

NC

49

FILE

**Public Utilities  
Commission of Ohio**

# Memo



**To:** Docketing Division  
**From:** George Martin, Grade Crossing Planner, Rail Division  
**Re:** In the matter of the authorization of Norfolk Southern Railway to install an active grade crossing warning device in Trumbull County  
**Date:** November 15, 2013

The Ohio Rail Development Commission (ORDC) has authorized funding for Norfolk Southern Railway (NS) to install **mast-mounted flashing lights and gates** at Trumbull County, near Hubbard, CR 98/Seifert Lewis Rd, DOT# 544719C. The crossing was surveyed on May 7, 2013, and was found to warrant the upgrade.

The project will be paid for with federal funds, and is actual cost. As the plan and estimate for the project has been submitted and approved, staff requests an Entry with completion due in nine months. Construction may commence at once. Staff requests that the following language be incorporated in the Entry:

**It is expected that all work necessary for FHWA acceptance of the warning devices will be completed by the in-service due date and that the railroad will be responsible for this work. This work includes, but is not limited to:**  
**Any ancillary work to make the warning devices function as designed and visible to the roadway user, and**  
**MUTCD compliance, including minor roadway work if necessary.**

A suggested case coding and heading would be:

PUCO Case No. 13- 2222 -RR-FED In the matter of the authorization of Norfolk Southern Railway to install an active grade crossing warning device in Trumbull County

C: Legal Department

Please serve the following parties of record.

PUCO

2013 NOV 15 AM 10:47

RECEIVED DOCKETING DIV

Ms Cathy Stout  
Ohio Rail Development Commission  
1980 W Broad St, Mailstop # 3140  
Columbus, Oh 43223

Ms Cayela Wimberly  
Norfolk Southern Railway  
1200 Peachtree St NE, Box 123  
Atlanta, Ga 30309-3597

Mr Casey Talbot  
Eastman & Smith Ltd  
One SeaGate, 24th Floor  
PO Box 10032  
Toledo, Oh 43699-0032

Mr Gary Shaffer  
Trumbull County Engineer  
650 North River Road N.W.  
Warren, Ohio 44483-2255

Ohio Edison

## OHIO RAIL DEVELOPMENT COMMISSION INTER-OFFICE COMMUNICATION

**TO:** Randall Schumacher, Rail Division Chief, PUCO

**FROM:** Cathy Stout, Manager, Safety Section, ORDC

**BY:** Mike Forte', Project Manager, ORDC *MDF*

**SUBJECT:** County Road 98, Seifert Lewis Road  
Trumbull County  
Norfolk Southern  
US DOT 544 719C

**DATE:** November 4, 2013

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The Public Utilities Commission of Ohio (PUCO) established a diagnostic survey at the subject location on May 7, 2013. The Ohio Rail Development Commission (ORDC) attended the review. The Diagnostic Team recommended the improvement of warning devices to flashing lights and roadway gates. Copies of the diagnostic review form and the plan and estimate are attached.

PE has already been provided by the railroad. ORDC approves the site plans and estimates as provided. Please issue a construction-only order for the project outlined above. This authorization is made with the stipulation and understanding that an approved estimate may contain entries for items or activities that may be cited and found to be ineligible for federal participation during the project audit.

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

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

Thank you for your assistance with these matters.

Attachment: Diagnostic Review  
Plans & Estimates

c: George Martin, PUCO  
ORDC Project Manager (file)



# OHIO RAIL DEVELOPMENT COMMISSION

Mail Stop #3140, 1980 West Broad Street, Columbus OH 43223

John R. Kasich, Governor • James G. Bradley, Chairman

November 4, 2013

Ms. Cayela J. Wimberly  
Norfolk Southern Railway  
Public Projects Engineer  
1200 Peachtree Street, Box 123  
Atlanta, Ga. 30309

RE: Grade Crossing Warning Project  
County Road 98, Seifert Lewis Road, USDOT 544 719C  
Trumbull County

*CAYELA*  
Dear Ms. Wimberly:

The plan and estimate dated September 12, 2013, for the referenced project has been reviewed and is acceptable. Norfolk Southern (NS) may proceed with the construction of the proposed grade crossing warning system in accordance with the abbreviated plan. This authorization is made with the stipulation and understanding that the approved estimate may contain entries for items or activities that may be cited and found to be ineligible for federal participation during the project audit. Reimbursement of eligible actual cost is limited to \$321,165.00. Additional costs must be approved in writing by the ORDC prior to being incurred. Emergency verbal authorizations by ORDC may be permitted and will be confirmed by ORDC in writing within ten (10) business days of the verbal approval.

This authorization is contingent upon NS accepting the following instructions:

1. NS's project foreman will furnish written notification five (5) working days prior to the date work will start at the project site to the Public Utilities Commission of Ohio at [George.martin@puc.state.oh.us](mailto:George.martin@puc.state.oh.us). NS's project foreman will also notify the same of any stops and re-starts of the work activity and of the date work was completed for the project.
2. NS's project foreman will furnish written notification five (5) working days prior to the date work will start at the project site to Mike Fortè, Ohio Rail Development Commission (ORDC), email [Mike.forte@dot.state.oh.us](mailto:Mike.forte@dot.state.oh.us) or telephone 614- 374-9287. NS's project foreman will also notify the same of any stops and re-starts of the work activity and of the date work was completed for the project.



[www.rail.ohio.gov](http://www.rail.ohio.gov)

phone: 614.644.0306

IMPROVING RAIL TODAY FOR TOMORROW'S ECONOMY

3. NS will arrange for utilities to be located at the project site by the Ohio Utilities Protection Service (OUPS) prior to any construction activities at the site. Utilities that are not participating members of the service must be contacted directly by NS.
4. NS's project foremen will notify Mike Fortè of any changes in the scope of work, cost overruns, material changes, etc. which are not included in the approved plan and estimate and secure approval of same before the work is performed.
5. NS will furnish two (2) copies of each partial bill to ORDC. Please find the enclosed *Purchase Order to reference when billing.*
6. NS will furnish two (2) copies of the final all-inclusive bill to ORDC stating the exact dates of starting and completing work, the initial and final dates of construction and location where the accounts may be audited.

Thank you for your assistance with these matters.

Sincerely,



Michael Fortè  
Project Manager

C: Randall Schumacher, Rail Division Chief, PUCO  
George Martin, Grade Crossing Planner, PUCO  
Susan Arduini, ORDC  
ORDC (file)



## Diagnostic Review Team Survey

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

Date: 5/7/13

### Location Data

Street or Road Name: Seifert Lewis Rd.

Route/Road Number  
(i.e. Twp., Co., SR or US) CR 98

US DOT No: 544719C

County: TRU

Township:

City:  
(In or Near)

Youngstown

Railroad  
Name: Norfolk Southern

Railroad  
Division: Pittsburgh

Branch/Line  
Name: Youngstown LI

Nearest RR  
Timetable Station: Coalburg HUBBARD CP.

RR Milepost: 53.01

### On-Site Review Team

(Include: Name - Organization - Phone Number - Email)

1. MIKE FORTE ORDC 614-374-9287
2. GEORGE MARTIN PUCO 614-752-9107
3. DAVE MIGLETT NORFOLK SB. 330-831-7410
4. JOE DOWN PUCO 440-218-5316
5. Gary Shaffer Trumbull County Engr. 330-675-2640
6. S Diaz NS 330-314-4433
7. DAVE McINTYRE NS 330-221-6811
- 8.
- 9.

### Existing Traffic Control Devices

| Type of Warning Devices               | Installed?                              |                                        | Quantity/Comments |
|---------------------------------------|-----------------------------------------|----------------------------------------|-------------------|
| Advance Warning Signs (condition?)    | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            | 2                 |
| 'Stop' Signs                          | <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No |                   |
| 'Stop Ahead' Signs                    | <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No |                   |
| Pavement Markings (condition?)        | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            | 2 / No STOP BARS  |
| Crossbucks                            | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            | 2                 |
| Number of Tracks Signs                | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            | 2                 |
| Inventory Tags                        | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            | 2                 |
| Interconnected Highway Traffic Signal | <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No |                   |
| Mast-Mounted Flashing Lights          | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            | 2                 |
| Cantilever Flashing Lights            | <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No | Number: Length:   |
| Side Lights                           | <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No |                   |
| Automatic Gates                       | <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No | Number: Length:   |
| Bells                                 | <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No | Number:           |
| Sidewalk Gate Arms                    | <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No |                   |
| 'No Turn' Signs                       | <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No |                   |
| Illumination                          | <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No |                   |
| Is crossing flagged by train crew?    | <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No |                   |
| Other                                 | <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No |                   |

**Safety Data (Obtain crash reports, if possible, prior to review)**

|                                               | Initial Information (from database) | Revised |
|-----------------------------------------------|-------------------------------------|---------|
| Number & dates of crashes in previous 5 years | 0                                   |         |
| Hazard Ranking                                | 1134 Date Run: 4/8/13               |         |

**Railroad Data**

| Railroad Characteristics      | Initial Information (from database) | Revised       |
|-------------------------------|-------------------------------------|---------------|
| Total trains per day          | 21                                  | 16            |
| < 1 per day                   |                                     |               |
| Day thru trains               | 10                                  |               |
| Night thru trains             | 9                                   | MORE THAN 50% |
| Daytime switching movements   | 2                                   |               |
| Nighttime switching movements | 0                                   |               |
| Total number of tracks        | 2                                   |               |
| Number of main tracks         | 2                                   |               |
| Number of other tracks        | 0                                   |               |
| Maximum train speed           | 40                                  |               |
| Typical train speed           |                                     | 40            |
| Amtrak                        |                                     | No            |

If non-gated crossing, is clearing sight distance adequate in all quadrants? (See Table 1) ☒ Yes ☐ NoIf multiple tracks, can two trains occupy crossing at the same time? ☒ Yes ☐ NoCan one train block the motorists' view of another train at crossing? ☒ Yes (Explain below) ☐ NoCan one or more tracks be eliminated through the crossing? ☐ Yes ☒ NoAre there other track(s) crossing this same roadway within 100 ft of this crossing? ☐ Yes ☒ No

If yes, Crossing DOT #(if different) \_\_\_\_\_

If yes, distance \_\_\_\_\_ (take measurement between track centerlines at closest point along roadway)

**Roadway Data**

| Local Highway Authority: Trumbull County                                                                                                |                                     |                                                          |
|-----------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|----------------------------------------------------------|
| Roadway Characteristics                                                                                                                 | Initial Information (from database) | Revised                                                  |
| Average daily traffic                                                                                                                   | 1134 (2008)                         |                                                          |
| Highway paved                                                                                                                           | X Yes <input type="checkbox"/> No   | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| Roadway Surface: <u>Blacktop</u> <input type="checkbox"/> Gravel <input type="checkbox"/> Concrete <input type="checkbox"/> Other _____ |                                     |                                                          |
| Roadway width: <u>19</u> ft.                                                                                                            |                                     |                                                          |
| Number of highway lanes                                                                                                                 | 2                                   |                                                          |
| Urban or Rural                                                                                                                          | Rural                               |                                                          |
| Vehicle Speed: _____ MPH                                                                                                                |                                     | 45 mph                                                   |
| School Bus Operation: <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes _____ Amount                                  |                                     |                                                          |
| Hazardous Materials Trucks: <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes _____ Amount                            |                                     |                                                          |
| Shoulders: <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes                                                          |                                     |                                                          |
| Is the shoulder surfaced? <input type="checkbox"/> No <input type="checkbox"/> Yes                                                      |                                     |                                                          |
| Is there existing guardrail along roadway in crossing vicinity? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes     |                                     |                                                          |
| Is stopping site distance adequate? (See Table 2) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                   |                                     | If no, deficient approach(es) _____                      |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                       |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Quadrant _____ Curb and Gutter:<br><input type="checkbox"/> Functional (Curb height = 4" or more)<br><input type="checkbox"/> Non-functional (Curb height = Less than 4")<br><input checked="" type="checkbox"/> None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Quadrant _____ Curb and Gutter:<br><input type="checkbox"/> Functional (Curb height = 4" or more)<br><input type="checkbox"/> Non-functional (Curb height = Less than 4")<br><input checked="" type="checkbox"/> None |
| Pedestrians: <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                       |
| Is sidewalk present? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                       |
| Is there a nearby intersection that could cause queuing over the crossing? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes<br>If yes,<br>Distance _____<br>Is this intersection signalized? <input type="checkbox"/> No <input type="checkbox"/> Yes<br>Are the signals currently interconnected with the existing crossing warning devices? <input type="checkbox"/> No <input type="checkbox"/> Yes<br>Is there a 'Do not Stop on Track' sign? <input type="checkbox"/> No <input type="checkbox"/> Yes                                                                                                                                                                                                                                          |                                                                                                                                                                                                                       |
| Is a roadway improvement project (e.g. widening, turn lanes, nearby new or upgraded traffic signal, sidewalk) planned at or near this location in the foreseeable future? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes<br>If yes,<br>Improvement type _____ Lead Agency _____ Timeline/completion _____                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                       |
| Is it the consensus of the Diagnostic Review Team that this is a potential closure project: <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes<br>Explain reasons: _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                       |
| <b>Type of Development</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                       |
| <input checked="" type="checkbox"/> Open Space<br><input type="checkbox"/> Industrial<br><input checked="" type="checkbox"/> Residential<br><input type="checkbox"/> Institutional<br><input type="checkbox"/> Commercial                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Location of nearby schools:<br><div style="font-size: 1.2em; font-family: cursive;">HUBBARD School - 2mi</div>                                                                                                        |
| <b>Utility Information</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                       |
| Is commercial power available? <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes<br>Utility Provider (Company Name) <u>OH. ED.</u> Phone Number _____<br>Nearest Available Power Source _____<br>What other utilities are present? (add locations to sketch)<br><div style="display: flex; justify-content: space-between;"> <div> <input checked="" type="checkbox"/> Gas<br/> <input type="checkbox"/> Petroleum<br/> <input type="checkbox"/> Other         </div> <div> <input type="checkbox"/> Cable<br/> <input type="checkbox"/> Water         </div> <div> <input checked="" type="checkbox"/> Telephone<br/> <input type="checkbox"/> Sanitary Sewer         </div> <div> <input type="checkbox"/> Fiber Optic Cable         </div> </div> |                                                                                                                                                                                                                       |
| Is(are) there potential utility conflict(s) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown<br>Comments: _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                       |



## Potential Red Flags / Project Challenges

Traffic Signal Preemption (include traffic signal intersection name and LHA with jurisdiction over traffic signal, if known):

No

Crossing Consolidation or Closure:

No

Real Estate or ROW:

COUNTY - 60'  
(TYP.)

NS -

Culverts / Drainage / Ballast Conditions:

No

Roadway and/or Sidewalks:

No

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

No

Environmental:

No

Other:

## Diagnostic Team Recommendations

|                                                                                     | Quadrants Needed |
|-------------------------------------------------------------------------------------|------------------|
| <input checked="" type="checkbox"/> Install/upgrade active devices                  |                  |
| <input type="checkbox"/> Automatic Flashing Lights (AFLS)                           |                  |
| <input type="checkbox"/> AFLS / Cants                                               |                  |
| <input checked="" type="checkbox"/> AFLS / Gates                                    | NW, SE           |
| <input type="checkbox"/> AFLS / Gates / Cants                                       |                  |
| <input checked="" type="checkbox"/> Bells / number                                  | 1                |
| <input type="checkbox"/> Upgrade circuitry / type                                   |                  |
| <input type="checkbox"/> Sidelights                                                 |                  |
| <input type="checkbox"/> Guardrail Needed                                           |                  |
| <input type="checkbox"/> Install/Replace curb                                       |                  |
| <input checked="" type="checkbox"/> Bungalow placement & offset from rail & highway | SW               |
| <input type="checkbox"/> Other (define)                                             |                  |

Comments:

|                                                                    |  |
|--------------------------------------------------------------------|--|
| <input type="checkbox"/> Install/upgrade traffic signal preemption |  |
| <input type="checkbox"/> No improvements needed                    |  |
| <input type="checkbox"/> Other (define)                            |  |

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

|     |        |        |     |
|-----|--------|--------|-----|
| MDF | GRJ    | DN     | DPM |
| Gm  | D.J.M. | R.W.S. |     |

# Field Dimensions

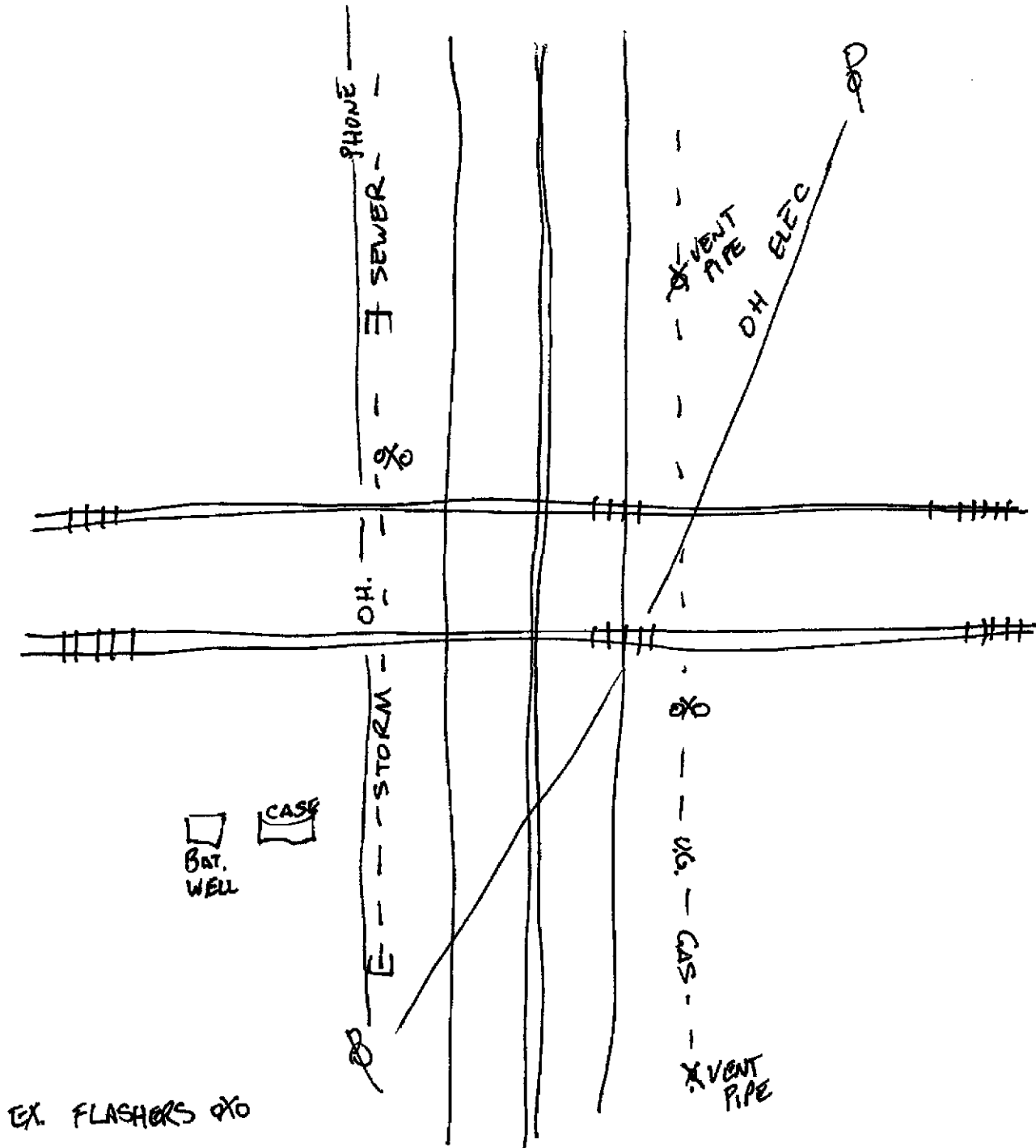
The diagram shows a street cross-section with a central vertical line representing the centerline. On either side, there are horizontal lines representing the boundaries of different road features. From top to bottom, the features are labeled: Sidewalk, Parkway, Roadway, Roadway, Parkway, and Sidewalk. The top two Sidewalk and Parkway sections have a width of 9 feet. The top Roadway section has a width of 9 feet. The bottom Parkway and Sidewalk sections have a width of 9 feet. A dashed line with arrows at both ends is drawn across the top Roadway section, with a '9' written below it. A dashed line with arrows at both ends is drawn across the bottom Parkway section, with a '9' written below it. A dashed line with arrows at both ends is drawn across the bottom Sidewalk section, with a '9' written below it. A box in the top right corner contains a north arrow pointing left and the text 'Show North Direction'.

Crossing Angle ☐ 0-29° ☐ 30-59° ☒ 60-90° Measured in NE Quadrant?

Measurements by: MDF

# Field Sketch

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



Crossing Angle ☐ 0-29° ☐ 30-59° ☒ 60-90° Measured in NE Quadrant?

Sketch by: MDF

TABLE 1

## Clearing Sight Distances

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

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

## Notes:

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

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

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

Table 2

## Stopping Sight Distances

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

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

## Notes:

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

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

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



12-Sep-13

**Detailed Estimate for Grade Crossing Warning Devices**

City/State: HUBBARD, OH

Road: LEWIS-SEIFERT RD./CR  
98

MilePost: YG-53.01

DOT/AAR: 544719C

State Proj. No.:

County: TRUMBULL

S&amp;E Proj. No.: 10.0710

File Number:

Man Days: 198

| <b>***Purchases - Others***</b>                                   |              |
|-------------------------------------------------------------------|--------------|
| Meals and Lodging:                                                | \$26,611.20  |
| Rental of Equipment:                                              | \$27,720.00  |
| (2 Trucks, 1 Backhoe w/ Trailer<br>and 1 Pipe-Pusher for 33 Days) |              |
| Construction Supervision Vehicle:                                 | \$4,953.45   |
| Purchases - Other Total:                                          | \$59,284.65  |
| <b>***Material And Additives***</b>                               |              |
| Material Cost:                                                    | \$98,651.00  |
| Sales and Use Tax:                                                | \$0.00       |
| Material Handling Freight:                                        | \$4,932.57   |
| Material Total:                                                   | \$103,583.57 |
| <b>***Labor And Additives***</b>                                  |              |
| Labor Cost:                                                       | \$55,440.00  |
| (6 man crew at \$1,680.00 a day for: 33 days)                     |              |
| Payroll Tax & Overheads:                                          | \$73,646.50  |
| Preliminary Engineering:                                          | \$13,560.05  |
| Construction Supervision:                                         | \$15,650.71  |
| Labor Total:                                                      | \$158,297.26 |
| Project Cost:                                                     | \$321,165.48 |
| Scrap / Salvage Credit:                                           | \$0.00       |
| Project Total:                                                    | \$321,165.00 |

Estimated on: 12-Sep-13

Estimated by: bf2cc

**Estimate valid for 1 year from date of estimate**



**Norfolk Southern Railway**  
**Highway Crossing Signalization Program - Material List**

Do not substitute items without permission from S & E Engineering

|                                                                                                                                                                                                                        |                         |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|
| City:                                                                                                                                                                                                                  | HUBBARD                 |
| Road:                                                                                                                                                                                                                  | LEWIS-SEIFERT RD./CR 98 |
| Mile Post:                                                                                                                                                                                                             | YG-53.01                |
| Drawing Number:                                                                                                                                                                                                        | 2440-0530               |
| State ProjectNumber:                                                                                                                                                                                                   |                         |
| County:                                                                                                                                                                                                                | TRUMBULL                |
| A A R Number:                                                                                                                                                                                                          | 544719C                 |
| Project Number:                                                                                                                                                                                                        | 10.0710                 |
| File Number:                                                                                                                                                                                                           |                         |
| New File Number:                                                                                                                                                                                                       | CX0129351               |
| WBS:                                                                                                                                                                                                                   | F-01046                 |
| Store Number:                                                                                                                                                                                                          |                         |
| Supervisor:                                                                                                                                                                                                            | J. DIAZ                 |
| Tax Code:                                                                                                                                                                                                              | 3500                    |
| Vendor to supply the following copies after pricing:<br>1 Set - Material Management with original Invoice<br>2 Sets - with plans shipped in car with material<br>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 Date Quan. | Quantity Returned (Credit) | Special Instructions |
|------|---------------|----|----------------|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-------------------------------|----------------------------|----------------------|
| 3    | 670-360693-4  | EA | \$5.55         | \$16.65     | AAR/DOT NUMBER PLATE/DECAL, ORDER 3 PER PROJECT. 60 DAY LEAD TIME. SUPPLIED BY STRAN.                                                                                                                                |                  |                               |                            |                      |
| 1    | 165-006505-4  | EA | \$1,075.23     | \$1,075.23  | AC SERVICE, COMPLETE LESS METER BASE, ASSEMBLED ON 30' POLE                                                                                                                                                          |                  |                               |                            |                      |
| 20   | 105-002620-4  | EA | \$302.42       | \$6,048.40  | BATTERY, NICAD 340AH, MODEL SPL340                                                                                                                                                                                   |                  |                               |                            |                      |
| 1    | 001-000011-4  | EA | \$5,000.00     | \$5,000.00  | BERM WALL                                                                                                                                                                                                            |                  |                               |                            |                      |
| 2    | 670-980689-4  | EA | \$75.48        | \$150.96    | BRACKET HIGH WIND, (RIGID 3'), WIG- 191036, WALRUS TUSK TYPE                                                                                                                                                         |                  |                               |                            |                      |
| 2    | 670-561375-4  | EA | \$1,208.79     | \$2,417.58  | BRACKET, GATE SAVER, NEG385102GS, SPRING LOADED SWING AWAY ADAPTER FOR FIBERGLASS/ALUMINUM GATES, USE WITH GATE 38' AND LESS                                                                                         |                  |                               |                            |                      |
| 1    | 670-356949-4  | EA | \$90.00        | \$90.00     | CABLE, 10' GENERATOR HOOK UP, SERRMI P/N 40524. FEMALE CONNECTOR                                                                                                                                                     |                  |                               |                            |                      |
| 500  | 465-939422-4  | LF | \$2.92         | \$1,460.00  | CABLE, UG 12 CONDUCTOR NO 14 AWG SOLID EACH CONDUCTOR WITH 5/64 IN INSULATION 10 MIL                                                                                                                                 |                  |                               |                            |                      |
| 500  | 465-292862-4  | LF | \$1.36         | \$680.00    | CABLE, UG 2-6 TWISTED, S-23 OKONITE 113-12-3933 SOLID TINNED CONDUCTOR                                                                                                                                               |                  |                               |                            |                      |
| 500  | 465-292929-4  | LF | \$4.13         | \$2,065.00  | CABLE, UG 5 COND. NO. 6 AWG SOLID COPPER CABLE TO MEET NS CORP. SPEC. FOR SIGNAL                                                                                                                                     |                  |                               |                            |                      |
| 350  | 465-791835-4  | FT | \$3.85         | \$1,347.50  | 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                                                                                                     |                  |                               |                            |                      |
| 120  | 165-544477-4  | FT | \$2.61         | \$313.20    | CONDUIT, 4"x10' PVC, SCHEDULE 80 BELL CONNECTOR AT ONE END, 1/2 PT. GLUE IN KIT 670-123298-4                                                                                                                         |                  |                               |                            |                      |
| 4    | 670-664917-4  | EA | \$90.11        | \$360.44    | 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 |                  |                               |                            |                      |
| 4    | 670-632520-4  | EA | \$79.69        | \$318.76    | 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 |                  |                               |                            |                      |



| Qty. | Class-Item-CD | UI | Price per Item | Total Price | Item Description                                                                                                                                                                                                                          | Quantity Shipped | Quantity Installed Date Quan. | Quantity Returned (Credit) | Special Instructions |
|------|---------------|----|----------------|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-------------------------------|----------------------------|----------------------|
| 2    | 670-793404-4  | EA | \$1,159.00     | \$2,318.00  | COUNTERWEIGHT PKAGE, 17-24" GATE S'TRAN S- MECH ONLY, STAINLESS, TO INCLUDE HUB, SUPPORT ARMS                                                                                                                                             |                  |                               |                            |                      |
| 4    | 670-760012-4  | EA | \$12.33        | \$49.32     | COVER, FOR 1 WAY FLASHING LIGHT ASSY. 18 OZ. BLACK VINYL COATED NYLON. ===== TO COVER 2 LAMPS=====                                                                                                                                        |                  |                               |                            |                      |
| 1    | 670-986650-4  | EA | \$354.27       | \$354.27    | DISPOSAL, CONSTRUCTION DEBRIS AND CLEANING X'ING EQUIPMENT CONTAINER                                                                                                                                                                      |                  |                               |                            |                      |
| 1    | 670-000004-4  | EA | \$700.00       | \$700.00    | FCC LICENSE FOR MONITOR/RADIO                                                                                                                                                                                                             |                  |                               |                            |                      |
| 2    | 670-000003-4  | EA | \$255.85       | \$511.70    | FILL/STONE #57, QUANTITY IS BASED ON TRUCK LOAD PLUS DELIVERY COST                                                                                                                                                                        |                  |                               |                            |                      |
| 2    | 670-015231-4  | EA | \$599.40       | \$1,198.80  | FOUNDATION, DIXIE S-2 GATE 2'6"X2'6"X56" ASSEMBLED                                                                                                                                                                                        |                  |                               |                            |                      |
| 2    | 670-257031-4  | EA | \$422.36       | \$844.72    | GATE ARM, FIBERGLASS-ALUMINUM, 17-24 FT, INCLUDES GATE GUARD FOR GATE LIGHT CABLE, HIGH INTENSITY VERTICAL STRIPES. NEG P/N 8003-244NFS/CG, SSC T18115                                                                                    |                  |                               |                            |                      |
| 1    | 670-696894-4  | EA | \$34,574.48    | \$34,574.48 | GCP4000 - 2 TRK (2TC) - REDUNDANT - 40/40 AMP WIRED RACK EQUIP. FOR 6X8 X'ING SHELTER, (INCL. 2 TRK CHASSIS A80465, 4 TRK MODS. A80418, 2-SSCC A80405, 2 CPU A80403, 1 SEAR A80410, 1 DISPLAY A80407, , 2-40 AMP CHARGERS) IPN: 003131-4X |                  |                               |                            |                      |
| 1    | 670-011479-4  | EA | \$956.00       | \$956.00    | GUARD, SIGNAL ARMCO LINER PLATE CIRCULAR 8"DIA., 10 GA GALVANIZED STEEL WITH (6) 5"9" GALVANIZED                                                                                                                                          |                  |                               |                            |                      |
| 1    | 670-477991-4  | EA | \$410.00       | \$410.00    | 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 | \$345.97       | \$345.97    | 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. .                                                          |                  |                               |                            |                      |
| 2    | 670-764166-4  | EA | \$1,240.19     | \$2,480.38  | LAMP ASSY, 5" MAST MTG. 2W IND. 20" BKGRD, FLX-12 W/BULB S'TRAN #042003-487XNS                                                                                                                                                            |                  |                               |                            |                      |
| 2    | 670-092155-4  | EA | \$177.60       | \$355.20    | LAMP ASSY, GATE ARM LED KIT (INCLUDES 3 LAMPS COMPLETE WITH CABLES AND MTG. HARDWARE) REC #: 9298-1120                                                                                                                                    |                  |                               |                            |                      |
| 4    | 255-590880-4  | EA | \$16.72        | \$66.88     | LOCK, AMERICAN LOCK MODEL H-10KA KEYPED ALIKE TO PRIVATE KEYWAY D456 AND STAMPED "NS SIG"                                                                                                                                                 |                  |                               |                            |                      |
| 2    | 670-637778-4  | EA | \$1,317.65     | \$2,635.30  | MAST, 5" ALUMINUM 13'10" WITH DOUBLE JCT. BOX BASE. S'TRAN P# 070519-11AX.                                                                                                                                                                |                  |                               |                            |                      |

|                   |                      |            |             |
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| APPROVED BY STATE | APPROVED BY RAILROAD | CAR NUMBER | SEAL NUMBER |
|-------------------|----------------------|------------|-------------|

| Location: HUBBARD |               |    | OH             | S&E Proj. No.: 10.0710 | A/E No.: F-01046                                                                                                                                                         | Drawing No.: 2440-0530 | Vendor: Railroad Signal Design |                            |                      |
|-------------------|---------------|----|----------------|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|--------------------------------|----------------------------|----------------------|
| Store No.:        |               |    | P.O. Number:   |                        | Date Required:                                                                                                                                                           | Date Shipped:          |                                |                            |                      |
| Qty.              | Class-Item-CD | UI | Price per Item | Total Price            | Item Description                                                                                                                                                         | Quantity Shipped       | Quantity Installed Date Quan.  | Quantity Returned (Credit) | Special Instructions |
| 2                 | 670-850933-4  | EA | \$3,925.01     | \$7,850.02             | MECHANISM, GATE MODEL S-60, WITH DEFROSTER AND MINI TRACKSIDE SENSOR STRAN # 0740007-X002B3                                                                              |                        |                                |                            |                      |
| 1                 | 670-0000001-4 | EA | \$726.23       | \$726.23               | MISC. EXPENSE, MATERIAL/FILL                                                                                                                                             |                        |                                |                            |                      |
| 1                 | 000-0000000-4 | EA | \$5,000.00     | \$5,000.00             | MISC. EXPENSE, UNDERGROUND BORING                                                                                                                                        |                        |                                |                            |                      |
| 4                 | 670-001347-4  | EA | \$57.10        | \$228.40               | PACKAGE, HARDWARE SIGN 5 IN. MOUNTING, SERRMI A1250-5, HARMON @200965-000, OR                                                                                            |                        |                                |                            |                      |
| 1                 | 255-646807-4  | EA | \$31.19        | \$31.19                | PADLOCK, SAFETRAN PART NO. 030399-29X SCREW TYPE FOR CIR CONTROLLER AND BTY. BOX                                                                                         |                        |                                |                            |                      |
| 1                 | 670-514605-4  | EA | \$11.11        | \$11.11                | PINNACLE, W-C SECT 1-11, 4" & 5" REF K1 110-8 OR SAFETRAN NO. @035045-503X                                                                                               |                        |                                |                            |                      |
| 1                 | 165-902002-4  | EA | \$303.43       | \$303.43               | PROTECTOR, SURGE 120/240VAC, ERICO P/N EPD120/240TDFL                                                                                                                    |                        |                                |                            |                      |
| 4                 | 465-002899-4  | EA | \$40.24        | \$160.96               | REEL, CABLE DISPOSABLE FOR CROSSING SIGNAL PACKAGES                                                                                                                      |                        |                                |                            |                      |
| 2                 | 435-805560-4  | EA | \$2.78         | \$5.56                 | SAND, 25LB BAG FOR CABLE ENTRANCE INTO THE SHELTER                                                                                                                       |                        |                                |                            |                      |
| 1                 | 670-027556-4  | EA | \$2,629.77     | \$2,629.77             | 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/1EA EQUIPMENT RACK, W/CABLE CHUTES BEHIND TERMINAL BOARD, W/GEN RECEPTICAL, BREAKER BOX GFI OUTLET FOR LAPTOP SHELF SAFETRAN 058400-68-85 |                        |                                |                            |                      |
| 4                 | 670-586967-4  | EA | \$42.98        | \$171.92               | SHUNT COVER W/LAG SCREWS, 19"X19", SERRMI #40271, ORDER 1 PER SHUNT                                                                                                      |                        |                                |                            |                      |
| 4                 | 670-645460-4  | EA | \$575.56       | \$2,302.24             | SHUNT, MULTI-FREQ. #62775-8621 SAFETRAN NARROW BAND                                                                                                                      |                        |                                |                            |                      |
| 2                 | 670-393331-4  | EA | \$37.43        | \$74.86                | SIGN CROSSING MALFUNCTION ASSEMBLY FOR 4" AND 5" MAST, SAFETRAN #T17215                                                                                                  |                        |                                |                            |                      |
| 2                 | 670-554843-4  | EA | \$77.05        | \$154.10               | SIGN, 2 TRACK SIGN, HIGH INTENSITY, SAFETRAN #035207-2HX                                                                                                                 |                        |                                |                            |                      |
| 2                 | 670-016346-4  | EA | \$143.38       | \$286.76               | SIGN, X-BUCK, HI-INTENSIVE REFLECTIVE FRT. & BACK FOR ALL STATES, SAFETRAN# 035200-91X                                                                                   |                        |                                |                            |                      |
| 1                 | 670-330382-4  | RL | \$18.06        | \$18.06                | TAPE, THOR 3" DURATEC, ORANGE 1000' LENGTHS. "WARNING STOP DIGGING"                                                                                                      |                        |                                |                            |                      |

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| APPROVED BY STATE | APPROVED BY RAILROAD | CAR NUMBER | SEAL NUMBER |
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Total Material: \$98,651.48

SEAL NUMBER

CAR NUMBER

APPROVED BY RAILROAD

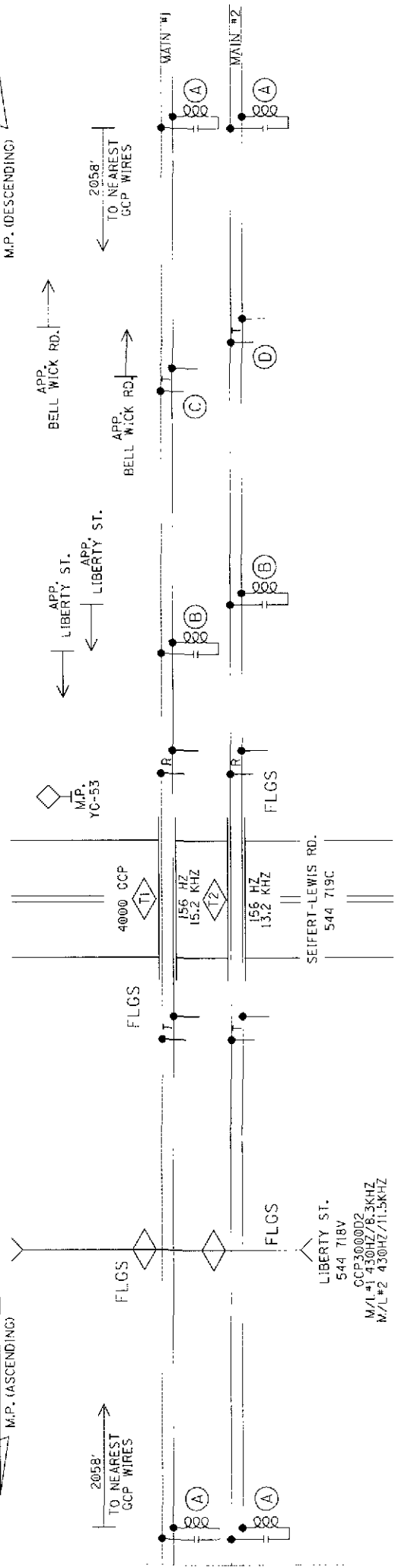
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TO ROCHESTER  
M.P. (ASCENDING)

TO AITES  
M.P. (DESCENDING)



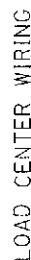
1842 25 355 372 745 750

- (A) - MF-NBS 62775-8621 (15611Z)
- (B) - NBS 62775-430HZ
- (C) - AFTAC TRANS. 700HZ
- (D) - AFTAC TRANS. 3.5KHZ

PROFILE

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| C - AFTAC TRANS. 700HZ | D - AFTAC TRANS. 3.5KHZ | REVISION | IN-TALS |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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# WARNING

REMOVAL OF THE SSCIII MODULE WILL CAUSE THE GATES(S) TO DROP BUT THE LIGHTS WILL NOT ACTIVATE

# CAUTION

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

# ATTENTION

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.

HEATER FUNCTION IS JUMPER SELECTABLE ON THE DISPLAY MODULE BOARD.  
THREE OPTIONS ARE AVAILABLE:  
NORMAL LCD HTR (DEFAULT)  
HI CURRENT  
NO JUMPER (HEATER DISABLED)

\* MAIN AND STANDBY MAY USE R10 IN TRACK 2 SLOTS (M3 AND M6)

PANEL 'A2' 4000 GCP REDUNDANT 2-TK CHASSIS AND MODULE LAYOUT

**NS NORFOLK SOUTHERN**

OFFICE OF ASST. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA. M.P. YG-53.01

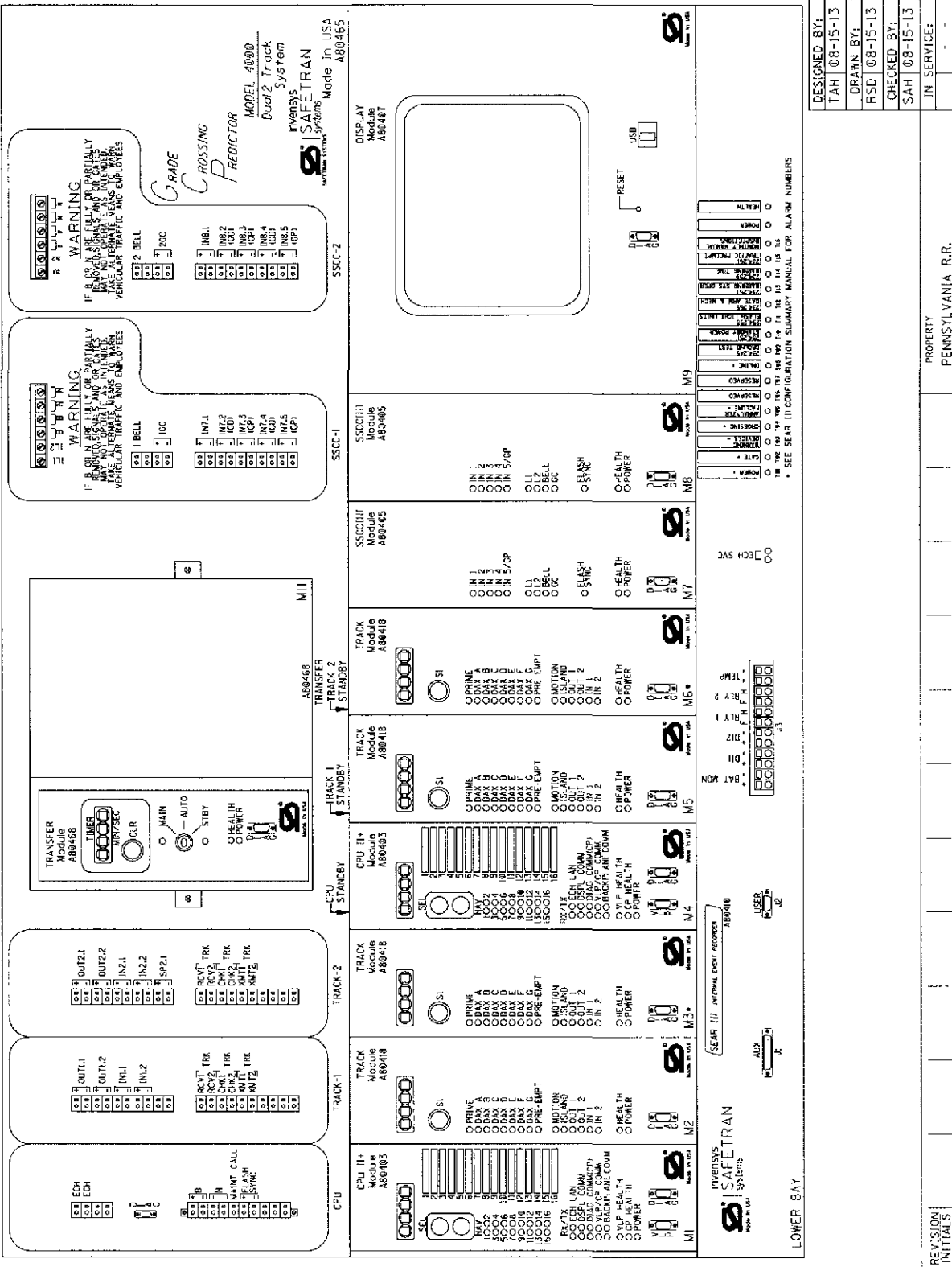
HUBBARD, OH

GATES/FLS AT SEIFERT-LEWIS RD./CR 98

FILE R-

NO. 24-00530.06

SHEET 6 of 22



# Program Report

Location and SIN  
 DOT Number: 544719C  
 Milepost Number: YG-53.01  
 Site Name: SEIFERT-LEWIS RD  
 SIN: 755048203216

MCF and Template Selection  
 MCF Name: GCP-T6X-02-1.mcf  
 MCF Revision: 021  
 MCF CRC: 6076E435

Tenoloto = 1A6 Trk B1

## Check Numbers

Office Check No. 10T 46.01-500E2098  
 Office Check Number: 500E2098  
 Config. Check Number: 202773A6  
 (Based on MCF Revision: 021)

## Program

BASIC: module configuration  
 Track 1 Slot = 1 Track Track  
 Track 3 Slot = Not Used  
 Track 4 Slot = Not Used  
 Track 5 Slot = Not Used  
 Track 6 Slot = Not Used  
 SCCC-1 Slot = SCCC31  
 SCCC-2 Slot = SCCC31  
 SCCC-3 Slot = SCCC31  
 SCCC-4 Slot = SCCC31  
 SCCC-5 Slot = SCCC31  
 SCCC-6 Slot = SCCC31  
 SCCC-7 Slot = SCCC31  
 SCCC-8 Slot = SCCC31  
 SCCC-9 Slot = SCCC31  
 SCCC-10 Slot = SCCC31  
 SCCC-11 Slot = SCCC31  
 SCCC-12 Slot = SCCC31  
 SCCC-13 Slot = SCCC31  
 SCCC-14 Slot = SCCC31  
 SCCC-15 Slot = SCCC31  
 SCCC-16 Slot = SCCC31  
 SCCC-17 Slot = SCCC31  
 SCCC-18 Slot = SCCC31  
 SCCC-19 Slot = SCCC31  
 SCCC-20 Slot = SCCC31  
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 SCCC-92 Slot = SCCC31  
 SCCC-93 Slot = SCCC31  
 SCCC-94 Slot = SCCC31  
 SCCC-95 Slot = SCCC31  
 SCCC-96 Slot = SCCC31  
 SCCC-97 Slot = SCCC31  
 SCCC-98 Slot = SCCC31  
 SCCC-99 Slot = SCCC31  
 SCCC-100 Slot = SCCC31

BASIC: MS/GCP operation  
 Track 1: MS/GCP operation = Yes  
 Track 2: MS/GCP operation = Yes

RAS/C: island operation  
 Track 1: Island Used = Internal  
 Track 2: Island Used = Internal

BASIC: preemption  
 P-preempt Logic = No

BASIC: radio Dax links  
 Radio Dax link A Used = No  
 Radio Dax link B Used = No

BASIC: VitalComms links  
 VitalComms link 1 Used = No  
 VitalComms link 2 Used = No

PREDIC-ORS: track 1  
 Track 1: Prime Used = Yes  
 Track 1: Dax A Used = No  
 Track 1: Dax B Used = No  
 Track 1: Dax C Used = No  
 Track 1: Dax D Used = No  
 Track 1: Dax E Used = No  
 Track 1: Dax F Used = No

## PREDIC-ORS: track 2

Track 2: Prime Used = Yes  
 Track 2: Dax A Used = No  
 Track 2: Dax B Used = No  
 Track 2: Dax C Used = No  
 Track 2: Dax D Used = No  
 Track 2: Dax E Used = No  
 Track 2: Dax F Used = No

GCP: track 1  
 Track 1: GCP Freq Category = Standard  
 Track 1: GCP Frequency = 156.1 MHz  
 Track 1: Approach Distance = 2058 ft  
 Track 1: Outbound PS Timer = 20 sec  
 Track 1: GCP Transmittal Level = High  
 Track 1: GCP Transmittal Level = High  
 Track 1: Island Connection = 126 ft  
 Track 1: Computed Distance = 9999 ft  
 Track 1: Linearization Steps = 100

GCP: track 1 enhanced det  
 Track 1: Inbound PS Sensitivity = Off  
 Track 1: Speed Limiting Used = Yes  
 Track 1: Outbound PS Act Lvl = Normal  
 Track 1: Outbound PS Timer = 20 sec  
 Track 1: Trailing Switch Logic = 0 sec  
 Track 1: Post Joint Detn Time = 15 sec  
 Track 1: Adv Appr Predn = No  
 Track 1: CancelPickup Delay = This Isl

GCP: track 1 prime  
 Track 1: Prime Warning Time = 30 sec  
 Track 1: Prime Offset Distance = 0 ft  
 Track 1: Switch MS/GCP Level = IP  
 Track 1: Prime MS/GCP Mode = Pred  
 Track 1: Prime Pickup Delay = 15 sec  
 Track 1: Prime UAX = Not Used

GCP: track 1 pos start  
 Track 1: Positive Start = Off  
 Track 1: Sudden Shnt Det Used = No  
 Track 1: Low EZ Detection Used = No

GCP: track 1 MS Control  
 Track 1: MS/GCP Ctrl IP Used = No  
 Track 1: MS Sensitivity Level = 0  
 Track 1: Warn Time-Ballast Comp = High  
 Track 1: Low EX Adjustment = 39  
 Track 1: Bidirn Dax Passthru = No  
 Track 1: False Act on Train Stop = No  
 Track 1: EX Limiting Used = Yes  
 Track 1: EZ Correction Used = Yes

GCP: track 2  
 Track 2: GCP Freq Category = Standard  
 Track 2: GCP Frequency = 156.1 MHz  
 Track 2: Approach Distance = 2058 ft  
 Track 2: Outbound PS Timer = 20 sec  
 Track 2: GCP Transmittal Level = High  
 Track 2: GCP Transmittal Level = High  
 Track 2: Island Connection = 126 ft  
 Track 2: Computed Distance = 9999 ft  
 Track 2: Linearization Steps = 100

GCP: track 2 enhanced det  
 Track 2: Inbound PS Sensitivity = Off  
 Track 2: Speed Limiting Used = Yes  
 Track 2: Outbound PS Act Lvl = Normal  
 Track 2: Outbound PS Timer = 20 sec  
 Track 2: Trailing Switch Logic = 0 sec  
 Track 2: Post Joint Detn Time = 15 sec  
 Track 2: Adv Appr Predn = No  
 Track 2: CancelPickup Delay = This Isl

GCP: track 2 prime  
 Track 2: Prime Warning Time = 30 sec  
 Track 2: Prime Offset Distance = 0 ft  
 Track 2: Switch MS/GCP Level = 10  
 Track 2: Prime MS/GCP Mode = Pred  
 Track 2: Prime Pickup Delay = 15 sec  
 Track 2: Prime UAX = Not Used

GCP: track 2 pos start  
 Track 2: Positive Start = Off  
 Track 2: Sudden Shnt Det Used = No  
 Track 2: Low EZ Detection Used = No

GCP: track 2 MS Control  
 Track 2: MS/GCP Ctrl IP Used = No  
 Track 2: MS Sensitivity Level = 0  
 Track 2: Warn Time-Ballast Comp = High  
 Track 2: Low EX Adjustment = 39  
 Track 2: Bidirn Dax Passthru = No  
 Track 2: False Act on Train Stop = No  
 Track 2: EX Limiting Used = Yes  
 Track 2: EZ Correction Used = Yes

ISLAND: track 1  
 Track 1: IslFrequency = 15.2 kHz  
 Track 1: Pickup Delay (2s +) = 0 sec  
 Track 1: IslEnable IP Used = No

ISLAND: track 2  
 Track 2: IslFrequency = 13.2 kHz  
 Track 2: Pickup Delay (2s +) = 0 sec  
 Track 2: IslEnable IP Used = No

AND: track Anding  
 AND 1 XR Used = Yes  
 AND 2 Used = No  
 AND 3 Used = No  
 AND 4 Used = No  
 AND 5 Used = No  
 AND 6 Used = No  
 AND 7 Used = No  
 AND 8 Used = No

AND: AND 1 XR  
 AND 1 XR Track 1 = Prime  
 AND 1 XR Track 2 = Prime  
 AND 1 Enable Used = Yes  
 AND 1 Enable Pickup = 5 sec  
 AND 1 Enable Drop = 0 sec  
 AND 1 Wrap Used = No

ADVANCED: MS restart  
 MS/GCP Restart Used = No

## 4000 GCP PROGRAMMING SETUP

|              |                      |                                                                                                                                                                                                |
|--------------|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DESIGNED BY: | TAH 08-15-13         |  <b>NORFOLK SOUTHERN</b><br>OFFICE OF ASST. VICE PRESIDENT<br>COMM. & SIGNAL, ATLANTA, GA.<br>M.P. YG-53.01 |
| DRAWN BY:    | RSD 08-15-13         |                                                                                                                                                                                                |
| CHECKED BY:  | SAH 08-15-13         |                                                                                                                                                                                                |
| IN SERVICE:  | FILE No. 24400530.07 |                                                                                                                                                                                                |
| PROPERTY:    | PENNSYLVANIA R.R.    | HUBBARD, OH<br>GATES/FLS AT SEIFERT-LEWIS RD./CR 98<br>CADW No. 24400530.07<br>SHEET No. 7 of 22                                                                                               |

ADVANCED: out of service  
00S Control= Display+00S IPs  
00S Timeout = Yes  
00S Timeout : : hrs

ADVANCED: out of service 2  
T1 00S Control= 00S Input 1  
T2 00S Control= 00S Input 1

ADVANCED: track wrap circuits  
Wrap LOS Timer = 5 sec  
Track 1 Wrap Used = No  
Track 2 Wrap Used = No

ADVANCED: trk overrides  
Track 1: All Predictors Override Used = No

ADVANCED: trk 2 overrides  
Track 2: All Predictors Override Used = No

ADVANCED: OR logic

OR 1 Used = No  
OR 2 Used = No  
OR 3 Used = No  
OR 4 Used = No

ADVANCED: internal I/O 1

Pass Inrus = No  
Int 1 Set by = Not Used  
Int 2 Set by = Not Used  
Int 3 Set by = Not Used  
Int 4 Set by = Not Used  
Int 5 Set by = Not Used  
Int 6 Set by = Not Used  
Int 7 Set by = Not Used  
Int 8 Set by = Not Used

ADVANCED: internal I/O 2

Int 9 Set by = Not Used  
Int 10 Set by = Not Used  
Int 11 Set by = Not Used  
Int 12 Set by = Not Used  
Int 13 Set by = Not Used  
Int 14 Set by = Not Used  
Int 15 Set by = Not Used  
Int 16 Set by = Not Used

ADVANCED: internal I/O 3

Int 17 Set by = Not Used  
Int 18 Set by = Not Used  
Int 19 Set by = Not Used  
Int 20 Set by = Not Used  
Int 21 Set by = Not Used  
Int 22 Set by = Not Used  
Int 23 Set by = Not Used  
Int 24 Set by = Not Used

ADVANCED: internal I/O 4

Int 25 Set by = Not Used  
Int 26 Set by = Not Used  
Int 27 Set by = Not Used  
Int 28 Set by = Not Used  
Int 29 Set by = Not Used  
Int 30 Set by = Not Used  
Int 31 Set by = Not Used  
Int 32 Set by = Not Used

ADVANCED: site options  
Daylight Savings = On  
Units = Standard  
Maint Call Ro- IP Used = No  
Emergency Activate IP = No  
EZ/EX Logging = Change  
EZ/EX Point Change = 3

SSCC  
Gates Used = Yes  
SSCC-1 GPs Coupled = Yes  
Min Activation = 0 sec  
Rmt Activation Cancel = 2 min  
Self On Gate Rising = No  
Mute Be-On Gate Down = No  
SSCCIV Controller Used = No

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

SSCC: 2  
SSCC-2 Activation = AND 1 XR  
SSCC-2 Gate Delay = 4 sec  
SSCC-2 Number of GPs = 0  
SSCC-2 Number of GPs = 0  
SSCC-2 Flash Rate = 40  
SSCC-2 Low Battery Detection = No  
SSCC-2 Flash Sync = Slave  
SSCC-2 Invert Gate Output = No  
SSCC-2 Lamp Neutral Test = On  
Aux-2 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  
IN 1.1 = Not Used  
IN 1.2 = Not Used  
IN 2.1 = Not Used  
IN 2.2 = Not Used

IO: assignment SSCC  
OUT GC 1 = Gate Output 1  
OUT GC 2 = Gate Output 2  
IN 7.1 = Not Used  
IN 7.2 = GD 1.2  
IN 7.3 = AND 1 XR Enable  
IN 7.4 = GD 1.1  
IN 7.5 = GP 1.1  
IN 8.1 = Not Used  
IN 8.2 = Out Of Service IP 1  
IN 8.3 = Not Used  
IN 8.4 = Not Used  
IN 8.5 = Not Used

SEAR Subnode = 3  
SEAR Subnode = 3  
DI 1 = And Fit Tester 1  
DI 2 = Not Used  
RIY 1 = Ground Fault Test  
RIY 2 = AC Control

SEAR: Inputs  
SP 2.1 = POK 1  
SP 3.1 = Not Used  
SP 4.1 = Not Used  
SP 5.1 = Not Used  
SP 6.1 = Not Used

SEAR: slot 1-4 inputs  
IN 1.1 = Not Used  
IN 1.2 = Not Used  
IN 2.1 = Not Used  
IN 2.2 = Not Used  
IN 3.1 = Not Used  
IN 3.2 = Not Used  
IN 4.1 = Not Used  
IN 4.2 = Not Used

SEAR: inputs slot 5  
IN 5.1 = Not Used  
IN 5.2 = Not Used

SEAR: inputs slot 6  
IN 6.1 = Not Used  
IN 6.2 = Not Used

SEAR: slot 7-8 inputs  
IN 7.1 = TSS 1  
IN 8.1 = TSS 2  
IN 8.3 = POK 2  
IN 8.4 = Not Used  
IN 8.5 = Not Used

SITE: programming  
Radio Subnode = 1  
Field Password = Off  
Low Battery Enabled = Off  
Configuration Package File  
-----  
Filename: 24400530.pac

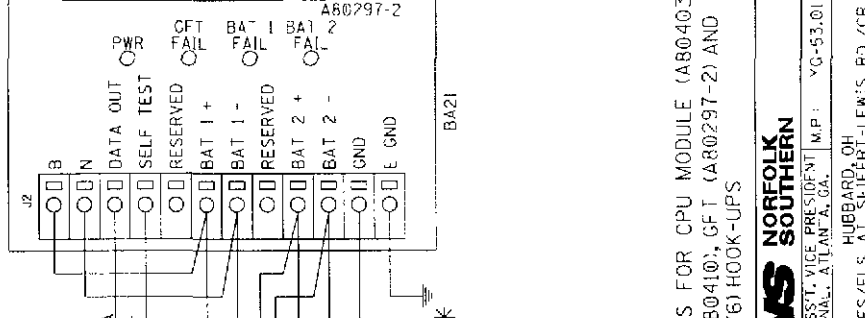
# 4000 CCP PROGRAMMING SETUP



|                 |              |
|-----------------|--------------|
| DESIGNED BY:    | TAM 08-15-13 |
| DRAWN BY:       | RSD 08-15-13 |
| CHECKED BY:     | SAH 08-15-13 |
| IN SERVICE:     | - -          |
| FILE NO.        | H-           |
| SHEET NO.       | 8 of 22      |
| CADD or PNG No. | 24400530.08  |

PROPERTY  
PENNSYLVANIA R.R.





|                                                                                                                                                                                   |                                                                                                                                            |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| REMOTE DTMF CROSSING ACTIVATION<br>(ACTIVATES ENTIRE CROSSING)<br>TO ACTIVATE PRESS: <u>719*</u><br>TO DE-ACTIVATE PRESS: <u>719*</u><br>(ACTIVATION WILL TIME OUT AFTER 60 SEC.) | REMOTE DTMF LIGHTING ACTIVATION<br>(ACTIVATES FLASHING LIGHTS ONLY)<br>TO ACTIVATE PRESS: <u>719*</u><br>TO DE-ACTIVATE PRESS: <u>719*</u> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|

TO CONFIGURE SEAR III 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                | SEIFERT-LEWIS RD.         |
| MILEPOST                 | YG-53.01                  |
| DOT #                    | 544719C                   |
| TESTER TYPE              | CROSSING                  |
| DATE FORMAT              | MM-DD-YYYY                |
| TEMP FORMAT              | FAHRENHEIT                |
| INDICATE HOLD (SEC)      | 0                         |
| INDICATE REFRESH (SEC)   | 60                        |
| SITE ATCS                | 7.550.482.032.03.01       |
| SITE TYPE                | NO COMMUNICATION          |
| OFFICE ATCS ADDRESS      | 2.550.01.9100             |
| PRIMARY HOP ADDR         | 7.RRR.LLL.OGG.XX.XX       |
| BACKUP HOP ADDR 1        | 7.RRR.LLL.OGG.XX.XX       |
| BACKUP HOP ADDR 2        | 7.RRR.LLL.OGG.XX.XX       |
| POLL ID                  | 1                         |
| MODE                     | GEN/ATCS                  |
| WAMS XID                 | DISAB,FD                  |
| OFFICE COMM DEVICE       | MCM (ECHO ON)             |
| RADIO ATCS ADDR          | 7.RRR.LLL.OGG.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               | 4 BULBS |
| CURR 2: LAMP SET UP               | 4 BULBS |

| VERIFY NUMBER OF BULBS: SENSOR #2 |         |
|-----------------------------------|---------|
| CURR 1: LAMP SET UP               | 4 BULBS |
| CURR 2: LAMP SET UP               | 4 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?                           | GO                      |
| 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                     |
| OTMF ACTIVATION                             | YES                     |
| ACTIVATION CODE                             | 719                     |
| 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 |
| CFT'S                                               | YES            |
| BATTERIES ON CFT?                                   | 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 LFDS         | NO      |
| EDIT ILOD SENSORS      | NO      |
| EDIT VHF SETTINGS      | NO      |
| CCPAK ATCS SUBCODE     | 16      |

NOTES:

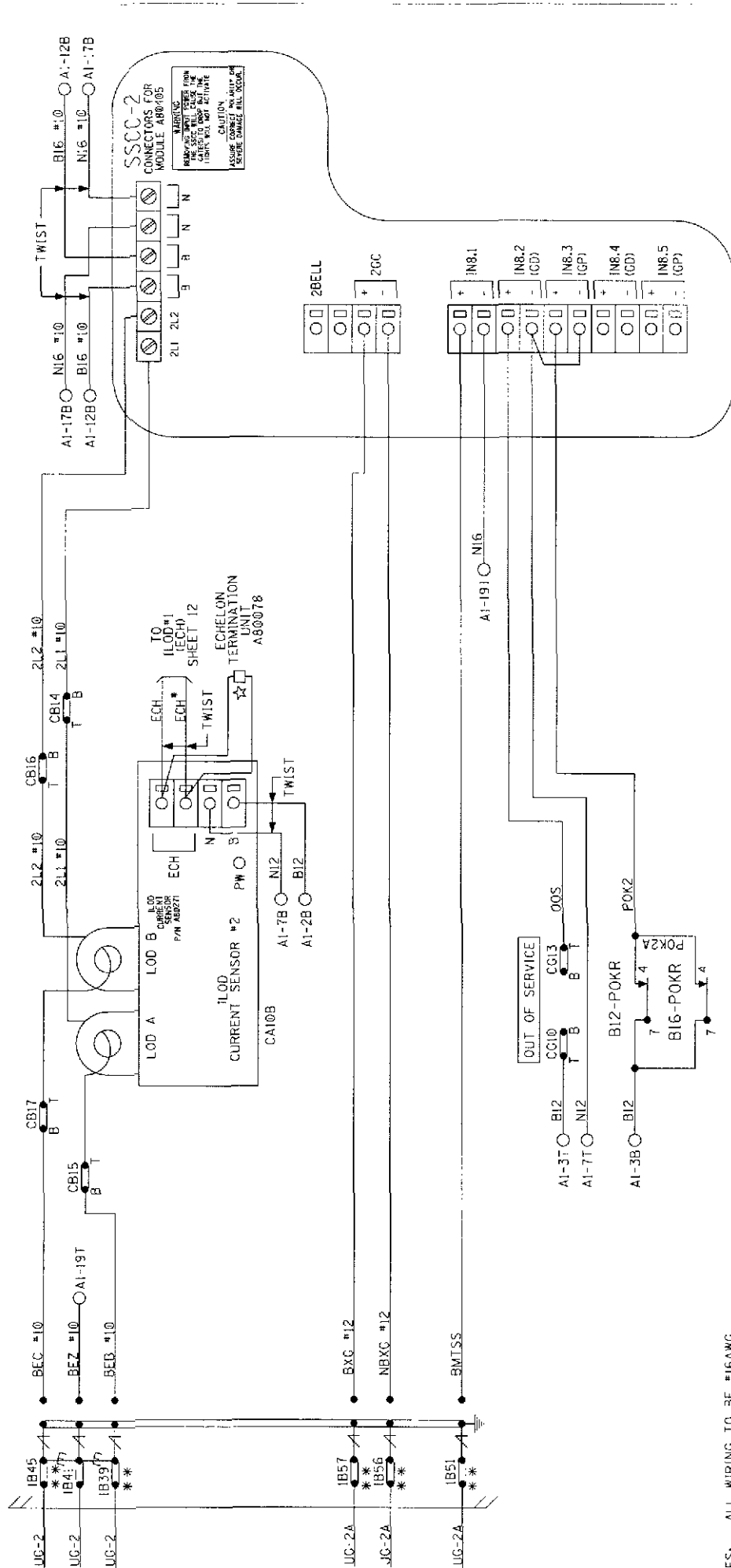
- \* = DISPLAYED IF CROSSING CONFIGURATION IS SPLIT GATE
- \*\* = OPTIONS: IF BELL SENSOR = 0, THEN BELL FIELDS ARE NOT USED.
- \*\*\* = IF SITE TYPE = NO COMMUNICATION, THEN THESE OPTIONS ARE NOT DISPLAYED
- \*\*\*\* = THESE SETTINGS SHOULD BE LEFT AT THE DEFAULT SETTING.
- \*\*\*\*\* = USE LAST 3 NUMBERS FROM DOT NUMBER

SEAR III PROGRAMMING SETUP

|              |                                                             |                                                                                                             |
|--------------|-------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|
| DESIGNED BY: | TAH 08-15-13                                                |  <b>NORFOLK SOUTHERN</b> |
| DRAWN BY:    | OFFICE OF ASST. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA. |                                                                                                             |
| CHECKED BY:  | RSD 08-15-13                                                |                                                                                                             |
| SAH 08-15-13 | GATES/FLS AT SEIFERT-LEWIS RD./CQ 98                        |                                                                                                             |
| IN SERVICE:  | CA00 OF 24400530.11                                         | FILL R-<br>SHEET 11 of 22                                                                                   |







PANEL #2 CONNECTORS FOR SSCC#2 MODULE (A80405)  
ILOD#2 (A80271) HOOK-UP

|                   |                   |
|-------------------|-------------------|
| DESIGNED BY:      | TAH 08-15-13      |
| DRAWN BY:         | RSD 08-15-13      |
| CHECKED BY:       | SAH 08-15-13      |
| IN SERVICE:       |                   |
| PROPERTY          | PENNSYLVANIA R.R. |
| REVISION/INITIALS |                   |
| CADD or Dwg. No.  | 244000530.13      |
| SHEET             | 13 of 72          |
| FILE              | R-                |

**NORFOLK SOUTHERN**  
OFFICE OF ASST. VICE PRESIDENT  
COMM. & SIGNAL, ATLANTA, GA. M.P.: YG-53.01

HUBBARD OH  
GATES/FLS AT SEIFERT-LEWIS HI./CR 98

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

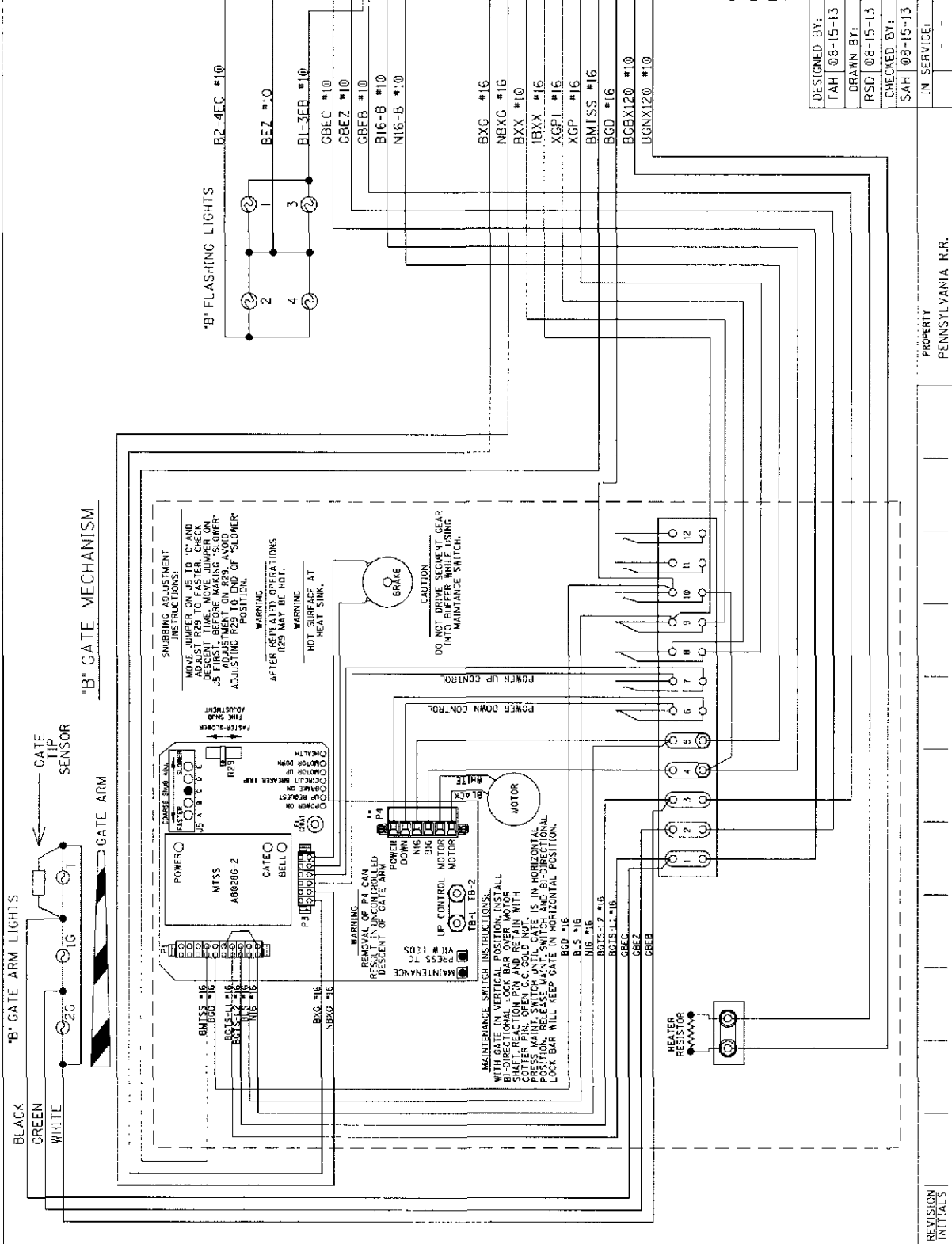
\* = ECHOLON CONNECTIONS NOT TO EXCEED 53' IN LENGTH  
AND TOTAL LENGTH NOT TO EXCEED 430' WITH A MAXIMUM  
OF 8 NODES, RECOMMEND USE BILIDEN WIRE CABLE #8461 OR EQUIVALENT.

\*\* = TEST - LINKS MUST BE OPENED TEMPORARILY FOR NEW  
C.C.D. START OF NEW OR REPLACEMENT SSCC MODULE  
AND CAN ONLY BE CLOSED IN SEQUENCE WITH MFR.  
INSTRUCTIONS; SECTION B OF THE CCP 4000 REFERENCE MANUAL.

☆ = A80078 ECHOLON TERMINATION UNIT  
TO TERMINATE ECHOLON NETWORK.



| SAFE-RAN MODEL "S60" GATE |           |                       |
|---------------------------|-----------|-----------------------|
| CONTACT SPACE             | CLOSED AT | FUNCTION OF CONTACT   |
| 6                         | 70°-90°   | POWER DOWN CONTROL    |
| 7                         | 0°-89°    | POWER UP CONTROL      |
| 8                         | 83°-90°   | FLASHING LGT. CONTROL |
| 9                         | 5°-90°    | BELL CONTROL          |
| 10                        | 0°-5°     | GATE DOWN INDICATION  |
| 11                        |           | SPARE                 |
| 12                        |           | SPARE                 |



|              |              |
|--------------|--------------|
| DESIGNED BY: | TAH 08-15-13 |
| DRAWN BY:    | PSD 08-15-13 |
| CHECKED BY:  | SAH 08-15-13 |
| IN SERVICE:  | -            |
| FILE NO.:    | 24400530.15  |
| SHEET NO.:   | 15 of 22     |

**NORFOLK SOUTHERN**

OFFICE OF ASSISTANT VICE PRESIDENT  
COMM. & SIGNAL, ATLANTA, GA.

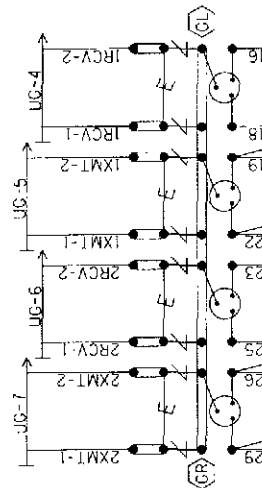
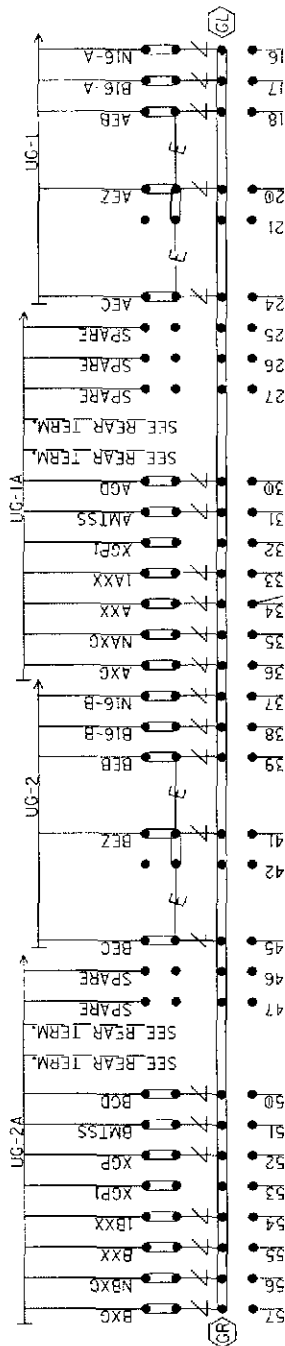
M.P.: YG-53.01

HUBBARD OH

GATLS/PLS AT SEIFERT-LEWIS RD./CR 98

PROPERTY  
PENNSYLVANIA H.R.

REVISION  
INITIALS



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

⚡ = Heavy Duty Equalizer  
(022100-1X)  
⌵ = Lightning Arrestor  
(022585-1X)  
⚡ = LPC-10560-51

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

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

BACKBOARD DETAIL - 1A & 1B

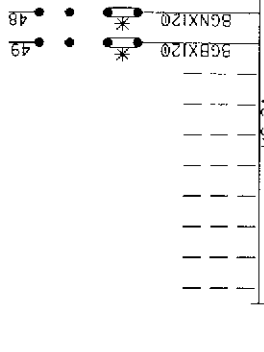
|                  |              |
|------------------|--------------|
| DESIGNED BY:     | TAH 08-15-13 |
| DRAWN BY:        | RSO 08-15-13 |
| CHECKED BY:      | SAH 08-15-13 |
| IN SERVICE:      | -            |
| FILE NO.         | R-           |
| CADD or DWG. No. | 24400530.16  |
| SHEET            | 16 of 72     |



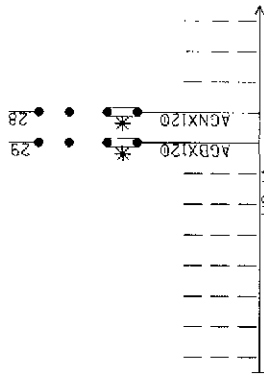
OFFICE OF ASST. VICE PRESIDENT  
COMM. & SIGNAL, ATLANTA, GA. M.P.: YC-53.01

HUBBARD, OH  
GATES/FLS AT SEIFERT-LEWIS RD./CR 98

PROPERTY  
PENNSYLVANIA R.R.



(SEE PREVIOUS SHEET FOR OTHER WIRES IN CABLE)



(SEE PREVIOUS SHEET FOR OTHER WIRES IN CABLE)

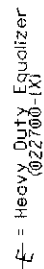
NOTE: ALL 120VAC AND ABOVE WILL BE WIRED TO THE REAR OF FARADAY BACKBOARD. INSULATED NUTS MUST BE USED ON ALL TERMINALS.

\* = CLOSED DURING WINTER MONTHS

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

|                                                             |              |                                                                                     |                         |
|-------------------------------------------------------------|--------------|-------------------------------------------------------------------------------------|-------------------------|
| DESIGNED BY:                                                | TAH 08-15-13 |  | <b>NORFOLK SOUTHERN</b> |
| DRAWN BY:                                                   | RSD 08-15-13 |                                                                                     |                         |
| CHECKED BY:                                                 | SAH 08-15-13 |                                                                                     |                         |
| IN SERVICE:                                                 |              |                                                                                     |                         |
| OFFICE OF ASST. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA. | N.P.         | YG-53.01                                                                            |                         |
| HUBBARD, OH                                                 |              | GATES/ELS AT SEIPERT-LEWIS RD./CR 98                                                |                         |
| FILE NO.                                                    |              | R-                                                                                  |                         |
| CADD OF DWG. NO.                                            | 24400530.17  | SHEET NO.                                                                           | 17 of 22                |

PROPERTY  
PENNSYLVANIA R.R.

AREA BELOW IS SCALED WITH  $AS=.75$ 

Clear view

Clear View  
Z = Lightning Arrester  
(022585-IX)

✓ = LPC-10560-5;

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

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

= INDICATES PLACEMENT OF PANDUIT

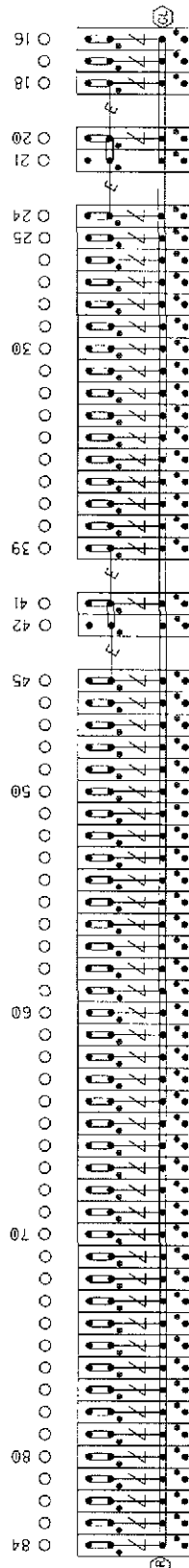
TERMINAL BOARD I  
LEFT TWO ROWS  
FARADAY SHIELD

|                                                                                            |                                                                                                                                                  |                                            |                                                                                                                                           |                                       |          |      |    |          |
|--------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|----------|------|----|----------|
| <div style="border: 1px dashed black; width: 100px; height: 100px; margin: 0 auto;"></div> | <p>THIS SHEET IS FOR REFERENCE ONLY.<br/>TO REFLECT HOW THE FARADAY SHIELD<br/>IS PREDRILLED. ONLY INSTALL AND USE<br/>THE TERMINALS NEEDED.</p> | <p>= INDICATES PLACEMENT<br/>OF PANOUT</p> | <p>GR = TERMINALS GROUNDED TO SHIELD.<br/>4 POST BLOCKS USE EITHER -<br/>GR - SERMMI PART NO. 61278<br/>GL - SERMMI PART NO. 61278-1.</p> | <p>PROPERTY<br/>PENNSYLVANIA R.R.</p> | REVISION | DATE | BY | INITIALS |
|                                                                                            |                                                                                                                                                  |                                            |                                                                                                                                           |                                       |          |      |    |          |

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



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

INDICATES PLACEMENT OF PANDUIT

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

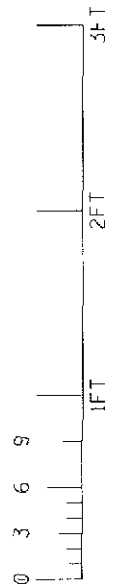
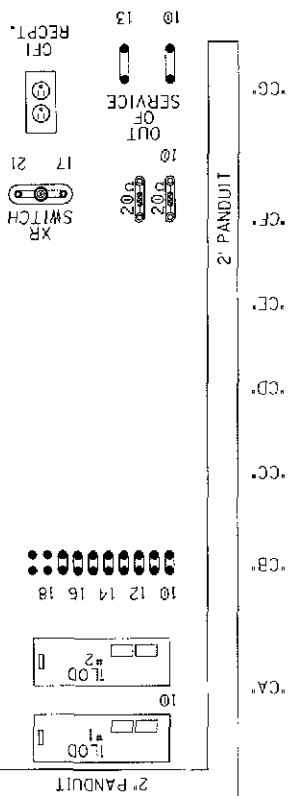
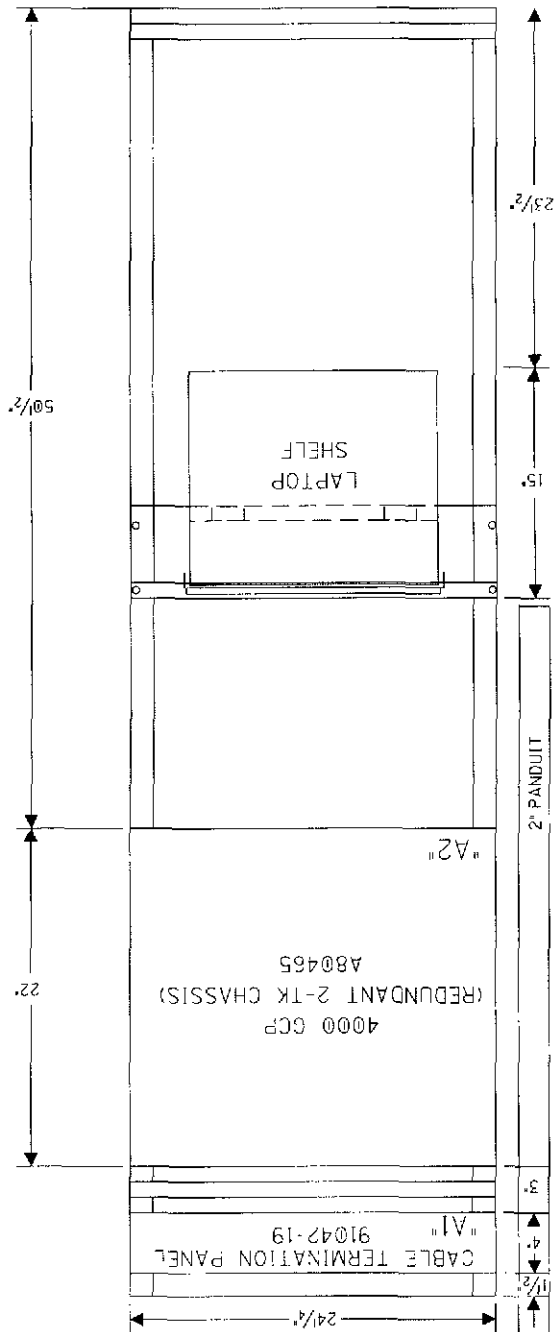
TERMINAL BOARD 1  
RIGHT ROW  
FARADAY SHIELD DETAIL - 1C

|                              |                                                                                                             |                                                              |                                      |
|------------------------------|-------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|--------------------------------------|
| DESIGNED BY: TAF 08-15-13    |  <b>NORFOLK SOUTHERN</b> | OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA. | M.F.: YG-53.01                       |
| DRAWN BY: RSD 08-15-13       |                                                                                                             | HUBBARD ON                                                   | GATES/FLS AT SEIFERT-LEWIS RD./CR 98 |
| CHECKED BY:                  |                                                                                                             | FILE                                                         | R-                                   |
| IN SERVICE:                  |                                                                                                             | NO.                                                          | SHEET                                |
| CADD OF DWG. NO. 24400530.19 |                                                                                                             | 19 of 22                                                     |                                      |

PROPERTY  
PENNSYLVANIA R.R.

# EQUIPMENT RACK #1

FRONT

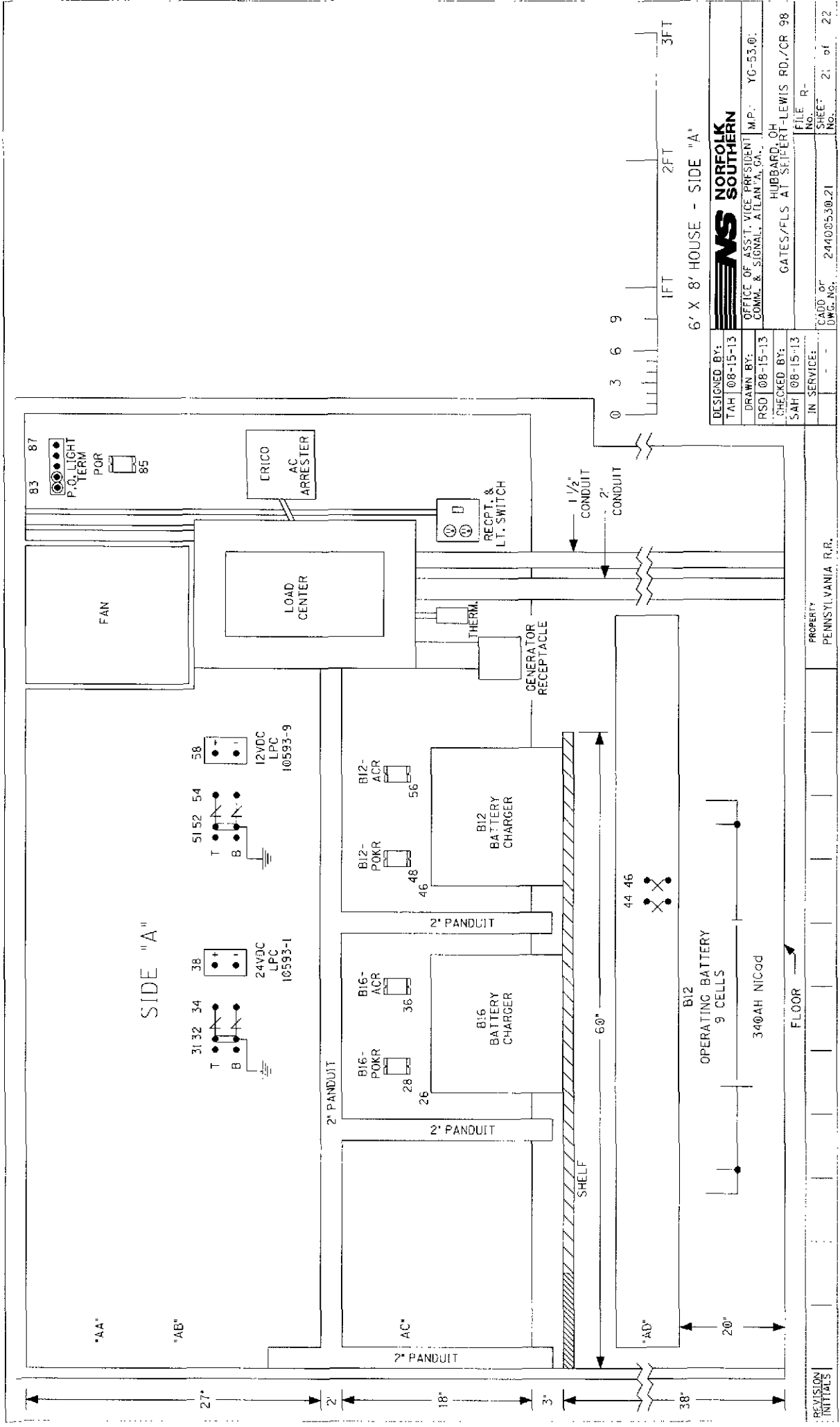


RACK PLACEMENT  
6' X 8' HOUSE - SIDE "C"

|              |                |                                                                                                                                                               |
|--------------|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DESIGNED BY: | TAH 08-15-13   | <b>NORFOLK SOUTHERN</b><br>OFFICE OF ASST. VICE PRESIDENT<br>COMM. & SIGNAL, ATLANTA, GA. M.P. YG-53.01<br>HUBBARD, OH<br>GATES/PLS AT SEPERT-LEWIS RD./CR 98 |
| DRAWN BY:    | RSD 08-15-13   |                                                                                                                                                               |
| CHECKED BY:  | SAH 08-15-13   |                                                                                                                                                               |
| IN SERVICE:  | -              |                                                                                                                                                               |
| CADD OF      | 24400530.20    | FILE R-                                                                                                                                                       |
| DWG. No.     | SHEET 20 of 22 | No.                                                                                                                                                           |

PROPERTY  
PENNSYLVANIA R.R.

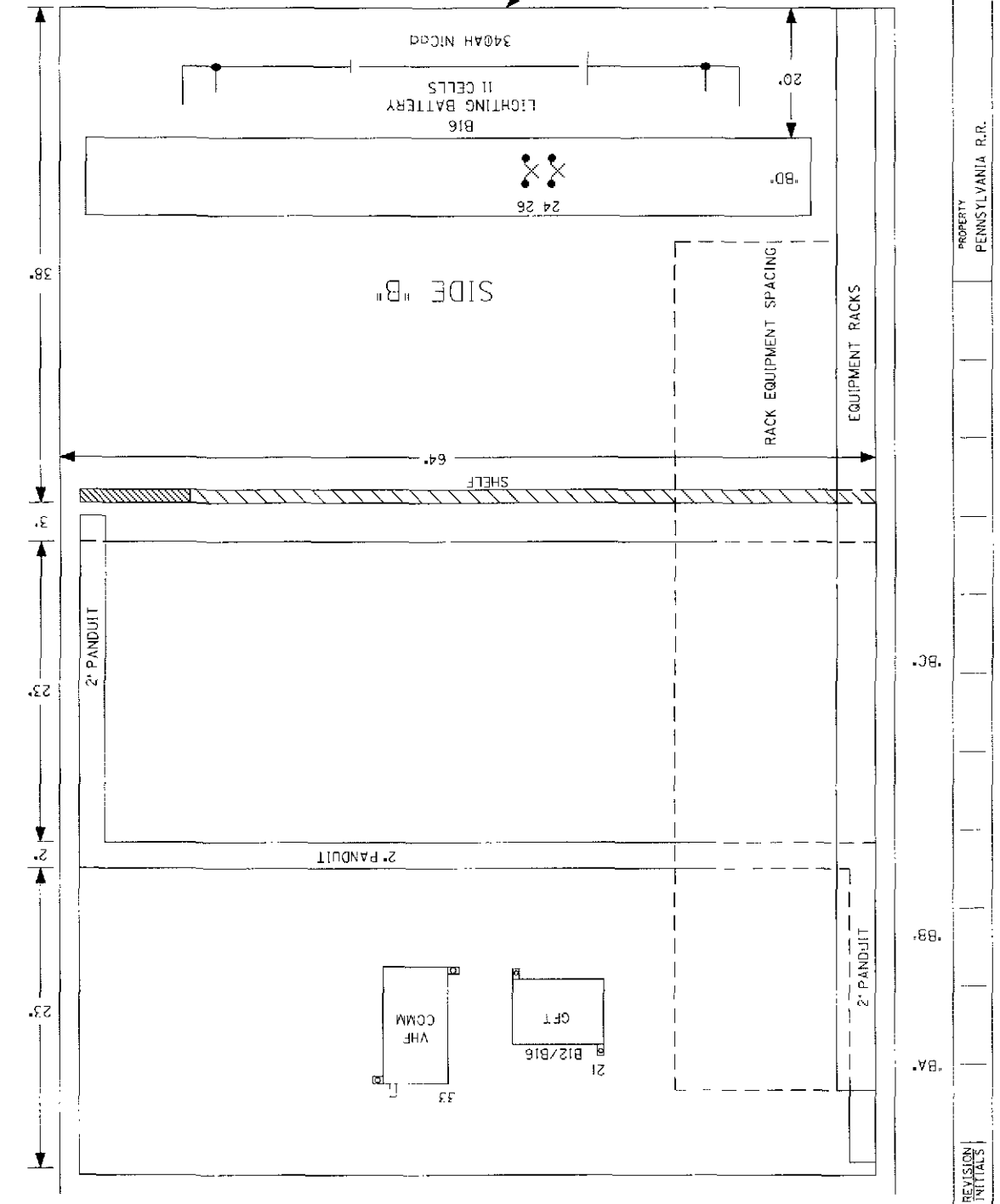
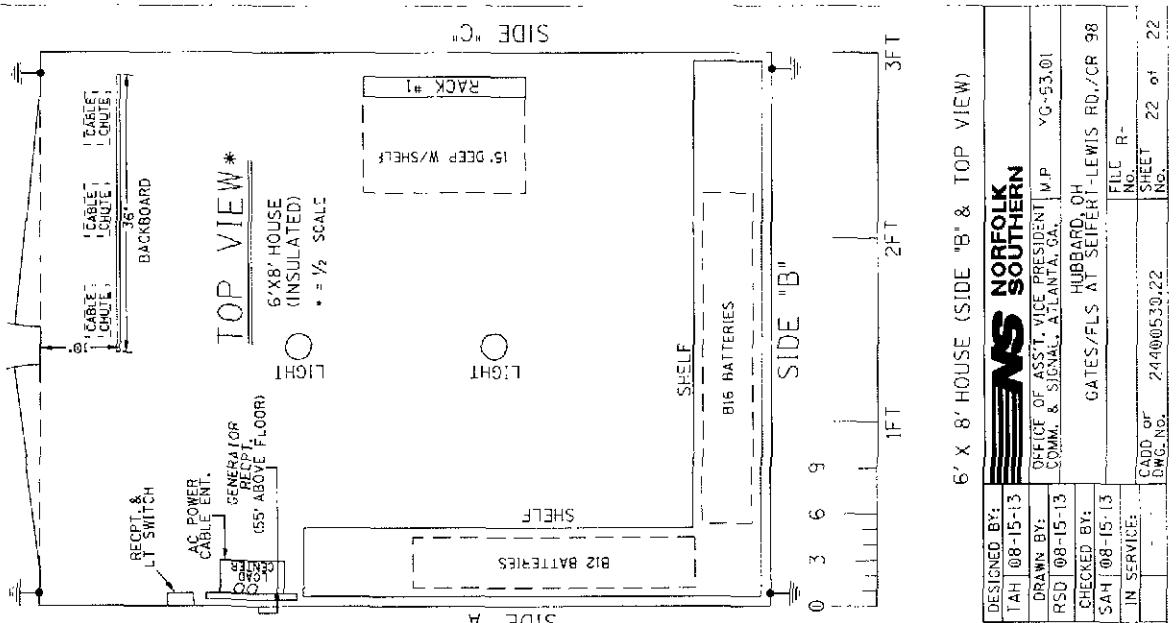




6' X 8' HOUSE - SIDE "A"

|              |              |                                                                                                                                                                   |
|--------------|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DESIGNED BY: | TAH 08-15-13 | <b>NORFOLK SOUTHERN</b><br>OFFICE OF ASST. VICE PRESIDENT<br>COMM. & SIGNAL, ATLANTA, GA.<br>M.P.: YC-53.0;<br>HUBBARD, OH<br>GATES/FLS AT SEBERT-LEWIS RD./CR 98 |
| DRAWN BY:    | RSO 08-15-13 |                                                                                                                                                                   |
| CHECKED BY:  | SAH 08-15-13 |                                                                                                                                                                   |
| IN SERVICE:  | -            |                                                                                                                                                                   |
| FILE NO.     | 24400530.21  | SHEET: 21 of 22                                                                                                                                                   |

PROPERTY  
PENNSYLVANIA R.R.



DESIGNED BY: TAH 08-15-13  
 DRAWN BY: RSD 08-15-13  
 CHECKED BY: SAN 08-15-13  
 IN SERVICE:



OFFICE OF ASST. VICE PRESIDENT  
 COMM. & SIGNAL, ATLANTA, GA. W.P. YG-53.01

HUBBARD, OH  
 GATES/FLS AT SEIFERT-LEWIS RD./CR 98

FILE NO. R-  
 SHEET 22 of 22

CADD OF SWG. NO. 214000530.22

PROPERTY  
 PENNSYLVANIA R.R.

REVISION/INITIALS

ALL OUT  
VOTE WHEN  
AS-BUILT

INDEX

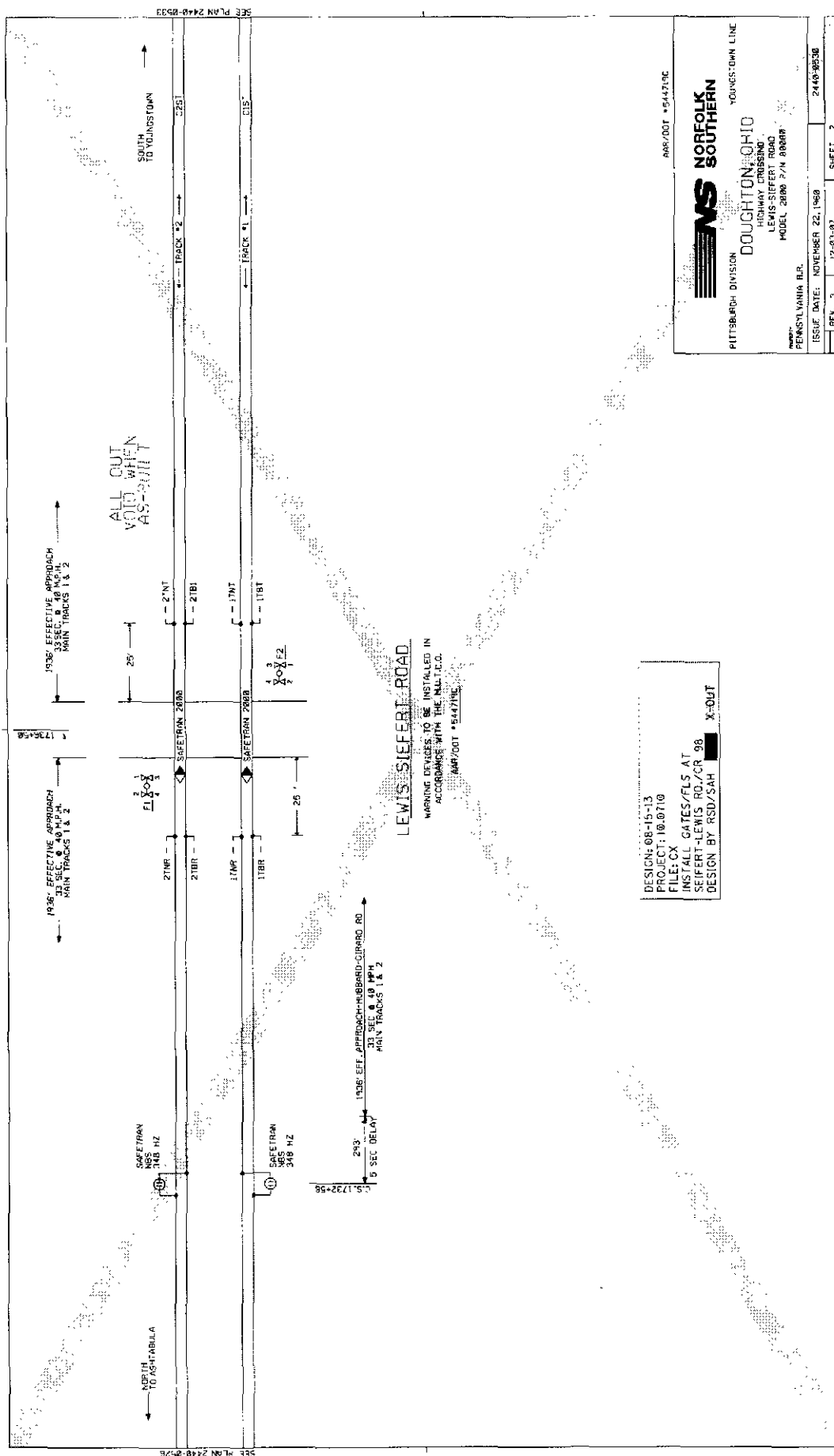
| SHEET NO. | CONTENTS                          |  | REVISION NO. |   |   |   |   |   |   |
|-----------|-----------------------------------|--|--------------|---|---|---|---|---|---|
|           |                                   |  | 1            | 2 | 3 | 4 | 5 | 6 | 7 |
| 1         | TITLE, NOTES, INDEX AND REVISIONS |  | ✓            | ✓ | ✓ |   |   |   |   |
| 2         | LOCATION PLAN                     |  | ✓            | ✓ | ✓ |   |   |   |   |
| 3         | POWER DISTRIBUTION                |  | ✓            | ✓ | ✓ |   |   |   |   |
| 4         | MODEL 2800 P/N 00000              |  | ✓            | ✓ | ✓ |   |   |   |   |
| 5         | LIGHTING CIRCUITS                 |  | ✓            | ✓ | ✓ |   |   |   |   |
| 6         | HIGH DOUBLE CASE LAYOUT - FRONT   |  | ✓            | ✓ | ✓ |   |   |   |   |
| 7         | HIGH DOUBLE CASE LAYOUT - REAR    |  | ✓            | ✓ | ✓ |   |   |   |   |
| 8         |                                   |  |              |   |   |   |   |   |   |
| 9         |                                   |  |              |   |   |   |   |   |   |
| 10        |                                   |  |              |   |   |   |   |   |   |

DESIGN: 08-15-13  
PROJECT: 10.0710  
FILE: CX  
INSTALL GATES/FLS AT  
SEIFERT-LEWIS RD./CR 98  
DESIGN BY RSD/SAH X-DUT

NOTES

- FOR MATERIAL REFERENCE SEE PLAN 5-1822
- ⊗ = DENOTES TWISTED PAIR
- GROUND IN ACCORDANCE WITH CS-9001-A

|                                   |                                                                                                                                                       |
|-----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| REVISIONS                         |                                                                                                                                                       |
| 1                                 | 8-9-91<br>PLAN RETURN ACCOUNT BLOOMER<br>RELOCATED, TRACK WORK AND<br>LIGHTING CIRCUITS WERE STANDARD<br>IN SERVICE 8-21-91<br>PER: MPH               |
| 2                                 | 10-1-99<br>WAG 300<br>PLAN RETURN ACCOUNT BLOOMER<br>CODE 4 INSTALLED C.A. 52-70<br>C.A. 57<br>W.O./A/E NO. 968895<br>IN SERVICE 09-07-00<br>PER: JJB |
| 3                                 | RSL 394<br>PLAN RETURN ACCOUNT<br>SARITAN 200A CROSSING<br>UNIT INSTALLED - PMO'S REMOVED<br>IN SERVICE 12/3/97<br>PER: OBS                           |
| 48H/DOY *544710C                  |                                                                                                                                                       |
| PITTSBURGH DIVISION               |                                                                                                                                                       |
| NORFOLK SOUTHERN                  |                                                                                                                                                       |
| YOUNGSTOWN LINE                   |                                                                                                                                                       |
| DOUGHTON, OHIO                    |                                                                                                                                                       |
| LEWIS SEIFERT ROAD                |                                                                                                                                                       |
| TITLE, NOTES, INDEX AND REVISIONS |                                                                                                                                                       |
| APPROVED: [Signature]             |                                                                                                                                                       |
| PENNsylvania R.R.                 |                                                                                                                                                       |
| ISSUE DATE: NOVEMBER 22, 1988     |                                                                                                                                                       |
| REV. 3                            | 12-23-97                                                                                                                                              |
| SHEET 1 OF 7                      |                                                                                                                                                       |
| KXPM012                           |                                                                                                                                                       |



DESIGN: 08-15-13  
PROJECT: 10-0710  
FILE: CX  
INSTALL GATES/FLS AT  
SEFERT-LEWIS RD./CR 98  
DESIGN BY RSD/SAH

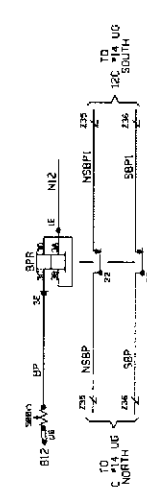
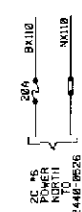
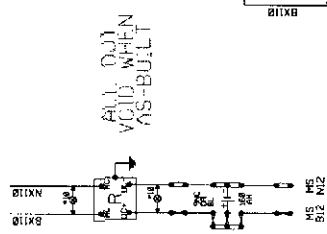
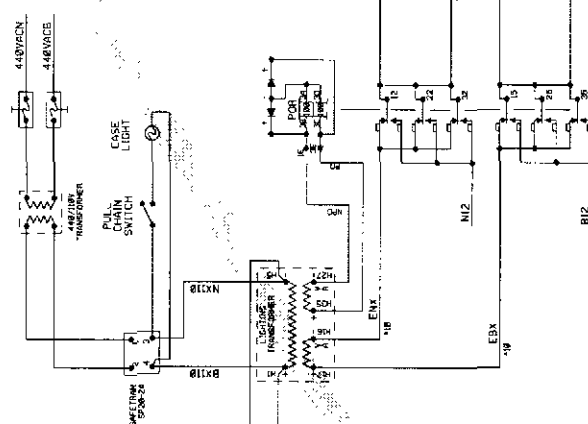
APP. 001 \*544276C  
 PITTSBURGH DIVISION  
 Doughton, Ohio  
 Highway Crossing  
 Lewis-Sieffert Road  
 Model 2800 P/N 800818  
 MS NORFOLK SOUTHERN  
 YOUNGSTOWN

|                               |           |
|-------------------------------|-----------|
| ISSUE DATE: NOVEMBER 22, 1968 | 2440-9530 |
| REV. 3                        | 12-03-07  |
| SHEET 2                       |           |

40071 J0805 H  
HX 3890 F.D04

2009-10-27 14:00:00

**CVJ 583**



DESIGN: 08-15-13  
 PROJECT: 10.07.10  
 FILE: CX  
 INSTALL GATES/FLS AT  
 SEIFERT-LEWIS RD./CR 98  
 DESIGN BY RSD/SAH X-OUT

48P/DOY \*544710C

**NORFOLK SOUTHERN**  
 PITTSBURGH DIVISION  
 DOUGHTON, OHIO  
 HIGHWAY CROSSING  
 LEWIS STREET ROAD  
 MODEL 2000 P/N 80000

|                               |           |
|-------------------------------|-----------|
| ISSUE DATE: NOVEMBER 22, 1968 | 2448-0638 |
| REV. 3                        | 12-03-87  |
| SHEET 3                       |           |

10000001.DOC

GENERAL INSTRUCTIONS: 1. WORKMEN SHALL BE RESPONSIBLE FOR THE PROTECTION OF THE EXISTING UTILITIES.



• =FIELD TO INSERT INFORMATION  
DAY OF CUT OVER.

| FREQUENCY: |          |
|------------|----------|
| TRACK 1:   | 2.3 KHZ. |
| TRACK 2:   | 0.7 KHZ. |

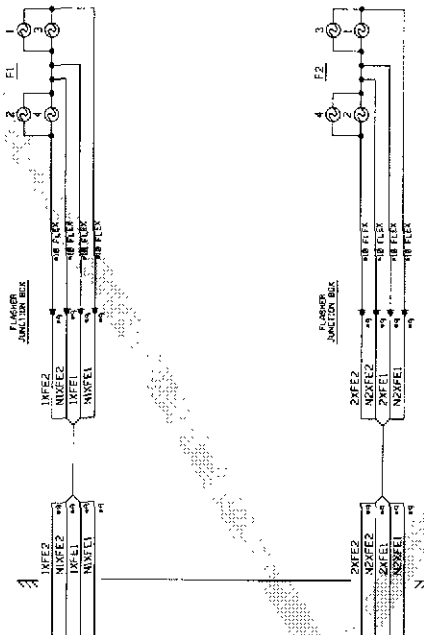
THIS UNIT IS BE EQUIPPED  
WITH 4<sup>TH</sup> LEVEL SOFTWARE  
ON PROCESSOR MODULE  
(80014) AND DATA  
REFERENCE MODULE (80015)

DESIGN: 08-15-13  
PROJECT: 10.0710  
FILE: CX  
INSTALL GATES/FLS AT  
SEIFERT-LEWIS RD./CR 98  
DESIGN BY RSD/SAH

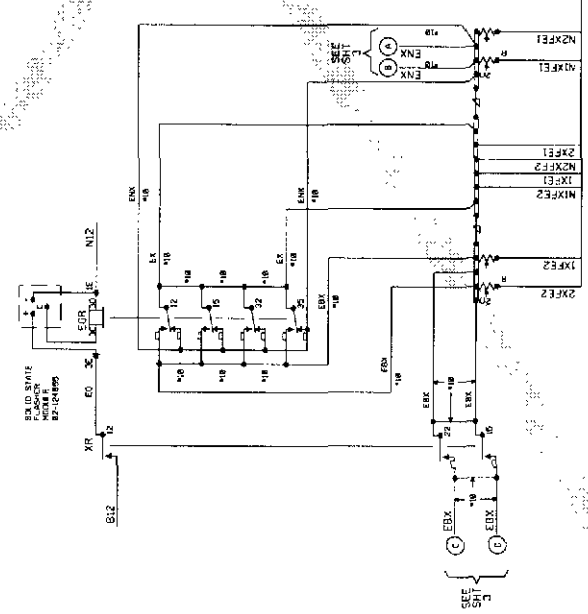
|            |          |             |   |
|------------|----------|-------------|---|
| DATE       | 10-28-92 | PAGE        | 1 |
| ISSUE DATE | 12-28-90 | 24-01-00530 |   |

000013200000

ALL OUT  
VOID WHEN  
AS-BUILT



DESIGN: OR-16-13  
PROJECT: 10.0710  
FILE: X GATES/FLS AT  
INSTALL: LEWIS RD/CP 98  
DESIGN BY: RSD/SAH X-OUT



**NS NORFOLK SOUTHERN**

PITTSBURGH DIVISION

DOUGHTON, OHIO

LEWIS-SIEBERT ROAD

MODEL 2000 P/N 88000

YOUNGSTOWN LINE

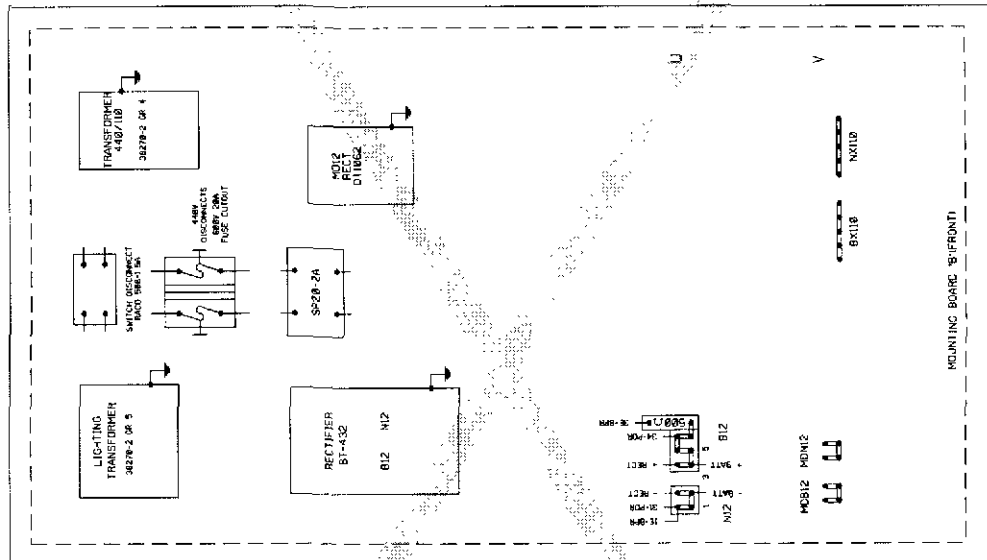
2415-0830

ISSUE DATE: NOVEMBER 22, 1988

REV. 3 12 03 87 SHEET 5

HA 100071.D00

1



VOIS-PRO-  
DUB-12

DESIGN: 08-15-13  
PROJECT: 10.0710  
FILE: CX  
INSTALL GATES/FLS AT  
SEIFERT-LEWIS RD./CR 98  
DESIGN BY RSD/SAH  
X-OUT

500Ω FIXED RESISTOR 02-423711

SCALE 2/10=1.

**NORFOLK SOUTHERN**

PITTSBURGH DIVISION

DOUGHTON, OHIO

HIGHWAY CROSSING -  
 LEWIS-SIEFERT ROAD

HEXINUSI KANIQ BP

Vol. 100, No. 1, p. 1

FILED: NOVEMBER 22, 1950

SET 6

SET 6

CHE CAP

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800 801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836 837 838 839 840 841 842 843 844 845 846 847 848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880 881 882 883 884 885 886 887 888 889 890 891 892 893 894 895 896 897 898 899 900 901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917 918 919 920 921 922 923 924 925 926 927 928 929 930 931 932 933 934 935 936 937 938 939 940 941 942 943 944 945 946 947 948 949 950 951 952 953 954 955 956 957 958 959 960 961 962 963 964 965 966 967 968 969 970 971 972 973 974 975 976 977 978 979 980 981 982 983 984 985 986 987 988 989 990 991 992 993 994 995 996 997 998 999 1000 1001 1002 1003 1004 1005 1006 1007 1008 1009 1010 1011 1012 1013 1014 1015 1016 1017 1018 1019 1020 1021 1022 1023 1024 1025 1026 1027 1028 1029 1030 1031 1032 1033 1034 1035 1036 1037 1038 1039 1040 1



B12

US • 10 XR 0

US • 10 PDR 24 21 14

NK2

UI • 10 XR 0  
UI • 10 PDR 24 21 14  
UI • 10 BDR 24 21 14  
UI • 10 EDR 24 21 14

ALL OUT  
VOID WHEN  
AS BUILT

DESIGN 08-15-13  
PROJECT 10.0710  
FILE CX  
INSTALL GATES/ELS. AT  
SEIFERT-LEWIS RD./CR 98  
DESIGN BY RSD/SAH X-OUT

SCALE 2"=10'-1"



PITTSBURGH DIVISION

DOUGHTON, OHIO

LEWIS-SEIFERT RD.

MODEL 2000 P/N 80089

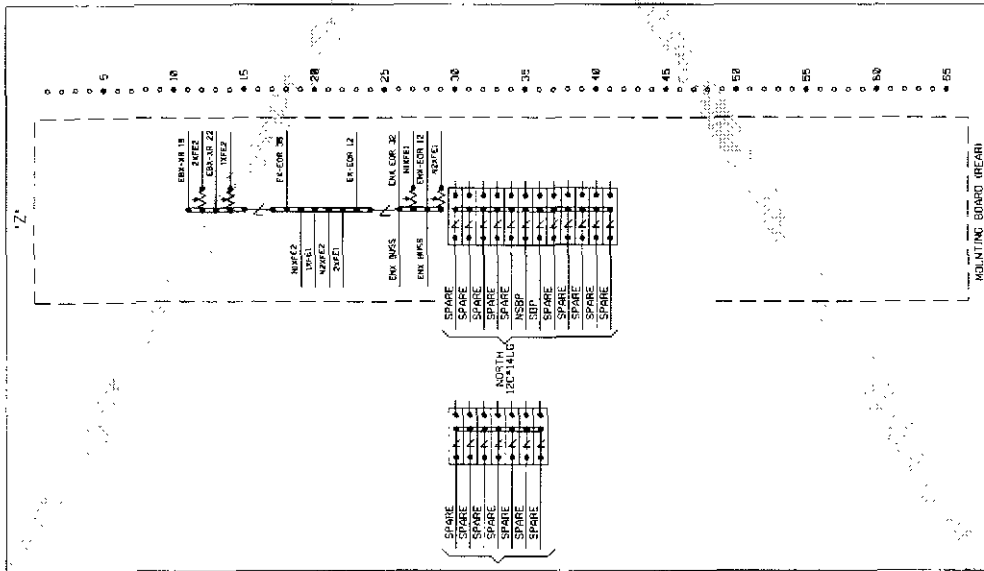
PENNSYLVANIA R.R.

ISSUE DATE: NOVEMBER 22, 1980

2440-0030

REV. 3 12-30-87 SHEET 7

NOT TO SCALE



CMS CAD