ONLY.
 - LEAVE EXISTING WARNING DEVICES ALONE.
 - UTILITY ISSUES ON NORTHSIDE OF CROSSING.

- ☐ Install/upgrade traffic signal preemption
- ☐ No improvements needed
- ☐ Other (define)

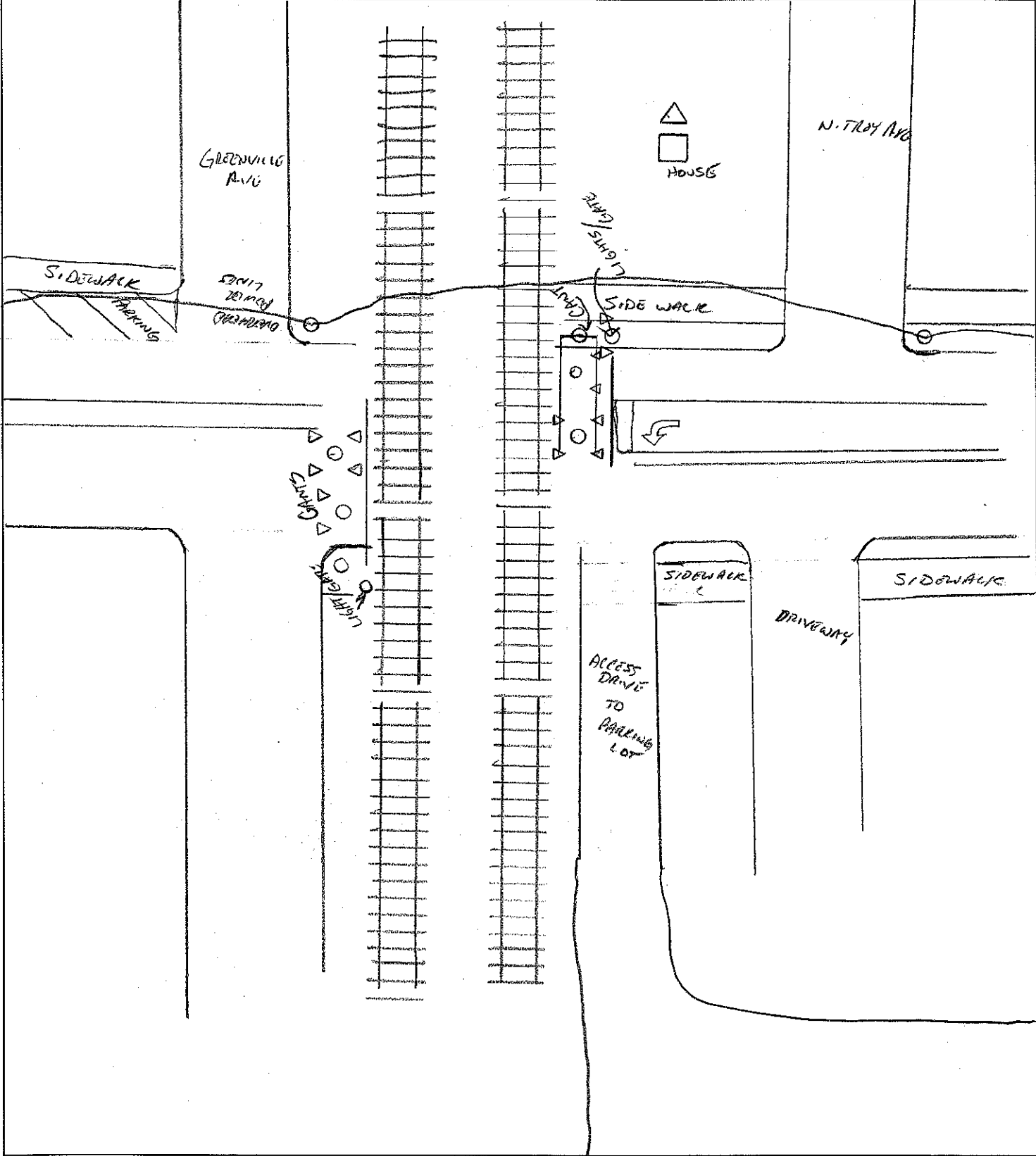
Acknowledgement of Recommendations (each entity represented at the diagnostic must have at least one signature acknowledgement):

GWG [Signature] [Signature] [Signature] AJO
 RAK TWA

Field Dimensions



Field Sketch



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

Sketch by: EWB

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.

This foregoing document was electronically filed with the Public Utilities

Commission of Ohio Docketing Information System on

3/18/2019 12:10:37 PM

in

Case No(s). 19-0646-RR-FED

Summary: Application In the Matter of a Request for the Installation of Active Warning Devices at the CSX Transportation, Inc. Crossings, E. Sharon Road (DOT#152-376N) and Oak Road (DOT#152-374A), and the Closure of Albion Avenue (DOT#152-375G) and the Pedestrian Crossing (DOT#153-617D) in the Village of Glendale, Hamilton County, Ohio. electronically filed by Mrs. Jill A Henry on behalf of PUCO/Rail Division