

Memo

To: Docketing Division
From: Jill Henry, Chief, Rail Division
Cc: PUCO Legal Department
Date: 1/26/2022

Re: PUCO Case No. 22-65-RR-FED- In the Matter of a Request for the Installation of Active Warning Devices at the Columbus & Ohio River Railroad Crossing, DOT#152-070J, Roosevelt Avenue, in Knox County, Ohio.

On February 5, 2021, the Ohio Rail Development Commission (ORDC) authorized funding for the Columbus & Ohio River Railroad (CUOH) to install lights and gates at the Roosevelt Avenue (DOT#152-070J) grade crossing in Knox County, Ohio. The crossing was surveyed, on August 6, 2020, and was found to warrant the upgrade. The electric utility provider for this crossing is AEP- Ohio.

The project will be paid for with federal funds and is actual cost. The plans and estimates for the project in the amount of \$205,019.00 have been approved. Construction may commence at once. **Staff requests a Finding & Order with completion of the project in nine months.** Staff requests that the following language be incorporated in the Finding & Order:

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

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

Please serve the following parties of record:

Columbus & Ohio River Railroad
Jared Rishel
AVP Engineering Northern Region
Genesee & Wyoming Inc.
4349 Easton Way
Suite 110
Columbus, OH 43219

Alfred Benesch & Company
Ben Biesterveld
G&W Consultant
4614 Red Fox Road
Oshkosh, WI 54904

Ohio Rail Development Commission
Alan Bell
Manager, Grade Crossing Programs
1980 West Broad Street
Mail Stop #3140
Columbus, OH 43223

City of Mount Vernon
Brian Ball
City Engineer
40 Public Square
Mt. Vernon, OH 43050-3241

AEP Ohio

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

TO: John Williams, Director, Transportation Department, PUCO

FROM: Allen Bell, Manager, Safety Section, ORDC

BY: Greg Gronbach, Project Manager, Safety Section, ORDC

SUBJECT: Construction Authorization Grade Crossing Warning Device Improvements
KNO CUOH Roosevelt Ave DOT# 152070J PID# 114022

DATE: December 27, 2021

The Ohio Rail Development Commission (ORDC) established a diagnostic survey at the subject location on August 6, 2020. The Public Utilities Commission of Ohio (PUCO) attended the review. The Diagnostic Team recommended the improvement of warning devices to flashing lights and roadway gates. 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.


Greg Gronbach
Project Manager

Attachment: Diagnostic Review
Letter Agreement
PE Authorization
Plan, Estimate & Material List
Construction Authorization

c: Jill Henry, Rail Specialist, PUCO

ORDC Project Manager (file)



Rail Development Commission

Mike DeWine, Governor
Jon Husted, Lt. Governor

Scott Corbitt, Chair

December 27, 2021

Mr. Len Wagner
President & Legal Official (SVP)
Genesee & Wyoming/CUOH
201 N. Penn Street
Punxsutawney, PA 15767

RE: Construction Authorization Grade Crossing Warning Device Improvements
KNO CUOH Roosevelt Ave DOT# 152070J PID# 114022

Dear Mr. Wagner:

The plan dated 9/17/2021 and estimate dated 11/10/2021, for the referenced project is acceptable. Genesee & Wyoming/ CUOH may proceed with the construction of the proposed grade crossing warning system in accordance with the abbreviated plan. Construction may include but is not limited to circuitry design, installation of service poles, procurement of materials and signal construction.

This authorization is made with the stipulation and understanding that the approved estimate may contain entries for items or activities that may be cited and found to be ineligible for federal participation during the project audit. Reimbursement of eligible actual cost is limited to \$205,019.00. Additional costs must be approved in writing by the Ohio Rail Development Commission (ORDC) prior to being incurred. Emergency verbal authorizations by ORDC may be permitted and will be confirmed by ORDC in writing within ten (10) business days of the verbal approval.

This authorization is contingent upon Genesee & Wyoming/ CUOH accepting the following instructions:

1. Genesee & Wyoming/ CUOH's project foreman will furnish written notification five (5) working days prior to the date work will start at the project site to Greg Gronbach, ORDC, email Gregory.Gronbach@dot.ohio.gov, and to the Public Utilities Commission of Ohio at Jill.henry@puco.ohio.gov. Genesee & Wyoming/ OHCR'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. Genesee & Wyoming/ CUOH 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 Genesee & Wyoming/ CUOH.
3. Genesee & Wyoming/ CUOH's project foremen will notify Greg Gronbach at 614-745-6760 (telephone) or Gregory.Gronbach@dot.ohio.gov (email) of any changes in the scope of work,



cost overruns, material changes, etc. which are not included in the approved plan and estimate and secure approval of same before the work is performed.

4. 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. Genesee & Wyoming/ CUOH will furnish two (2) copies of each partial bill to ORDC. Please find the enclosed ODOT Purchase Order to reference when billing.
6. Genesee & Wyoming/ CUOH will furnish two (2) copies of the final all-inclusive bill to ORDC stating the exact dates of starting and completing work, the initial and final dates of construction and location where the accounts may be audited.
7. This installation will include any ancillary work to make the warning devices function as designed and meet MUTCD.

Thank you for your assistance with these matters.

Sincerely,


Greg Gronbach
Project Manager

C: John Williams, Director, Transportation Department, PUCO
Jill Henry, Rail Specialist, PUCO
Heather Hamilton, ORDC
ORDC (file)

Force Account Estimate

Estimate to Complete

Railroad:	The Columbus & Ohio River Rail Road Company (CUOH)	Region:	NORTHERN
Agency:	ORDC	State:	OH
DOT #:	152070J	COUNTY:	Knox
ROADWAY:	Roosevelt Ave	CITY:	Mount Vernon
DESCRIPTION:	Installation of flashing lights and gates, 6'x6' bungalow with PMD-4R w/CWT. 2-way flasher on dollarm for both warning devices. Curb work in SW and NE quad. Retaining wall with handrail around bungalow.		
AGENCY PROJECT NUMBER:	PID# 114022	ESTIMATE SUBJECT TO REVISION AFTER:	05/09/22

PRELIMINARY ENGINEERING:

Contracted & Administrative Engineering Services	\$	14,800
Subtotal	\$	14,800

CONSTRUCTION & CLOSEOUT:

Contracted & Administrative Engineering Services	\$	12,100
Subtotal	\$	12,100

FLAGGING SERVICE:

Contracted or Railroad Flagmen Services	10	Days	\$	14,000
Subtotal			\$	14,000

UTILITY WORK:

Power Service	\$	10,000
Other	\$	-
Subtotal	\$	10,000

CONTRACT WORK:

Outside Services	\$	-
Design & Labor & Material	\$	154,119
Subtotal	\$	154,119

RAILROAD TRACK:

Labor & Material	\$	-
Subtotal	\$	-

RAILROAD SIGNAL & COMMUNICATION:

Labor & Material	\$	-
Subtotal	\$	-

PROJECT SUBTOTAL:

		\$	205,019
Public Project Admin:	0.00%	\$	-
Contingencies:	0.00%	\$	-

PROJECT TOTAL:

	*****	\$	205,019
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CURRENT AUTHORIZED BUDGET:

	*****	\$	-
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TOTAL SUPPLEMENT REQUESTED:

	*****	\$	205,019
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DIVISION OF COST:

Agency	100.00%	\$	205,019
Railroad	0.00%	\$	-

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

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 the railroad 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.

Estimated prepared by: BPB Approved by: Public Project Department
DATE: 02/05/21 REVISED: 11/10/21 DATE: 11/10/21

Factory Wired Instrument Shelter

ITEM DESCRIPTION	O.E.M.	LN Item #	QTY	U/M
Alum. 6' x 6', Shelter G&W Crossing W/O NEMA PLUGS	PTMW	9485000216	1	EA
Hex. Railroad Lock	SIEMENS	9463001200	2	EA
Camera Material 5 Cam, 19" Mon, 4 TB HD Package	Porter Security	9409011494	1	EA
Power Off Light, LED, 4 Wire	GRAYBAR	9430500215	2	EA
PMD-4R, Redundant Motion, Generic Upgrade Panel, & Generic Interface Panel Cable 4ft	ALSTOM	9409011753	1	EA
SSCC-IIIA Crossing Controller, 40 Amp, 19" Mounting Plate SSCC-IIIA 40A, 19" Rack	SIEMENS	9429000113	1	EA
Surge Arrestor. MDSA-1XS	ALSTOM	9409012002	1	EA
Lightning Arrester, Clearview	SIEMENS	9409020353	26	EA
Heavy Duty Equalizer	SIEMENS	9409020300	11	EA
AC Line Surge Protector, Model SP20-2A	SIEMENS	9409010617	2	EA
Panduit Duct, 2' X 3', 2 inch	GRAYBAR	9422040105	30	FT
Panduit Cover, 2' X 3', 2 inch	GRAYBAR	9422040106	30	FT
Panduit Duct, 2' X 3', 3 inch	GRAYBAR	9422040103	18	FT
Panduit Cover, 2' X 3', 3 inch	GRAYBAR	9422040108	18	FT
#10 TC Blue Flex Wire	GRAYBAR	9450030600	600	FT
#14 TC Blue Flex Wire	OKONITE	9422010213	700	FT
#10/12 AMP Eyelets	GRAYBAR	9422020300	150	EA
#14/16 AMP Eyelets	GRAYBAR	9422020342	150	EA
#6 AWG THHN Strand Red	GRAYBAR	9422001183	100	FT
#6 AWG THHN Strand Black	GRAYBAR	9422001184	100	FT
#6 AWG THHN Strand Green	GRAYBAR	9422001180	12	FT
#10 AWG THHN Solid Red	GRAYBAR	9422001177	10	FT
#10 AWG THHN Solid White	GRAYBAR	9422001179	10	FT
Recorder, Micro Data Analyzer II w/ DTMF	N A Signal	9409010705	1	EA
Insulated Nut	TWINCO	9409050504	16	EA
Relay, NV, 12VAC, 2FB (8 PINS)	GRAINGER	9409020273	1	EA
Relay, NV, 120VAC, 2FB (8 PINS)	Allied Electronics	9409020328	2	EA
Socket, Relay (8 PINS) OCT Screw	Allied Electronics	9409020329	3	EA
Battery Charger, 12V / 20A	NRS	9409080111	1	EA
Battery Charger, 12V / 40A	NRS	9409080113	1	EA
4 Post Terminal Block w/ Hardware	ERICO	9409020380	34	EA
Buss Strap Grd Assy.	ERICO	9465000106	3	FT
Tags, Slip On	GRAYBAR	9422990050	0.25	Roll
Stick-On Stencil	Cadillac Sign Co.	9400000078	2	EA
Test Link, 1" Offset w/Gold Nut	REBEL RAILWAY	9409021104	83	EA
Terminal Block, 2 x 6 w/flat nut only	ALSTOM	9473000102	8	EA
Terminal Block, 1 x 12 w/flat nut only	ALSTOM	9473000100	2	EA
Terminal Block, 2 post 2-3/8" w/flat nut only	TWINCO	9473000104	5	EA
1/4" Bevel Washer	WURTH SNIDER	9473000700	300	EA
1/4-24 Clamp Nut Nickel	WURTH SNIDER	9473000705	150	EA
Binding (Barrel) Nuts	WURTH SNIDER	9401037900	300	EA
#6 Non-Insulated Terminal Eye 1/4 stud	GRAYBAR	9422020200	30	EA
#6 Non-Insulated Terminal Eye 5/16 stud	GRAYBAR	9422020210	8	EA
Maintainer Test Switch, 3 post test terminal	L&W	9410002070	1	EA
Strap, Solid, 1" Centers	TWINCO	9473000110	5	EA
Strap, Solid, 2-3/8" Centers	L&W	9473000120	4	EA
Buss Strap, 1" Centers 36 Hole	TWINCO	9473005100	2	EA
Circuit Plan Holder	Village Supplies	9401001050	1	EA

Gate/Flasher Material				
ITEM DESCRIPTION	O.E.M.	LN Item #	QTY	U/M
Signal 1				
12" Head w/24" Background & Hood (Painted AL)				
Terminal For LED Hook-up (For larger RDG & GE LED)	WCH	9451000610	8	EA
12" LED Highway Crossing Light (HD)	GE Lighting	9451000523	8	EA
Pinnacle 5" End Cap	Progress	9463100105	1	EA
4" or 5" Custom Flashing Light Standoff Bracket	Progress	9451060126	1	EA
5" U Bolt for Mounting Crossarms assembly to Mast (2 per Standoff Bracket)	Progress	9401074647	2	EA
Alum. Mast, 5" x 18', Base Hole 0 & 180 Degrees & Main Hole 90 Degrees	Progress	9413022560	1	EA
Signal Mast Grounding w/ 72" pigtail #6 solid	Erico	9413040011	1	EA
JCT. Box Base, 5" W/2"NPT Cap	Progress	9420001102	1	EA
2-Way Cross Arm Assembly Less Heads (Gate Flasher)	Progress	9451050304	1	EA
2-Way Cross Arm Assembly Less Heads (Flasher)	Progress	9451050420	1	EA
4" Crossarms Assembly Mounting Kit	Progress	9451080004	1	EA
5" Crossarms Assembly Mounting Kit	Progress	9451080005	1	EA
Railroad Crossing Sign, HI	Progress	9460001104	1	EA
5" Mounting Kit for Railroad Crossing Signs w/Extension Bracket	Progress	9460005050	1	EA
Gate 3593E Mechanism Assembly, including the 5" Mast Mounting Hardware, Flex				
Conduit, with fittings, Long Arm Supports & Counterweight kit for 25' - 28' Arms W/Gate Heaters	W-C-H	9450010189	1	EA
Gate Heater Thermostat (To Be mounted inside gate mech IORY Projects)	SENASYS	9450020612	1	EA
Insulated Nut	TWINCO	9409050504	4	EA
Test Link, 1" Offset w/Gold Nut	L&W	9409021104	18	EA
Wiring Harness 12' Light	Progress	9454100135	1	EA
Wiring Harness 8' Mech (STD)	Progress	9454100136	1	EA
Gate Arm Wind Bracket, 36"	NEG	9450030203	1	EA
Conversion Bracket Plain w/hardware	NEG	9459001132	1	EA
Hex. Railroad Lock	SIEMENS	9463001200	1	EA
Gate/Flasher Pallet	J&J Pallet	9441001350	1	EA
Signal 2				
12" Head w/24" Background & Hood (Painted AL)				
Terminal For LED Hook-up (For larger RDG & GE LED)	WCH	9451000610	8	EA
12" LED Highway Crossing Light (HD)	GE Lighting	9451000523	8	EA
4" or 5" Custom Flashing Light Standoff Bracket	Progress	9451060126	1	EA
5" U Bolt for Mounting Crossarms assembly to Mast (2 per Standoff Bracket)	Progress	9401074647	2	EA
Alum. Mast, 5" x 18', Base Hole 0 & 180 Degrees & Main Hole 90 Degrees	Progress	9413022560	1	EA
Signal Mast Grounding w/ 72" pigtail #6 solid	Erico	9413040011	1	EA
JCT. Box Base, 5" W/2"NPT Cap	Progress	9420001102	1	EA
2-Way Cross Arm Assembly Less Heads (Gate Flasher)	Progress	9451050304	1	EA
2-Way Cross Arm Assembly Less Heads (Flasher)	Progress	9451050420	1	EA
4" Crossarms Assembly Mounting Kit	Progress	9451080004	1	EA
5" Crossarms Assembly Mounting Kit	Progress	9451080005	1	EA
Railroad Crossing Sign, HI	Progress	9460001104	1	EA
5" Mounting Kit for Railroad Crossing Signs w/Extension Bracket	Progress	9460005050	1	EA
Gate 3593E Mechanism Assembly, including the 5" Mast Mounting Hardware, Flex				
Conduit, with fittings, Long Arm Supports & Counterweight kit for 25' - 28' Arms W/Gate Heaters	W-C-H	9450010189	1	EA
Gate Heater Thermostat (To Be mounted inside gate mech IORY Projects)	SENASYS	9450020612	1	EA
Insulated Nut	TWINCO	9409050504	4	EA
Test Link, 1" Offset w/Gold Nut	L&W	9409021104	18	EA
Wiring Harness 20' 6" Bell		9454100134	1	EA
Wiring Harness 12' Light	Progress	9454100135	1	EA
Wiring Harness 8' Mech (STD)	Progress	9454100136	1	EA
Gate Arm Wind Bracket, 36"	NEG	9450030203	1	EA
Conversion Bracket Plain w/hardware	NEG	9459001132	1	EA
Hex. Railroad Lock	SIEMENS	9463001200	1	EA
Gate/Flasher Pallet	J&J Pallet	9441001350	1	EA

Ground Material				
ITEM DESCRIPTION	O.E.M.	LN Item #	QTY	U/M
Insulated Terminal Wrench, 1/2" / Triangle	GRAYBAR	9473000518	1	EA
Plugboard Terminal Wrench	SIEMENS	9473000508	1	EA
Battery Tray (12" x 38")	FIBER CO	9409060108	2	EA
Battery Tray (12" x 24")	FIBER CO	9409060102	2	EA
Battery, 264 Amp Hour	GNB	9429005100	7	EA
Battery, 312 Amp Hour	GNB	9429005145	6	EA
Electronic Bell, 5" MTG.	GSI	9465000154	1	EA
Gate Arm Light Kit w/LED Bulbs and wire, 3 per set W/Reverse Tip Diode	NEG	9450030541	2	EA
G&W, Lamp Cord Mounting Clamps	RECO	9450030560	2	EA
G&W, Lamp Cord Mounting Clamps	RECO	9450030561	2	EA
G&W Gate Arm 30' or Less, NON-HWP, 16' Al Base sec (HI Intensity), 3' Sleeve	NEG	9450030266	2	EA
G&W Gate Arm 30' or Less, NON-HWP, 16' Fg 2nd sec (HI Intensity)	NEG	9450030267	2	EA
Cast Adapter	NEG	9450020520	2	EA
48" Tall Galv. Steel Gate Foundation w/32" Square Base w/4" Entrance Pipe welded on bottom of top p	Progress	9417002040	2	EA
5" Jct. Box Base Shroud	Progress	9454030094	2	EA
Track Cable, #6 Tw. Pr. (150-12-3933)	GRAYBAR	9422001106	250	FT
Signal Cable, 7/C # 6 AWG (206-11-6247)	GRAYBAR	9422001580	325	FT
Signal Cable, 7/C # 9 AWG (206-11-6927)	GRAYBAR	9422001579	325	FT
AC Meter, 3/C # 9 AWG.(206-11-6923)	GRAYBAR	9422001539	325	FT
AC Cable, 3/C # 6 AWG w/GRD (206-11-6070)	GRAYBAR	9422001218	100	FT
Railroad Emergency Contact Sign - Reference Spec Prior to Ordering (SEE ENS TAB)	Saf-Ti-Co	9400000079	2	EA
5" Mounting Kit for Railroad Crossing Signs w/Extension Bracket	Progress	9460005050	2	EA
Hex. Railroad Lock	SIEMENS	9463001200	1	EA
Copperweld Ground Rod, 5/8" X 8'	Erico	9409050512	6	EA
Cadweld One Shot, 5/8" (HALO) Triple	Erico	9410001231	4	EA
Cadweld One Shot, 5/8" (SIGNAL) Single	Erico	9410000274	2	EA
Track Connector, Web, 4"	Erico	9410003011	8	EA
Track Connection Kits	Progress	9410002051	2	EA
Track Wire Retainer Clip, Erico #SBA248B	Erico	9410006111	8	EA
4" PVC Sch. 80 Conduit	B&S	TBD	70	FT
Hose, Red Ruber 3/4 Inch Hose (15' Per Track Connection Pair)	Grainger	9469023011	30	FT
AC Meter Base, Breaker Box, W.H. & Pole	Commercial	TBD	1	EA
Retaining Wall with Handrails 4' High (5' Increments - Overall Length Divided by 5)	Dixie	9417001625	4	EA
Dress Stone	Local	N/A	1	EA
Fill	Local	N/A	5	EA
Curb	Local	N/A	1	EA
Sleeve, 3/16 - 3/16 & 3/16 - #6 Tinned	Erico	9410001010	8	EA
Duct Seal	Local	9410000502	10	LB
Bond Strand, Erico# SBS8TLINS664	ERICO	9422030010	75	FT
No Oxide Grease	SIEMENS	9410006010	1	EA
Anti-Seize - Silver Grade 4 OZ	Bearing Head	9410006020	1	EA
#6 Bare Copper	Grainger	9422000010	50	FT



COLUMBUS & OHIO RIVER RAILROAD

ROOSEVELT AVE.

MOUNT VERNON, (KNOX), OHIO

DOT# 152 070J MILEPOST# 23.65

INDEX	
SHEET	DESCRIPTION
00	TITLE AND INDEX
01	CROSSING TRACK LAYOUT
02	PMD-4R CIRCUITRY & PROGRAM
03	CROSSING CONTROLLER CIRCUITRY
04	DATA RECORDER CIRCUITRY
05	GATE LIGHTING CIRCUITRY
06	GATE MECH CIRCUITRY
07	DC POWER DISTRIBUTION
08	SIDE D DETAIL - AC POWER DISTRIBUTION
09	SIDE B DETAIL - TERMINAL BOARD
10	SIDE A DETAIL
11	SIDE C DETAIL
12	TRACK AND CABLE LAYOUT
13	
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REVISIONS						THE OPERATION OF THE CIRCUITS AND EQUIPMENT REPRESENTED HEREIN CANNOT BE FULLY CHECKED UNTIL ALL CIRCUITS AND DEVICES ARE CONNECTED TO FORM A COMPLETE SYSTEM, OR AN EFFECTIVE SUBSYSTEM. SUCH SYSTEM OR SUBSYSTEM MUST BE GIVEN COMPLETE CIRCUIT AND OPERATIONAL TESTS BEFORE BEING PLACED IN REGULAR OPERATION.			TITLE AND INDEX		
									COLUMBUS & OHIO RIVER RAILROAD		
									DRAWN: PRS DESIGNED: MST CHECKED: JMW DATE: 09-17-21		ROOSEVELT AVE. MOUNT VERNON, (KNOX), OHIO DOT#152 070J MILEPOST# 23.65

BATTERY BANK VOLTAGE	VALID LAMP OUTPUT RANGE (in volts)	DIGITAL METER (FLUKE 87 OR EQUIVALENT)	ANALOG METER (SIMPSON 260 OR TS111)
13.3	9.0 TO 12.0	1.3 VOLTS BELOW ACTUAL VALUE	0.6 VOLTS BELOW ACTUAL VALUE
14.7	9.0 TO 12.0	2.2 VOLTS BELOW ACTUAL VALUE	1.1 VOLTS BELOW ACTUAL VALUE
15.8	9.0 TO 12.0	2.6 VOLTS BELOW ACTUAL VALUE	2.0 VOLTS BELOW ACTUAL VALUE

[illegible]

- REVISIONS



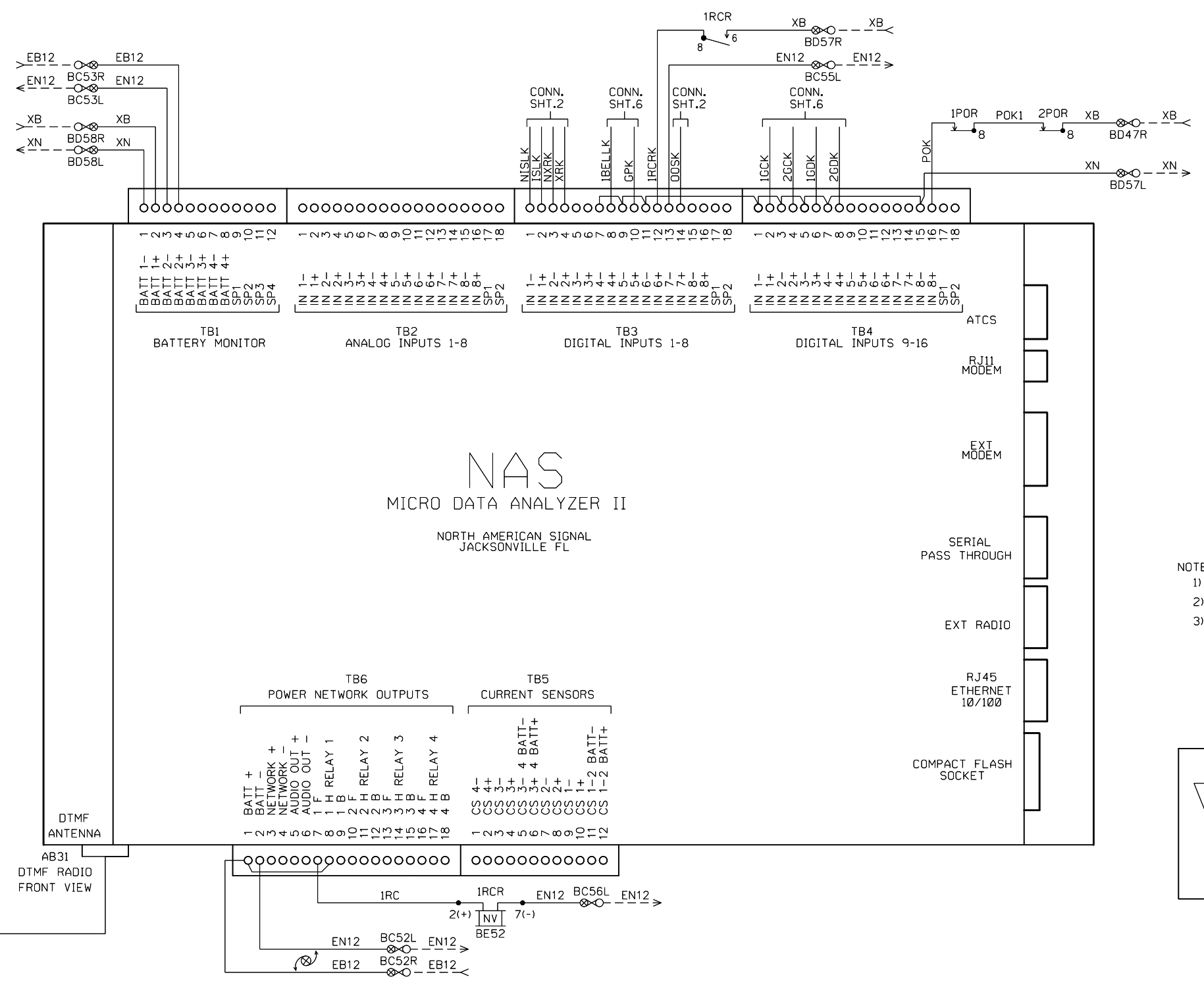
COLUMBUS & OHIO RIVER RAILROAD

SHEET
03 OF 12

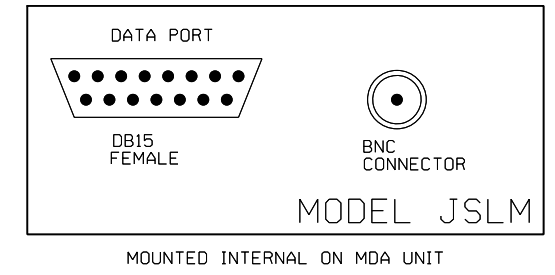
ROOF MOUNT
VHF
ANTENNA

COAX CABLES BY NAS

ANTENNA CABLE
NAS PART NO:
NAS-DTMF-AK-10



NOTES:
1) TO ACTIVATE CROSSING ENTER: 070#
2) TO DEACTIVATE CROSSING ENTER: 070*
3) RAILROAD FREQUENCIES: XXX.XXX MHz
CH. #07-07
TONE 44
RR TO PROVIDE FREQUENCY



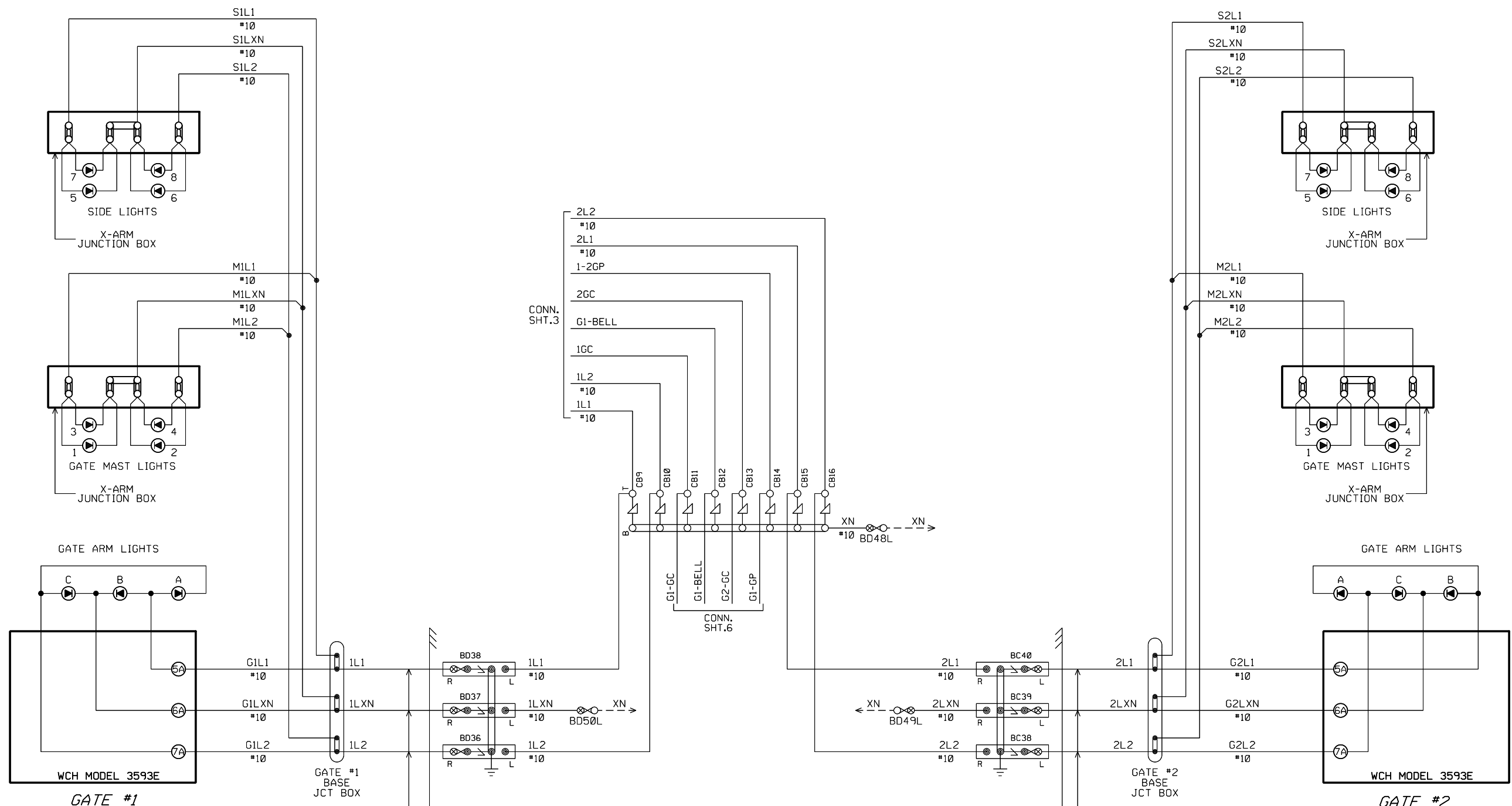
NOTES:
1. ALL WIRE THIS SHEET NO.16
A.W.G. FLEX UNLESS OTHERWISE
NOTED.
2. TWISTED WIRE PAIR.
3. TEST TERMINAL.

REVISIONS				

THE OPERATION OF THE CIRCUITS AND EQUIPMENT REPRESENTED HEREIN CANNOT BE FULLY CHECKED UNTIL ALL CIRCUITS AND DEVICES ARE CONNECTED TO FORM A COMPLETE SYSTEM, OR AN EFFECTIVE SUBSYSTEM. SUCH SYSTEM OR SUBSYSTEM MUST BE GIVEN COMPLETE CIRCUIT AND OPERATIONAL TESTS BEFORE BEING PLACED IN REGULAR OPERATION.



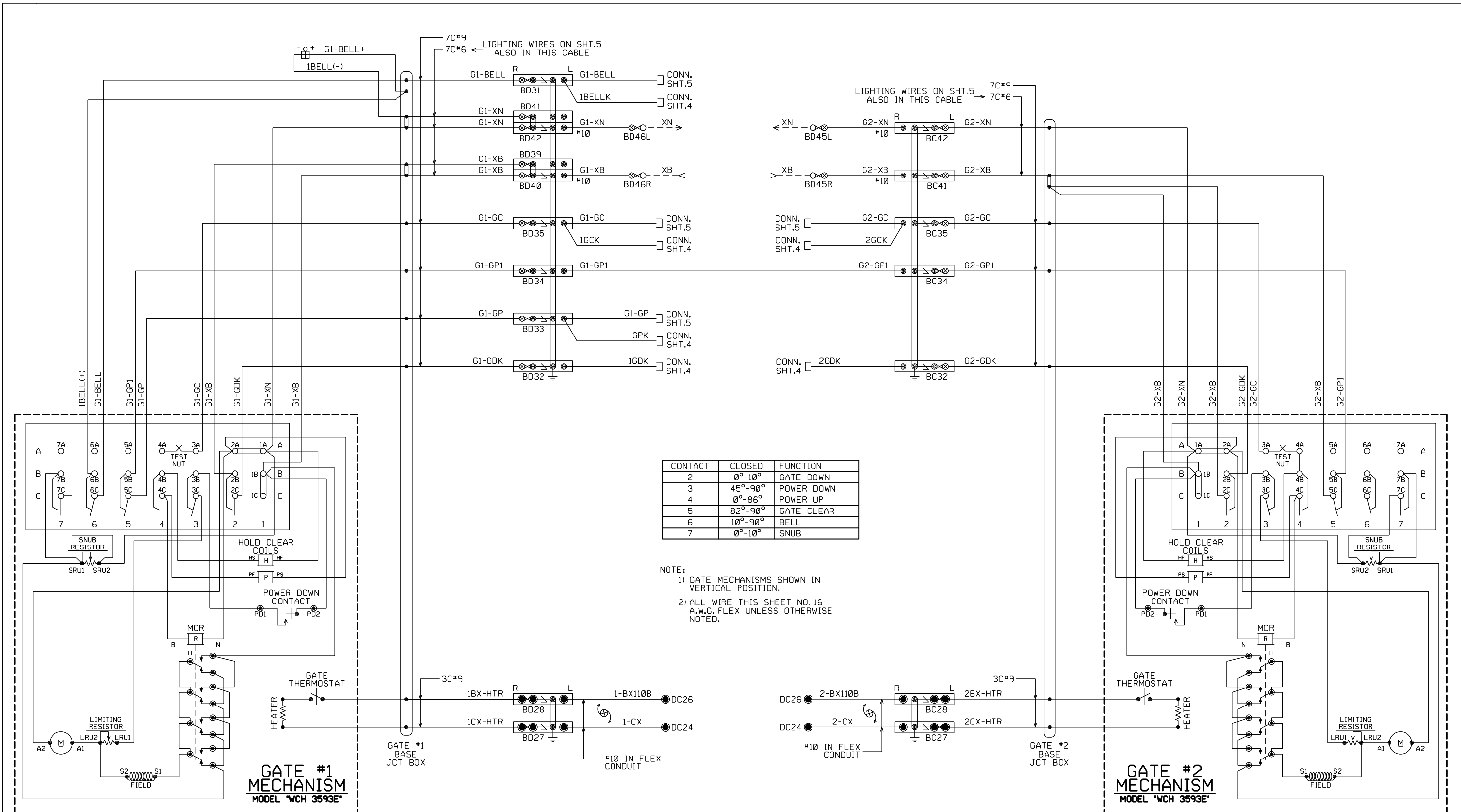
DATA RECORDER CIRCUITRY		
COLUMBUS & OHIO RIVER RAILROAD		
DRAWN: PRS DESIGNED: MST CHECKED: JMW DATE: 09-17-21	ROOSEVELT AVE. MOUNT VERNON, (KNOX), OHIO DOT#152 070J MILEPOST# 23.65	SHEET 04 OF 12



NOTE:
1. ALL WIRE THIS SHEET NO.16
A.W.G. FLEX UNLESS OTHERWISE
NOTED.

- LEGEND:
- TEST TERMINAL
 - EQUALIZER
 - ARRESTOR TO GROUND
 - TWISTED WIRE
2 TURNS PER FOOT
 - INSULATED NUT

REVISIONS				THE OPERATION OF THE CIRCUITS AND EQUIPMENT REPRESENTED HEREIN CANNOT BE FULLY CHECKED UNTIL ALL CIRCUITS AND DEVICES ARE CONNECTED TO FORM A COMPLETE SYSTEM, OR AN EFFECTIVE SUBSYSTEM. SUCH SYSTEM OR SUBSYSTEM MUST BE GIVEN OPERATIONAL TESTS BEFORE BEING PLACED IN REGULAR OPERATION.			GATE LIGHTING CIRCUITRY		
							COLUMBUS & OHIO RIVER RAILROAD		
				DRAWN: PRS DESIGNED: MST CHECKED: JMW DATE: 09-17-21	ROOSEVELT AVE. MOUNT VERNON, (KNOX), OHIO DOT#152 070J MILEPOST# 23.65		SHEET 05 OF 12		



CONTACT	CLOSED	FUNCTION
2	0°-10°	GATE DOWN
3	45°-90°	POWER DOWN
4	0°-86°	POWER UP
5	82°-90°	GATE CLEAR
6	10°-90°	BELL
7	0°-10°	SNUB

NOTE:
1) GATE MECHANISMS SHOWN IN VERTICAL POSITION.
2) ALL WIRE THIS SHEET NO. 16 A.W.G. FLEX UNLESS OTHERWISE NOTED.

REVISIONS				

THE OPERATION OF THE CIRCUITS AND EQUIPMENT REPRESENTED HEREIN CANNOT BE FULLY CHECKED UNTIL ALL CIRCUITS AND DEVICES ARE CONNECTED TO FORM A COMPLETE SYSTEM, OR AN EFFECTIVE SUBSYSTEM. SUCH SYSTEM OR SUBSYSTEM MUST BE GIVEN COMPLETE CIRCUIT AND OPERATIONAL TESTS BEFORE BEING PLACED IN REGULAR OPERATION.



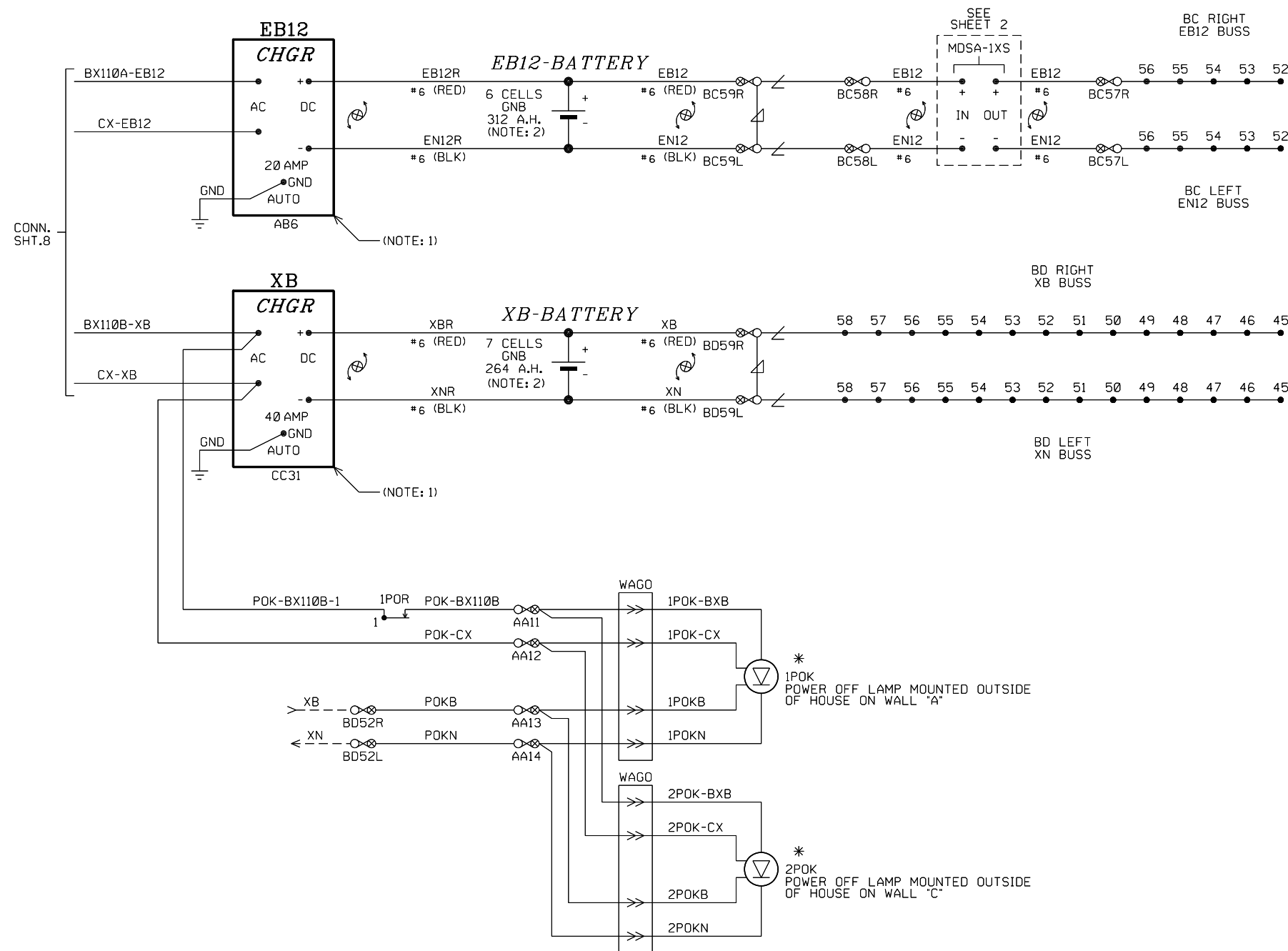
GATE MECH CIRCUITRY

COLUMBUS & OHIO RIVER RAILROAD

DRAWN: PRS
DESIGNED: MST
CHECKED: JMW
DATE: 09-17-21

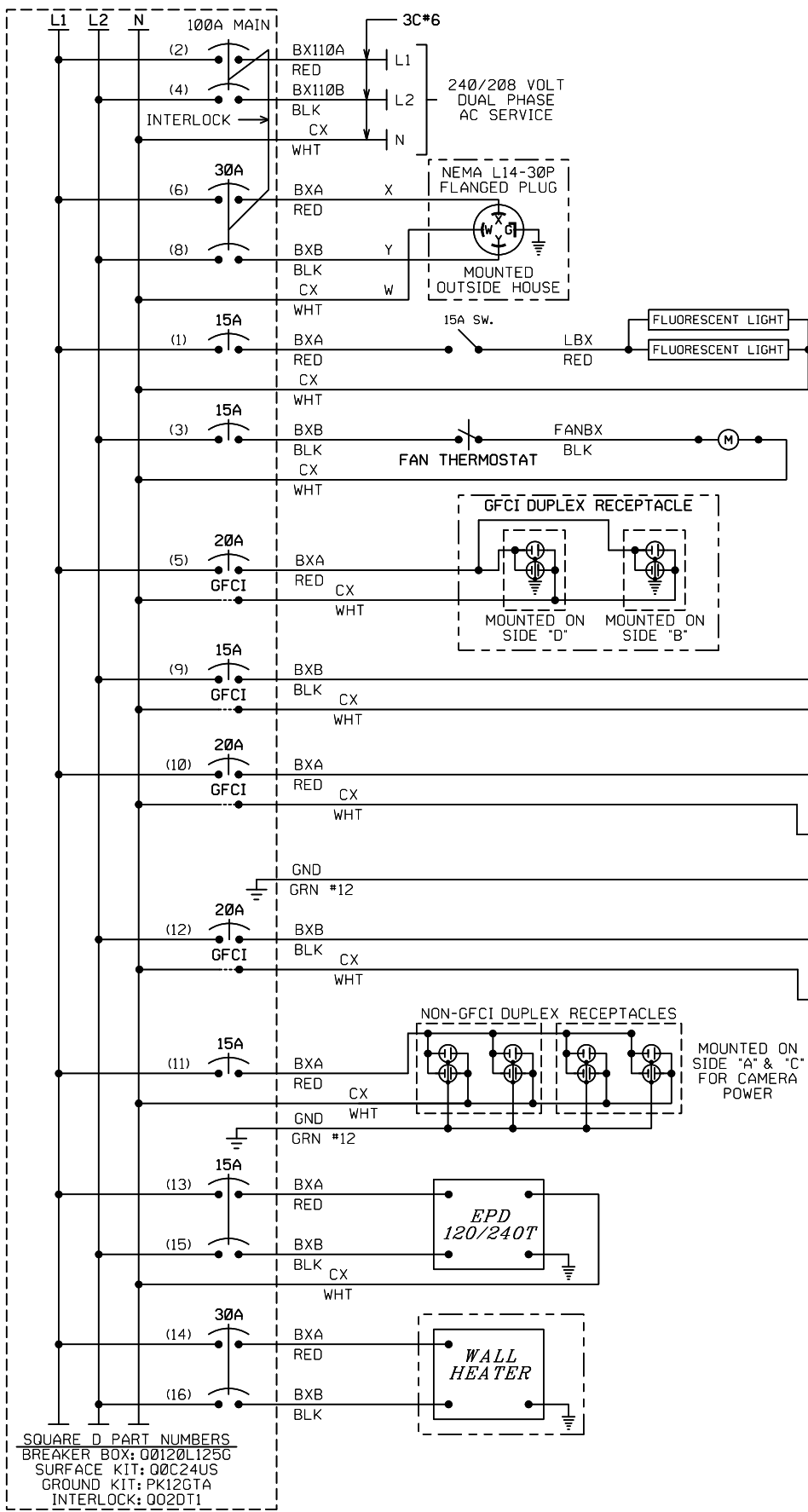
ROOSEVELT AVE.
MOUNT VERNON, (KNOX), OHIO
DOT#152 070J MILEPOST# 23.65

SHEET
06 OF 12

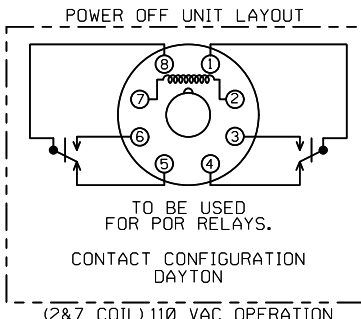
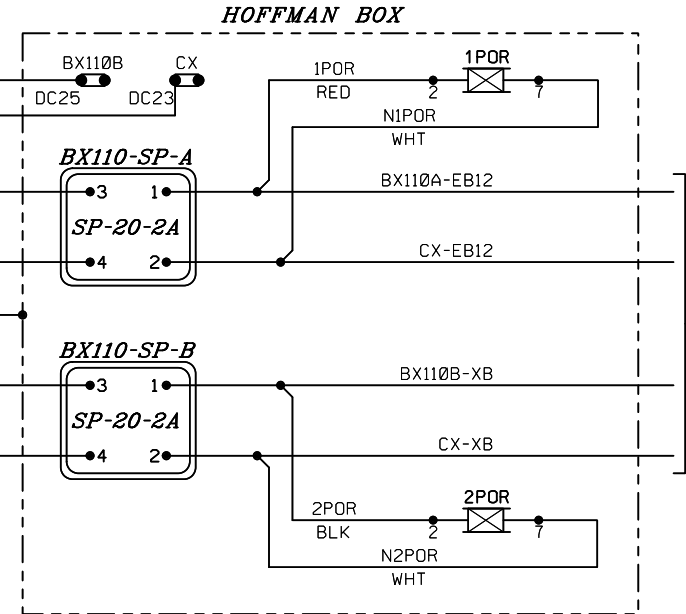


- NOTES:
1. USE 110VAC INPUT FOR CHARGERS.
 2. USE 1/4" TERMINALS AT BATTERY CONNECTIONS.
 3. ALL WIRE THIS SHEET NO. 16 A.W.G. FLEX UNLESS OTHERWISE NOTED.

- LEGEND:
- TEST TERMINAL
 - EQUALIZER
 - ARRESTOR TO GROUND
 - TWISTED WIRE 2 TURNS PER FOOT
 - INSULATED NUT
 - * - LIGHTS ARE 12VDC, 4-WIRE LED. (P/N: LC2-001WB-WG4) VELCORP GEMS

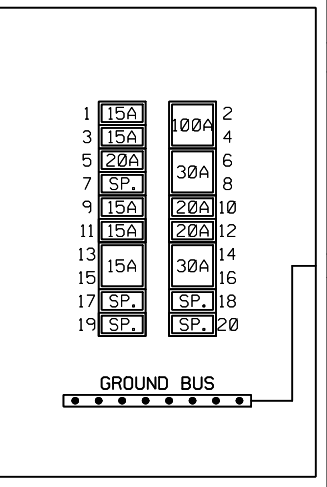


- NOTES:
- USE THE FOLLOWING COLOR CODE:
GRN - GREEN - SAFETY EQUIPMENT GROUND
WHT - WHITE - CX110 (NEUTRAL)
BLK - BLACK - BX110B (L2)
RED - RED - BX110A (L1)
EXCEPTIONS TO THE ABOVE COLOR CODE ARE THE PRE-WIRED, SEALED ARRESTOR UNITS MOUNTED ON THE BREAKER BOX WHICH HAVE TWO BLACK AND ONE WHITE WIRE EACH.
 - MINIMUM WIRE SIZE
15 AMP - NO. 14 AWG THHN OR THWN SOLID
20 AMP - NO. 12 AWG THHN OR THWN SOLID
30 AMP - NO. 10 AWG THHN OR THWN SOLID
 - GROUND FAULT INTERRUPT (GFCI) MUST BE USED ON ALL CIRCUITS SERVING CONVENIENCE OUTLETS AND ANY EQUIPMENT OUTSIDE THE BUNGALOW. RECEPTACLE MOUNTED GFCI MAY BE USED INSTEAD OF BREAKER TYPE.
 - ALL GROUND WIRES ON THIS SHEET RUN TO BREAKER BOX GROUND BUS.

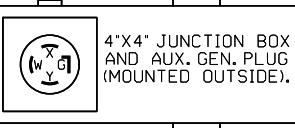
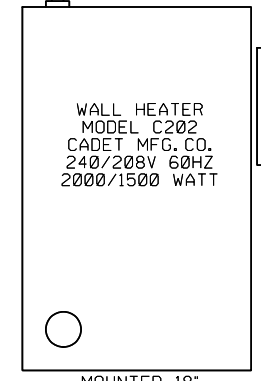
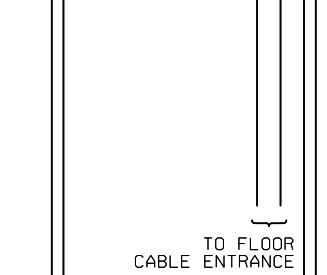
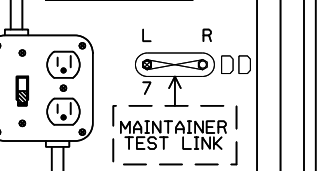
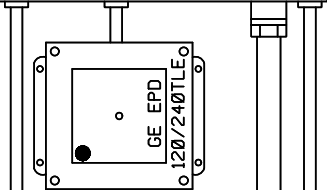
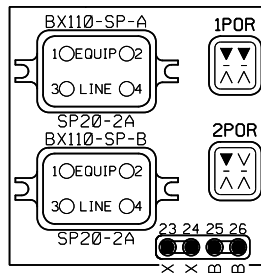


SQUARE D PART NUMBERS
BREAKER BOX: Q0120L125G
SURFACE KIT: Q0C24US
GROUND KIT: PK12GT
INTERLOCK: Q02DT1

BREAKER BOX



HOFFMAN BOX



MOUNTED 18" ABOVE FLOOR.

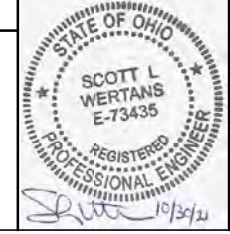
SIDE D DETAIL - AC POWER DISTRIBUTION

COLUMBUS & OHIO RIVER RAILROAD

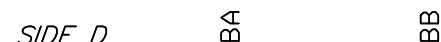
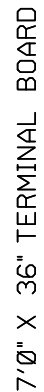
DRAWN: PRS
DESIGNED: MST
CHECKED: JMW
DATE: 09-17-21

ROOSEVELT AVE.
MOUNT VERNON, (KNOX), OHIO
DOT#152 070J MILEPOST# 23.65

SHEET
08 OF 12



THE OPERATION OF THE CIRCUITS AND EQUIPMENT REPRESENTED HEREIN CANNOT BE FULLY CHECKED UNTIL ALL CIRCUITS AND DEVICES ARE CONNECTED TO FORM A COMPLETE SYSTEM, OR AN EFFECTIVE SUBSYSTEM. SUCH SYSTEM OR SUBSYSTEM MUST BE GIVEN COMPLETE CIRCUIT AND OPERATIONAL TESTS BEFORE BEING PLACED IN REGULAR OPERATION.



DTMF RELAY UNIT LAYOUT

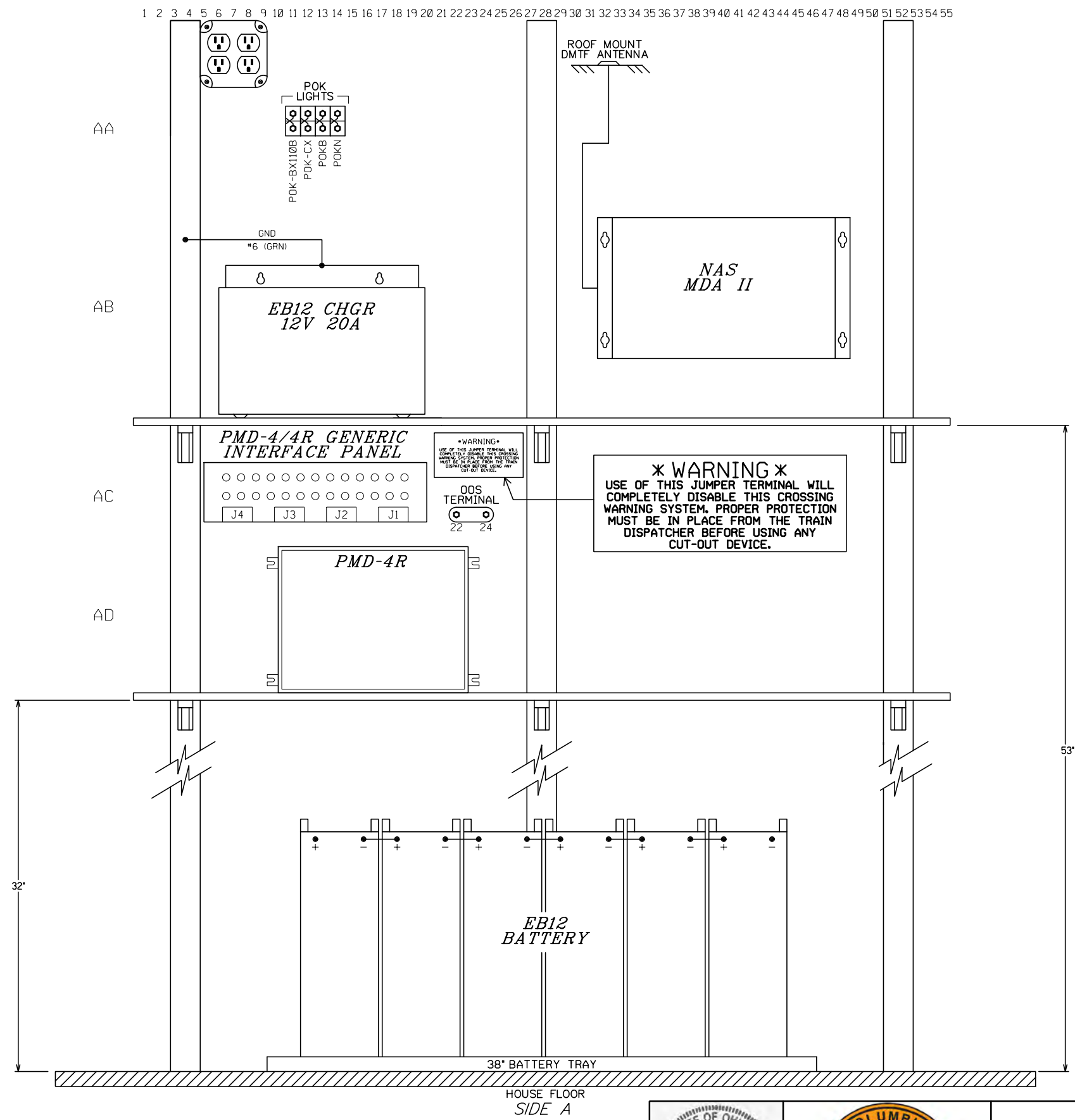
RELAY 5EMH3
TO BE USED FOR 1RCR RELAY.
CONTACT CONFIGURATION
DAYTON
(2&7 COIL) 12 VDC OPERATION

ROW BC

BATTERY BUSS DETAILS

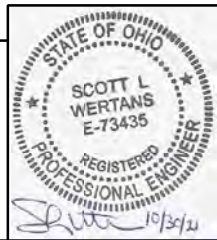
SIDE B DETAIL - TERMINAL BOARD

SHEET
09 OF 12



REVISIONS					

THE OPERATION OF THE CIRCUITS AND EQUIPMENT REPRESENTED HEREIN CANNOT BE FULLY CHECKED UNTIL ALL CIRCUITS AND DEVICES ARE CONNECTED TO FORM A COMPLETE SYSTEM, OR AN EFFECTIVE SUBSYSTEM. SUCH SYSTEM OR SUBSYSTEM MUST BE GIVEN COMPLETE CIRCUIT AND OPERATIONAL TESTS BEFORE BEING PLACED IN REGULAR OPERATION.



SIDE A DETAIL		
COLUMBUS & OHIO RIVER RAILROAD		
DRAWN: PRS DESIGNED: MST CHECKED: JMW DATE: 09-17-21	ROOSEVELT AVE. MOUNT VERNON, (KNOX), OHIO DOT#152 070J MILEPOST# 23.65	SHEET 10 OF 12

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

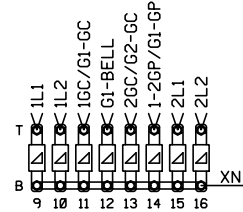
CA

CAMERA EQUIPMENT
PLACED ON UPPER
SHELF SIDE C

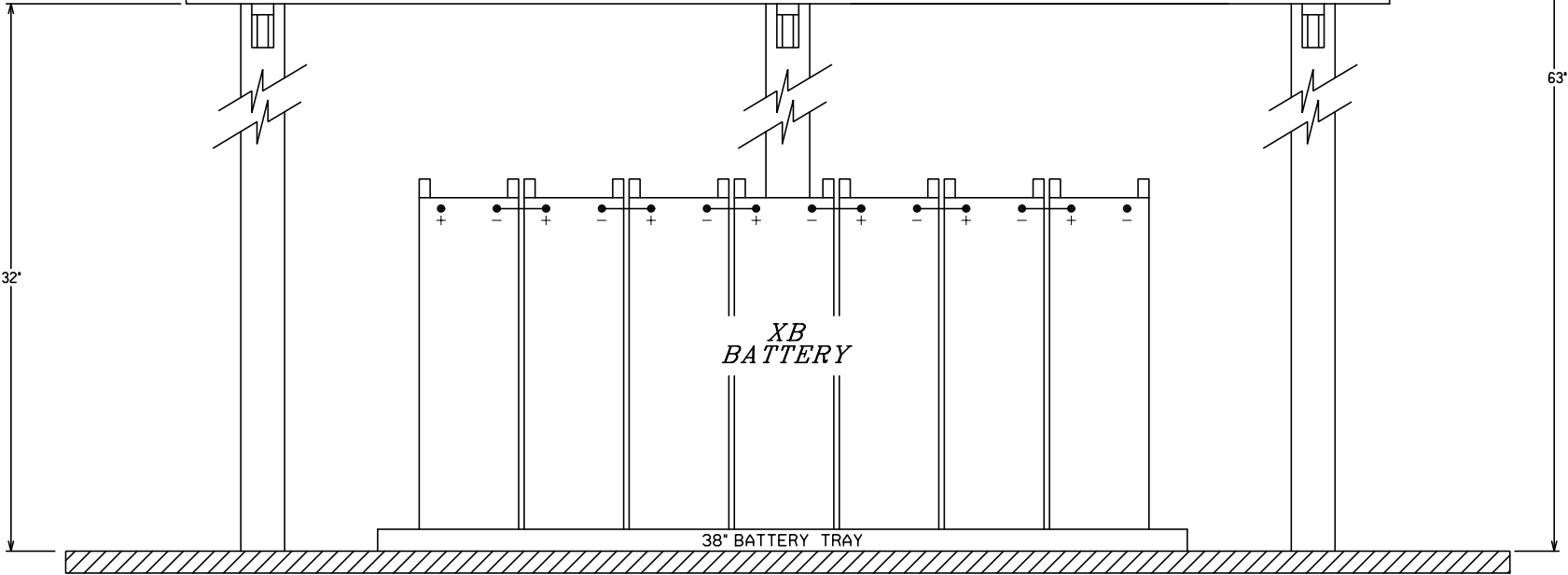
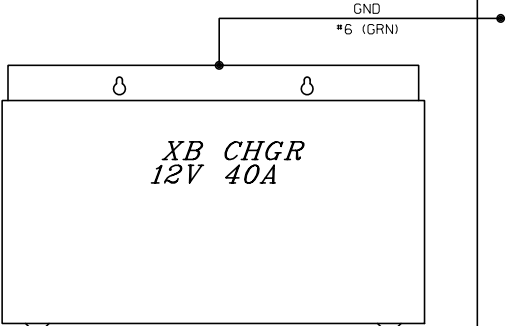
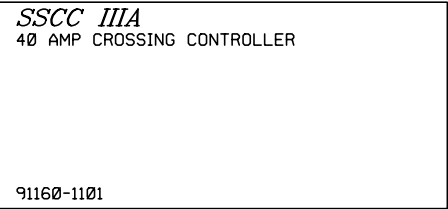
- EXTERNAL CAMERA(S) TO RECORD
SIGNAL & TRAIN MOVEMENTS

- INTERNAL CAMERA(S) TO FACE
SIDE A TO RECORD EQUIPMENT
& OOS JUMPER POSTS.

CB



CC



XB
BATTERY

38" BATTERY TRAY

HOUSE FLOOR
SIDE C

REVISIONS

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EQUIPMENT REPRESENTED HEREIN
CANNOT BE FULLY CHECKED UNTIL
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SYSTEM, OR AN EFFECTIVE
SUBSYSTEM. SUCH SYSTEM OR
SUBSYSTEM MUST BE GIVEN
COMPLETE CIRCUIT AND
OPERATIONAL TESTS BEFORE BEING
PLACED IN REGULAR OPERATION.



SIDE C DETAIL

COLUMBUS & OHIO RIVER RAILROAD

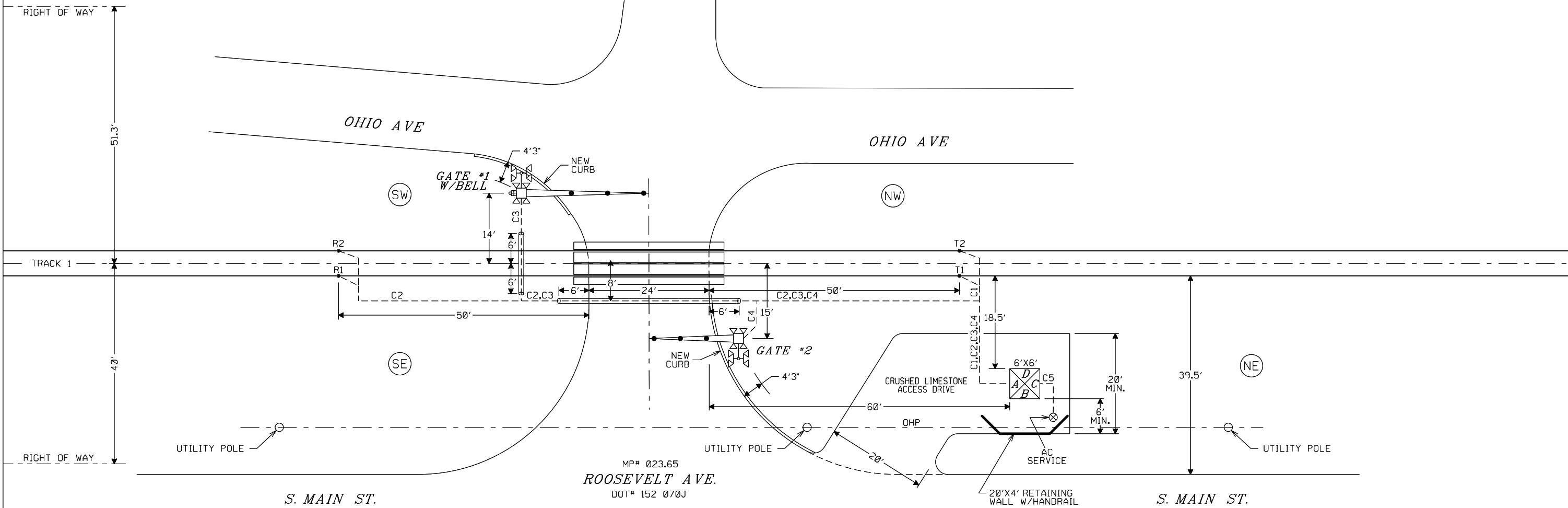
DRAWN: PRS
DESIGNED: MST
CHECKED: JMW
DATE: 09-17-21

ROOSEVELT AVE.
MOUNT VERNON, (KNOX), OHIO
DOT#152 070J MILEPOST# 23.65

SHEET
11 OF 12

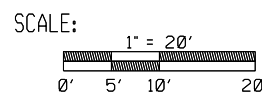
← SOUTH TO MT. VERNON

NORTH TO END OF TRACKS →



CABLE	CABLES DESCRIPTION	FROM - TO
C1	1EA. 2C*6 AWG TWISTED PAIR	HOUSE TO T1 & T2
C2	1EA. 2C*6 AWG TWISTED PAIR	HOUSE TO R1 & R2
C3	1EA. 3C*9 & 1EA. 7C*6 AWG & 1EA. 7C*9 AWG	HOUSE TO GATE 1
C4	1EA. 3C*9 & 1EA. 7C*6 AWG & 1EA. 7C*9 AWG	HOUSE TO GATE 2
C5	1EA. 3C*6 AWG	HOUSE TO AC POWER SERVICE

- LEGEND:
- PVC SCHEDULE 80 CONDUIT (INSTALLED AT MIN 36" DEEP)
 - UNDERGROUND CABLE
 - LOCATION OF AC SERVICE
 - UTILITY POLE
 - (NE) (SE) (NW) (SW) = QUADRANT MARKERS



REVISIONS				

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TRACK AND CABLE LAYOUT

COLUMBUS & OHIO RIVER RAILROAD

DRAWN: PRS
DESIGNED: MST
CHECKED: JMW
DATE: 09-17-21

ROOSEVELT AVE.
MOUNT VERNON, (KNOX), OHIO
DOT#152 070J MILEPOST# 23.65

SHEET
12 OF 12



RAILROAD/HIGHWAY GRADE CROSSING SITE SURVEY

RAILROAD NAME: Columbus & Ohio River Railroad

LOCATION: Mount Vernon, Ohio

PROJECT#:

RR#	21CUOH03R	PID#	114022
-----	-----------	------	--------

SURVEYED BY: Mike Forte DATE: 3/10/2021

ROADWAY: Roosevelt Ave. DOT#: 152 070J

SUBDIVISION: Mt. Vernon MILEPOST: 23.65

REGION: Northern SPEED: 10 mph

LATITUDE: 40.3795783 LONGITUDE: -82.4868640

NEAREST ADDRESS: 3 Roosevelt Ave., Mt. Vernon, OH 43050

REVISED: _____

PROJECT SCOPE (PER AGENCY ORDER/DRTS FINDINGS):

Install flashing lights & gates with one bell and sidelights for Ohio Ave. and S. Main St. House in NE quad.

Install radius curb in SW quadrant.

RAILROAD CONCERNS/SCOPE ADJUSTMENTS:

SURVEY ATTENDEES:

Name	Title	Company	Email/Phone
Mike Forte	Sr. Construction Rep.	Benesch	740-817-1521
Todd Hensley	Signal Supervisor	OHCR	740-502-7214



SECTION 1 - EXISTING WARNING DEVICES

1.1 - EXISTING WARNING DEVICES/CONTROL EQUIPMENT

Signage	Quantity	Description	Reuse/ Replace
Crossbucks	2		Replace
Stop Signs			
Yield Signs	2		Remove
Track Signs			
SORS			
ENS/DOT	2		Replace
NLT/NRT			
Equipment	Quantity	Description (Mast size, lens size, orientation etc.)	Reuse/ Replace
Flashing Lights			
Flashing Lights and Gates			
Cantilevers*			
Cant/Gate Combo			
Bells			
Bridge Signals			
Signal Enclosure			
Highway/Rail grade crossing warning equipment type			
DAXing for Adjacent Xings			

*Include sketch of bolt hole pattern and spacing with measurements if existing cantilever is to be reused.

NOTES (LIST MANUFACTURER/MODEL/QUADRANT IF APPLICABLE) :

1.2 - ARE FOUNDATIONS POURED IN PLACE: NA

1.3 - EXISTING MASTS OF CAST OR ALUMINUM: NA

1.4 - ROOM AT CROSSING TO STORE EQUIPMENT: Yes

If no, specify where equipment can be stored:

1.5 - ARE EXISTING CIRCUITRY PLANS AVAILABLE: NA

1.6 – CROSSING EQUIPMENT AND TYPE, passive, relay, solid state: Passive

1.7 – IS THE ROADWAY BEING RELOCATED: No

1.8 – IS THERE A FRA INVENTORY REPORT: Yes

1.9 – EXISTING TRAIN SPEED, Timetable, General Order: 25 mph



SECTION 2 - PROPOSED WARNING DEVICES

2.1 - PROPOSED WARNING DEVICES/CONTROL EQUIPMENT

Signage	Quantity	Description
Crossbucks	2	
Stop Signs		
Yield Signs		
Track Signs		
SORS		
ENS/DOT	2	
NLT/NRT		
Equipment	Quantity	Description (Mast size, lens size, orientation, etc.)
Flashing Lights		
Flashing Lights and Gates	2	With 2-way sidelights in NE in SW quadrant
Cantilevers		
Cant/Gate Combo		
Bells	1	Bell to stop ringing when gates become horizontal
Bridge Signals		
Signal Enclosure	1	6'x6' in NE quad with fill and retaining wall
Highway/Rail grade crossing warning equipment type		PMD-4R CWT

NOTES:

A curb must be constructed in the SW quadrant for the signal placement.

- 2.2 - TYPE OF FOUNDATIONS TO BE USED:** Galvanized pyramid
- 2.3 - ARE FOUR QUADRANT GATES TO BE INCLUDED:** No
- If yes, specify exit gate delay/dwell time: _____
- 2.4 - ARE SIDELIGHTS REQUIRED:** Yes, on both masts
- If yes, specify street/distance from track/quadrant: SW & NE quadrants for Ohio St. & S. Main St.
- 2.5 - CROSSING CONTROL EQUIPMENT TERMINATION:** DHWS on both approach. (DHWS shared w/ Parrot St. on south approach)
- 2.6 - ADDITIONAL EQUIPMENT RECOMMENDED:** Camera system
- 2.7 - IS ADDITIONAL FILL MATERIAL REQUIRED:** Yes, crushed limestone
- If yes, specify quadrant/estimate quantity: 120 tons for house, NE signal, and driveway
- 2.8 – BERM/CRIB WALL/PLATFORM REQUIRED:** Yes, house to have 20'x4' wall with handrail

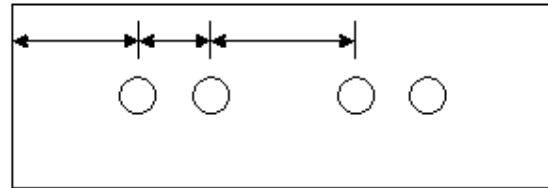
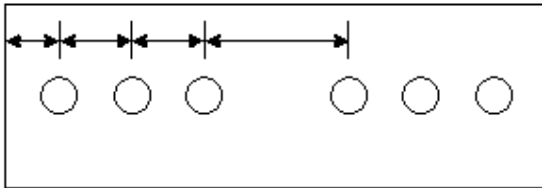


SECTION 3 – TRACK AND RAIL

3.1 - PROPOSED WARNING DEVICES/CONTROL EQUIPMENT

Track	Rail Weight	CWR	JT	Bond Type	Track Speed	Track Control	Rusty Rail	Ballast Condition
Mainline	100RB	X		NA	10 mph	Yard Limits	Yes	Good
Crossing	112RE	X		NA			Yes	Good

SPECIFY INSULATED JOINT DIMENSIONS AND TYPE:



3.2 - ARE COMP JOINTS PRESENT:

Yes, welded

If yes, show location and sizes on FIELD SKETCH.

3.3 - DO SWITCHES REQUIRE INSULATION:

No

If yes, show switches on FIELD SKETCH.

3.4 - ANY SHUNT-TYPE SWITCHES:

No

If yes, describe type and show on FIELD SKETCH:

3.5 - SHUNT ENHANCEMENT REQUIRED:

No

If yes, specify type:

3.6 – DO BALLAST CONDITIONS AFFECT INSTALLATION?

No

3.7 – HAS A BALLAST STUDY/READING BEEN PERFORMED TO DETERMINE THE BALLAST RESISTANCE?

No

If yes, attach a copy of the results.

3.8 – HAS A SPECTRUM FREQUENCY ANALYSIS BEEN PERFORMED?

No

If yes, attach a copy of the results.



3.9 – IS THE PROPOSED CROSSING LOCATED IN SIGNAL TERRITORY?

No _____

If yes, describe/attach a copy of the plans, CP, Approach signal(s), HWD, DED, and Rock Slide Detection Fences.

3.10 – ARE THERE ANY EXISTING TRACK CIRCUITS?

No _____

If yes, describe type/attach a copy of the plans.

3.11 – ARE THERE ANY TIE-INS OR MODIFICATIONS TO EXISTING CROSSINGS OR SIGNAL SYSTEMS?

No _____

If yes, describe/attach a copy of the plans.

3.12 – ARE THERE ANY OVERLAPS IN APPROACHES WITH EXISTING CROSSINGS?

Yes, Parrot St. _____

If yes, describe/attach a copy of the plans.

3.13 – ARE THERE ANY SPECIAL TRAIN MOVES OR REGULAR STOPPING OR SWITCHING IN THE PROPOSED APPROACHES?

No _____

If yes, describe:

3.14 – ARE THERE ANY QUIET ZONE REQUIREMENTS IN PROPOSED AREA OF CROSSING?

No _____

If yes, describe:

3.15 – ARE THERE ANY ELECTRONIC (e.g. *NO TURN, DO NOT STOP ON TRACK*) SIGNS REQUIRED?

No _____

If yes, describe and show on FIELD SKETCH:

3.16 – ARE THERE ANY SPECIAL DPU/STATE SPEED RESTRICTIONS FOR CROSSING?

No _____

If yes, describe:

3.17 – ARE THERE DAXing REQUIREMENTS FOR THIS OR ADJACENT CROSSINGS?

No _____

If yes, describe:



SECTION 4 – POLELINE

4.1 - ARE RAILROAD POLELINES PRESENT: No

If no, skip to section 5.

4.2 - REMOVE ABANDONED POLELINE: _____

If yes, specify number of spans to be removed: _____

Will Underground conduit/cable be required as a suitable replacement: _____

Will an interim scheme be needed until the suitable replacement is in place? _____

SECTION 5 – PRE-EMPTION

5.1 - PRE-EMPTION CIRCUITRY REQUIRED: No

If no, skip to section 6.

If yes, specify name, distance and direction to intersection: _____

If yes, specify type of, distance and direction to traffic signal controller cabinet: _____

If yes, specify type of interface, relay, electronic, communication protocol, etc.: _____

If yes, specify cable (6 twisted pair), routing and distance to traffic signal controller cabinet: _____

If yes, specify interface names applicable to traffic signal controller cabinet, AP, SP, Isl Occ, GD, GU, and/or Health: _____

5.4 - AUTHORIZING AGENCY: _____

5.5 - ROADWAY TRAFFIC ENGINEER: _____

5.6 - DATE OF REQUIREMENT: _____



SECTION 6 – JOINT RAILROAD

6.1 - IS TRACK LEASED FROM ANOTHER RAILROAD: Yes, CSX

If yes, specify railroad and division of maintenance: 100% CUOH

6.2 - DOES ANOTHER RAILROAD OPERATE AT CROSSING: No

6.3 - ANY JOINT FACILITIES WITHIN ONE MILE: No

If yes, specify railroad and division of maintenance: _____

SECTION 7 – UTILITIES

7.1 - IS COMMERCIAL POWER AVAILABLE: Yes

Specify location of nearest pole: North of Roosevelt Ave. and east of S. Main St.

7.2 - POWER COMPANY NAME/CONTACT INFORMATION: AEP

888-710-4237

7.3 - NEW METER SERVICE REQUIRED: Yes

If no, specify existing meter number: _____

7.4 - EXISTING UTILITY INFORMATION

Company Name	Type of Utility	Phone Number	Conflicts
Columbia Gas	Gas	800-344-4077	Unknown

7.5 - DESCRIBE ANY OVERHEAD UTILITY CONFLICTS:

None

7.6 - DESCRIBE ANY UNDERGROUND UTILITY CONFLICTS:

Unknown

7.7 - UTILITIES PARALLEL TO TRACKS: None observed

7.8 - NEAR COMMERCIAL HIGH-TENSION LINES: No

7.9 - NEAR COMMERCIAL SUBSTATIONS: No



SECTION 8 – OBSTRUCTIONS

8.1 - OBSTRUCTIONS TO VISIBILITY OF DEVICES: None

If no, skip to section 9.

8.2 - SOLUTION FOR OBSTRUCTION (PROVIDE CONTACT INFORMATION FOR OWNER):

SECTION 9 – ROADWAY DATA

9.1 - TYPE OF ROADWAY SURFACE: Asphalt

If different, specify crossing surface type: Full depth timber

9.2 - EXISTING ROADWAY WIDTH: 24' on east side, 30' on west side

If present, specify shoulder width: 1'

9.3 - PROPOSED ROADWAY WIDTH: NA

If present, specify shoulder width:

9.4 - CROSSING ANGLE: 89°

9.5 - VEHICLE SPEED: 25 mph

9.6 - IS CURBING PRESENT/REQUIRED: No/Yes in SW quadrant, radius of the two streets

9.7 - ARE SIDEWALKS PRESENT: No

If yes, will they interfere with warning devices:

9.8 - ARE PEDESTRIAN GATES REQUIRED: No



SECTION 10 – SITE INFORMATION

10.1 - ENCROACHMENTS WITHIN RR PROPERTY:

None

If yes, describe, photograph, and include on FIELD SKETCH:

10.2 - WILL TOPOGRAPHY AFFECT INSTALLATION:

Yes

If yes, describe, photograph, and include on FIELD SKETCH:

Fill is needed for proper house placement
and to build driveway.

10.2 - WILL DRAINAGE BE AFFECTED:

No

If yes, describe, photograph, and include on FIELD SKETCH:

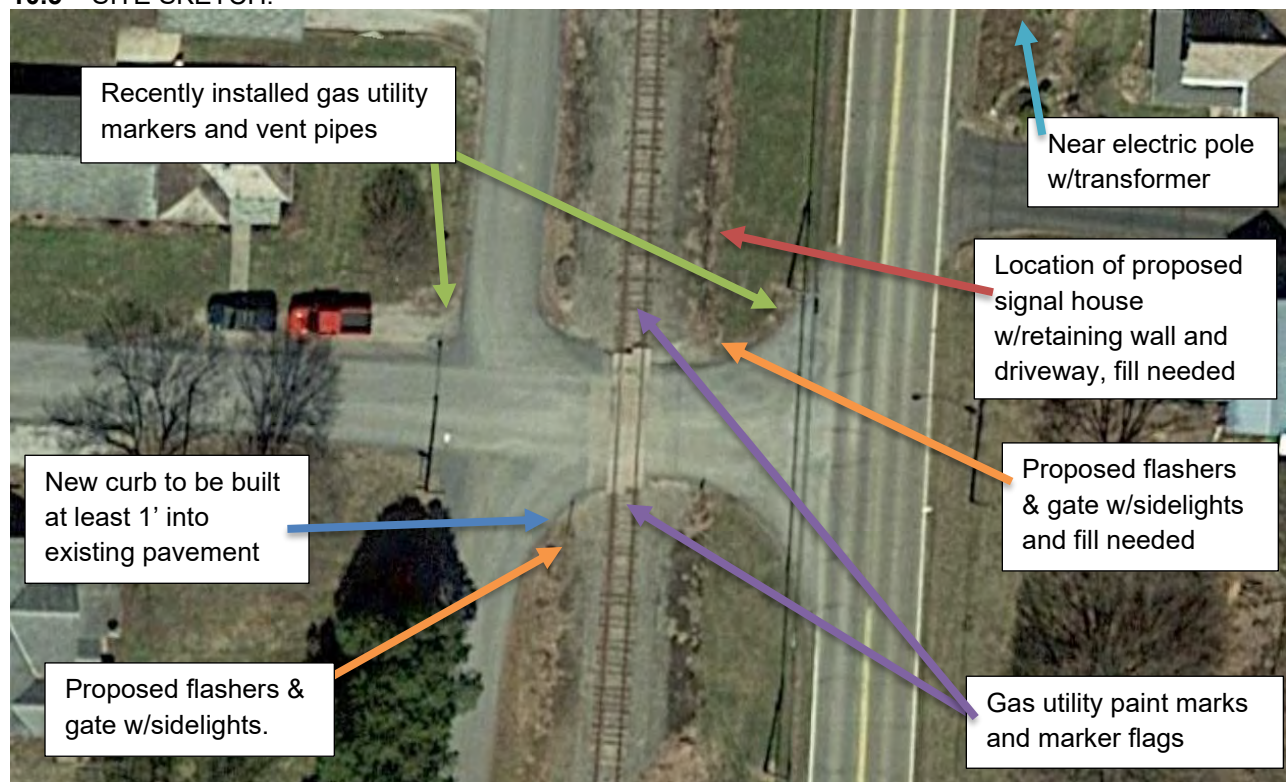
10.3 - CULVERTS BE EXTENDED/RELOCATED/REQUIRED:

No

10.4 - CONDUIT LENGTH REQUIRED:

40' and across tracks

10.5 – SITE SKETCH:





10.6 - ADDITIONAL COMMENTS/DETAILS/CONFLICTS:

Four welded comp joints transition 100RB to 112RE rails in the crossing.
Parrot St. hard wire shunt is 595' south of center of Roosevelt Ave. crossing.
Gas utility paint marks on rails and track both north and south of crossing, parallel to Roosevelt Ave.
Electric pole with transformer is north of Roosevelt Ave. on the east side of S. Main St.

10.7 - NE QUADRANT:

Proposed signal house with retaining wall. Limestone aggregate fill needed to build house pad and driveway.
Existing crossbuck and proposed flashers & gate with sidelights requires fill.
Recently installed gas vent pipe and marker post.

10.8 - NW QUADRANT:

Recently installed gas vent pipe and marker post on west side of Ohio St.

10.9 - SE QUADRANT:

Gas utility marker flags.
Recent excavation activity.
Stop sign for east bound Roosevelt Ave. vehicles approaching S. Ohio St.

10.10 - SW QUADRANT:

Build an arced curb at least 1' into existing pavement edge to meet G&W 10' clearance requirement.
Existing crossbuck and proposed flashers & gate with sidelights.
Stop sign for north bound Ohio St. vehicles.



SECTION 11 – PHOTO LOG

NE Quad viewing north, proposed flasher & gate with sidelights, house, and driveway location



NE Quad viewing west, proposed flasher & gate with sidelights and fill, gas utility marks and post visible



NE Quad viewing northeast, near electric with transformer



NE Quad viewing south, proposed flasher & gate with sidelights and fill location



SE Quad viewing south, gas utility paint marks and flags visible



SE Quad viewing west, gas utility paint marks are visible on rail



SE Quad viewing north, recently disturbed ground visible



SW Quad viewing north, proposed flasher & gate w/sidelights and new curb location



SW Quad viewing east, proposed flasher & gate w/sidelights and new curb location



SW Quad viewing south, proposed flasher & gate w/sidelights and new curb location



SW Quad viewing north



NW Quad viewing east



NW Quad viewing south



Gas utility marker and vent pipe in NE Quad



BASIS OF DESIGN



Region:	NORTHERN
Railroad:	COLUMBUS & OHIO RIVER RAILROAD
Subdivision:	MT. VERNON
Supervisor:	TODD HENSLEY
Railroad No.:	21CUOH03R

Location Name:	ROOSEVELT AVE.
City, (County), ST:	MT. VERNON, (KNOX), OH
MP:	23.65
DOT #:	152070J
Prepared By:	TODD SOVANN
Date Prepared:	5/24/2021

Warning Time Calculation

Notes to User:

- 1) If any standard values are changed, please provide justification
- 2) Clearance maximum measured distance along highway from crossing stop line, warning device or 12 feet perpendicular (which ever is furthest) to 6 feet beyond far rail. (*Railroad-Highway Grade Crossing Handbook - Revised Second Edition 2007*)

Clearance Time Calculation

Clearance Distance	23	ft
Clearance time	0	s

Approach Length Calculation

Base Warning Time	30	sec	
Plus Clearance Time	0	sec	(Linked to calc above)
Equals Planned Warning Time	30	sec	
Plus Time for Traffic Preemption	0	sec	
Equals Total Design Warning Time	30	sec	
Plus Equipment Response Time	5	sec	
Plus Buffer Time	0	sec	
Plus Additional Time	0	sec	(Provide explanation)
Equals Total Warning Time	35	sec	
Times Maximum Design Train Speed	10	mph	
Times Ratio of fps to mph	1.470	fps/mph	
Equals Approach Circuit Length	515	ft	(Rounded up to nearest foot)



Rail Development Commission

Mike DeWine, Governor
Jon Husted, Lt. Governor

Scott Corbitt, Chair

February 5, 2021

Mr. Len Wagner
President & Legal Official (SVP)
Genesee & Wyoming/CUOH
201 N. Penn Street
Punxsutawney, PA 15767

RE: PE Authorization for KNO CUOH Roosevelt Ave DOT# 152070J PID# 114022

Dear Mr. Wagner:

A diagnostic review was held at the above grade crossing on August 6, 2020. The crossing has been recommended for the installation of lights and gates at the Genesee & Wyoming/CUOH grade crossing DOT# 152070J.

Genesee & Wyoming/CUOH is authorized to proceed with the site plans and cost estimates 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. 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.

The diagnostic review form is attached. Please note any recommendations (page 7), if any, made by the team about 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) 745-6760, or Gregory.Gronbach@dot.ohio.gov, if you have any questions.

Sincerely,


Greg Gronbach
Project Manager

C: John Williams, Director, Transportation Department, PUCO
Jill Henry, Rail Specialist, PUCO
Heather Hamilton, ORDC
ORDC (file)



Attachments: 3 (diagnostic review form, letter agreement, purchase order)



Public Utilities Commission

Mike DeWine, Governor
Sam Randazzo, Chairman

Commissioners

M. Beth Trombold
Lawrence K. Friedeman
Dennis P. Deters
Daniel R. Conway

November 13, 2020

The Columbus & Ohio River Rail Road Company
Mr. Jared Rishel
AVP Engineering Northern Region
Genesee & Wyoming Inc.
4349 Easton Way
Suite 110
Columbus, OH 43219

Re: Knox County, Roosevelt Ave,
DOT#152-070J, hereinafter referred to
as the "Project"

Dear Mr. Rishel:

The Public Utilities Commission of Ohio (PUCO) has identified and the Ohio Rail Development Commission (ORDC) surveyed, on August 6, 2020, the above mentioned grade crossing for warning device upgrades. The location has been approved for flashing lights and roadway gates.

The Project shall comply with Agreement No. 009-A, dated May 28, 2001, entered into by the State of Ohio and The Columbus & Ohio River Rail Road Company (RAILROAD). Furthermore, the RAILROAD shall comply with all applicable state and federal laws governing grade crossing safety programs.

Reimbursable costs will be limited by ORDC based upon approved estimates and bid tabulations, if applicable. These limits will be quantified by the ORDC in its construction authorization to the RAILROAD and may be amended by the ORDC based upon revised estimates and bid tabulations. Additional costs must be approved in writing by the ORDC prior to being incurred. Emergency verbal authorizations by ORDC may be permitted but must be confirmed in writing within ten (10) business days of the verbal approval.

The RAILROAD shall complete plans and estimates for the Project within ninety (90) days after the RAILROAD is notified of authorization to proceed unless otherwise agreed by ORDC/PUCO and the RAILROAD.

The RAILROAD shall not commence construction prior to PUCO's Order and ORDC's construction authorization. The RAILROAD shall provide written notification of the construction start date to PUCO and ORDC no later than five (5) business days prior to such date.

Page 2 of 2
Roosevelt Avenue
Knox County
Columbus & Ohio River Railroad

Please indicate your acceptance of the terms and conditions of this Letter of Agreement by signing and returning one (1) copy to Ms. Jill Henry, Rail Specialist, Rail Division, Public Utilities Commission of Ohio, 180 E. Broad Street, Columbus, Ohio 43215-3793.

Sincerely,



John D. Williams
Director, Transportation
Public Utilities Commission of Ohio

The Columbus & Ohio River Rail Road

Company

By



Title President

Date 12/11/2020

Matthew Dietrich
Executive Director
Ohio Rail Development Commission

Date



1/21/2021

8/6/2020

Crossing at a glance:

ORDC Notes:

Please Sign In

GREG GROMBACH PROJECT MANAGER ORDC
 Name Title Organization
 614-745-6760 GREGORY.GROMBACH@DOT.OHIO.GOV
 Phone Number Email Signature

TODD HENSLEY CUOH
 Name Title Organization
 740-502-7214
 Phone Number Email Signature

JOSH ELZEY PUCO
 Name Title Organization
 740-637-0588
 Phone Number Email Signature

BRIAN BALL CITY OF MT. VERNON
 Name Title Organization
 740-393-9528
 Phone Number Email Signature

JOSH ELZEY
 Name Title Organization

Phone Number Email Signature

Name Title Organization

Phone Number Email Signature

Name Title Organization

Phone Number Email Signature

Name Title Organization

Phone Number Email Signature

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

Date: 8/6/2020

Location Data			
Street or Road Name:		Roosevelt Avenue	
County:	Knox	Township:	US DOT No.: 152070J
City (in or near):	Mount Vernon	Railroad Name:	RR Milepost: 23.650
Safety Data (Obtain crash reports, if possible)			
	Initial Information (from database)		Revised
Number & dates of vehicle crashes in previous 5 years:	n/a		
Number & dates of pedestrian/bicycle crashes in previous 5 years:	n/a		
Hazard Ranking:	1676	Date Run:	04/08/2020

Existing Traffic Control Devices		
Type of Warning Devices	Installed?	Quantity/Comments
HIGHWAY		
Advance Warning Signs (condition?)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	1 - WEST
'Stop' Signs	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
'Stop Ahead' Signs	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Pavement Markings (condition?)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Dynamic Envelope Markings (condition?)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Illumination	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
'No Turn' Signs (highway/passive)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Barriers/fencing (pedestrian/bicycle)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
LOOK Sign	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Do Not Stop On Track Sign	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
RAILROAD		
Crossbucks	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Crossbucks – assembly with Stop	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Crossbucks – assembly with Yield	<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Mast-Mounted Flashing Lights	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Cantilever Flashing Lights	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Number: Length:
Side Lights	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
LED or Incandescent Lights? Size?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Automatic Gates	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Number: Length:
Bells	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Number:
Sidewalk/Pedestrian Gate Arms	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Number: Length:
'No Turn' Signs (railroad/active)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Is crossing flagged by train crew?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
OTHER	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	2 - BLUE END SIGNS

Railroad Data

Type of Train: ☒ Freight ☐ Intercity Passenger ☐ Transit ☐ Shared Use Transit ☐ Commuter ☐ Tourist/Other

Railroad Characteristics	Initial Information (from database)	Revised
Total trains per day	1	
<1 per day? Trains per week	-	
Day thru trains	1	
Night thru trains	0	
Switching	0	
Total number of tracks	1	
Number of main tracks	1	
Number of other tracks	0	
Maximum train speed	10	
Typical train speed	1-10	
Amtrak	-	
Are there other track(s) crossing this same roadway within 100ft of this crossing? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
If yes, Crossing DOT# (if different) _____		
If yes, distance _____ (take measurement between track centerlines at closest point along roadway)		
If multiple tracks, can two trains occupy crossing at the same time? <input type="checkbox"/> Yes <input type="checkbox"/> No		
Can one train block the motorists' view of another train at the crossing? <input type="checkbox"/> Yes (explain below) <input type="checkbox"/> No		
Can one or more tracks be eliminated through the crossings? <input type="checkbox"/> Yes <input type="checkbox"/> No		
Comments:		
Circuitry: <input type="checkbox"/> Constant Warning Time <input type="checkbox"/> Motion Detection <input type="checkbox"/> AFO <input type="checkbox"/> PTC <input type="checkbox"/> DC <input checked="" type="checkbox"/> Other <u>NONE</u>		

Roadway Data		
Local Highway Authority: City of Mount Vernon		
Roadway Characteristics	Initial Information (from database)	Revised
Average Daily Traffic	1639 (2011)	
Highway Paved	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
Roadway Surface: <input checked="" type="checkbox"/> Blacktop <input type="checkbox"/> Gravel <input type="checkbox"/> Concrete Other _____		
Roadway width (paved/travelled way): 24 ft		
Number of Highway Lanes	2	
Urban or Rural	Urban - Local	
Vehicle Speed: 25 MPH		
School Bus Operation: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Amount 10		
Location of nearby schools: FERWOOD COLUMBIA ELEMENTARY SCHOOL - LESS THAN 1/2 MILE TO EAST		
Hazardous Materials Trucks: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Amount (from FRA) 3% LHA verified/changed?		
Shoulders: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
Is the Shoulder Surfaced? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, shoulder width: _____ ft.		
Is there existing guardrail along the roadway in crossing vicinity? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
Crossing Angle <input type="checkbox"/> 0-29° <input type="checkbox"/> 30-59° <input checked="" type="checkbox"/> 60-90° Measured in _____ Quadrant?		
Quadrant NE Curb & Gutter:	Quadrant SW Curb & Gutter:	
<input type="checkbox"/> Functional (Curb height = 4" or more)	<input type="checkbox"/> Functional (Curb height = 4" or more)	
<input type="checkbox"/> Non-functional (Curb height = less than 4")	<input type="checkbox"/> Non-functional (Curb height = less than 4")	
<input checked="" type="checkbox"/> None	<input checked="" type="checkbox"/> None	
Is there a nearby intersection that could cause queuing over the crossing? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
If yes, distance 42'		
Is this intersection signalized? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
Are there signals currently interconnected with the existing crossing warning devices? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
Is there a 'Do Not Stop on Track' sign? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
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? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
If yes:		
Improvement type _____ Lead Agency _____ Timeline/completion _____		

Pedestrian & Bicycle Data

Regular pedestrian usage: ☒ Yes ☐ No Volumes: ☒ Occasional ☐ <20 ☐ 20-60 ☐ >60

Is sidewalk present in the approach? ☐ Yes ☒ No Quadrants:

Does crossing surface accommodate pedestrians? ☐ Yes ☒ No

Both sides of roadway? ☐ Yes ☒ No If no, which side is paved?

Pedestrian generators in close proximity (e.g. schools, sports/entertainment venues)? ☐ Yes ☒ No

Comments:

Regular bicycle usage: ☒ Yes ☐ No OCCASIONAL

☒ Roadway ☐ Dedicated Lane (on street) ☐ Dedicated Path (off street) ☐ Shared Use (pedestrian/bicycle) Path

☐ Bikes must use sidewalk

Future plans for pedestrian or bicycle routes? ☐ Yes ☒ No

Comments:

Utility Information

Is commercial power available? ☒ Yes ☐ No

Utility Provider (Company Name) AEP

Nearest Available Power Source AT CROSSING

What other utilities are present? ☒ Gas ☐ Cable ☐ Telephone ☐ Fiber Optic Cable (add locations to sketch)

☐ Petroleum ☐ Water ☐ Sanitary Sewer ☐ Other

Comments:

Surface

Surface review form completed? ☐ Yes ☒ No

Sight Preview (REFER TO TABLES)

If non-gated crossing, is clearing sight distance adequate in all quadrants? (See Table 1) ☐ Yes ☒ No

Is stopping sight distance adequate? (See Table 2) ☒ Yes ☐ No If no, which quadrant? _____

When considering recommendations for bicycle treatments:

Bicycle sight distance adequate? ☒ Yes ☐ No If no, which quadrant? _____

When considering recommendations for pedestrian treatments:

Pedestrian sight distance adequate? ☒ Yes ☐ No If no, which quadrant? _____

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 - ONLY CROSSING INTO NEIGHBORHOOD TO WEST

Real Estate or ROW:

NO

Culvert / Drainage / Ballast Conditions:

NO

Roadway and/or Sidewalks:

NO

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

- POSSIBLE PARROTT ST TO THE SOUTH

Environmental:

NO

Utilities:

NO

Other:

← STOP SIGN IN SE QUAD MAKES VEHICLES STOP ON RAILROAD TRACKS. POSSIBLE TO MOVE STOP SIGN FORWARD TO GIVE SPACE FOR VEHICLE TO STOP CLEAR OF RAILROAD TRACKS.

Potential Closure

Is it the consensus of the Diagnostic Review Team that this is a potential closure project? **NO**

Explain reasons: **ONLY WAY TO ENTER NEIGHBORHOOD TO WEST**

Diagnostic Team Recommendations

<input type="checkbox"/> No improvements needed	Quadrants Needed
<input checked="" type="checkbox"/> Install/upgrade active devices	
<input type="checkbox"/> Automatic Flashing Lights (AFLS)	
<input type="checkbox"/> AFLS / Cants	
<input checked="" type="checkbox"/> AFLS / Gates	
<input type="checkbox"/> AFLS / Gates / Cants	
<input checked="" type="checkbox"/> Bells / number	1 BELL
<input type="checkbox"/> Upgrade circuitry / type	
<input checked="" type="checkbox"/> Sidelights	- FOR OHIO AVE + S. MAIN ST
<input type="checkbox"/> LED Upgrades	
<input type="checkbox"/> Guardrail Needed	
<input checked="" type="checkbox"/> Install/Replace curb	SW QUAD - CITY OKAY WITH CURB
<input checked="" type="checkbox"/> Bungalow placement & offset from rail & highway	NE QUAD
<input checked="" type="checkbox"/> Other (define)	
Comments: CITY OF MT. VERNON TO MOVE STOP SIGNTH SE QUAD FORWARD TO KEEP VEHICLES FROM STOPPING ON TRACK.	
<input type="checkbox"/> Install/upgrade traffic signal preemption	
Other (define): - CITY TO INSTAL PARRELL TRACK ADVANCE WARNING SIGNS ON S. MAIN ST.	

Diagnostic Team Recommendations (cont.)

PEDESTRIAN/BICYCLE Treatments (additional, not included above)

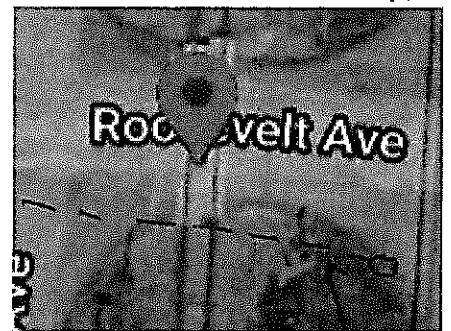
<input type="checkbox"/> Crossing Surface (specify)	<input type="checkbox"/> Sidewalk (specify)
<input type="checkbox"/> Detectable warning surfaces	<input type="checkbox"/> LOOK Sign (R15-8)
<input type="checkbox"/> Stop lines	<input type="checkbox"/> Illumination
<input type="checkbox"/> Dynamic envelop markings	<input type="checkbox"/> Channelization
<input type="checkbox"/> Path delineation	<input type="checkbox"/> Fencing/barriers
<input type="checkbox"/> Other	
Comments:	

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

AWG **JDE**
OPN **BWB**

Field Sketch (optional)

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



GAS LINE

Clearing Sight Distances

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

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

Notes:

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

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

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

Stopping Sight Distances

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

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

Notes:

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

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

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

Bicycle & Pedestrian Clearing Sight Distances

Clearing Sight Distance from Stop Position*											
Crossing of one track								Crossing 2 Tracks		Crossing 3 Tracks	
Train Speed	Car	Single-unit Truck	Bus	WB-50 Semitruck	65-foot Double Truck	Pedestrian ¹	Bicyclist ²	Pedestrian ¹	Bicyclist ²	Pedestrian ¹	Bicyclist ²
10	105	185	200	225	240	120	100	180	120	240	140
20	205	365	400	450	485	240	200	360	240	480	270
25	255	455	500	560	605	300	250	450	290	590	340
30	310	550	600	675	725	360	290	530	350	710	410
40	410	730	795	895	965	480	390	710	470	950	540
50	515	910	995	1,120	1,205	590	490	890	580	1180	670
60	615	1,095	1,195	1,345	1,445	710	580	1060	700	1420	810
70	715	1,275	1,395	1,570	1,680	830	680	1240	810	1650	940
80	820	1,460	1,590	1,790	1,925	950	780	1420	930	1890	1080
90	920	1,640	1,790	2,015	2,165	1060	870	1590	1040	2120	1210

*A single track, 90-degree, level crossing

¹ Walking 3.5 feet per second across tracks 15 feet apart, with a 2-second reaction time to reach a decision point 10 feet before the center of the first track, and clearing 10 feet beyond the centerline of the second track.

² Bicycling 8 miles per hour across tracks 15 feet apart, from a stopped position 10 feet before the center of the first track with an acceleration of 2.5 feet per second, and clearing 10 feet beyond the centerline of the second track on a bike of 6 feet length.

**This foregoing document was electronically filed with the Public Utilities
Commission of Ohio Docketing Information System on**

1/26/2022 5:25:05 PM

in

Case No(s). 22-0065-RR-FED

Summary: Application In the Matter of a Request for the Installation of Active Warning Devices at the Columbus & Ohio River Railroad Crossing, DOT#152-070J, Roosevelt Avenue, in Knox County, Ohio. electronically filed by Mrs. Jill A. Henry on behalf of PUCO/Rail Division