

**Detailed Estimate for Grade Crossing Warning Devices**

City/State: WEST CARROLLTON, OH

Road: S. ALEX RD.

MilePost: CJ-214.75

DOT/AAR: 524644B

State Proj. No.:

County: MONTGOMERY

S&E Proj. No.: 10.1020

File Number:

Man Days: 144

Purchases - Others		
Meals and Lodging:	\$19,353.60	
Rental of Equipment:	\$20,160.00	
(2 Trucks, 1 Backhoe w/ Trailer and 1 Pipe-Pusher for 36 Days)		
Construction Supervision Vehicle:	\$3,602.51	
Purchases - Other Total:		\$43,116.11
Material And Additives		
Material Cost:	\$158,028.00	
Sales and Use Tax:	\$0.00	
Material Handling Freight:	\$7,901.41	
Material Total:		\$165,929.41
Labor And Additives		
Labor Cost:	\$40,320.00	
(4 man crew at \$1,120.00 a day for: 36 days)		
Payroll Tax & Overheads:	\$53,561.09	
Preliminary Engineering:	\$17,454.65	
Construction Supervision:	\$11,382.34	
Labor Total:		\$122,718.08
	Project Cost:	\$331,763.60
	Scrap / Salvage Credit:	\$0.00
	Project Total:	\$331,764.00

Estimated on: 07-Nov-11

Estimated by: n5s2v

Estimate valid for 1 year from date of estimate



Highway Crossing Signalization Program - Material List

Do not substitute items without permission from S & E Engineering

City:	WEST CARROLLTON
Road:	S. ALEX RD.
Mile Post:	CJ-214.75
Drawing Number:	82112147
State ProjectNumber:	
County:	MONTGOMERY
A A R Number:	524644B
Project Number:	10.1020
File Number:	
New File Number:	CX0123253
A F E Number:	10-6150
Store Number:	08704
Supervisor:	D.R. DRAKE
Tax Code:	3500
Vendor to supply the following copies after pricing: 1 Set - Material Management with original Invoice 2 Sets - with plans shipped in car with material 1 Set - S&E Gen. Supt. Construction w/copy of invoice	

Qty.	Class-Item-CD	UI	Price per Item	Total Price	Item Description	Quantity Shipped	Quantity Installed			Quantity Returned (Credit)	Special Instructions
							Date Quan.	Date Quan.	Date Quan.		
3	670-360693-4	EA	\$5.47	\$16.41	AAR/DOT NUMBER PLATE/DECAL, ORDER 3 PER PROJECT. 60 DAY LEAD TIME. SUPPLIED BY S'TRAN.						
1	165-006505-4	EA	\$1,051.54	\$1,051.54	AC SERVICE, COMPLETE LESS METER BASE, ASSEMBLED ON 30' POLE						
27	670-119241-4	EA	\$33.95	\$916.65	ARRESTOR, LIGHTNING HEAVY DUTY CLEAR VIEW SAFETRAN 022585-1X						
13	105-288384-4	EA	\$278.63	\$3,622.19	BATTERY ,GNB 368AH MODEL 50G15 SINGLE CELL 2.25 VOLTS, FOR USE WITH CROSSINGS DESIGNED AFTER 09/09						
3	670-980689-4	EA	\$80.57	\$241.71	BRACKET HIGH WIND, (RIGID 3'), WIG- 191036, WALRUS TUSK TYPE						
2	670-561375-4	EA	\$1,197.90	\$2,395.80	BRACKET, GATE SAVER, NEG385102GS, SPRING LOADED SWING AWAY ADAPTER FOR FIBERGLASS/ALUMINUM GATES, USE WITH GATE 38' AND LESS						
1	670-356949-4	EA	\$58.69	\$58.69	CABLE, 10' GENERATOR HOOK UP, SERRMI P/N 40524. FEMALE CONNECTOR						
2350	465-939422-4	LF	\$2.69	\$6,321.50	CABLE, UG 12 CONDUCTOR NO 14 AWG SOLID EACH CONDUCTOR WITH 5/64 IN INSULATION 10 MIL						
600	465-292862-4	LF	\$1.24	\$744.00	CABLE, UG 2-6 TWISTED, S-23 OKONITE 113-12-3933 SOLID TINNED CONDUCTOR						
350	465-292929-4	LF	\$3.75	\$1,312.50	CABLE, UG 5 COND. NO. 6 AWG SOLID COPPER CABLE TO MEET NS CORP. SPEC. FOR SIGNAL						
100	465-791835-4	FT	\$3.24	\$324.00	CABLE, UG AC ENTRANCE 3C#6-7X OKONITE FMPF-L 094-078 TR W/G 1 X 8 7X W010 BRZ TAPE 600V PRODUCT CODE 206-11-6070						
1	670-009120-4	EA	\$3,745.32	\$3,745.32	CANTILEVER, WT/F ARM 20' W/WALKWAY KIT SAFTRAN #071294-20NS2						
1	670-374878-4	EA	\$4,098.12	\$4,098.12	CANTILEVER, WT/F ARM 32' W/WALKWAY KIT SAFTRAN #071294-32NS2						
100	165-544477-4	FT	\$3.41	\$341.00	CONDUIT, 4"x10' PVC, SCHEDULE 80 BELL CONNECTOR AT ONE END, 1/2 PT. GLUE IN KIT 670-123298-4						
5	670-664917-4	EA	\$61.53	\$307.65	CONNECTOR KIT, WELDED FAR RAIL, CONSISTING OF RUBBER HOSE PROPERLY DRILLED, BONDSTRAND, 1 SPLICING SLEEVE, 1 REDUCING SLEEVE, 3 CLAMPS, 1 TRACK CLIP, 1 WEB WELDED TRACK CONNECTOR, 1 WELD METAL, SAFETRAN 111359-2X						

APPROVED BY STATE	APPROVED BY RAILROAD	CAR NUMBER	SEAL NUMBER
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Qty.	Class-Item-CD	UI	Price per Item	Total Price	Item Description	Quantity Shipped	Quantity Installed			Quantity Returned (Credit)	Special Instructions
5	670-632520-4	EA	\$51.89	\$259.45	CONNECTOR KIT, WELDED NEAR RAIL, CONSISTING OF, RUBBER HOSE PROPERLY DRILLED, BONDSTRAND, SPLICING SLEEVE, 1 REDUCING SLEEVE, 5 CLAMPS, 1 TRACK CLIP, 1 WEB WELDED TRACK CONNECTOR, 1 WELD METAL, SAFETRAN 111359-1X						
1	670-689122-4	EA	\$1,628.94	\$1,628.94	COUNTERWEIGHT PKAGE, 32-41'GATE S'TRAN S- MECH ONLY, STAINLESS, TO INCLUDE HUB, SUPPORT ARMS						
1	670-315874-4	EA	\$1,307.83	\$1,307.83	COUNTERWEIGHT, KIT 25'- 32' STAINLESS FOR S-MECH ON GATE/CANT COMBOS W/ARMS AND HUBS SAFETRAN 070755-2532AX						
11	670-760012-4	EA	\$40.02	\$440.22	COVER, FOR 1 WAY FLASHING LIGHT ASSY. 18 OZ. BLACK VINYL COATED NYLON. =====TO COVER 2 LAMPS=====						
1	670-986650-4	EA	\$349.99	\$349.99	DISPOSAL, CONSTRUCTION DEBRIS AND CLEANING X'ING EQUIPMENT CONTAINER						
1	670-007684-4	EA	\$783.20	\$783.20	DRIVER, TRACK, MODEL TD-4 ELECTRO PHEUMATIC CORP. FOUR OUTPUTS						
1	670-228165-4	EA	\$13.82	\$13.82	EQUALIZER, SAFETRAN 022700-1X LESS BASE, MODERN NO. 700-1 SHUNT ARRESTER TRACK CIRCUITS CR 02-197950						
1	670-000004-4	EA	\$700.00	\$700.00	FCC LICENSE FOR MONITOR/RADIO						
4	670-000003-4	EA	\$255.85	\$1,023.40	FILL/STONE #57, QUANITY IS BASED ON TRUCK LOAD PLUS DELIVERY COST						
1	670-780292-4	EA	\$4,607.20	\$4,607.20	FOUNDATION, CFLS FOR LINCOLN DBL. AS WELL SAFETRAN WT/F MAST WALKOUT CANT. 31'- 40' 8 BOLT, DIXIE# DP8B-DM27-40-5						
1	670-744631-4	EA	\$3,158.86	\$3,158.86	FOUNDATION, CFLS FOR SAFETRAN MODEL "WT/F" ARMS 12' TO 30' SINGLE MAST, DIXIE# DP4B-SM12-26-4, 5'10" CR 02-205902						
2	670-015231-4	EA	\$577.50	\$1,155.00	FOUNDATION, DIXIE,S-2 GATE 2'6"X2'6"X5'6" ASSEMBLED						
1	670-273865-4	EA	\$550.00	\$550.00	GATE ARM, ALUMI-LITE (HIGH WIND), 34-40 FT, ARM ASSEMBLY WITH "3" NEG-2018 LIGHTS, INCLUDES GATE GUARD FOR GATE LIGHT CABLE. HIGH INTENSITY VERTICAL STRIPES. NEG P/N 8007A-404N/CG, SSC T18439						
1	670-263738-4	EA	\$458.43	\$458.43	GATE ARM, FIBERGLASS-ALUMINUM, 25-31 FT, INCLUDES GATE GUARD FOR GATE LIGHT CABLE. HIGH INTENSITY VERTICAL STRIPES. NEG P/N 8003-324NFS/CG, SSC						

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Location: WEST CARROLLTON					OH	S&E Proj. No.: 10.1020	AFE No.: 10-6150	Drawing No.: 82112147					
Store No.: 08704					P.O.Number:		Date Required:	Date Shipped:	Vendor: Interrail Engineering, INC				
Qty.	Class-Item-CD	UI	Price per Item	Total Price	Item Description	Quantity Shipped	Quantity Installed Date Quan.	Date	Quan.	Date	Quantity Returned (Credit)	Special Instructions	
1	670-698491-4	EA	\$38,264.45	\$38,264.45	GCP4000 - 2 TRK (2TC) - REDUNDANT - 40/60 AMP WIRED RACK EQUIP. FOR 6X8 XING SHELTER, (INCL. 2 TRK CHASSIS A80465, 4 TRK MODS. A80418, 2-SSCC A80405, 2 CPU A80403, 1 SEAR A80410, 1 DISPLAY A80407, 1 TRANS MOD. A80468, 1-40 & 1-60 AMP CHARGER) IPN: 003131-								
2	670-008704-4	EA	\$46.40	\$92.80	INDUCTOR, SIMULATED TRACK SAFETRAN 8V617-3000								
1	670-477991-4	EA	\$317.90	\$317.90	KIT, GROUNDING ASSY FOR AL I/S INCLUDES 8 GRD RDS,200'#4WIRE,12 4 WIRE ONE-SHOTS. ERICO SBK206								
1	670-123298-4	EA	\$312.40	\$312.40	KIT, HARDWARE SUPPLIES REQUIRED X'ING P'CKAGES. WEB CONNECTORS FOR SHUNT(8EA) TAPE, AMPS,P'GUM PAINT,SLEEVES,TAGS,GLUE, 100 EA WHITE TAGS,)NE CAN BLUE MARKING PAINT ETC...								
7	670-441677-4	EA	\$689.70	\$4,827.90	LAMP ASSY, 4" JURY ARM TIP & LANE LIGHT, USE WITH WT/F CANT ARM,1W (BACK) OR 1W (FRONT) IND. 20" BKGRD, FLX-12" W/BULB. ORDER 2 FOR 2W APPLICATION. SAFETRAN P/N 042003-001534								
2	670-724041-4	EA	\$688.38	\$1,376.76	LAMP ASSY, 12" MAST MTG., USE WITH W &WT/F MAST, 1W (BACK)(FRONT ON COMBO) IND. 20" BKGRD. FLX-12 W/BULB OLD S'TRAN# 042003-481XNS								
1	670-745798-4	EA	\$685.27	\$685.27	LAMP ASSY, 4" GRD. MAST MTG. 1W IND. 20" BKGRD, FLX-12 W/BULB S'TRAN #042003-484XNS								
1	670-816589-4	EA	\$679.59	\$679.59	LAMP ASSY, 5" MAST MTG. 1W IND. 20" BKGRD, (BACK) LTS.FLX -12W/BULB S'TRAN # 042003-001493								
1	670-167654-4	EA	\$696.72	\$696.72	LAMP ASSY, FLX 12" LIGHT UNIT, USE WITH W &WT/F MAST,1W (FRONT)INDICATION FOR WT/F CANTILEVER MAIN MAST,SAFTRAN P/N 042003-489XNS								
6	165-643547-4	EA	\$6.03	\$36.18	LAMP, 18 WATT 10 VOLT S-11 SC BAY 18S11/1SC CLEAR RWY SIGNAL UJ-71463 GE								
27	670-440826-4	EA	\$1.64	\$44.28	LINK, SAFETRAN 024620-1X INSL TESTING COMP 1 IN CENTER SIGNAL CIRCUITS CR 02-286662								
5	255-590880-4	EA	\$17.08	\$85.40	LOCK, AMERICAN LOCK MODEL H-10KA KEYED ALIKE TO PRIVATE KEYWAY D456 AND STAMPED "NS SIG"								
1	670-339854-4	EA	\$331.63	\$331.63	MAST, (WT/F) , SIDELIGHT BRACKET FOR WT/F CANTILEVER, SAFETRAN 041442-1031X,								

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Qty.	Class-Item-CD	UI	Price per Item	Total Price	Item Description	Quantity Shipped	Quantity Installed			Quantity Returned (Credit)	Special Instructions
							Date Quan.	Date Quan.	Date Quan.		
1	670-250626-4	EA	\$5,522.89	\$5,522.89	MAST, 12" CANTILEVER, FOR 31'-37' WT/F ARMS, INCL. LADDER KIT (IPN: 071271-40NS)						
1	670-483458-4	EA	\$5,927.81	\$5,927.81	MAST, 12" CANTILEVER/GATE COMBO, FOR 12'-20' WT/F ARMS, GATE OFFSET TOWARD TRACK, INCL. LADDER KIT (IPN: 071292-20NS)						
1	670-135958-4	EA	\$1,670.03	\$1,670.03	MAST, 5" ALUMINUM 22' WITH DOUBLE JCT. BOX BASE. SAFETRAN 070519-X598						
2	670-850933-4	EA	\$4,026.68	\$8,053.36	MECHANISM, GATE MODEL S-60, WITH DEFROSTER AND MINI TRACKSIDE SENSOR S'TRAN # 0740007-X002B3						
3	000-000000-4	EA	\$5,000.00	\$15,000.00	MISC. EXPENSE, UNDERGROUND BORING						
2	670-014233-4	EA	\$1,090.69	\$2,181.38	MODULE, DAX FOR 3000 GCP SAFETRAN #80016						
4	670-001355-4	EA	\$64.62	\$258.48	PACKAGE, HARDWARE SIGN 12 IN. (USE WITHWT/F MAST) MOUNTING, SERRMI A1250-8, HARMON @180004/0007,						
1	610-719870-4	EA	\$150.99	\$150.99	PEDESTAL ASSEMBLY, ARMORCAST P/N P6001205-NS, YELLOW 10"X11"X29" POLYETHYLENE INCL 45" WITH TERMINAL BLOCK						
1	670-514605-4	EA	\$11.13	\$11.13	PINNACLE, W-C SECT 1-11, 4"& 5" REF K1 110-8 OR SAFETRAN NO. @035045-503X						
13	670-259211-4	EA	\$49.00	\$637.00	PLUG BOARD KIT, TYPE B-1 & VOLTAGE TEST TERMINAL, SAFETRAN 420000-75X						
1	165-103293-4	EA	\$75.41	\$75.41	PROTECTOR, LIGHTNING & SURGE LPC 10560-51, 3 ELECTRODE WITH SPADE TERMINAL						
1	165-902002-4	EA	\$308.00	\$308.00	PROTECTOR, SURGE 120/240VAC, ERICO P/N EPD120/240TDFL						
1	670-602559-4	EA	\$123.20	\$123.20	RECTIFIER, ELECTRO-PNEUMATIC TRACK MODEL NO RING-10 TYPE C TRACK CIRCUIT						
5	465-002899-4	EA	\$36.06	\$180.30	REEL, CABLE DISPOSABLE FOR CROSSING SIGNAL PACKAGES						
1	670-742096-4	EA	\$43.30	\$43.30	RELAY INTERFACE PROBE, ULTRATECH PN 16031-00						
2	670-024861-4	EA	\$637.85	\$1,275.70	RELAY RACK, SWING, FARADAY SHELTER FOR EIGHT B1 RELAYS, SAFETRAN P/N 057883-1X						
2	670-456936-4	EA	\$139.67	\$279.34	RELAY RACK, SWING, FARADAY SHELTER FOR ONE RELAY, SSFETRAN P/N T15331						

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Location: WEST CARROLLTON					OH	S&E Proj. No.: 10.1020	AFE No.: 10-6150	Drawing No.: 82112147			
Store No.: 08704					P.O.Number:		Date Required:	Date Shipped:	Vendor: Interrail Engineering, INC		
Qty.	Class-Item-CD	UI	Price per Item	Total Price	Item Description	Quantity Shipped	Quantity Installed Date Quan. Date Quan. Date Quan.			Quantity Returned (Credit)	Special Instructions
12	670-707995-4	EA	\$539.91	\$6,478.92	RELAY, TYPE B1, NEV LINE, 900 OHMS,,008 AMPERES GRS A62-308 OR SAFETRAN @400003						
1	670-708282-4	EA	\$552.16	\$552.16	RELAY, TYPE B1, TRACK 4 OHM .85A GRS A62-276, S'TRAN 400011						
1	180-000029-4	EA	\$27.89	\$27.89	RESISTOR UNIT, 2 OHM ADJUSTABLE SAFETRAN NO. 029602-6X FOR TRACK CIRCUITS CR 02-425807						
1	180-239123-4	EA	\$31.56	\$31.56	RESISTOR, ADJUSTABLE 5 OHM SAFETRAN NO. 029603-2X FOR TRACK CIRCUITS						
4	435-805560-4	EA	\$2.89	\$11.56	SAND, 25LB BAG FOR CABLE ENTRANCE INTO THE SHELTER						
1	670-027556-4	EA	\$2,676.32	\$2,676.32	SEARIII, ACCESSORY PACKAGE, W/2-ILOD, 1-E-BELL, 2-GTS, 1-GFT, 1-VHFC, WITHOUT MTSS/SEAR UNIT						
1	670-749325-4	EA	\$226.97	\$226.97	SHELF, FOLDING, FOR LAPTOP USE IN FARADAY 6X8 SHELTER, SAFETRAN 052852-128X						
1	670-755523-4	EA	\$9,325.16	\$9,325.16	SHELTER, 6'X8' ALUMN FARADAY W/CABLE CHUTES BEHIND TERMINAL BOARD, W/1EA EQUIPMENT RACK, W/GEN RECEPTICAL, BREAKER BOX GFI OUTLET FOR LAPTOP SHELF SAFETRAN 058400-68-85						
7	670-586967-4	EA	\$42.49	\$297.43	SHUNT COVER W/LAG SCREWS, 19"X19", SERRMI #40271, ORDER 1 PER SHUNT						
6	670-645460-4	EA	\$591.74	\$3,550.44	SHUNT, MULTI-FREQ. #62775-8621 SAFETRAN NARROW BAND						
2	670-397239-4	EA	\$40.23	\$80.46	SIGN CROSSING MALFUNCTION ASSEMBLY FOR 12" MAST, SAFETRAN #T17216						
2	670-899577-4	EA	\$77.05	\$154.10	SIGN, 3 TRACK SIGN, HIGH INTENSITY, SAFETRAN #035207-3HX						
2	670-016346-4	EA	\$146.32	\$292.64	SIGN, X-BUCK, HI-INTENSIVE REFLECTIVE FRT. & BACK FOR ALL STATES, SAFETRAN# 035200-91X						
3	670-330382-4	RL	\$15.68	\$47.04	TAPE, THOR 3" DURATEC, ORANGE 1000' LENGTHS. "WARNING STOP DIGGING"						
32	670-478560-4	EA	\$21.52	\$688.64	TERMINAL BLOCK, ERICO 4 POST P/N B2700A2C1WH W/HARDWARE LESS LIGHTNING ARRESTOR						
13	610-065626-4	EA	\$18.18	\$236.34	ULTRA-TECH 15206-01 CONNECTIVITY BLOCK FOR GRS B1 RELAY						

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Qty.	Class-Item-CD	UI	Price per Item	Total Price	Item Description	Quantity Shipped	Quantity Installed			Quantity Returned (Credit)	Special Instructions
							Date Quan.	Date Quan.	Date Quan.		
16	670-007238-4	EA	\$119.07	\$1,905.12	UNIT, THE INSTALLATION AND WIRING OF A DEVICE WHICH REQUIRE A MINIMUM OF FOUR WIRE CONNECT-						
2	450-986008-4	EA	\$31.26	\$62.52	WRENCH, TEST POST TYPE B DWG 55393-3, GR.1						

Total Material: \$158,028.29

(R.R. WEST)

(R.R. EAST)

1. MAX. TRAIN SPEED 50 M.P.H. NON-MEMBERS
MUST BE CALLED

2. LATITUDE N 39° 40' 28" LONGITUDE W 84° 14' 27"
ELEVATION 722'

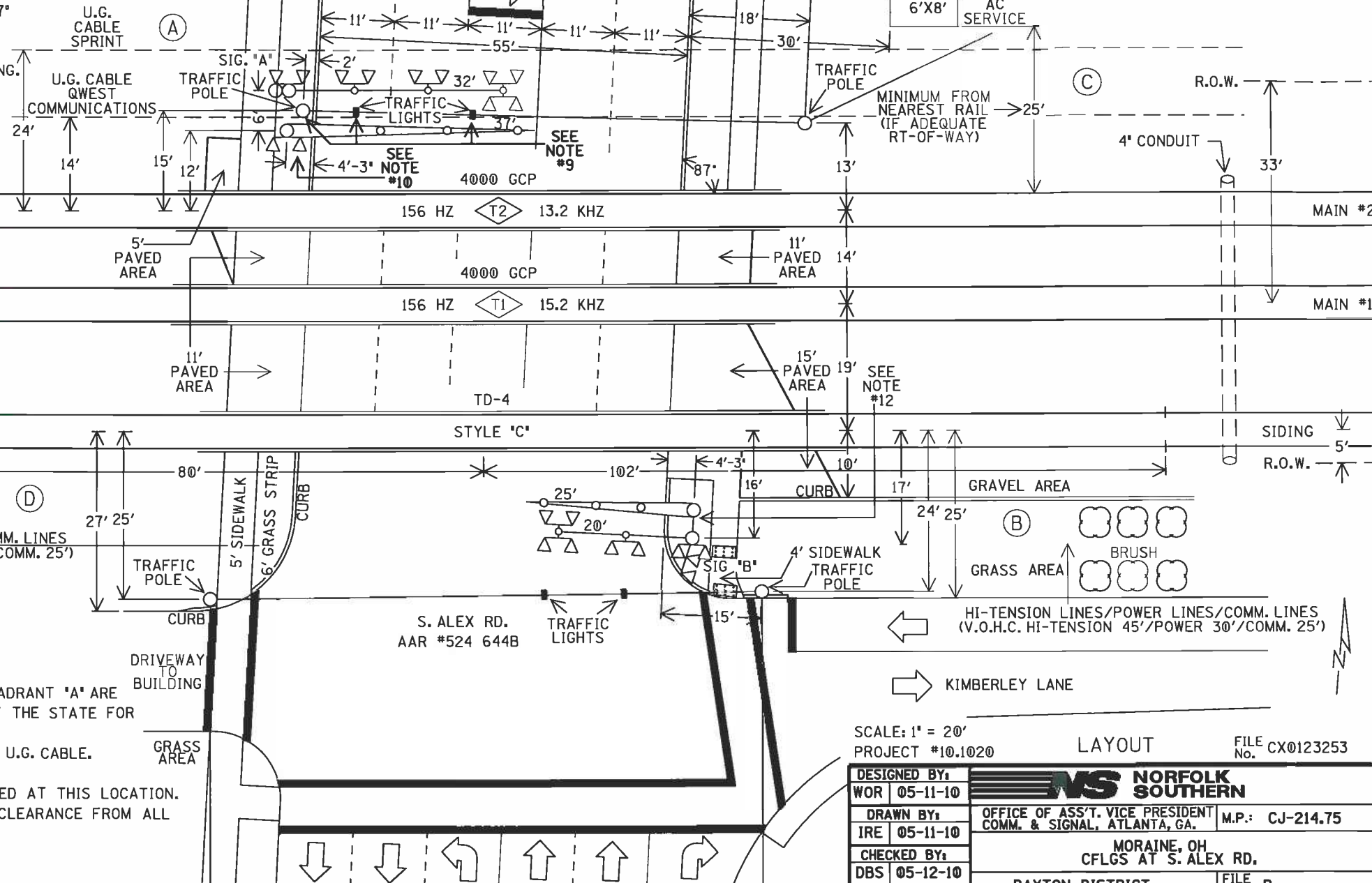
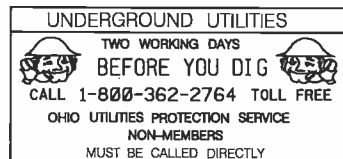
3. SIGNAL 'A' TO HAVE BELL.

4. LOCATE U/G UTILITIES & CABLE BEFORE DIGGING.

5. CROSSING LOCATED IN MONTGOMERY COUNTY.

6. NEAREST STREET ADDRESS IS
225 S. ALEX RD.

7. NEAREST INTERSECTING STREET IS
KIMBERLEY LANE



SIGNED

DATE _____

- ☐ S&E ENGINEERING COPY
☐ CONSTRUCTION OFFICE COPY
RETURN TO S&E ENG. AFTER COMPLETION
☐ FIELD COPY
RETURN TO CASE AFTER COMPLETION
☐ PROJECT ENGINEER COPY

HI-TENSION LINES/POWER LINES/COMM. LINES
(V.O.H.C. HI-TENSION 45'/POWER 30'/COMM. 25')

NOTES CONTINUED:

8. DISTANCE TO NEAREST INTERSECTING STREET IS 25 FT.
9. THE TRAFFIC POLE AND TRAFFIC LIGHTS IN QUADRANT 'A' ARE OBSTRUCTIONS AND NEED TO BE RELOCATED BY THE STATE FOR PROPER PLACEMENT OF SIGNAL.
10. PLACE THE SIGNAL IN QUADRANT 'A' TO AVOID U.G. CABLE. HAND DIGGING IS REQUIRED.
11. 25 SECONDS OF ADVANCED PREEMPTION REQUIRED AT THIS LOCATION.
12. FIELD FORCES TO PLACE SIGNAL 'B' FOR 4'-3" CLEARANCE FROM ALL FACES OF THE CURB.

(A) (B) (C) (D) = QUADRANT MARKERS

SCALE: 1" = 20'
PROJECT #10.1020

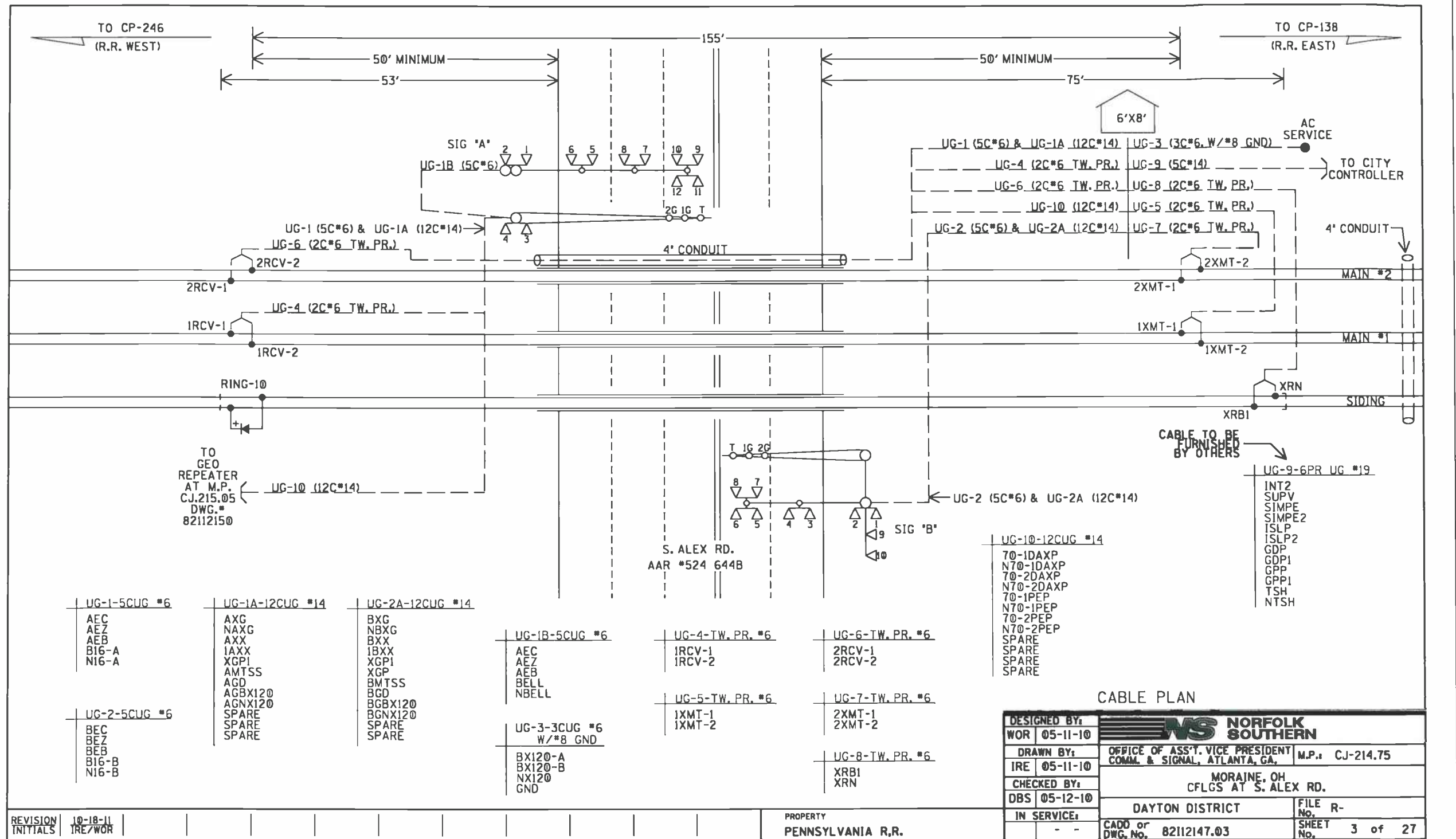
LAYOUT

FILE CX0123253
No.

DESIGNED BY:		 NORFOLK SOUTHERN	
WOR	05-11-10		
DRAWN BY:		OFFICE OF ASS'T. VICE PRESIDENT	
IRE	05-11-10	COMM. & SIGNAL, ATLANTA, GA.	
CHECKED BY:		M.P.: CJ-214.75	
DBS		MORaine, OH	
05-12-10		CFLGS AT S. ALEX RD.	
IN SERVICE:		DAYTON DISTRICT	
-		FILE No. R-	
-		SHEET 1 of 27	
CADD or DWG. No.		82112147.01	

REVISION	10-13-10	10-18-11	11-07-11
INITIALS	IRE/WOR	IRE/WOR	MLR

PROPERTY
PENNSYLVANIA R.R.



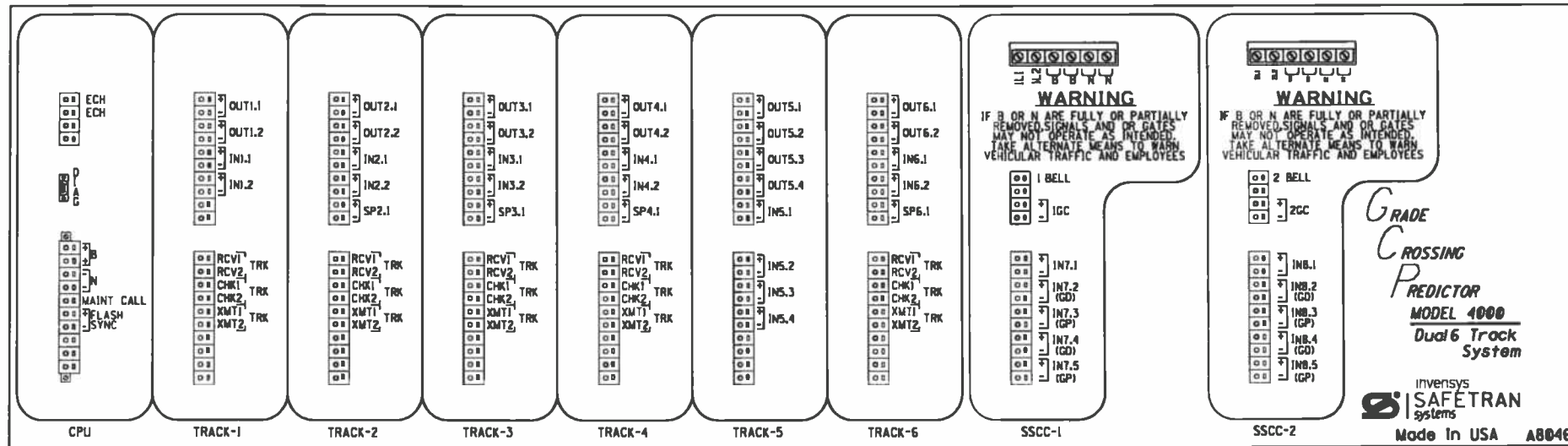
REMOVAL OF THE SSCCIII MODULE
WILL CAUSE THE GATE(S) TO
DROP BUT THE LIGHTS WILL
NOT ACTIVATE

ASSURE CORRECT POLARITY
OF THE SSCIIII MODULE OR
SEVERE DAMAGE WILL OCCUR.

ENSURE THE DISPLAY MODULE HEATER IS
DISABLED. LEAVING THE DISPLAY HEATER ENABLED
WILL REDUCE THE AMOUNT OF BATTERY STANDBY
TIME IN THE EVENT OF AN AC POWER FAILURE.

•= MAIN AND STANDBY MAY USE RIO IN
TRACKS 2, 5, AND 6 SLOTS
(M3, M6, AND M7)

DESIGNED BY:			NORFOLK SOUTHERN	
WOR	05-11-10			
DRAWN BY:		OFFICE OF ASST. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.		M.P.: CJ-214.75
IRE	05-11-10	MORaine, OH CFLGS AT S. ALEX RD.		
CHECKED BY:				
DBS	05-12-10			
IN SERVICE:		DAYTON DISTRICT		FILE No. R-
	- -	CADD or DWG. No.	82112147.06	SHEET 6 of 27



A80403	A80403	CPU 11+
A80418	A80418	TRACK 1
A80418•	A80418•	TRACK 2
		TRACK 3
		TRACK 4
A80413•	A80413•	TRACK 5
		TRACK 6
A80405	A80405	SSCC-1
A80406	A80407	SSCC-2

MODUL BAYS
— SHOWN ON NEXT SHEET

REVISION	10-18-11
INITIALS	IRE/WOR

PROPERTY
PENNSYLVANIA R.R.

DESIGNED BY:	WOR 05-11-10		 NORFOLK SOUTHERN	
DRAWN BY:	IRE 05-11-10		OFFICE OF ASST. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.	
CHECKED BY:	DBS 05-12-10		MORAJNE, OH CFLGS AT S. ALEX RD.	
IN SERVICE:	DAYTON DISTRICT CADD or DWG. No. 82112147.08		FILE No. R- SHEET No. 8 of 27	

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SCC: 1 Activation = AND 1 XR
SCC: Gate Delay = 4 sec
SCC: Number of GPs = 1
SCC: Number of GDs = 2
SCC: Flash Rate = 40
SCC: Low Battery Detection = No
SCC: Flash Sync = master
SCC: Invert Gate Output = No
SCC: Lamp Neutral Test = On
Aux-1 Xng Ctrl Used = No

```

```

OUTPUT: assignment page 1
OUT 1.1 = Not Used
OUT 1.2 = Not Used
OUT 2.1 = Not Used
OUT 2.2 = Not Used

```

```

INPUT: assignment page 1
L.1 = T1 Prime UAX
L.2 = T1 Preempt Enable
L.2.1 = T2 Prime UAX
L.2.2 = T2 Preempt Enable

```

```

0: assignment SCCC
OUT CC1 = Gate Output 1
OUT CC2 = Gate Output 2
7:1 = Not Used
7:2 = CD 1,2
7:3 = AND XR Enable
7:4 = CD 1
7:5 = Not Used
8:0 = Out Of Service IP
8:1 = Not Used
8:2 = Not Used
8:3 = AND XR Enable

```

```

SEAR: Inputs
SUB 2.1 POK 1
SUB 3.1 == Not Used
SUB 4.1 == Not Used
SUB 6.1 == Not Used

```

```

SEAR: inputs slot 5
N 5.1 = Not Used
N 5.2 = Not Used
N 5.3 = Not Used
N 5.4 = Not Used

```

```

SEAR: slot 7-8 inputs
NN 7.1 = TSS 1
NN 8.1 = TSS 1
NN 8.3 = POK 2
NN 8.4 = Not Used

```

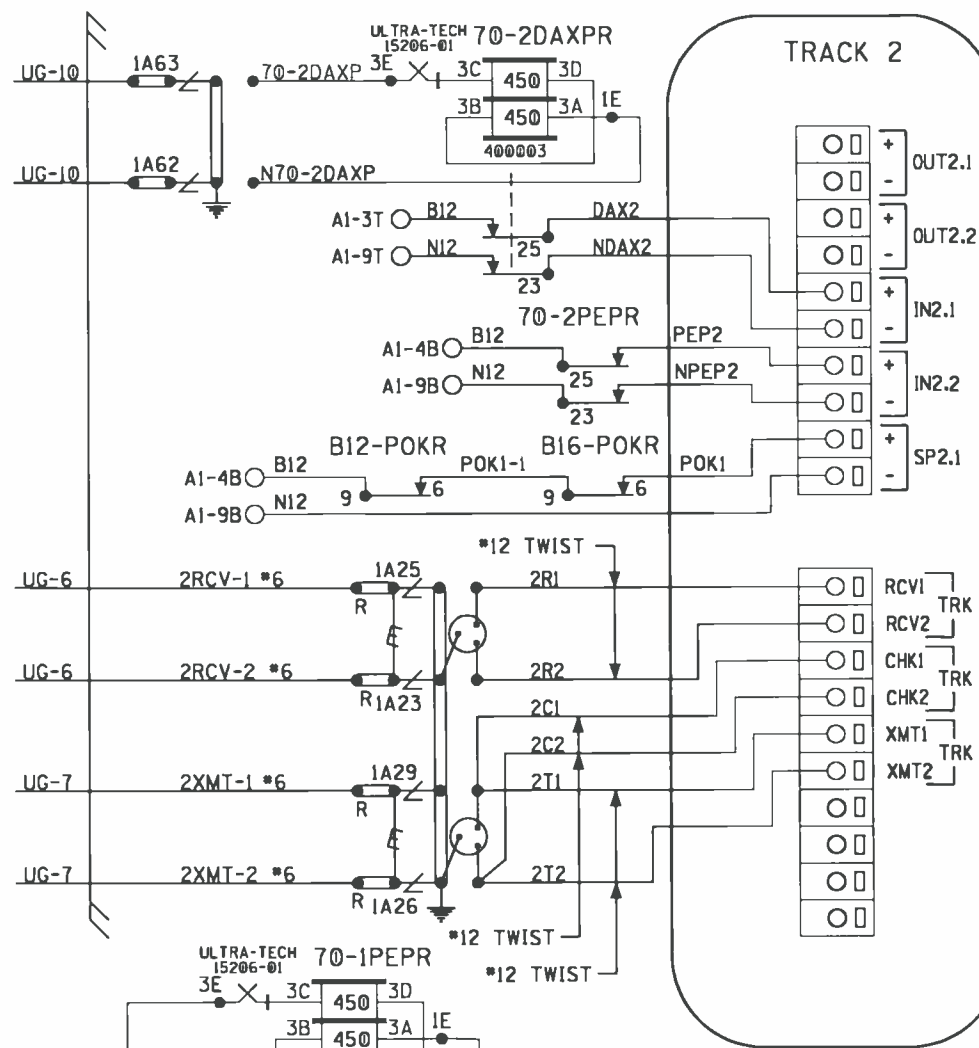
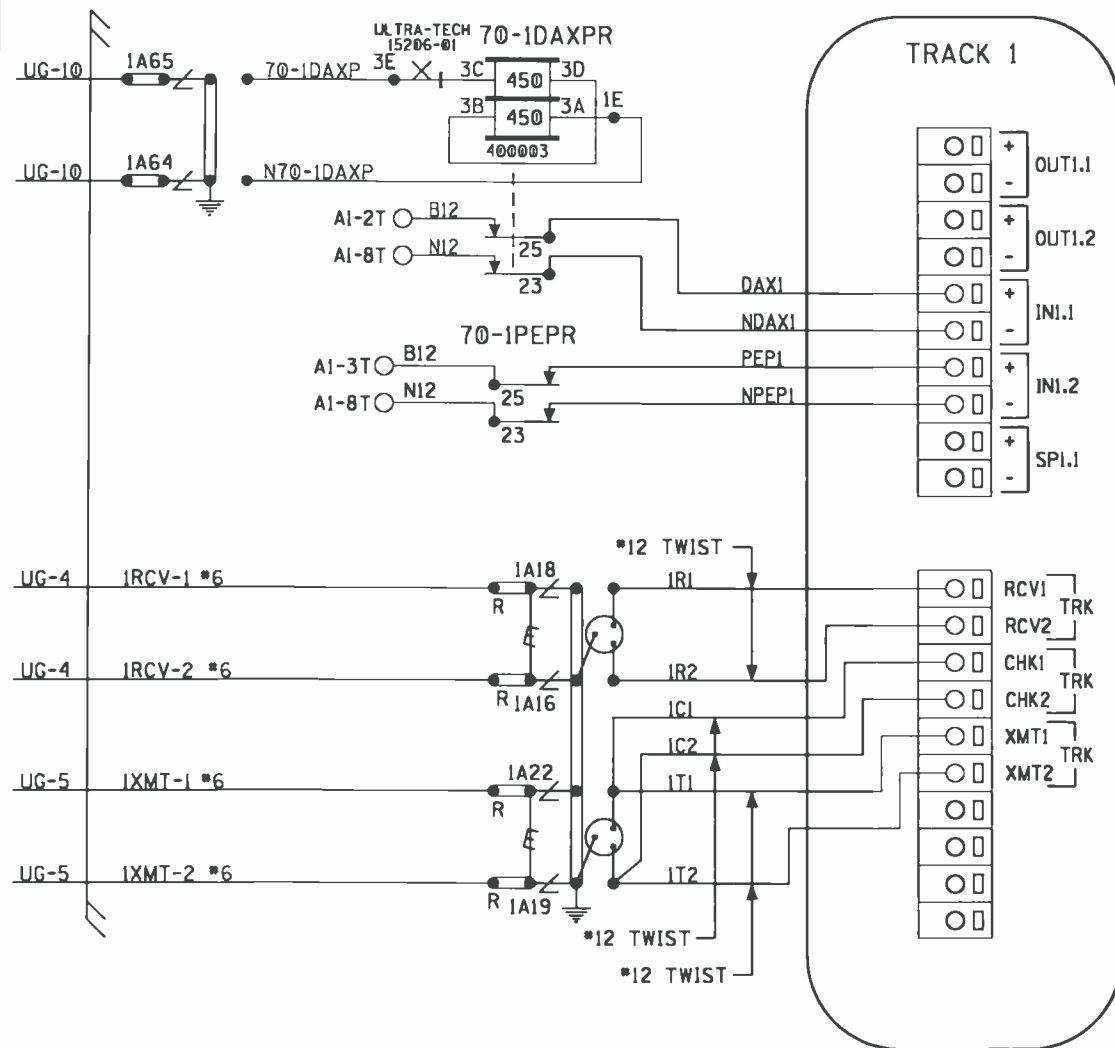
Configuration Package File

Filename: 82112147.pac

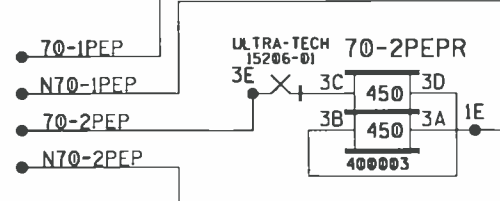
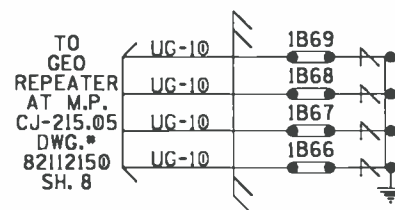
[illegible]

4000 GCP PROGRAMMING SETUP

DESIGNED BY:	WOR 05-11-10	 NORFOLK SOUTHERN
DRAWN BY:	05-11-10	
IRE	05-11-10	
CHECKED BY:	05-12-10	
DBS	05-12-10	
IN SERVICE:	- -	OFFICE OF ASST. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.
		MORaine, OH CFLGS AT S. ALEX RD.
DAYTON DISTRICT		FILE NO. R-
CADD or DWG. No.	82112147.09	SHEET No. 9 of 27



NOTE:
ALL WIRING TO BE #16AWG
UNLESS NOTED OTHERWISE.

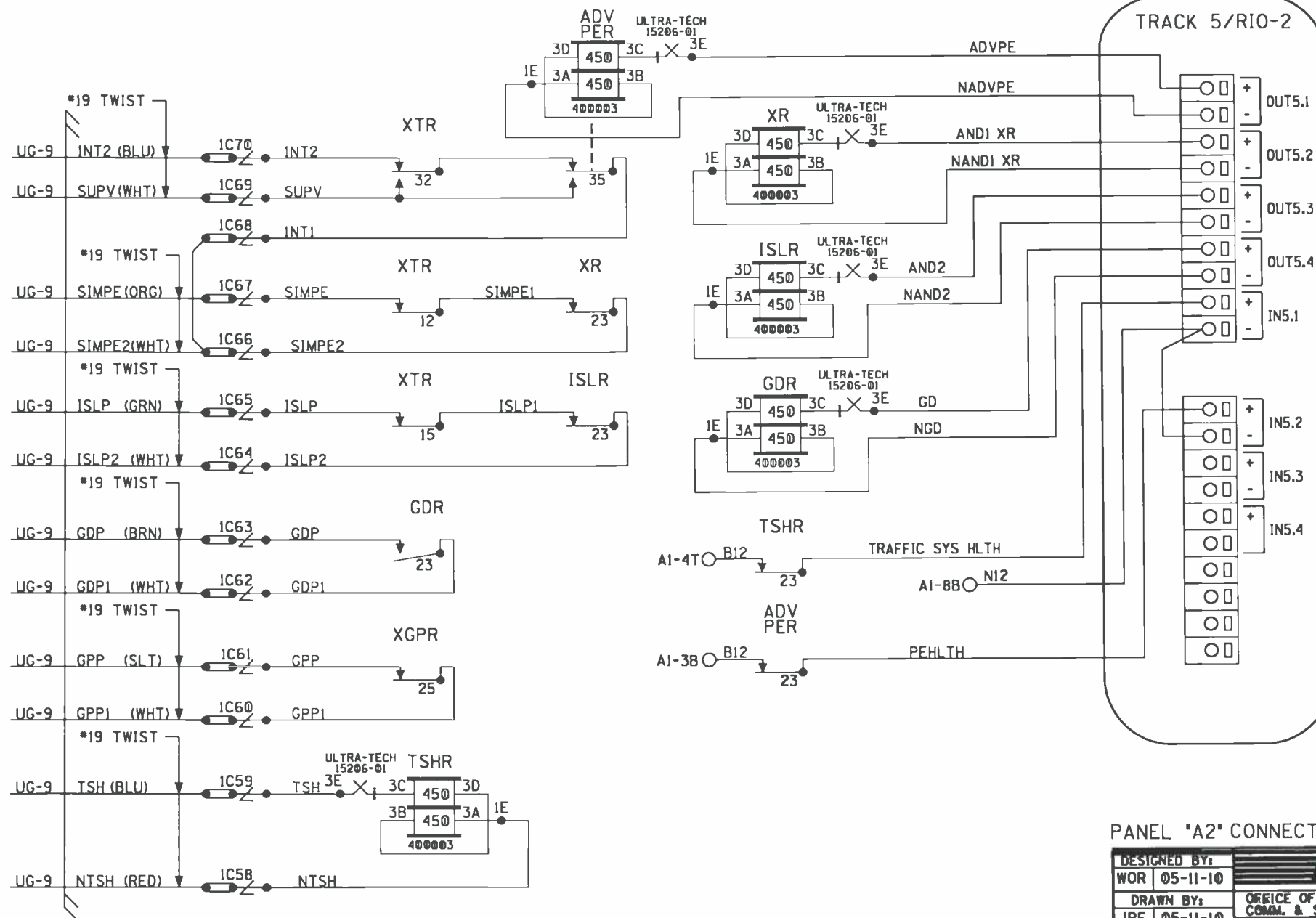


PANEL "A2" CONNECTORS FOR MODULES (A80418)

DESIGNED BY:	WOR 05-11-10	NORFOLK SOUTHERN	OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA. M.P.: CJ-214.75
DRAWN BY:	IRE 05-11-10		
CHECKED BY:	DBS 05-12-10		
IN SERVICE:	- -		
		MORaine, OH CFLGS AT S. ALEX RD.	
		DAYTON DISTRICT	FILE R-
		CADD or DWG. No. 82112147.10	SHEET 10 of 27

REVISION INITIALS 10-18-11 TRE/WOR

PROPERTY
PENNSYLVANIA R.R.



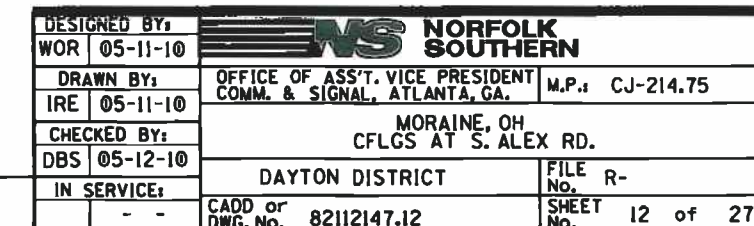
ALL WIRING TO BE *16AWG
UNLESS NOTED OTHERWISE.

PANEL 'A2' CONNECTORS FOR MODULES (A80418)

DESIGNED BY:	NS NORFOLK SOUTHERN		
WOR 05-11-10	OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.		
DRAWN BY:	MORaine, OH		M.P.: CJ-214.75
IRE 05-11-10	CFLGS AT S. ALEX RD.		
CHECKED BY:	DAYTON DISTRICT		FILE No. R-
OBS 05-12-10	CADD or DWG. No. 82112147.11		SHEET No. 11 of 27
IN SERVICE:			

REVISION INITIALS IRE 08-02-10 IRE 09-22-10 IRE 10-18-11 IRE/WOR

PROPERTY PENNSYLVANIA R.R.



TO CONFIGURE SEARCH PRESS SITE SETUP KEY.
USE ARROW KEYS TO MAKE SELECTION,
PRESS ENTER AFTER SELECTION HAS BEEN MADE.

	SITE SET UP PROCEDURE	
	FUNCTION	LED DISPLAY
	DATE/TIME	
	AUTOMATIC DST ADJUSTMENT	YES
	TIME ZONE	EST
	SITE NAME	S. ALEX RD.
	MILEPOST	CJ-214.75
	DOT *	524 644B
	TESTER TYPE	CROSSING
	DATE FORMAT	MM-DD-YYYY
	TEMP FORMAT	FAHRENHEIT
	INDICATE HOLD (SEC)	0
	INDICATE REFRESH (SEC)	60
	SITE ATCS	7.550.234.052.03.01
	SITE TYPE	NO COMMUNICATION
***	OFFICE ATCS ADDRESS	2.550.00.0000
***	PRIMARY HOP ADDR	7.RRR.LLL.GGG.XX.XX
***	BACKUP HOP ADDR 1	7.RRR.LLL.GGG.XX.XX
***	BACKUP HOP ADDR 2	7.RRR.LLL.GGG.XX.XX
***	POLL ID	1
***	MODE	GEN/ATCS
***	WAMS XID	DISABLED
***	OFFICE COMM DEVICE	MCM (ECHELON)
***	RADIO ATCS ADDR	7.RRR.LLL.GGG.01.01
***	PHONE *	(OFFICE NUMBER)
***	INIT STRING	
***	FIELD COMM	NONE
****	USER PORT	BAUD 57600, N, 8, 1, NONE
****	AUX PORT	BAUD 9600, N, 8, 1, NONE

VERIFY NUMBER OF BULBS: SENSOR #1	
CURR 1: LAMP SET UP	8 BULBS
CURR 2: LAMP SET UP	8 BULBS

VERIFY NUMBER OF BULBS: SENSOR #2	
CURR 1: LAMP SET UP	7 BULBS
CURR 2: LAMP SET UP	7 BULBS

CONTROL SYSTEM CONFIGURATION MENU QUESTIONS	
THE QUESTION	SELECT FROM MENU OPTION
RESET NAMES AND MODULES?	YES
RAILROAD NUMBER	550
CROSSING CONFIGURATION	NORMAL
AND 1 USED AS XR?	YES
AND 2 USED AS XR?	NO
AND 3 USED AS XR?	NO
AND 4 USED AS XR?	NO
AND 5 USED AS XR?	NO
AND 6 USED AS XR?	NO
AND 7 USED AS XR?	NO
AND 8 USED AS XR?	NO
XR CONTROLLED BY FOREIGN RR	
ENTRANCE GATES	2
GATES CONTROLLED BY FOREIGN RR	
GATE POSITION FAIL TIME (SECONDS)	20
BATTERY BANKS	2
BATTERY MON USED	YES
INTERNAL CROSSING CONTROLLERS	2
EXTERNAL CROSSING CONTROLLERS	0
VHF COMMUNICATOR	YES
DTMF ACTIVATION	YES
ACTIVATION CODE	644
ACTIVATION TIMEOUT (SECONDS)	60
ILOD MODULES	2
ANY LED BULBS USED	NO
AUTO INSPECTIONS	NO
BELL SENSORS	1
BELL SENSOR TSS1	YES
BELL SENSOR TSS2	NO
BELL SENSOR TSS3	NO
BELL SENSOR TSS4	NO
BELL SENSOR TSS5	NO
BELL SENSOR TSS6	NO
BELL SENSOR TSS7	NO
BELL SENSOR TSS8	NO

CONTROL SYSTEM CONFIGURATION MENU QUESTIONS (CONT.)	
BELL ON	GATES LOWERING
GFT'S	YES
BATTERIES ON GFT1	2
GATE TIP SENSORS	YES
RTU	NO
VHF VOICE CHANNEL	2
VHF DATA CHANNEL	2
USE CELL MODEM NON-CRITICAL FEATURE	NO
FULL APPROACH MOVES ALARM	ACTIVATE

PROGRAM MENU QUESTIONS	PROGRAM
EDIT DIGITAL INPUTS	NO
EDIT BATTERIES	NO
EDIT RELAYS	NO
EDIT INDICATOR LEDS	NO
EDIT TEST LEDS	NO
EDIT ILOD SENSORS	NO
EDIT VHF SETTINGS	NO
GCP4K ATCS SUBNODE	16

NOTES:

• = DISPLAYED IF CROSSING CONFIGURATION IS SPLIT GATE

•• = OPTIONS: IF BELL SENSOR = 0,
THEN BELL FIELDS ARE NOT USED.

```

... = IF SITE TYPE = NO COMMUNICATION,
      THEN THESE OPTIONS ARE NOT
      DISPLAYED

```

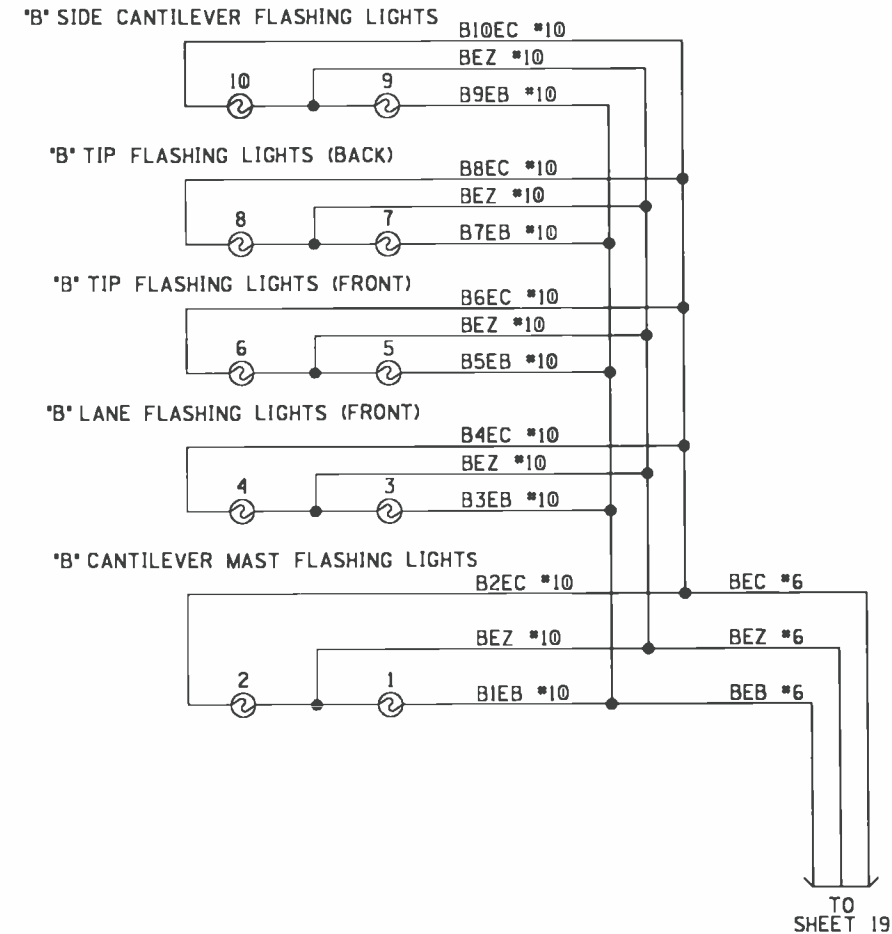
.... = THESE SETTINGS SHOULD BE LEFT
AT THE DEFAULT SETTING.

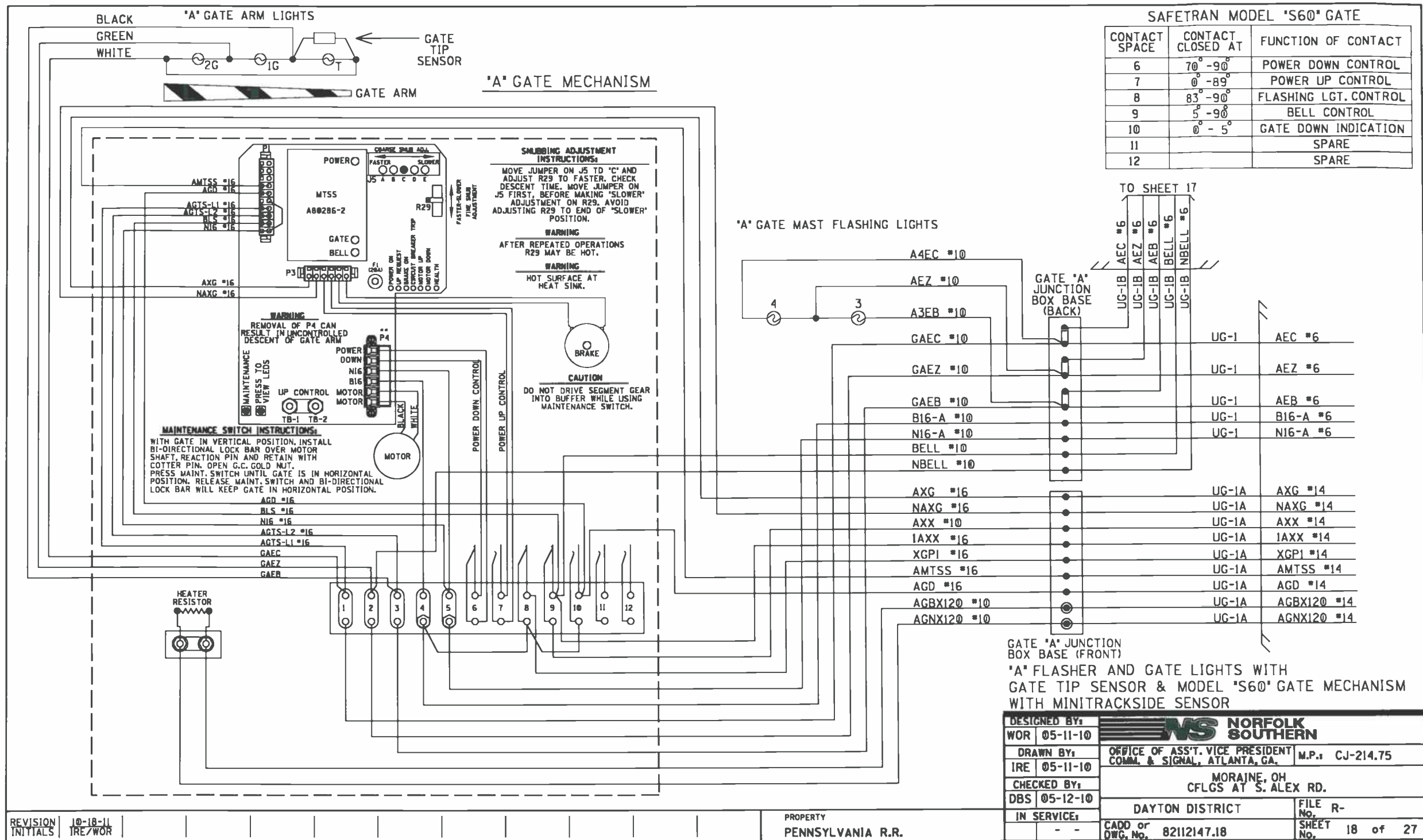
***** = USE LAST 3 NUMBERS FROM DOT NUMBER

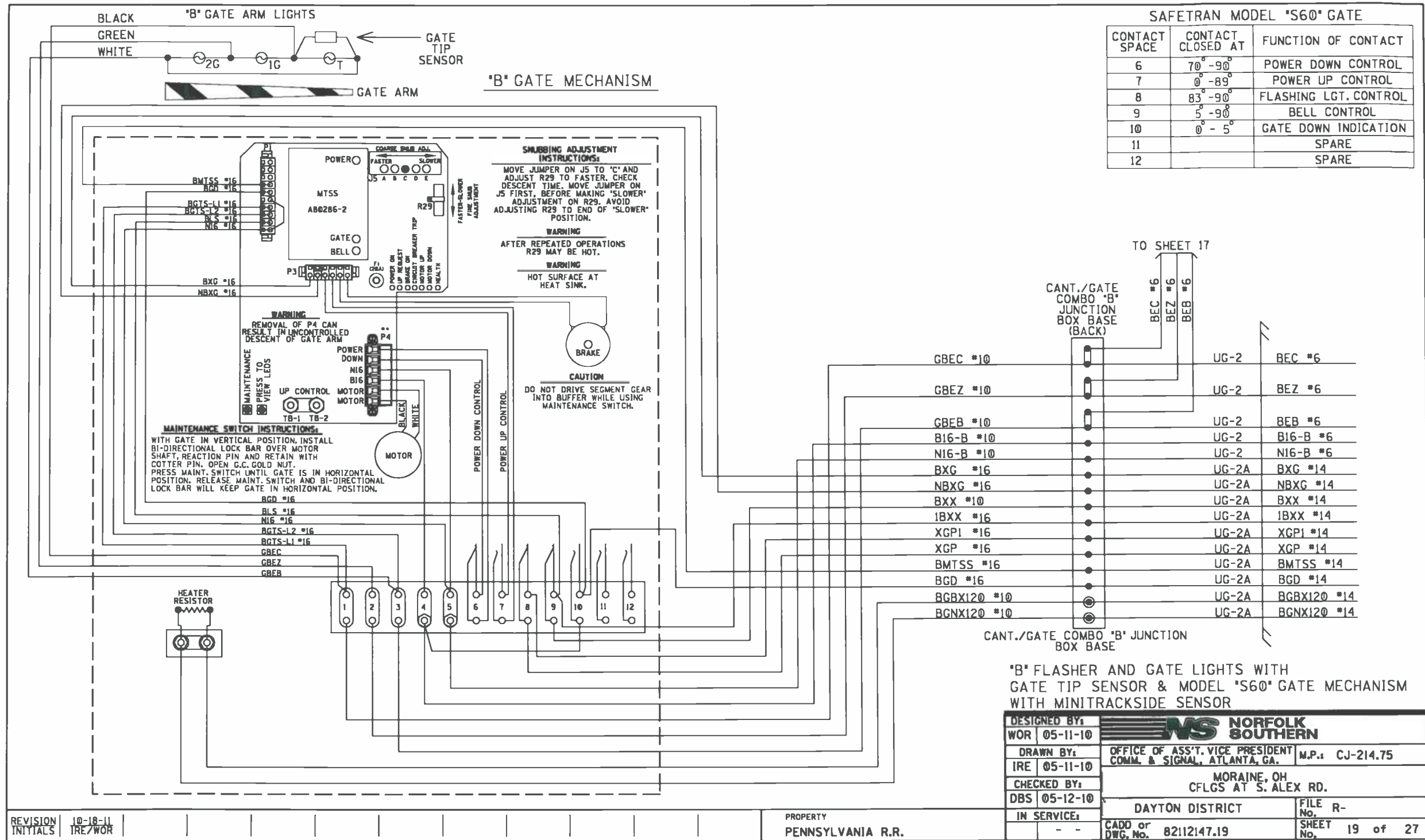
SEAR III PROGRAMMING SETUP

DESIGNED BY:		NORFOLK SOUTHERN	
WOR	05-11-10		
DRAWN BY:		OFFICE OF ASST. VICE PRESIDENT	
IRE	05-11-10	COMM. & SIGNAL, ATLANTA, GA.	M.P.: CJ-214.75
CHECKED BY:		MORaine, OH	
DBS	05-12-10	CFLGS AT S. ALEX RD.	
IN SERVICE:		DAYTON DISTRICT	FILE No. R-
	- -	CADD or DWG. No. 82112147.13	SHEET No. 13 of 27

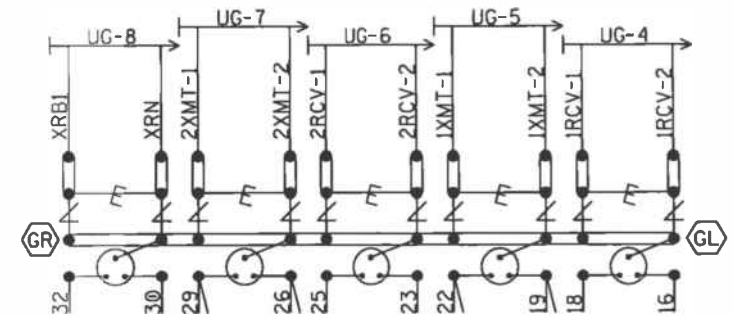
[illegible]

[illegible]





LEFT TWO ROWS TERMINAL BOARD 1



SEE FARADAY SHIELD DETAILS - 1A & 1B
FOR HOW THIS PORTION OF THE FARADAY
SHIELD IS PREDRILLED. ONLY INSTALL AND
USE THE TERMINALS NEEDED.

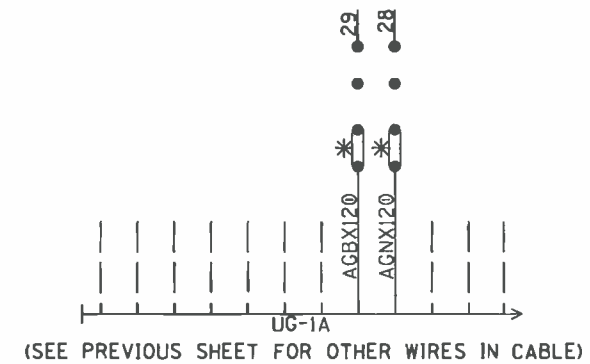
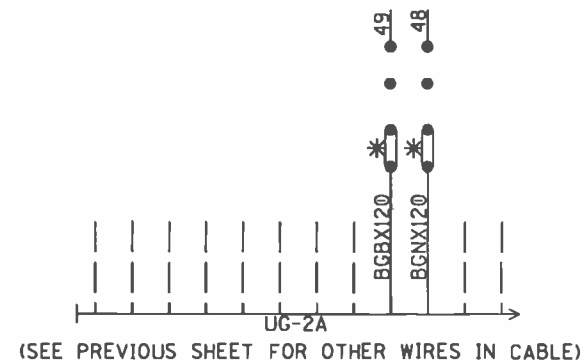
 = LPC-10560-51

GR
GL

DESIGNED BY:	WOR	05-11-10	 NORFOLK SOUTHERN
DRAWN BY:	IRE	05-11-10	
CHECKED BY:	DBS	05-12-10	
IN SERVICE:	-	-	
OFFICE OF ASST. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.			M.P.: CJ-214.75
MORAJNE, OH CFLGS AT S. ALEX RD.			
DAYTON DISTRICT			FILE No. R-
CADD or DWG. No.	82112147.20		SHEET 20 of 27

[illegible]

REAR VIEW OF LEFT TWO ROWS TERMINAL BOARD 1
"1B"
"1A"



NOTE: ALL 120VAC AND ABOVE WILL BE WIRED
TO THE REAR OF FARADAY BACKBOARD.
INSULATED NUTS MUST BE USED ON ALL
TERMINALS.

* = CLOSED DURING WINTER MONTHS

REAR OF FARADAY BACKBOARD
REAR BACKBOARD DETAIL - 1A & 1B

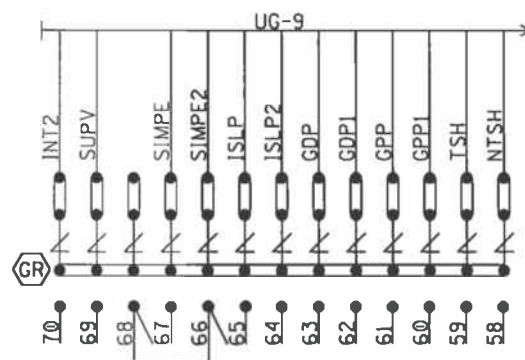
REVISION
INITIALS

10-18-11
TRE/WOR

PROPERTY
PENNSYLVANIA R.R.

DESIGNED BY:	WOR	05-11-10	 NORFOLK SOUTHERN	
DRAWN BY:	IRE	05-11-10		
CHECKED BY:	DBS	05-12-10	MORAJNE, OH CFLGS AT S. ALEX RD.	
IN SERVICE:	-	-	DAYTON DISTRICT	FILE No. R-
CADD or DWG. No. 82112147.21			SHEET 21 of 27	

15



SEE FARADAY SHIELD DETAILS - 1A & 1B
FOR HOW THIS PORTION OF THE FARADAY
SHIELD IS PREDRILLED. ONLY INSTALL AND
USE THE TERMINALS NEEDED.

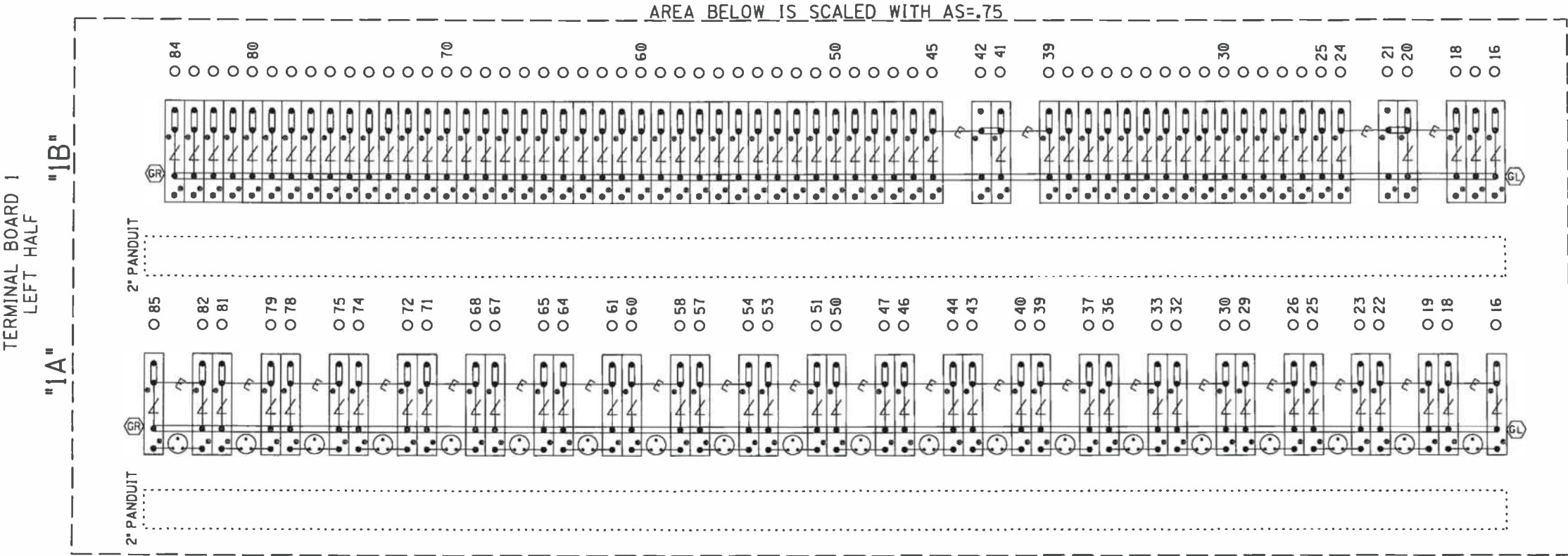
 = LPC-10560-51

 = TERMINALS GROUNDED TO SHIELD.
 4 POST BLOCKS USE EITHER -
 GR - SERMMI PART NO. 61278
 GL - SERMMI PART NO. 61278-1.

DESIGNED BY:		 NORFOLK SOUTHERN	
WOR	05-11-10		
DRAWN BY:		OFFICE OF ASS'T. VICE PRESIDENT	
IRE	05-11-10	COMM. & SIGNAL, ATLANTA, GA.	M.P.: CJ-214.75
CHECKED BY:		MORaine, OH	
DBS 05-12-10		CFLGS AT S. ALEX RD.	
IN SERVICE:		DAYTON DISTRICT	FILE NO. R-
	- -	CADD or DWG. No. 82112147.22	SHEET NO. 22 of 27

[illegible]

NOTE: IF THE FARADAY SHIELD WOULD EVER NEED TO BE DRILLED IN THE FIELD, PROPER PRECAUTIONS MUST BE TAKEN TO INSURE METAL SHAVINGS DO NOT GET INTO EXISTING TERMINALS/WIRES.



⚡ = Heavy Duty Equalizer
(022700-1X)

Clearview
⚡ = Lightning Arresters
(022585-1X)

⚡ = LPC-10560-51

GR = TERMINALS GROUNDED TO SHIELD.
4 POST BLOCKS USE EITHER -
GR - SERMMI PART NO. 61278
GL - SERMMI PART NO. 61278-1.

TERMINAL BOARD 1
LEFT TWO ROWS
FARADAY SHIELD DETAIL - 1A & 1B

= INDICATES PLACEMENT
OF PANDUIT

THIS SHEET IS FOR REFERENCE ONLY,
TO REFLECT HOW THE FARADAY SHIELD
IS PREDRILLED. ONLY INSTALL AND USE
THE TERMINALS NEEDED.

DESIGNED BY:	WOR 05-11-10	NS NORFOLK SOUTHERN	
DRAWN BY:	IRE 05-11-10	OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.	
CHECKED BY:	DBS 05-12-10	MORRIS, OH CFLGS AT S. ALEX RD.	
IN SERVICE:	- -	DAYTON DISTRICT	FILE R-
		CADD or DWG. No. 82112147.23	SHEET 23 of 27

REVISION
INITIALS

10-18-11
TRE/WOR

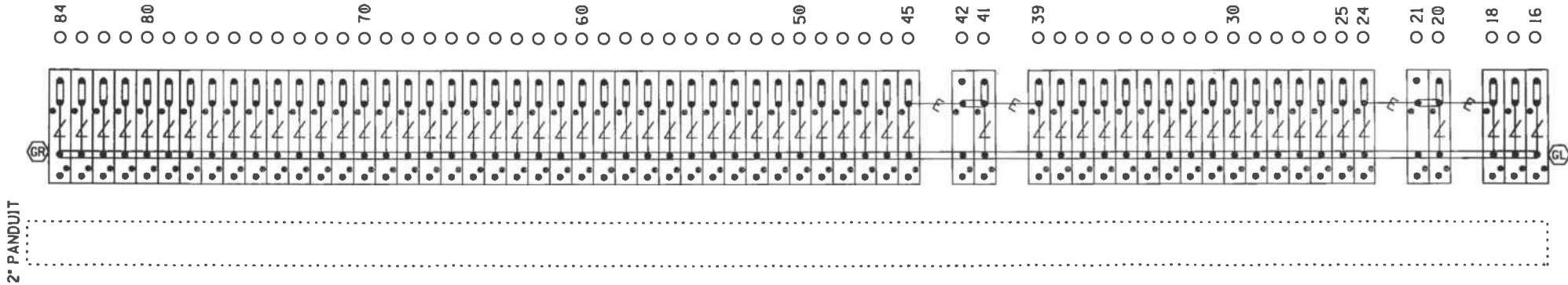
PROPERTY
PENNSYLVANIA R.R.

NOTE: IF THE FARADAY SHIELD WOULD EVER NEED TO BE DRILLED IN THE FIELD, PROPER PRECAUTIONS MUST BE TAKEN TO INSURE METAL SHAVINGS DO NOT GET INTO EXISTING TERMINALS/WIRES.

AREA BELOW IS SCALED WITH AS=.75

TERMINAL BOARD 1
RIGHT HALF

"1C"



⚡ = Heavy Duty Equalizer
(022700-1X)

Clearview
⚡ = Lightning Arrester
(022585-1X)

⚡ = LPC-10560-51

GR = TERMINALS GROUNDED TO SHIELD.
GL = 4 POST BLOCKS USE EITHER -
GR - SERMMI PART NO. 61278
GL - SERMMI PART NO. 61278-1.

TERMINAL BOARD 1
RIGHT ROW
FARADAY SHIELD DETAIL - 1C

= INDICATES PLACEMENT
OF PANDUIT

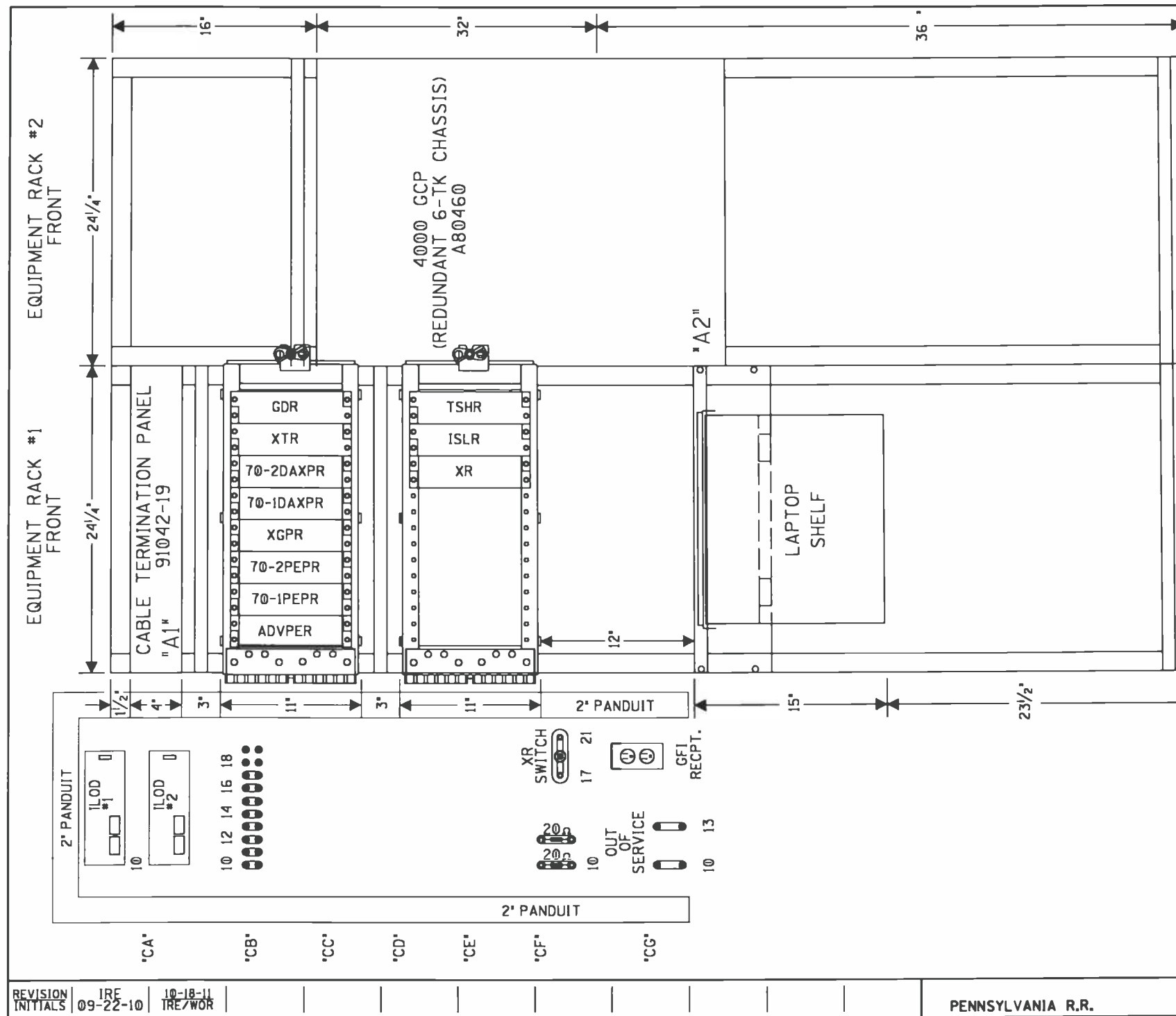
THIS SHEET IS FOR REFERENCE ONLY,
TO REFLECT HOW THE FARADAY SHIELD
IS PREDRILLED. ONLY INSTALL AND USE
THE TERMINALS NEEDED.

REVISION
INITIALS

10-18-11
IRE/WOR

PROPERTY
PENNSYLVANIA R.R.

DESIGNED BY: WOR 05-11-10	NS NORFOLK SOUTHERN	
DRAWN BY: IRE 05-11-10	OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.	M.P.: CJ-214.75
CHECKED BY: DBS 05-12-10	MORaine, OH CFLGS AT S. ALEX RD.	
IN SERVICE: - -	DAYTON DISTRICT	FILE No. R-
	CADD or DWG. No. 82112147.24	SHEET No. 24 of 27



SIDE "C"

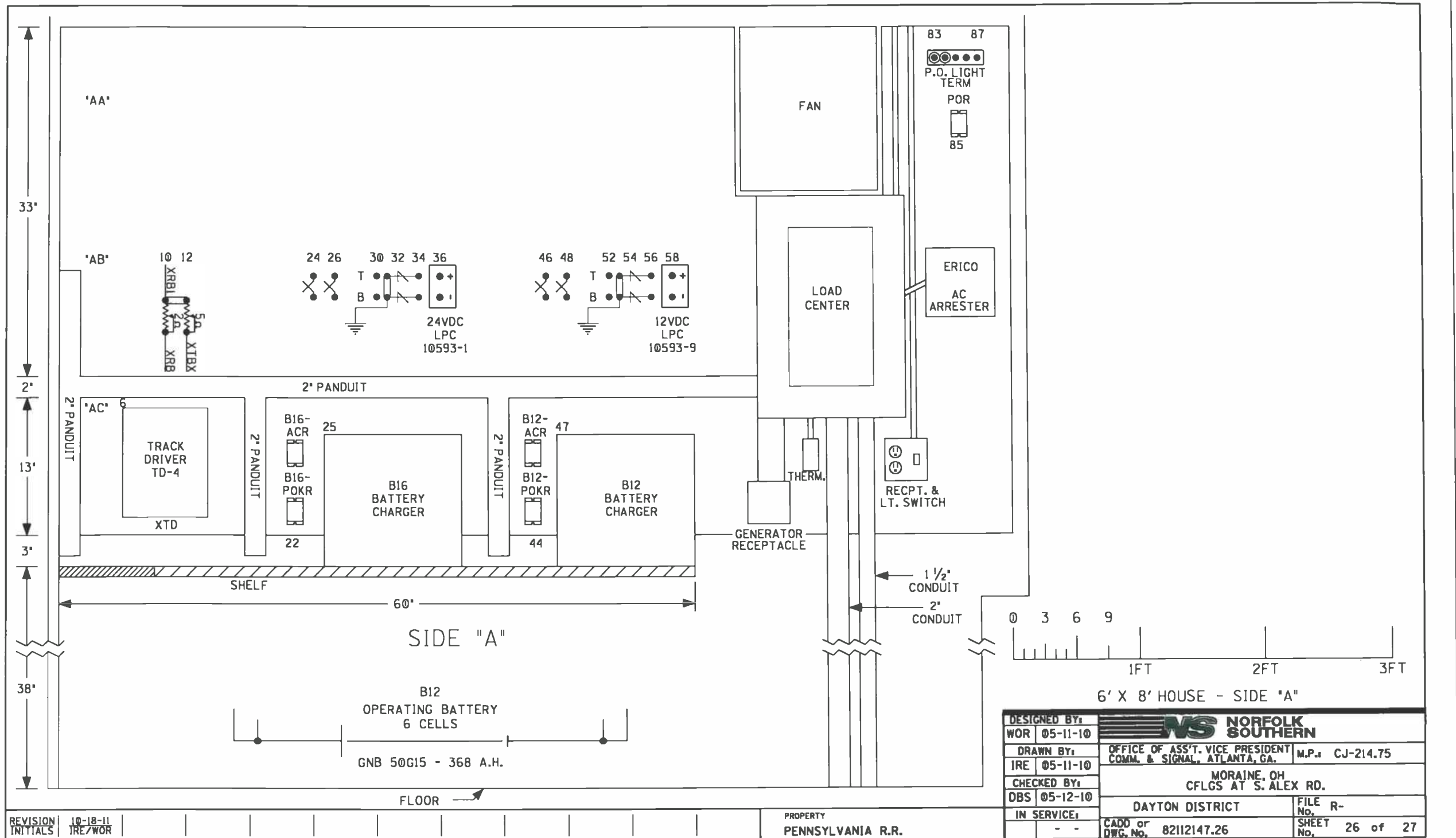


RACK PLACEMENT
6' X 8' HOUSE - SIDE "C"

DESIGNED BY:	NS NORFOLK SOUTHERN		
WOR 05-11-10	OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.		
DRAWN BY:	MORaine, OH		
IRE 05-11-10	CFLGS AT S. ALEX RD.		
CHECKED BY:	DAYTON DISTRICT		
OBS 05-12-10	FILE No. R-		
IN SERVICE:	SHEET 25 of 27		
- -	CADD or DWG. No.	82112147.25	

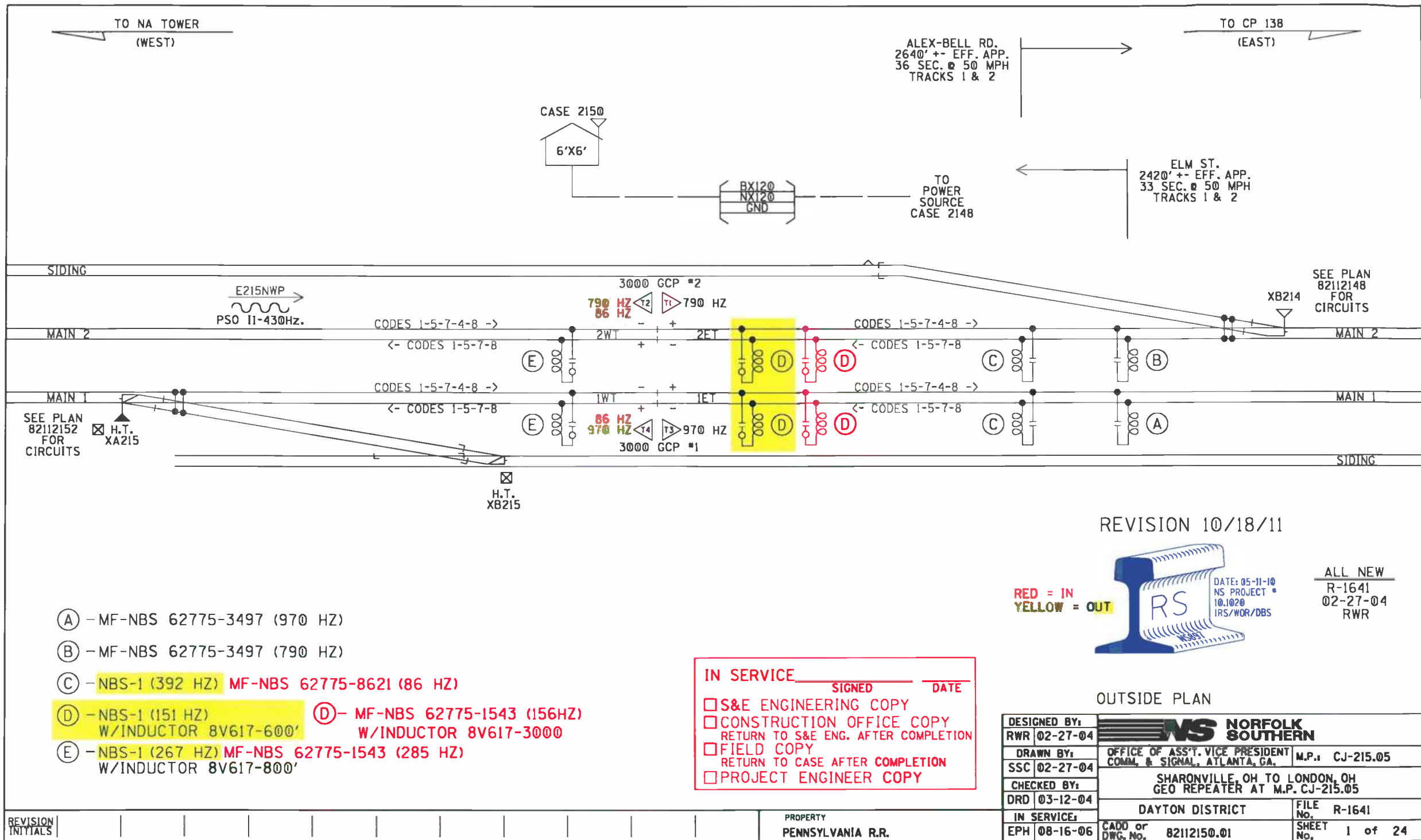
REVISION INITIALS IRE 09-22-10 10-18-11 IRE/WOR

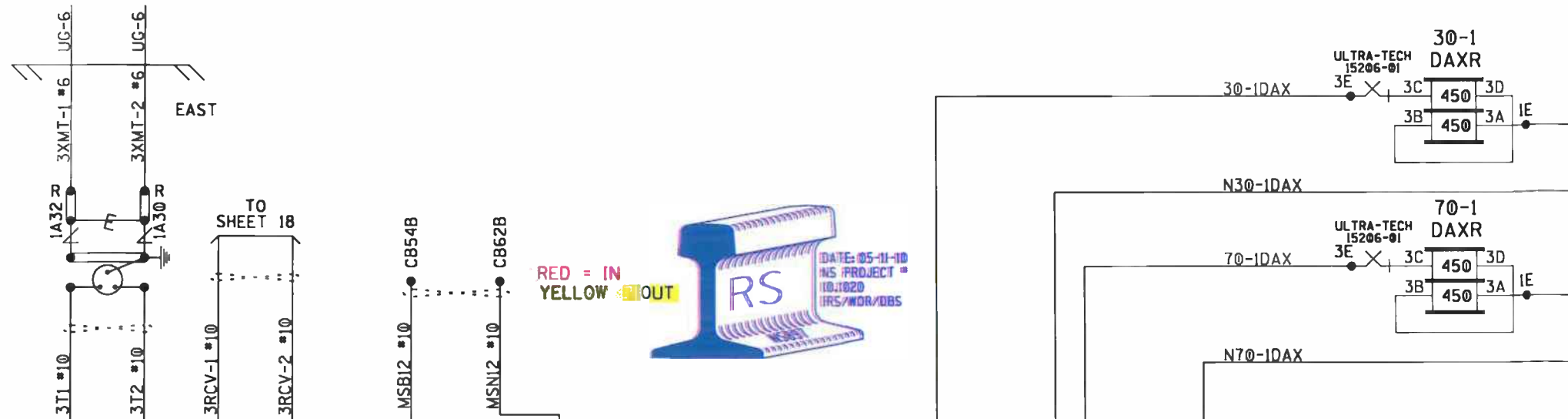
PENNSYLVANIA R.R.





DESIGNED BY:			
WOR	05-11-10	OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.	
DRAWN BY:		M.P.: CJ-214.75	
IRE	05-11-10	MORAIN, OH CFLGS AT S. ALEX RD.	
CHECKED BY:		DAYTON DISTRICT	
DBS	05-12-10	FILE NO. R-	
IN SERVICE:		SHEET 27 of 27	
	- -	CADD or DWG. No. 82112147.27	

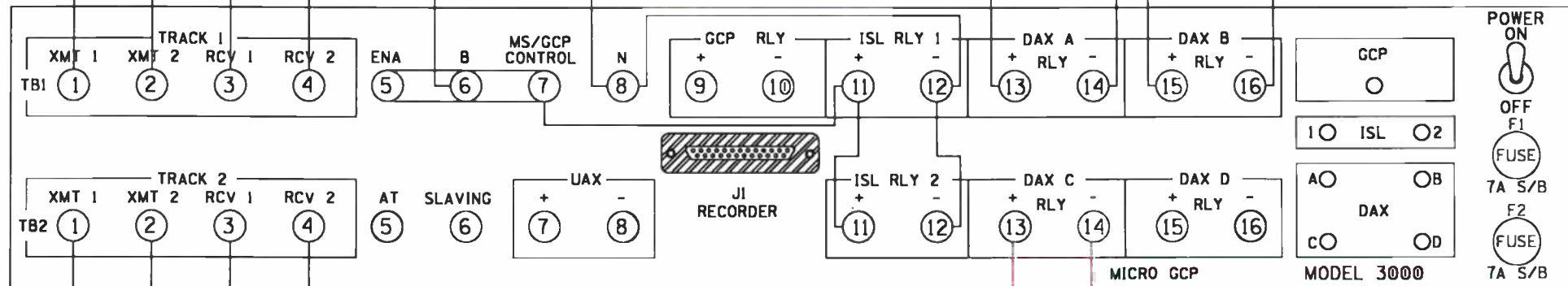
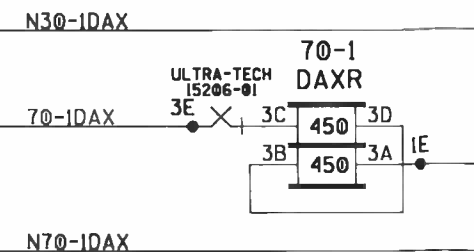
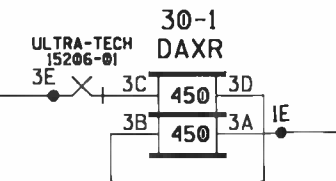




RED = IN
YELLOW = OUT



DATE: 05-11-10
NS PROJECT #
1001020
IRS/WOR/DBS



3000 GCP #1
T1 IF = --,-- KHZ
T2 IF = --,-- KHZ

POWER ON
OFF F1
FUSE
7A 5/B
F2
FUSE
7A 5/B
(RACK B)

NOTE:

1. ALL WIRING TO BE #16AWG UNLESS NOTED OTHERWISE
2. : : = TWIST LEADS

TRACK 1 3000 GCP HOOK-UP

DESIGNED BY:	RWR 02-27-04	NS NORFOLK SOUTHERN
DRAWN BY:	SSC 02-27-04	OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.
CHECKED BY:	DRD 03-12-04	SHARONVILLE, OH TO LONDON, OH GEO REPEATER AT M.P. CJ-215.05
IN SERVICE:	EPH 08-16-06	DAYTON DISTRICT
CADD or DWG. No.	82112150.08	FILE No. R-1641
		SHEET No. 8 of 24

REVISION
INITIALS

PROPERTY
PENNSYLVANIA R.R.

2 = WEST
1 = EAST

3000 PROGRAMMING		
* OF TKS/TRANSCIVERS		2
T1 FREQUENCY	970Hz	
T2 FREQUENCY	970Hz	86Hz
T1 UNI/BIDIRECTIONAL	UNI	
T2 UNI/BIDIRECTIONAL	UNI	
T1 POWER-MAX/MED	MED	
T2 POWER-MAX/MED	MED	
T1 PRED/MS	PRED	
T2 PRED/MS	PRED	
T1 WARNING TIME	35 Sec	
T2 WARNING TIME	35 Sec	
T1 APPROACH DIST	747 Ft	
T2 APPROACH DIST	703 Ft	2926 Ft
UAX PU DLY (0=OFF)	0 Sec	
ENA/UAX PU DLY(0=OFF)	0 Sec	
T1 ISL DIST	0 Ft	
T2 ISL DIST	0 Ft	
* OF DAX'S	2 Ea	
DAX A = T1/T2?	TRACK= 1	
DAX A DIST	1462 Ft	
DAX A WARN TIME	35 Sec	
DAX B = T1/T2?	TRACK= 2	
DAX B DIST	1387 Ft	1484 Ft
DAX B WARN TIME	35 Sec	30 Sec
DAX C = T1/T2?	TRACK= 2	
DAX C DIST	1484 Ft	
DAX C WARN TIME	55 Sec	
DAX D = T1/T2?	TRACK=	
DAX D DIST	Ft	
DAX D WARN TIME	Sec	
MASTER?/SLAVE?	MASTER	
PASSWORD NO/YES	NO	
RECORDER NO/YES	NO	

EXPANDED PROGRAMMING

T1-SW TO MS AT 10% OF EZ	
T2-SW TO MS AT 10% OF EZ	
T1-DELAY MS TO GCP	0 Sec
T2-DELAY MS TO GCP	0 Sec
T1 PRIME PRE. OFFSET	0 Ft
T2 PRIME PRE. OFFSET	0 Ft
PRIME PU TIME DELAY	15 Sec
DAX A PU DELAY	15 Sec
DAX B PU DELAY	15 Sec
DAX C PU DELAY	-- Sec
DAX D PU DELAY	-- Sec
ENHANCED DETECT MODE	OFF
BACK-TO-BACK	OFF
STATION STOP TIMER	10 Sec
T1* OF TRK. WIRES 4/6	4
T2* OF TRK. WIRES 4/6	4
LOW EX ADJUSTMENT	0
T1 LOW EZ DETECTION	OFF
T2 LOW EZ DETECTION	OFF
T1 LOW EZ DET. TIMER	10 Min
T2 LOW EZ DET. TIMER	10 Min
T1 POS. START EZ LEVEL	0
T2 POS. START EZ LEVEL	0
T1 POS. START T.O.	0 Min
T2 POS. START T.O.	0 Min
SET AT OPERATION	NORMAL
ADV. PRE.TIMER (0=OFF)	0 Sec

* = 1ST SLOT AT LEFT END OF BAY

MODEL 3000 GCP MODULE ASSEMBLIES										
MODULES POSITION	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10
MODULE NUMBERS	80211-f(1)* ISL	80211-f(2) ISL	80012 T/R 1	80012 T/R 2	80013 RLY DRV	80214 PROCS	80255 REC-INTF	80016 (1) DAX	80016 (2) DAX	80020 +80017
MODULES USED			X	X	X	X	X	X	X	X

NOTES:
1 - SEE IPI INSTRUCTION AND
INSTALLATION MANUAL FOR
80211 ISLAND CALIBRATION
PROCEDURE.

2 - TOGGLE SWITCH ON
MOTHER BOARD:
UP = DUAL FREQ.
DOWN = SINGLE FREQ.

RED = IN
YELLOW = OUT

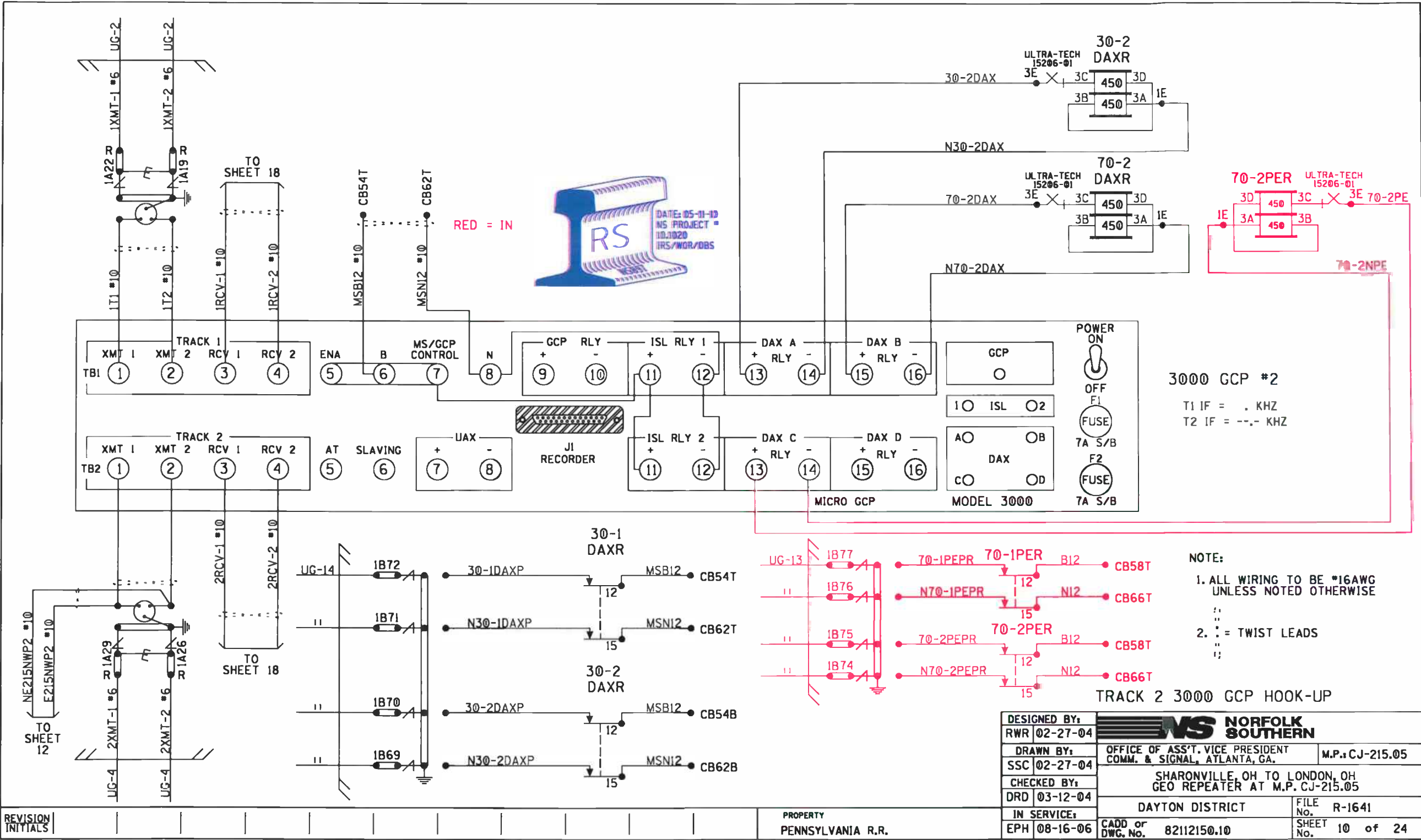


TRACK 1 3000 GCP SET-UP

DESIGNED BY:	RWR 02-27-04	NS NORFOLK SOUTHERN	
DRAWN BY:	SSC 02-27-04	OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.	M.P.: CJ-215.05
CHECKED BY:	ORD 03-12-04	SHARONVILLE, OH TO LONDON, OH GEO REPEATER AT M.P. CJ-215.05	
IN SERVICE:	EPH 08-16-06	DAYTON DISTRICT	FILE No. R-1641
		CADD or DWG. No. 82112150.09	SHEET No. 9 of 24

REVISION
INITIALS

PROPERTY
PENNSYLVANIA R.R.



1 = EAST
2 = WEST

3000 PROGRAMMING		
* OF TKS/TRANSCIEVERS		2
T1 FREQUENCY	790Hz	
T2 FREQUENCY	790Hz	86Hz
T1 UNI/BIDIRECTIONAL	UNI	
T2 UNI/BIDIRECTIONAL	UNI	
T1 POWER-MAX/MED	MED	
T2 POWER-MAX/MED	MED	
T1 PRED/MS	PRED	
T2 PRED/MS	PRED	
T1 WARNING TIME	35 Sec	
T2 WARNING TIME	35 Sec	
T1 APPROACH DIST	747 Ft	
T2 APPROACH DIST	703 Ft	2926 Ft
UAX PU DLY (0=OFF)	0 Sec	
ENA/UAX PU DLY(0=OFF)	0 Sec	
T1 ISL DIST	0 Ft	
T2 ISL DIST	0 Ft	
* OF DAX'S	2 Ea	
DAX A = T1/T2?	TRACK= 1	
DAX A DIST	1462 Ft	
DAX A WARN TIME	35 Sec	
DAX B = T1/T2?	TRACK= 2	
DAX B DIST	1387 Ft	1484 Ft
DAX B WARN TIME	35 Sec	30 Sec
DAX C = T1/T2?	TRACK= 2	
DAX C DIST	1484 Ft	
DAX C WARN TIME	55 Sec	
DAX D = T1/T2?	TRACK=	
DAX D DIST	Ft	
DAX D WARN TIME	Sec	
MASTER?/SLAVE?	MASTER	
PASSWORD NO/YES	NO	
RECORDER NO/YES	NO	

EXPANDED PROGRAMMING

T1-SW TO MS AT 10% OF EZ	
T2-SW TO MS AT 10% OF EZ	
T1-DELAY MS TO GCP	0 Sec
T2-DELAY MS TO GCP	0 Sec
T1 PRIME PRE. OFFSET	0 Ft
T2 PRIME PRE. OFFSET	0 Ft
PRIME PU TIME DELAY	15 Sec
DAX A PU DELAY	15 Sec
DAX B PU DELAY	15 Sec
DAX C PU DELAY	-- Sec
DAX D PU DELAY	-- Sec
ENHANCED DETECT MODE	OFF
BACK-TO-BACK	OFF
STATION STOP TIMER	10 Sec
T1* OF TRK. WIRES 4/6	4
T2* OF TRK. WIRES 4/6	4
LOW EX ADJUSTMENT	0
T1 LOW EZ DETECTION	OFF
T2 LOW EZ DETECTION	OFF
T1 LOW EZ DET. TIMER	10 Min
T2 LOW EZ DET. TIMER	10 Min
T1 POS. START EZ LEVEL	0
T2 POS. START EZ LEVEL	0
T1 POS. START T.O.	0 Min
T2 POS. START T.O.	0 Min
SET AT OPERATION	NORMAL
ADV. PRE.TIMER (0=OFF)	0 Sec

* = 1ST SLOT AT LEFT END OF BAY

MODEL 3000 GCP MODULE ASSEMBLIES										
MODULES POSITION	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10
MODULE NUMBERS	80211-f(1)* ISL	80211-f(2) ISL	80012 T/R 1	80012 T/R 2	80013 RLY DRV	80214 PROCS	80255 REC-INTF	80016 (1) DAX	80016 (2) DAX	80020 +80017
MODULES USED			x	x	x	x	x	x	x	x

NOTES:
1 - SEE IPI INSTRUCTION AND
INSTALLATION MANUAL FOR
80211 ISLAND CALIBRATION
PROCEDURE.

2 - TOGGLE SWITCH ON
MOTHER BOARD:
UP = DUAL FREQ.
DOWN = SINGLE FREQ.

RED = IN
YELLOW = OUT



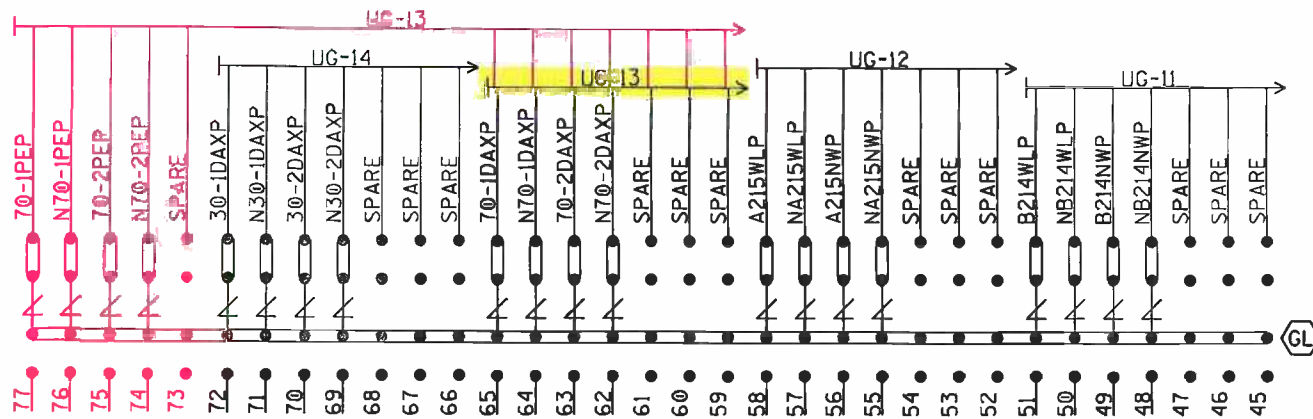
TRACK 2 3000 GCP SET-UP

DESIGNED BY:	RWR 02-27-04	NS NORFOLK SOUTHERN	
DRAWN BY:	SSC 02-27-04	OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.	M.P.: CJ-215.05
CHECKED BY:	DRD 03-12-04	SHARONVILLE, OH TO LONDON, OH GEO REPEATER AT M.P. CJ-215.05	
IN SERVICE:	EPH 08-16-06	DAYTON DISTRICT	FILE No. R-1641
		CADD or DWG. No. 82112150.11	SHEET 11 of 24

REVISION
INITIALS

PROPERTY
PENNSYLVANIA R.R.

LEFT TWO ROWS TERMINAL BOARD 1
"1A" "1B"

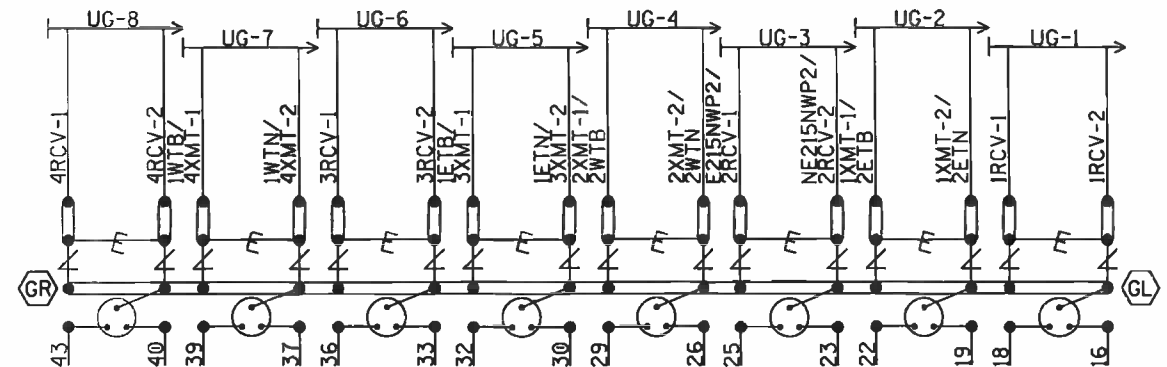


RED = IN
YELLOW = OUT



NOTE: INSTALL TEST LINKS ON ALL TRACK WIRES AND ON ALL LOW VOLTAGE UNDERGROUND CABLE TERMINATIONS.

SEE FARADAY SHIELD DETAILS - 1A & 1B FOR HOW THIS PORTION OF THE FARADAY SHIELD IS PREDRILLED. ONLY INSTALL AND USE THE TERMINALS NEEDED.



⚡ = Heavy Duty Equalizer (022700-1X)

Clearview
⚡ = Lightning Arrestor (022585-1X)

⦿ = LPC-10560-51

⦿ = TERMINALS GROUNDED TO SHIELD.
4 POST BLOCKS USE EITHER -
GR - SERMMI PART NO. 61278
GL - SERMMI PART NO. 61278-1.

BACKBOARD DETAIL - 1A & 1B

DESIGNED BY:	RWR 02-27-04	 NORFOLK SOUTHERN	
DRAWN BY:	SSC 02-27-04		
CHECKED BY:	DRD 03-12-04	OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA. M.P. CJ-215.05	
IN SERVICE:	EPH 08-16-06	SHARONVILLE, OH TO LONDON, OH GEO REPEATER AT M.P. CJ-215.05	
		DAYTON DISTRICT	FILE No. R-1641
		CADD or DWG. No. 82112150.18	SHEET No. 18 of 24

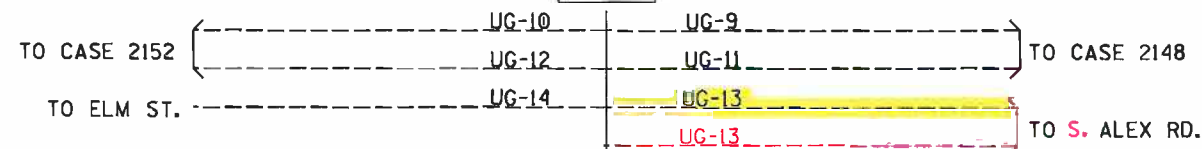
REVISION
INITIALS

PROPERTY
PENNSYLVANIA R.R.

TO NA TOWER
(WEST)

TO CP 138
(EAST)

CASE 2150

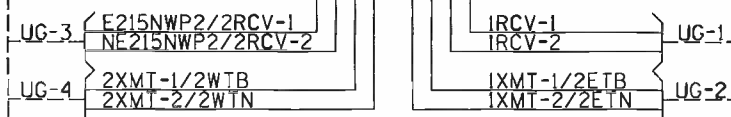


MAIN 2

2WT

2ET

MAIN 2

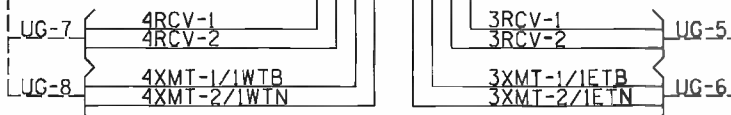


MAIN 1

1WT

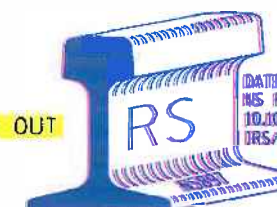
1ET

MAIN 1



- UG-1 - 2CUG #6 TW.TK.
- UG-2 - 2CUG #6 TW.TK.
- UG-3 - 2CUG #6 TW.TK.
- UG-4 - 2CUG #6 TW.TK.
- UG-5 - 2CUG #6 TW.TK.
- UG-6 - 2CUG #6 TW.TK.
- UG-7 - 2CUG #6 TW.TK.
- UG-8 - 2CUG #6 TW.TK.
- UG-9 - 3CUG #6 W/*8 GND
- UG-10 - 3CUG #6 W/*8 GND
- UG-11 - 7CUG #14
- UG-12 - 7CUG #14
- UG-13 - 7CUG #14 UG-13 - 12CUG #14
- UG-14 - 7CUG #14

RED = IN
YELLOW = OUT

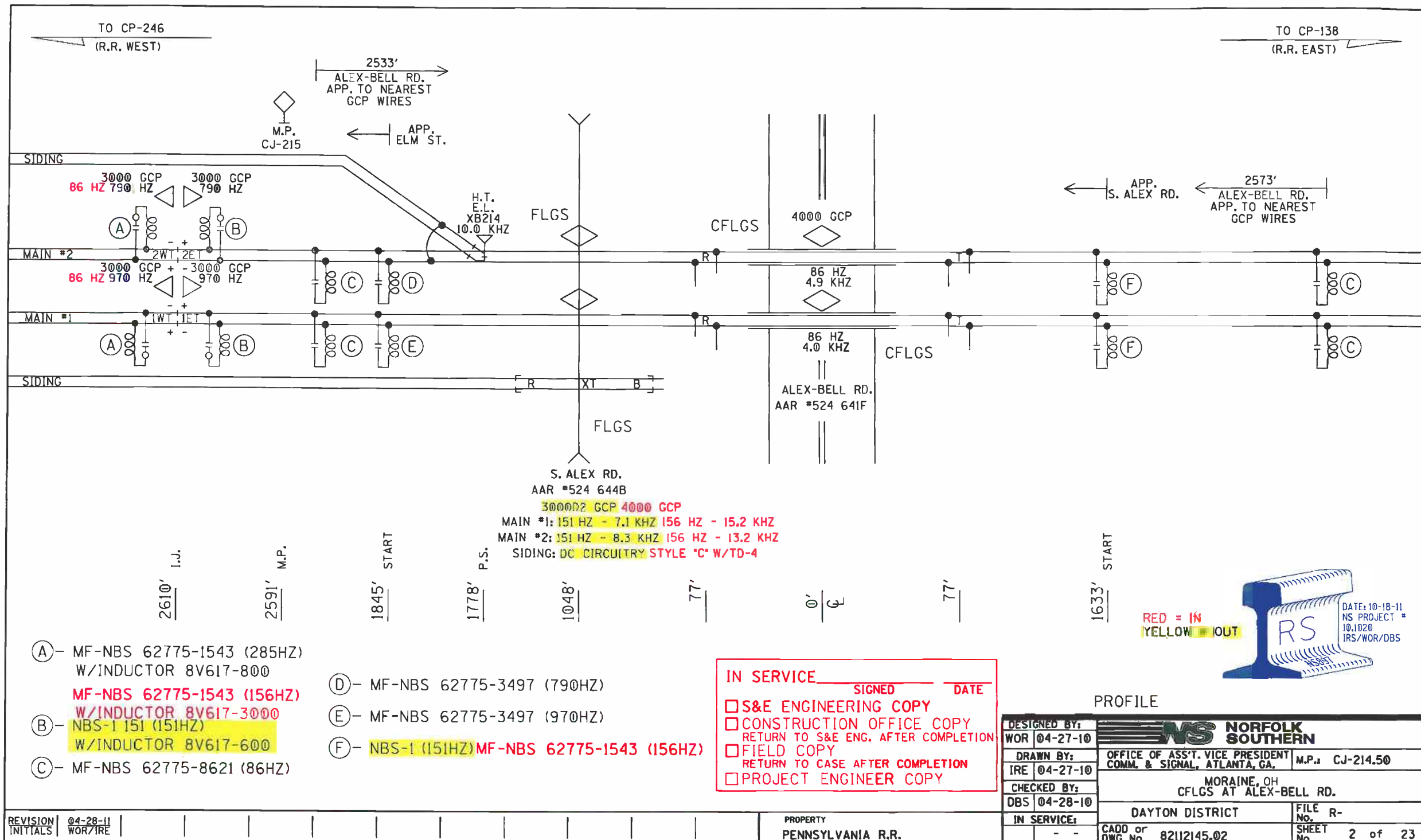


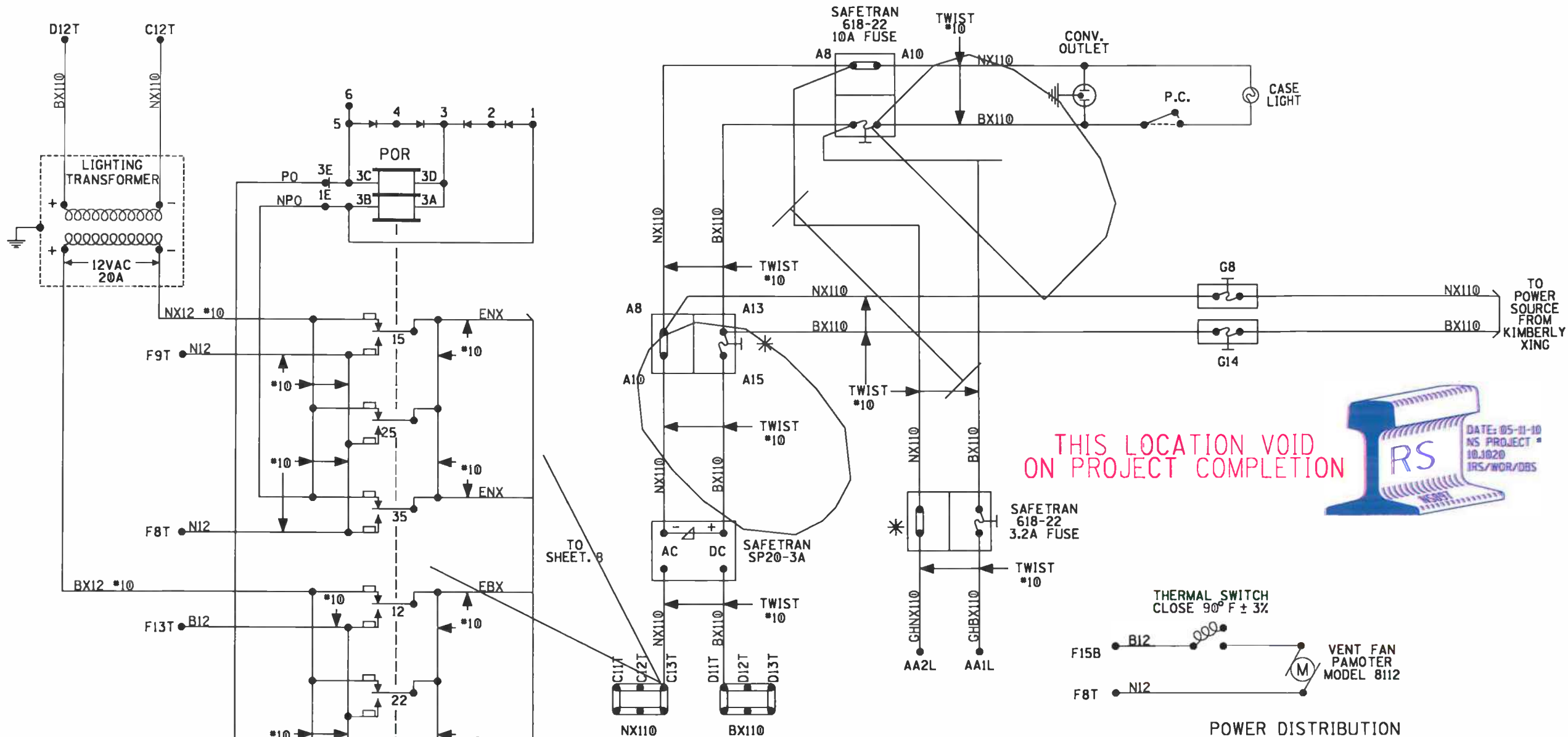
DATE: 05-04-10
NS PROJECT #
10.0020
DRS/WOR/DBS

REVISION
INITIALS

PROPERTY
PENNSYLVANIA R.R.

DESIGNED BY:	RWR 02-27-04	NS NORFOLK SOUTHERN	
DRAWN BY:	SSC 02-27-04	OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.	M.P.: CJ-215.05
CHECKED BY:	DRD 03-12-04	SHARONVILLE, OH TO LONDON, OH GEO REPEATER AT M.P. CJ-215.05	
IN SERVICE:	EPH 08-16-06	DAYTON DISTRICT	FILE No. R-1641
		CADD or DWG. No. 82112150.24	SHEET No. 24 of 24





THIS LOCATION VOID
ON PROJECT COMPLETION

NOTES:

ALL CASE WIRING *16 EXCEPT AS SHOWN.

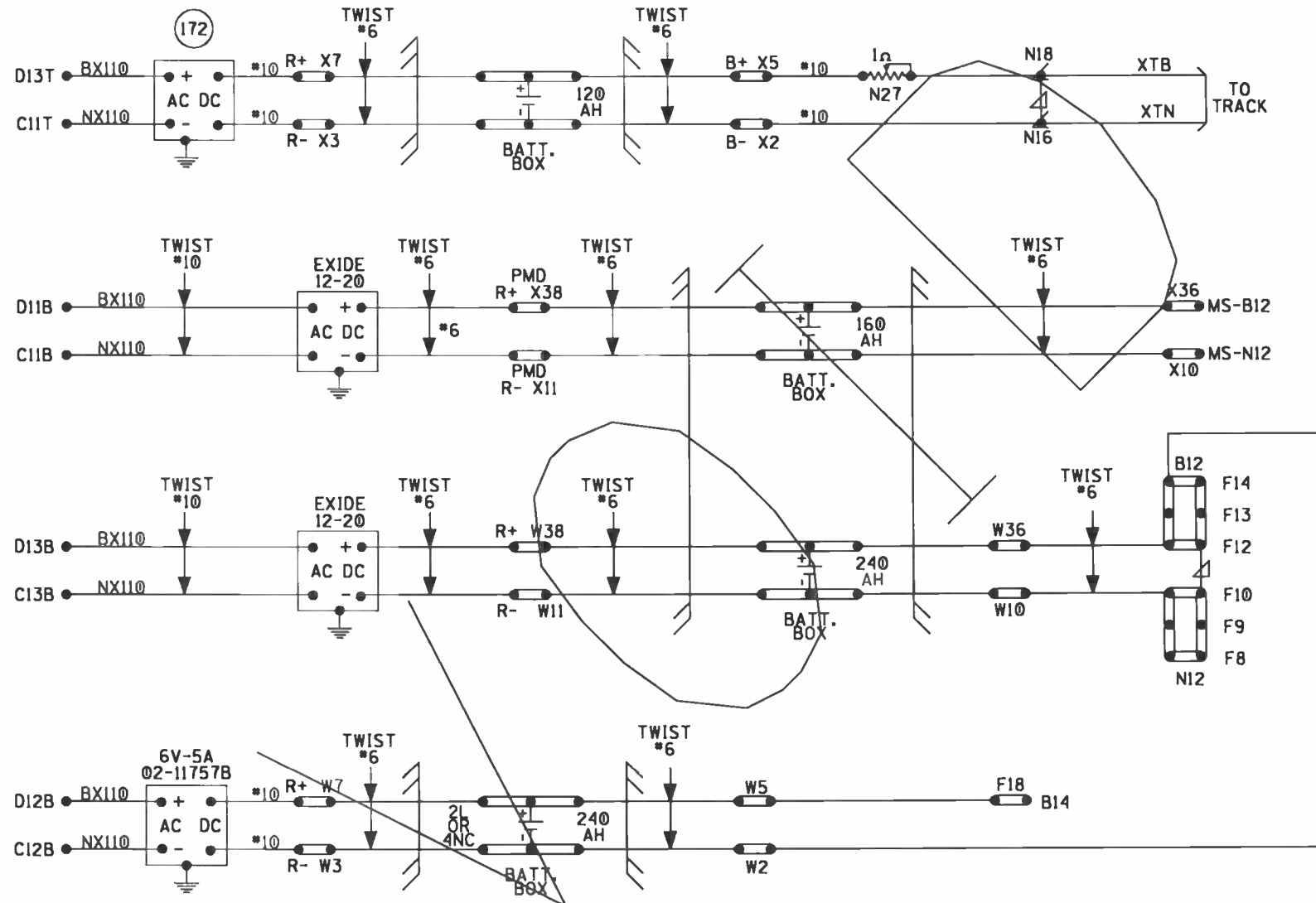
* = WHEN UNGROUND POWER IS USED REPLACE LINKS WITH FUSE OR ARRESTER EQUIVALENT TO BX110 SIDE OF CIRCUIT.

POWER DISTRIBUTION

DESIGNED BY:	RHR 02-28-04	NS NORFOLK SOUTHERN	
DRAWN BY:	SSC 02-28-04	OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.	M.P.: CJ-214.70
CHECKED BY:	CDM 03-02-04	SHARONVILLE, OH TO LONDON, OH CARROLLTON, OH FLGS AT ALEX RD.	
IN SERVICE:	EPH 08-16-06	DAYTON DISTRICT	FILE No. R-1641
		CADD or DWG. No. 82112147.02	SHEET No. 2 of 14

REVISION
INITIALS

PROPERTY
PENNSYLVANIA R.R.



THIS LOCATION VOID
ON PROJECT COMPLETION



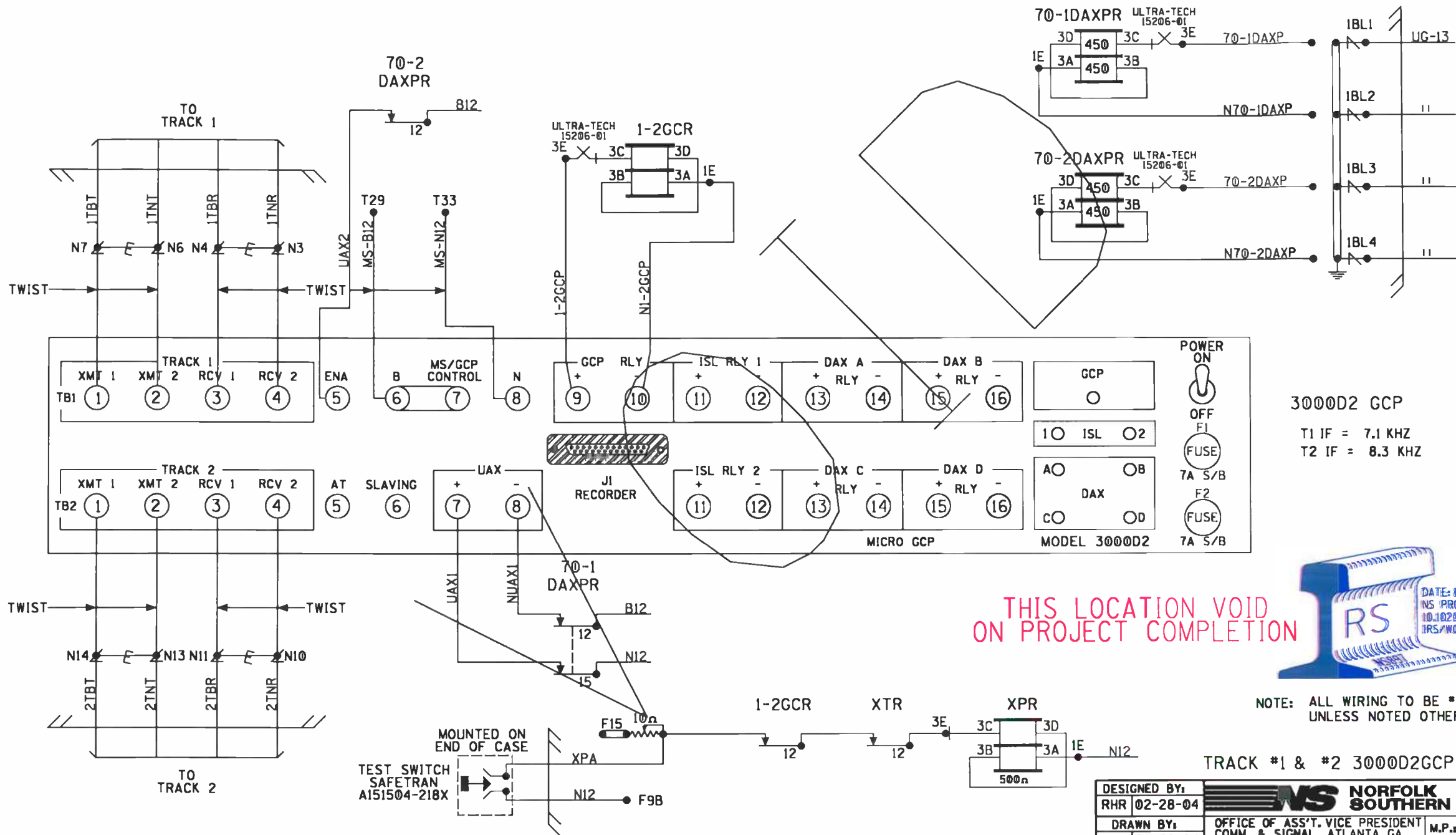
ALL CASE WIRING #16 EXCEPT AS SHOWN.

POWER DISTRIBUTION

DESIGNED BY:	RHR	02-28-04	 NORFOLK SOUTHERN	OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.	M.P.: CJ-214.70	
DRAWN BY:	SSC	02-28-04				
CHECKED BY:	CDM	03-02-04	SHARONVILLE, OH TO LONDON, OH CARROLLTON, OH FLGS AT ALEX RD.			
IN SERVICE:	EPH	08-16-06	DAYTON DISTRICT			FILE No. R-1641
CADD or DWG. No.		82112147.03	SHEET No. 3 of 14			

REVISION
INITIALS

PROPERTY
PENNSYLVANIA R.R.



3000D2 GCP

T1 IF = 7.1 KHZ
T2 IF = 8.3 KHZ



NOTE: ALL WIRING TO BE #16AWG UNLESS NOTED OTHERWISE.

DESIGNED BY:	RHR 02-28-04	NS NORFOLK SOUTHERN	
DRAWN BY:	SSC 02-28-04	OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.	M.P. CJ-214.70
CHECKED BY:	CDM 03-02-04	SHARONVILLE, OH TO LONDON, OH CARROLLTON, OH FLGS AT ALEX RD.	
IN SERVICE:	EPH 08-16-06	DAYTON DISTRICT	FILE No. R-1641
CADD or DWG. No.	82112147.05	SHEET No.	5 of 14

REVISION INITIALS

PROPERTY PENNSYLVANIA R.R.

3000D2 PROGRAMMING		
* OF TKS/TRANSCIVERS		2
T1 FREQUENCY	151Hz	
T2 FREQUENCY	151Hz	
T1 UNI/BIDIRECTIONAL	BI	
T2 UNI/BIDIRECTIONAL	BI	
T1 POWER-MAX/MED	MAX	
T2 POWER-MAX/MED	MAX	
T1 PRED/MS	PRED	
T2 PRED/MS	PRED	
T1 WARNING TIME	35 Sec	
T2 WARNING TIME	35 Sec	
T1 APPROACH DIST	2420 Ft	
T2 APPROACH DIST	2420 Ft	
UAX PU DLY (0=OFF)	25 Sec	
ENA/UAX PU DLY(0=OFF)	25 Sec	
T1 ISL DIST	125 Ft	
T2 ISL DIST	125 Ft	
* OF DAX'S	0 Ed	
DAX A = T1/T2?	TRACK=	
DAX A DIST	Ft	
DAX A WARN TIME	Sec	
DAX B = T1/T2?	TRACK=	
DAX B DIST	Ft	
DAX B WARN TIME	Sec	
DAX C = T1/T2?	TRACK=	
DAX C DIST	Ft	
DAX C WARN TIME	Sec	
DAX D = T1/T2?	TRACK=	
DAX D DIST	Ft	
DAX D WARN TIME	Sec	
MASTER?/SLAVE?	MASTER	
PASSWORD NO/YES	NO	
RECORDER NO/YES	NO	

EXPANDED PROGRAMMING		
T1-SW TO MS AT 10% OF EZ		
T2-SW TO MS AT 10% OF EZ		
T1-DELAY MS TO GCP	0 Sec	
T2-DELAY MS TO GCP	0 Sec	
T1 PRIME PRE. OFFSET	0 Ft	
T2 PRIME PRE. OFFSET	0 Ft	
PRIME PU TIME DELAY	15 Sec	
DAX A PU DELAY	-- Sec	
DAX B PU DELAY	-- Sec	
DAX C PU DELAY	-- Sec	
DAX D PU DELAY	-- Sec	
ENHANCED DETECT MODE	OFF	
BACK-TO-BACK	OFF	
STATION STOP TIMER	10 Sec	
T1* OF TRK. WIRES 4/6	4	
T2* OF TRK. WIRES 4/6	4	
LOW EX ADJUSTMENT	0	
T1 LOW EZ DETECTION	OFF	
T2 LOW EZ DETECTION	OFF	
T1 LOW EZ DET. TIMER	10 Min	
T2 LOW EZ DET. TIMER	10 Min	
T1 POS. START EZ LEVEL	0	
T2 POS. START EZ LEVEL	0	
T1 POS. START T.O.	0 Min	
T2 POS. START T.O.	0 Min	
SET AT OPERATION	NORMAL	
ADV. PRE. TIMER (0=OFF)	0 Sec	

THIS LOCATION VOID
ON PROJECT COMPLETION

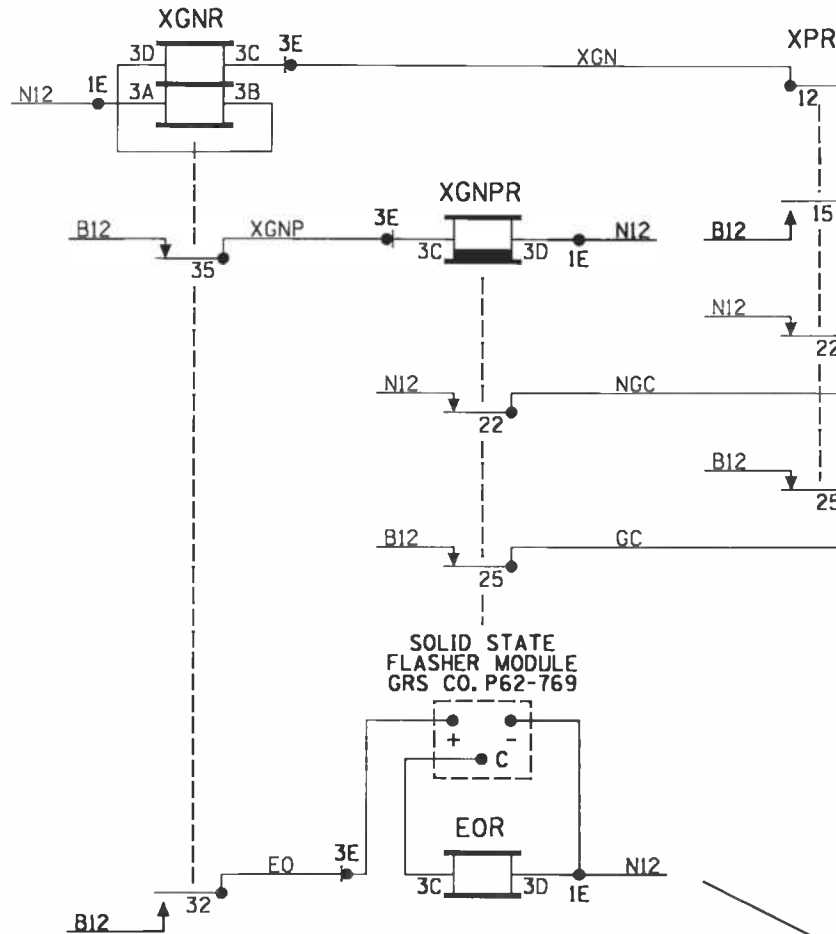


3000D2 GCP SET-UP

DESIGNED BY:	 NORFOLK SOUTHERN		
RHR 02-28-04			
DRAWN BY:	OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.		M.P.: CJ-214.70
SSC 02-28-04			
CHECKED BY:	SHARONVILLE, OH TO LONDON, OH CARROLLTON, OH FLGS AT ALEX RD.		
CDM 03-02-04			
IN SERVICE:	DAYTON DISTRICT		FILE No. R-1641
EPH 08-16-06	CADD or DWG. No.	82112147.06	SHEET No. 6 of 14

REVISION
INITIALS

PROPERTY
PENNSYLVANIA R.R.

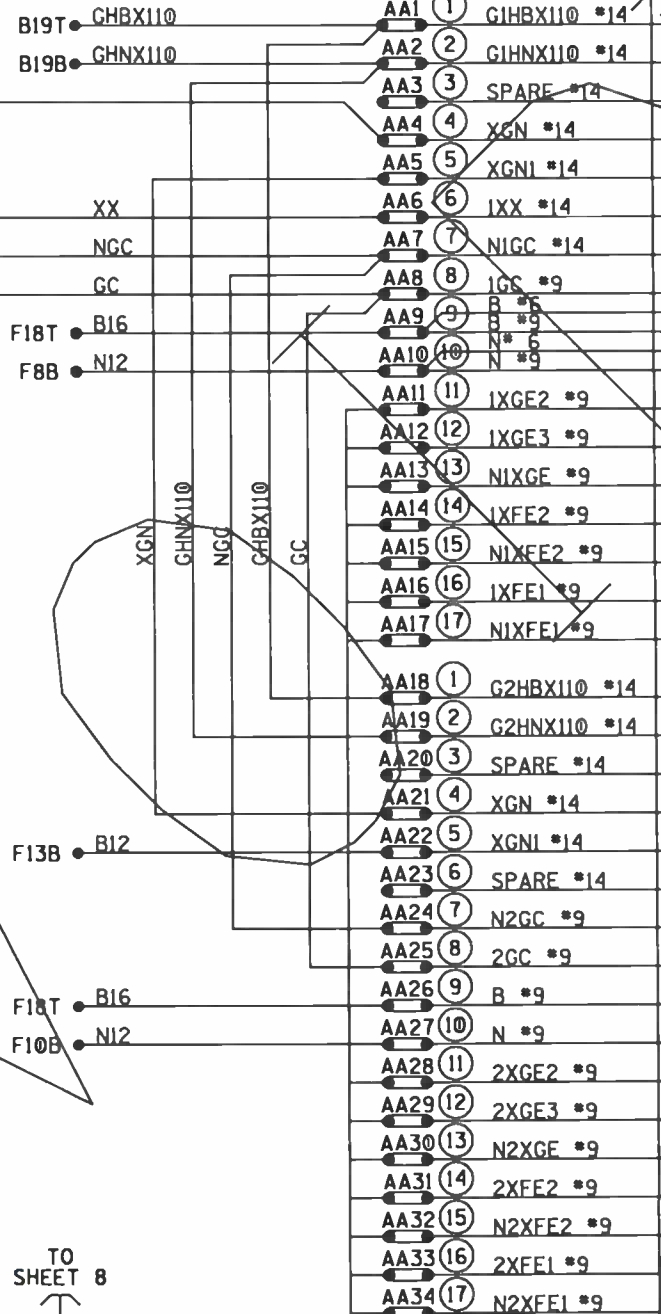


THIS LOCATION VOID
ON PROJECT COMPLETION

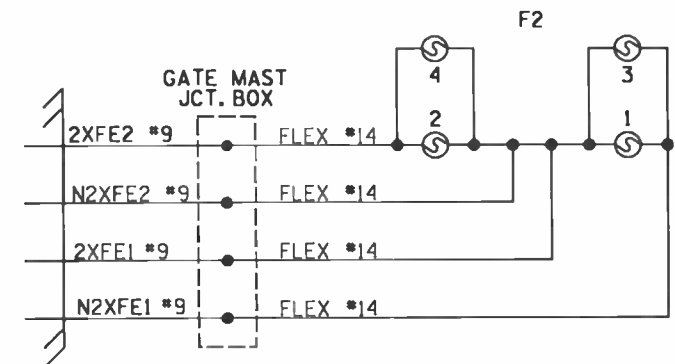
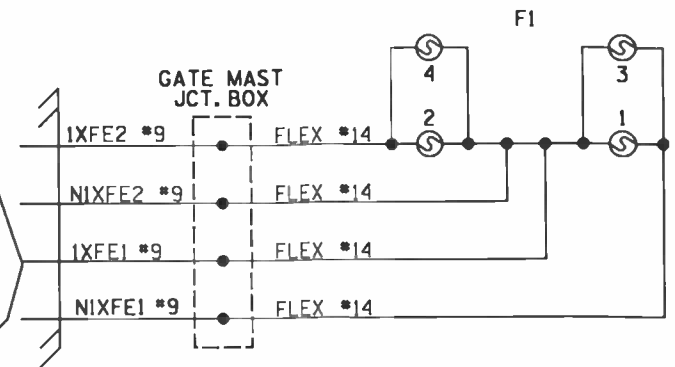


TO
SHEET 8

INSTRUMENT CASE CABLE TERMINATIONS



TO SIGNAL
LIGHTING &
GATE MECH'S
THIS SHEET,
SHEET 9 &
SHEET 10

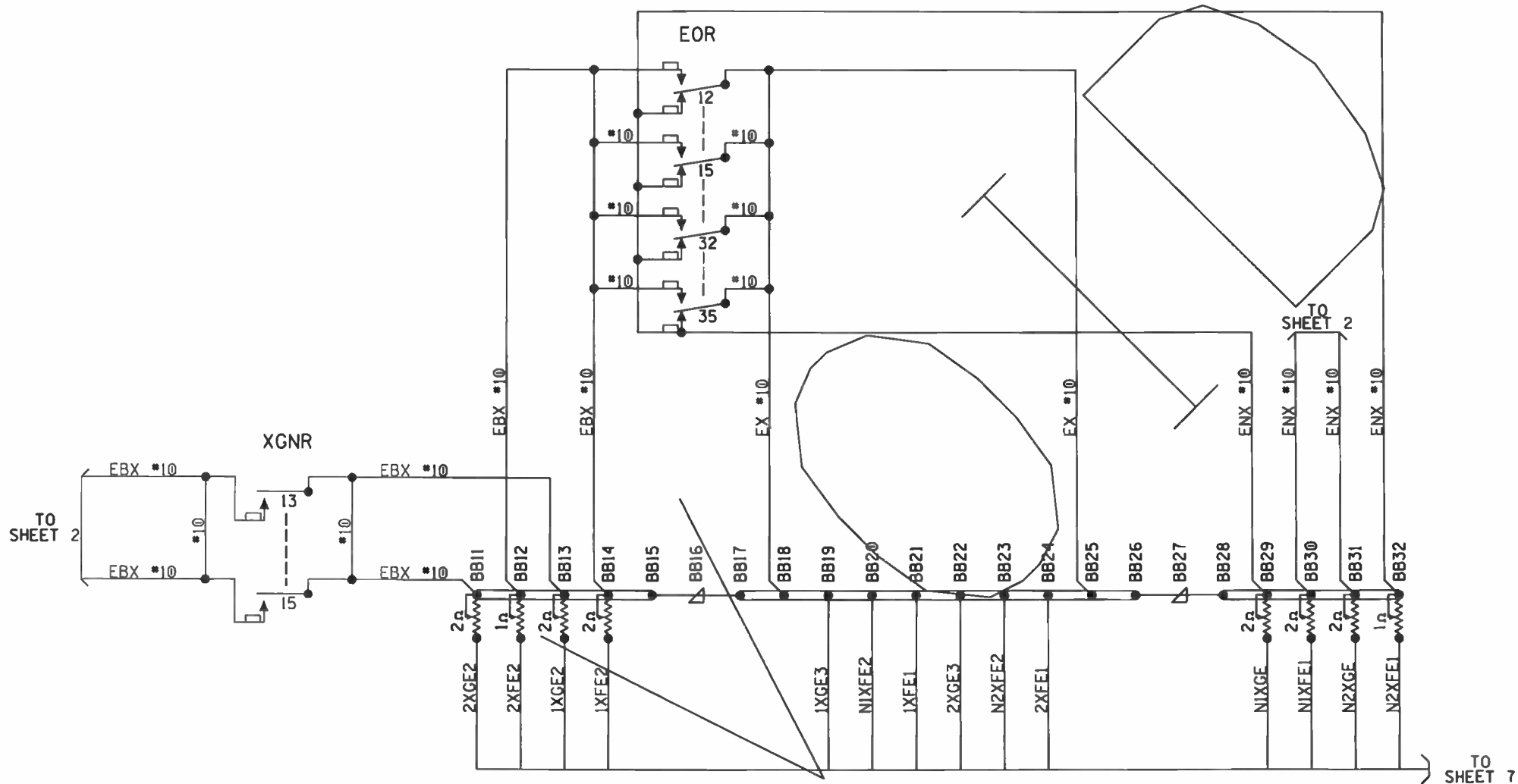


GATE CONTROL, LIGHTING CIRCUITS, AND CABLE TERMINATIONS

DESIGNED BY:	RHR 02-28-04		
DRAWN BY:	SSC 02-28-04	OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.	
CHECKED BY:	CDM 03-02-04	SHARONVILLE, OH TO LONDON, OH CARROLLTON, OH FLGS AT ALEX RD.	
IN SERVICE:	EPH 08-16-06	DAYTON DISTRICT	FILE No. R-1641
		CADD or DWG. No. 82112147.07	SHEET No. 7 of 14

REVISION
INITIALS

PROPERTY
PENNSYLVANIA R.R.



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ON PROJECT COMPLETION

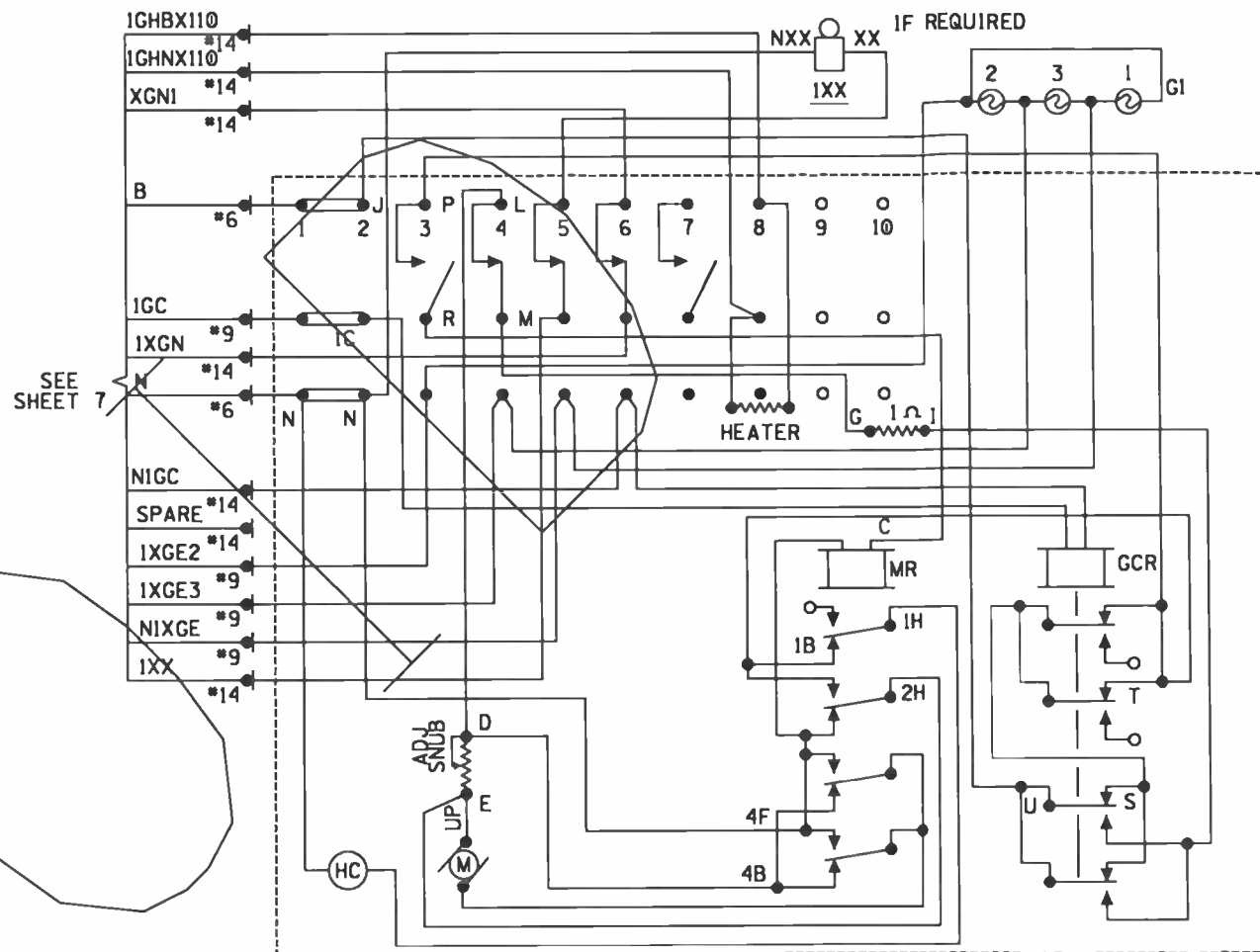


DESIGNED BY:	 NORFOLK SOUTHERN		
RHR 02-28-04	OFFICE OF ASS'T. VICE PRESIDENT		
DRAWN BY:	COMM. & SIGNAL, ATLANTA, GA.		M.P.: CJ-214.70
SSC 02-28-04	SHARONVILLE, OH TO LONDON, OH		
CHECKED BY:	CARROLLTON, OH FLGS AT ALEX RD.		
CDM 03-02-04	DAYTON DISTRICT		
IN SERVICE:	CADD or DWG. No. 82112147.08		FILE No. R-1641
EPH 08-16-06			SHEET No. 8 of 14

REVISION
INITIALS

PROPERTY
PENNSYLVANIA R.R.

THIS LOCATION VOID
ON PROJECT COMPLETION



LOCATION	CONTACT SETTING	FUNCTION
1U	TERMINAL	B12 INCOMING
1C	TERMINAL	CONTROL INCOMING
1L	TERMINAL	N12 INCOMING
3	CLOSED 0° TO 89°	SNAP SWITCH-UP CONTROL
4	CLOSED 90° TO 45°	POWER DOWN CUTOFF
5	CLOSED 90° TO 5°	BELL CUTOFF HORIZ.
6	CLOSED 90° TO 83°	XGN
3L	TERMINAL	GATE ARM LAMP
4L	TERMINAL	GATE ARM LAMP
5L	TERMINAL	GATE ARM LAMP
7	CLOSED 0° TO 10°	CUSTOMER USE
6L	TERMINAL	NEGATIVE CONTROL
8U	TERMINAL	HEATER
8C	TERMINAL	HEATER
9&10	OPEN	OPEN

NOTE: BELL OPERATION

BELL IS TO OPERATE FROM 90 TO 5 DEGREES WHILE GATE IS DECENDING.
BELL IS NOT TO OPERATE WHILE GATE IS ASCENDING.
SSCC MODULE 90983 (LEVEL 'G' AND LATER) SHOULD HAVE BELL ON/OFF
PINS SHORTED IN 'OFF' POSITION TO ACCOMPLISH THE ABOVE
SEE SAFETRAN SSCC MANUAL FOR DETAILS

NOTE:

MECHANISMS SHOWN FOR GATE ARMS IN VERTICAL POSITION. EACH HIGHWAY
GATE TO BE WIRED SAME AS SHOWN SIDEWALK ARMS ON HIGHWAY GATES
TO HAVE STEADY-LIT LIGHT. XGNI IN G2 WILL BECOME B12.

'G1' GATE LIGHTS WITH
SAFETRAN MODEL 85
GATE MECHANISM

DESIGNED BY:			
RHR 02-28-04			
DRAWN BY:	OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.		M.P.: CJ-214.70
SSC 02-28-04			
CHECKED BY:	SHARONVILLE, OH TO LONDON, OH CARROLLTON, OH FLGS AT ALEX RD.		
CDM 03-02-04			
IN SERVICE:	DAYTON DISTRICT		FILE No. R-1641
EPH 08-16-06	CADD or DWG. No. 82112147.09		SHEET 9 of 14

MODEL 85 GATE WIRING DIAGRAM-GATE SHOWN IN VERTICAL POSITION 072044-1

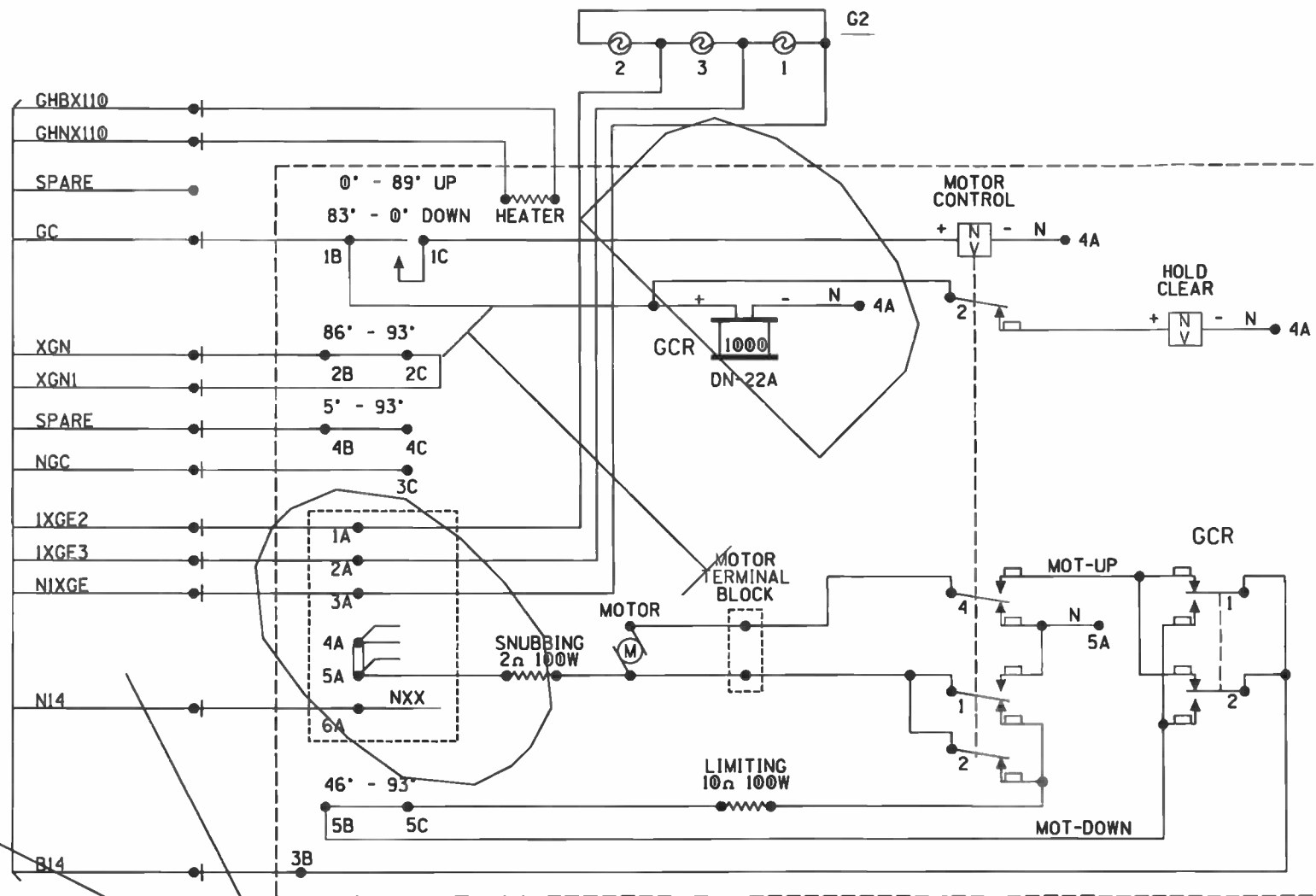
REVISION
INITIALS

PROPERTY
PENNSYLVANIA R.R.



THIS LOCATION VOID
ON PROJECT COMPLETION

SEE
SHEET 7



CIRCUIT CONTROLLER DATA			
CONTACT	CONTACT CLOSED	CAM DRIVES CONTACT	CONTACT FUNCTION
1B-1C	0°-89° UP 83°-0° DOWN	CLOSED	TO CUT OFF MOTOR AFTER GATE HAS CLEARED
2B-2C	86°-93°	CLOSED	CONTROL XGN RELAY
3B-3C	0°-10°	CLOSED	SPARE
4B-4C	5°-93°	OPEN	TO OPEN BELL CIRCUIT WHEN ARM IS HORIZONTAL
5B-5C	46°-93°	OPEN	TO OPEN MOTOR DOWN CIRCUIT

'G2' GATE LIGHTS WITH
WABCO MODEL 75
GATE MECHANISM

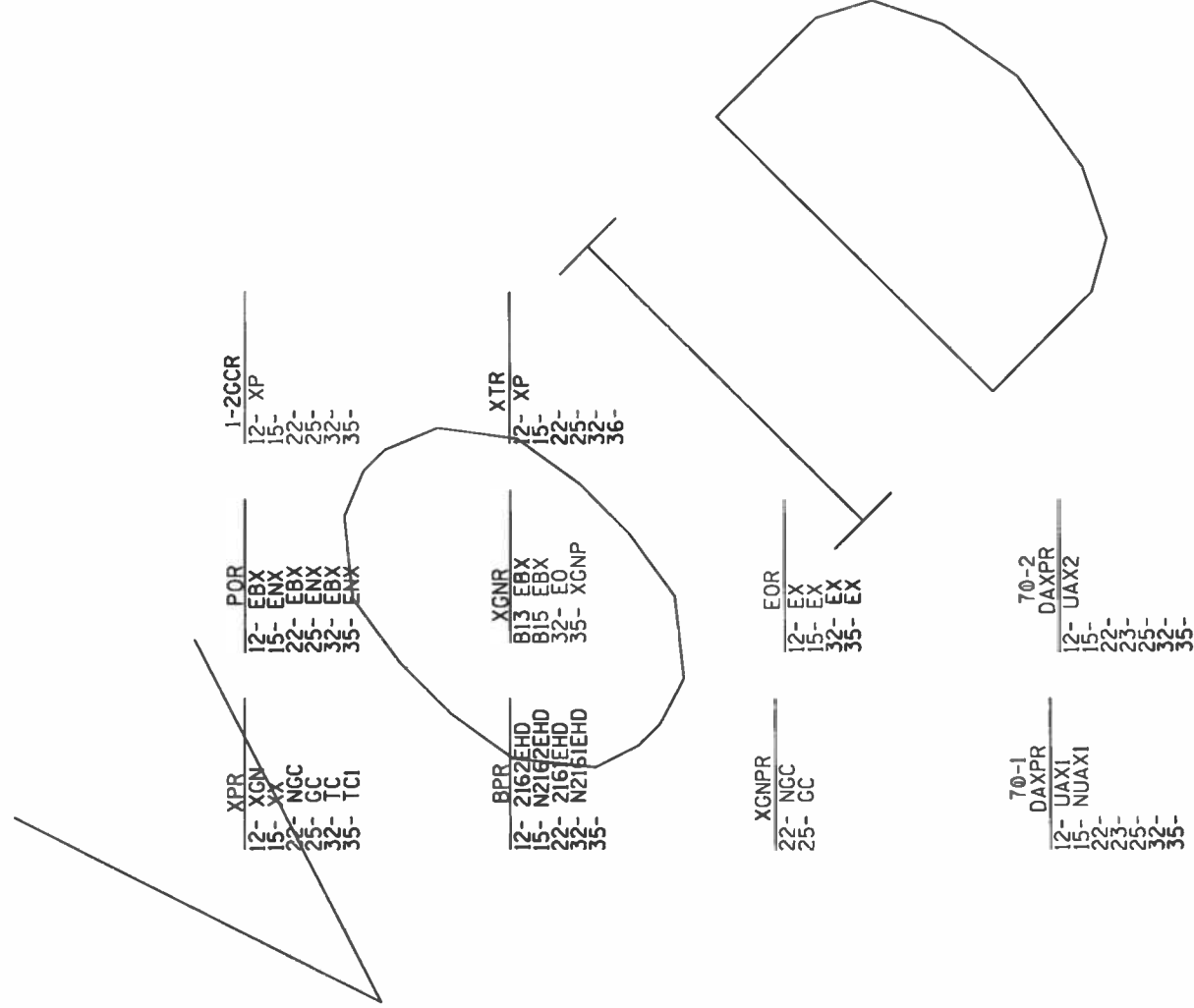
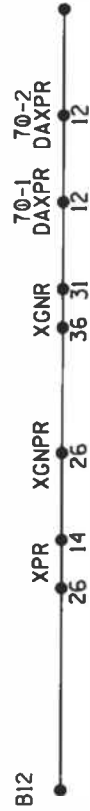
DESIGNED BY:	RHR	02-28-04	NORFOLK SOUTHERN
DRAWN BY:	SSC	02-28-04	
CHECKED BY:	CDM	03-02-04	OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA. M.P. CJ-214.70
IN SERVICE:	EPH	08-16-06	
PROPERTY PENNSYLVANIA R.R.			SHARONVILLE, OH TO LONDON, OH CARROLLTON, OH FLGS AT ALEX RD.
			DAYTON DISTRICT
			FILE NO. R-1641
			SHEET 10 of 14

REVISION
INITIALS



04	 NORFOLK SOUTHERN	
04	OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.	M.P. CJ-214.70
04	SHARONVILLE, OH TO LONDON, OH CARROLLTON, OH FLGS AT ALEX RD.	
06	DAYTON DISTRICT	FILE No. R-1641
	CADD or DWG. No. 82112147.12	SHEET No. 12 of 14

PROPERTY
PENNSYLVANIA R.R.



THIS LOCATION VOID
ON PROJECT COMPLETION



RELAY ENERGY LOOPS AND FUNCTION

DESIGNED BY:	RHR	02-28-04	 NORFOLK SOUTHERN	
DRAWN BY:	SSC	02-28-04		
CHECKED BY:	CDM	03-02-04	OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.	
IN SERVICE:	EPH	08-16-06	M.P.: CJ-214.70	
			SHARONVILLE, OH TO LONDON, OH CARROLLTON, OH FLGS AT ALEX RD.	
			DAYTON DISTRICT	FILE NO. R-1641
			CADD or DWG. No. 82112147.13	SHEET No. 13 of 14

REVISION
INITIALS

PROPERTY
PENNSYLVANIA R.R.

[illegible]

THIS LOCATION VOID
ON PROJECT COMPLETION



RIGHT REAR CASE DETAIL

DESIGNED BY:	 NORFOLK SOUTHERN		
RHR 02-28-04			
DRAWN BY:	OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.	M.P.: CJ-214.70	
SSC 02-28-04			
CHECKED BY:	SHARONVILLE, OH TO LONDON, OH CARROLLTON, OH FLGS AT ALEX RD.		
CDM 03-02-04			
IN SERVICE:	DAYTON DISTRICT	FILE No.	R-1641
EPH 08-16-06	CADD or DWG. No.	82112147.14	SHEET No. 14 of 14

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in

Case No(s). 10-0222-RR-FED

Summary: Correspondence Revised estimate, material list and design plans for South Alex Road, DOT 524-644B, located in West Carrollton, Montgomery County, OH. electronically filed by Mr. Michael L Rappatta on behalf of Norfolk Southern Corp