Public Utilities Commission of Ohio

Memo

To: Docketing Division

From: Thomas Persinger, Rail Project Specialist, Rail Division

Cc: PUCO Legal Department

Date: 7-8-2022

Re: PUCO Case No. 22-688-RR-FED- In the Matter of a Request for the Installation of Active Warning Devices at the CSX Grade Crossing, DOT# 513-805N, at Morse Road in Union County, Ohio.

On March 28th, 2022, the Ohio Rail Development Commission (ORDC) authorized funding for CSX to install lights and gates at Morse Road (DOT# 513-805N) in Union County, Ohio. The crossing was surveyed, on July 27th 2021, and was found to warrant the upgrade. The electric utility provider for this crossing is the Union Rural Electric Cooperative.

The project will be paid for with federal funds and is actual cost. The plans and estimates for the project in the amount of $284,207.00 have been approved. Construction may commence at once. **Staff requests a Finding & Order with completion of the project in nine months.** Staff requests that the following language be incorporated in the Finding & Order:

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

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

Please serve the following parties of record:

CSX Transportation, Inc.
Amanda DeCesare
Project Manager-Public Projects
4802 Decoursey Pike
Taylor Mill, KY 41015

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

Liberty Township, Union County
Jeff Rea
Township Fiscal Officer
PO Box 122
Raymond, OH 43067

Union Rural Electric Cooperative
15461 US Hwy 36
Marysville, OH 43040

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, ORDC**

SUBJECT: **UNI CSX TR243 Morse Rd DOT# 513805N PID# 116015**

DATE: **July 6, 2022**

The Public Utilities Commission of Ohio (PUCO) established a diagnostic survey at the subject location on July 27, 2021 . The Ohio Rail Development Commission (ORDC) 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: John Williams, Director, Transportation Department, PUCO

Jill Henry, Rail Chief, PUCO
Tom Persinger, Rail Specialist, PUCO
Heather Hamilton, ORDC
ORDC (file)

Ohio | Rail Development Commission

Mike DeWine, Governor
Jon Husted, Lt. Governor

Scott Corbitt, Chair

July 6, 2022

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

RE: Construction Authorization for UNI CSX TR243 Morse Rd DOT# 513805N PID# 116015

Dear Ms. DeCesare:

The plan dated 5/17/22 and estimate dated 6/17/22, for the referenced project has been reviewed and 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 may proceed with the construction of the proposed grade crossing warning system in accordance with the abbreviated plan.

The estimate of $284,207.00 is acceptable. Reimbursement of eligible actual cost is limited to $284,207.00. Fuel cells system components are not included in the reimbursement amount and if installed are to be installed at CSX expense. 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. 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 accepting the following instructions:

1. CSX's project foreman will furnish written notification five (5) working days prior to the date work will start at the project site to Greg Gronbach, ORDC, email Gregory.Gronbach@dot.ohio.gov , and to the Public Utilities Commission of Ohio at Jill.henry@puco.ohio.gov & thomas.persinger@puco.ohio.gov . CSX's project foreman will also notify the same of any stops and re-starts of the work activity and of the date work was completed for the project.

2. CSX will arrange for utilities to be located at the project site by the Ohio Utilities Protection Service (OUPS) prior to any construction activities at the site. Utilities that are not participating members of the service must be contacted directly by CSX Transportation.

3. CSX'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. CSX will furnish two (2) copies of each partial bill to ORDC. Please find the enclosed ODOT Purchase Order to reference when billing.

6. CSX will furnish two (2) copies of the final all-inclusive bill to ORDC stating the exact dates of starting and completing work, the initial and final dates of construction and location where the accounts may be audited.

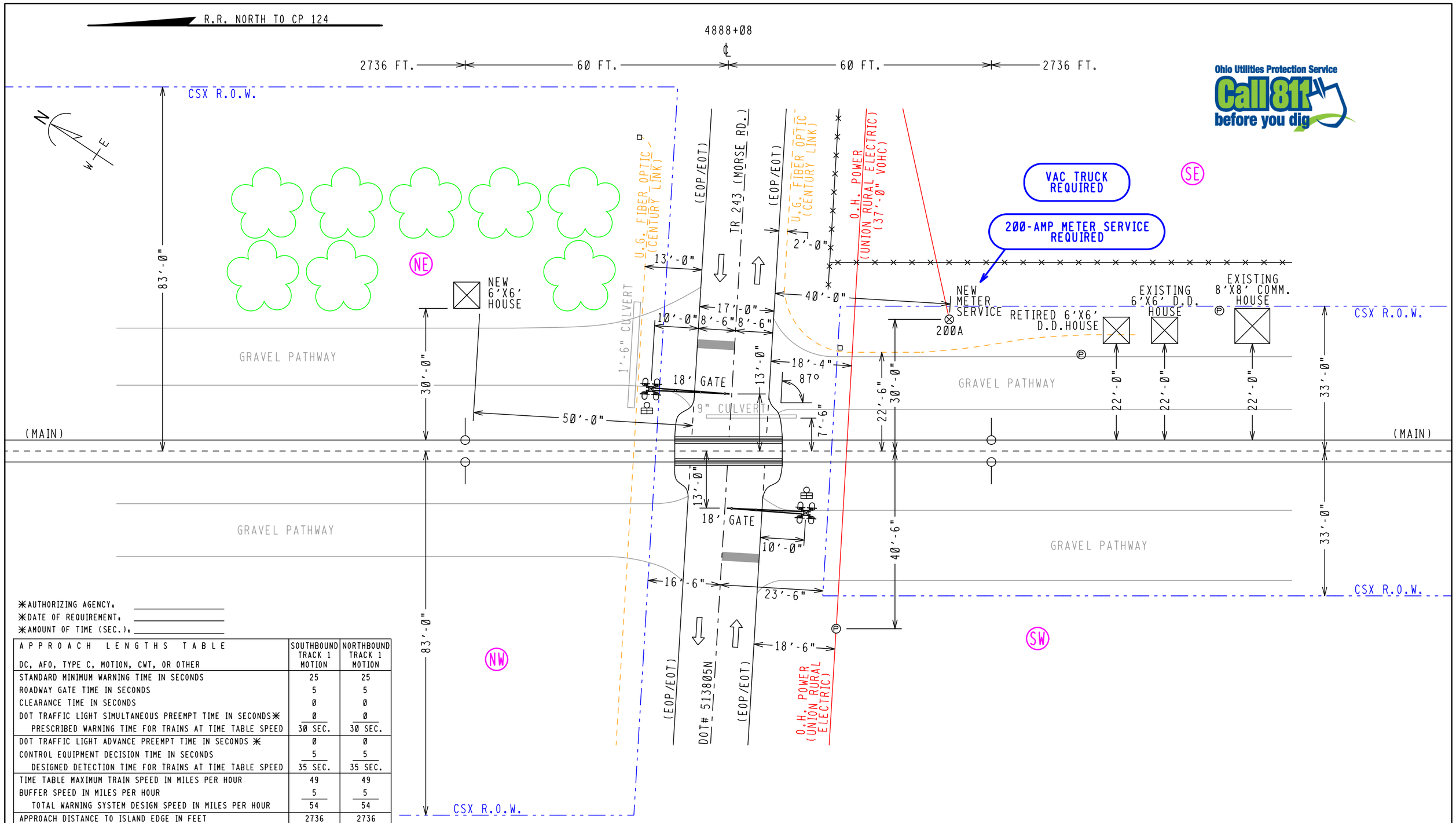
7. This installation will include any ancillary work to make the warning devices function as designed and meet MUTCD.

Thank you for your assistance with these matters.

Sincerely,

Greg Gronbach
Project Manager

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



Ohio Utilities Protection Service
Call 811 before you dig

✳AUTHORIZING AGENCY, _____
✳DATE OF REQUIREMENT, _____
✳AMOUNT OF TIME (SEC.), _____

APPROACH LENGTHS TABLE DC, AFO, TYPE C, MOTION, CWT, OR OTHER	SOUTHBOUND TRACK 1 MOTION	NORTHBOUND TRACK 1 MOTION
STANDARD MINIMUM WARNING TIME IN SECONDS	25	25
ROADWAY GATE TIME IN SECONDS	5	5
CLEARANCE TIME IN SECONDS	0	0
DOT TRAFFIC LIGHT SIMULTANEOUS PREEMPT TIME IN SECONDS✳	0	0
PRESCRIBED WARNING TIME FOR TRAINS AT TIME TABLE SPEED	30 SEC.	30 SEC.
DOT TRAFFIC LIGHT ADVANCE PREEMPT TIME IN SECONDS ✳	0	0
CONTROL EQUIPMENT DECISION TIME IN SECONDS	5	5
DESIGNED DETECTION TIME FOR TRAINS AT TIME TABLE SPEED	35 SEC.	35 SEC.
TIME TABLE MAXIMUM TRAIN SPEED IN MILES PER HOUR	49	49
BUFFER SPEED IN MILES PER HOUR	5	5
TOTAL WARNING SYSTEM DESIGN SPEED IN MILES PER HOUR	54	54
APPROACH DISTANCE TO ISLAND EDGE IN FEET	2736	2736
HALF WIDTH OF ISLAND IN FEET	60	60
APPROXIMATE MILE POSTS FOR APPROACH CIRCUIT	92.01	93.07

PRELIMINARY

FILE NAME, QT09254.H01	REVISION DATES
DATE DRAWN, 05-17-22	- -
DRAWN BY, RS	- -
CHECKED BY, SAF	- -
PRS #, 34P002475	- -

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

PRODUCED BY,
PROGRESS RAIL SERVICES
A Caterpillar Company

LEGEND,			
CSX ROW	O.H. POWER	METER SERVICE Ⓜ	POLE Ⓟ
R/R POLELINE	FENCE	FIRE PLUG Ⓕ	SEWER CAP Ⓢ
GAS	WATER	GAS VENT Ⓥ	
FIBER OPTIC	SEWER		

GPS COORDINATES	N40°21'60"
	W83°30'32"
	ELEV. 1104'
	M.P. QT-92.54
STREET NAME, TR 243 (MORSE RD.)	
CITY & STATE, WEST MANSFIELD, (UNION), OH	
DOT, 513805N	
PROJECT #, 0H2022020	
OP #, 0H1472	

PROPOSED CROSSING LAYOUT
SCALE = 20.1

INDEX

SH. NO.	CONTENTS	REVISION NO. 1	2	3	4	5	6	7
I01	TITLE, NOTES, INDEX AND REVISIONS	✓	✓	✓	Ø			
S01	LOCATION PLAN	✓	✓	✓	Ø			
E01	POWER DISTRIBUTION	✓	✓					
C01	3000D2 SAFETRAN GRADE CROSSING PREDICTOR CIRCUITS	✓	✓					
C02	GATE CONTROL, LIGHTING CIRCUITS AND CABLE TERMINATIONS	✓	✓					
C03	GATE MECHANISM TYPICALS	✓	✓					
C04	RELAY RACK AND CONNECTIONS - HOUSE LAYOUT	✓	✓					
C05	RIGHT SIDE OF HOUSE	✓	✓					
C06	LEFT SIDE OF HOUSE	✓	✓					
C07	TERMINAL BOARD ARRANGEMENT	✓	✓					

Ø = DESIGN COMPLETED
Ø = REVISION COMPLETED

NOTES

▭ = FOR MATERIAL REFERENCE SEE PLAN S-1002
⊗ = DENOTES TWISTED PAIR
GROUND IN ACCORDANCE WITH CS-9001-A

REVISIONS

REV. NO.	PROJECT NO.	DESIGN DATE	IN SERVICE DATE	REVISION DATE
1	1-27-95			

NEW PLAN DRAWN ACCOUNT
WARNING DEVICES ADDED AT
C.R. 252 (LUNDA ROAD)

SYSTEM FILE NO:
WO/AFE NO: 41482 PFC NO.
IN SERVICE: 6-12-95
PER: RCW

				REB	CED
2	0H2809842	-----	-----	07-01-09	
3	0H2809894	01-09-09	06-10-09	09-08-09	
4	0H2812828	05-19-22	-----	-----	

TO BE COMPLETED ON A.I.S.

PRELIMINARY

Ø = NOTE

PROGRESS RAIL SERVICES
A Caterpillar Company

DATE: 05-19-22
CSX: 0H2812828
PRS/JMD/SAF

✕—✕ = OUT
○—○ = IN

CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

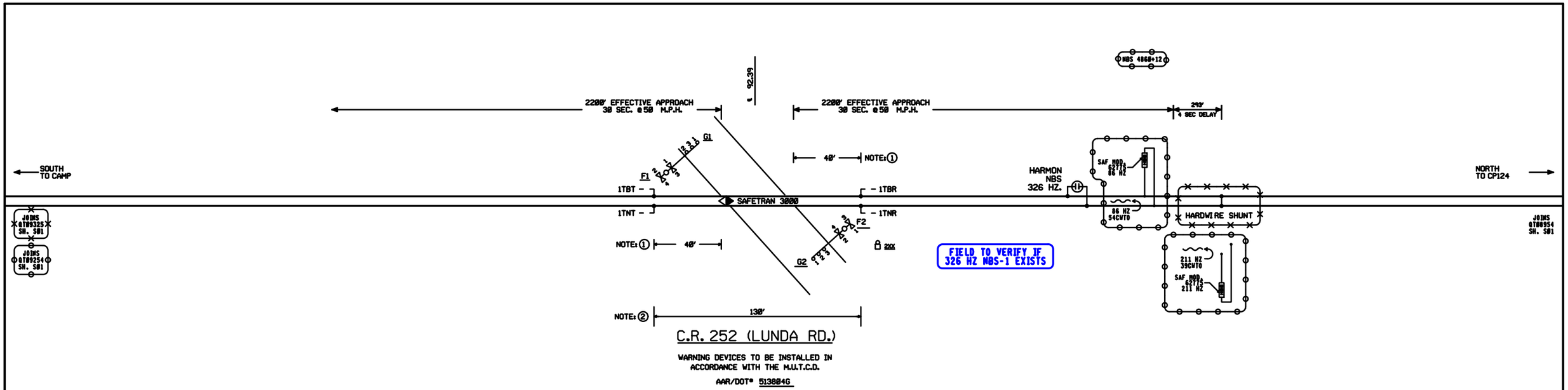
CR 252 (LUNDA RD.) 5130846

TITLE, NOTES, INDEX, AND REVISIONS
WEST HANSFIELD, OH M.P. QT-92.39

DESIGNED	DIGITIZED	CHECKED	DATE
CSX	XRL	CSX	01-27-95

REV. NO.	DRAWING	SHEET NO	FILE	SHEET
3	-----	-----	QT09239	I01

Ø 4 Ø



FIELD TO VERIFY IF
326 HZ NBS-1 EXISTS

NOTES:

① = 25' MINIMUM

② = 120' MINIMUM

③ EACH PAIR OF TRACK WIRES (TRANSMIT AND RECEIVE) SHOULD BE TWISTED AT LEAST TWO TURNS PER FOOT. THE TRANSMITTER PAIR SHOULD BE SEPARATED TO THE MAXIMUM EXTENT POSSIBLE FROM THE GCP RECEIVER PAIR BELOW GROUND AND IN INSTRUMENT HOUSING. TRANSMITTER WIRES MUST BE RUN TO THE NEAR SIDE OR BUNGALOW SIDE OF THE CROSSING.

PRELIMINARY

= NOTE

PROGRESS RAIL SERVICES
A Caterpillar Company

DATE:05-19-22
CSX#.0H2822020
PRS/JHD/SAF

= OUT
= IN

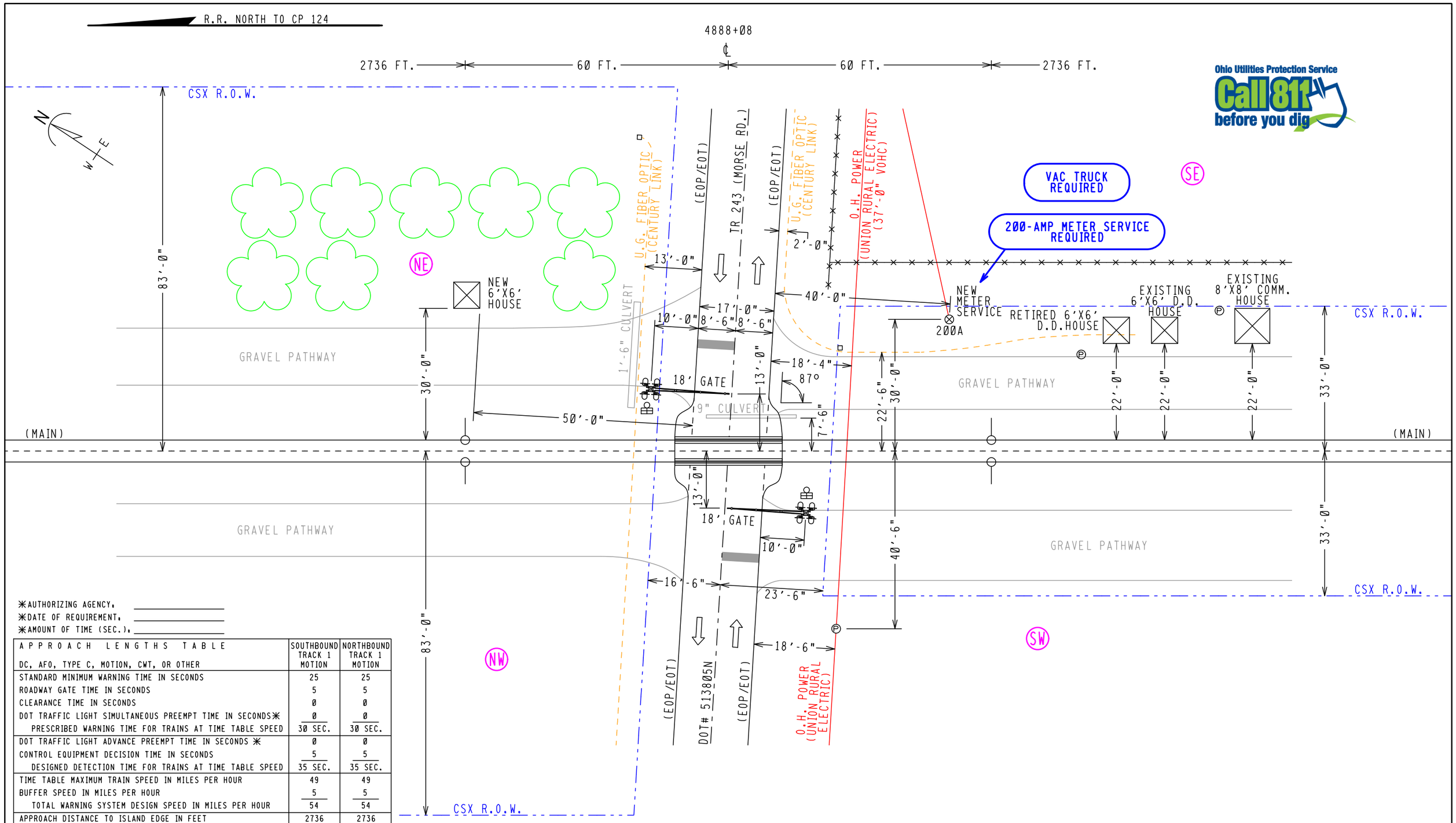
CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

CR 252 (LUNDA RD.) 513084G

LOCATION PLAN
WEST MANSFIELD, OH M.P. QT-92.39

DESIGNED	DIGITIZED	CHECKED	DATE
CSX	XRL	CSX	01-27-95

REV. NO.	DRAWING	SHEET NO	FILE	SHEET
3	-----	-----	QT09239	S01



Ohio Utilities Protection Service
Call 811 before you dig

✳AUTHORIZING AGENCY, _____
✳DATE OF REQUIREMENT, _____
✳AMOUNT OF TIME (SEC.), _____

APPROACH LENGTHS TABLE DC, AFO, TYPE C, MOTION, CWT, OR OTHER	SOUTHBOUND TRACK 1 MOTION	NORTHBOUND TRACK 1 MOTION
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PRELIMINARY

FILE NAME, QT09254.H01	REVISION DATES
DATE DRAWN, 05-17-22	- -
DRAWN BY, RS	- -
CHECKED BY, SAF	- -
PRS #, 34P002475	- -

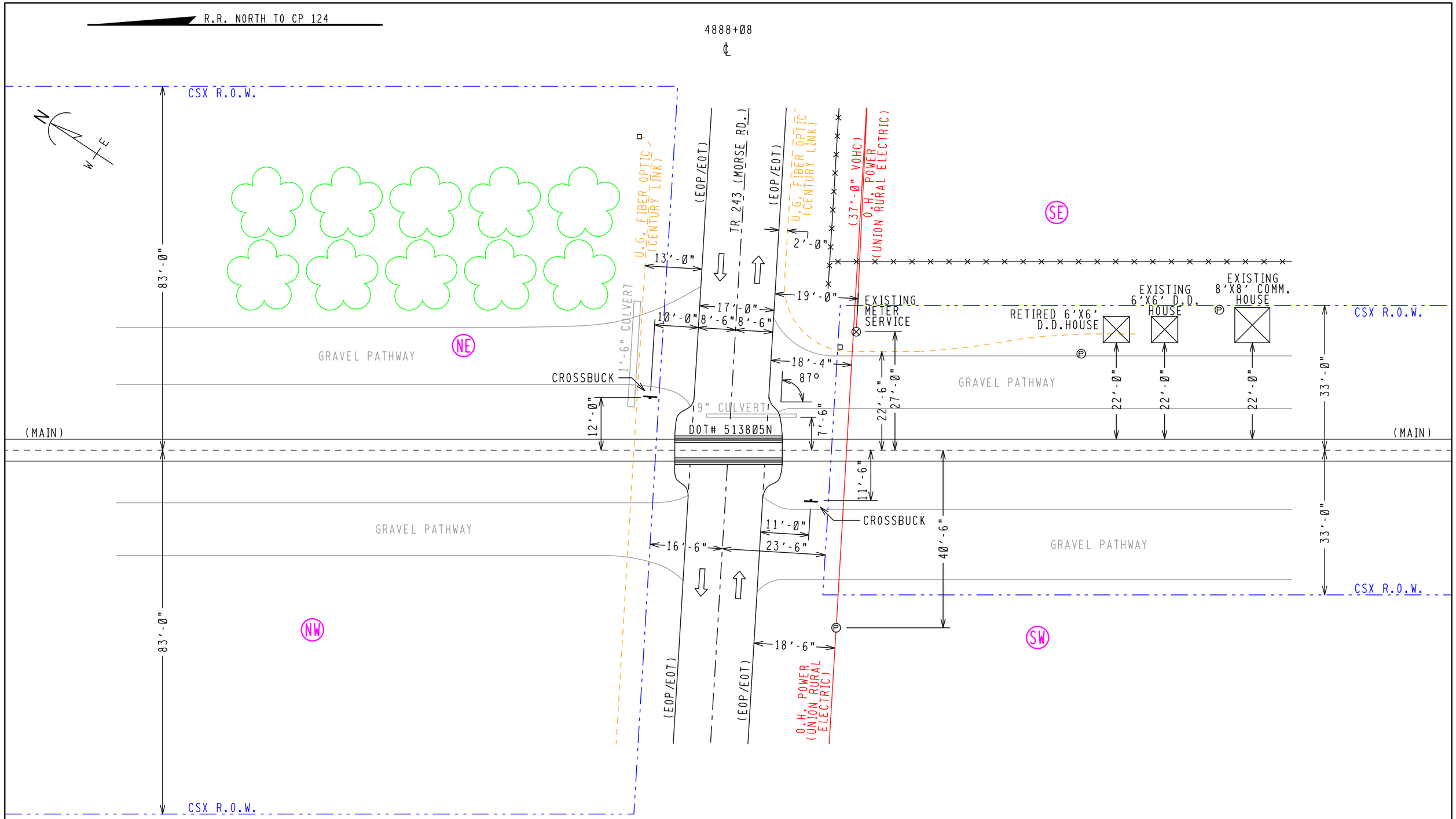
PRODUCED FOR,
CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

PRODUCED BY,
PROGRESS RAIL SERVICES
A Caterpillar Company

LEGEND,			
CSX ROW	O.H. POWER	METER SERVICE Ⓜ	POLE Ⓟ
R/R POLELINE	FENCE	FIRE PLUG Ⓕ	SEWER CAP Ⓢ
GAS	WATER	GAS VENT Ⓥ	
FIBER OPTIC	SEWER		

GPS COORDINATES	N40°21'60"
	W83°30'32"
	ELEV. 1104'
	M.P. QT-92.54
STREET NAME, TR 243 (MORSE RD.)	
CITY & STATE, WEST MANSFIELD, (UNION), OH	
DOT, 513805N	
PROJECT #, 0H2022020	
OP #, 0H1472	

PROPOSED CROSSING LAYOUT
SCALE = 20.1



PRELIMINARY

FILE NAME, QT09254.H02	REVISION DATES	PRODUCED FOR,	PRODUCED BY,	LEGEND,	GUARD RAIL	METER SERVICE Ⓜ	GPS COORDINATES	STREET NAME, TR 243 (MORSE RD.)
DATE DRAWN, 04-22-22	- -	CSX TRANSPORTATION	PROGRESS RAIL SERVICES	CSX ROW	O.H. POWER	POLE Ⓟ	N40°21'60"	CITY & STATE, WEST MANSFIELD, (UNION), OH
DRAWN BY, RS	- -	RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS	A Caterpillar Company	R/R POLELINE	FENCE	FIRE PLUG Ⓕ	W83°30'32"	DOT, 513805N
CHECKED BY, SAF	- -			GAS	WATER	SEWER CAP Ⓢ	ELEV. 1104'	PROJECT #, 0H2022020
PRS #, 34P002475	- -			FIBER OPTIC	SEWER	GAS VENT Ⓥ	M.P. QT-92.54	OP #, 0H1472

EXISTING CROSSING LAYOUT
SCALE = 20.1

R.R. NORTH TO CP 124

QT 92

QT 93

CR-219
(HOOVER-BAULT RD.)
START

DEFECT DETECTOR
M.P. QT-92.56
6'X6' HOUSE
DWG# N/A

CR 252
(LUNDA RD.)
START

CR 252
(LUNDA RD.)
START

6'X6'
DD HOUSE

READER
HOUSE

COMM.
HOUSE

8'X8'
HOUSE

6'X6'
HOUSE

132# CWR

HWS

DD

READER

NBS
156HZ

NBS
211HZ

132# CWR

39
CWU

25
CWU

CR 252
(LUNDA RD.)
DOT# 513804G
M.P. 92.39
(FG)
GCP-3000D2
39CWU-211 HZ/7.1-KHZ
DWG# QT09239

TR 243
(MORSE RD.)
DOT# 513805N
M.P. 92.54
XB

CR-219
(HOOVER-BAULT RD.)
DOT# 513806V
M.P. 93.25
(FG)
GCP-4000
25CWU-156 HZ/10.0-KHZ IPI
DWG# QT09325

E.O.S. 3500'

MILE POST 2856'

WHISTLE POST 2256'

CR 252 (LUNDA RD.) START 2172'

ISL 849'

℄ 780'

HOUSE 748'

METER 725'
ISL 720'

℄ 0'

METER 79'
DD 95'
HOUSE 98'

COMM. HOUSE 117'

READER/HOUSE 176'

WHISTLE POST 867'

CR 219 (HOOVER-BAULT RD.) START 1294'

CR 252 (LUNDA RD.) START 1753'

MILE POST 2432'

ISL 3689'

℄ 3749'

ISL 3809'
METER 3829'

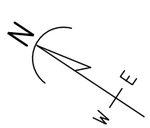
E.O.S./HOUSE 3845'

PRELIMINARY

FILE NAME, QT09254.H03	REVISION DATES	PRODUCED FOR,	PRODUCED BY,	LEGEND,	GUARD RAIL	METER SERVICE Ⓢ	GPS COORDINATES	STREET NAME, TR 243 (MORSE RD.)
DATE DRAWN, 04-22-22	- -	CSX TRANSPORTATION RAIL TRANSPORT GROUP ENGINEERING COMMUNICATIONS AND SIGNALS	PROGRESS RAIL SERVICES A Caterpillar Company	CSX ROW	O.H. POWER	POLE Ⓟ	N40°21'60"	CITY & STATE, WEST MANSFIELD, (UNION), OH
DRAWN BY, RS	- -			R/R POLELINE	FENCE	FIRE PLUG Ⓕ	W83°30'32"	DOT, 513805N
CHECKED BY, SAF	- -			GAS	WATER	SEWER CAP Ⓢ	ELEV. 1104'	PROJECT #, 0H2022020
PRS #, 34P002475	- -			FIBER OPTIC	SEWER	GAS VENT Ⓥ	M.P. QT-92.54	OP #, 0H1472

EXISTING TRACK LAYOUT

R.R. NORTH TO CP 124



QT 92

QT 93

TR 243
(MORSE RD.)
START

CR 252
(LUNDA RD.)
START

DEFECT DETECTOR
M.P. QT-92.56
6'X6' HOUSE
DWG# N/A

CR-219
(HOOVER-BAULT RD.)
START

TR 243
(MORSE RD.)
START

CR 252
(LUNDA RD.)
START

132# CWR — NBS 211HZ — NBS 86HZ — W — 8'X8' HOUSE — 39 CWU — CR 252 (LUNDA RD.) DOT# 513804G M.P. 92.39 (FG) GCP-3000D2 39CWU-211 HZ/7.1-KHZ DWG# QT09239 — 6'X6' HOUSE — 200A — 54 CWU — TR 243 (MORSE RD.) DOT# 513805N M.P. 92.54 (FG) MS4000 54CWU-86 HZ/13.2-KHZ RECORDER DWG# QT09254 — 6'X6' DD HOUSE — DD — COMM. HOUSE — READER HOUSE — READER — W — NBS 156HZ — NBS 211HZ — NBS 86HZ — 25 CWU — CR-219 (HOOVER-BAULT RD.) DOT# 513806V M.P. 93.25 (FG) GCP-4000 25CWU-156 HZ/10.0-KHZ IPI DWG# QT09325 — 6'X6' HOUSE — 132# CWR

E.O.S. 3500'
CR 252 (LUNDA RD.) START 3286'
MILE POST 2856'
TR 243 (MORSE RD.) START 2796'
WHISTLE POST 2256'
ISL 849'
℄ 780'
HOUSE 748'
METER 725'
ISL 720'
HOUSE/ISL 60'
℄ 0'
METER 50'
ISL 60'
DD 95'
HOUSE 98'
COMM. HOUSE 117'
READER/HOUSE 176'
WHISTLE POST 867'
CR 219 (HOOVER-BAULT RD.) START 1294'
CR 252 (LUNDA RD.) START 1753'
MILE POST 2432'
TR 243 (MORSE RD.) START 2796'
ISL 3689'
℄ 3749'
ISL 3809'
METER 3829'
E.O.S./HOUSE 3845'

PRELIMINARY

FILE NAME: QT09254.H04	REVISION DATES	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	STREET NAME: TR 243 (MORSE RD.)
DATE DRAWN: 05-17-22	06-10-22			CSX ROW	O.H. POWER	POLE Ⓟ	N40°21'60"	CITY & STATE: WEST MANSFIELD, (UNION), OH
DRAWN BY: RS	- -			R/R POLELINE	FENCE	FIRE PLUG Ⓕ	W83°30'32"	DOT: 513805N
CHECKED BY: SAF	- -			GAS	WATER	SEWER CAP Ⓢ	ELEV. 1104'	PROJECT #: 0H2022020
PRS #: 34P002475	- -			FIBER OPTIC	SEWER	GAS VENT Ⓥ	M.P. QT-92.54	OP #: 0H1472

PROPOSED TRACK LAYOUT

INDEX

CONTENTS

SH. NO.		REVISION NO.								
		1	2	3	4	5	6	7	8	9
I01	INDEX AND REVISIONS	⊘								
S01	TRACK AND SIGNAL PLAN	⊘								
E01	POWER DISTRIBUTION	⊘								
C01	DETECTION DEVICE CONSIST 54CWU	⊘								
C02	DETECTION CIRCUITRY 54CWU	⊘								
C03	CROSSING WARNING DEVICE GATE CIRCUITRY	⊘								
C04	CROSSING WARNING DEVICE LIGHT CIRCUITRY	⊘								
C05	SEAR II CIRCUITS	⊘								
C06	SEAR II CONFIGURATION AND FUNCTIONS	⊘								
C07	SEAR II CHANNELS	⊘								
C08	WAYSIDE ACCESS GATEWAY	⊘								

⊘ = DESIGN COMPLETED

⊠ = REVISION COMPLETED

REVISIONS

REV. NO.	PROJECT NO.	DESIGN DATE	IN SERVICE DATE	REVISION DATE
1	0H2022020	05-19-22		

TO BE COMPLETED ON A.I.S.

PRELIMINARY

= NOTE

PROGRESS RAIL SERVICES
A Caterpillar Company

NEW WORK

DATE:05-19-22
CSX#:0H2022020
PRS/JMD/SAF

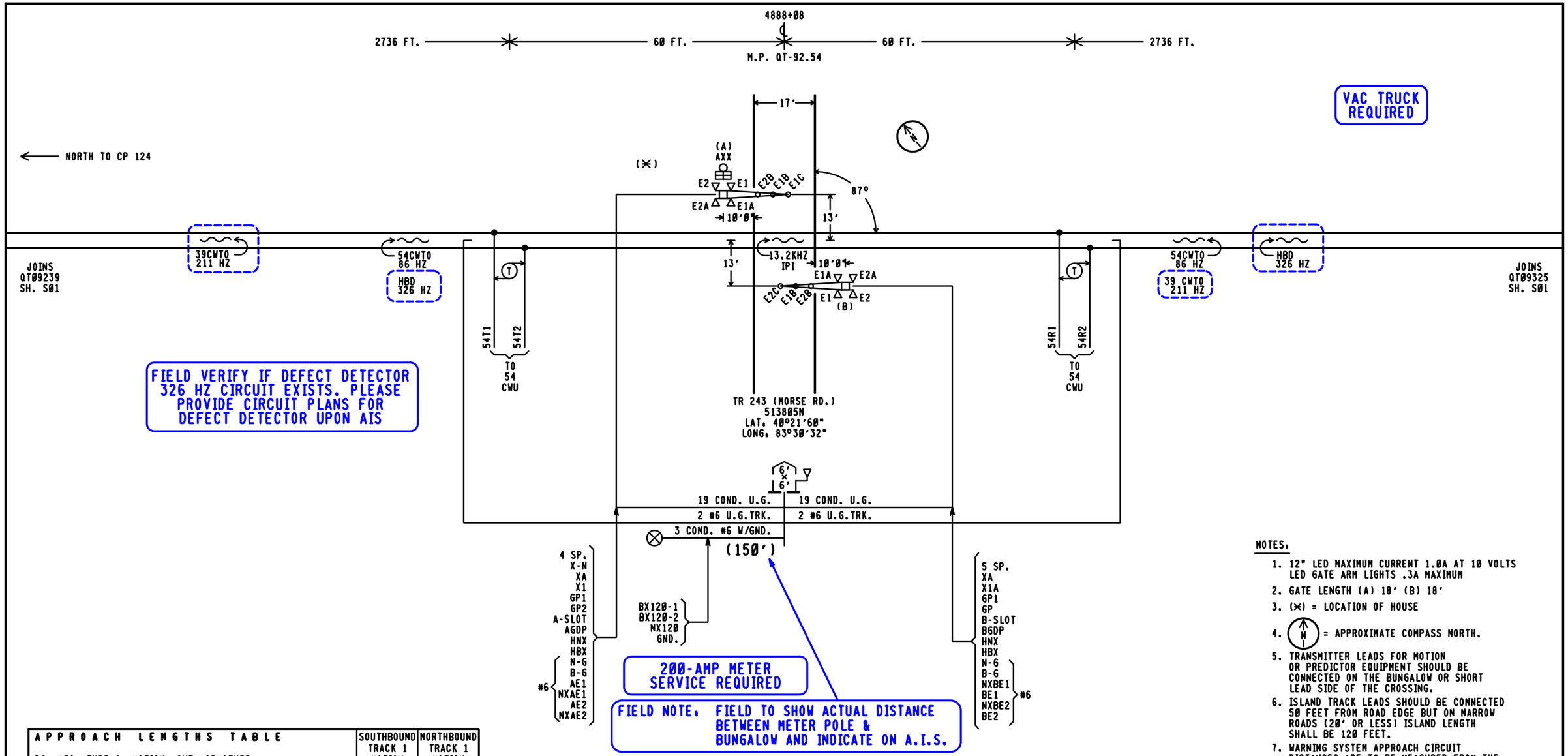
CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

TR 243 (MORSE RD.) 513805N

INDEX AND REVISIONS
WEST MANSFIELD, OH M.P. QT-92.54

DESIGNED	DIGITIZED	CHECKED	DATE
PRS/JMD	PRS/JMD	PRS/SAF	05-19-22

DESIGN DATE	REV. NO.	DRAWING	SHEET NO	FILE	SHEET
05-19-22	1	-----	-----	QT09254	I01



APPROACH LENGTHS TABLE DC, AFO, TYPE C, MOTION, CWT, OR OTHER	SOUTHBOUND TRACK 1 MOTION	NORTHBOUND TRACK 1 MOTION
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DOT TRAFFIC LIGHT SIMULTANEOUS PREEMPT TIME IN SECONDS✳	0	0
PRESCRIBED WARNING TIME FOR TRAINS AT TIME TABLE SPEED	30 SEC.	30 SEC.
DOT TRAFFIC LIGHT ADVANCE PREEMPT TIME IN SECONDS ✳	0	0
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BUFFER SPEED IN MILES PER HOUR	5	5
TOTAL WARNING SYSTEM DESIGN SPEED IN MILES PER HOUR	54	54
APPROACH DISTANCE TO ISLAND EDGE IN FEET	2736	2736
HALF WIDTH OF ISLAND IN FEET	60	60
APPROXIMATE MILE POSTS FOR APPROACH CIRCUIT	92.01	93.07

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

NOTES.

1. 12" LED MAXIMUM CURRENT 1.0A AT 10 VOLTS LED GATE ARM LIGHTS .3A MAXIMUM
2. GATE LENGTH (A) 18' (B) 18'
3. (✳) = LOCATION OF HOUSE
4. (N) = APPROXIMATE COMPASS NORTH.
5. TRANSMITTER LEADS FOR MOTION OR PREDICTOR EQUIPMENT SHOULD BE CONNECTED ON THE BUNGALOW OR SHORT LEAD SIDE OF THE CROSSING.
6. ISLAND TRACK LEADS SHOULD BE CONNECTED 50 FEET FROM ROAD EDGE BUT ON NARROW ROADS (20' OR LESS) ISLAND LENGTH SHALL BE 120 FEET.
7. WARNING SYSTEM APPROACH CIRCUIT DISTANCES ARE TO BE MEASURED FROM THE ISLAND TRACK CONNECTIONS.

= EXISTING

PRELIMINARY

= NOTE

PROGRESS RAIL SERVICES
A Caterpillar Company

NEW WORK

DATE.05-19-22
CSX#.0H2022020
PRS/JMD/SAF

CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

TR 243 (MORSE RD.) 513805N

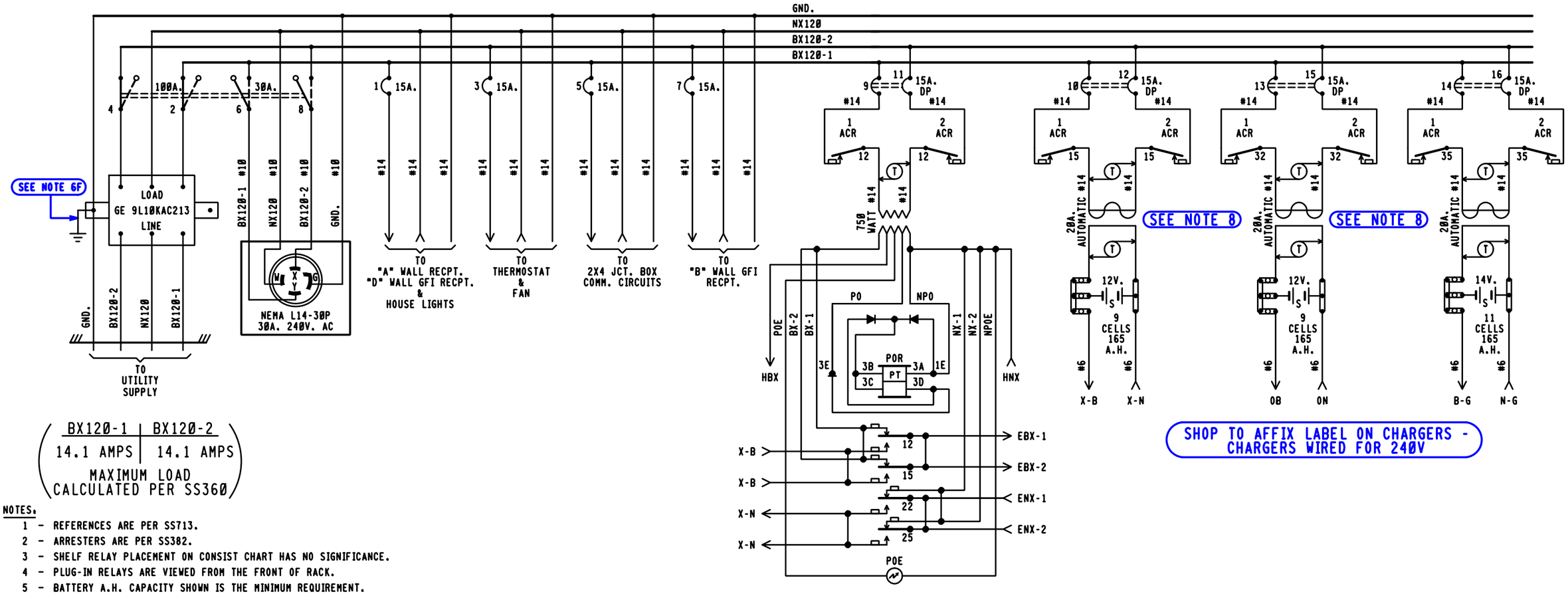
TRACK AND SIGNAL PLAN
WEST MANSFIELD, OH M.P. QT-92.54

DESIGNED	DIGITIZED	CHECKED	DATE
PRS/JMD	PRS/JMD	PRS/SAF	05-19-22

DESIGN DATE	REV. NO.	DRAWING	SHEET NO	FILE	SHEET
05-19-22	1	-----	-----	QT09254	S01

TOP ROW

XR			XPR			GPR				EOR				POR			1ACR			2ACR		
12	FB	B8	22	F	B36	12	B	B82		12	FB	B81		12	FB	B62	12	B	B77	12	B	B77
15	FB	C30	25	F	C30	15	B	C30		15	FB	C30		15	FB	C30	15	B	C30	15	B	C30
22						22				32	FB			22	FB		22			22		
23						25				35	FB			25	FB		25			25		
25	F					32	F							32	F		32	B		32	B	
32						35	B							35			35	B		35	B	
35																						



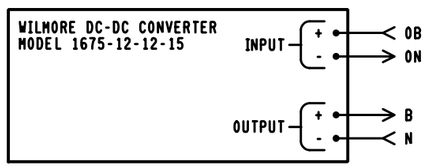
BX120-1	BX120-2
14.1 AMPS	14.1 AMPS

MAXIMUM LOAD
CALCULATED PER SS360

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

NOTES.

1 - REFERENCES ARE PER SS713.
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 WIRED FOR 240VAC
9 - CIRCUIT BREAKERS PANEL- Q0124L125G (24 SPACES)



PRELIMINARY

= NOTE

PROGRESS RAIL SERVICES
A Caterpillar Company

NEW WORK

DATE.05-19-22
CSX#.0H2022020
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6'X 6' PTC RELAY HOUSE

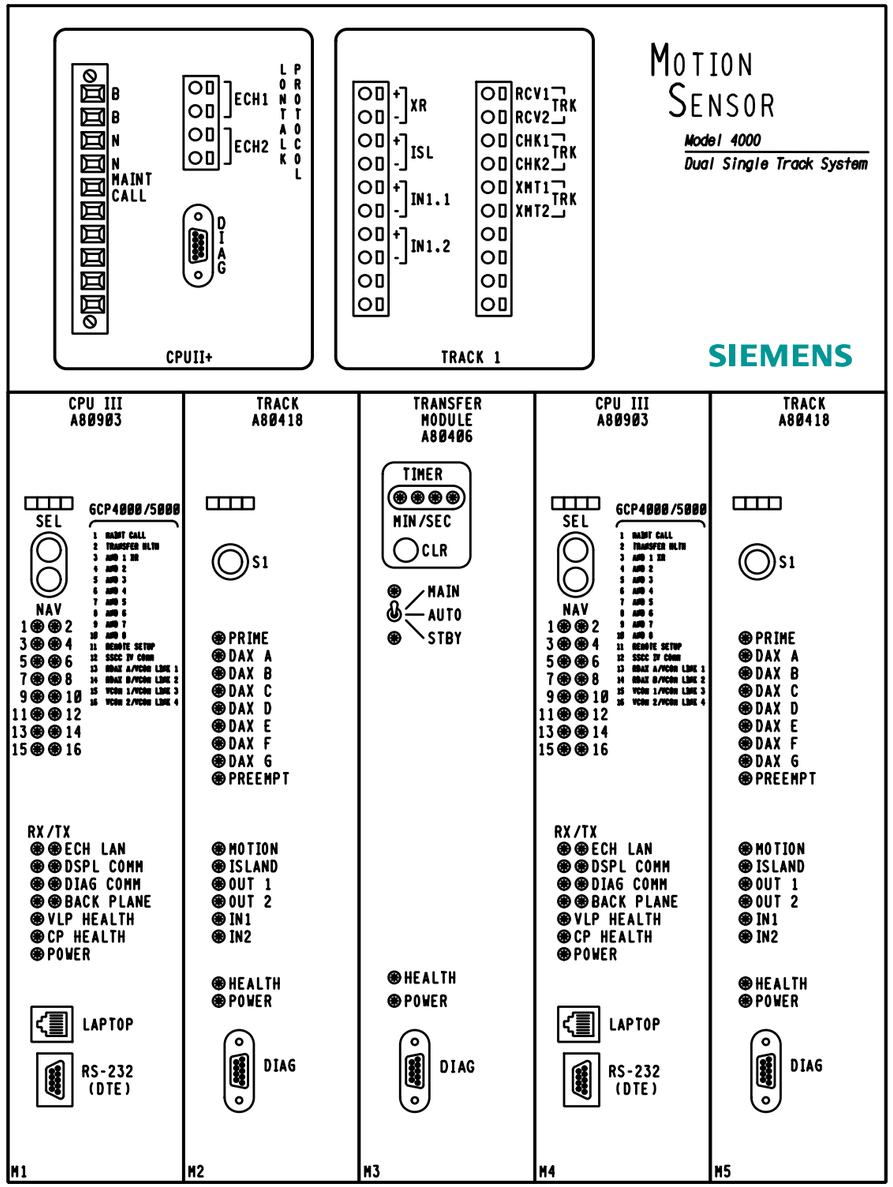
CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

TR 243 (MORSE RD.) 513805N

POWER DISTRIBUTION
WEST MANSFIELD, OH M.P. QT-92.54

DESIGNED	DIGITIZED	CHECKED	DATE
PRS/JMD	PRS/JMD	PRS/SAF	05-19-22

DESIGN DATE	REV. NO.	DRAWING	SHEET NO	FILE	SHEET
05-19-22	1	-----	-----	QT09254	E01



DIMENSIONS 10.16"W X 14.25"H X 10.86"D

MS 4000 APPLICATION NOTES.

1. THE MOTION SENSOR (MS) IS A MODULAR MICROPROCESSOR CONTROLLED SYSTEM THAT IS DEPLOYED TO CONTINUALLY MONITOR THE APPROACHES TO RAILROAD GRADE CROSSINGS AND TO CONTROL THE LAMPS, GATES AND BELLS ASSOCIATED WITH THOSE CROSSINGS.

2. THE MS 4000 (A80490) IS A SINGLE TRACK REDUNDANT UNIT THAT INCLUDES THE FOLLOWING MODULES.

SLOT	MODULE	FUNCTION	PART NO.
M1	CPU-III	MAIN	A80903
M2	TRACK-1	MAIN	A80418
M3	TRANSFER UNIT		A80406
M4	CPU-III	STANDBY	A80903
M5	TRACK-1	STANDBY	A80418

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

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

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

6. UPON THE FAILURE OF A MODULE IN SLOTS M1-M2 THE AUTOMATIC TRANSFER UNIT SWITCHES TO THE STANDBY MODULES IN SLOTS M4-M5.

PRELIMINARY

PROGRESS RAIL SERVICES
A Caterpillar Company
NEW WORK
DATE:05-19-22
CSX#:0H2022020
PRS/JMD/SAF

CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

TR 243 (MORSE RD.) 513805N

DETECTION DEVICE CONSIST 54CWU
WEST MANSFIELD, OH M.P. QT-92.54

DESIGNED	DIGITIZED	CHECKED	DATE
PRS/JMD	PRS/JMD	PRS/SAF	05-19-22

DESIGN DATE	REV. NO.	DRAWING	SHEET NO	FILE	SHEET
05-19-22	1	-----	-----	QT09254	C01

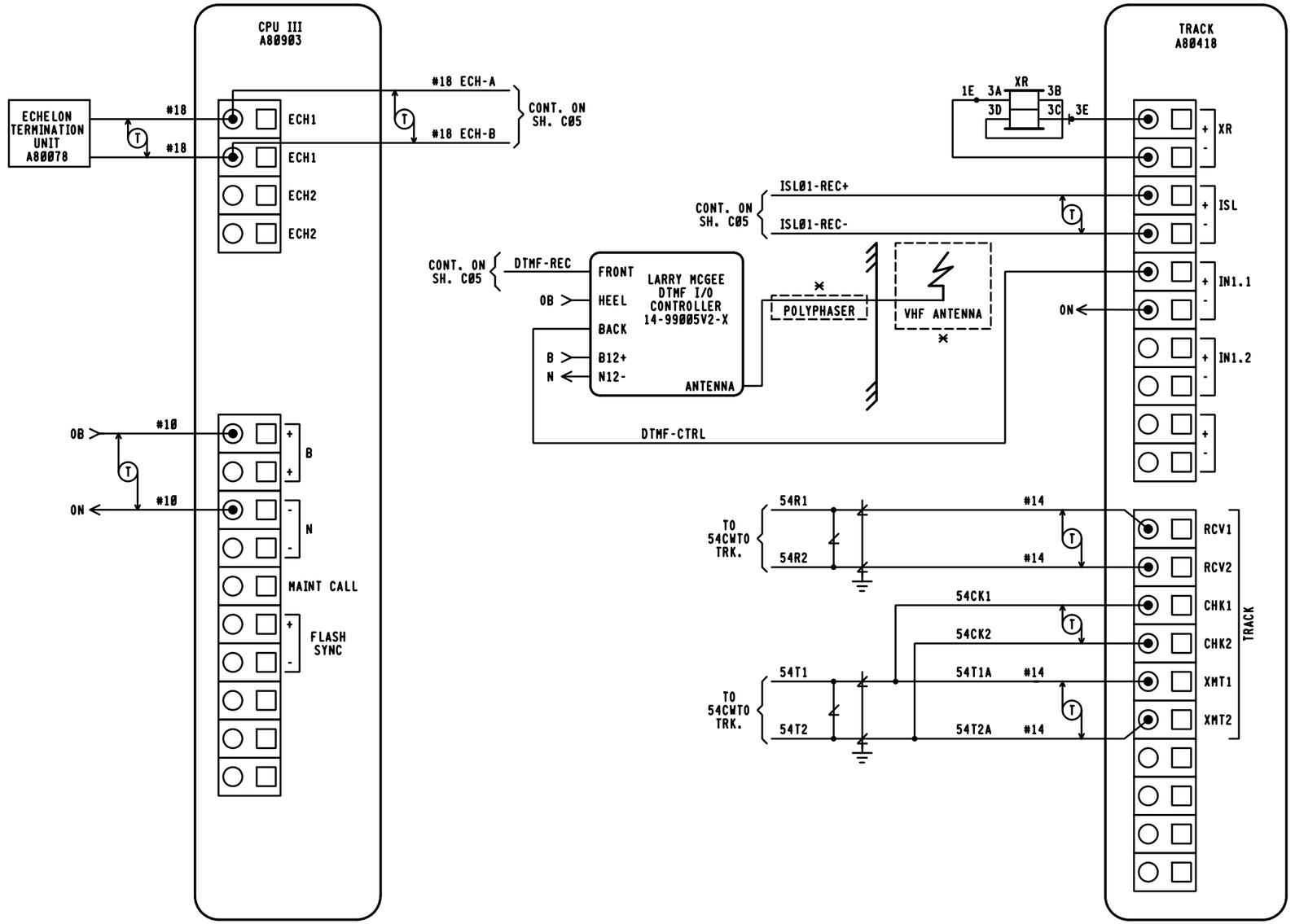
4000 MS APPLICATION DESIGN CARD

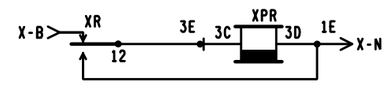
PROGRAM

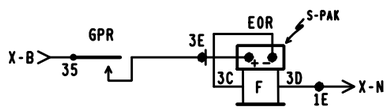
AFRQ (APPROACH FREQUENCY)	86	HZ
DIRN (APPROACH DIRECTION)	UNI ☐ BI ■ BIWD ☐	
TLVL (TRANSMIT LEVEL)	MED ☐ HI ■	
APKU (APPROACH PICKUP DELAY)	15 ★	SEC.
UAX (UPSTREAM ADJACENT CROSSING)	01	SEC.
ISL (ISLAND FREQUENCY)	13.2	KHZ
IPKU (ISLAND PICKUP DELAY)	0 ★	SEC.
IN1 (INPUT 1)	UAX	
IN2 (INPUT 2)	NOT USED ★	

ADVANCED MENU

PSTR (POSITIVE START)	OFF ★	
PTIM (POSITIVE START TIMER)	N/A	MIN.
SHNT (SUDDEN SHUNT)	OFF ★	
LWEZ (LOW EZ DETECT)	OFF ★	
LWEX (LOW EX ADJUSTMENT)	39 ★	
COMP (COMPENSATION LEVEL)	1300 ★	
PRED (PREDICTOR)	NO ★	
WTIM (WARNING TIME)	N/A	SEC.







PROGRAMMING FOR DTMF RADIO

REMOTE DTMF CROSSING ACTIVATION (ACTIVATES ENTIRE CROSSING)	
TO ACTIVATE PRESS.	805*
TO DE-ACTIVATE PRESS.	805#
(ACTIVATION WILL TIME OUT AFTER 60 SEC.)	

NOTES.

1. ★ = FACTORY DEFAULT (IF FIELD ADJUSTMENTS ARE NEEDED REFER TO MS4000 MANUAL, (SIG 00-11-02).
2. ✕ = COMMUNICATIONS TO SUPPLY

PRELIMINARY

PROGRESS RAIL SERVICES
A Caterpillar Company
NEW WORK
DATE. 05-19-22
CSX#. 0H2022020
PRS/JMD/SAF

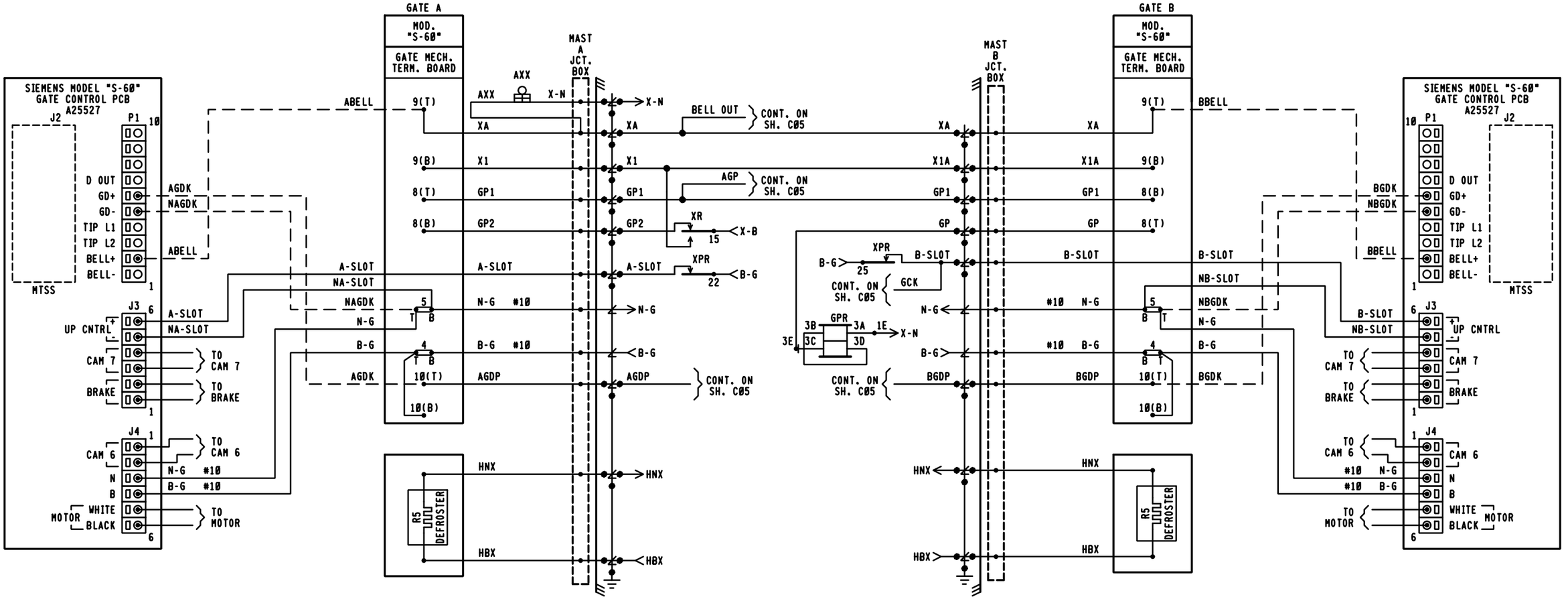
CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

TR 243 (MORSE RD.) 513805N

DETECTION CIRCUITRY 54CWU
WEST MANSFIELD, OH M.P. QT-92.54

DESIGNED	DIGITIZED	CHECKED	DATE
PRS/JMD	PRS/JMD	PRS/SAF	05-19-22

DESIGN DATE	REV. NO.	DRAWING	SHEET NO	FILE	SHEET
05-19-22	1	-----	-----	QT09254	C02



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PROGRESS RAIL SERVICES
A Caterpillar Company

NEW WORK

DATE 05-19-22
CSX#: OH2022020
PRS/JMD/SAF

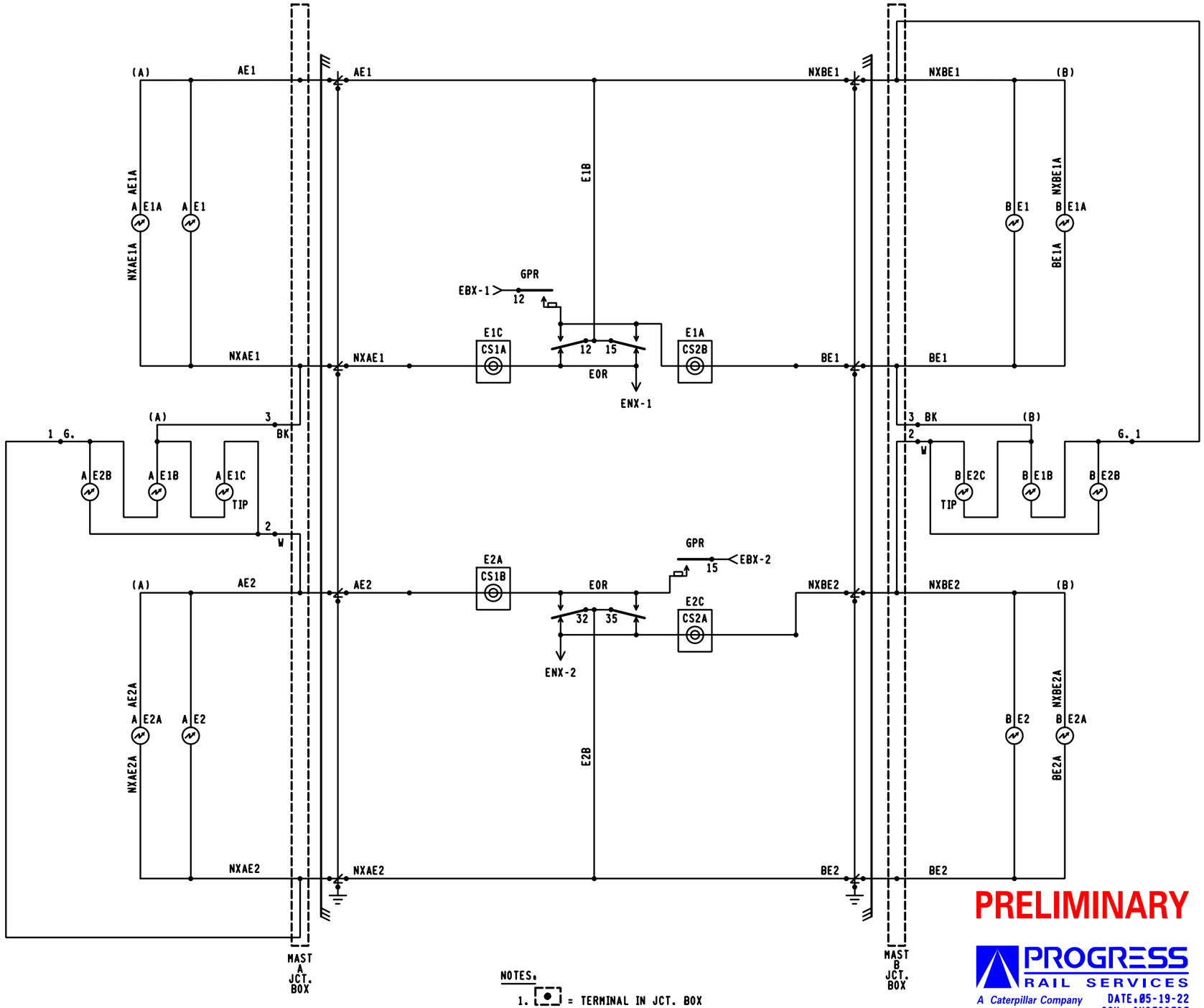
CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

TR 243 (MORSE RD.) 513805N

CROSSING WARNING DEVICE GATE CIRCUITRY
WEST MANSFIELD, OH M.P. QT-92.54

DESIGNED	DIGITIZED	CHECKED	DATE
PRS/JMD	PRS/JMD	PRS/SAF	05-19-22

DESIGN DATE	REV. NO.	DRAWING	SHEET NO	FILE	SHEET
05-19-22	1	-----	-----	QT09254	C03



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:05-19-22
CSX#:0H2022020
PRS/JMD/SAF

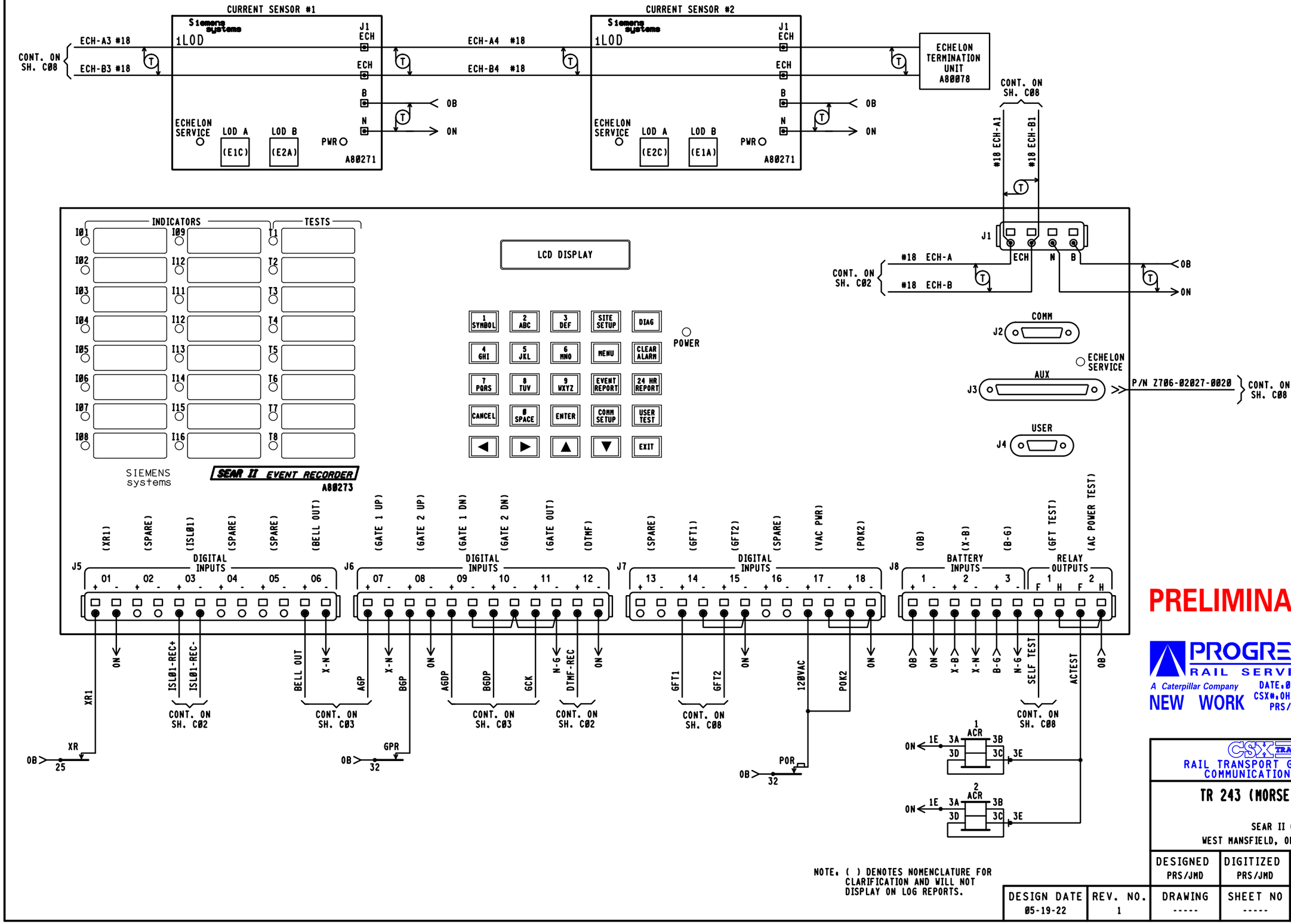
CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

TR 243 (MORSE RD.) 513805N

CROSSING WARNING DEVICE LIGHT CIRCUITRY
WEST MANSFIELD, OH M.P. QT-92.54

DESIGNED	DIGITIZED	CHECKED	DATE
PRS/JMD	PRS/JMD	PRS/SAF	05-19-22

DESIGN DATE	REV. NO.	DRAWING	SHEET NO	FILE	SHEET
05-19-22	1	-----	-----	QT09254	C04



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

PRELIMINARY

PROGRESS RAIL SERVICES
A Caterpillar Company
NEW WORK
DATE. 05-19-22
CSX#. 0H2022020
PRS/JMD/SAF

CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

TR 243 (MORSE RD.) 513805N

SEAR II CIRCUITS
WEST MANSFIELD, OH M.P. QT-92.54

DESIGNED	DIGITIZED	CHECKED	DATE
PRS/JMD	PRS/JMD	PRS/SAF	05-19-22

DESIGN DATE	REV. NO.	DRAWING	SHEET NO	FILE	SHEET
05-19-22	1	-----	-----	QT09254	C05

	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	TR 243 (MORSE RD.)
MILEPOST	QT-92.54
DOT NUMBER	513805N
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.XXX.XXX.XX.XX (7.RRR.LLL.GGG.99.01) — NOTE 5
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 (RS232) □ S200 RADIO (RS422) — NOTE 6
RADIO ATCS ADDRESS	7.125.XXX.XXX.XX.XX
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) — NOTE 7
AUX PORT	BAUD RATE (9600)
COMM PORT	BAUD RATE (9600)

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.

SITE SET UP OPTIONS CONT.		
	OPTION	SELECTION
	RAILROAD NUMBER	125
NOTE 1	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 □
NOTE 2	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 □
	OB 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 □
NOTE 3	VHF COMMUNICATOR	YES □ NO ■
NOTE 4	ACTIVATION CODE 1	XXX
	ACTIVATION CODE 2	XXX
	ACTIVATION CODE 3	XXX
	ACTIVATION TIMEOUT (30 TO 600 SECONDS)	60
	iLOD 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 □

FIELD TO PROVIDE BATTERY VOLTAGES ON AIS

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

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	4	□BULBS ■LED	X.X
CURRENT SENSOR (1) E2A. LAMP SET UP	4	□BULBS ■LED	X.X
CURRENT SENSOR (2) E2C. LAMP SET UP	4	□BULBS ■LED	X.X
CURRENT SENSOR (2) E1A. LAMP SET UP	4	□BULBS ■LED	X.X

PRELIMINARY

= NOTE

PROGRESS RAIL SERVICES
A Caterpillar Company

NEW WORK

DATE. 05-19-22
CSX#. OH2022020
PRS/JMD/SAF

CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

TR 243 (MORSE RD.) 513805N

SEAR II CONFIGURATION AND FUNCTIONS
WEST MANSFIELD, OH M.P. QT-92.54

DESIGNED	DIGITIZED	CHECKED	DATE
PRS/JMD	PRS/JMD	PRS/SAF	05-19-22

DESIGN DATE	REV. NO.	DRAWING	SHEET NO	FILE	SHEET
05-19-22	1	-----	-----	QT09254	C06

DISCRETE INPUTS	DI Ø1	DI Ø2	DI Ø3	DI Ø4	DI Ø5	DI Ø6
CHANNEL	1	2	3	4	5	6
NAME	XR1		ISLAND 1 (TRACK)			BELL OUT (BELL PWR)
TAG	XR1 (XR)	SP	ISL1	SP	SP	BELL OUT (BELL PWR)
OFF NAME	DOWN (XR)		DOWN (ISL1)			OFF (BELL PWR)
ON NAME	UP (XR)		UP (ISL1)			ON (BELL PWR)
ON DEBOUNCE TIME	100 ms	1000 ms	100 ms	1000 ms	1000 ms	100 ms
OFF DEBOUNCE TIME	100 ms	1000 ms	100 ms	1000 ms	1000 ms	100 ms
TOGGLE PERIOD	1000 ms	1000 ms	1000 ms	1000 ms	1000 ms	1000 ms

TSS INPUTS	DI Ø7	DI Ø8	DI Ø9	DI 10
CHANNEL	7	8	9	10
NAME	AGP	BGP	AGDP	BGDP
TAG	AGP (GP)	BGP (GP)	AGDP	BGDP
OFF NAME	LIGHTS FLASH	LIGHTS FLASH	NOT HORIZ	NOT HORIZ
ON NAME	GATE VERTICAL	GATE VERTICAL	GATE HORIZ	GATE HORIZ
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	GATE CONTROL	DTMF	
TAG	GCOUT1 (GCK)	DTMF-REC	SP
OFF NAME	OFF (DESCENT)	OFF (NO GATE KEYED)	
ON NAME	ON (ASCENT ON)	ON (ACTIVATE)	
ON DEBOUNCE TIME	100 ms	100 ms	1000 ms
OFF DEBOUNCE TIME	100 ms	100 ms	1000 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	OB (GND FAULT)	B-G (GND FAULT)
BATTERY 1 TAG	OB (GND FAULT)	B-G (GND FAULT)
BATTERY 2 NAME	X-B (GND FAULT)	SP.
BATTERY 2 TAG	X-B (GND FAULT)	SP.

DISCRETE INPUTS	DI 16	DI 17	DI 18
CHANNEL	16	17	18
NAME		120 VAC	POK2
TAG	SP	120 VAC	POK2
OFF NAME		OFF (ALL POWER OFF)	OFF (ALL POWER OFF)
ON NAME		ON (ALL POWER ON)	ON (ALL POWER ON)
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

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

RELAYS	RO1	RO2
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.Ø5-19-22
CSX#.0H2022020
PRS/JMD/SAF

CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

TR 243 (MORSE RD.) 513ØØ5N

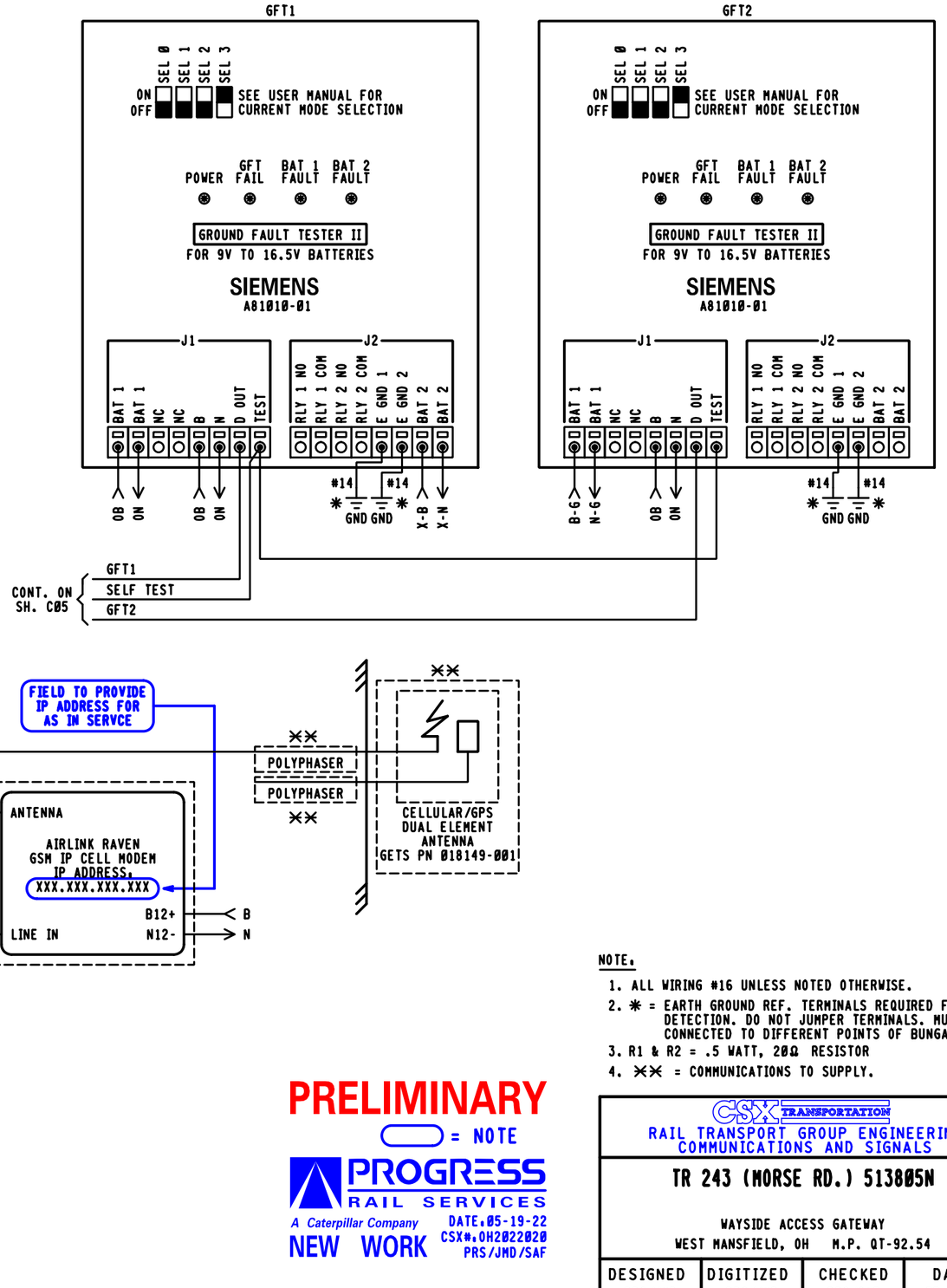
SEAR II CHANNELS
WEST MANSFIELD, OH M.P. QT-92.54

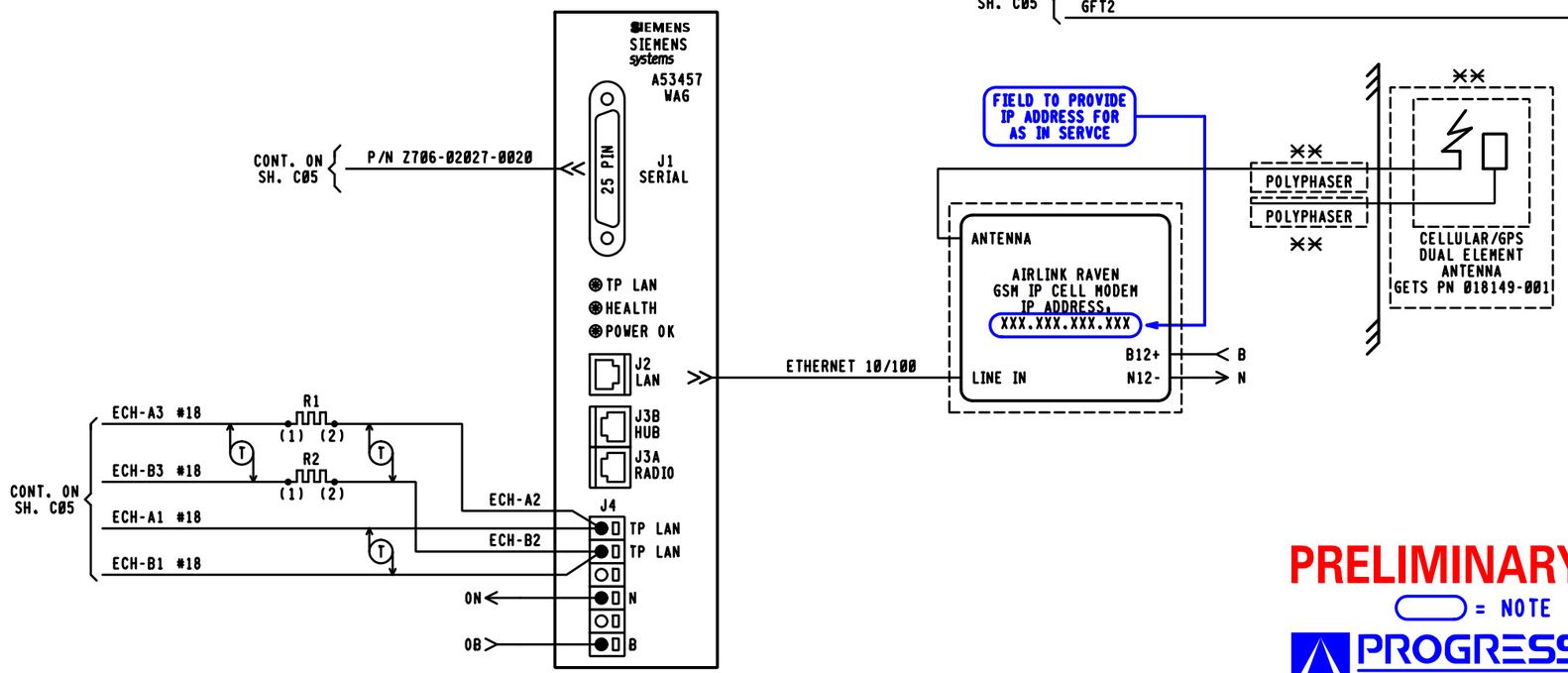
DESIGNED	DIGITIZED	CHECKED	DATE
PRS/JMD	PRS/JMD	PRS/SAF	Ø5-19-22

DESIGN DATE	REV. NO.	DRAWING	SHEET NO	FILE	SHEET
Ø5-19-22	1	-----	-----	QTØ9254	CØ7

WAYSIDE ACCESS GATEWAY CONFIGURATION	
SITE ATCS ADDRESS	7.125.XXX.XXX.XX.XX 7.125.LLL.GGG.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--7RRRLLLGGGSS
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

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, 20Ω RESISTOR
4. ✕✕ = COMMUNICATIONS TO SUPPLY.

PRELIMINARY

= NOTE

PROGRESS RAIL SERVICES
A Caterpillar Company

NEW WORK

DATE.05-19-22
CSX#.0H2022020
PRS/JMD/SAF

CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

TR 243 (MORSE RD.) 513805N

WAYSIDE ACCESS GATEWAY
WEST MANSFIELD, OH M.P. QT-92.54

DESIGNED	DIGITIZED	CHECKED	DATE
PRS/JMD	PRS/JMD	PRS/SAF	05-19-22

DESIGN DATE	REV. NO.	DRAWING	SHEET NO	FILE	SHEET
05-19-22	1	-----	-----	QT09254	C08

INDEX

CONTENTS

SH. NO.		REVISION NO. 1	2	3	4	5	6	7	8	9
I01	INDEX AND REVISIONS	⊠	⊠	⊘						
S01	TRACK AND SIGNAL PLAN	⊠	⊠	⊘						
P01	MINIMUM PROGRAM STEPS REPORT CWE-25	⊠								
E01	POWER DISTRIBUTION	⊠								
C01	DETECTION DEVICE CONSIST CWE-25	⊠								
C02	DETECTION CIRCUITRY CWE-25	⊠								
C03	DETECTION CIRCUITRY CWE-25	⊠								
C04	CROSSING WARNING DEVICE GATE CIRCUITRY	⊠								
C05	CROSSING WARNING DEVICE LIGHT CIRCUITRY	⊠								
C06	CROSSING WARNING DEVICE CIRCUITRY	⊠								
C07	SEAR II1 CONFIGURATION & FUNCTIONS	⊠								

⊠ = PLANS SENT TO FIELD (DISTRIBUTED)

⊠ = PLANS AS-IN-SERVICED (UP TO DATE)

REVISIONS

REV. NO.	PROJECT NO.	DESIGN DATE	IN SERVICE DATE	REVISION DATE
1	OH2008094	01-09-09	06-18-09	09-08-09
2	OH2012045	05-04-12	12-11-13	05-20-14
3	OH2022020	05-19-22	-----	-----

TO BE COMPLETED ON A.I.S.

PRELIMINARY

= NOTE

PROGRESS RAIL SERVICES
A Caterpillar Company

DATE:05-19-22
CSX#:OH2022020
PRS/JMD/SAF

= OUT
= IN

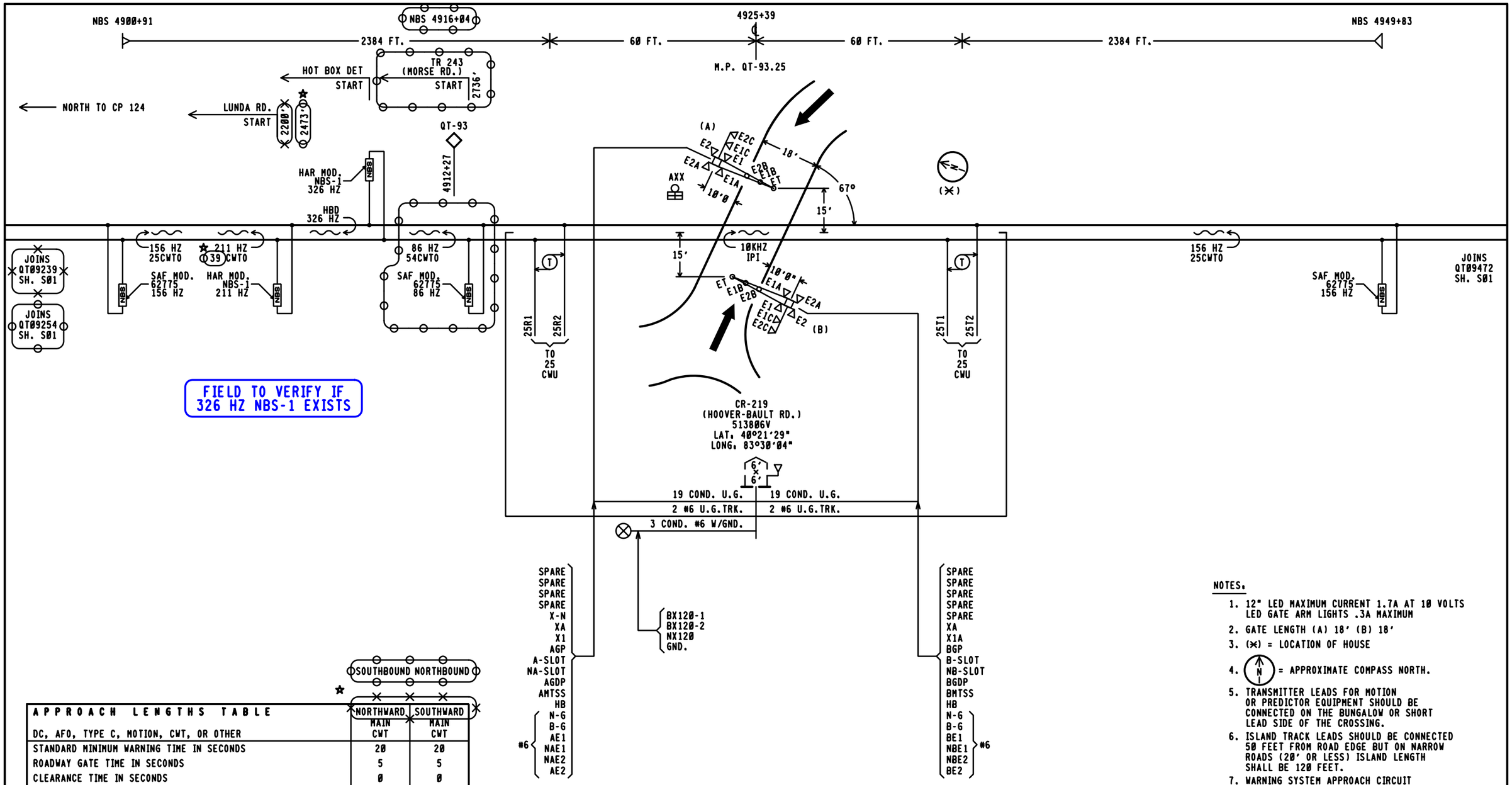
CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

CR-219 (HOOVER-BAULT RD.) 513806V

INDEX AND REVISIONS
RAYMOND, OH M.P. QT-93.25

DESIGNED	DIGITIZED	CHECKED	DATE
SAF/EBP	SAF/EBP	SAF/SWS	01-09-09

DESIGN DATE	REV. NO.	DRAWING	SHEET NO	FILE	SHEET
05-04-12	2	-----	-----	QT09325	I01
05-19-22	3				



FIELD TO VERIFY IF 326 HZ NBS-1 EXISTS

APPROACH LENGTHS TABLE	NORTHWARD SOUTHBOUND	SOUTHWARD NORTHBOUND
DC, AFO, TYPE C, MOTION, CWT, OR OTHER	MAIN CWT	MAIN CWT
STANDARD MINIMUM WARNING TIME IN SECONDS	20	20
ROADWAY GATE TIME IN SECONDS	5	5
CLEARANCE TIME IN SECONDS	0	0
DOT TRAFFIC LIGHT SIMULTANEOUS PREEMPT TIME IN SECONDS ✳	0	0
DESIGNED WARNING TIME FOR TRAINS AT TIME TABLE SPEED	25 SEC.	25 SEC.
DOT TRAFFIC LIGHT ADVANCE PREEMPT TIME IN SECONDS ✳	0	0
CONTROL EQUIPMENT DECISION TIME IN SECONDS	5	5
DESIGNED DETECTION TIME FOR TRAINS AT TIME TABLE SPEED	30 SEC.	30 SEC.
TIME TABLE MAXIMUM TRAIN SPEED IN MILES PER HOUR	50	50
BUFFER SPEED IN MILES PER HOUR	5	5
TOTAL WARNING SYSTEM DESIGN SPEED IN MILES PER HOUR	55	55
APPROACH DISTANCE TO ISLAND EDGE IN FEET	2384	2384
HALF WIDTH OF ISLAND IN FEET	60	60
APPROXIMATE MILE POSTS FOR APPROACH CIRCUIT	92.79	93.71

✳AUTHORIZING AGENCY. NONE

✳DATE OF REQUIREMENT. NONE

✳AMOUNT OF TIME (SEC.). NONE

✯ = DRAFTING ERROR CORRECTION

PRELIMINARY

= NOTE

PROGRESS RAIL SERVICES
A Caterpillar Company

= OUT

= IN

DATE. 05-19-22
CSX#. 0H2022020
PRS/JMD/SAF

NOTES.

1. 12" LED MAXIMUM CURRENT 1.7A AT 10 VOLTS LED GATE ARM LIGHTS .3A MAXIMUM
2. GATE LENGTH (A) 18' (B) 18'
3. (✳) = LOCATION OF HOUSE
4. (N) = APPROXIMATE COMPASS NORTH.
5. TRANSMITTER LEADS FOR MOTION OR PREDICTOR EQUIPMENT SHOULD BE CONNECTED ON THE BUNGALOW OR SHORT LEAD SIDE OF THE CROSSING.
6. ISLAND TRACK LEADS SHOULD BE CONNECTED 50 FEET FROM ROAD EDGE BUT ON NARROW ROADS (20' OR LESS) ISLAND LENGTH SHALL BE 120 FEET.
7. WARNING SYSTEM APPROACH CIRCUIT DISTANCES ARE TO BE MEASURED FROM THE ISLAND TRACK CONNECTIONS.

CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

CR-219 (HOOVER-BAULT RD.) 513806V

TRACK AND SIGNAL PLAN
RAYMOND, OH M.P. QT-93.25

DESIGNED	DIGITIZED	CHECKED	DATE
SAF/EBP	SAF/EBP	SAF/SWS	01-09-09

DESIGN DATE	REV. NO.	DRAWING	SHEET NO	FILE	SHEET
~~05-04-12~~ 05-19-22	~~2~~ 3	-----	-----	QT09325	S01

ACCT. CODE : 709 - OH1472 **Form Revision** 12/22/21

ESTIMATE SUBJECT TO REVISION AFTER: **6/17/2023** **DOT NO.:** 513805N
CITY: W. Mansfield **COUNTY:** Union **STATE:** OH
DESCRIPTION: Morse Rd. - Installation of FLS&Gs with a bell.

ZONE: Great Lakes **SUB-DIV:** Scottslawn **MILE POST:** QT-92.54
AGENCY PROJECT NUMBER: PID# 116015

	PRELIMINARY ENGINEERING:						
212	Contracted & Administrative Engineering Services					$	12,000
	Subtotal					**$**	**12,000**
	CONSTRUCTION ENGINEERING/INSPECTION:						
212	Contracted & Administrative Engineering Services					$	8,000
	Subtotal					**$**	**8,000**
	FLAGGING SERVICE: (Contract Labor)						
70	Labor (Conductor-Flagman)		0	Days @	$ 350.00	$	-
50	Labor (Foreman/Inspector)		0	Days @	$ 504.00	$	-
70	Additive	139.00% (Transportation Department)				$	-
50	Additive	160.00% (Engineering Department)				$	-
	Subtotal					**$**	**-**
	SIGNAL & COMMUNICATIONS WORK:					**$**	**264,207**
	TRACK WORK:					**$**	**-**
	PROJECT SUBTOTAL:					**$**	**284,207**
900	**CONTINGENCIES:**	0.00%				$	-
	PROJECT TOTAL:	**********				$	284,207
	CURRENT AUTHORIZED BUDGET:	**********				$	-
	TOTAL SUPPLEMENT REQUESTED:	**********				**$**	**284,207**

DIVISION OF COST:

Agency	100.00%	$	284,207
Railroad	0.00%	$	-
		$	284,207

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: 06/17/22 **REVISED:** 01/00/00 **DATE:** 06/17/22

CSX TRANSPORTATION

Outside Party Estimate

Morse Rd. (TR 243) - ENG-08029 - OH2022020 - OH1472 - Estimate

West Mansfield, Ohio

DOT: 513805N OP: OH1472 CSX Project: OH2022020

Summary

Material	$69,080
Sales Tax	$4,974
Labor:	
Construction Labor (121 man-days)	$51,665
Shop Labor (7 man-days)	$2,975
Subsistence (0 man-days)	$0
Railroad Engineering, Construction	$8,236
Railroad Engineering, Preliminary	$4,606
Additives to Construction Labor	$82,664
Additives to Shop Labor	$4,760
Additives to Track Labor	$0
Additives to Engineering	$0
Equipment Expense (0 work days)	$0
Waste Management (25 work days)	$300
Contract Engineering	$16,603
Freight	$5,345
Poleline Removal	$0
AC Power Service	$5,000
Salvage	-$1
VAC TRUCK	$8,000
TOTAL ESTIMATE COST	$264,207

Date: 06/15/2022
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: OH2022020 (Effective: 06/15/2022)
QT 92.54 - Location 1 - Morse Rd. (TR 243)

CATALOG_NUM	QTY	Unit Price	COST	SHORT_DESC
020.0000367.1	1	1363.50	1363.50	KIT CROSSING COMPLETE TYPICAL 41 KIT INCLUDES RF AND DATA COMPONENTS FOR NEW INSTALLATIONS CSDA-30348
020.0017120.1	6	17.05	102.30	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	3.28	19.68	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	1410.21	1410.21	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
020.0021965.1	1	9.06	9.06	EXTRACTOR DWG 59688-4 TERMINAL GRS CAT P3-308 REF 18 1/16" STEEL WIRE COVERED W/INSULATING TUBING BILMAR 59688
020.0022651.1	7	109.65	767.55	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	20.96	20.96	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	395.83	1187.49	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	25	38.80	970.00	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	802.45	802.45	ARRESTER GE 9L10KAC213L FOR 240 VOLT SINGLE PHASE 3 WIRE CIRCUIT PROTECTOR INCLUDES LINE TO LINE AND LINE TO GROUND PROTECTION
020.0770060.1	8	20.96	167.68	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	2	23.06	46.12	ARRESTER HARMON 202217-000 AGE-1 TRACK A
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	1344.72	1344.72	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
020.2503081.1	2	69.91	139.82	MODULE SAFETRAN ECHELON TERMINATION UNIT (A80078) USE WITH REMOTE MONITORING & ALARM REPORTING W/WAMS SAFETRAN P/N 8000-80078-0001
020.3180290.1	1	5288.94	5288.94	RECORDER SEAR II REMOTE MONITORING INCLUDES THE FOLLOWING KIT ALARMS & TESTING, (80290) APP SW (9V736-A02A), (2) ILODS (80271), (1) ECH (80078), (2) GFT2, (1) WAG (9000-53457-0001) & CABLE 20FT (Z706-02027-00200)
020.3430110.1	1	700.22	700.22	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)
020.3430115.1	1	469.40	469.40	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)
020.3430130.1	2	421.06	842.12	RELAY SAFETRAN 400023 500 OHMS CONTACTS 6FB HEAVY DUTY CSX REFERENCE S7
020.3430135.1	1	568.95	568.95	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	464.13	464.13	RELAY SAFETRAN 400800-CSX 100/100 OHMS CONTACTS 6FB HEAVY DUTY CSX REFERENCE S15 SOC 1264 POWER TRANSFER COMPLETE WITH RECTIFIER 590000-X (REPLACES GRS 56001-745 GR1 TYPE B1 CATALOG A62-406 REF B62)
020.3430185.1	1	484.29	484.29	RELAY SAFETRAN 400700-X 60 OHMS CONTACTS 4FB CSX REFERENCE S18 SOC 1267 RELAY COMPLETE WITH FLASHER MODULE 400700-1X (REPLACES GRS 56001-985 GR1 TYPE B1 AND FLASH X-PAK MODULE 30733-1 GR4 CAT A62-673 REF B81)
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	9	1.89	17.01	LINK TEST ASSEMBLY 2-3/8" CENTERS YELLOW INSULATOR ON OFFSET LINK DOES NOT REQUIRE BRASS TEST NUT, TDH SOLUTIONS P/N 800-0114
020.4201045.1	400	0.15	60.00	NUT HEX CLAMP (FLAT NUT) AAR 14.1.11-7 14-24 NS-2 THD FLAT BRASS NICKEL PLATED FOR AAR BINDING POST W/14-24 THD SAFETRAN 023832 TDH SOLUTIONS 800-0006 MIN/MULT ORDER QTY 400
020.4900002.1	1	7509.80	7509.80	DETECTOR MOTION INVENSYS MS4000 ONE TRACK REDUNDANT W/CABINET 8000-80491-0001, ECD 8000-80435-0001, (2) TRACK MODULE 8000-80418-0001, (2) CPU2 MODULE 8000-80403-0001, (1) TRANSFER MODULE 8000-80406-0002 INVENSYS P/N 8321-80490-0001
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

CSX TRANSPORTATION
Signal Project Estimation

Shop Material List for CSX Project: OH2022020 (Effective: 06/15/2022)
QT 92.54 - Location 1 - Morse Rd. (TR 243)

CATALOG_NUM	QTY	Unit Price	COST	SHORT_DESC
022.5290559.1	1	314.71	314.71	CONVERTER WILMORE INPUT 10V DC TO 16V DC OUTPUT 13.6V DC 200 WATTS MAXIMUM MODEL 1675-12-12-15

Total Cost: $ 25,127.95

CSX TRANSPORTATION
Signal Project Estimation

Field Material List for CSX Project: OH2022020 (Effective: 06/15/2022)
QT 92.54 - Location 1 - Morse Rd. (TR 243)

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 BLU BACKGROUND CSX DWG 2719(IN SUPPLIER NOTE ENTER DOT ID & MP, FOR MULT SIGNS USE COMMA AND UPDATE QTY) BLANK SIGN 014.8006170.1
020.0000157.1	2	1268.62	2537.24	GATE SAVER 2 WAY - BI DIRECTIONAL SELF RESTORING BREAKAWAY DEVICE FOR USE WITH 18' TO 32' GATE ARMS MANUFACTURER - NATIONAL ELECTRIC GATE CO. P/N 385102GS2W90
020.0010447.1	3	11.53	34.59	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 PE6AHDH00009
020.0013375.1	20	6.71	134.20	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	2	86.70	173.40	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	400	8.31	3324.00	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	3	373.79	1121.37	SHUNT ENCLOSURE WAYSIDE MOUNT ASSEMBLY COMPLETE WITH LOCK AND LABELS, DOES NOT INCLUDE ARRESTERS, SEE SS227 INTERRAIL P/N IRS-SEC8
020.0052476.1	4	11.76	47.04	ARM EXTENSION 14-1/2" ALUM WITH 3/8" DIAMETER MOUNTING HOLES INCLUDES 1 EA 5/16"-18 X 1" SS BOLT AND NUT 2 EA SS FLAT WASH 1 EA SS LK WASH USE TO OFFSET SIGN FROM MAST CSX SS225 DETAIL 22513 KORMAN P/N CCSX2719L
020.0053220.1	150	3.23	484.50	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	30.84	185.04	BRACKET SIGN 4" OR 5" MAST W/1/2" U-BOLT FOR ALL SIGNS REQUIRING 5/16" BOLT L&W P/N 7A1041-1X1
020.0056421.1	4	38.84	155.36	BRACKET SIGN 4" OR 5" MAST FOR ALL SIGNS REQUIRING 5/8" BOLT L&W P/N 7A1041-1X
020.0056674.1	2	6524.06	13048.12	SIGNAL 0220-L GCWD GATE ASSY DWG SS222 INCLS 18 FBRGL ARM W/3 LIGHTS 2-WAY MAIN IND 12" LIGHTS 24" BACKGNDS HOODS LED LAMPS 5" ALUM MAST JCT BOX BASE XNG SIGN & PINNACLE SAFE P/N 074000-0220-L
020.0056823.1	1	19.34	19.34	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	400	1.51	604.00	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	29	118.29	3430.41	BATTERY SAFT SPL165, 165 AH POCKET PLATE NICKEL CADMIUM BATTERY FEATURING ULTRA LOW MAINTENANCE, GAS RECOMBINATION TECHNOLOGY
020.1040540.1	2	31.72	63.44	TRAY BATTERY FIBER CO 82687-1-P 12" WIDTH 24" LONG CSX DWG 82687 USE IN 4X6 HOUSE SEE SS390
020.1040550.1	3	48.14	144.42	TRAY BATTERY FIBER CO 82687-3-P 12" WIDTH 38" LENGTH CSX DWG 82687 FOR USE WITH FLOODED (NON-VALVE REGULATED) CELLS SS390
020.1150750.1	400	1.33	532.00	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
020.1304014.1	20	7.76	155.20	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
020.1320030.1	1	1862.50	1862.50	LAYOUT AC METER SERVICE WITH 30' POLE CSX DWG SS351 SH 2 ITEMS 1 TO 40 W/200A LOAD CTR -INCLUDES 2P70A BREAKER-P/N 212-0030
020.1360014.1	1	829.96	829.96	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
020.1360016.1	1	27.18	27.18	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
020.2500605.1	2	395.60	791.20	SHUNT SAFETRAN 62775-86 NARROW BAND 86HZ
020.2500620.1	1	328.69	328.69	SHUNT SAFETRAN 62775-211 NARROW BAND 211HZ
020.3901895.1	2	122.65	245.30	TIP FLEX HWY CROSSING GATE 24 IN LONG ENGINEERING GRADE RED & WHITE STRIPES W/2 MTG BOLTS & INSTALL INSTRUCTIONS ONE SMALL & ONE LARGE RIBBED ADAPTERS USE W/FIBERGLASS GATE ARMS TIP MADE BY MARCUM DEVELOPMENT CO, MARCUM P/N RAC-230RFK
020.3920200.1	2	180.10	360.20	BELL GCWD ELECTRONIC 4" OR 5" MAST 8 TO 13 VOLTS DC GSI PN EB-3-360-5 ASC PN 81848
020.3930010.1	2	3.70	7.40	KIT GATE ARM WARNING STICKER KIT INCLUDES 1-EA 5"X3" STICKER 1-EA 5"X3" PADLOCK TAG 2-EA 11"X3" STICKER PER SS222
020.4200340.1	40	1.74	69.60	LINK TEST ASSEMBLY 1" CENTERS YELLOW INSULATOR ON OFFSET LINK DOES NOT REQUIRE BRASS TEST NUT, TDH SOLUTIONS P/N 800-0112

CSX TRANSPORTATION
Signal Project Estimation

Field Material List for CSX Project: OH2022020 (Effective: 06/15/2022)
QT 92.54 - Location 1 - Morse Rd. (TR 243)

CATALOG_NUM	QTY	Unit Price	COST	SHORT_DESC
020.4200900.1	6	0.22	1.32	CONNECTOR SHEATHING AMP 329860 FOR NO. 14 WIRE
020.4201042.1	20	0.14	2.80	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	0.10	15.00	NUT HEX CLAMP (FLAT NUT) AAR 14.1.11-7 14-24 NS-2 THD FLAT BRASS NICKEL PLATED FOR AAR BINDING POST W/14-24 THD SAFETRAN 023832 TDH SOLUTIONS 800-0006
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
020.7300030.1	2	193.69	387.38	BRACKET BELL FITS SAFETRAN JUNCTION BOX MOUNT, 5" BENT ALUM PIPE, TDH SOLUTIONS P/N 730-0030
020.9999991.1	1	100.00	100.00	BLOCKING AND BRACING FOR PROJECTS BURCO DIST
250.0001836.1	1	44.98	44.98	BREAKER CIRCUIT SQ D QO260
250.0012228.1	3	4.57	13.71	TAPE BLACK ELECTRIC 3/4" X 66' 3M "SUPER 33 PLUS"
360.0006100.1	1	33.60	33.60	STOOL STEP WOOD 14"X 20" SIGNAL MAINTAINERS CSXT DRAWING SKSS91-01
360.0800145.1	1	7.12	7.12	BROOM WAREHOUSE CORN HVY DUTY 1-1/8" DIA HANDLE
470.0060318.1	1	15.14	15.14	FOAM SEALANT CF-116 SINGLE 16 OZ CAN INCLUDES ONE EACH DISPOSABLE NOZZLE HILTI P/N 314722
250.1680406.1	75	0.54	40.50	CONDUIT LIQUID TIGHT 3/4" FLEXIBLE GREY PVC CARLON P/N 15007 HAGEMEYER P/N 537936 100FT COIL
250.1680408.1	75	0.54	40.50	CONDUIT LIQUID TIGHT 3/4" NON-METALLIC ORANGE PVC CARLON P/N LTC075-1 T&B P/N LTC075-1 100FT ROLL

Total Cost: $ 31,445.35

CSX TRANSPORTATION
Signal Project Estimation

Consumable Material List for CSX Project: OH2022020 (Effective: 06/15/2022)
QT 92.54 - Location 1 - Morse Rd. (TR 243)

CATALOG_NUM	QTY	Unit Price	COST	SHORT_DESC
020.0017605.1	350	0.33	115.50	WIRE CASE 10 AWG FLEX CSX SPEC SS796 OKONITE P/N 152-11-3038 FURNISH 1000 FT SPOOL SHOW LENGTH ON EACH SPOOL
020.0017607.1	500	0.90	450.00	WIRE CASE TW PR NO 10 AWG FLEX CSX SPEC SS796 TWIST 2 TURNS PER FT FURNISH ON 500 FT SPOOLS OKONITE P/N 152-11-3039
020.0017625.1	150	0.55	82.50	WIRE CASE TWISTED PAIR AWG #14 FLEX TWIST 2 TURNS PER FT FURNISH ON 500 FT SPOOLS OKONITE P/N 152-11-3025
020.0017630.1	200	0.15	30.00	WIRE CASE NO 16 AWG FLEX CSX SPEC SS796 FURN 1000 FT SPOOL SHOW LENGTH ON EACH SPOOL OKONITE P/N 152-11-3002
020.0017636.1	130	0.96	124.80	WIRE SIGNAL AWG 6 STRANDED COPPER, T&C BLUE, FOR BATTERY CONNECTIONS OKONITE P/N 152-11-3015 STD PKG 250 PER REEL
020.0028610.1	100	0.24	24.00	TERMINAL RING PANDUIT PN12-14HDR-D YELLOW NYLON HVY DUTY 1/4 IN STUD WIRE SIZE 16-14 AWG DO NOT SUBSTITUTE USE ON VITAL SIGNAL CIRCUITS
020.0053510.1	1	208.13	208.13	KIT 240V AC EMERGENCY GENERATOR CABLE AND RECEPTACLE FOR PTMW HOUSE/CASE COMPLETE WITH 20' GENERATOR CABLE, 240V/30A RECEPTACLE AND RECEPTACLE WEATHER RESISTANT COVER PLATE TDH SOLUTIONS P/N 830-0023
020.1000354.1	1	6738.38	6738.38	HOUSE SIGNAL 6FT X 6FT WITH PTC UPGRADE PTMW P/N 91000354
020.1360540.1	1	71.65	71.65	BREAKER MAIN/GENERATOR BACKFEED RETAINING GENERATOR INTERCONNECT SWITCH KIT USE IN PTMW HOUSES SQUARE D P/N PK4DTIM4LA
020.1710055.1	600	2.00	1200.00	CONDUIT SDR 13.5 4" ORANGE POLYETHYLENE 750 FT REELS W/ PULL TAPE TRENCHLESS TECHNOLOGY PRODUCTS ASTM D-3035 O.D. 4.500 I.D. 3.834 MIN/MULT ORDER QTY 750 FT
020.2060072.1	2	639.27	1278.54	FOUNDATION HELICAL SCREW-IN ASSEMBLY 7' X 10", USED FOR SIGNAL MASTS WITH 11-11/16" BOLT SPACING, 8" LEVELING BOLT SET (020.2060078.1) INCLUDED
020.2060074.1	2	379.20	758.40	EXTENSION 10" X 3' USE WITH XING GATE AND SIGNAL MAST HELICAL SCREW-IN FOUNDATION ASSY COMPLETE WITH 4 EACH 1"X4" GALVANIZED BOLTS NUTS AND WASHERS WITH 11-11/16" BOLT SPACING DIXIE PRECAST P/N DE-1003
020.3261970.1	2	9.41	18.82	DECAL (DO NOT ORDER, CALL SIGNAL SHOP) ASSY 2" BLACK PRESSURE SENSITIVE VINYL PRE-MASKED SERIES "C" CHARACTERS USE ON RELAY CASES HOUSES AT HWAY CROSSING LOCS FURNISH FROM JR DEPRIEST SIG SHOP
020.4200880.1	2	0.53	1.06	CONNECTOR TERMINAL 2-3/8" CENTERS AAR 14.1.15-4 NICKEL PLATED COPPER NON-ADJUST STRAP SAFETRAN 023839-1 NEG -982238
020.4200892.1	27	0.54	14.58	CONNECTOR TERMINAL 1" CENTERS AAR 14.1.15-3 NICKEL PLATED COPPER CONNECTOR ONLY 2 HOLE FLAT 1-9/16" OVERALL SAFETRAN 023839-2 NEG -872231
020.4251190.1	120	0.15	18.00	TERMINAL RING PANDUIT PV10-14RD YELLOW VINYL SIZE 10-12 AWG 1/4" STUD SIZE DO NOT SUBSTITUTE FOR VITAL SIGNAL CIRCUITS (REPLACED BLACK AMP TERMINAL)
020.4251290.1	30	0.55	16.50	TERMINAL RING PANDUIT PV6-14R-T BLUE VINYL SIZE 6 AWG 1/4" STUD SIZE (REPLACED BLUE AMP TERMINAL)
020.4251295.1	6	0.55	3.30	TERMINAL RING PANDUIT PV6-38R-T BLUE VINYL SIZE 6 AWG 3/8" STUD SIZE (REPLACED BLUE AMP TERMINAL)
020.9999992.1	1	50.00	50.00	HOUSE SIGNAL HANDLING CHARGE BURCO DISTRIBUTION
450.0019212.1	100	0.03	3.00	SCREW SHEETMETAL PAN HD 10 X 1" TYPE A COARSE THREAD PHILLIPS BOWMAN 32096 MIN/MULT ORD QTY 50
	10	50.00	500.00	FILL MATERIAL
	1	800.00	800.00	WALKWAY ROCK

Total Cost: $ 12,507.16

Ohio | Rail Development Commission

Mike DeWine, Governor
Jon Husted, Lt. Governor

Scott Corbitt, Chair

March 28, 2022

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

RE: PE Authorization for UNI CSX TR243 Morse Rd DOT# 513805N PID# 116015

Dear Mrs. DeCesare:

A diagnostic review was held at the above grade crossing on July 27, 2021. The crossing has been recommended for the installation of lights and gates.

CSX Transportation 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).

Ohio | Public Utilities Commission

Mike DeWine, Governor
Jenifer French, Chair

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

December 13, 2021

CSX Transportation, Inc.
Ms. Amanda DeCesare
CSX Public Projects
3131A Spring Grove Avenue
Cincinnati, OH 45225

Re: TR 243/Morse Road
DOT#513-805N,
Union County
Hereinafter referred to as the "Project"

Dear Ms. DeCesare:

The Public Utilities Commission of Ohio (PUCO) has identified and the Ohio Rail Development Commission (ORDC) surveyed, on July 27, 2021, the above mentioned grade crossing for warning device upgrades. The location has been approved for flashing lights and roadway gates.

The Projects shall comply with Agreement No. 17427, dated May 3, 2013, entered into by the State of Ohio and CSX Transportation (RAILROAD). Furthermore, the RAILROAD shall comply with all applicable state and federal laws governing grade crossing safety programs.

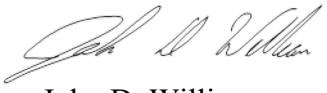
Reimbursable costs will be limited by ORDC based upon approved estimates and bid tabulations, if applicable. These limits will be quantified by the ORDC in its construction authorization to the RAILROAD and may be amended by the ORDC based upon revised estimates and bid tabulations. Additional costs 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 Projects 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.

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, Chief, Rail Division, Public Utilities Commission of Ohio, 180 E. Broad Street, Columbus, Ohio 43215-3793 or by email at jill.henry@puco.ohio.gov .

Sincerely,



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

Matthew Dietrich
Executive Director
Ohio Rail Development Commission

CSX Transportation, Inc.

By _____

Title _____

Date _____

Date 1/4/2022

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, Chief, Rail Division, Public Utilities Commission of Ohio, 180 E. Broad Street, Columbus, Ohio 43215-3793 or by email at jill.henry@puco.ohio.gov .

Sincerely,

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

CSX Transportation, Inc.

By Tony C. Bellamy

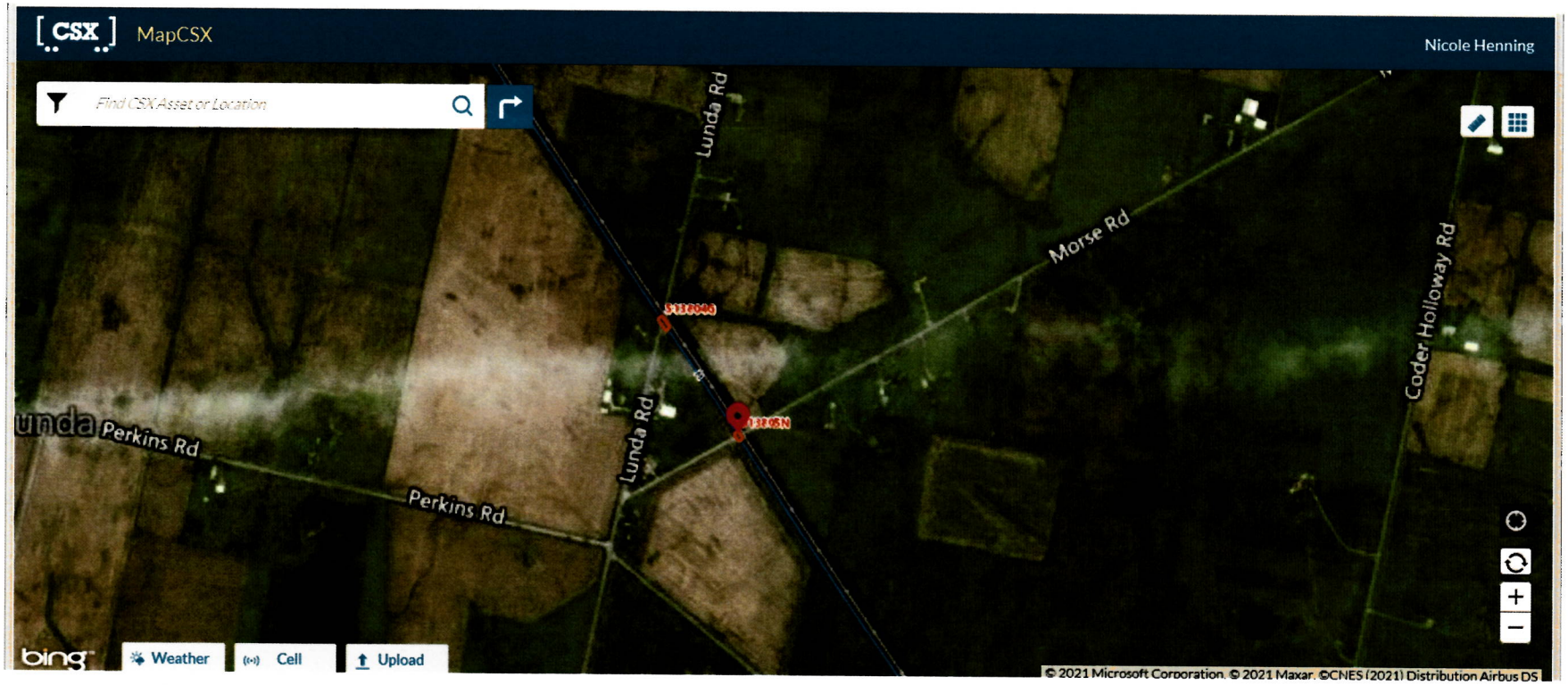
Tony C. Bellamy
Title Director Project Management - Public Projects

Date 12/27/2021

Matthew Dietrich
Executive Director
Ohio Rail Development Commission

Date _____

Project Location:



TR 243 / Morse Road (DOT #513805N), Liberty Township, Union County, CSX

Crossing at a glance: 513805N

ORDC Notes:

Please Sign In

Name	Title	Organization	Signature
Greg Gronbach	Project Manager	ORDC	
	614-745-6760	Gregory.Gronbach@dot.ohio.gov	
Andrew Wisda	Signals	CSX	
	419-209-2560	andrew_wisda@csx.com	
Jeff Rea		Liberty Township	
	937-597-8815		
Tim Flessner	PUCO		
Allen Bell	Manager	ORDC	
	614 301 3548	allen.bell@dot.ohio.gov	
Jerry Stineman	Track Supervisor	CSX	
	937 537 6765	Jerry_Stineman@csx.com	
Mike Moffett	Liberty Township Trustee	Liberty Township	
	937-604-3132	Mike_Moffett@ymail.com	

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

Date:

Location Data			
Street or Road Name:	Morse Road - TR 243		
County: Union	Township:	US DOT No.:	513805N
City (in or near): West Mansfield	Railroad Name: CSX	RR Milepost:	

Safety Data (Obtain crash reports, if possible)		
	Initial Information (from database)	**Revised**
Number & dates of vehicle crashes in previous 5 years:	1 - 11/19/2020	
Number & dates of pedestrian/bicycle crashes in previous 5 years:		
Hazard Ranking: 371	Date Run: 06/11/2021	

Existing Traffic Control Devices			
Type of Warning Devices	**Installed?**		**Quantity/Comments**
HIGHWAY			
Advance Warning Signs (condition?)	☒ Yes	☐ No	2- Good
'Stop' Signs	☐ Yes	☒ No	
'Stop Ahead' Signs	☐ Yes	☒ No	
Pavement Markings (condition?)	☐ Yes	☒ No	CHIP SEAL ROADWAY (NEW)
Dynamic Envelope Markings (condition?)	☐ Yes	☒ No	
Illumination	☒ Yes	☐ No	1-STREET LIGHT - SE QUAD
'No Turn' Signs (highway/passive)	☐ Yes	☒ No	
Barriers/fencing (pedestrian/bicycle)	☐ Yes	☒ No	
LOOK Sign	☐ Yes	☒ No	
Do Not Stop On Track Sign	☐ Yes	☒ No	
RAILROAD			
Crossbucks	☐ Yes	☒ No	
Crossbucks – assembly with Stop	☒ Yes	☐ No	2- Good
Crossbucks – assembly with Yield	☐ Yes	☒ No	
Mast-Mounted Flashing Lights	☐ Yes	☒ No	
Cantilever Flashing Lights	☐ Yes	☒ No	Number: Length:
Side Lights	☐ Yes	☒ No	
LED or Incandescent Lights? Size?	☐ Yes	☒ No	
Automatic Gates	☐ Yes	☒ No	Number: Length:
Bells	☐ Yes	☒ No	Number:
Sidewalk/Pedestrian Gate Arms	☐ Yes	☒ No	Number: Length:
'No Turn' Signs (railroad/active)	☐ Yes	☒ No	
Is crossing flagged by train crew?	☐ Yes	☒ No	
OTHER	☒ Yes	☐ No	2- BLUE LENS

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	12 DAY	
<1 per day? Trains per week		
Day thru trains	6	
Night thru trains	6	
Switching	0	
Total number of tracks		
Number of main tracks		
Number of other tracks		
Maximum train speed	49	
Typical train speed	49	
Amtrak		

Are there other track(s) crossing this same roadway within 100ft of this crossing? ☐ Yes ☒ No

If yes, Crossing DOT# (if different) N/A

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

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 the crossing? ☐ Yes (explain below) ☒ No

Can one or more tracks be eliminated through the crossings? ☐ Yes ☒ No

Comments:

Circuitry: ☐ Constant Warning Time ☐ Motion Detection ☐ AFO ☐ PTC ☐ DC ☒ Other NONE

Roadway Data

Local Highway Authority: Liberty Twp.

Roadway Characteristics	Initial Information (from database)	Revised
Average Daily Traffic	95 (2014)	
Highway Paved	☑ Yes ☐ No	☐ Yes ☐ No
Roadway Surface: ☑ Blacktop ☐ Gravel ☐ Concrete Other_____		
Roadway width (paved/travelled way): 16 ft		
Number of Highway Lanes	2	
Urban or Rural	rural	
Vehicle Speed: 55 MPH		

School Bus Operation: ☑ Yes ☐ No Amount 4

Location of nearby schools: RATMOND ELEMENTARY SCHOOL - 3MI SE

Hazardous Materials Trucks: ☐ Yes ☑ No Amount (from FRA) _____ LHA verified/changed?

Shoulders: ☐ Yes ☒ No

Is the Shoulder Surfaced? ☐ Yes ☒ No If yes, shoulder width: _____ft.

Is there existing guardrail along the roadway in crossing vicinity? ☐ Yes ☒ No	
Crossing Angle ☐ 0-29° ☐ 30-59° ☑ 60-90° Measured in _____ Quadrant?	

Quadrant NE Curb & Gutter:	Quadrant SW Curb & Gutter:
☐ Functional (Curb height = 4" or more)	☐ Functional (Curb height = 4" or more)
☐ Non-functional (Curb height = less than 4")	☐ Non-functional (Curb height = less than 4")
☒ None	☒ None

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

If yes, distance N/A

Is this intersection signalized? ☐ Yes ☒ No

Are there signals currently interconnected with the existing crossing warning devices? ☐ Yes ☒ No

Is there a 'Do Not Stop on Track' sign? ☐ Yes ☒ 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? ☐ Yes ☒ 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

☐ 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) UNION RURAL ELECTRIC

Nearest Available Power Source AT CROSSING IN SE QUAD

What other utilities are present? ☐ Gas ☐ Cable ☒ Telephone ☒ Fiber Optic Cable (add locations to sketch)
☐ Petroleum ☐ Water ☐ Sanitary Sewer ☐ Other

Comments: - OVERHEAD ON SOUTHSIDE OF ROADWAY.
- TELEPHONE/FIBER IN NE AND NW QUAD AND SE QUAD

Surface

Surface review form completed? ☐ Yes ☒ No SURFACE GOOD

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):

N/A

Crossing Consolidation or Closure: POTENTIAL CLOSURE - LIBERTY TOWNSHIP TO DISCUSSED AT MONDAY'S MEETING 8/2/21. L/G IF NOT CLOSED.

Real Estate or ROW:

N/A

Culvert / Drainage / Ballast Conditions:

N/A

Roadway and/or Sidewalks:

N/A

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

ND

Environmental:

N/A

Utilities:

OVERHEAD IN SW QUAD

Other:

Potential Closure

Is it the consensus of the Diagnostic Review Team that this is a potential closure project?	POTENTIAL
Explain reasons:	SEE NOTES PAGE 6.

Diagnostic Team Recommendations

	Quadrants Needed
☐ **No improvements needed**	
☐ **Install/upgrade active devices**	
☐ Automatic Flashing Lights (AFLS)	
☐ AFLS /Cants	
☒ AFLS / Gates	
☐ AFLS / Gates / Cants	
☒ Bells / number	1 BELL
☐ Upgrade circuitry / type	
☐ Sidelights	
☐ LED Upgrades	
☐ Guardrail Needed	
☐ Install/Replace curb	
☒ Bungalow placement & offset from rail & highway	SO QUAD
☐ Other (define)	

Comments:

☐ Install/upgrade traffic signal preemption

Other (define): * NEWTON - PERKINS RD COULD USE L/G IF THIS CROSSING CLOSED.

Diagnostic Team Recommendations (cont.)

PEDESTRIAN/BICYCLE Treatments (additional, not included above)

☐ Crossing Surface (specify)	☐ Sidewalk (specify)
☐ Detectable warning surfaces	☐ LOOK Sign ~~(R15-8)~~
☐ Stop lines	☐ Illumination
☐ Dynamic envelop markings	☐ Channelization
☐ Path delineation	☐ Fencing/barriers
☐ Other	

Comments:

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

GWG MKM

ADB JLS

TF AA

Field Sketch (optional)

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

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.

Summary: Application In the Matter of a Request for the Installation of Active Warning Devices at the CSX Grade Crossing, DOT# 513-805N, at Morse Road in Union County, Ohio. electronically filed by Mr. Thomas Persinger on behalf of PUCO/Rail Division