

417 N (EAST STREET)

Pearl, IL

DEC 28 2015

IMPORTANT NOTE - Field Prints Dimensional Information

fm = Field Measured, meaning footage shown has been physically measured and is accurate unless field conditions have changed.

Verify in Field = Field personnel must accurately measure between the points shown and mark-up the plans with the actual field measurements.

\pm = Dimensions shown were determined by mathematical calculations between two mile post numbers **and must not be used to determine the exact placement of any signal equipment.** If exact placement of signal equipment cannot be accurately determined by using KCS Standards, contact the KCS Supervisor in charge of the project.

AUTHORITY DATE _____
SIGNALS IN SERVICE _____

**FIELD
PRINTS**



KANSAS CITY SOUTHERN LINES SIGNAL DEPT.

DWG. NO. **SD-31-2-251.19 A-Z**

LOCATION **417 N (EAST STREET)
PEARL, IL**

FILE SD-31-5-251.19

DOT NO. 293-200 S

MILE POST 251.19

Asset or AFE No.

922001

Field Prints Date

12/21/15

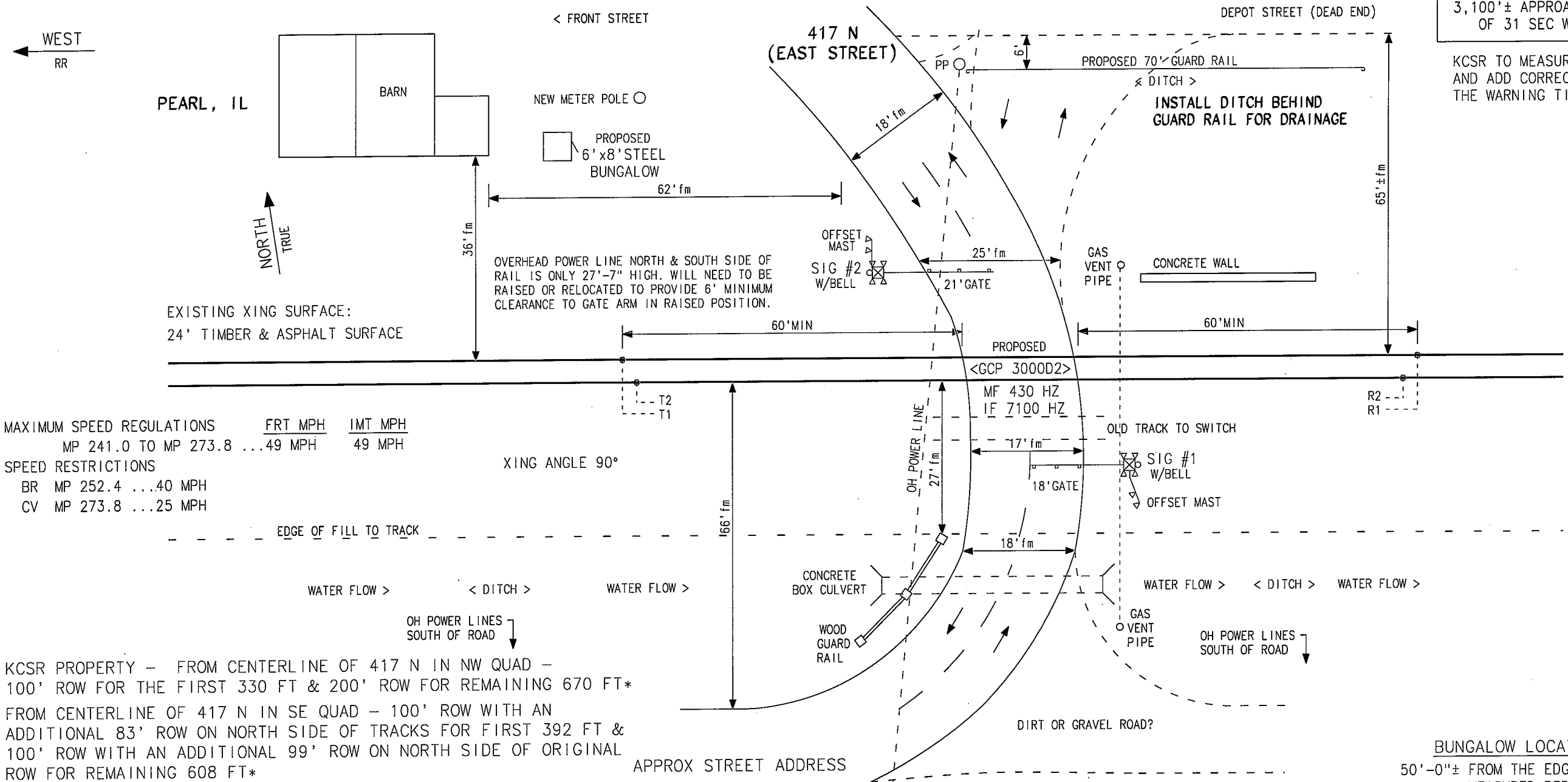
Who's Set of Plans...

ILLINOIS COMMERCE COMMISSION SET

3,100'± APPROACH PROVIDES A MAXIMUM OF 31 SEC WARNING TIME AT 60 MPH

KCSR TO MEASURE CLEARANCE DISTANCE AND ADD CORRECT CLEARANCE TIME TO THE WARNING TIME, REFER TO CHART

DEC 28 2015



MAXIMUM SPEED REGULATIONS

	FRT MPH	IMT MPH
MP 241.0 TO MP 273.8	...49 MPH	49 MPH

SPEED RESTRICTIONS

BR MP 252.4	...40 MPH
CV MP 273.8	...25 MPH

KCSR PROPERTY - FROM CENTERLINE OF 417 N IN NW QUAD - 100' ROW FOR THE FIRST 330 FT & 200' ROW FOR REMAINING 670 FT*
 FROM CENTERLINE OF 417 N IN SE QUAD - 100' ROW WITH AN ADDITIONAL 83' ROW ON NORTH SIDE OF TRACKS FOR FIRST 392 FT & 100' ROW WITH AN ADDITIONAL 99' ROW ON NORTH SIDE OF ORIGINAL ROW FOR REMAINING 608 FT*

*NOTE - TRACKS ARE NOT DIRECTLY IN THE CENTER OF THE ORIGINAL ROW AS YOU APPROACH THE END OF THE 1,000 FT.

CONSTRUCTION SUPERVISOR OR SIGNAL SUPERVISOR TO FILL OUT PIPE OR CONDUIT LOCATION CHART PROVIDED BELOW. PLEASE LABEL PIPES BY AN ALPHA DESIGNATION (EXAMPLE 4" PVC PIPE A)

UG SIGNAL CABLE PIPE LOCATION	DESTINATION QUADRANT TO ROAD			BUNGALOW QUADRANT TO ROAD		
	TO ROAD	TO RAIL	DEPTH	TO ROAD	TO RAIL	DEPTH
4" PVC PIPE A						
4" PVC PIPE B						
4" PVC PIPE C						
4" PVC PIPE D						

ALL DIMENSIONS MEASURED PERPENDICULAR TO ROAD OR PERPENDICULAR TO RAIL

APPROX STREET ADDRESS

unknown ?

SIG #1 LOCATION:

- 8'-3" MIN FROM THE EDGE OF PAVED ROAD, MEASURED PERPENDICULAR TO ROAD FROM CENTER OF SIGNAL POLE TO THE EDGE OF PAVED ROAD
- 15'-0"± FROM NEAR RAIL AT GATE BASE, MEASURED PERPENDICULAR TO RAIL FROM CENTER OF SIGNAL POLE TO THE NEAREST EDGE OF RAIL

MUTCD MINIMUM RESTRICTIONS:
 8'-3" MIN. FROM EDGE OF TRAVELED ROAD
 12'-0" MIN. FROM CENTERLINE OF RAIL
 GATE ARM TO BE PERPENDICULAR TO ROAD

SIG #2 LOCATION:

- 8'-3" MIN FROM THE EDGE OF PAVED ROAD, MEASURED PERPENDICULAR TO ROAD FROM CENTER OF SIGNAL POLE TO THE EDGE OF PAVED ROAD
- 15'-0"± FROM NEAR RAIL AT GATE BASE, MEASURED PERPENDICULAR TO RAIL FROM CENTER OF SIGNAL POLE TO THE NEAREST EDGE OF RAIL

MUTCD MINIMUM RESTRICTIONS:
 8'-3" MIN. FROM EDGE OF TRAVELED ROAD
 12'-0" MIN. FROM CENTERLINE OF RAIL
 GATE ARM TO BE PERPENDICULAR TO ROAD

BUNGALOW LOCATION:

- 50'-0"± FROM THE EDGE OF PAVED ROAD, MEASURED PERPENDICULAR TO ROAD FROM NEAREST SIDE OF BUNGALOW TO EDGE OF THE PAVED ROAD
 - 35'-0"± FROM THE NEAR RAIL, MEASURED PERPENDICULAR TO RAIL FROM NEAREST SIDE OF BUNGALOW TO THE NEAREST EDGE OF RAIL
- MUTCD SUGGESTED CLEARANCE:
 30'-0"± FROM THE EDGE OF HIGHWAY
 25'-0"± FROM THE NEAREST RAIL

REVISION BLOCK FLSHRS & GATES IN SERVICE

ORANGE=OUT
 BLUE = IN
 GREEN=NOTE
ASSET #922001

SD-31-5-251.19
 DOT NO. 293-200S
 MILE POST 251.19

KANSAS CITY SOUTHERN LINES SIGNAL DEPT.
 DWG. NO. SD-31-2-251.19A
 LOCATION 417 N (EAST STREET)
 PEARL, IL

WEST
RR

< STROUT HILL MP 260 TO 252
UPHILL WESTBOUND -0.79%

PEARL, IL

< 11,774'± | 4,066'± >

EC5 T1
CIRCUIT

EC5 T2
CIRCUIT

EB PLANT
START
← CODE 1 →
← CODE 2 →
← CODE 4 →
REPEATING

IL 5090
RR OVER

3,100'± >
PROPOSED
417 N(EAST ST)
MULTI SHUNT
#62775-3497

T2/T1

430 HZ
251.79

MP 251.70
#293-203M

EB APPROACH
SIGNAL & WB BRD
INDICATOR
MP 251.37

HALL ST
IL 6020
RR OVER

2 EA COUPLERS
#62785-0430
IN C&B BOXES

EC5

WITH J&A CASE PLATFORM
FOR A PTMW BRD CASE

WB BRD
251.4

APPROACH
R-Y-G
2513

44"W x30"D x75"H
PTMW STEEL CASE

EB APPROACH SIGNAL
WITH NUMBER PLATE

SPEED RESTRICTION 251.4
EB MOVES ONLY 25 MPH >

○ AC

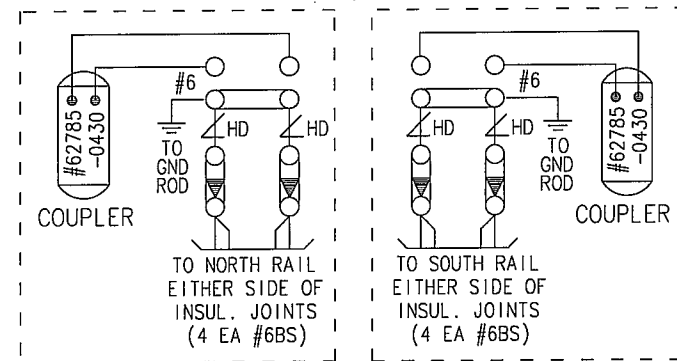
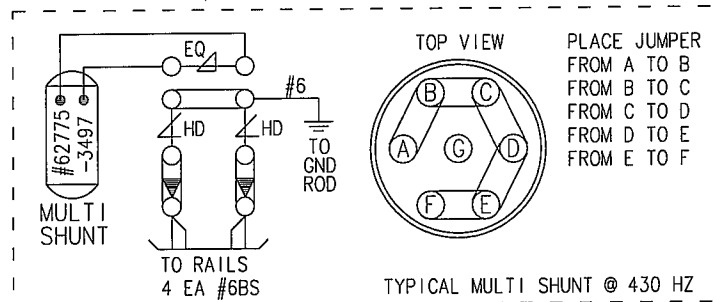
MP 251.30
#293-202F

INSUL
JOINTS

898'± TO W. EDGE OF 417 N(EAST ST) >

417 N (EAST STREET)
COUPLER BOX TYPICALS W/COUPLER #62785-0430

417 N (EAST STREET) SHUNT BOX TYPICAL



SHUNT BOX MOUNTED 9 FT FROM NEAR RAIL
G&B SPECIALTIES PART #500400-100-03
ALL SHUNT BOX DIMENSIONS SHOULD BE MEASURED
FROM THE ASSOCIATED TRACK CIRCUIT TO THE
CLOSEST TIE-IN POINT.
REFERENCE GCP 3000 APPLICATIONS GUIDELINES
OR THE KCSR FIELD PRINT TYPICAL BOOK,
TABLE 12-6 FREQUENCY SELECTION JUMPERS
TABLE 12-9 INDUCTOR #8V617 CONNECTION

KANSAS CITY SOUTHERN LINES SIGNAL DEPT.

DWG. NO. SD-31-2-251.19B

LOCATION 417 N (EAST STREET)
PEARL, IL

SD-31-5-251.19
DOT NO. 293-200S
MILE POST 251.19

REVISION
BLOCK

SEE DWG SD-31-2-251.19C

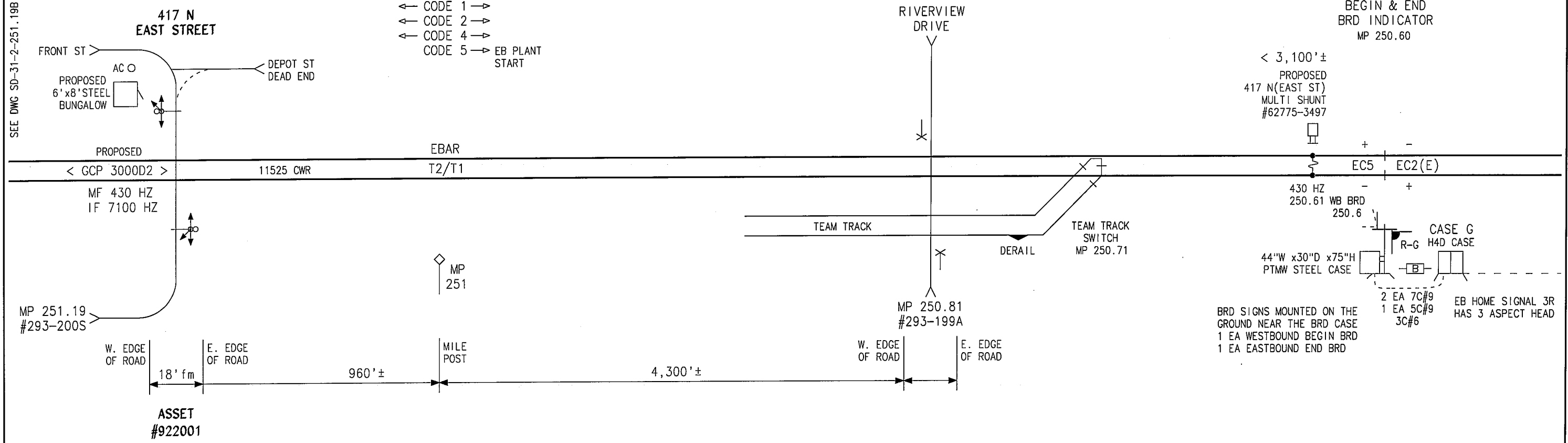
< 4,066'± | 1,848'± >
 EC5 T1 CIRCUIT | EC2(E) CIRCUIT

WEST
 RR

PEARL, IL

- ← CODE 1 →
- ← CODE 2 →
- ← CODE 4 →
- ← CODE 5 → EB PLANT START

SEE DWG SD-31-2-251.19B



KANSAS CITY SOUTHERN LINES SIGNAL DEPT.
 DWG. NO. SD-31-2-251.19C
 LOCATION 417 N (EAST STREET)
 PEARL, IL
 SD-31-5-251.19
 DOT NO. 293-200S
 MILE POST 251.19

REVISION
 BLOCK

INSTALLATION AND DESIGN INFORMATION

APPROACH AND WARNING TIME CALCULATIONS	GCP-T1 MAIN TRK	OTHER TRK	OTHER TRK	OTHER TRK
MINIMUM WARNING TIME PLUS CLEARANCE TIME PLUS BUFFER TIME	20 SEC 0 SEC <u>10 SEC</u>			
TOTAL WARNING TIME	30 SEC			
TOTAL WARNING TIME PLUS EQUIP RESPONSE PLUS ADVANCE PREEMPT	30 SEC 5 SEC <u>0 SEC</u>			
TOTAL APPROACH TIME	35 SEC			
MAX. TRAIN SPEED EQUATION FEET/SECOND	60 MPH x 1.4667			
SPEED FEET PER SECOND	88.0 FPS			
TOTAL APPROACH TIME SPEED FEET PER SECOND	35 SEC x 88.0			
APPROACH DISTANCE (MESURED FROM TIE-IN POINTS)	3,080'			
DISTANCE ROUNDED UP TO	3,100'±			
CLEARANCE DISTANCE FOR DESIGN PURPOSE WAS ESTIMATED TO BE <u>27'±</u> THIS DISTANCE SHOULD BE MEASURED EXACTLY AS PART OF THE INSTALLATION PROCESS, PER DIRECTIONS SHOWN IN CHART				

ILLINOIS REQUIRES A MIN. OF 30 SEC WARNING TIME FOR GATED CROSSING

MUTCD MINIMUM RESTRICTIONS FOR LOCATION AND CLEARANCE DIMENSIONS FOR FLASHER & GATE SIGNALS SHALL BE:

WHEN THERE IS A CURB...

A HORIZONTAL CLEARANCE OF AT LEAST 2'-0" SHALL BE PROVIDED FROM THE FACE OF THE VERTICAL CURB TO THE CLOSEST PART OF THE SIGNAL OR GATE ARM IN ITS UPRIGHT POSITION.

WHEN THERE IS A SHOULDER, BUT NO CURB...

A HORIZONTAL CLEARANCE OF AT LEAST 2'-0" FROM THE EDGE OF A PAVED OR SURFACED SHOULDER SHALL BE PROVIDED, WITH A CLEARANCE OF AT LEAST 6'-0" FROM THE EDGE OF THE TRAVELED WAY.

WHEN THERE IS NO CURB OR SHOULDER...

THE MINIMUM HORIZONTAL CLEARANCE SHALL BE 6'-0" FROM THE EDGE OF THE TRAVELED WAY.

MUTCD SUGGESTED LATERAL CLEARANCE FOR EQUIPMENT HOUSING (CONTROLLER CABINETS):

EQUIPMENT HOUSING SHOULD HAVE A LATERAL CLEARANCE OF AT LEAST 30'-0" FROM THE EDGE OF THE HIGHWAY AND WHERE RAILROAD PROPERTY AND CONDITIONS ALLOW, AT LEAST 25'-0" FROM THE NEAREST RAIL.

STIPULATED AGREEMENT 1786
SECTION 18c-7401
DOT NO. 293-200S
417 N (EAST STREET)
PEARL, IL
PIKE COUNTY

CONTACT INFORMATION:
MR. JOE VON DE BUR
RAIL SAFETY SPECIALIST
ILLINOIS COMMERCE COMMISSION
527 EAST CAPITOL AVENUE
SPRINGFIELD, IL 62601-1827
PHONE: 217-557-1286
EMAIL: JVONDEBU@ICC.ILLINOIS.GOV

SIGNAL FOREMAN TO CALL
STATE PROJECT ENGINEER
WHEN GANG SHOWS UP AT
JOB SITE TO BEGIN WORK

PLEASE MEASURE EXACT CLEARANCE DISTANCE AS FOLLOWS:			
MEASURE ALONG THE EDGE OF ROAD - FROM GATE ARM DOWN TO 6' MIN. BEYOND THE FARTHEST RAIL (6' IS MEASURED PERPENDICULAR TO RAIL)			
MEASURE AT CENTER LINE OF ROAD - FROM GATE ARM DOWN TO 6' MIN. BEYOND THE FARTHEST RAIL (6' IS MEASURED PERPENDICULAR TO RAIL)			
USE THE LONGEST DISTANCE MEASURED ABOVE TO DETERMINE CLEARANCE TIME IF OVER 35' MIN., AS PER THE CHART BELOW			
ADD THE LONGEST CLEARANCE TIME TO THE WARNING TIME			
CLEARANCE DISTANCE MEASUREMENTS			
SIG #1 = AT EDGE OF ROAD	SIG #1 = CENTER OF ROAD	SIG #1 = LONGEST DISTANCE	SIG #1 = CLEARANCE TIME = CT
FT	FT	FT	SEC
SIG #2 = AT EDGE OF ROAD	SIG #2 = CENTER OF ROAD	SIG #2 = LONGEST DISTANCE	SIG #2 = CLEARANCE TIME = CT
FT	FT	FT	SEC
CT= CLEARANCE TIME	0' TO 35' = NONE	96' TO 105' = 7 SEC CT	
	36' TO 45' = 1 SEC CT	106' TO 115' = 8 SEC CT	
	46' TO 55' = 2 SEC CT	116' TO 125' = 9 SEC CT	
	56' TO 65' = 3 SEC CT	126' TO 135' = 10 SEC CT	
	66' TO 75' = 4 SEC CT	136' TO 145' = 11 SEC CT	
	76' TO 85' = 5 SEC CT	146' TO 155' = 12 SEC CT	
	86' TO 95' = 6 SEC CT	156' TO 165' = 13 SEC CT	

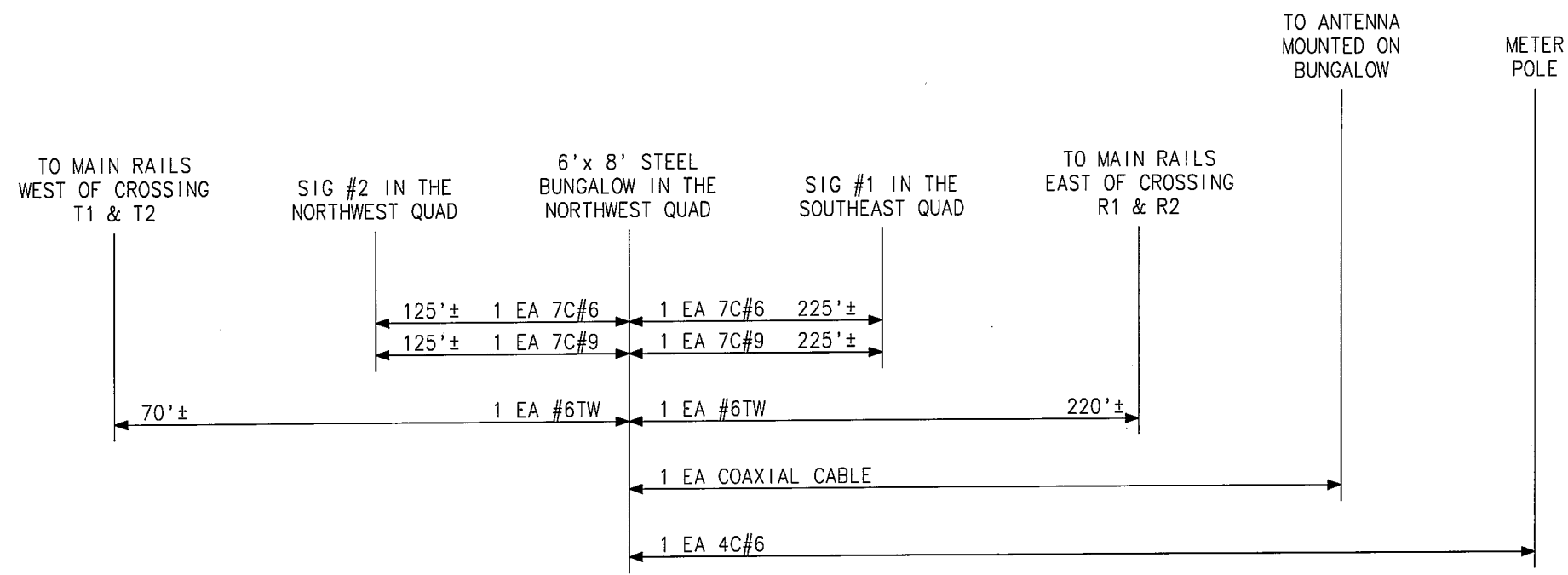
PROJECT NOTES:

- 1.) PROPOSED TO INSTALL THE FOLLOWING AS PART OF THIS STATE PROJECT:
 - 2 EA. FLASHER & GATE SIGNALS WITH 12" LED LIGHTS
 - 1 EA. 6'x 8' STEEL BUNGALOW WITH A CONSTANT WARNING TIME TRAIN DETECTION DEVICE WITH EVENT RECORDING
 - 2 EA. SHUNT BOX ASSEMBLIES WITH MULTI SHUNTS
 - 1 EA. 220 VAC METER POLE
- 2.) 4" PVC CONDUIT FOR SIGNAL CABLING UNDER ROADWAY MAY BE INSTALLED BY DIRECTIONAL BORING METHOD
- 3.) APPROX 450 TONS OF FILL MATERIAL REQUIRED FOR BUNGALOW & SIGNALS
- 4.) ANY UTILITIES THAT INTERFERE WITH PROPER SIGNAL PLACEMENT WILL BE RELOCATED AT PROJECT EXPENSE
- 5.) ANY POWER LINES IN AREA WILL NEED TO BE AT LEAST 10' FROM TIP OF GATE ARM IN RAISED POSITION (VERTICAL)
- 6.) ANY DRAINAGE WORK REQUIRED FOR THE PROPER SIGNAL OR BUNGALOW PLACEMENT WILL BE AT PROJECT EXPENSE
- 7.) ALL PROPOSED DIMENSIONS ARE PLUS OR MINUS AT THE DISCRETION OF THE KCS SIGNAL SUPERVISOR AND/OR THE KCS PROJECT ENGINEER, IF WITHIN THE STATE GUIDELINES

REVISION
BLOCK

KANSAS CITY SOUTHERN LINES SIGNAL DEPT.
DWG. NO. SD-31-2-251.19C1
LOCATION 417 N (EAST STREET)
PEARL, IL
SD-31-5-251.19
DOT NO. 293-200S
MILE POST 251.19

CABLE TABULATIONS

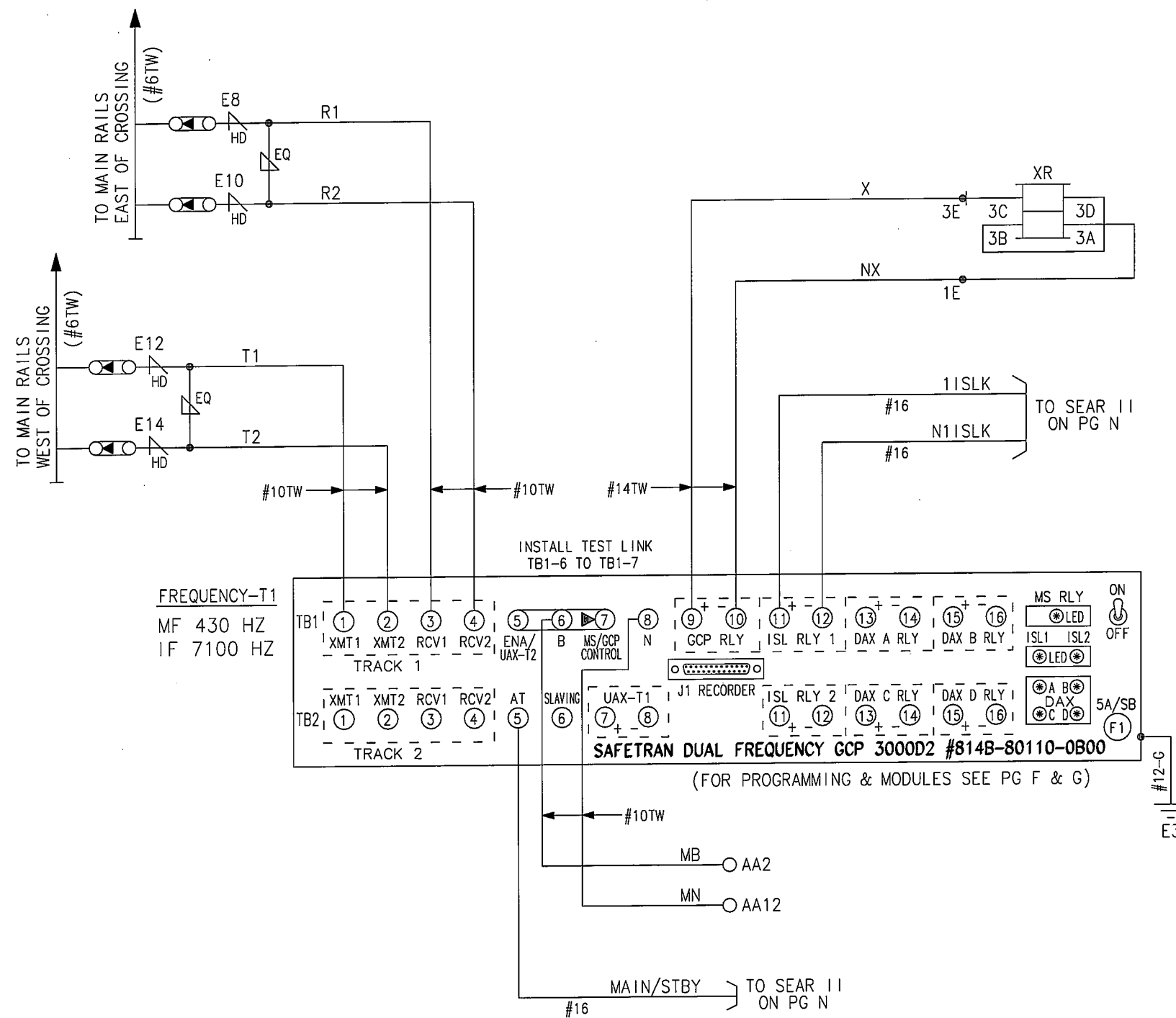


UG WIRE TOTALS

#6TW =	290'±
7C#9 =	350'±
7C#6 =	350'±
4C#6 =	200'±

KANSAS CITY SOUTHERN LINES SIGNAL DEPT.
 DWG. NO. SD-31-2-251.19D
 LOCATION 417 N (EAST STREET)
 PEARL, IL
 SD-31-5-251.19
 DOT NO. 293-200S
 MILE POST 251.19

REVISION
 BLOCK



REVISION
BLOCK

KANSAS CITY SOUTHERN LINES SIGNAL DEPT.
 DWG. NO. SD-31-2-251.19E
 LOCATION 417 N (EAST STREET)
 PEARL, IL
 SD-31-5-251.19
 DOT NO. 293-200S
 MILE POST 251.19

GCP #3000D2 / PROGRAMMING HISTORY

(Press PROGRAM Key)

NUMBER OF TRACKS (NUMBER OF TRANSCEIVERS MODULES) 1 2

FREQUENCY (MS/GCP) T1: 430 Hz T2: N/A Hz

UNIDIRECTIONAL/BIDIRECTIONAL T1: UNI BI T2: UNI BI

XMIT LEVEL T1: MAX MED T2: MAX MED

PREDICTOR/MOTION SENSOR T1: PRED MS T2: PRED MS

WARNING TIME SELECTED T1: 30 SEC. T2: N/A SEC.

APPROACH DISTANCE SELECTED T1: 3,100' FT. T2: N/A FT.

APPROACH DISTANCE COMPUTED T1: SYSTEM COMPUTED FT. T2: SYSTEM COMPUTED FT.

UAX1 PICKUP DELAY (0 = OFF) 0 SEC.

ENA / UAX2 DELAY (0 = OFF) 0 SEC.

ISLAND DISTANCE (BETWEEN ISLAND TRACK WIRES) T1: 140' FT. T2: N/A FT.

NUMBER OF DAX'S 0 1 2 3 4

DAX A TRACK ASSIGNMENT T1 T2

DAX A DISTANCE (0 = PREMPT) N/A FT.

DAX A WARNING TIME N/A SEC.

DAX B TRACK ASSIGNMENT T1 T2

DAX B DISTANCE (0 = PREMPT) N/A FT.

DAX B WARNING TIME N/A SEC.

DAX C TRACK ASSIGNMENT T1 T2

DAX C DISTANCE (0 = PREMPT) N/A FT.

DAX C WARNING TIME N/A SEC.

DAX D TRACK ASSIGNMENT T1 T2

DAX D DISTANCE (0 = PREMPT) N/A FT.

DAX D WARNING TIME N/A SEC.

SLAVING MASTER/SLAVE MASTER SLAVE

PASSWORD ENABLED DISABLED

GCP #3000D2 / PROGRAMMING HISTORY

(Press PROGRAM Key)

RECORDER INSTALLED NOT INSTALL

INSTALLED

RS-232-C BAUD RATE 9600 BPS

RS-232-C DATA BITS 7 8

RS-232-C STOP BITS 1 2

RS-232-C PARITY NONE MARK

ODD SPACE

EVEN

DATE (E.G., MON 16 NOV 1987) SETUP ON INSTALL

TIME (E.G., 11:25:43 AM) SETUP ON INSTALL

DAYLIGHT SAVINGS ON OFF

* MANDATORY INFORMATION *
IF "REV.M" SOFTWARE IS INSTALLED
KCS FIELD PERSONNEL TO RECORD THE
CONFIGURATION CHECK NUMBER (CCN),
AFTER GCP INSTALLATION, PROGRAMMING
AND CALIBRATION IS COMPLETE.

CCN: _____
NUMBER MUST BE RECORDED PRIOR
TO RETURNING AS INSTALLED PLANS

LOCATED ON THE #80211-IPI
MODULE WITH SOFTWARE
REVISION A01E APRIL, 2000

INSTALL JUMPER IN HEADER POSITION	PICKUP DELAY TIME ADDED
A & B	0 SEC
A	2 SEC
B	4 SEC
NO JUMPER (A OR B)	6 SEC

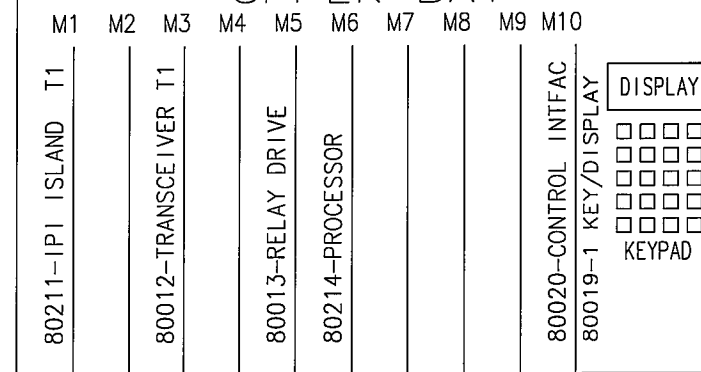
FREQUENCY
SELECT
HEADER

FREQ	JUMPER	PICKUP DELAY TIME SEC
20.2	A >	4
17.5	A >	4
15.2	A >	4
13.2	A >	4
11.5	A >	4
10.0	A >	4
8.30	A >	4
7.10	A >	4
5.90	A >	4
4.90	A >	4
4.00	A >	4
3.24	A >	4
2.53	A >	4
2.14	A >	4

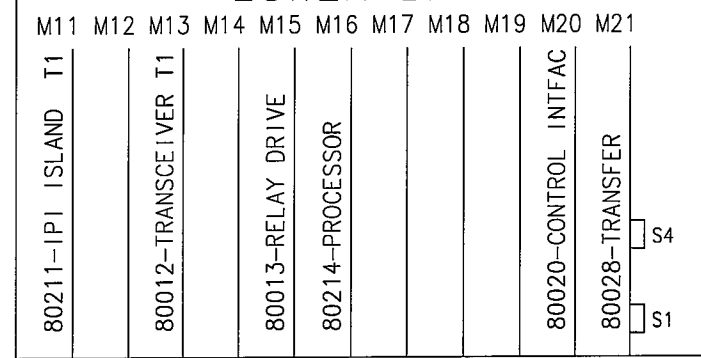
CONNECT SHORTING
BLOCK/JUMPER

GCP #3000D2 MODULE ASSEMBLIES

UPPER BAY



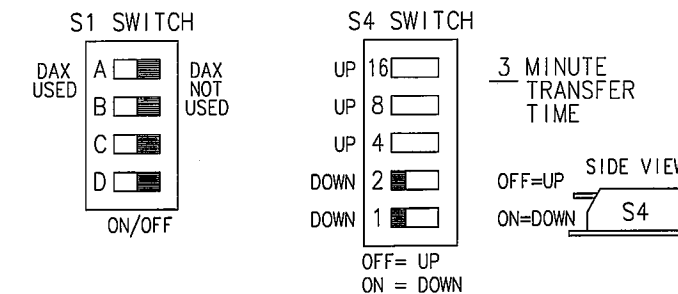
LOWER BAY



DUAL FREQUENCY GCP 3000D2 #814B-80110-0B00
GCP 3000 SOFTWARE VERSION #9V121-A01M

IF THE CURRENT SOFTWARE VERSION IS 9V121-A01H,
9V121-A01J, OR 9V121-A02J, UPDATING TO THE
NEW SOFTWARE 9V121-A01L WILL NOT REQUIRE
THE "SET TO DEFAULT". UPDATING A EARLIER
VERSION OF SOFTWARE WILL REQUIRE THE USER
TO COMPLETELY REPROGRAM THE UNIT.

DAX SWITCH & TRANSFER TIMER SWITCH ON TRANSFER MODULE



KANSAS CITY SOUTHERN LINES SIGNAL DEPT.

DWG. NO. SD-31-2-251.19F

LOCATION 417 N (EAST STREET)
PEARL, IL

SD-31-5-251.19
DOT NO. 293-2005
MILE POST 251.19

REVISION
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GCP #3000D2 / EXPANDED PROGRAMMING (Press FUNCTION Key)

SWITCH TO MS (ENTER EZ VALUE) T1: 10 EZ
 T2: N/A EZ

TRANSFER DELAY MS TO GCP (0 = OFF) T1: 0 SEC.
 T2: N/A SEC.

\$ TRANSFER MS TO GCP PRIME (WHEN PRIME PREDICTION OFFSET IS ON) T1: ON OFF
 T2: ON OFF

\$ TRANSFER MS TO GCP DAX A (WHEN GCP DAX A IS ON) T1 T2
 ON OFF

\$ TRANSFER MS TO GCP DAX B (WHEN GCP DAX B IS ON) T1 T2
 ON OFF

\$ TRANSFER MS TO GCP DAX C (WHEN GCP DAX C IS ON) T1 T2
 ON OFF

\$ TRANSFER MS TO GCP DAX D (WHEN GCP DAX D IS ON) T1 T2
 ON OFF

PRIME PREDICTION OFFSET (0 = OFF) T1: 0 FT.
 T2: 0 FT.

PICKUP DELAY PRIME 25 SEC.

PICKUP DELAY DAX A N/A SEC.

PICKUP DELAY DAX B N/A SEC.

PICKUP DELAY DAX C N/A SEC.

PICKUP DELAY DAX D N/A SEC.

COMPENSATION VALUE T1: SYSTEM COMPUTED
 T2: SYSTEM COMPUTED

^ SPEED LIMITING (DEFAULT IS ON - INDEPENDENT OF ED BELOW) T1: ON OFF
 T2: ON OFF

* ENHANCED DETECTION (ED) (POOR SHUNTING DETECTION) T1: ON OFF
 T2: ON OFF

* BACK TO BACK T1 AND T2 (WHEN ED IS ON) NO YES

* STATION STOP TIMER (WHEN ED IS ON) T1: N/A SEC.
 T2: N/A SEC.

NUMBER OF TRACK WIRES T1: 4 6
 T2: 4 6

* LOW EX ADJUSTMENT (0 = NORMAL) T1: 0
 T2: N/A

GCP #3000D2 / EXPANDED PROGRAMMING (Press FUNCTION Key)

LOW EZ DETECTION T1: ON OFF
 T2: ON OFF

LOW EZ DETECTION TIMER (WHEN LOW EZ DETECTION IS ON) T1: N/A MIN.
 T2: N/A MIN.

POSITIVE START (0 = OFF) (ENTER EZ VALUE) T1: 0 EZ
 T2: N/A EZ

POSITIVE START TIMEOUT (0 = NONE) (WHEN POSITIVE START IS ON) T1: N/A MIN.
 T2: N/A MIN.

SET AT OPERATION NORMAL
 DIAGNOSTIC

@! DIAGNOSTIC MESSAGES ON OFF

@! DAX MESSAGES ON OFF

! ADVANCE PREEMPT TIMER (00 = OFF) 00 SEC.

\$ MOTION SENSING LEVEL (0 = NORMAL) T1: 0 EZ
 T2: N/A EZ

THE FOLLOWING OPTIONS (A,B,C) ARE AVAILABLE WHEN THE ENHANCED DETECTION SCREEN IS DISPLAYED

- A: ED SENSITIVITY LEVEL CAN BE REDUCED WITH ED ON. TO REDUCE, KEY IN "NEW DATA" THEN 1003, 1004, 1005 OR 1025. THE LOWER THE NUMBER, THE HIGHER THE SENSITIVITY.
- B: SPEED LIMITING MAY BE TURNED ON OR OFF INDEPENDENT OF ED. "^" INDICATES SPEED LIMITING IS ON DEFAULT. TO TURN ON OR OFF, KEY IN "NEW DATA", THEN 4000 FOR ON, OR 4001 FOR OFF.
- C: PREDICTION COUNTS CAN BE CHANGED WITH ED ON. TO INCREASE KEY IN "NEW DATA", THEN 3001, 3002 OR 3003. 3001 = A DELAY OF 0.5 SECONDS, DISPLAYED AS "ON +1" 3002 = A DELAY OF 1.0 SECONDS, DISPLAYED AS "ON +2" 3003 = A DELAY OF 1.5 SECONDS, DISPLAYED AS "ON +3"

FOLLOWING IS REQUIRED TO CONNECT GCP 3000 UNIT TO A ECHELON NETWORK...

- 1 EA. 80063 ECHELON PLUG ON J1 SERIAL PORT
- 2 EA. 80214 PROCESSOR MODULES (E OR HIGHER)
- 2 EA. 80255 INTERFACE MODULES (M7/M17)

EXPANDED PROGRAMMING RESTRICTIONS...

- * APPLICABLE ONLY TO GCP WITH 80044 OR 80214 PROCESSOR MODULE
- # APPLICABLE ONLY TO GCP WITH 80214 PROCESSORS WITH SOFTWARE REVISION 9V121-A01C OR LATER
- ! APPLICABLE ONLY TO GCP WITH 80214 PROCESSORS WITH SOFTWARE REVISION 9V121-A01E OR LATER
- \$ APPLICABLE ONLY TO GCP WITH 80214 PROCESSORS WITH SOFTWARE REVISION 9V121-A01H OR LATER
- @ APPLICABLE ONLY WHEN A SEAR NODE HAS BEEN PROGRAMMED INTO THE GCP FROM A SEAR

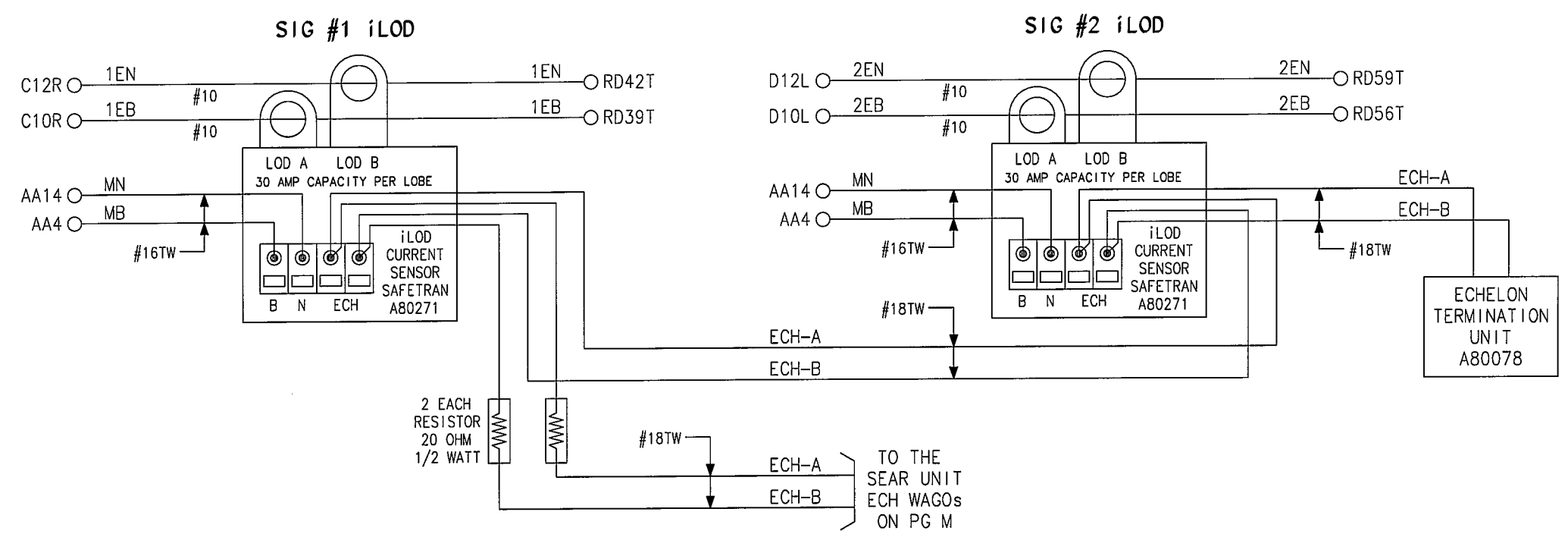
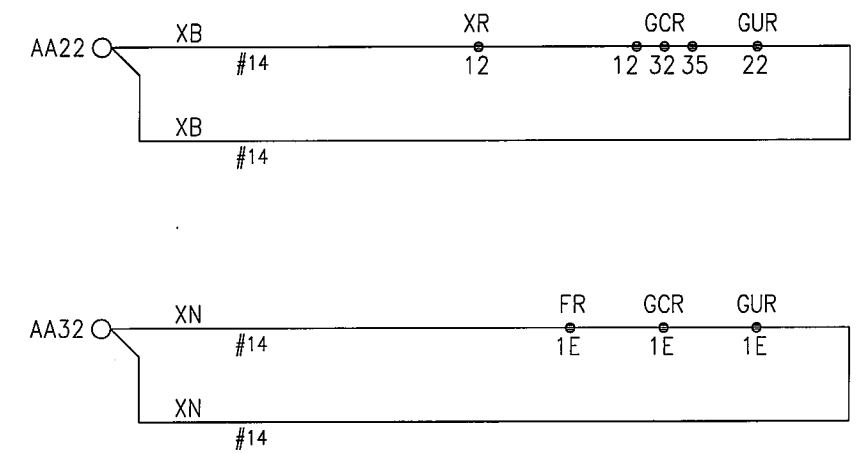
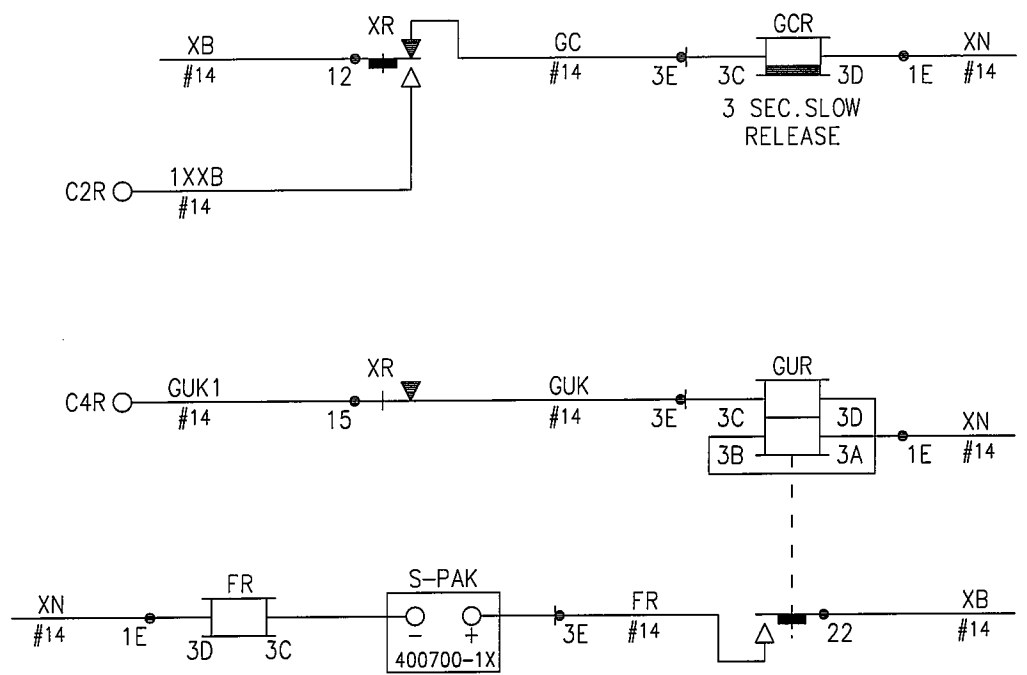
KANSAS CITY SOUTHERN LINES SIGNAL DEPT.

DWG. NO. SD-31-2-251.19G

LOCATION 417 N (EAST STREET)
 PEARL, IL

SD-31-5-251.19
 DOT NO. 293-200S
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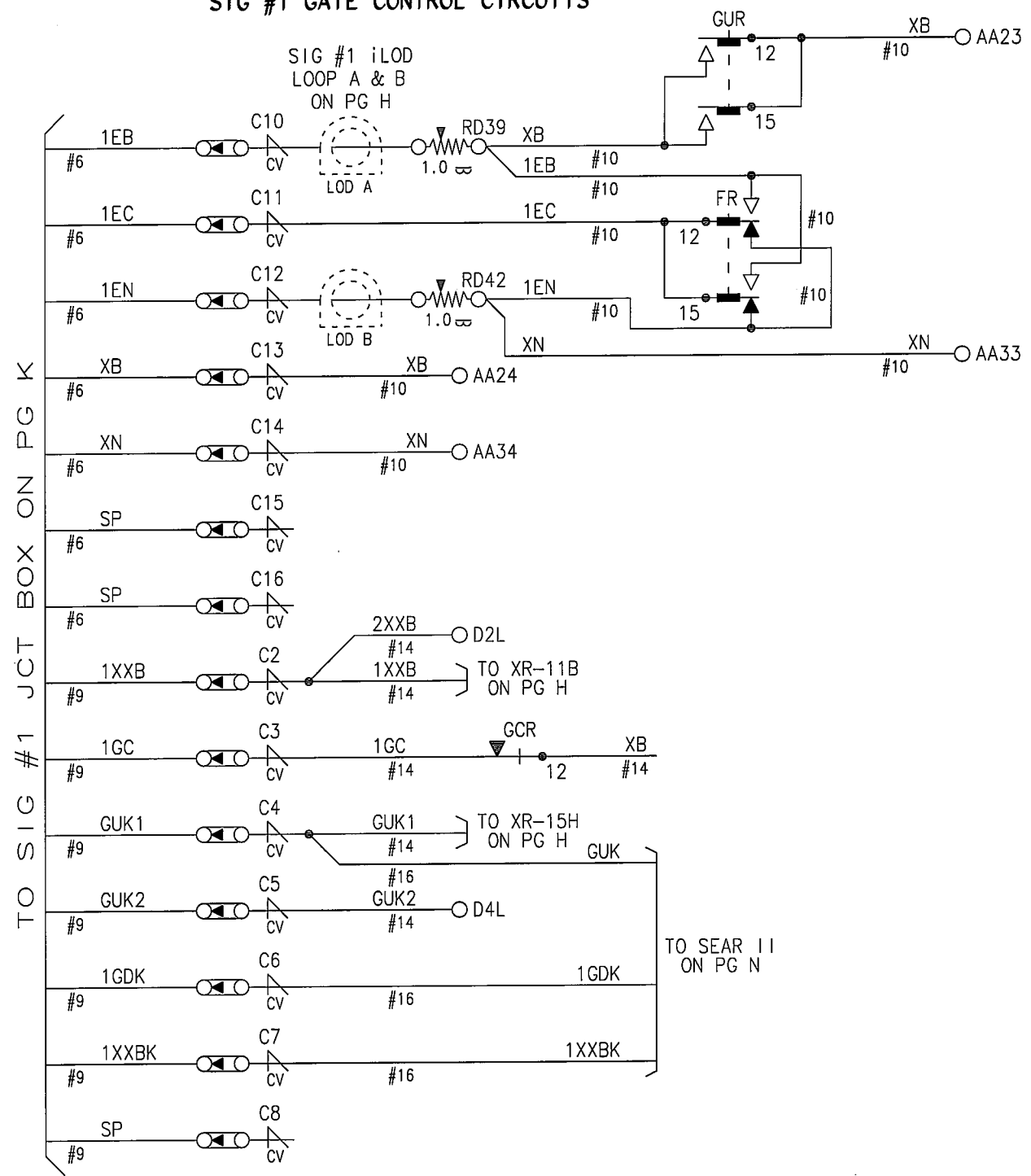
REVISION
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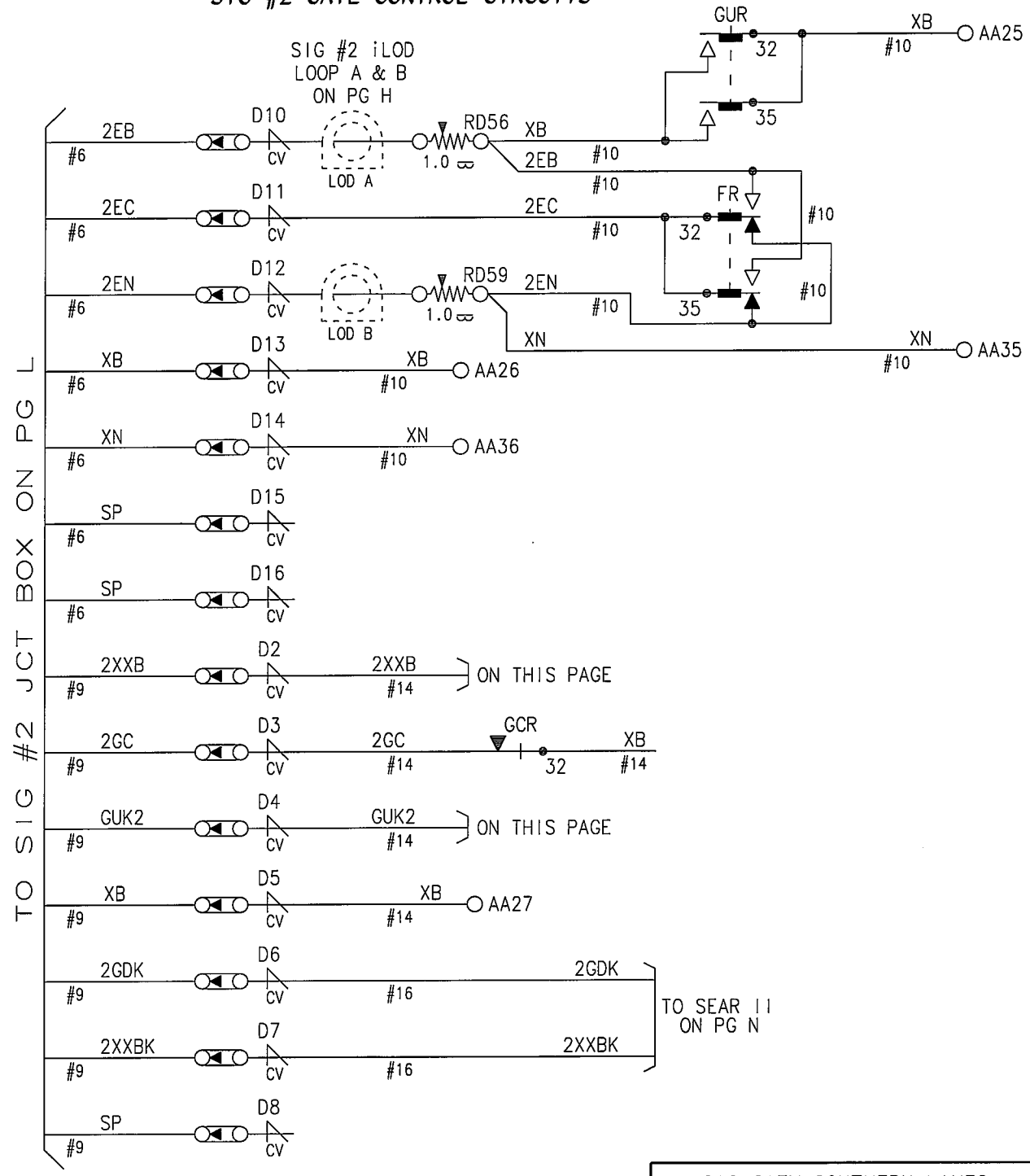
KANSAS CITY SOUTHERN LINES SIGNAL DEPT.
 DWG. NO. SD-31-2-251.19H
 LOCATION 417 N (EAST STREET)
 PEARL, IL
 SD-31-5-251.19
 DOT NO. 293-200S
 MILE POST 251.19

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SIG #1 GATE CONTROL CIRCUITS



SIG #2 GATE CONTROL CIRCUITS



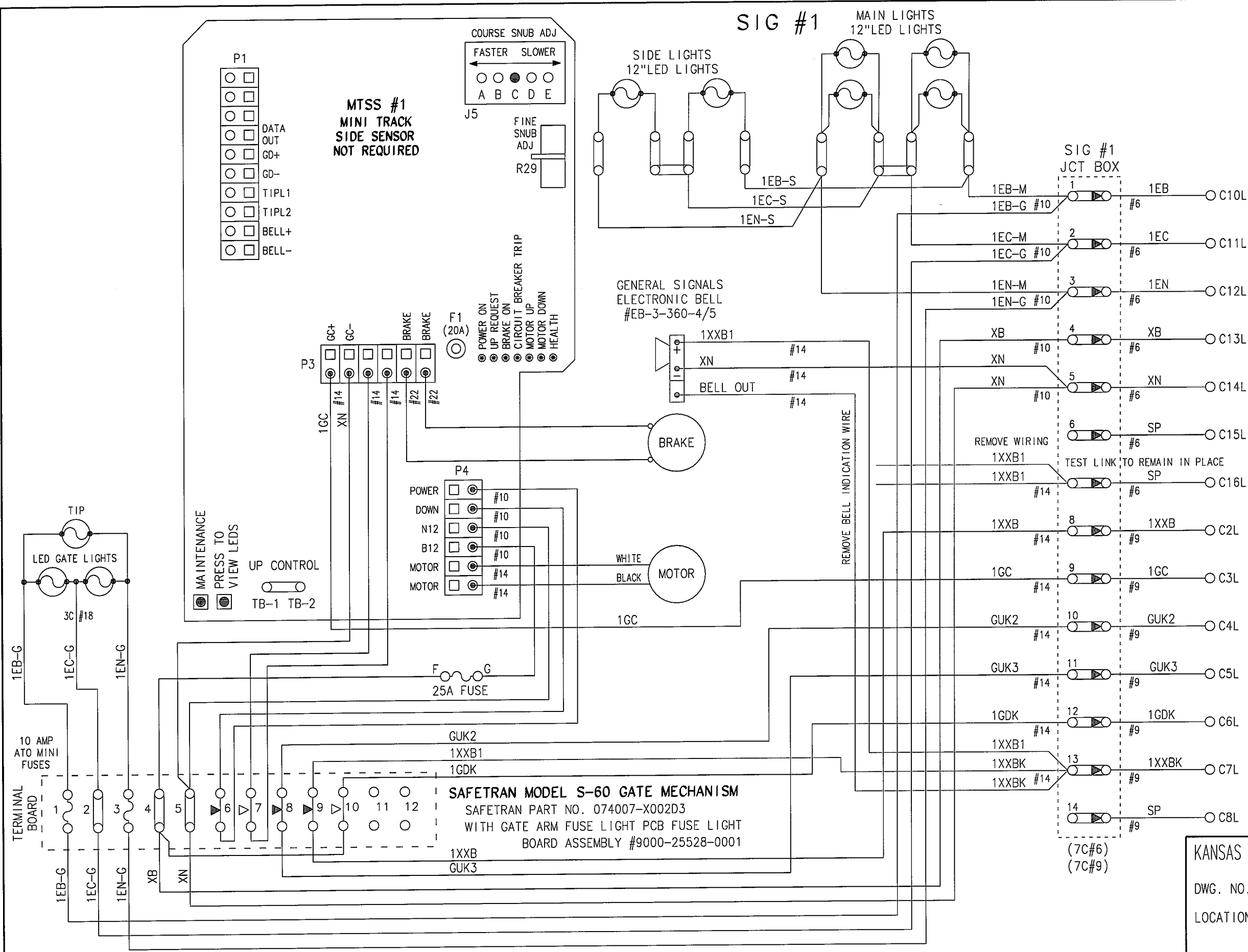
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KANSAS CITY SOUTHERN LINES SIGNAL DEPT.
 DWG. NO. SD-31-2-251.19J
 LOCATION 417 N (EAST STREET)
 PEARL, IL
 SD-31-5-251.19
 DOT NO. 293-200S
 MILE POST 251.19

SAFETRAN S-60 GATE MECHANISM

CONTACT	CLOSED	FUNCTION
6	70° - 90°	POWER DOWN
7	0° - 89°	POWER UP
8	83° - 90°	GATE UP
9	5° - 90°	BELL
10	0° - 5°	GATE DOWN
11		SPARE
12		SPARE

GATE SHOWN IN VERTICAL POSITION



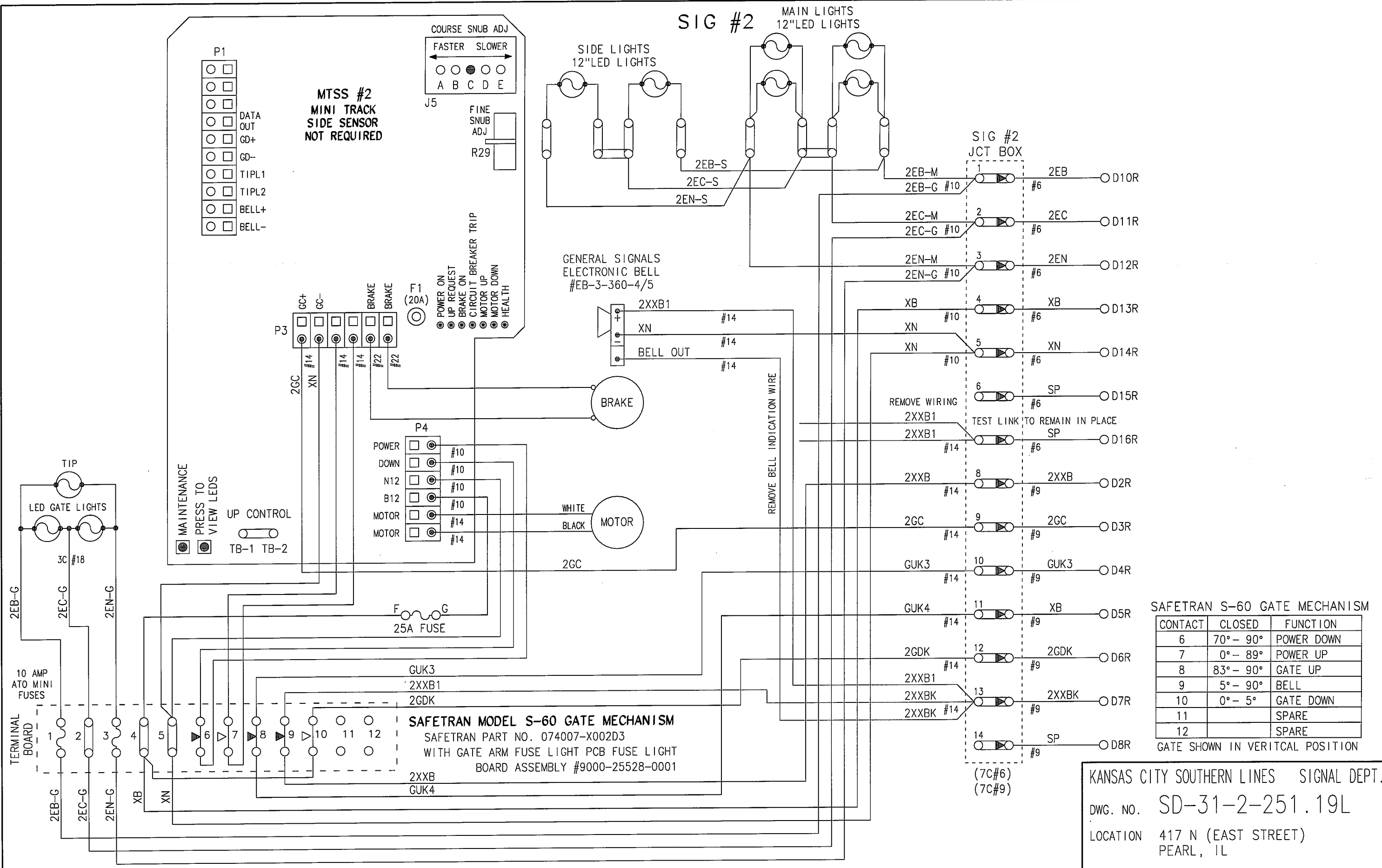
SAFETRAN MODEL S-60 GATE MECHANISM
 SAFETRAN PART NO. 074007-X002D3
 WITH GATE ARM FUSE LIGHT PCB FUSE LIGHT
 BOARD ASSEMBLY #9000-25528-0001

KANSAS CITY SOUTHERN LINES SIGNAL DEPT.
 DWG. NO. SD-31-2-251.19K
 LOCATION 417 N (EAST STREET)
 PEARL, IL

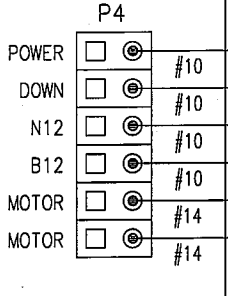
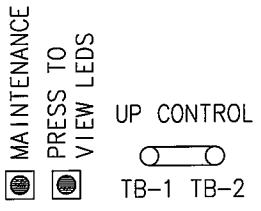
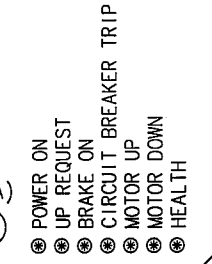
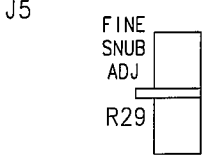
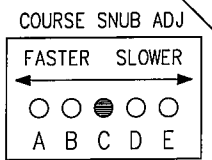
SD-31-5-251.19
 DOT NO. 293-200S
 MILE POST 251.19

KCSR WIRING CHANGES REQUIRED TO S-60 STANDARD MAY 2010

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**MTSS #2
MINI TRACK
SIDE SENSOR
NOT REQUIRED**



SAFETRAN MODEL S-60 GATE MECHANISM
SAFETRAN PART NO. 074007-X002D3
WITH GATE ARM FUSE LIGHT PCB FUSE LIGHT
BOARD ASSEMBLY #9000-25528-0001

SAFETRAN S-60 GATE MECHANISM

CONTACT	CLOSED	FUNCTION
6	70° - 90°	POWER DOWN
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8	83° - 90°	GATE UP
9	5° - 90°	BELL
10	0° - 5°	GATE DOWN
11		SPARE
12		SPARE

GATE SHOWN IN VERTICAL POSITION

KANSAS CITY SOUTHERN LINES SIGNAL DEPT.

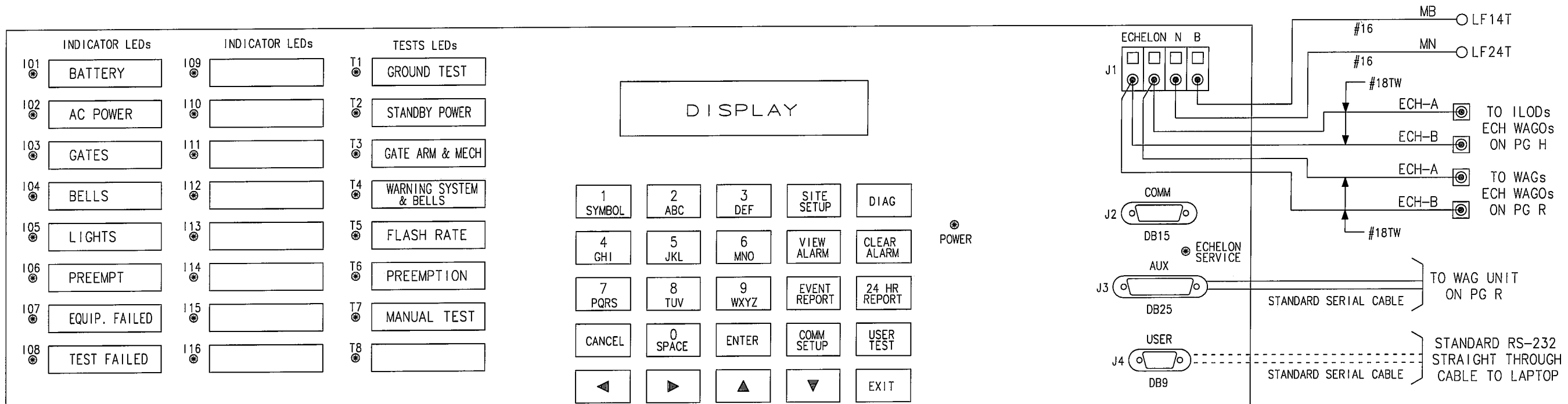
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LOCATION 417 N (EAST STREET)
PEARL, IL

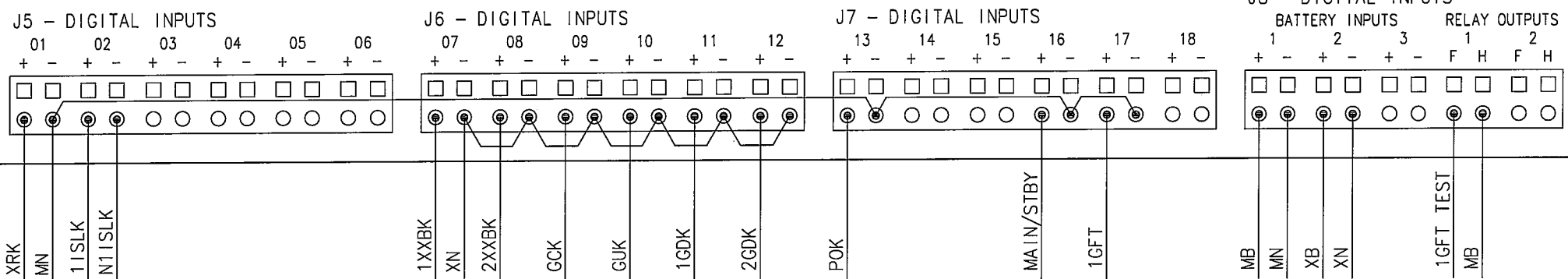
SD-31-5-251.19
DOT NO. 293-200S
MILE POST 251.19

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KCSR WIRING CHANGES REQUIRED TO S-60 STANDARD MAY 2010



SAFETRAN SYSTEMS... SEAR 11 EVENT RECORDER A80273
 SIZE... 19.0 IN WIDE x 8.7 IN HEIGHT x 1.7 IN DEPTH



- KCSR INTENDED USE FOR 18 DIGITAL INPUTS
- | | | |
|----|-----------|----------------------------|
| 1 | XRK | MOTION DETECTOR INDICATION |
| 2 | 1ISLK | ISLAND INDICATION |
| 3 | 2ISLK | ISLAND INDICATION |
| 4 | 1AXK | AUXILIARY INDICATION |
| 5 | 2AXK | AUXILIARY INDICATION |
| 6 | 3AXK | AUXILIARY INDICATION |
| 7 | 1XXBK | BELL AUDIO INDICATION |
| 8 | 2XXBK | BELL AUDIO INDICATION |
| 9 | GCK | GATE RELAY INDICATION |
| 10 | GUK | GATE UP INDICATION |
| 11 | 1GDK | GATE DOWN INDICATION |
| 12 | 2GDK | GATE DOWN INDICATION |
| 13 | POK | POWER OFF INDICATION |
| 14 | POCK | POWER OFF CHECK INDICATION |
| 15 | PREEMPT | PREEMPT INDICATION |
| 16 | MAIN/STBY | GCP TRANSFER INDICATION |
| 17 | 1GFT | GROUND FAULT TESTER |
| 18 | 2GFT | GROUND FAULT TESTER |
- KCSR INTENDED USE FOR 3 BATTERY INPUTS
- | | | |
|---|------------|------------------------|
| 1 | MB BATTERY | MAIN OPERATING BATTERY |
| 2 | XB BATTERY | 1ST LIGHTING BATTERY |
| 3 | BATTERY #3 | 2ND LIGHTING BATTERY |
- KCSR INTENDED USE FOR 2 RELAY OUTPUTS
- | | | |
|---|----------|----------------------|
| 1 | GFT TEST | GROUND FAULT RELAY |
| 2 | XATR | AC OFF CONTROL RELAY |

STANDARD LED CONVENTIONS...

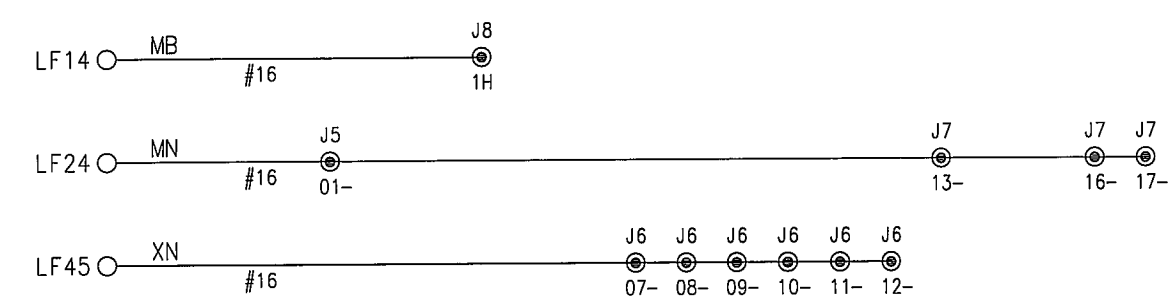
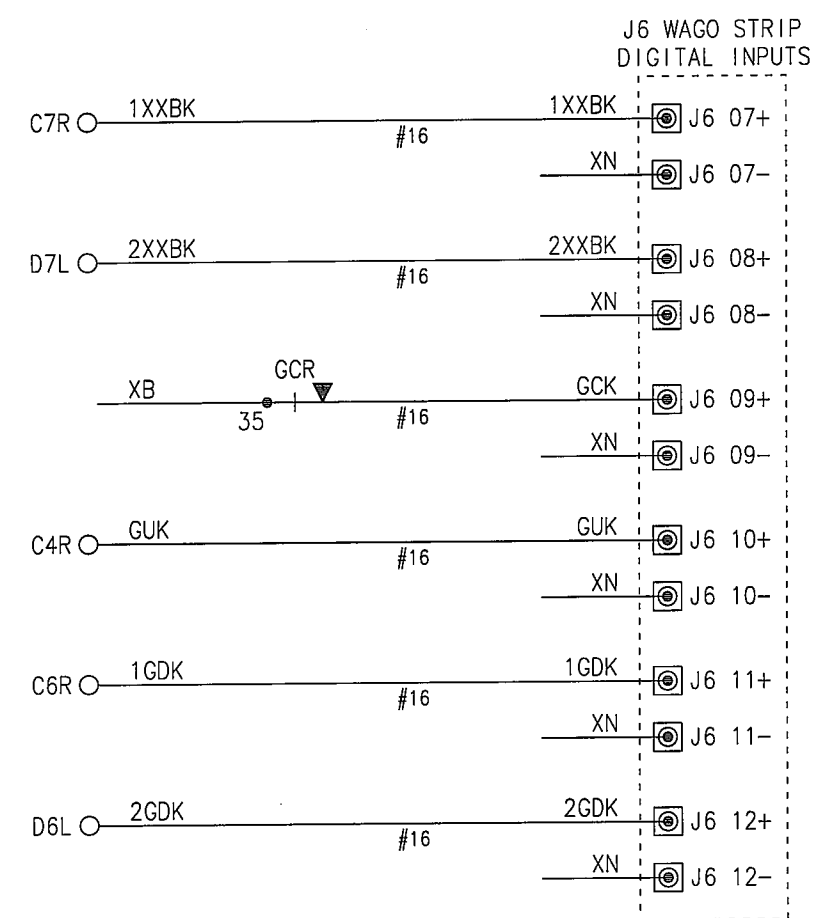
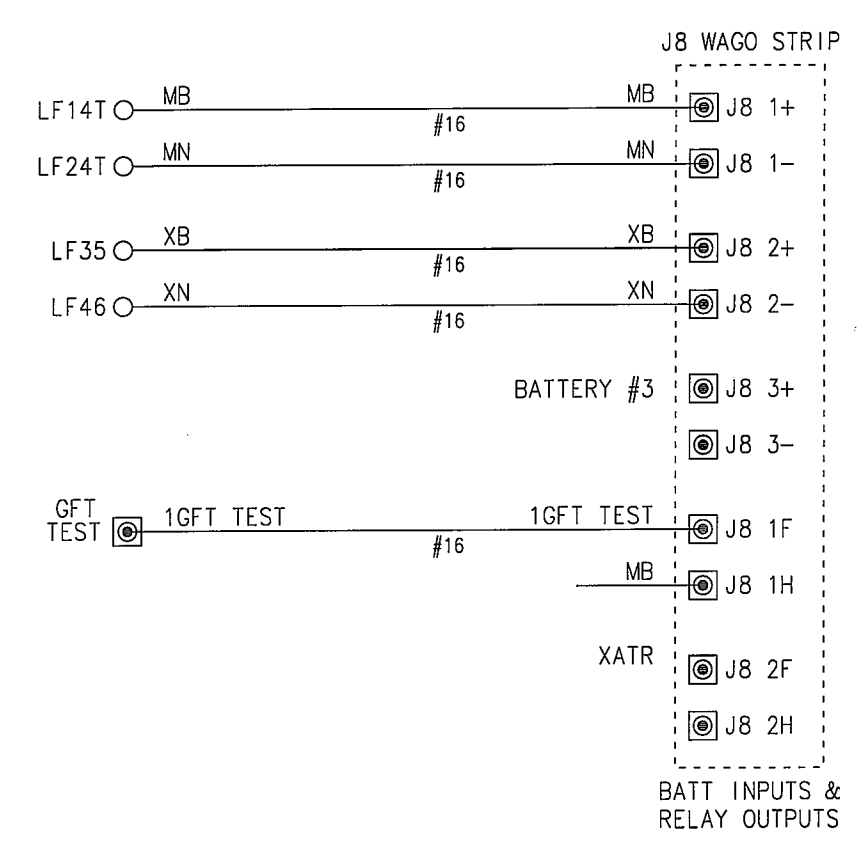
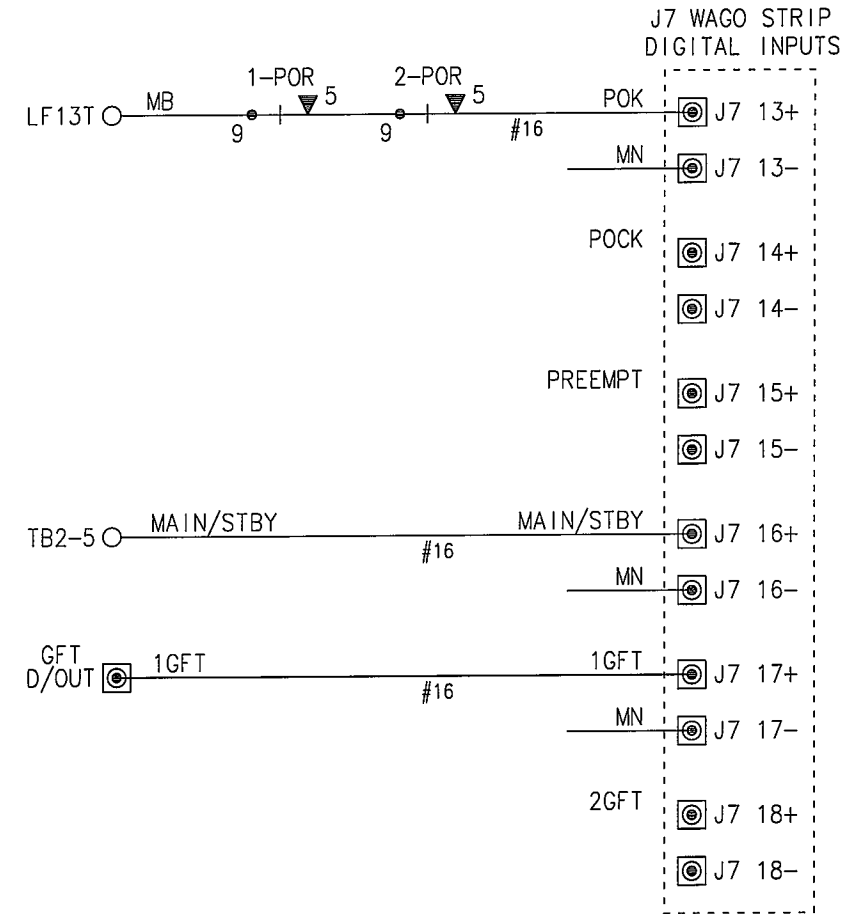
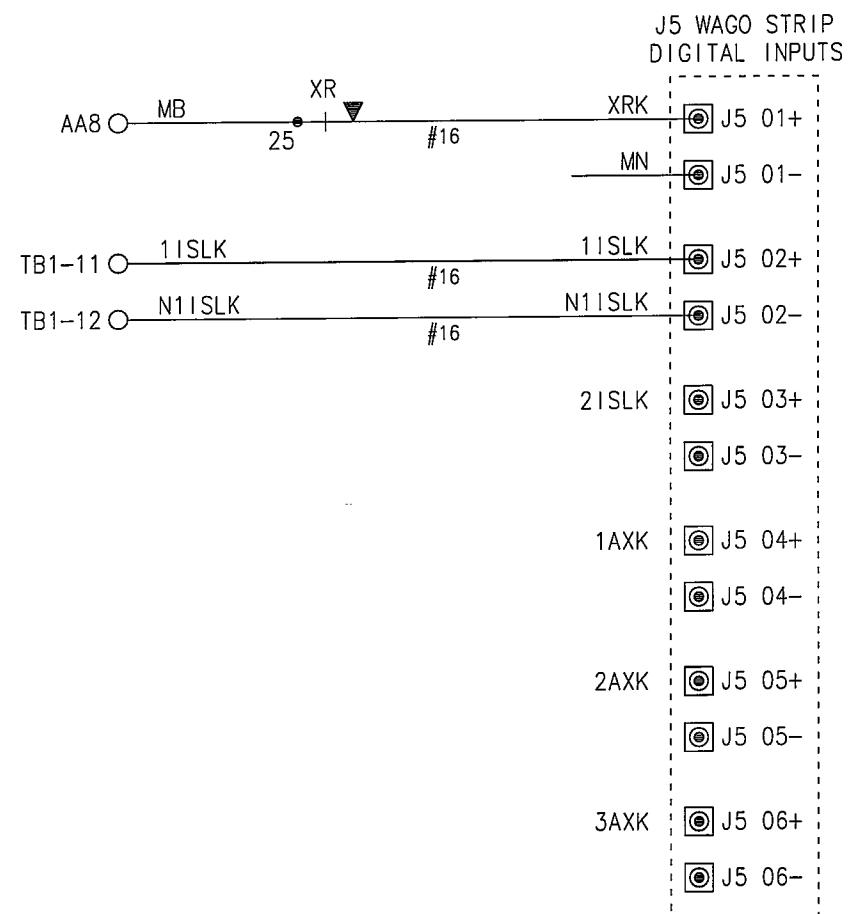
- LEDs ARE OFF WHEN NO ALARM HAS BEEN GENERATED OR AN ALARM HAS BEEN CLEARED USING THE CLEAR ALARM KEY.
- LEDs FLASH FAST WHEN AN ALARM CONDITION EXISTS.
- LEDs ARE ON (RED) IF AN ALARM HAS OCCURRED BUT THE ALARM CONDITION NO LONGER EXISTS.
- THE CLEAR ALARM KEY WILL NOT CLEAR OUT ALARMS IF THEY CURRENTLY EXIST.

TEST LED CONVENTIONS...

- LEDs ARE YELLOW STEADY WHEN AUTOMATIC INSPECTIONS ARE NOT READY TO EXECUTE.
- LEDs SLOW FLASH YELLOW WHEN INSPECTIONS ARE READY TO RUN, BUT HAVE NOT YET EXECUTED OR ARE CURRENTLY EXECUTING. (EXAMPLE: AWAITING A TRAIN ARRIVAL)
- LEDs ARE RED STEADY WHEN AN INSPECTION HAS FAILED.
- LEDs FAST FLASH GREEN WHEN AN INSPECTION HAS PASSED.
- THE CLEAR ALARM KEY WILL NOT EFFECT THESE LEDs.
- A LOCALLY EXECUTED AUTOMATIC TEST WILL RESET ALL LEDs TO SLOW FLASH YELLOW IF PREVIOUS TESTS HAVE PASSED.
- AFTER SUCCESSFUL PASS FOR ALL TESTS, THE TESTS ARE SENT INTO THE OFFICE AND LEDs ARE GREEN STEADY.

KANSAS CITY SOUTHERN LINES SIGNAL DEPT.
 DWG. NO. SD-31-2-251.19M
 LOCATION 417 N (EAST STREET)
 PEARL, IL
 SD-31-5-251.19
 DOT NO. 293-200S
 MILE POST 251.19

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KANSAS CITY SOUTHERN LINES SIGNAL DEPT.
 DWG. NO. SD-31-2-251.19N
 LOCATION 417 N (EAST STREET)
 PEARL, IL
 SD-31-5-251.19
 DOT NO. 293-200S
 MILE POST 251.19

SEAR II EXECUTIVE PROGRAM

SITE TYPE: CELL MODEM COLLECTOR

MENU QUESTION ?	SITE SETUP	POSSIBLE SELECTIONS AND CONDITION FOR MENU DISPLAY
DATE / TIME ?	XX-XX-XXXX XX:XX:XX	XX-XX-XXXX XX:XX:XX
AUTOMATIC DST ADJUSTMENT ?	YES	SELECTION IS YES OR NO
TIME ZONE ?	CENTRAL	SELECTION IS EASTERN, CENTRAL, ECT.
SITE NAME ?	417 N (E ST)-PEARL, IL	LIMITED TO 23 CHARACTERS
MILE POST ?	251.19	LIMITED TO 7 DIGITS
DOT NUMBER ?	293200S	LIMITED TO 7 DIGITS
TESTER TYPE ?	CROSSING	SELECTION IS CROSSING OR WAYSIDE
DATE FORMAT ?	MM-DD-YYYY	SELECTION IS MM-DD-YYYY OR DD-MM-YYYY
TEMP. FORMAT ?	FAHRENHEIT	SELECTION IS FAHRENHEIT OR CELSIUS
INDICATE HOLD (SEC) ?	0	SELECTION IS 0 TO 99
INDICATE REFRESH ?	60	SELECTION IS 0 TO 65535
SITE ATCS ADDRESS ?	7.400.103.160.99.01	TYPE 7 ATCS ADDRESS
SITE TYPE ?	NO COMMUNICATION	SELECT NO COMMUNICATION, BULLHORN/MODBUS, DIAL-UP, NODE, COLLECTOR, CDS-902X
OFFICE ATCS ADDRESS ?	N/A	IF SITE TYPE = NODE OR COLLECTOR
MODEM PORT ?	N/A	IF SITE TYPE = DIAL-UP SELECTION IS AUX OR COMM
POLL ID ?	N/A	IF SITE TYPE = BULLHORN/MODBUS OR COLLECTOR, SELECTION IS 1 TO 999
PRIMARY HOP ADDR ?	N/A	IF SITE TYPE = NODE
BACKUP HOP ADDR 1 ?	N/A	IF SITE TYPE = NODE
BACKUP HOP ADDR 2 ?	N/A	IF SITE TYPE = NODE
RADIO ATCS ADDR ?	N/A	IF OFFICE COMM DEVICE = MCM RS232, WAG ECH, MCM ECH, ENTER ATCS ADDRESS
MODE ?	N/A	IF SITE TYPE = COLLECTOR SELECTION IS GEN/ATCS OR GENISYS
WAMS XID ?	N/A	IF SITE TYPE = COLLECTOR SELECTION IS ENABLE OR DISABLE
OFFICE COMM. DEVICE ?	N/A	IF SITE TYPE = COLLECTOR, SELECTION IS DIRECT, MCM RS, WAG, MCM ECH, MODEM, S200 RADIO

SEAR II EXECUTIVE PROGRAM

SITE TYPE: CELL MODEM COLLECTOR

MENU QUESTION ?	SITE SETUP	POSSIBLE SELECTIONS AND CONDITION FOR MENU DISPLAY
MCM (RS232) PORT ?	N/A	IF FIELD COMM DEVICE = MCM (RS232) SELECTION IS AUX OR COMM
SPREAD SPEC (RS232) PORT ?	N/A	IF FIELD COMM DEVICE = SPREAD SPEC (RS232) SELECTION IS AUX OR COMM
VHF COMM. (RS232) PORT ?	N/A	IF FIELD COMM DEVICE = VHF COMM (RS232) SELECTION IS AUX OR COMM
DIRECT (RS232) PORT ?	N/A	IF OFFICE COMM DEVICE = DIRECT (RS232) SELECTION IS COMM OR AUX
DIAL MODEM (RS232) PORT ?	N/A	IF OFFICE COMM DEVICE = DIAL MODEM (RS232) SELECTION IS COMM OR AUX
S200 RADIO (RS422) PORT ?	N/A	IF OFFICE COMM DEVICE = S200 RADIO (RS422) SELECTION IS COMM OR AUX
FIELD COMM. DEVICE ?	N/A	IF SITE TYPE = NODE OR COLLECTOR, SELECT IS VHF ECH, SPREAD-SPEC, WAG, VHF RS, NONE
PHONE # ?	N/A	IF OFFICE COMM DEVICE = DIAL MODEM (RS232) ENTER 10 DIGIT PHONE NUMBER
INIT STRING ?	N/A	IF SITE TYPE = DIAL-UP, OR OFFICE COMM. DEVICE = DIAL MODEM (RS232) LEAVE BLANK
USER PORT BAUD ? (J4)	57600	SELECTION IS 9600, 19200, 38400, 57600, 300, 600, 1200, 2400, 4800
USER PORT DATA BITS ?	8	SELECTION IS 8 OR 9
USER PORT PARITY ?	NONE	SELECTION IS NONE, ODD, EVEN
USER PORT STOP BITS ?	1	SELECTION IS 1 OR 9
USER PORT FLOW CONTROL	NONE	SELECTION IS NONE, HARDWARE, RADIO
AUX PORT BAUD ? (J3)	9600	SELECTION IS 9600, 19200, 38400, 57600, 300, 600, 1200, 2400, 4800
AUX PORT DATA BITS ?	8	SELECTION IS 8 OR 9
AUX PORT PARITY ?	NONE	SELECTION IS NONE, ODD, EVEN
AUX PORT STOP BITS ?	1	SELECTION IS 1 OR 9
AUX PORT FLOW CONTROL	NONE	SELECTION IS NONE, HARDWARE, RADIO
COMM PORT BAUD ? (J2)	9600 (SEAR II ONLY)	SELECTION IS 9600, 19200, 38400, 57600, 300, 600, 1200, 2400, 4800
COMM PORT DATA BITS ?	8	SELECTION IS 8 OR 9
COMM PORT PARITY ?	NONE	SELECTION IS NONE, ODD, EVEN
COMM PORT STOP BITS ?	1	SELECTION IS 1 OR 9
COMM PORT FLOW CONTROL	NONE	SELECTION IS NONE, HARDWARE, RADIO

N/A = MEANS THIS SELECTION WILL NOT APPEAR
BECAUSE OF PRIOR SELECTIONS MADE

SEAR EXECUTIVE SOFTWARE 9V645-A01AA

KANSAS CITY SOUTHERN LINES SIGNAL DEPT.

DWG. NO. SD-31-2-251.19P

LOCATION 417 N (EAST STREET)
PEARL, ILSD-31-5-251.19
DOT NO. 293-200S
MILE POST 251.19REVISION
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EXECUTIVE SETUP AS OF 6/18/09

KCS VERSION OF SEAR PROGRAM MENU ITEMS - SITE SETUP

QUESTION ?	SITE SETUP	POSSIBLE SELECTIONS AND CONDITION FOR MENU DISPLAY
XR INPUT ?	YES	SELECTION YES OR NO
ISLAND INPUTS ?	1	SELECTION 0 TO 2
BELL OUT INPUTS ?	2	SELECTION 0 TO 2
GATE CONTROL INPUT ?	YES	SELECTION YES OR NO
GATE UP INPUT ?	YES	SELECTION YES OR NO
GATE DOWN INPUTS ?	2	SELECTION 0 TO 2
POWER OFF INPUT ?	YES	SELECTION YES OR NO
POWER OFF CHECK INPUT ?	NO	SELECTION YES OR NO IF POWER OFF INPUT = YES
PREEMPT INPUT ?	NO	SELECTION YES OR NO
PREEMPT TIME SECS ?	N/A	SELECTION 0 TO 60 IF PREEMPT INPUT = YES
MAIN / STANDBY INPUT ?	YES	SELECTION YES OR NO
BATTERY INPUTS ?	2	SELECTION 0 TO 3
GFT INPUTS ?	1	SELECTION 0 TO 2 IF BATTERY INPUTS > 0
iLOD MODULES ?	2	SELECTION 0 TO 4
ANY LED BULBS USED ?	YES	SELECTION YES OR NO IF iLOD MODULES > 0
AUTO INSPECTIONS ?	NO	SELECTION YES OR NO
VHF COMMUNICATOR ?	NO	SELECTION YES OR NO
VHF CHANNEL ?	N/A	SELECTION 1 TO 8 IF VHF COMMUNICATOR = YES
NUMBER OF TRACKS ?	1	SELECTION 1 OR 2
CUT-OUT CIRCUITS ?	NO	SELECTION YES OR NO
TIMING DEVICE PRESENT ?	NO	SELECTION YES OR NO
HOLD CLEAR DEVICE PRESENT ?	NO	SELECTION YES OR NO

BATTERY INPUT CONFIGURATION

CHANNEL	NAME	RESOLUTION	MENU CONDITION
01	MB	1 VDC	BATTERY INPUTS > 0
02	XB	1 VDC	BATTERY INPUTS = 2
02	1XB	1 VDC	BATTERY INPUTS = 3
03	2XB	1 VDC	BATTERY INPUTS = 3

STANDARD DIGITAL AND BATTERY INPUT NAMES MUST BE USED TO ENABLE CORRESPONDING APPLICATION ALARMS. INPUTS ARE AUTOMATICALLY DETECTED BY THE APPLICATION PROGRAM.

RELAY OUTPUT CONFIGURATION

CHANNEL	NAME	DESIGNATOR	NORMAL	ENERGIZED	DE-ENERGIZED	MENU CONDITION
01	GFT TEST	GFTTEST	OFF	ON	OFF	GFT INPUTS > 0
02	AC POWER TEST	ACTEST	OFF	ON	OFF	IF AUTO INSPECTIONS = YES

SEAR APPLICATION SOFTWARE 9V505-A01A

KANSAS CITY SOUTHERN LINES SIGNAL DEPT.
 DWG. NO. SD-31-2-251.19Q
 LOCATION 417 N (EAST STREET)
 PEARL, IL

SD-31-5-251.19
 DOT NO. 293-200S
 MILE POST 251.19

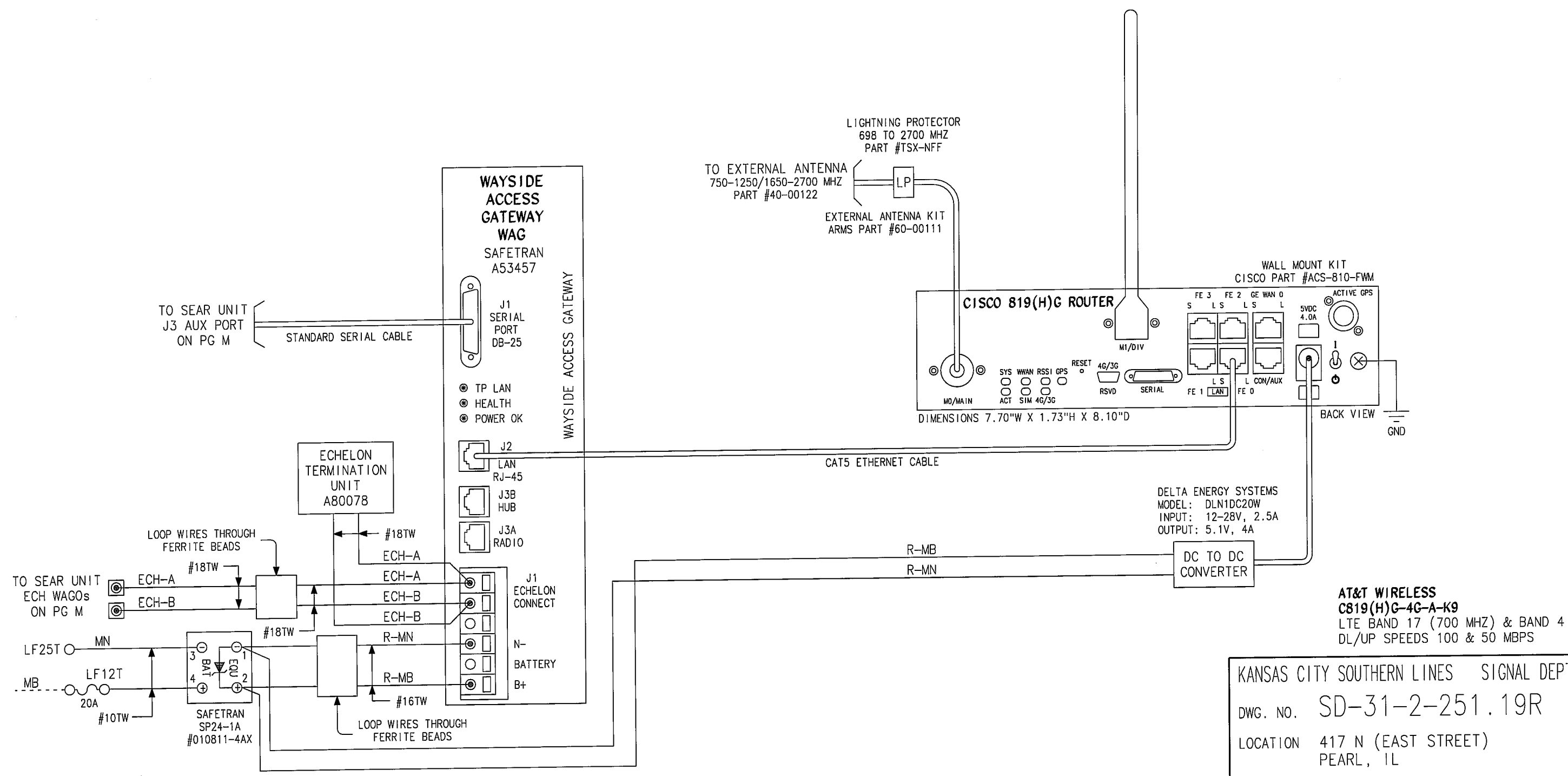
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APPLICATION SETUP AS OF 6/18/09

ROUTER INFORMATION:

ROUTER IP ADDRESS: 10.109.5.34
 IP SUBNET MASK: 255.255.255.248
 GATEWAY: 10.109.5.33

ONLY PORT 0 IS USABLE. OTHER PORTS ON ROUTER ARE LOCKED.



AT&T WIRELESS
C819(H)G-4G-A-K9
 LTE BAND 17 (700 MHZ) & BAND 4
 DL/UP SPEEDS 100 & 50 MBPS

KANSAS CITY SOUTHERN LINES SIGNAL DEPT.
 DWG. NO. SD-31-2-251.19R
 LOCATION 417 N (EAST STREET)
 PEARL, IL

SD-31-5-251.19
 DOT NO. 293-200S
 MILE POST 251.19

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