FILE

10-1393-RR-FED

27

WHEELING & LAKE ERIE RAILWAY COMPANY

Dan Reinsel
Signal & Communication Supervisor

100 East First Street
Brewster, OH 44613

Tel. 330-767-7202 **dreinsel@wlerwy.com** **Fax: 330-767-3213**

7 Jan 2011

Public Utilities Commission of Ohio
Attn: Docketing Division 13th Floor
180 East Broad Street
Columbus, OH 43215-3793

Re: Estimates for crossing warning systems, Etter Road Crossing, DOT# 472-642R

Dear Docketing,

Please file this letter and the accompanying materials in the dockets for the identified crossing project. As required by the Finding and Order this letter is notice that the W&LE has submitted plans and estimates to the Commission for the above identified project.

Respectfully,

Dan Reinsel

encl.

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100 East First Street
Brewster, OH 44613

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4 Jan. 2010

Ohio Rail Development Commission
Mr. Mike Forte
1980 West Broad Street, Room 2B
Columbus, OH 43223

Re: Estimate for Railroad Crossing Warning System at Etter Rd. DOT 472-642R

Dear Mr. Forte,

I am providing this estimate for the crossing package and installation at Etter Rd. Award of the material package will be the result of a competitive bid; copies of the submitted quotes will be forwarded to your office when they are completed. Installation will be preformed under our continuing construction agreement with CTC LLC.

CTC Managed Services & Package Installation	$40,488.16
RSS Supplied Package	$95,348.51
Fill Materials	$1,000.00
Fill Material Transport	$900.00
Two Gate Foundations (note 1)	$1,377.00
Site Preparation (foundations, bores)	$17,000.00
Survey of property lines	$2,400.00
WLE Cutover & Flagging Labor	$3,000.00
Estimated Total	$161,513.67

Please contact me if additional details are required.

Respectfully,

Dan Reinsel

Dan Reinsel

Notes
1: Direct purchase from Fabricated Metals, 60' galvanized gate foundation, $459 ea.

c: PUCO, Jill Henry
PUCO, George Martin

Wheeling & Lake Erie Railway Co.
Etter Road (TR 9) - Project Estimate
CTC Project No. CT10138

ENGINEERING					
Line No.	Description	Qty	UOM	Cost	Total Cost
1	CAD OPERATOR	40	HR	28.38	$1,135.20
2	SIGNAL CHECKER, LEVEL 1	16	HR	31.11	$497.76
3	SIGNAL CHECKER, LEVEL 2/FIELD ENGINEER INCL FIELD VISIT	24	HR	36.06	$865.44
	SUBTOTAL				$2,498.40
	G&A BURDEN FOR LABOR				$4,572.07
	FIXED FEE				$707.05
	ENGINEERING TOTAL				$7,777.52

PROJECT MANAGEMENT					
Line No.	Description	Qty	UOM	Cost	Total Cost
1	SENIOR SIGNAL ENGINEER	24	HR	72.11	$1,730.64
2	PROJECT MANAGER	12	HR	60.10	$721.20
3	CONSTRUCTION MANAGER	24	HR	36.06	$865.44
4	ACCOUNTING, LEVEL1	8	HR	39.81	$318.48
5	ADMINISTRATIVE	4	HR	25.48	$101.92
	SUBTOTAL				$3,737.68
	G&A BURDEN FOR LABOR				$6,839.95
	FIXED FEE				$1,057.76
	PROJECT MANAGEMENT TOTAL				$11,635.40

CONSTRUCTION					
Line No.	Description	Qty	UOM	Cost	Total Cost
	LABOR				
1	SIGNAL GANG, FOREMAN	50	HR	28.50	$1,425.00
2	SIGNAL GANG, SIGNALMAN	50	HR	19.50	$975.00
3	SIGNAL GANG, SIGNALMAN HELPER	50	HR	19.00	$950.00
4	SIGNAL GANG, SIGNALMAN HELPER	50	HR	19.00	$950.00
5	SIGNAL SUPERVISOR	8	HR	36.06	$288.48
	Expenses				
6	EMPLOYEE MEALS (PER DIEM)	22	EA	35.00	$770.00
7	EMPLOYEE TRAVEL & LODGING	22	EA	55.00	$1,210.00
8	AIRFARE	5	EA	500.00	$2,500.00
7	TRUCK, PU, 1 TON CREW CAB	50	HR	12.20	$610.00
8	TRAILER	50	HR	7.55	$377.50
9	TRUCK, BOOM, ART, TELESCOPING	4	HR	55.96	$223.80
10	BACKHOE, 2WD, 95 HP	4	DY	250.00	$1,000.00
11	EQUIPMENT DELIVERY/PICKUP	2	LS	50.00	$100.00
	SUBTOTAL-LABOR				$4,588.48
	SUBTOTAL-EXPENSES/EQUIPMENT				$6,791.30
	G&A BURDEN FOR LABOR				$8,396.92
	FIXED FEE				$1,298.54
	CONSTRUCTION TOTAL				$21,075.24

MATERIALS					
Line No.	Description	Qty	UOM	Cost	Total Cost
1	MATERIAL PACKAGE	1	LOT	95,348.51	$95,348.51
	MATERIAL TOTAL			T	$95,348.51

TOTAL PROJECT COST (CTC)	$135,836.67

Wheeling & Lake Erie Railway Co.
Etter Road (TR 9) - Material Estimate

HOUSE MATERIALS					
Description	QTY	UOM	GETSGS-PN	Unit Price	Total Price
HSE 6X6 AL WLE W/2-23" RKS	1	EA	029633-007	$9,000.72	$9,000.72
ASSY HXP-3R W/IDK/4KHZ/RSI/RMM	1	EA	250811-2B01	$20,063.60	$20,063.60
ASSY MDSA-1	1	EA	250204-001C	$301.43	$301.43
CHARGER 40A 12V CRAGG 40ETC12V	2	EA	017061-203	$673.27	$1,346.53
THERMOSTAT SPDT REMOTE BULB 8A	1	EA	009186-004	$73.94	$73.94
XFMR 115-230VPRI/16VCT 5A 80VA	1	EA	016206-105	$19.09	$19.09
RLY DPDT 12VDC 5A OCT	4	EA	007192-032	$13.22	$52.89
SCKT RLY 8-PIN OCT SCREW PNLMT	4	EA	132246-001	$4.48	$17.91
ASSY AGA-1	10	EA	202216-001	$20.76	$207.57
ASSY AGE-1	2	EA	202217-000	$21.75	$43.49
NUT INSULATED HARMON	32	EA	013986-000	$2.97	$95.04
SSCCIII DUAL 40A 19" BASE	1	EA	201772-200	$3,577.46	$3,577.46
PANEL LTG SURGE SSCC 91170-01	1	EA	201756-015	$608.75	$608.75
PANEL LTG SURGE SSCC 91170-02	1	EA		$608.75	$608.75
MICRO DATA ANALYZER II WLE PK	1	EA	072113-100	$76.67	$76.67
MDA CURRENT SENSOR	1	EA		$220.00	$220.00
TEST LINK W/PLT & INSUL	37	EA	032257-002	$1.98	$73.26
TEST LINK 2.375" CNTR FL INSUL	1	EA	032258-003	$40.52	$40.52
LABEL RK PNL-MAINTAINER TST SW	1	EA	125372-000	$4.74	$4.74
WIRE 16AWG/19 TC EPR/PVC BLU	800	FT	012092-002	$0.22	$176.00
WIRE 10AWG/19 TC EPR/PVC BLU	800	FT	012092-000	$0.62	$492.80
WIRE 6AWG/19THHN BLK	150	FT	012253-000	$0.79	$118.80
WIRE 6AWG/19 THHN RED	150	FT	012253-003	$0.84	$125.40
WIRE 6AWG/19 THHN GRN	100	FT	012253-002	$0.75	$74.80
BOARD 3/4"X60"X24	1	EA	N/A	$112.95	$112.95
CABLE RAW 3/14AWG PWR 300V	25	FT	012690-010	$0.77	$19.25
RES ADJ WW 15W 5.69 OHM PNLMNT	1	EA	002238-101	$26.09	$26.09
CONN PLUG L6-15 250V 15A 2P3W	2	EA	132286-001	$11.53	$23.06
ASSY 2WAY TERM BLK W/AAR HARD	8	EA	202810-000	$15.82	$126.54
ASSEMBLY, 4 POST TERMINALBLOCK	6	EA	203032-000	$43.48	$260.90
ASSY TERM STRIP DBL POST 12	8	EA	250094-300	$19.77	$158.14
GROUND POST P5-162	2	EA	113047-000	$25.94	$51.88
WRENCH AAR TERMINAL	1	EA	095058-001	$15.28	$15.28
KIT APRVD SM PARTS/SL XING	1	EA	180394-590	$1,058.90	$1,058.90
LABEL, DANGER 240 V, 1.75 X 2.	1	EA	SQS109	$3.86	$3.86
NOTIFICATION SIGN HSE	1	EA	HSE SIGN	$312.55	$312.55

FIELD MATERIALS					
Description	QTY	UOM	GETSGS-PN	Unit Price	Total Price
MAST & BASE WCH 715-2149-324	3	EA	511044-WCH	$860.37	$2,581.10
GATE MECH S-40 W/CTWT KIT 32'	2	EA	076044-012	$5,884.62	$11,769.23
KIT TORQUE WRENCH S/T 070981X	1	EA	2587-01	$256.38	$256.38
HEATER FOR GATE MECH **USE-30STN 070698	2	EA	4137-01	$55.44	$110.88
BRACKET HI WIND NEG WIG191036 NEG WIG191	2	EA	10018-01	$61.37	$122.74
GATE KEEPER SK1000-2W DUAL DIR	2	EA	076007-005	$1,250.21	$2,500.41
GATE ARM 16-32' UHI LED LGHTS	2	EA	076045-014	$613.73	$1,227.47
BRKT EXT F/SIDELT 4"-5" MASTS	1	EA	005961-005	$289.36	$289.36

SLEEVE 4 ALUMINUM REC #92958	2	EA	14187-01	$44.33	$88.66
2-WAY CROSSARM, LESS LED'S (06)	3	EA	076048-116	$1,064.72	$3,194.17
LIGHT MTG. HDW. 5"	4	EA	076048-103	$25.48	$101.90
LED INSERT DIALIGHT FLX4000	14	EA	076048-109	$247.76	$3,468.70
U-BOLT 3/4-10 5" SS W/HDW	4	EA	113022-017	$19.06	$76.25
PINNACLE 5" MACHINED W/SETSCRW	3	EA	54-11305	$5.40	$16.20
SIGN XING WCH 3380-990	3	EA	125535-WCH	$214.81	$644.42
BELL ELECTRONIC CROSSING 4/5"	1	EA	6147-01	$210.03	$210.03
TAPE MARKER BURIED RR CABLE	1	EA	029989-000	$21.43	$21.43
BATT NICAD 250AH 1CELL SPL250	19	EA	017064-210	$289.43	$5,499.21
CABLE UG 3 COND #6 AWG SOLID	125	FT	1013-02	$4.06	$507.38
CABLE UG 7 COND #6 AWG SOLID	600	FT	1077-02	$6.29	$3,775.20
CABLE UG 7 COND #14 AWG SOLID	400	FT	1023-02	$2.22	$888.80
WIRE UG TRK #6 AWG DUPLEX	350	FT	1094-02	$1.46	$512.05
BOND JOINT 5/16" X 7" TAB ERICO #SB-	450	EA	2161-01	$5.41	$2,435.40
WIRE #6 SOFT BARE COPPER	150	FT	1436-01	$0.40	$59.40
CARTRIDGE SB25 POWDER W/ATTACHMETAL FOR	50	EA	1026-39	$1.55	$77.55
WIRE #6 SOFT BARE COPPER	60	FT	1436-01	$0.40	$23.76
ROD 5/8 X 8 NS GRD***USE-02***	7	EA	1357-01	$14.72	$103.03
CONNECTION SBNT1-161G ONE-SHOTFOR 5/8 IN	5	EA	1029-01	$6.17	$30.86
CADWELD TYPE GR 5/8GRDX#6WIRE	3	EA	005755-002	$7.10	$21.29
CLAMP ASSY GRND/MAST 3 1/2-8" SBB852A8C1	3	EA	4098-01	$77.64	$232.91
BOND STRAND 8-STR 3/16" TINNEDSBS8TINSUL	500	FT	4133-01	$1.21	$605.00
BOOTLEG BOND W/COUPLER KIT 1EA SBTBBU4A	10	EA	3522-01	$4.18	$41.80
ASSY FSS-1A	2	EA	250849-000	$680.24	$1,360.48
PLATE SHUNT 24"X26"X1/4" GALV.	2	EA	6193-01	$67.06	$134.11
SCREW LAG 3/4" X 6" BLACK GRIMLET PO	8	EA	2000-01	$0.81	$6.51
TAPE ELECTRICAL 3M #33+ 3/4" PLASTIC	3	RL	1190-01	$3.62	$10.86
TAPE ELECTRICAL 3M #130-C LINERLESS	3	RL	1321-01	$8.24	$24.72
COMPOUND INSULATING ELECTRICALSKOTCHKOT	1	EA	4123-01	$24.19	$24.19
HOSE RUBBER 3/4"	60	EA	005360-015	$1.97	$118.14
STAPLE GROUND WIRE 1-1/16"X3"	12	EA	113005-000	$0.32	$3.83
TIE CABLE .184 X 7.31" HIG TEMSELF LOCKI	30	EA	4125-01	$0.04	$1.32
CABLE TIE 14-1/2L NAT	20	EA	005019-022	$0.19	$3.74
LUG RNG 1/4" 12-10AWG INS BLK	150	EA	032114-008	$0.01	$1.65
TAG ST-5 SNAPOUT 11 TAGS/CARD MI# 010301	20	EA	2090-01	$2.28	$45.54
WIRE DIESEL 10AWG 2000 VOLTS	425	FT	2125-01	$0.54	$229.08
STAPLE COPPERWELD 3/8 X 1-3/4 144 IN. RO	75	EA	1148-01	$0.26	$19.80
GREASE RUST PREVENTIVE NO OXID"A SPECIAL	1	EA	1906-01	$9.83	$9.83
SLEEVE NICO 3/16"-#6 AWG REDUC#2363-J	6	EA	1145-01	$0.89	$5.35
CLIP TRACK WIRE RETAINER - ERICO #SBA	20	EA	1118-01	$1.97	$39.38
COMPOUND DUCT SEAL 5 LB PLUG PERMAGUM #	3	PK	1179-01	$10.68	$32.04
LOCK MASTER	5	EA	MLCK	$28.41	$142.07
NUT INSULATED HARMON	8	EA	013986-000	$2.97	$23.76
TRAY BATTERY 12 X 27" POLYETHYLE	4	EA	7438-01	$32.96	$131.82
EMERGENCY SIGN SIGNAL	2	EA	SIG SIGN	$113.65	$227.30
FIELD TAG KIT	1	EA	FLDTGKT	$170.48	$170.48

Material Price					$83,848.51
House & Signal Wiring Price					$7,500.00
Freight & Container Price					$4,000.00

TOTAL MATERIAL COST					**$95,348.51**

DWG. NO.	DESCRIPTION
00	INDEX
01	SITE LAYOUT
02	CROSSING CONTROL CIRCUITS
03	HXP PROGRAM INFORMATION
04	RECORDER
05	BGD
06	SSCC IIA
07	1LSP
08	2LSP
09	CTP
10	GATE #1 MECHANISM (NEAR SIDE)
11	GATE #1 LIGHTS (NEAR SIDE)
12	GATE #2 MECHANISM (FAR SIDE)
13	GATE #2 LIGHTS (FAR SIDE)
14	FLASHER #3 LIGHTS (FAR SIDE)
15	BATTERY CHARGER
16	AC POWER DISTRIBUTION
17	RACK FRONT VIEW
18	RACK BACK VIEW
19	SIDE "A"
20	SIDE "C"

REV.	GENERAL NOTES

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.

REVISION BLOCK

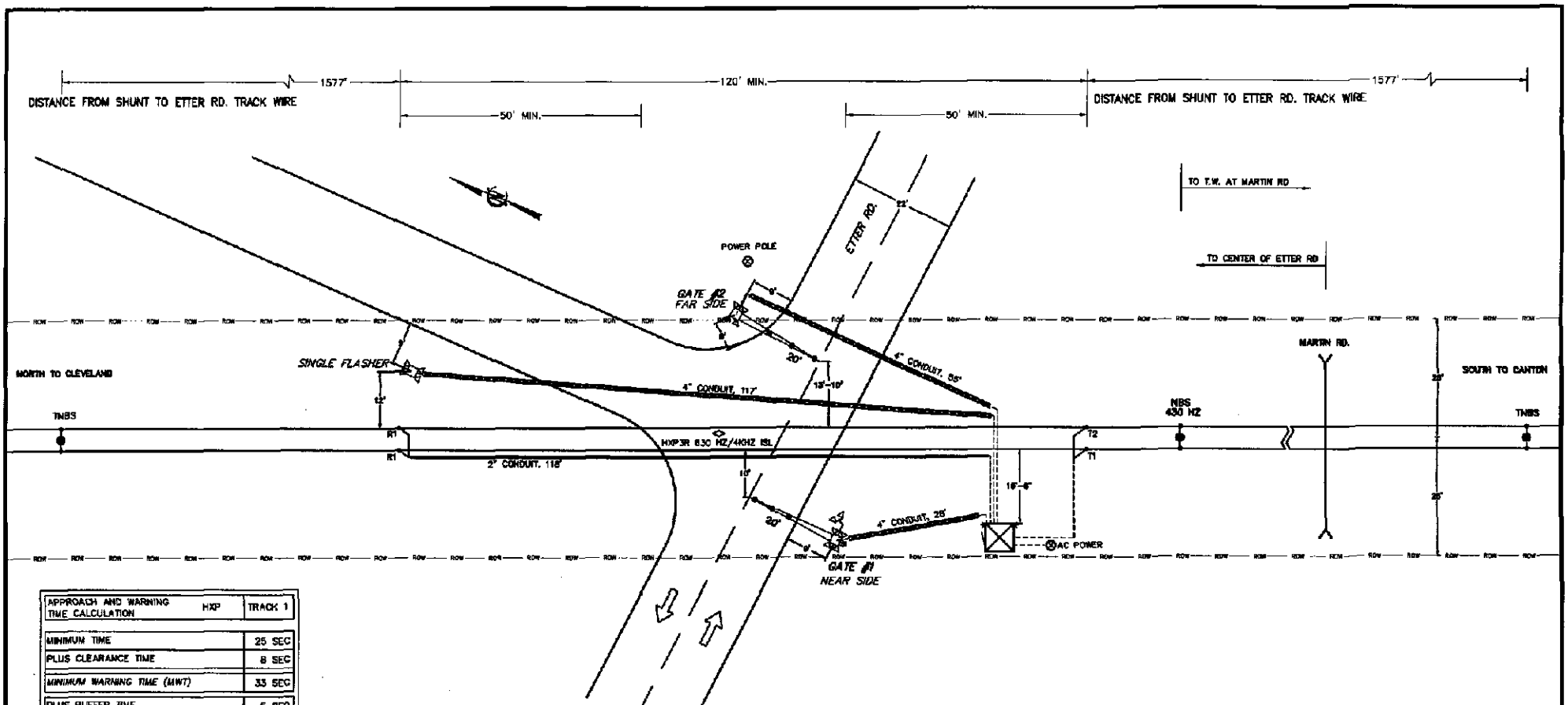
CHANGE FROM TYPICAL #

W&LE

Wheeling & Lake Erie Railway

LOCATION: ETTER RD. MOGADORE, OHIO

ORIGINAL DATE	10/01/2010	TITLE	INDEX		
DESIGNER	CTC	MAP	CLEVELAND	JOB NO.	CT10136
DRAFTSMAN	CTC	MAP	Q-40.81	SCALE	N.T.S.
CHECKED	CTC	SOR NO.	472-843-R	SHEET	00 OF 20



APPROACH AND WARNING TIME CALCULATION HXP	TRACK 1
MINIMUM TIME	25 SEC
PLUS CLEARANCE TIME	8 SEC
MINIMUM WARNING TIME (MWT)	33 SEC
PLUS BUFFER TIME	5 SEC
TOTAL WARNING TIME (TWT)	38 SEC
PLUS EQUIPMENT RESPONSE TIME	5 SEC
PLUS ADVANCE PREEMPT TIME	NA SEC
TOTAL APPROACH TIME (TAT)	43 SEC
MAXIMUM TRAIN SPEED	25 MPH
TIMES RATION OF FT/SEC TO MPH	1.4667
TOTAL (MINIMUM) APPROACH DISTANCE	1,577 FT

UNDERGROUND UTILITIES
TWO WORKING DAYS
BEFORE YOU DIG
CALL 1-800-362-2761 (TOLL FREE)
OHIO UTILITIES PROTECTION SERVICE
NON-MEMBERS
MUST BE CALLED DIRECTLY

THE TRACKS ARE THE DIVIDING LINE BETWEEN THE TOWNSHIP AND VILLAGE

NOTE 1: TO THE EAST, SITE WILL OVERLAP WITH MARTIN RD CROSSING 430Hz

REVISION BLOCK

W&LE

Wheeling & Lake Erie Railway

LOCATION: ETTER RD. MOGADORE, OHIO

ORIGINAL DATE 10/01/2010	TITLE LAYOUT		
DESIGNED CTC	DIV CLEVELAND	DWG NO. CT10138	
DRAFTSMAN CTC	BASE D-40.81	SCALE N.T.S.	
CHECKED CTC	DOT NO. 472-642-R	SHEET 01 OF 20	

CONSTRUCTION NOTES

1.) GATE #2 WILL BE FIELD LOCATED. WILL NEED TO BE PLACED BETWEEN LANDSCAPING AND POWER POLE 9' FROM TRAVELED ROAD.

2.) CABIN SHOULD BE LOCATED 1' OFF EDGE OF R.O.W. AND 35' FROM NEAREST EDGE OF ROADWAY.

3.) NEAREST ADDRESS TO THE NORTH OF CROSSING IS 227 ETTER ROAD AND TO THE SOUTH OF CROSSING IS 4095 ETTER RD.

4.) NEAREST ELECTRIC POLE IS APPROX. 80±; PROVIDER OF SERVICE IS OHIO EDISON (FIRST ENERGY) FEC POLE 66BD/3-23 17-1

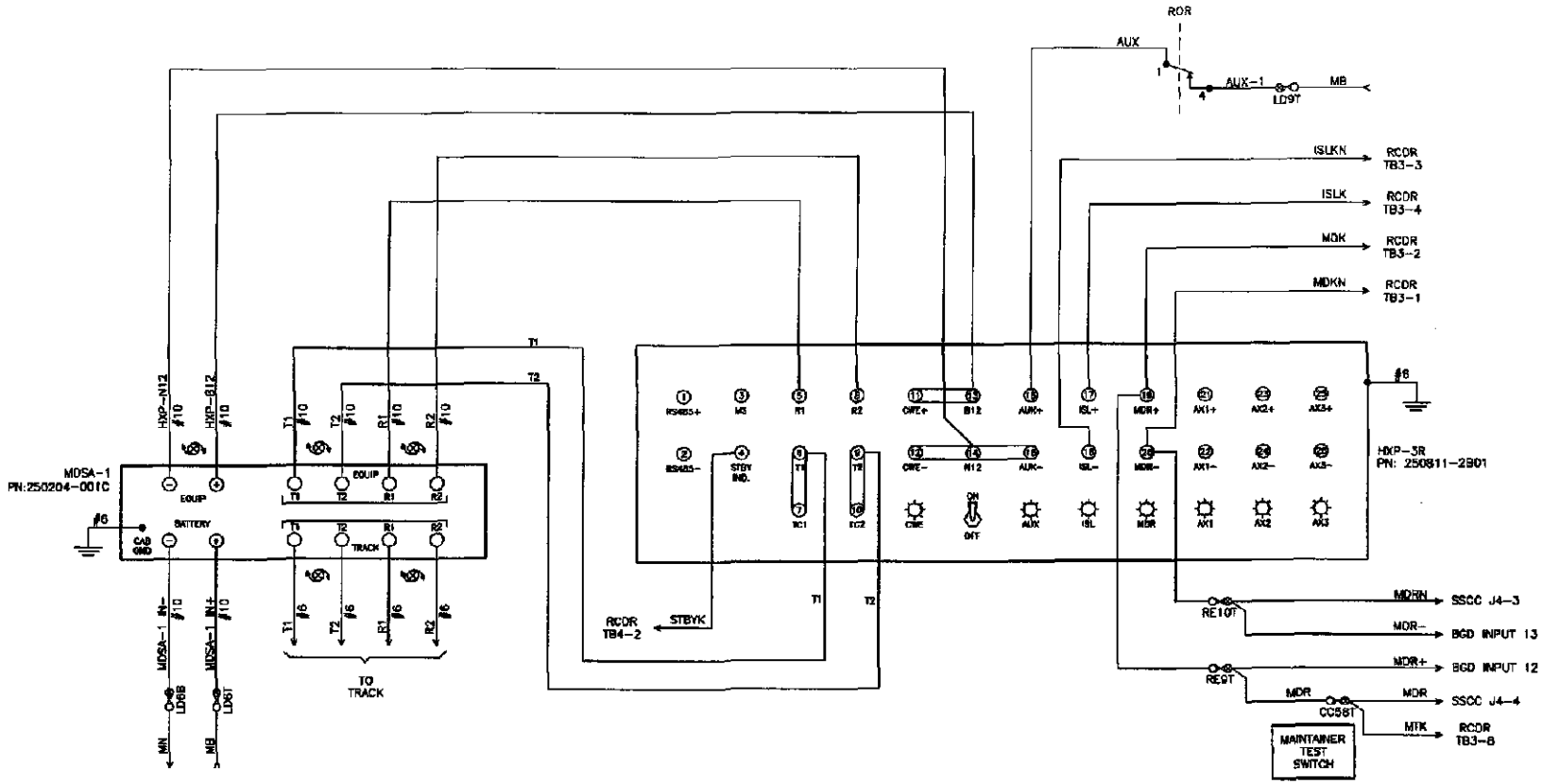
REVISION BLOCK										

W&LE

Wheeling & Lake Erie Railway

LOCATION: ETTER RD. MOGADORE, OHIO

ORIGINAL DATE	10/01/2010	TITLE	SITE LAYOUT NOTES		
DESIGNER	CTC	DIV.	CLEVELAND	CITY NO.	CT10136
DRAFTSMAN	CTC	DRAW.	Q-40.81	SCALE	N.T.S.
CHECKED	CTC	BRY NO.	472-842-R	SHEET	01A OF 20



NOTE: ALL WIRING THIS SHEET #14 AWG UNLESS NOTED OTHERWISE.

REVISION BLOCK																							

Wheeling & Lake Erie Railway

W&LE

LOCATION: ETTER RD. MOGADORE, OHIO

ORIGINAL DATE	10/01/2010	TITLE	CROSSING CONTROL CIRCUITS		
DESIGNER	CTC	SUB	CLEVELAND	CTC NO.	CT10138
DRAFTSMAN	CTC	MILEP	9-40.81	SCALE	N.T.S.
CHECKED	CTC	DWG NO.	472-842-R	SHEET	02 of 20

PROGRAM
INFORMATION

* = FIELD ADJUSTMENT TO BE MADE ACCORDING TO THE HXP-3 INSTRUCTION MANUAL.

HXP-3R ADJUSTMENTS

NO.	ADJUSTMENT NAME	TRACK 1	TRACK 2
1	APP. LENGTH	1,577'	
2	WARNING TIME	33 SEC	
3	LIA	*	
4	TC	*	
5	MD RESTART	0	

OPTION ADJUSTMENTS

NO.	ABBREVIATION	TRACK 1	TRACK 2
1	TK-ENA	UP	
2	TK FO	630 HZ	
3	CW/MD	C	
4	UNI-BI	b (BI)	
5	NBS-C	*	
6	CWEWT	DL (80 SEC.)	
7	LOS	DL (16 SEC.)	
8	W-LOS	DL (5 SEC.)	
9	BC	133 *	
10	P-COMP	*	
11	AX1	N/A	
12	AX2	N/A	
13	AX3	N/A	
17	MDR-AX	"dn"	
	OF-TK 1 OR 2	DL (0)	
	CJ-LOS	DL (0)	
	PJ-DET	DL (15)	
	PJ-RX	DL (15)	
18	MD-TMR	DL (10)	
19	MIN-WT	DL (0)	
20	FS-DET	"dn"	
	FS-RX	DL (0)	
	FS-TM	DL (10)	
21	POS-ST	"dn"	
	POS-RX	DL (0)	
	POS-TM	DL (0)	
22	AR-TMR	"dn"	
	AR-RX	DL (0)	
	AR-TM	DL (10)	
47	ATO-RX	UP	
48	PF-ENA	"dn"	

AX ADJUSTMENTS

NO.	ABBREVIATION	AX 1	AX 2	AX 3
1	TK-ASN			
2	OF-TK1			
3	OF-TK2			
4	WT			
5	MD-RST			
6	CW/MD			
7	CJ-LOS			
8	PJ-DET			
9	PJ-RX			
10	POS-ST			

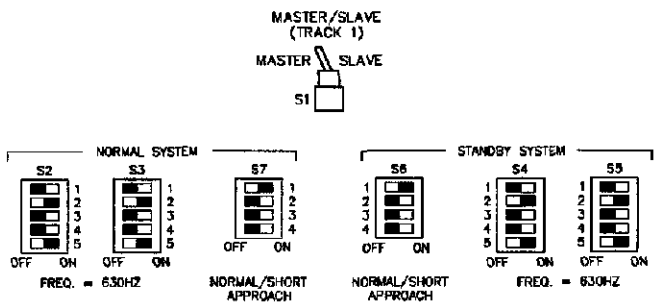
SHUNT RECORDS

APPROACH 1		NO SHUNT		100% SHUNT		50% SHUNT			LIA ADDED
		RX	PHASE	RX	PHASE		RX	PHASE	± 1 to ±9
Track 1	Normal								
	Standby								
Track 2	Normal								
	Standby								
APPROACH 2									
Track 1	Normal								
	Standby								
Track 2	Normal								
	Standby								

SWITCH INFORMATION

SWITCH	TRACK 1	TRACK 2
MASTER/SLAVE	MASTER	
RSI FAULT JUMPER	0	
RSI-LOS JUMPER	1	
TLM W1 JUMPER	PINS 1-2	
TLM W2 JUMPER	PINS 1-2	
TLM W3 JUMPER	PINS 2-3	
MINUTE TIMEOUT	5 MIN	
CW/MD	CW	
STANDBY/AUTO/NORMAL	AUTO	

NOTE: DL= DEFAULT LEVEL
NA= NON APPLICABLE



NOTES FOR S6 AND S7:

1) ACTUATOR 1 SELECTS NORMAL APPROACH WHEN SET TO ON POSITION.

2) WITH ACTUATOR 1 IN OFF POSITION ACTUATOR 2 SELECTS SHORT APPROACH WHEN OFF AND SELECTS VERY SHORT WHEN ON.

3) ACTUATOR 3 AND 4 RESERVED FOR FUTURE USE.

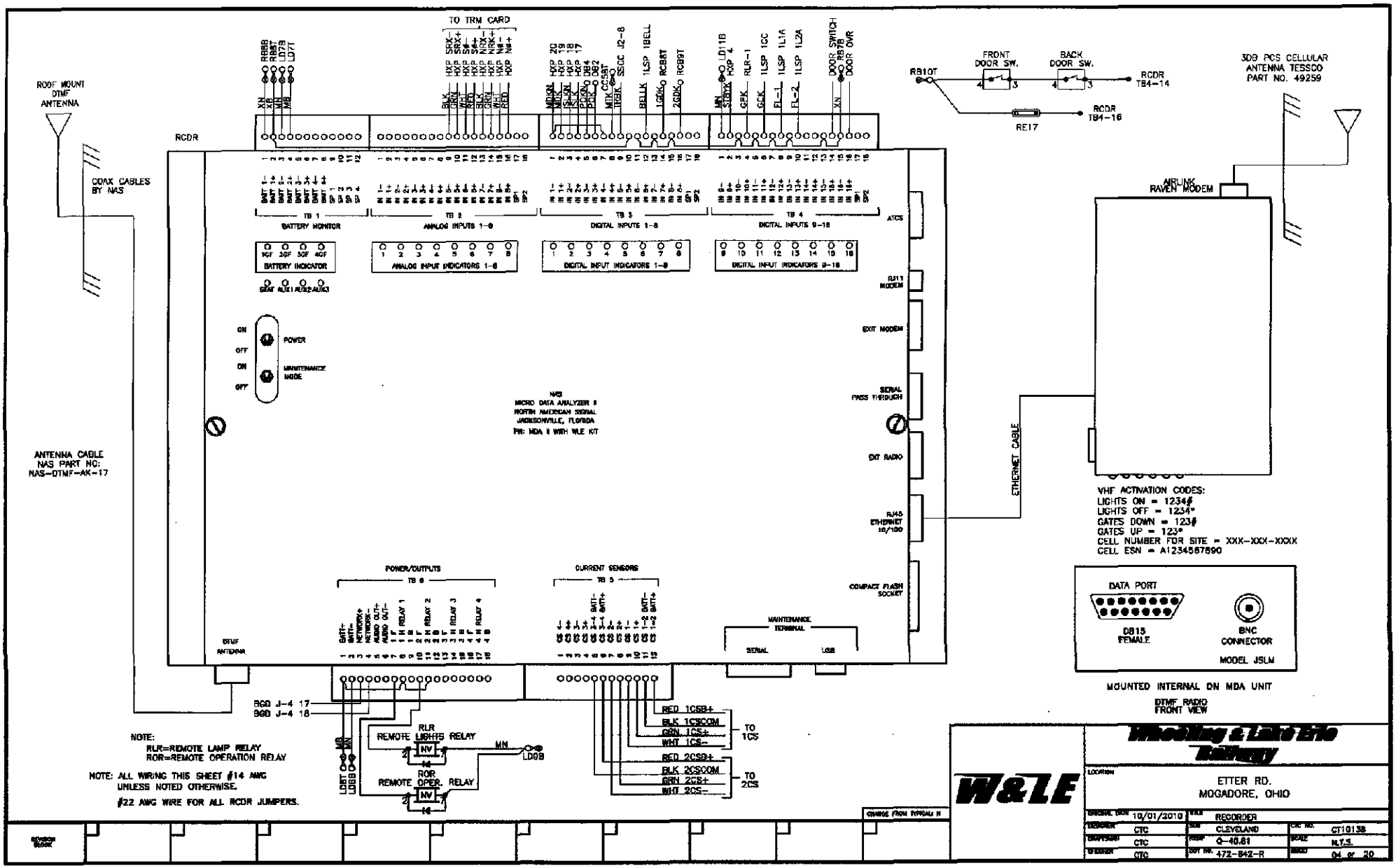
REVISION BLOCK

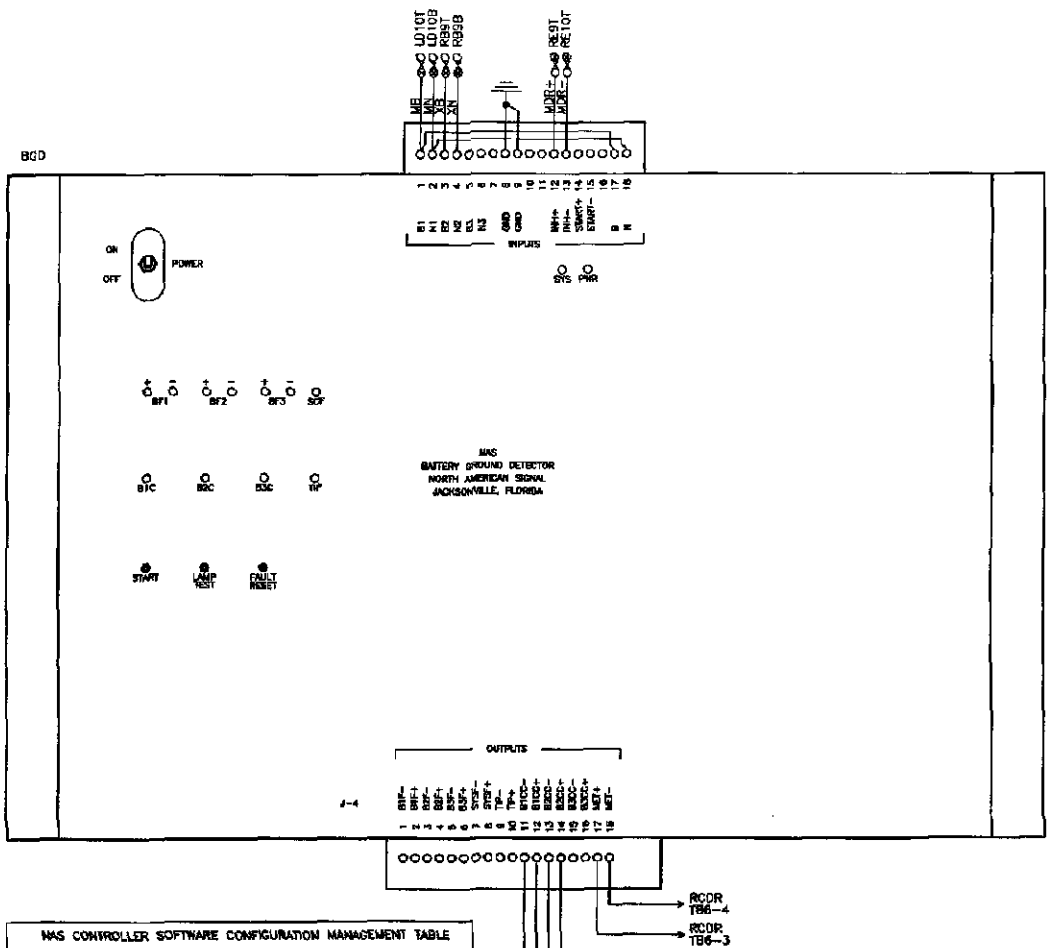
W&LE

Wheeling & Lake Erie Railway

LOCATION
ETTER RD.
MOGADORE, OHIO

ORIGINAL DATE	10/01/2010	TITLE	HXP PROGRAM INFORMATION		
DESIGNER	CTC	SUB	CLEVELAND	DWG NO.	CT10135
DRAFTSMAN	CTC	MAP	Q-40.81	SCALE	N.T.S.
CHECKED	CTC	CDT NO.	472-642-R	SHEET	03 of 20


ROOF MOUNT DTMF ANTENNA
COAX CABLES BY NAS
ANTENNA CABLE NAS PART NO: NAS-DTMF-AK-17
RCDR
TO TRM CARD
TB 1 BATTERY MONITOR
TB 2 ANALOG INPUTS 1-8
TB 3 DIGITAL INPUTS 1-8
TB 4 DIGITAL INPUTS 9-16
BATTERY INDICATOR
ANALOG INPUT INDICATORS 1-8
DIGITAL INPUT INDICATORS 1-8
DIGITAL INPUT INDICATORS 9-16
POWER
MAINTENANCE MODE
NAS MICRO DATA ANALYZER II NORTH AMERICAN SIGNAL JACKSONVILLE, FLORIDA PN: MDA II WITH WLE KIT
ATCS
RJ11 MODEM
EXIT MODEM
SERIAL PASS THROUGH
EXT RADIO
RJ45 ETHERNET 10/100
COMPACT FLASH SOCKET
POWER/OUTPUTS TB 6
CURRENT SENSORS TB 5
MAINTENANCE TERMINAL
SERIAL
USB
DTMF ANTENNA
BGD J-4 17
BGD J-4 18
REMOTE LIGHTS RELAY
REMOTE OPER. RELAY
RLR
ROR
MN
LDGB
LDBT
RED 1CSB+
BLK 1CSCOM
GRN 1CS+
WHT 1CS-
TO 1CS
RED 2CSB+
BLK 2CSCOM
GRN 2CS+
WHT 2CS-
TO 2CS
NOTE:
RLR=REMOTE LAMP RELAY
ROR=REMOTE OPERATION RELAY
NOTE: ALL WIRING THIS SHEET #14 AWG UNLESS NOTED OTHERWISE.
#22 AWG WIRE FOR ALL RCDR JUMPERS.
FRONT DOOR SW.
BACK DOOR SW.
RB10T
RCDR TB4-14
RCDR TB4-16
RE17
3DB PCS CELLULAR ANTENNA TESSCO PART NO. 49259
AIRLINK RAVEN MODEM
ETHERNET CABLE
VHF ACTIVATION CODES:
LIGHTS ON = 1234#
LIGHTS OFF = 1234*
GATES DOWN = 123#
GATES UP = 123*
CELL NUMBER FOR SITE = XXX-XXX-XXXX
CELL ESN = A1234567890
DATA PORT
DB15 FEMALE
BNC CONNECTOR
MODEL J5LM
MOUNTED INTERNAL ON MDA UNIT
DTMF RADIO FRONT VIEW
W&LE
Wheeling & Lake Erie Railway
LOCATION
ETTER RD.
MOGADORE, OHIO
ORIGINAL DATE 10/01/2010
TITLE RECORDER
DESIGNER CTC
DRAWN CTC
CHECKED CTC
SUB CLEVELAND
ROW Q-40.81
DWG NO. 472-842-R
CTC NO. CT10138
SCALE N.T.S.
SHEET 04 of 20
CHANGE FROM TYPICAL H



NAS CONTROLLER SOFTWARE CONFIGURATION MANAGEMENT TABLE			
APPLICATION	FILE NAME	DATE	DESCRIPTION
GFD EXEC	XXX	XX/XX/XXXX	GFD MODULE EXECUTIVE

NOTE: ALL WIRING THIS SHEET #14 AWG UNLESS NOTED OTHERWISE.

SW1 CURRENT 1/10 MA

POSITION	1	2	3	4	5	6	7	8
CLOSED			■		■			
OPEN								

(2 MA)

SWITCH VALUES CLOSED POSITION (BINARY)

SW1 = 1
SW2 = 2
SW3 = 4
SW4 = 8
SW5 = 16
SW6 = 32
SW7 = 64
SW8 = 128

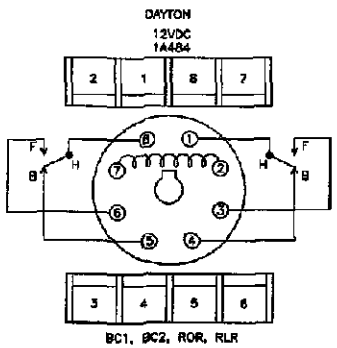
SW1 CURRENT 1/10 MA

POSITION	1	2	3	4	5	6	7	8
CLOSED			■	■				← DAYS
OPEN								■ ← HOURS

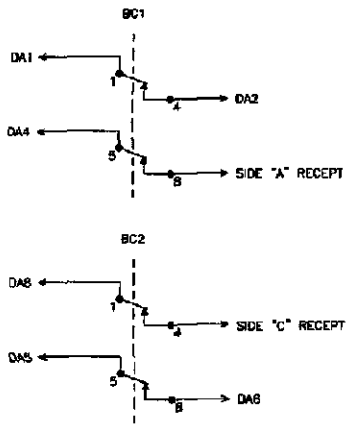
(12 HOURS)

SWITCH VALUES CLOSED POSITION (BINARY)

SW1 = 1
SW2 = 2
SW3 = 4
SW4 = 8
SW5 = 16
SW6 = 32
SW7 = 64
SW8 OPEN=HOUR CLOSED=DAYS



BC1, BC2, ROR, RLR



W&LE

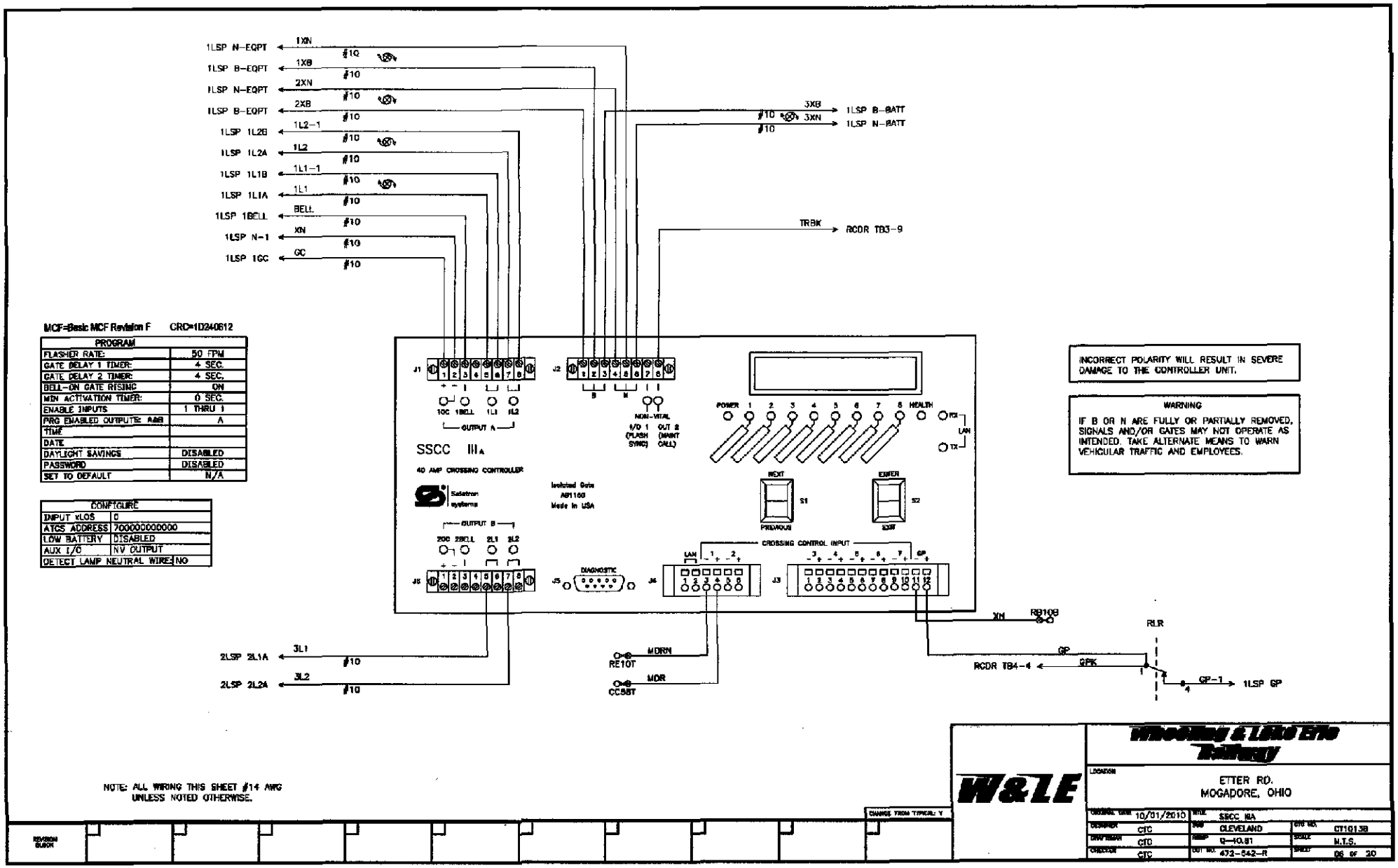
Wheeling & Lake Erie Railway

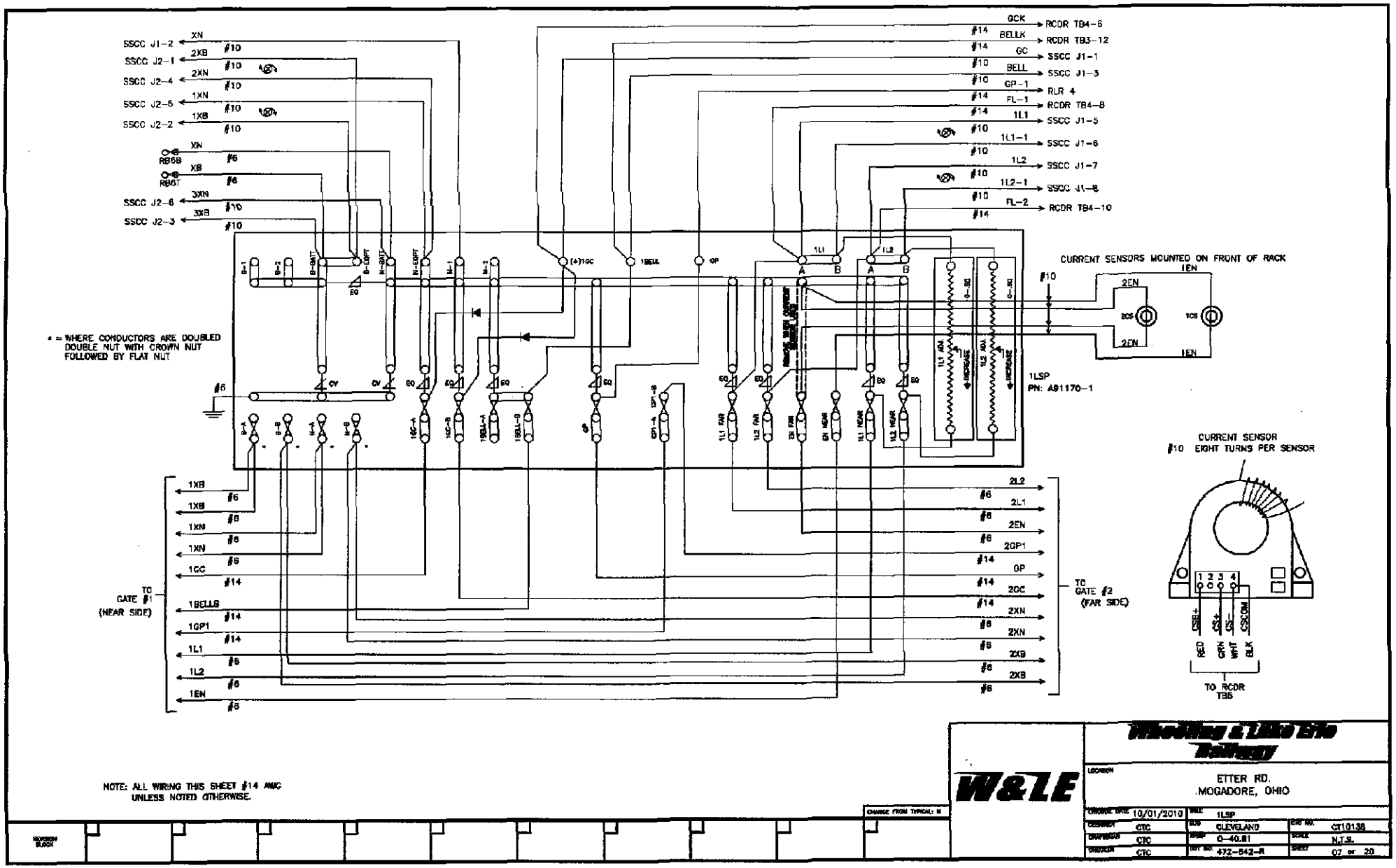
LOCATION
ETTER RD.
MOGADORE, OHIO

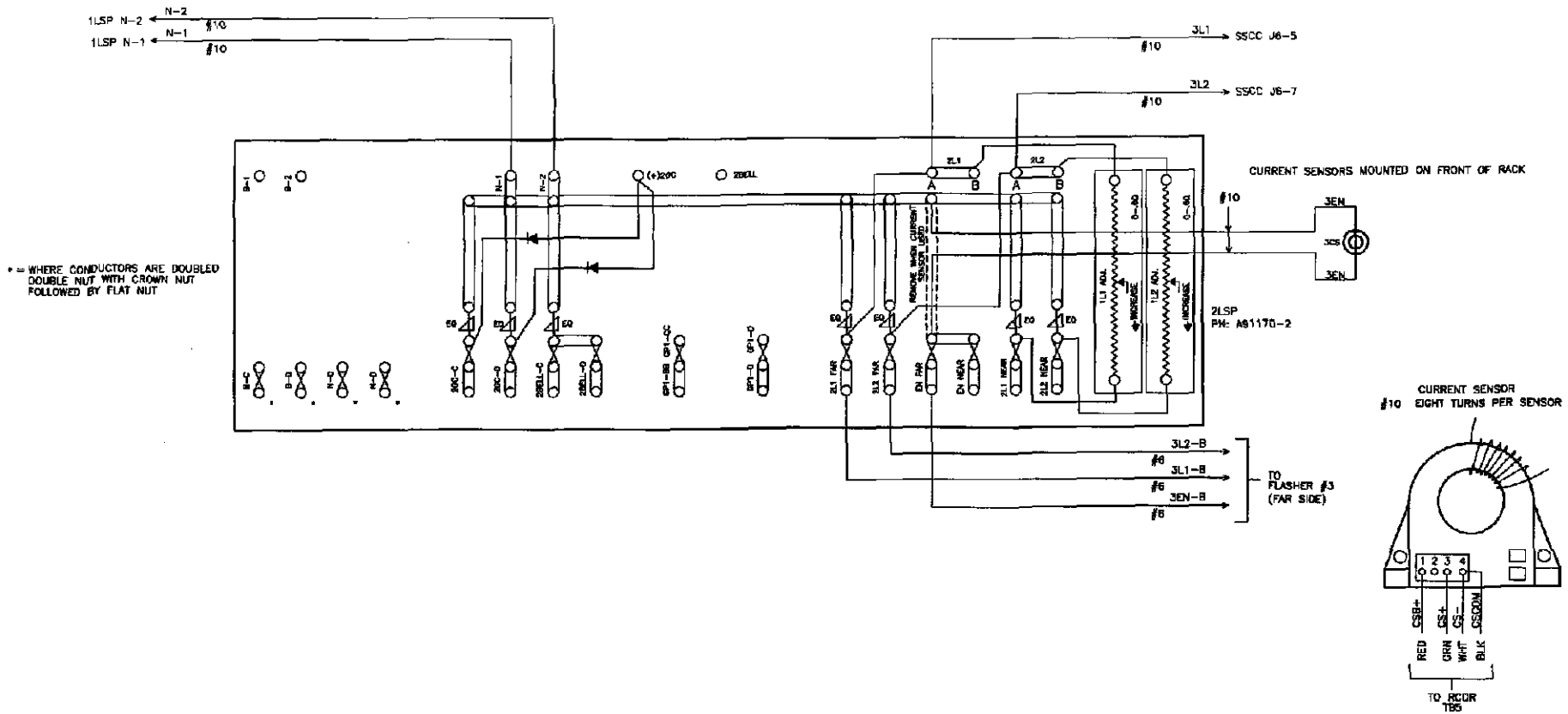
ORIGINAL DATE 10/01/2010	TITLE BGD		
DESIGNER CTC	SCALE CLEVE		CTC NO. CT10138
DRAFTSMAN CTC	DRAWN Q-40.81		SCALE N.T.S.
CHECKER CTC	DWG NO. 472-642-R		SHEET 05 OF 20

CHANGE FROM TYPICAL N

REVISION SHEET


1LSP N-EQPT
1XN
#10
1LSP B-EQPT
1XB
#10
1LSP N-EQPT
2XN
#10
1LSP B-EQPT
2XB
#10
1LSP 1L2B
1L2-1
#10
1LSP 1L2A
1L2
#10
1LSP 1L1B
1L1-1
#10
1LSP 1L1A
1L1
#10
1LSP 1BELL
BELL
#10
1LSP N-1
XN
#10
1LSP 1GC
GC
#10
3XB
#10
1LSP B-BATT
3XN
#10
1LSP N-BATT
TRBK
RCDR TB3-9
MCF=Basic MCF Revision F CRC=1D240812
PROGRAM
FLASHER RATE: 50 FPM
GATE DELAY 1 TIMER: 4 SEC.
GATE DELAY 2 TIMER: 4 SEC.
BELL-ON GATE RISING: ON
MIN ACTIVATION TIMER: 0 SEC.
ENABLE INPUTS: 1 THRU 1
PRG ENABLED OUTPUTS: A&B: A
TIME
DATE
DAYLIGHT SAVINGS: DISABLED
PASSWORD: DISABLED
SET TO DEFAULT: N/A
CONFIGURE
INPUT xLOS: 0
ATCS ADDRESS: 700000000000
LOW BATTERY: DISABLED
AUX I/O: NV OUTPUT
DETECT LAMP NEUTRAL WIRE: NO
J1
J2
1GC 1BELL 1L1 1L2
OUTPUT A
B N
NON-VITAL
I/O 1 (FLASH SYNC)
OUT 2 (MAINT CALL)
SSCC IIIA
40 AMP CROSSING CONTROLLER
Safetron systems
Isolated Gate
AB1150
Made in USA
OUTPUT B
2GC 2BELL 2L1 2L2
J8
J5
DIAGNOSTIC
J6
J3
POWER 1 2 3 4 5 6 7 8 HEALTH
RX
TX
LAN
NEXT
S1
PREVIOUS
ENTER
S2
EXIT
CROSSING CONTROL INPUT
LAN
GP
2L1A
3L1
#10
2LSP 2L2A
3L2
#10
RE10T
MDRN
CC58T
MDR
XN
RB108
RLR
GP
RCDR TB4-4
GPK
GP-1
1LSP GP
INCORRECT POLARITY WILL RESULT IN SEVERE DAMAGE TO THE CONTROLLER UNIT.
WARNING
IF B OR N ARE FULLY OR PARTIALLY REMOVED, SIGNALS AND/OR GATES MAY NOT OPERATE AS INTENDED. TAKE ALTERNATE MEANS TO WARN VEHICULAR TRAFFIC AND EMPLOYEES.
NOTE: ALL WIRING THIS SHEET #14 AWG UNLESS NOTED OTHERWISE.
REVISION SUMM
CHANGE FROM TYPICAL Y
W&LE
Wheeling & Lake Erie Railway
LOCATION
ETTER RD.
MOGADORE, OHIO
ORIGINAL DATE 10/01/2010
DESIGNER CTC
DRAFTSMAN CTC
CHECKER CTC
TITLE SSCC IIIA
DIV CLEVELAND
RAILROAD 9-10.81
DWG NO. 432-542-R
DTD NO. CT1013B
SCALE N.T.S.
SHEET 06 OF 20


SSCC J1-2
SSCC J2-1
SSCC J2-4
SSCC J2-5
SSCC J2-2
RB6B
RB6T
SSCC J2-6
SSCC J2-3
XN
2XB
2XN
1XN
1XB
3XN
3XB
#10
#6
GCK
BELLK
GC
BELL
GP-1
FL-1
1L1
1L1-1
1L2
1L2-1
FL-2
#14
RCDR TB4-6
RCDR TB3-12
SSCC J1-1
SSCC J1-3
RLR 4
RCDR TB4-8
SSCC J1-5
SSCC J1-6
SSCC J1-7
SSCC J1-8
RCDR TB4-10
CURRENT SENSORS MOUNTED ON FRONT OF RACK
1EN
2EN
2CS
1CS
1LSP
PN: A91170-1
* = WHERE CONDUCTORS ARE DOUBLED
DOUBLE NUT WITH CROWN NUT
FOLLOWED BY FLAT NUT
CURRENT SENSOR
#10 EIGHT TURNS PER SENSOR
CSSE+
CS+
CS-
CSCOM
RED
GRN
WHT
BLK
TO RCDR TB5
TO GATE #1 (NEAR SIDE)
TO GATE #2 (FAR SIDE)
1XB
1XN
1GC
1BELLB
1GP1
1L1
1L2
1EN
2L2
2L1
2EN
2GP1
GP
2GC
2XN
2XB
NOTE: ALL WIRING THIS SHEET #14 AWG
UNLESS NOTED OTHERWISE.
W&LE
Wheeling & Lake Erie Railway
LOCATION
ETTER RD.
MOGADORE, OHIO
CHANGE DATE 10/01/2010
1LSP
DESIGNER CTC
CLEVELAND
CT10135
DRAWN CTC
C-40.81
N.T.S.
CHECKED CTC
472-642-R
07 of 20
CHANGE FROM TYPICAL: N
REVISION BLOCK



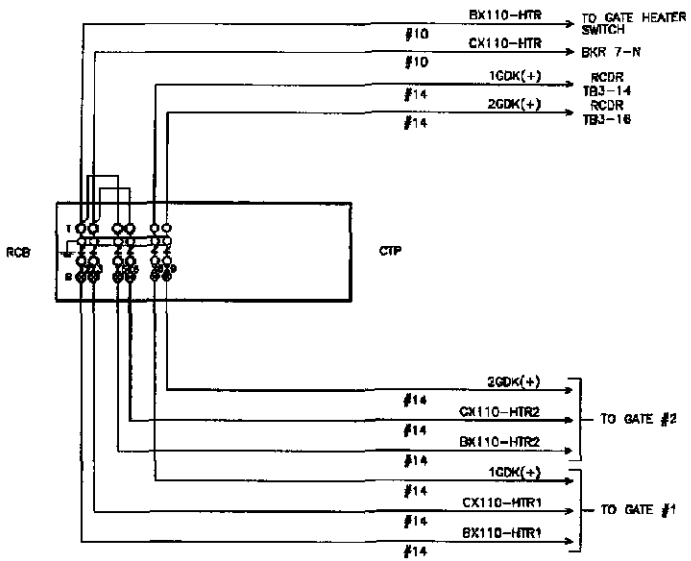
REVISION BLOCK

W&LE

Wheeling & Lake Erie Railway

LOCATION: ETTER RD. MOGADORE, OHIO

ORIGINAL DATE	10/01/2010	TITLE	2LSP		
DESIGNER	CTC	SUB	CLEVELAND	CTC NO.	CT10138
DRAFTSMAN	CTC	MAP	Q-40.81	SCALE	N.T.S.
CHECKER	CTC	DWG NO.	472-642-R	SHEET	08 of 20



W&LE

Wheeling & Lake Erie Railway

LOCATION: ETTER RD. MOGADORE, OHIO

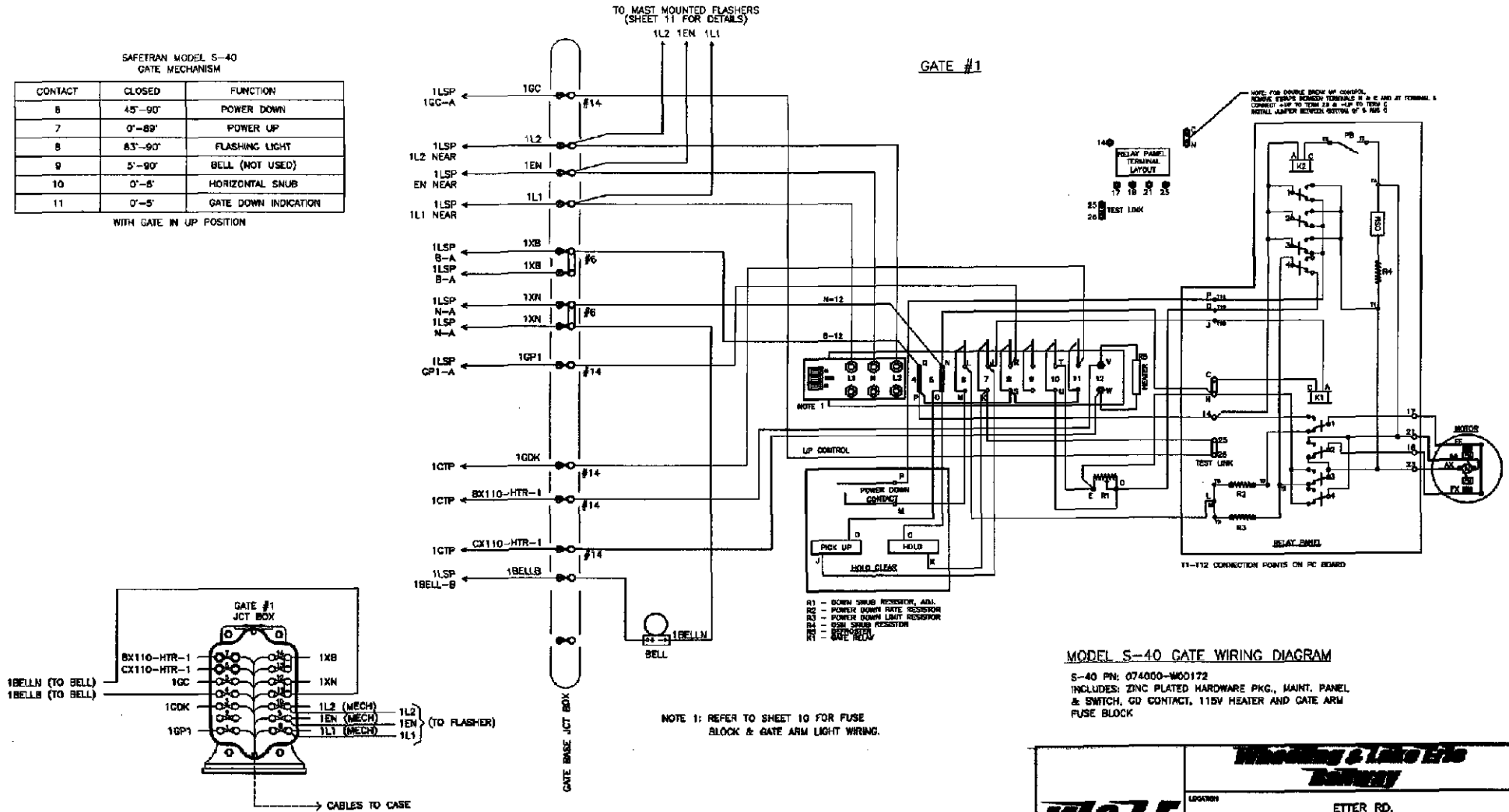
ORIGINAL DATE 10/01/2010	TITLE CTP		
DESIGNER CTC	SUB CLEVELAND	CIRC NO. CT19136	
DRAFTSMAN CTC	MAP Q-40.61	SCALE N.T.S.	
CHECKER CTC	DWG NO. 472-842-R	SHEET 08 OF 20	

CHANGE FROM TYPICAL 1

SAFETRAN MODEL S-40
GATE MECHANISM

CONTACT	CLOSED	FUNCTION
6	45°–90°	POWER DOWN
7	0°–69°	POWER UP
8	83°–90°	FLASHING LIGHT
9	5°–90°	BELL (NOT USED)
10	0°–5°	HORIZONTAL SNUB
11	0°–5°	GATE DOWN INDICATION

WITH GATE IN UP POSITION



NOTE 1: REFER TO SHEET 10 FOR FUSE BLOCK & GATE ARM LIGHT WIRING.

MODEL S-40 GATE WIRING DIAGRAM

S-40 PN: 074000-W00172
INCLUDES: ZINC PLATED HARDWARE PKG., MAINT. PANEL & SWITCH, GD CONTACT, 115V HEATER AND GATE ARM FUSE BLOCK

W&LE

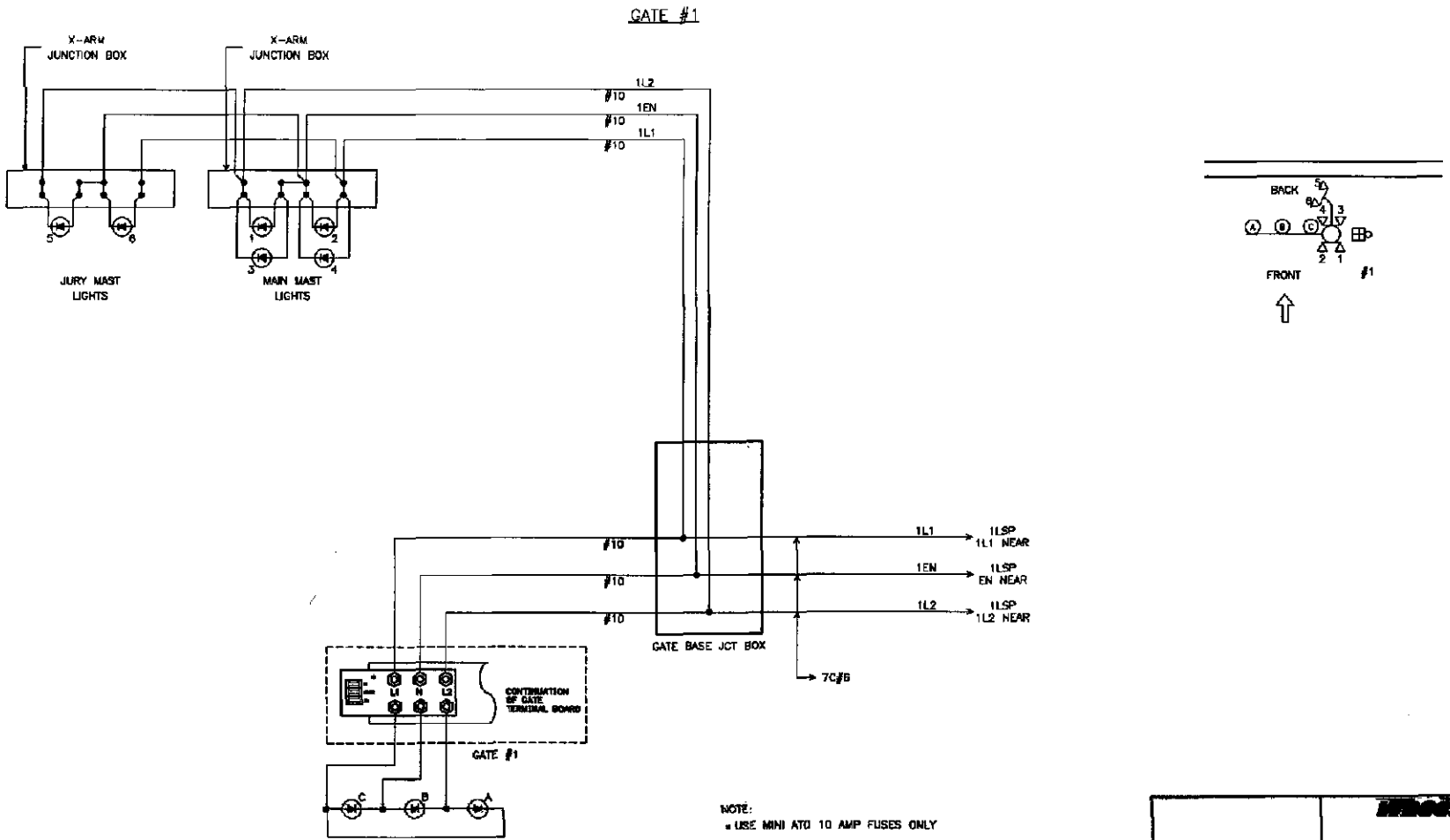
Wheeling & Lake Erie Railway

LOCATION: ETTER RD. MOGADORE, OHIO

ORIGINAL DATE 10/01/2010	TITLE GATE #1 MECHANISM (NEAR SIDE)		
DESIGNER CTC	SUB CLEVELAND	DWG NO. CT10136	
DRAFTSMAN CTC	MAP Q-40.81	SCALE N.T.S.	
CHECKER CTC	DOT NO. 472-642-R	SHEET 10 OF 20	

CHANGE FROM TYPICAL: N

REVISION BLOCK



NOTE:
- USE MINI ATO 10 AMP FUSES ONLY

Wheeling & Lake Erie Railway

W&LE

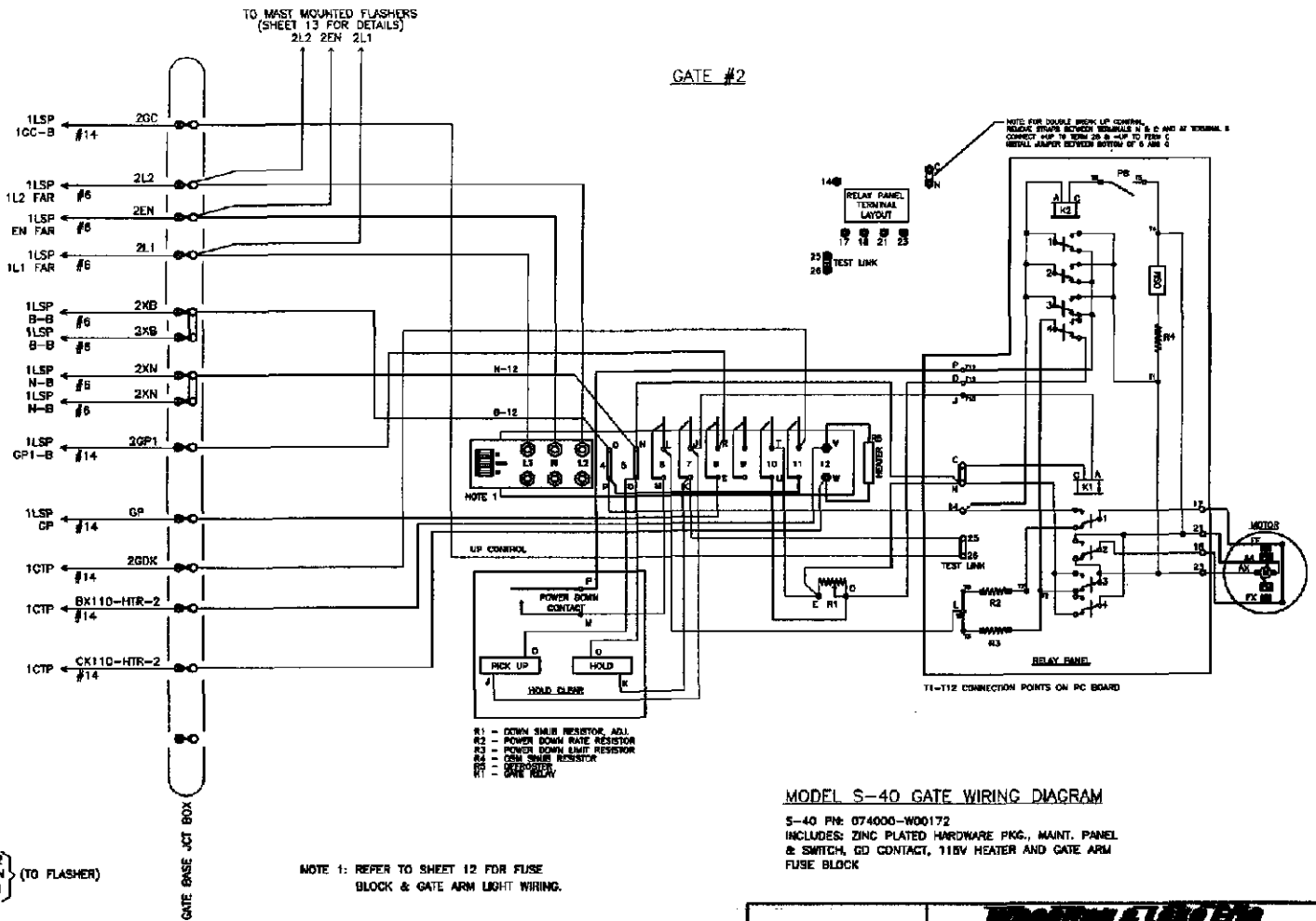
LOCATION: ETTER RD. MOGADORE, OHIO

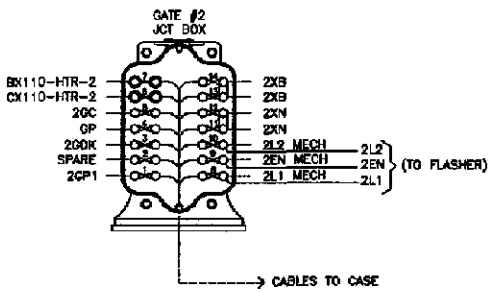
ORIGINAL DATE 10/01/2010	TITLE GATE #1 LIGHTS (NEAR SIDE)		
DESIGNER CTC	SUB CLEVELAND	DWG NO. CT10138	
DRAFTSMAN CTC	MAP 9-40.81	SCALE N.T.S.	
CHECKER CTC	DWG NO. 472-642-R	SHEET 11 of 20	

SAFETRAN MODEL S-40
GATE MECHANISM

CONTACT	CLOSED	FUNCTION
6	45°-90°	POWER DOWN
7	0°-89°	POWER UP
8	83°-90°	FLASHING LIGHT
9	5°-90°	BELL (NOT USED)
10	0°-5°	HORIZONTAL SNUB
11	0°-5°	GATE DOWN INDICATION

WITH GATE IN UP POSITION





NOTE 1: REFER TO SHEET 12 FOR FUSE BLOCK & GATE ARM LIGHT WIRING.

MODEL S-40 GATE WIRING DIAGRAM

S-40 PN: 074000-W00172
INCLUDES: ZINC PLATED HARDWARE PKG., MAINT. PANEL & SWITCH, GD CONTACT, 115V HEATER AND GATE ARM FUSE BLOCK

W&LE

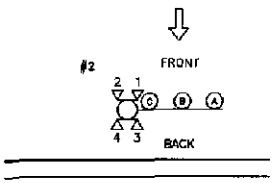
Wheeling & Lake Erie Railway

LOCATION: ETTER RD. MOGADORE, OHIO

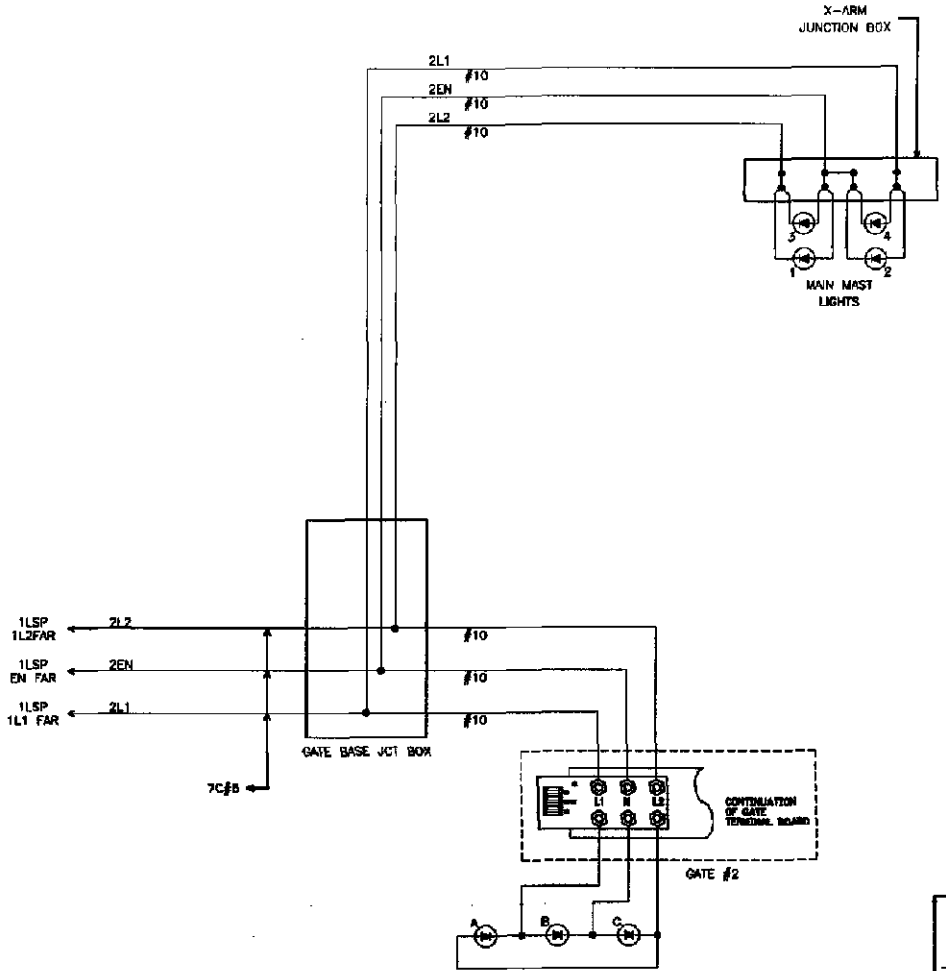
ORIGINAL DATE 10/01/2010	TITLE GATE #2 MECHANISM (FAR SIDE)		
DESIGNER CTC	SUB CLEVELAND	CIC No. CT19138	
DRAFTSMAN CTC	AREA Q-40.61	SCALE N.T.S.	
CHECKER CTC	DOT No. 472-642-R	SHEET 12 OF 20	

CHANGE FROM TYPICAL R

REVISION BLOCK



GATE #2



NOTE:
• USE MINI ATO 10 AMP FUSES ONLY

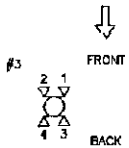
REVISION BLOCK

W&LE

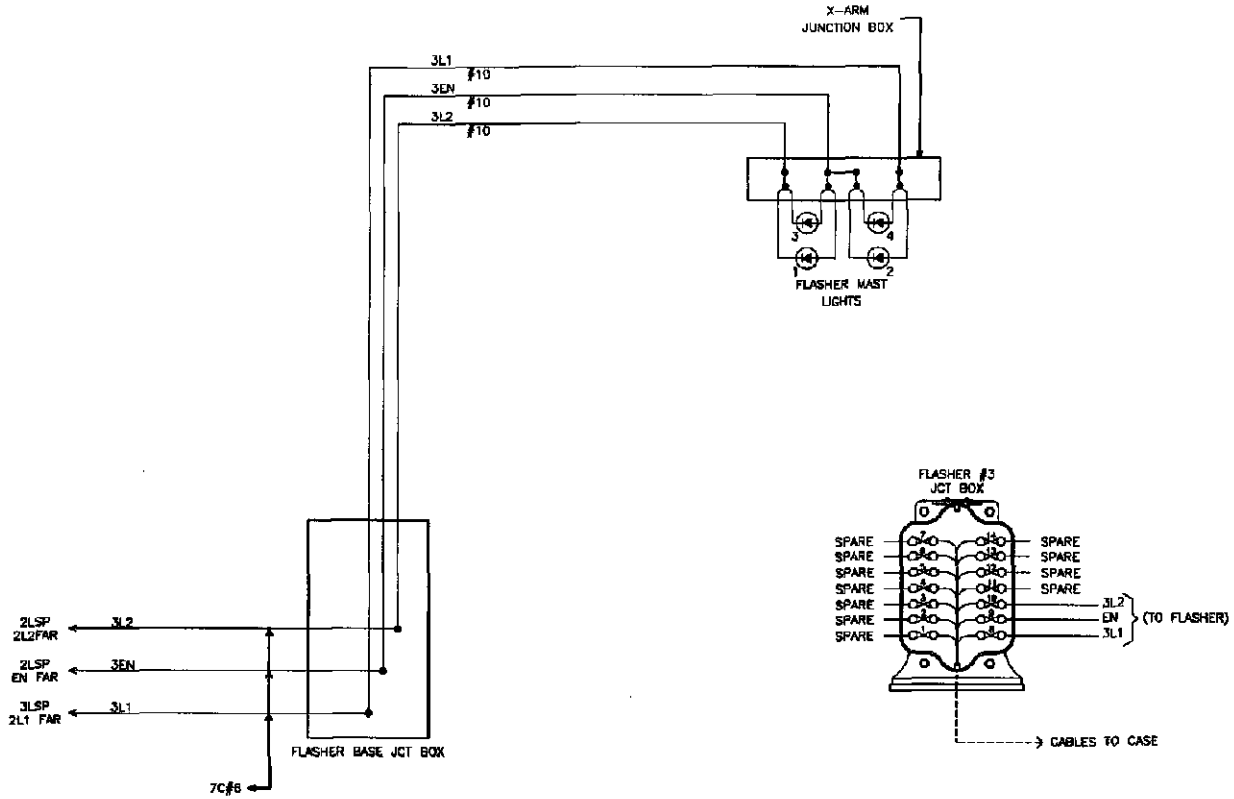
Wheeling & Lake Erie Railway

LOCATION
ETTER RD.
MOGADORE, OHIO

ORIGINAL DATE 10/01/2010	TITLE GATE #2 LIGHTS (FAR SIDE)		
DESIGNER CTC	DIST. CLEVELAND	DWG. NO. CT10138	
DRAWN BY CTC	PAGE Q-40.81	SCALE N.T.S.	
CHECKED CTC	DWG. NO. 472-642-R	SHEET 13 of 20	

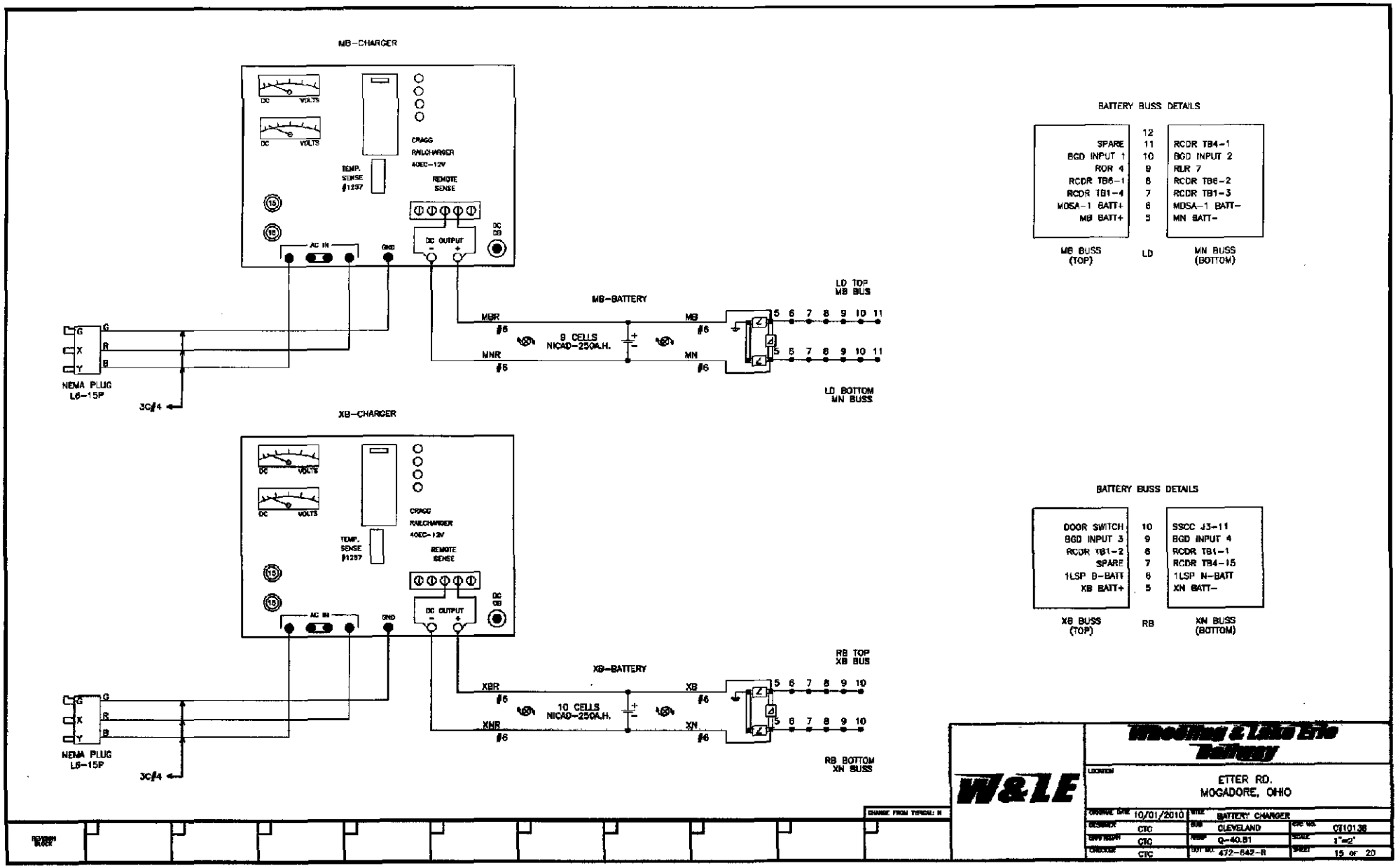


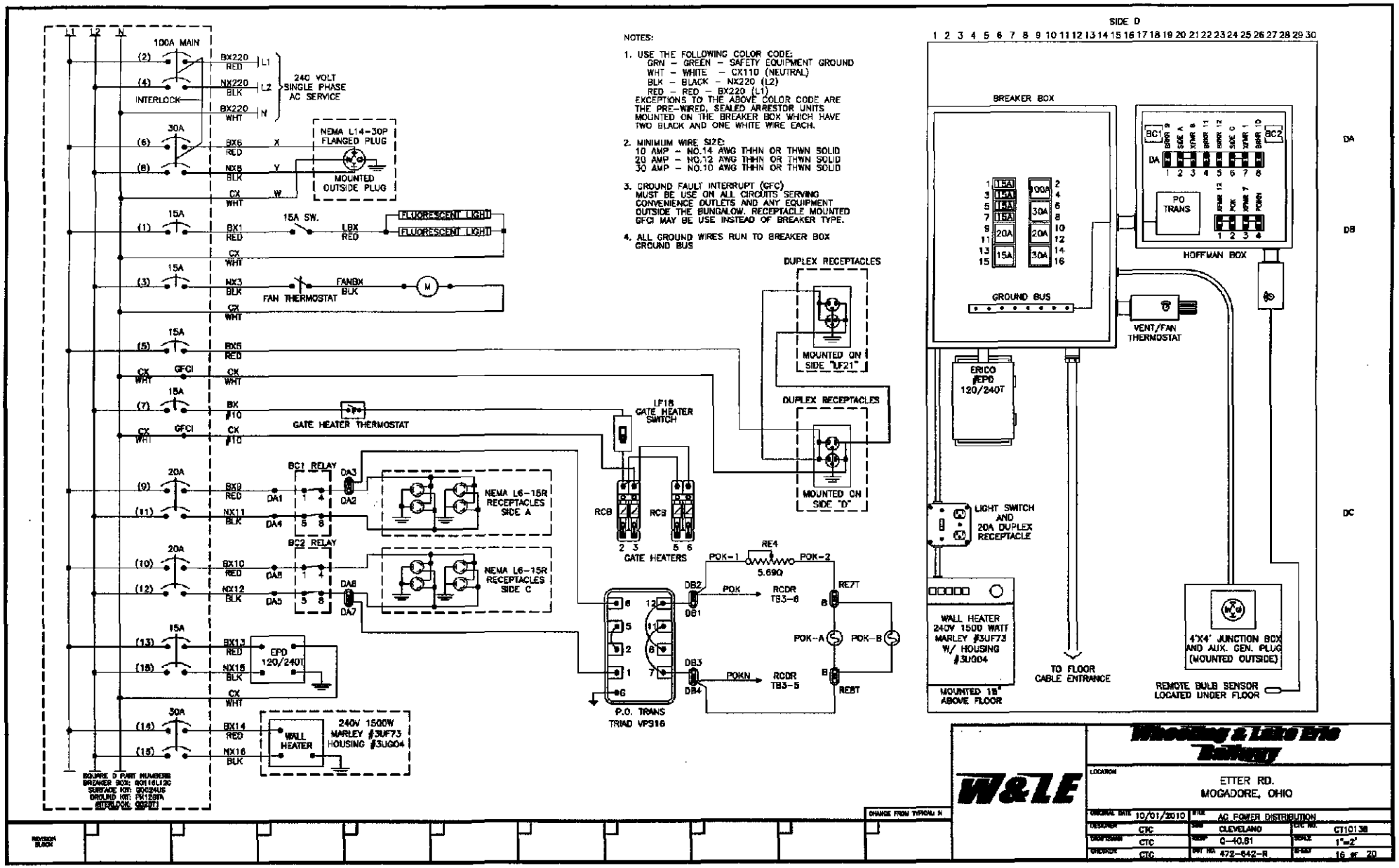
FLASHER #3

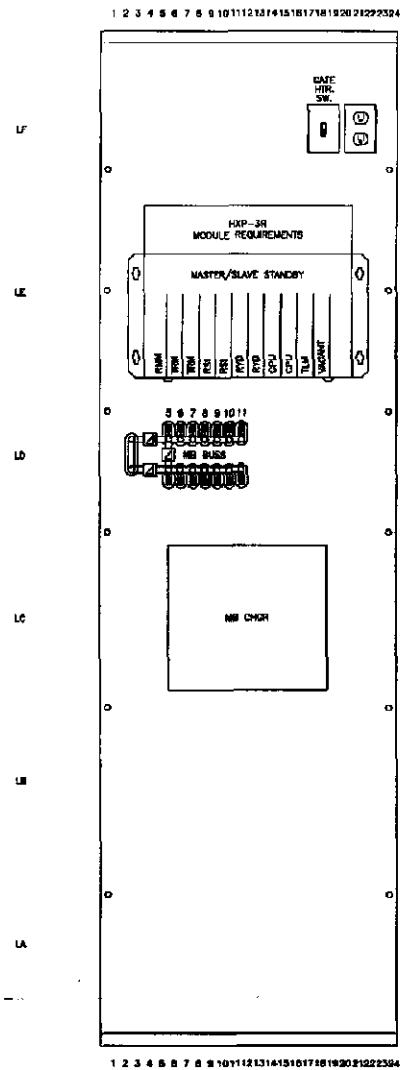


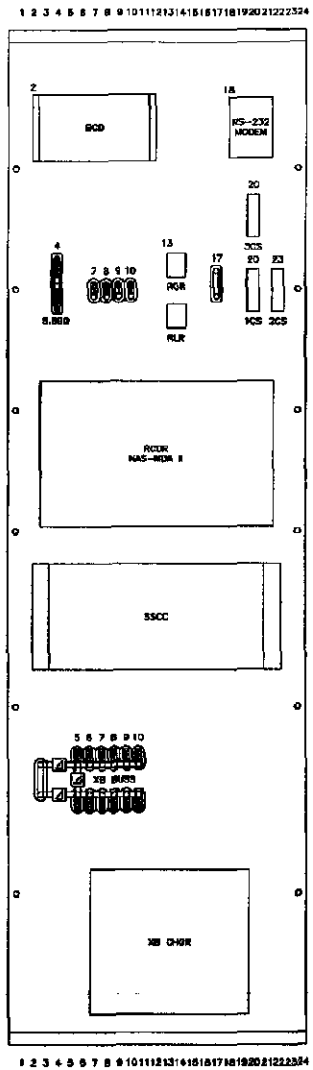
W&LE	Wheeling & Lake Erie Railway		
	LOCATION: ETTER RD. MOGADORE, OHIO		
	ORIGINAL DATE: 10/01/2010	TITLE: FLASHER #3 LIGHTS (FAR SIDE)	
	DESIGNER: CTC	SUB: CLEVELAND	CTC NO.: CT1013B
	DRAFTSMAN: CTC	BRANCH: Q-40.81	SCALE: N.T.S.
	CHECKED: CTC	DWG NO.: 472-642-R	SHEET: 14 OF 20

REVISION BLOCK


MB-CHARGER
DC VOLTS
DC VOLTS
CRAGG
RAILCHARGER
40DC-12V
TEMP. SENSE #1257
REMOTE SENSE
AC IN
GND
DC OUTPUT
DC CB
MB-BATTERY
MBR #6
MNR #6
9 CELLS NICAD-250A.H.
MB #6
MN #6
LD TOP MB BUS
LD BOTTOM MN BUSS
NEMA PLUG L6-15P
3C#4
BATTERY BUSS DETAILS
SPARE 12
BGD INPUT 1 11
RDR 4 10
RCDR TB6-1 9
RCDR TB1-4 8
MDSA-1 BATT+ 7
MB BATT+ 6
RCDR TB4-1 5
BGD INPUT 2
RLR 7
RCDR TB6-2
RCDR TB1-3
MDSA-1 BATT-
MN BATT-
MB BUSS (TOP)
LD
MN BUSS (BOTTOM)
XB-CHARGER
DC VOLTS
DC VOLTS
CRAGG
RAILCHARGER
40DC-12V
TEMP. SENSE #1257
REMOTE SENSE
AC IN
GND
DC OUTPUT
DC CB
XB-BATTERY
XBR #6
XNR #6
10 CELLS NICAD-250A.H.
XB #6
XN #6
RB TOP XB BUS
RB BOTTOM XN BUSS
NEMA PLUG L6-15P
3C#4
BATTERY BUSS DETAILS
DOOR SWITCH 10
BGD INPUT 3 9
RCDR TB1-2 8
SPARE 7
1LSP B-BATT 6
XB BATT+ 5
SSCC J3-11
BGD INPUT 4
RCDR TB1-1
RCDR TB4-15
1LSP N-BATT
XN BATT-
XB BUSS (TOP)
RB
XN BUSS (BOTTOM)
W&LE
Wheeling & Lake Erie Railway
LOCATION
ETTER RD.
MOGADORE, OHIO
ORIGINAL DATE 10/01/2010
TITLE BATTERY CHARGER
DESIGNER CTC
SUB CLEVELAND
DWG NO. CE10138
DRAFTSMAN CTC
RANGE Q-40.B1
SCALE 1"=2'
CHECKER CTC
DWG NO. 472-642-R
SHEET 15 of 20
CHANGE FROM TYPICAL: N
REVISION NUMBER


L1 L2 N
100A MAIN
INTERLOCK
BX220 RED L1
NX220 BLK L2
BX220 WHT N
240 VOLT SINGLE PHASE AC SERVICE
30A
BX6 RED X
NX6 BLK Y
CX WHT W
NEMA L14-30P FLANGED PLUG
MOUNTED OUTSIDE PLUG
15A
BX1 RED
15A SW.
LBX RED
FLUORESCENT LIGHT
FLUORESCENT LIGHT
CX WHT
NX3 BLK
FAN THERMOSTAT
FANBX BLK
M
BX5 RED
CX WHT
GFCI
BX #10
CX #10
GATE HEATER THERMOSTAT
LF18 GATE HEATER SWITCH
BC1 RELAY
DA3
DA2
DA1
DA4
NEMA L6-15R RECEPTACLES SIDE A
BC2 RELAY
DA8
DA7
DA6
DA5
NEMA L6-15R RECEPTACLES SIDE C
20A
BX9 RED
NX11 BLK
BX10 RED
NX12 BLK
BX13 RED
NX15 BLK
EPD 120/240T
BX14 RED
NX16 BLK
WALL HEATER
240V 1500W MARLEY #3UF73 HOUSING #3UG04
RCB
GATE HEATERS
DUPLEX RECEPTACLES
MOUNTED ON SIDE "UF21"
MOUNTED ON SIDE "D"
RE4 5.69Ω
POK-1
POK-2
POK
POKN
RCDR TB3-6
RCDR TB3-5
RE7T
RE8T
POK-A
POK-B
P.O. TRANS TRIAD VP316
NOTES:
1. USE THE FOLLOWING COLOR CODE:
GRN - GREEN - SAFETY EQUIPMENT GROUND
WHT - WHITE - CX110 (NEUTRAL)
BLK - BLACK - NX220 (L2)
RED - RED - BX220 (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.
2. MINIMUM WIRE SIZE:
10 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
3. GROUND FAULT INTERRUPT (GFC) MUST BE USE ON ALL CIRCUITS SERVING CONVENIENCE OUTLETS AND ANY EQUIPMENT OUTSIDE THE BUNGALOW. RECEPTACLE MOUNTED GFCI MAY BE USE INSTEAD OF BREAKER TYPE.
4. ALL GROUND WIRES RUN TO BREAKER BOX GROUND BUS
SIDE D
BREAKER BOX
GROUND BUS
HOFFMAN BOX
BC1
BC2
PO TRANS
VENT/FAN THERMOSTAT
ERICO #EPD 120/240T
LIGHT SWITCH AND 20A DUPLEX RECEPTACLE
WALL HEATER 240V 1500 WATT MARLEY #3UF73 W/ HOUSING #3UG04
MOUNTED 18" ABOVE FLOOR
TO FLOOR CABLE ENTRANCE
4"X4" JUNCTION BOX AND AUX. GEN. PLUG (MOUNTED OUTSIDE)
REMOTE BULB SENSOR LOCATED UNDER FLOOR
DA
DB
DC
SOURCE D PART NUMBERS
BREAKER BOX: 80116L12C
SURFACE KIT: 80024US
GROUND KIT: FK1209A
INTERLOCK: 0SP071
REVISION BLOCK
CHANGE FROM TYPICAL N
W&LE
Wheeling & Lake Erie Railway
LOCATION
ETTER RD.
MOGADORE, OHIO
ORIGINAL DATE 10/01/2010
DESIGNER CTC
DRAWN BY CTC
CHECKED CTC
TITLE AC POWER DISTRIBUTION
SUB CLEVELAND
REF C-40.81
DWG NO. 472-642-R
DOC NO. CT10138
SCALE 1"=2'
SHEET 16 of 20





SIDE 'B' FRONT

CHANGE FROM 'WRCALI Y'

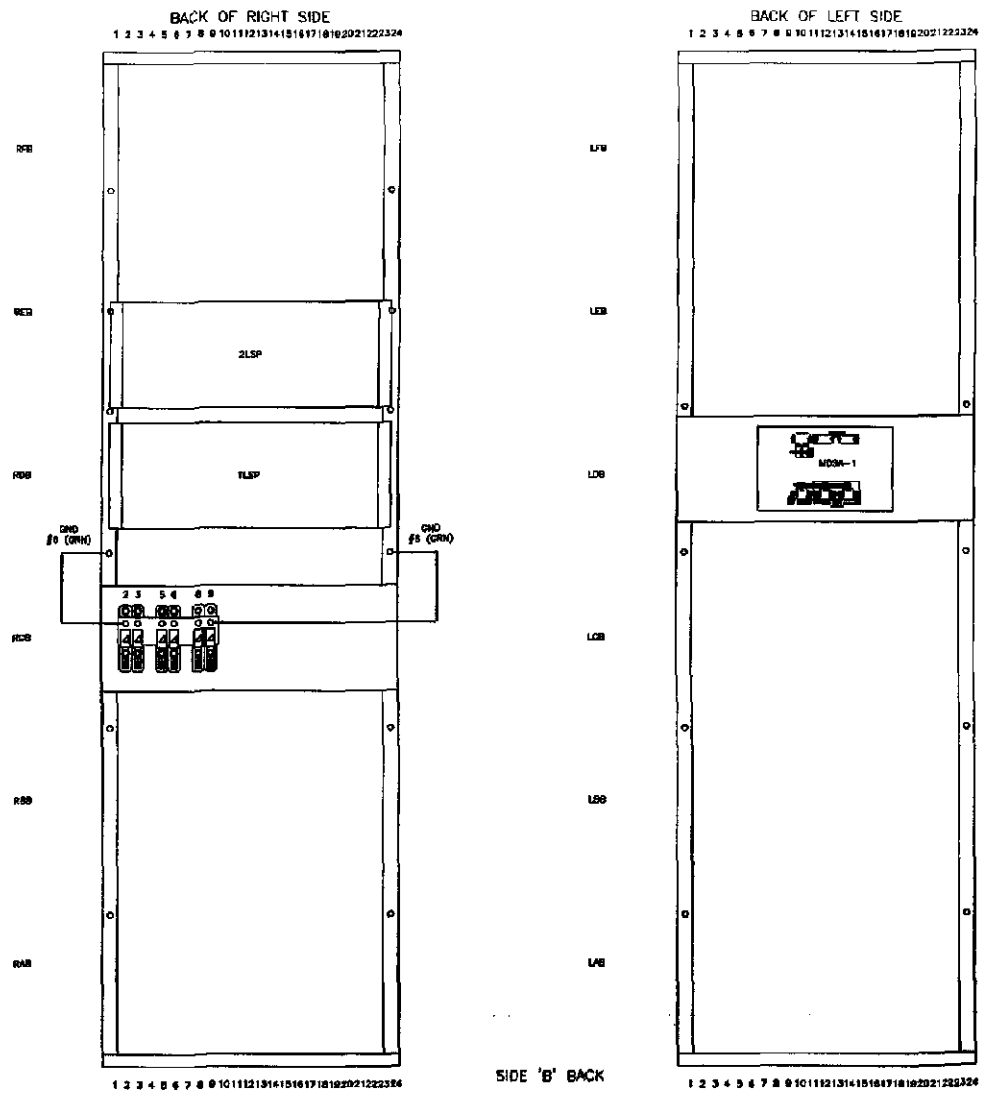
REVISION RECORD

W&LE

Wheeling & Lake Erie Railway

LOCATION
ETTER RD.
MOGADORE, OHIO

ORIGINAL DATE	10/01/2010	TITLE	RACK FRONT VIEW		
DESIGNER	CTC	SUB	CLEVELAND	CTC NO.	CT10136
DRAFTSMAN	CTC	TRAP	Q-19.81	SCALE	1"=2'
CHECKER	CTC	DOT NO.	472-642-R	SHEET	17 of 20



SIDE 'B' BACK

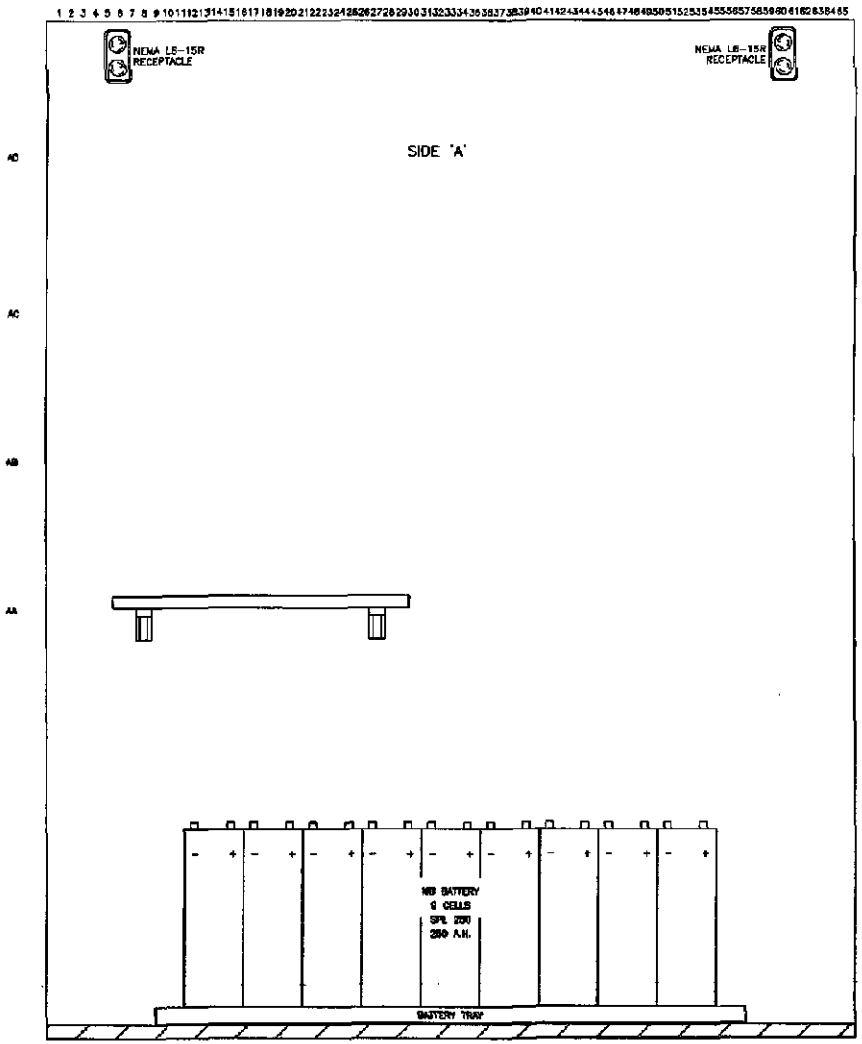
CHANGE FROM TYPICAL: 7

W&LE

Wheeling & Lake Erie Railway

LOCATION
ETTER RD.
MOGADORE, OHIO

ORIGINAL DATE 10/01/2010	TITLE RACK BACK VIEW		
DESIGNER CTC	SUB CLEVELAND	DWG NO. CT1013B	
DRAFTSMAN CTC	MAP Q-40,61	SCALE 1"=2'	
CHECKED CTC	WO NO. 472-642-R	SHEET 18 OF 20	



CHANGE FROM TYPICAL N

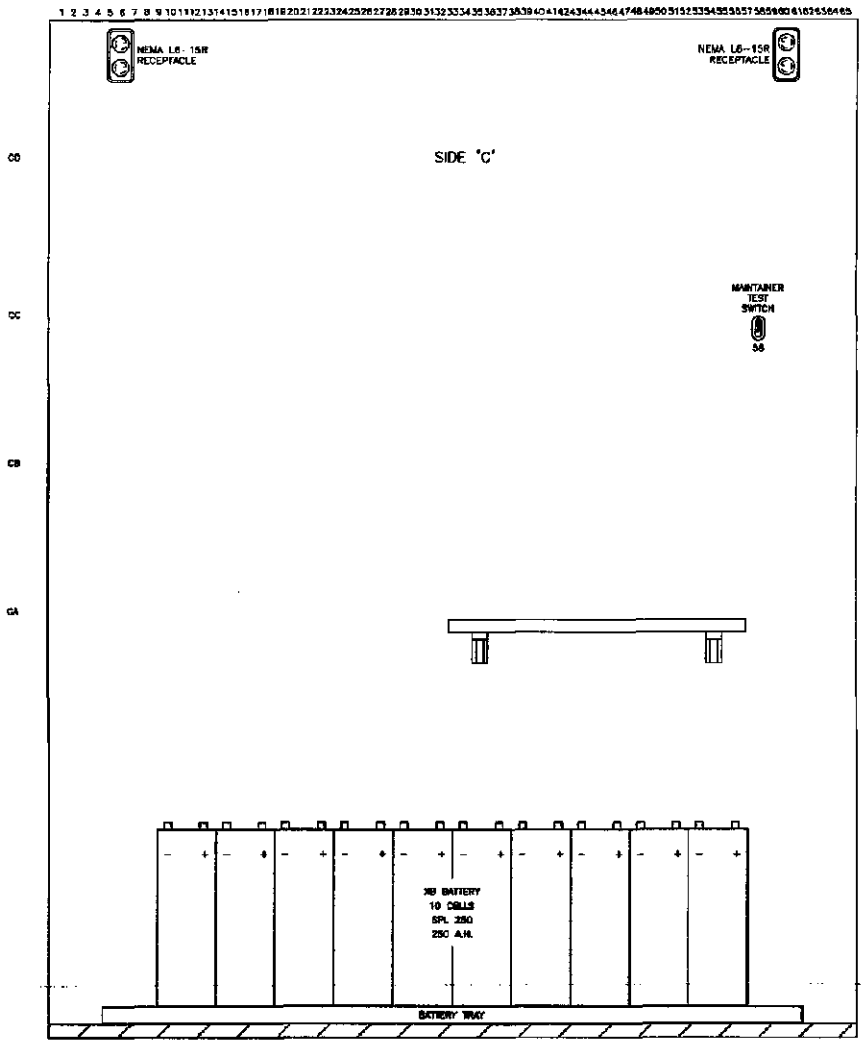
REVISION BLOCK

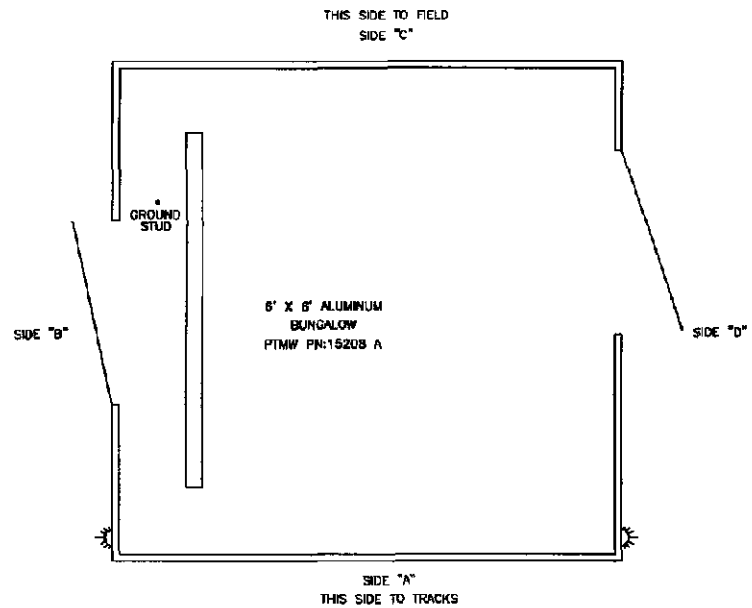
W&LE

Wheeling & Lake Erie Railway

LOCATION
ETTER RD.
MOGADORE, OHIO

ORIGINAL DATE 10/01/2010	TITLE SIDE "A"		
DESIGNER CTC	DWN CLEVE	CTC NO. CT10138	
DRAWN BY CTC	SCALE 9-40.81	SCALE 1"=2'	
CHECKED CTC	DWG NO. 472-542-R	SHEET 19 of 20	





REVISION BLOCK

CHANGE FROM TYPICAL Y

W&LE

Wheeling & Lake Erie Railway

LOCATION
ETTER RD.
MOGADORE, OHIO

ORIGINAL DATE	10/01/2010	TITLE	SIDE "C"		
DESIGNER	CTC	SUB	CLEVE	CTC NO.	CT10138
DRAFTSMAN	CTC	DWG	Q-40.81	SCALE	1"=2'
CHECKER	CTC	DOT NO.	472-943-R	SHEET	20 OF 20