

# Large Filing Separator Sheet

Case Number: 13-2138-RR-FED

File Date: 10/29/2013

Section: 1 of 2

Number of Pages: 199

Description of Document: New Case

NC  
FILE

13-2138-RR. FED

383

**Public Utilities  
Commission of Ohio**

RECEIVED-DOCKETING DIV

2013 OCT 29 PM 2:15

PUCO

# Memo

**To:** Docketing Division  
**From:** George Martin, Grade Crossing Planner, Rail Division  
**Re:** In the matter of the authorization of the Norfolk Southern Railway CJ Corridor improvement through Greene and Clark Counties  
**Date:** October 29, 2013

The Ohio Rail Development Commission (ORDC), Norfolk Southern Railway (NS), and Commission staff entered into a Subsidy Agreement, No.13595, dated October 13, 2005, and subsequent renewals, in order to govern the improvement of various at-grade rail crossings on NS's CJ Line. ORDC has now authorized funding for the installation of flashing lights and roadway gates at the following locations:

**Greene County**

City of Fairborn, Spangler Rd/TR 114, DOT# 523527C

City of Fairborn, Xenia Dr/SR 235, DOT# 523529R

City of Fairborn, S Central Ave, DOT# 527809G

Bath Township, Black Lane/TR 12, DOT# 523526V

**Clark County**

Enon Rd/CR 315, DOT# 523519K

Mad River Twp, Snider Rd/TR 151, DOT# 523522T

Haddix Rd/CR 331, DOT# 523524G

Mad River Twp, Old Mill Rd/TR 95, DOT# 523515H

Mad River Twp, Tecumseh Rd/TR 198, DOT# 262208L

These crossings were surveyed June 7-8, 2010.

The projects will be paid for with federal funds, and are actual cost. As the plans and estimates for the projects have been submitted and approved, staff requests a Finding & Order with **completion due in fifteen months**. Construction may commence at once. Staff requests that the following language be incorporated in the Entry:

This is to certify that the images appearing are an accurate and complete reproduction of a case file document delivered in the regular course of business

**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- *2138* -RR-FED In the matter of the authorization of the Norfolk Southern Railway CJ Corridor improvement through Greene and Clark Counties

C: Legal Department

Please serve the following parties of record

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

Mr D Casey Talbot  
Eastman & Smith  
One SeaGate, 24<sup>th</sup> Floor  
PO Box 10032  
Toledo, Oh 43699-0032

Ms Cayela Wimberly  
Norfolk Southern Railway  
1200 Peachtree St NE, Box 123  
Atlanta, Ga 30309-0036

Mad River Township Trustees  
130 E Main St  
PO Box 34  
Enon, Oh 45323

Bath Township Trustees  
1006 Yellow Springs-Fairfield Rd  
Fairborn, Oh 45324

Ms Deborah McDonnell

City Manager

44 W Hebble Ave

Fairborn, Oh 45324

Mr Johnathan Burr, PE

Clark County Engineer

4075 Laybourne Rd

Springfield, Oh 45505

**OHIO RAIL DEVELOPMENT COMMISSION  
INTER-OFFICE COMMUNICATION**

**TO:** George Martin, Rail Division, PUCO  
**FROM:** Cathy Stout, Manager, Safety Section, ORDC  
**BY:** Tim Perkins, Project Manager *Tim Perkins*  
**SUBJECT:** CLA / GRE – Corridor - NS, PID No. 88509  
**DATE:** October 24, 2013

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The subject corridor will include the following:

GRE-TR 114, Spangler Rd., DOT No. 523 527 C, Mile Post: CJ 195.52, S&E Project No. 10.1344  
CLA-CR 315, Enon Rd., DOT No. 523 519 K, Mile Post: CJ 190.62, S&E Project No. 10.1340  
GRE-SR 235, Xenia Dr., DOT No. 523 529 R, Mile Post: CJ 10.1345, S&E Project No. 10.1345  
GRE-Central Ave., DOT No. 527 809 G, Mile Post: CJ 197.6, S&E Project No. 10.1346  
CLA-TR 151, Snider Rd., DOT No. 523 522 T, Mile Post: CJ 193, S&E Project No. 10.1341  
CLA-CR 331, Haddix Rd., DOT No. 523 524 G, Mile Post: CJ 193.64, S&E Project No. 10.1342  
CLA-TR 95, Old Mill Rd., DOT No. 523 515 H, Mile Post: CJ 186.97, S&E Project No. 10.1338  
CLA-TR 198, Tecumseh Rd., DOT No. 262 208 L, Mile Post: CJ 189.17, S&E Project No. 10.1339  
GRE-TR 12, Black Ln., DOT No. 523 526 V, Mile Post: CJ 194.8, S&E Project No. 10.1343

These diagnostic surveys were conducted on June 7, 2010 and June 8, 2010. The Ohio Rail Development Commission (ORDC) and the Public Utilities Commission (PUCO) attended the reviews. The Diagnostic Team recommended the improvements of warning devices at each location to flashing lights and roadway gates. Copies of the diagnostic review form and the plan and estimate will be sent for each location.

PE has already been provided by the railroad. ORDC approves the site plans and estimates as provided. Please issue a construction-only order for fifteen (15) months for the projects outlined above. This construction authorization is made with the stipulation and understanding that any field work needs prior approval before the work begins. This authorization is made with the stipulation and understanding that an approved estimate may contain entries for items or activities that may be cited and found to be ineligible for federal participation during the project audit.

It is expected that all work necessary for FHWA acceptance of the warning devices will be completed by the in-

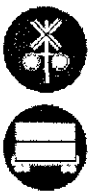
service due date and that the railroad will be responsible for this work. This work includes, but is not limited to:

- 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  
Plan & Estimate

c: 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

October 24, 2013

Cayela J. Wimberly  
Administrator, Highway Grade Crossings  
Norfolk Southern Corporation  
1200 Peachtree Street, N.E., Box 123  
Atlanta, Georgia 30309

RE: Greene County, T.R. 12, Black Lane, DOT No. 523 526 V, PID 88509,  
Mile Post: CJ 194.8, S&E Project No. 10.1343

Dear Ms. Wimberly:

The Norfolk Southern (NS) plan and estimate dated December 1, 2011, in the amount of \$248,925.00 for the referenced project has been reviewed and is acceptable. 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 \$186,693.75. 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 will furnish prior written notification of their scheduled date to start construction to George Martin, PUCO, Railroad Division.
2. NS's project foreman will furnish FAX or written notification five (5) working days prior to the date work will start at the project site to Tim Perkins, Ohio Rail Development Commission (ORDC), 1980 West Broad Street, Columbus, Ohio 43223, email [Tim.Perkins@dot.state.oh.us](mailto:Tim.Perkins@dot.state.oh.us) or FAX (614) 728-4520, (telephone number 614-644-0284), and to the Public Utilities Commission of Ohio at 180 East Broad Street, Columbus, Ohio 43215, email [George.martin@puc.state.oh.us](mailto:George.martin@puc.state.oh.us), (telephone number 614-752-9107). 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.
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.



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

phone: 614.644.0306

IMPROVING RAIL TODAY FOR TOMORROW'S ECONOMY



4. NS's project foremen will notify Tim Perkins 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 Encumbrance Estimate 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.
7. This installation will include any ancillary work to make the warning devices function as designed and meet MUCTD.

Thank you for your assistance with these matters.

Sincerely,

A handwritten signature in black ink, appearing to read "Tim Perkins". The signature is written in a cursive, flowing style.

Tim Perkins  
Project Manager



Utility  
Relocation

Ohio Rail Development Commission  
1980 W. Broad Street, 2nd Floor  
Columbus, OH 43223

## Diagnostic Review Team Survey

Date: 6.8.10

### Location Data

Street or Road Name: TR 12, BLACK LANE

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

(Include SLM if State or US route)

AAR-DOT No.: 523 526 V

County: GREENE

Township: BATH TWP

City:  
(In or Near) FAIRBORN

Railroad Name: NORFOLK SOUTHERN

Railroad Division: DEARBORN

Branch/Line Name: CINCINNATI

Nearest RR  
Timetable Station: FAIRBORN

RR Milepost: 194.8

### On-Site Review Team

(Include: Name - Organization - Phone Number)

1. TIM PERKINS ORDC 614-644-0284
2. ROBERT COUSER NS 937-581-5255
3. JERRICK DRAKE NS 304-712-0220
4. GEORGE MARTIN PUCO 614-752-9107
5. KUK RAY NSC 404-529-1234
6. BOB GARDNER General Co. Eng. 937-562-2500
7. VERN WEISER BATH TWP 937-878-9481
8. MIKE BURCHETT Bath Twp 937-878-9481
- 9.

### Existing Traffic Control Devices

| Type of Warning Devices               | Installed?                              |                                        | Quantity/Comments |         |
|---------------------------------------|-----------------------------------------|----------------------------------------|-------------------|---------|
| Advance Warning Signs                 | <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                     | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            | 1                 |         |
| Crossbucks                            | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            | 2                 |         |
| Number of Tracks Signs                | <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No |                   |         |
| 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 | 2                 |         |
| Mast-Mounted Flashing Lights          | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            |                   |         |
| 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 checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            | Number: 2         | Length: |
| Bells                                 | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            | 2                 |         |
| 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 checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            |                   |         |
| Other                                 | <input type="checkbox"/> Yes            | <input 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                                                                                                                        |                                                                      |                                                          |
| Hazard Ranking                                                                                                                                                       | Date Run:                                                            |                                                          |
| <b>Railroad Data</b>                                                                                                                                                 |                                                                      |                                                          |
| Railroad Characteristics                                                                                                                                             | Initial Information (from database)                                  | Revised                                                  |
| Total trains per day                                                                                                                                                 |                                                                      |                                                          |
| < 1 per day                                                                                                                                                          |                                                                      |                                                          |
| Day thru trains                                                                                                                                                      | 6                                                                    |                                                          |
| Night thru trains                                                                                                                                                    | 6                                                                    |                                                          |
| Daytime switching movements                                                                                                                                          | 3                                                                    |                                                          |
| Nighttime switching movements                                                                                                                                        | 3                                                                    |                                                          |
| Total number of tracks                                                                                                                                               | 1                                                                    |                                                          |
| Number of main tracks                                                                                                                                                | 1                                                                    |                                                          |
| Number of other tracks                                                                                                                                               | 0                                                                    |                                                          |
| Maximum train speed                                                                                                                                                  |                                                                      |                                                          |
| Typical train speed                                                                                                                                                  | 50                                                                   |                                                          |
| Amtrak                                                                                                                                                               | 33                                                                   |                                                          |
| If non-gated crossing, is clearing sight distance adequate in all quadrants? (See Table 1) <input type="checkbox"/> Yes <input type="checkbox"/> No                  |                                                                      |                                                          |
| If multiple tracks, can two trains occupy crossing at the same time? <input type="checkbox"/> Yes <input type="checkbox"/> No                                        |                                                                      |                                                          |
| Can one train block the motorists' view of another train at crossing? <input type="checkbox"/> Yes (Explain below) <input type="checkbox"/> No                       |                                                                      |                                                          |
| Are there other track(s) crossing this same roadway within 100 ft of this crossing? <input type="checkbox"/> Yes <input type="checkbox"/> No                         |                                                                      |                                                          |
| If yes, Crossing DOT #(if different) _____                                                                                                                           |                                                                      |                                                          |
| If yes, distance _____ (take measurement between track centerlines at closest point along roadway)                                                                   |                                                                      |                                                          |
| <b>Roadway Data</b>                                                                                                                                                  |                                                                      |                                                          |
| Local Highway Authority: <u>BATH TOWNSHIP</u>                                                                                                                        |                                                                      |                                                          |
| Roadway Characteristics                                                                                                                                              | Initial Information (from database)                                  | Revised                                                  |
| Average daily traffic                                                                                                                                                | 1576 10.26.04                                                        |                                                          |
| Highway paved                                                                                                                                                        | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No  | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| Roadway Surface: <input checked="" type="checkbox"/> Blacktop <input type="checkbox"/> Gravel <input type="checkbox"/> Concrete <input type="checkbox"/> Other _____ |                                                                      |                                                          |
| Roadway width: <u>18</u> ft.                                                                                                                                         |                                                                      |                                                          |
| Number of highway lanes                                                                                                                                              | 2                                                                    |                                                          |
| Urban or Rural                                                                                                                                                       |                                                                      |                                                          |
| Vehicle Speed: <u>45</u> MPH                                                                                                                                         |                                                                      |                                                          |
| School Bus Operation: <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes _____ Amount                                                               |                                                                      |                                                          |
| Hazardous Materials Trucks: <input 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 type="checkbox"/> Yes <input type="checkbox"/> No If no, deficient approach(es) _____                       |                                                                      |                                                          |
| Quadrant _____ Curb and Gutter:                                                                                                                                      | Quadrant _____ Curb and Gutter:                                      |                                                          |
| <input type="checkbox"/> Functional (Curb height = 4" or more)                                                                                                       | <input type="checkbox"/> Functional (Curb height = 4" or more)       |                                                          |
| <input type="checkbox"/> Non-functional (Curb height = Less than 4")                                                                                                 | <input type="checkbox"/> Non-functional (Curb height = Less than 4") |                                                          |
| <input checked="" type="checkbox"/> None                                                                                                                             | <input checked="" type="checkbox"/> None                             |                                                          |

|                                                                                                                                                      |                                                                                                                    |
|------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|
| Pedestrians: <input type="checkbox"/> No <input 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       |                                                                                                                    |
| If yes,<br>Distance _____                                                                                                                            |                                                                                                                    |
| Is this intersection signalized? <input type="checkbox"/> No <input type="checkbox"/> Yes                                                            |                                                                                                                    |
| Are the signals currently interconnected with the existing crossing warning devices? <input type="checkbox"/> No <input type="checkbox"/> Yes        |                                                                                                                    |
| Is it the consensus of the Diagnostic Review Team that this is a potential closure project? <input type="checkbox"/> No <input type="checkbox"/> Yes |                                                                                                                    |
| Explain reasons:                                                                                                                                     |                                                                                                                    |
| <b>Type of Development</b>                                                                                                                           |                                                                                                                    |
| <input checked="" type="checkbox"/> Open Space<br><input type="checkbox"/> Industrial<br><input type="checkbox"/> Residential                        | <input type="checkbox"/> Institutional<br><input type="checkbox"/> Commercial<br>Location of nearby schools: _____ |
| <b>Utility Information</b>                                                                                                                           |                                                                                                                    |
| Is commercial power available? <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes                                                   |                                                                                                                    |
| Utility Provider (Company Name) <u>OHIO EDISON</u>                                                                                                   | Phone Number _____                                                                                                 |
| Nearest Available Power Source _____                                                                                                                 |                                                                                                                    |
| What other utilities are present? _____                                                                                                              |                                                                                                                    |
| Is there potential utility conflict(s) <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown                     |                                                                                                                    |
| <b>Diagnostic Team Recommendations</b>                                                                                                               |                                                                                                                    |
|                                                                                                                                                      | Quadrants Needed                                                                                                   |
| <input type="checkbox"/> Install/upgrade active devices                                                                                              |                                                                                                                    |
| <input type="checkbox"/> Automatic Flashing Lights (AFLS)                                                                                            |                                                                                                                    |
| <input type="checkbox"/> AFLS / Cants                                                                                                                |                                                                                                                    |
| <input checked="" type="checkbox"/> AFLS / Gates                                                                                                     |                                                                                                                    |
| <input type="checkbox"/> AFLS / Gates / Cants                                                                                                        |                                                                                                                    |
| <input type="checkbox"/> Upgrade circuitry                                                                                                           |                                                                                                                    |
| <input type="checkbox"/> Sidelights                                                                                                                  |                                                                                                                    |
| <input type="checkbox"/> Guardrail Needed                                                                                                            |                                                                                                                    |
| <input type="checkbox"/> Install/Replace curb                                                                                                        |                                                                                                                    |
| <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)                                                                                                              |                                                                                                                    |
| <b>Field Dimensions</b>                                                                                                                              |                                                                                                                    |

Sidewalk

---

Parkway

---

Roadway

---

9'

---

9'

---

Parkway

---

Sidewalk

---

pole relocation

149 HP-2  
3

9'

Show North Direction

*Site sketch ok*

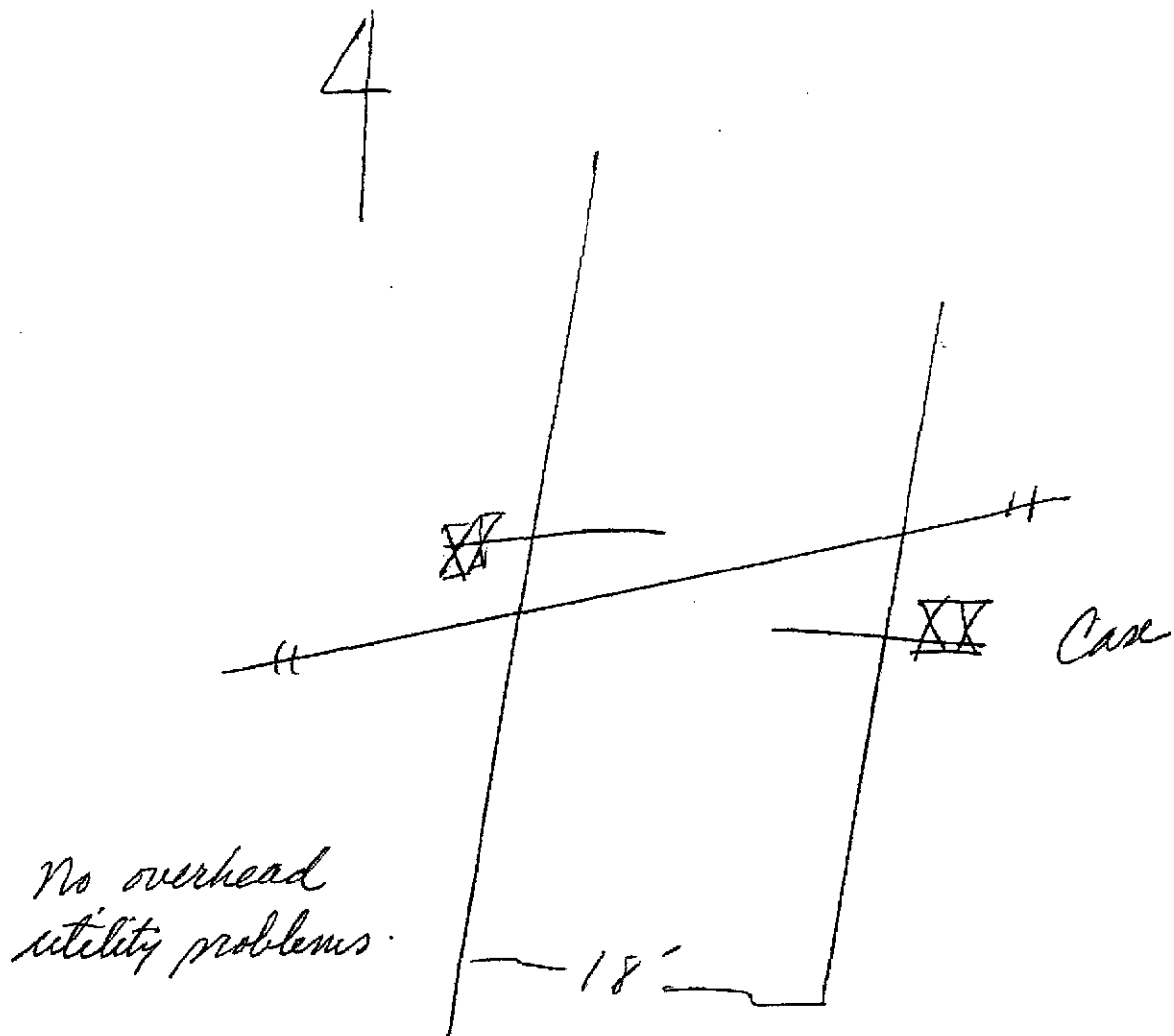
Crossing Angle 
 ☐ 0-29° 
 ☐ 30-59° 
 ☒ 60-90° 
 Measured in \_\_\_\_\_ Quadrant?

Measurements by: JP

UPDATED (12/2006)

4

# Field Sketch



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

Sketch by: *gh*

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                                            |

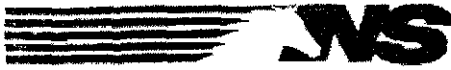
Source: R-H Grade Crossing Handbook Table 36 (pp. 132-133)

**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.



Norfolk Southern Corporation  
Communications and Signal Department  
1200 Peachtree Street, N.E.  
Atlanta, Georgia 30309-3579  
404/529-1216

December 1, 2011  
CX0115492

**Re: Norfolk Southern's CJ Corridor, regarding the modification of automatic grade crossing warning devices at Black Lane in Greene County, Fairborn, Ohio, DOT: 523-526V, Milepost CJ-194.80.**

Susan Kirkland, Supervisor  
Ohio Rail Development Commission  
50 West Broad Street, Room 1520  
Columbus, Ohio 43215

Attention: Susan Arduini

Dear Ms. Kirkland:

Attached for your review and approval are electronic copies of the detailed cost estimate, material list and engineering plans for this crossing.

Although we cannot give you an exact date of installation at this time we can provide our average installation time, which is 9.1 months after authorization from the state. After this project is authorized, we will order material and schedule for installation once we have received approvals from ODOT's District Office.

If you have any questions or concerns, please contact Mike Rappatta at 404-582-6377 or [mike.rappatta@nscorp.com](mailto:mike.rappatta@nscorp.com).

Sincerely,

A handwritten signature in dark ink, appearing to read 'M. L. Rappatta', with a long horizontal flourish extending to the right.

M. L. Rappatta





01-Dec-11

**Detailed Estimate for Grade Crossing Warning Devices**

City/State: FAIRBORN, OH  
MilePost: CJ-194.8  
State Proj. No.:  
S&E Proj. No.: 10.1343  
Man Days: 124

Road: BLACK LN (TR 12)  
DOT/AAR: 523526V  
County: GREENE  
File Number: 061-10.712

| <b>***Purchases - Others***</b>                                   |              |
|-------------------------------------------------------------------|--------------|
| Meals and Lodging:                                                | \$16,665.60  |
| Rental of Equipment:                                              | \$17,360.00  |
| (2 Trucks, 1 Backhoe w/ Trailer<br>and 1 Pipe-Pusher for 31 Days) |              |
| Construction Supervision Vehicle:                                 | \$3,102.16   |
| Purchases - Other Total:                                          | \$37,127.76  |
| <b>***Material And Additives***</b>                               |              |
| Material Cost:                                                    | \$103,777.00 |
| Sales and Use Tax:                                                | \$0.00       |
| Material Handling Freight:                                        | \$5,188.87   |
| Material Total:                                                   | \$108,965.87 |
| <b>***Labor And Additives***</b>                                  |              |
| Labor Cost:                                                       | \$34,720.00  |
| (4 man crew at \$1,120.00 a day for: 31 days)                     |              |
| Payroll Tax & Overheads:                                          | \$46,122.05  |
| Preliminary Engineering:                                          | \$12,187.76  |
| Construction Supervision:                                         | \$9,801.46   |
| Labor Total:                                                      | \$102,831.27 |
| Project Cost:                                                     | \$248,924.90 |
| Scrap / Salvage Credit:                                           | \$0.00       |
| Project Total:                                                    | \$248,925.00 |

Estimated on: 01-Dec-11

Estimated by: n5s2v

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:                                                                                                                                                                                                                  | FAIRBORN         |
| Road:                                                                                                                                                                                                                  | BLACK LN (TR 12) |
| Mile Post:                                                                                                                                                                                                             | CJ-194.8         |
| Drawing Number:                                                                                                                                                                                                        | 82111947         |
| State ProjectNumber:                                                                                                                                                                                                   |                  |
| County:                                                                                                                                                                                                                | GREENE           |
| A A R Number:                                                                                                                                                                                                          | 523526V          |
| Project Number:                                                                                                                                                                                                        | 10.1343          |
| File Number:                                                                                                                                                                                                           | 061-10.712       |
| New File Number:                                                                                                                                                                                                       | CX0115492        |
| A F E Number:                                                                                                                                                                                                          | F33390           |
| Store Number:                                                                                                                                                                                                          | 09188            |
| Supervisor:                                                                                                                                                                                                            | D.R. DRAKE       |
| Tax Code:                                                                                                                                                                                                              |                  |
| 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 |                  |

| Location: FAIRBORN |               |    | OH             | S&E Proj. No.: 10.1343 | A/E No.: F33390                                                                                                                                                                                                      | Drawing No.: 82111947 | Vendor: Interrail Engineering, INC  |                               |                      |
|--------------------|---------------|----|----------------|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-------------------------------------|-------------------------------|----------------------|
| Store No.: 09188   |               |    | P.O. Number:   |                        | Date Required:                                                                                                                                                                                                       |                       | Date Shipped:                       |                               |                      |
| Qty.               | Class-Item-CD | UI | Price per Item | Total Price            | Item Description                                                                                                                                                                                                     | Quantity Shipped      | Quantity Installed<br>Date<br>Quan. | Quantity Returned<br>(Credit) | Special Instructions |
| 3                  | 670-360893-4  | EA | \$5.52         | \$16.56                | AAR/DOT NUMBER PLATE/DECAL, ORDER 3 PER PROJECT. 60 DAY LEAD TIME. SUPPLIED BY S'TRAN.                                                                                                                               |                       |                                     |                               |                      |
| 1                  | 165-006505-4  | EA | \$1,075.23     | \$1,075.23             | AC SERVICE, COMPLETE LESS METER BASE, ASSEMBLED ON 30' POLE                                                                                                                                                          |                       |                                     |                               |                      |
| 13                 | 105-288384-4  | EA | \$276.34       | \$3,592.42             | BATTERY, GNB 368AH MODEL 50G15 SINGLE CELL 2.25 VOLTS, FOR USE WITH CROSSINGS DESIGNED AFTER 09/09                                                                                                                   |                       |                                     |                               |                      |
| 3                  | 001-000011-4  | EA | \$5,000.00     | \$15,000.00            | 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                                                                                                                                                     |                       |                                     |                               |                      |
| 350                | 465-939422-4  | LF | \$3.17         | \$1,109.50             | CABLE, UG 12 CONDUCTOR NO 14 AWG SOLID EACH CONDUCTOR WITH 5/64 IN INSULATION 10 MIL                                                                                                                                 |                       |                                     |                               |                      |
| 350                | 465-292862-4  | LF | \$1.54         | \$539.00               | CABLE, UG 2-6 TWISTED, S-23 OKONITE 113-12-3933 SOLID TINNED CONDUCTOR                                                                                                                                               |                       |                                     |                               |                      |
| 350                | 465-292929-4  | LF | \$4.64         | \$1,624.00             | CABLE, UG 5 COND. NO. 6 AWG SOLID COPPER CABLE TO MEET NS CORP. SPEC. FOR SIGNAL                                                                                                                                     |                       |                                     |                               |                      |
| 350                | 465-791835-4  | FT | \$3.93         | \$1,375.50             | CABLE, UG AC ENTRANCE 3C#6-7X OKONITE FMPF-L 094-078 TR W/G 1 X 8 TX W010 BRZ TAPE 600V PRODUCT CODE 206-11-6070                                                                                                     |                       |                                     |                               |                      |
| 80                 | 165-544477-4  | FT | \$2.11         | \$168.80               | CONDUIT, 4"x10' PVC, SCHEDULE 80 BELL CONNECTOR AT ONE END, 1/2 PT. GLUE IN KIT 670-123298-4                                                                                                                         |                       |                                     |                               |                      |
| 2                  | 670-664917-4  | EA | \$80.28        | \$160.56               | 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 |                       |                                     |                               |                      |
| 2                  | 670-632520-4  | EA | \$70.94        | \$141.88               | 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 |                       |                                     |                               |                      |

APPROVED BY STATE

APPROVED BY RAILROAD

CAR NUMBER

SEAL NUMBER

| Location: FAIRBORN |               |    |                | OH          | S&E Proj. No.: 10.1343                                                                                                                                                                                                                 | A/E No.: F33390  | Drawing No.: 82111947         | Vendor: Interrail Engineering, INC |                      |  |  |
|--------------------|---------------|----|----------------|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-------------------------------|------------------------------------|----------------------|--|--|
| Store No.: 09188   |               |    |                | 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                  | 670-793404-4  | 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 | \$40.40        | \$161.60    | COVER, FOR 1 WAY FLASHING LIGHT ASSY, 18 OZ. BLACK VINYL COATED NYLON. ===TO COVER 2 LAMPS===                                                                                                                                          |                  |                               |                                    |                      |  |  |
| 1                  | 670-986650-4  | EA | \$341.80       | \$341.80    | DISPOSAL. CONSTRUCTION DEBRIS AND CLEANING X'ING EQUIPMENT CONTAINER                                                                                                                                                                   |                  |                               |                                    |                      |  |  |
| 1                  | 670-000004-4  | EA | \$700.00       | \$700.00    | FCC LICENSE FOR MONITOR/RADIO                                                                                                                                                                                                          |                  |                               |                                    |                      |  |  |
| 8                  | 670-000003-4  | EA | \$255.85       | \$2,046.80  | FILL/STONE #57, QUANTITY IS BASED ON TRUCK LOAD PLUS DELIVERY COST                                                                                                                                                                     |                  |                               |                                    |                      |  |  |
| 2                  | 670-015231-4  | EA | \$594.49       | \$1,188.98  | FOUNDATION, DIXIE S-2 GATE 2'6"X2'6"X5'6" ASSEMBLED                                                                                                                                                                                    |                  |                               |                                    |                      |  |  |
| 2                  | 670-257031-4  | EA | \$421.88       | \$843.76    | 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                  | 670-675667-4  | EA | \$30,186.85    | \$30,186.85 | GCP4000 - 1 TRK (2TC) - REDUNDANT - 40/40 AMP WIRED RACK EQUIP. FOR 6X8 XING SHELTER, (INCL. 2 TRK CHASSIS A80465, 2 TRK MODS. A80418, 2-SSCC A80405, 2 CPU A80403, 1 SEAR A80410, 1 DISPLAY A80407, 2-40 AMP CHARGERS) IPN: 003131-1X |                  |                               |                                    |                      |  |  |
| 1                  | 670-477991-4  | EA | \$410.00       | \$410.00    | KIT, GROUNDING ASSY FOR AL I/S INCLUDES 8 GRD RDS,200#AWIRE,12 4 WIRE ONE-SHOTS. ERICO SBK206                                                                                                                                          |                  |                               |                                    |                      |  |  |
| 1                  | 670-123298-4  | EA | \$336.04       | \$336.04    | 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, JNE 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                                                                                                                                                         |                  |                               |                                    |                      |  |  |
| 6                  | 165-643547-4  | EA | \$5.75         | \$34.50     | LAMP, 18 WATT 10 VOLT S-11 SC BAY 18S11/1SC CLEAR RWY SIGNAL UJ-71463 GE                                                                                                                                                               |                  |                               |                                    |                      |  |  |
| 4                  | 255-590880-4  | EA | \$17.57        | \$70.28     | LOCK, AMERICAN LOCK MODEL H-10KA KEYED ALIKE TO PRIVATE KEYWAY D456 AND STAMPED "NS SIG"                                                                                                                                               |                  |                               |                                    |                      |  |  |
| 2                  | 670-637778-4  | EA | \$1,265.30     | \$2,530.60  | MAST, 5" ALUMINUM 13'10" WITH DOUBLE JCT. BOX BASE. S'TRAN P# 070519-11AX.                                                                                                                                                             |                  |                               |                                    |                      |  |  |
| 2                  | 670-850933-4  | EA | \$3,925.06     | \$7,850.12  | MECHANISM, GATE MODEL S-60, WITH DEFROSTER AND MINI TRACKSIDE SENSOR S'TRAN # 0740007-X002B3                                                                                                                                           |                  |                               |                                    |                      |  |  |

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

| Location: FAIRBORN |               |    | OH             | S&E Proj. No.: 10.1343 | A/E No.: F33390                                                                                                                                                          | Drawing No.: 82111947 | Vendor: Interrail Engineering, INC |                            |                      |
|--------------------|---------------|----|----------------|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|------------------------------------|----------------------------|----------------------|
| Store No.: 09188   |               |    | 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                  | 000-000000-4  | EA | \$5,000.00     | \$10,000.00            | MISC. EXPENSE, UNDERGROUND BORING                                                                                                                                        |                       |                                    |                            |                      |
| 2                  | 670-001347-4  | EA | \$57.10        | \$114.20               | PACKAGE, HARDWARE SIGN 5 IN. MOUNTING, SERRMI A1250-5, HARMON @200965-000, OR                                                                                            |                       |                                    |                            |                      |
| 1                  | 165-902002-4  | EA | \$303.43       | \$303.43               | PROTECTOR, SURGE 120/240VAC, ERICO P/N EPD120/240TDFL                                                                                                                    |                       |                                    |                            |                      |
| 4                  | 465-002899-4  | EA | \$39.71        | \$158.84               | REEL, CABLE DISPOSABLE FOR CROSSING SIGNAL PACKAGES                                                                                                                      |                       |                                    |                            |                      |
| 2                  | 435-805560-4  | EA | \$2.83         | \$5.66                 | SAND, 25LB BAG FOR CABLE ENTRANCE INTO THE SHELTER                                                                                                                       |                       |                                    |                            |                      |
| 1                  | 670-102061-4  | EA | \$362.51       | \$362.51               | SEARIII, ( EBELL ) - CROSSING BELL INCLUDES BELL SENSOR FOR SEAR MONITORING SAFETRAN 8000-80301-0002                                                                     |                       |                                    |                            |                      |
| 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 | \$9,383.92     | \$9,383.92             | SHELTER, 6'X8' ALUMN FARADAY W/CABLE CHUTES BEHIND TERMINAL BOARD, W/1EA EQUIPMENT RACK, W/GEN RECEPTICAL, BREAKER BOX GFI OUTLET FOR LAPTOP SHELF SAFETRAN 058400-68-85 |                       |                                    |                            |                      |
| 2                  | 670-586967-4  | EA | \$41.70        | \$83.40                | SHUNT COVER W/LAG SCREWS, 19"X19", SERRMI #40271, ORDER 1 PER SHUNT                                                                                                      |                       |                                    |                            |                      |
| 2                  | 670-776912-4  | EA | \$580.80       | \$1,161.60             | SHUNT, MULTI-FREQ. #62780-8621 SAFETRAN NARROW BAND-LOW LOADING                                                                                                          |                       |                                    |                            |                      |
| 2                  | 670-393331-4  | EA | \$37.43        | \$74.86                | SIGN CROSSING MALFUNCTION ASSEMBLY FOR 4" AND 5" MAST, SAFETRAN #T17215                                                                                                  |                       |                                    |                            |                      |
| 2                  | 670-016346-4  | EA | \$146.32       | \$292.64               | SIGN, X-BUCK, HI-INTENSIVE REFLECTIVE FRT. & BACK FOR ALL STATES, SAFETRAN# 035200-91X                                                                                   |                       |                                    |                            |                      |
| 1                  | 670-330382-4  | RL | \$17.81        | \$17.81                | TAPE, THOR 3" DURATEC, ORANGE 1000' LENGTHS. "WARNING STOP DIGGING"                                                                                                      |                       |                                    |                            |                      |

Total Material: \$103,777.31

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

| SH. NO. | CONTENTS                                 |
|---------|------------------------------------------|
| NXI     | INDEX SHEET                              |
| 1       | LAYOUT                                   |
| 2       | PROFILE                                  |
| 3       | CABLE PLAN                               |
| 4       | LOAD CENTER                              |
| 5       | RECTIFIER & BATTERY                      |
| 6       | 4000 GCP 2-TK CHASSIS & MODULE LAYOUT    |
| 7       | 4000 GCP PROGRAMMING SETUP               |
| 8       | 4000 GCP PROGRAMMING SETUP               |
| 9       | CONNECTORS FOR TRACK MODULES             |
| 10      | CPU MODULE, SEAR III, GFT & VHF HOOK-UPS |
| 11      | SEAR III PROGRAMMING SETUP               |
| 12      | SSCC*1 MODULE, ILOD*1 HOOK-UP            |
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| 19      | FARADAY SHIELD 1C                        |
| 20      | HOUSE SIDE C LAYOUT                      |
| 21      | HOUSE SIDE A LAYOUT                      |
| 22      | HOUSE SIDE B & TOP VIEW LAYOUT           |

|                                                              |        |      |
|--------------------------------------------------------------|--------|------|
| IN SERVICE                                                   | SIGNED | DATE |
| <input type="checkbox"/> S&E ENGINEERING COPY                |        |      |
| <input type="checkbox"/> CONSTRUCTION OFFICE COPY            |        |      |
| <input type="checkbox"/> RETURN TO S&E ENG. AFTER COMPLETION |        |      |
| <input type="checkbox"/> FIELD COPY                          |        |      |
| <input type="checkbox"/> RETURN TO CASE AFTER COMPLETION     |        |      |
| <input type="checkbox"/> PROJECT ENGINEER COPY               |        |      |

INDEX SHEET 1

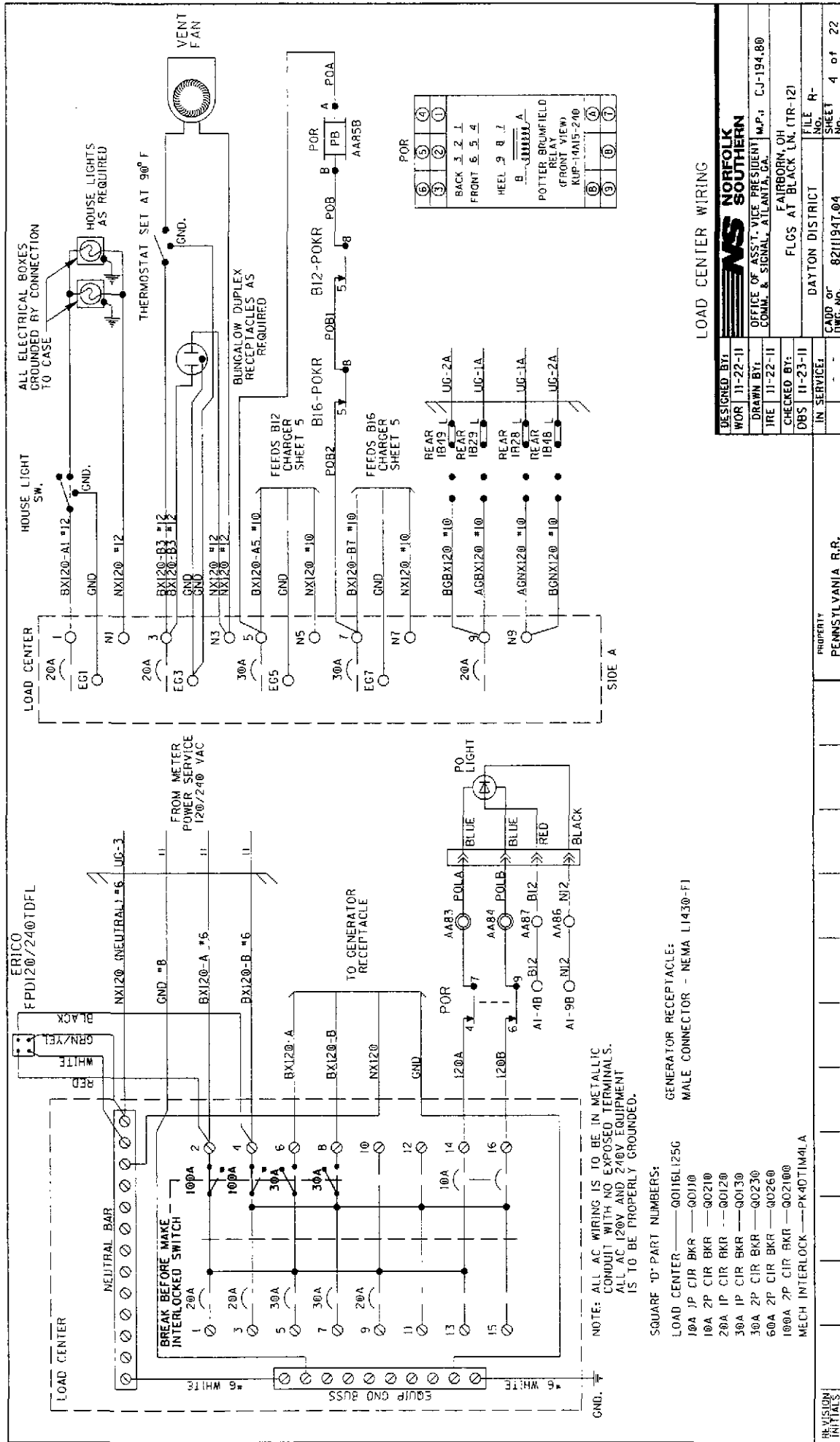
|                   |                            |                                                                                                                                                                                                                                                                                                                       |
|-------------------|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DESIGNED BY:      | WOR 11-22-11               |  <b>NORFOLK SOUTHERN</b><br>OFFICE OF ASST. VICE PRESIDENT<br>COMM. & SIGNAL, ATLANTA, GA. M.P.: C-J-194.80<br>FAIRBORN, OH<br>FLGS AT BLACK L.N. (TR-12)<br>DAYTON DISTRICT<br>FILE NO. R-<br>CADD OF 8211947.NXI<br>SHEET 1 of 1 |
| DRAWN BY:         | JRE 11-22-11               |                                                                                                                                                                                                                                                                                                                       |
| CHECKED BY:       | OBS 11-23-11               |                                                                                                                                                                                                                                                                                                                       |
| IN SERVICE:       | - -                        |                                                                                                                                                                                                                                                                                                                       |
| REVISION INITIALS | PROPERTY PENNSYLVANIA R.R. |                                                                                                                                                                                                                                                                                                                       |











# LOAD CENTER WIRING

|               |                 |
|---------------|-----------------|
| DESIGNED BY:  | WOR 11-22-11    |
| DRAWN BY:     | IRE 11-22-11    |
| CHECKED BY:   | DBS 11-23-11    |
| IN SERVICE:   | -               |
| FILE NO.:     | DAYTON DISTRICT |
| SHEET NO.:    | 8211947.04      |
| SHEET 4 of 22 |                 |

**NORFOLK SOUTHERN**

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

FLCS AT BLACK LN. (TR-12)

FAIRBORN, OH

DAYTON DISTRICT

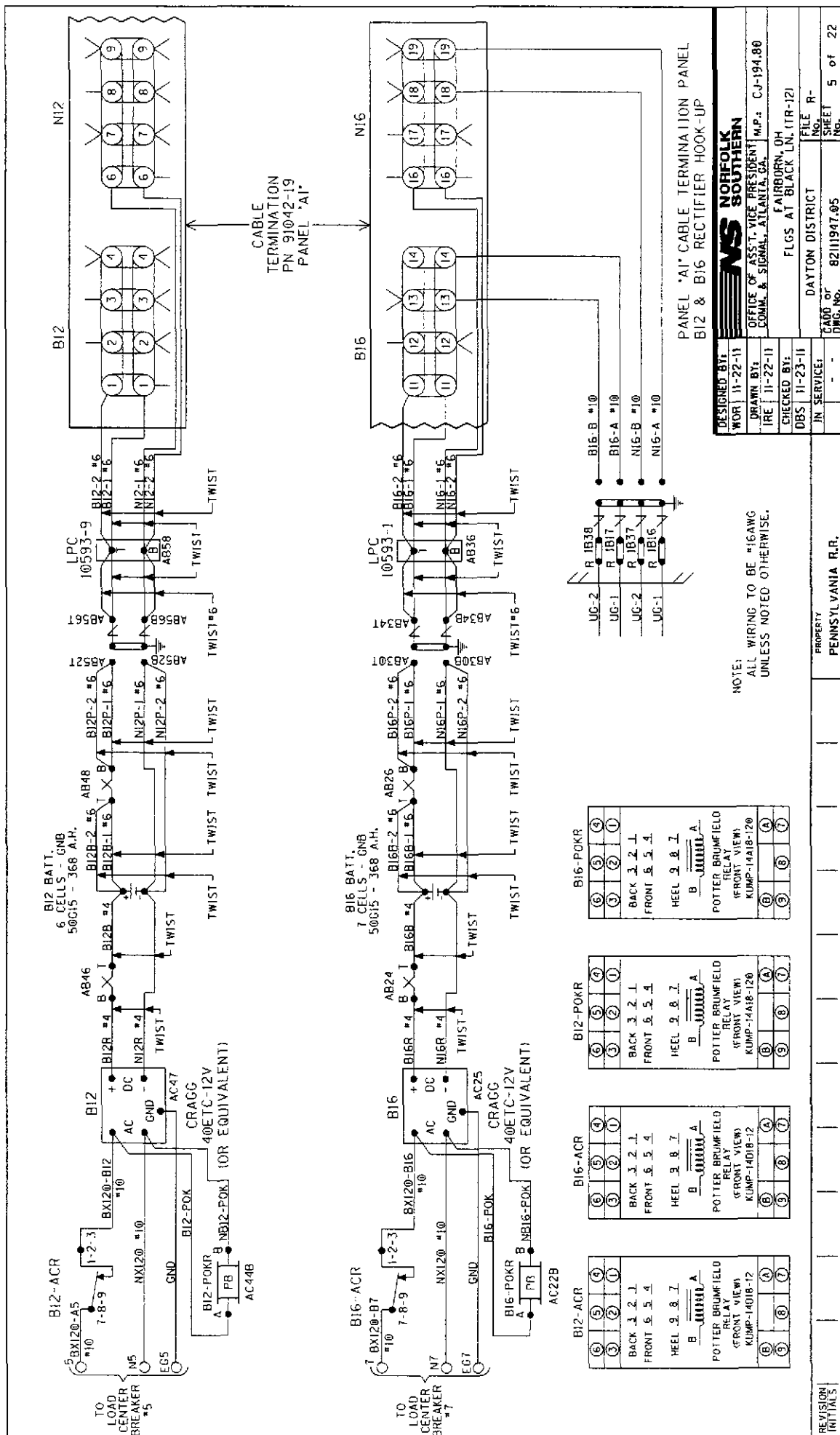
FILE NO. R-

8211947.04

8211947.04

PROPERTY: PENNSYLVANIA R.R.

REVISION INITIALS



**WARNING**  
REMOVAL OF THE SSCCIII MODULE  
WILL CAUSE THE GATES TO  
DROP BUT THE LIGHTS WILL  
NOT ACTIVATE

**CAUTION**  
ASSURE CORRECT POLARITY  
OF THE SSCCIII 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 MTR (DEFAULT)  
NO JUMPER (HEATER DISABLED)  
\* MAIN AND STANDBY MAY USE RIG IN  
TRACK 2 SLOTS (M5 AND M6)

PANEL "A2" 4000 GCP REDUNDANT  
2-TR CHASSIS AND MODULE LAYOUT!

**NORFOLK  
SOUTHERN**

OFFICE OF ASST. VICE PRESIDENT  
COMM. & SIGNAL, ATLANTA, GA. M.P.: CJ-194.80

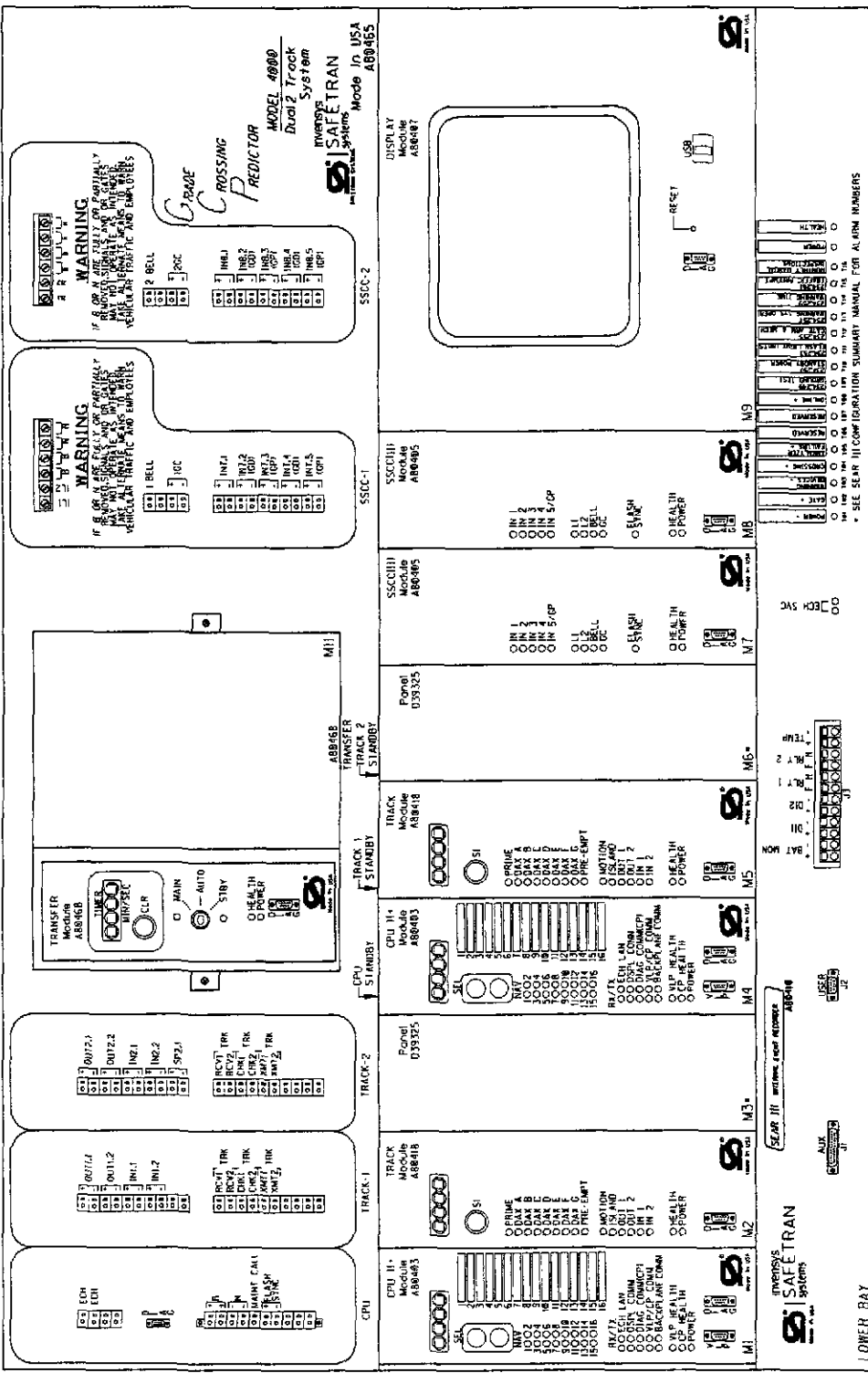
FLGS AT BLACK LN, ITR-12)

DAYTON DISTRICT

CARD OF  
DNC NO. 82111947.06

FILE R-

NO. 6 of 22



DESIGNED BY:  
WOR 11-22-11  
DRAWN BY:  
IRE 11-22-11  
CHECKED BY:  
DBS 11-23-11  
IN SERVICE: -

PROPERTY  
PENNSYLVANIA R.R.

REVISION  
INITIALS

# Program Report

Location and SIN

Unit Number: 523526V

Report Number: 14-80

SIN: 755023406616

MCF and Template Selection

MCF Name: GCP-TEX-02-1.mcf

MCF Revision: 6016435

Template = 1A:6 Trk B:

Check Numbers

Office Check Number: 450K111E036A

Control Check Number: 260100B

Based on MCF Revision 021

Program

BASIC: module configuration

Track 1: 200 = track, Not Used

Track 2: 200 = track, Not Used

Track 3: 200 = track, Not Used

Track 4: 200 = track, Not Used

Track 5: 200 = track, Not Used

Track 6: 200 = track, Not Used

Track 7: 200 = track, Not Used

Track 8: 200 = track, Not Used

Track 9: 200 = track, Not Used

Track 10: 200 = track, Not Used

Track 11: 200 = track, Not Used

Track 12: 200 = track, Not Used

Track 13: 200 = track, Not Used

Track 14: 200 = track, Not Used

Track 15: 200 = track, Not Used

Track 16: 200 = track, Not Used

Track 17: 200 = track, Not Used

Track 18: 200 = track, Not Used

Track 19: 200 = track, Not Used

Track 20: 200 = track, Not Used

Track 21: 200 = track, Not Used

Track 22: 200 = track, Not Used

Track 23: 200 = track, Not Used

Track 24: 200 = track, Not Used

Track 25: 200 = track, Not Used

Track 26: 200 = track, Not Used

Track 27: 200 = track, Not Used

Track 28: 200 = track, Not Used

Track 29: 200 = track, Not Used

Track 30: 200 = track, Not Used

Track 31: 200 = track, Not Used

Track 32: 200 = track, Not Used

Track 33: 200 = track, Not Used

Track 34: 200 = track, Not Used

Track 35: 200 = track, Not Used

Track 36: 200 = track, Not Used

Track 37: 200 = track, Not Used

Track 38: 200 = track, Not Used

Track 39: 200 = track, Not Used

Track 40: 200 = track, Not Used

Track 41: 200 = track, Not Used

Track 42: 200 = track, Not Used

GCP: track 1: Enhanced det

Track 1: Bound as Sensitivity = Off

Track 2: Speed Limiting Used = Yes

Track 3: Outbound PS timer = 20 sec

Track 4: Outbound PS timer = 20 sec

Track 5: Prearming delay = 15 sec

Track 6: Adv Appr Predn = No

Track 7: Cancel Pickup Delay = This Is

GCP: track 1: Prime

Track 1: Prime Warning Time = 30 sec

Track 2: Switch MS Lock Mode = 10

Track 3: Prime MS Lock Mode = 10

Track 4: Prime MS Lock Mode = 10

Track 5: Prime MS Lock Mode = 10

Track 6: Prime MS Lock Mode = 10

Track 7: Prime MS Lock Mode = 10

Track 8: Prime MS Lock Mode = 10

Track 9: Prime MS Lock Mode = 10

Track 10: Prime MS Lock Mode = 10

Track 11: Prime MS Lock Mode = 10

Track 12: Prime MS Lock Mode = 10

Track 13: Prime MS Lock Mode = 10

Track 14: Prime MS Lock Mode = 10

Track 15: Prime MS Lock Mode = 10

Track 16: Prime MS Lock Mode = 10

Track 17: Prime MS Lock Mode = 10

Track 18: Prime MS Lock Mode = 10

Track 19: Prime MS Lock Mode = 10

Track 20: Prime MS Lock Mode = 10

Track 21: Prime MS Lock Mode = 10

Track 22: Prime MS Lock Mode = 10

Track 23: Prime MS Lock Mode = 10

Track 24: Prime MS Lock Mode = 10

Track 25: Prime MS Lock Mode = 10

Track 26: Prime MS Lock Mode = 10

Track 27: Prime MS Lock Mode = 10

Track 28: Prime MS Lock Mode = 10

Track 29: Prime MS Lock Mode = 10

Track 30: Prime MS Lock Mode = 10

Track 31: Prime MS Lock Mode = 10

Track 32: Prime MS Lock Mode = 10

Track 33: Prime MS Lock Mode = 10

Track 34: Prime MS Lock Mode = 10

Track 35: Prime MS Lock Mode = 10

Track 36: Prime MS Lock Mode = 10

Track 37: Prime MS Lock Mode = 10

Track 38: Prime MS Lock Mode = 10

Track 39: Prime MS Lock Mode = 10

Track 40: Prime MS Lock Mode = 10

Track 41: Prime MS Lock Mode = 10

Track 42: Prime MS Lock Mode = 10

Track 43: Prime MS Lock Mode = 10

Track 44: Prime MS Lock Mode = 10

Track 45: Prime MS Lock Mode = 10

Track 46: Prime MS Lock Mode = 10

Track 47: Prime MS Lock Mode = 10

Track 48: Prime MS Lock Mode = 10

Track 49: Prime MS Lock Mode = 10

Track 50: Prime MS Lock Mode = 10

ADVANCED: MS restart

MS/GCP Restart Used = No

ADVANCED: out of service

Control = Display-005 IPs

005 timeout = 1 hr

ADVANCED: out of service ?

1) 005 Control = 005 Input

ADVANCED: track wrap circuits

wrap LOS timer = 5 sec

Track 1: wrap Used = No

ADVANCED: track overrides

Track 1: 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

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

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

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

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

Int 33: Set by = Not Used

Int 34: Set by = Not Used

Int 35: Set by = Not Used

Int 36: Set by = Not Used

Int 37: Set by = Not Used

Int 38: Set by = Not Used

Int 39: Set by = Not Used

Int 40: Set by = Not Used

Int 41: Set by = Not Used

ADVANCED: site options

Daylight Savings = On

Maint Call Not Used = No

Emergency Activate IP = No

EZ/EX Point Change = 3

Continued on next sheet

## 4000 GCP PROGRAMMING SETUP

|              |                  |                                                                                                                                                                                                                             |
|--------------|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DESIGNED BY: | WOR 11-22-II     |  <b>NORFOLK SOUTHERN</b><br>OFFICE OF ASST. VICE PRESIDENT<br>COMM. & SIGNALS, ATLANTA, GA.<br>FAIRBORN, OH<br>FLGS AT BLACK LN, ITR-121 |
| DRAWN BY:    | JRE 11-22-II     |                                                                                                                                                                                                                             |
| CHECKED BY:  | DBS 11-23-II     |                                                                                                                                                                                                                             |
| IN SERVICE:  | -                |                                                                                                                                                                                                                             |
| FILE NO.     | DAYTON DISTRICT  | 8211947.07<br>7 of 22                                                                                                                                                                                                       |
| SHEET NO.    | CADD or DWG. No. |                                                                                                                                                                                                                             |

PROPERTY  
PENNSYLVANIA R.R.

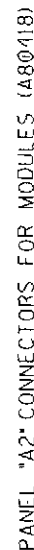
REVISION  
INITIALS

[illegible]

4000 GCP PROGRAMMING SETUP

|                  |                                |  |
|------------------|--------------------------------|--|
| DESIGNED BY:     | NS NORFOLK SOUTHERN            |  |
| WORKED BY:       | OFFICE OF ASST. VICE PRESIDENT |  |
| DRAWN BY:        | COMM. & SIGNAL, ATLANTA, GA.   |  |
| FILE NO.         | M.P.: C-J-194.80               |  |
| CHECKED BY:      | FAIRBORN, OH                   |  |
| DWS 11-23-II     | FLGS AT BLACK LN. (1R-12)      |  |
| IN SERVICE:      | DAYTON DISTRICT                |  |
| CARD OR DWG. NO. | FILE NO.                       |  |
| -                | SHEET 8 of 22                  |  |

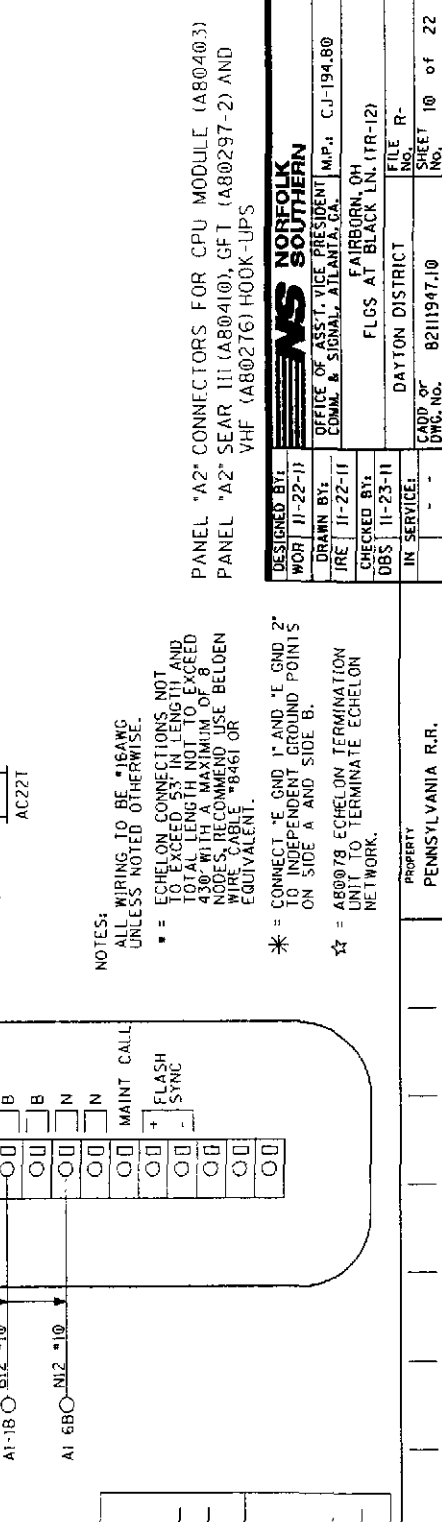
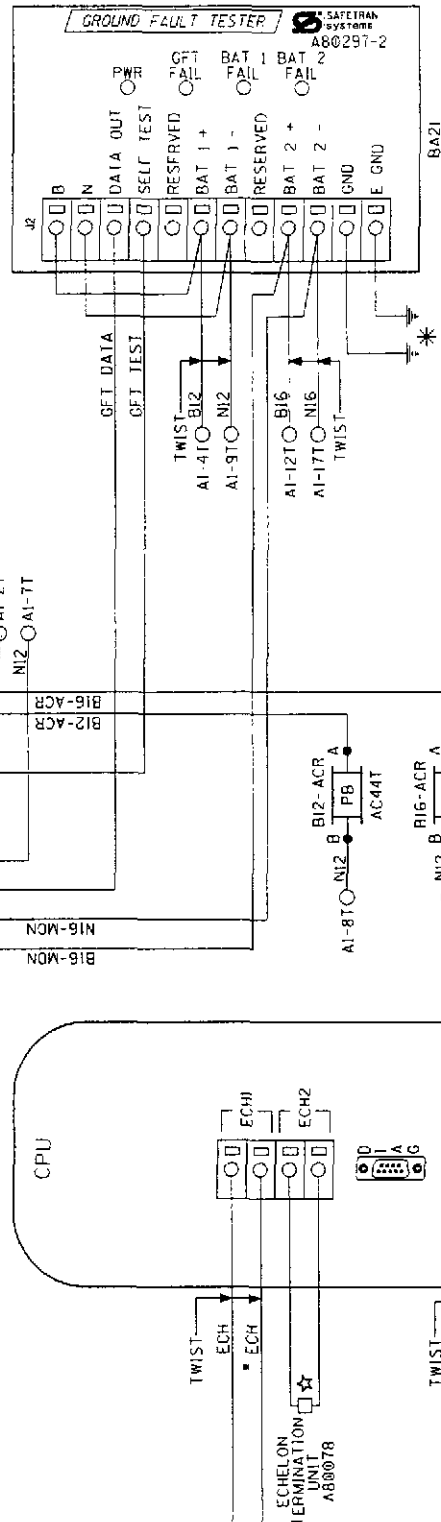
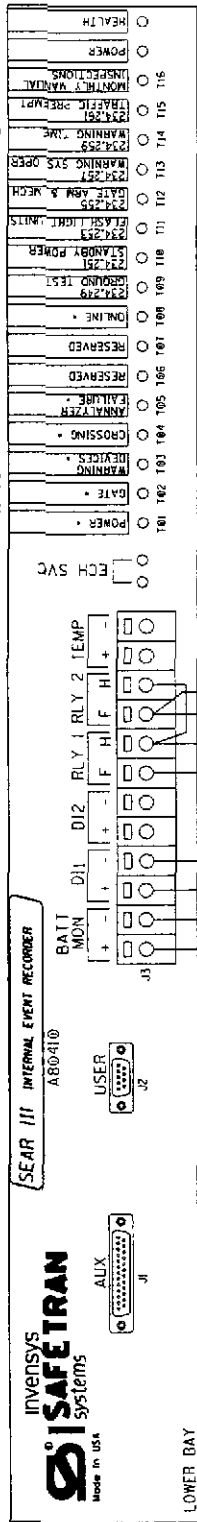
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NOTE:  
ALL WIRING TO BE #16AWG  
UNLESS NOTED OTHERWISE.

|                                                             |                      |                               |                                                                |                |                                                                                                                |
|-------------------------------------------------------------|----------------------|-------------------------------|----------------------------------------------------------------|----------------|----------------------------------------------------------------------------------------------------------------|
| NOTE:<br>ALL WIRING TO BE #16AWG<br>UNLESS NOTED OTHERWISE. | REVISION<br>INITIALS | PROPERTY<br>PENNSYLVANIA R.R. | DESIGNED BY:                                                   | WOR 11-22-11   |  <b>MS NORFOLK SOUTHERN</b> |
|                                                             |                      |                               | DRAWN BY:                                                      | IRE 11-22-11   |                                                                                                                |
|                                                             |                      |                               | CHECKED BY:                                                    |                |                                                                                                                |
|                                                             |                      |                               | OBS 11-23-11                                                   |                |                                                                                                                |
|                                                             |                      |                               | IN SERVICE:                                                    |                |                                                                                                                |
|                                                             |                      |                               |                                                                |                |                                                                                                                |
|                                                             |                      |                               | OFFICE OF ASST. VICE PRESIDENT<br>COMM. & SIGNAL, ATLANTA, GA. | 4P-4           | CJ-194,80                                                                                                      |
|                                                             |                      |                               | FAIRBORN, OH<br>FLOPS AT BLACK LN. (TR-12)                     |                |                                                                                                                |
|                                                             |                      |                               | DAYTON DISTRICT                                                | FILE R-<br>NO. |                                                                                                                |
|                                                             |                      |                               | CADD OR<br>DWG. NO.                                            | 8211947-09     | SHEET<br>No.                                                                                                   |
|                                                             |                      |                               |                                                                |                | 9 of 22                                                                                                        |

• SEE SEAR III CONFIGURATION SUMMARY MANUAL FOR ALARM NUMBERS



PANEL "A2" CONNECTORS FOR CPU MODULE (A80403)  
PANEL "A2" SEAR III (A80410), GFT (A80297-2) AND  
VHF (A80275) HOOK-UPS

|              |                 |          |
|--------------|-----------------|----------|
| DESIGNED BY: | WJR             | 11-22-11 |
| DRAWN BY:    | WJR             | 11-22-11 |
| CHECKED BY:  | WJR             | 11-23-11 |
| IN SERVICE:  | WJR             | 11-23-11 |
| FILE NO.     | DAYTON DISTRICT |          |
| REVISION     | INITIALS        |          |
| SHEET        | 10              | of 22    |

**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 BELOEN WIRE CABLE \*8461 OR EQUIVALENT.  
\* = CONNECT \*E GND 1" AND \*E GND 2" TO INDEPENDENT GROUND POINTS ON SIDE A AND SIDE B.  
☆ = A80078 ECHOLON TERMINATION UNIT TO TERMINATE ECHOLON NETWORK.

**PROPERTY**  
PENNSYLVANIA R.R.

**REVISION**  
INITIALS



TO CONFIGURE, RE-ENTER PRESS SITE SETUP KEY.  
USE PROCEED TO MAKE SELECTIONS. WHEN MADE,  
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                | BLACK LN. (TR-12)         |
| MILEPOST                 | CJ-194.80                 |
| DOT #                    | 523 526V                  |
| TESTER TYPE              | CROSSING                  |
| DATE FORMAT              | MM-DD-YYYY                |
| TEMP FORMAT              | FAHRENHEIT                |
| INDICATE HOLD (SEC)      | 0                         |
| INDICATE REFRESH (SEC)   | 60                        |
| SITE ATCS                | 7.550.234.066.03.01       |
| SITE TYPE                | NO COMMUNICATION          |
| OFFICE ATCS ADDRESS      | 2.550.000.000.00          |
| PRIMARY HOP ADDR         | 7.000.000.000.00          |
| BACKUP HOP ADDR 1        | 7.000.000.000.00          |
| BACKUP HOP ADDR 2        | 7.000.000.000.00          |
| POLL ID                  | 1                         |
| MODE                     | GEN/ATCS                  |
| WAMS XID                 | DISABLED                  |
| OFFICE COMM DEVICE       | MCM (ECHO/ON)             |
| RADIO ATCS ADDR          | 7.000.000.000.00          |
| 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?                           | NO                      |  |
| AND 7 USED AS XR?                           | NO                      |  |
| AND 8 USED AS XR?                           | NO                      |  |
| XR CONTROLLED BY FOREIGN RR                 |                         |  |
| ENTRANCE GATES                              | 2                       |  |
| GATES CONTROLLED BY FOREIGN RR              |                         |  |
| GATE POSITION FAIL TIME (SECONDS)           | 20                      |  |
| BATTERY BANKS                               | 2                       |  |
| BATTERY MON USED                            | YES                     |  |
| INTERNAL CROSSING CONTROLLERS               | 2                       |  |
| EXTERNAL CROSSING CONTROLLERS               | 0                       |  |
| VHF COMMUNICATOR                            | YES                     |  |
| DTMF ACTIVATION                             | YES                     |  |
| ACTIVATION CODE                             | 526                     |  |
| ACTIVATION TIMEOUT (SECONDS)                | 60                      |  |
| IL00 MODULES                                | 2                       |  |
| ANY LED BULBS USED                          | NO                      |  |
| AUTO INSPECTIONS                            | NO                      |  |
| BELL SENSORS                                | 1                       |  |
| BELL SENSOR TSS1                            | YES                     |  |
| BELL SENSOR TSS2                            | YES                     |  |
| BELL SENSOR TSS3                            | NO                      |  |
| BELL SENSOR TSS4                            | NO                      |  |
| BELL SENSOR TSS5                            | NO                      |  |
| BELL SENSOR TSS6                            | NO                      |  |
| BELL SENSOR TSS7                            | NO                      |  |
| BELL SENSOR TSS8                            | NO                      |  |

# CONTROL SYSTEM CONFIGURATION MENU QUESTIONS (CONT.)

|                           |                |
|---------------------------|----------------|
| BELL ON                   | GATES LOWERING |
| GFT'S                     | YES            |
| BATTERIES ON GFT1         | 2              |
| GATE TIP SENSORS          | YES            |
| RTU                       | NO             |
| VHF VOICE CHANNEL         | 2              |
| VHF DATA CHANNEL          | 2              |
| USE CELL MODEM            | NO             |
| NON-CRITICAL FEATURE      | NO             |
| FULL APPROACH MOVES ALARM | ACTIVATE       |

| PROGRAM MENU QUESTIONS | PROGRAM |
|------------------------|---------|
| EDIT DIGITAL INPUTS    | NO      |
| EDIT BATTERIES         | NO      |
| EDIT RELAYS            | NO      |
| EDIT INDICATOR LEDS    | NO      |
| EDIT TEST LEDS         | NO      |
| EDIT IL00 SENSORS      | NO      |
| EDIT VHF SETTINGS      | NO      |
| CCP4K ATCS SUBRODE     | 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:     | WJR 11-22-11 |
| DRAWN BY:        | IRE 11-22-11 |
| CHECKED BY:      | OBS 11-23-11 |
| IN SERVICE:      | - -          |
| CADD OR DWG. NO. | 8211947J1    |
| FILE NO.         | R-           |
| SHEET            | 11 of 22     |



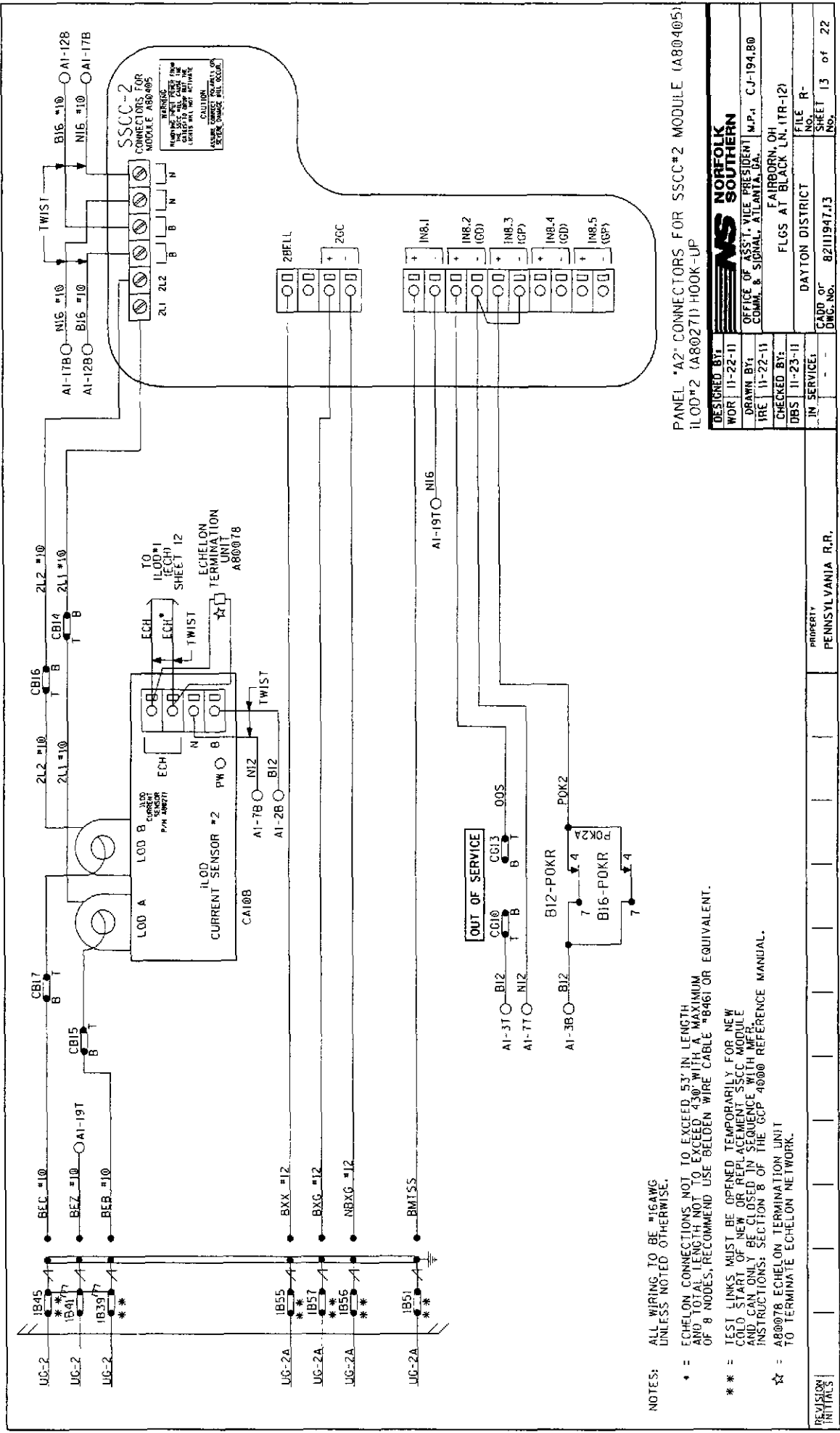
OFFICE OF ASST. VICE PRESIDENT  
COMM. & SIGNAL, ATLANTA, GA. N.P.1 CJ-194.80

FAIRBORN, OH  
FLCS AT BLACK LN. (TR-12)

PROPERTY  
PENNSYLVANIA R.R.

REVISION  
INITIALS



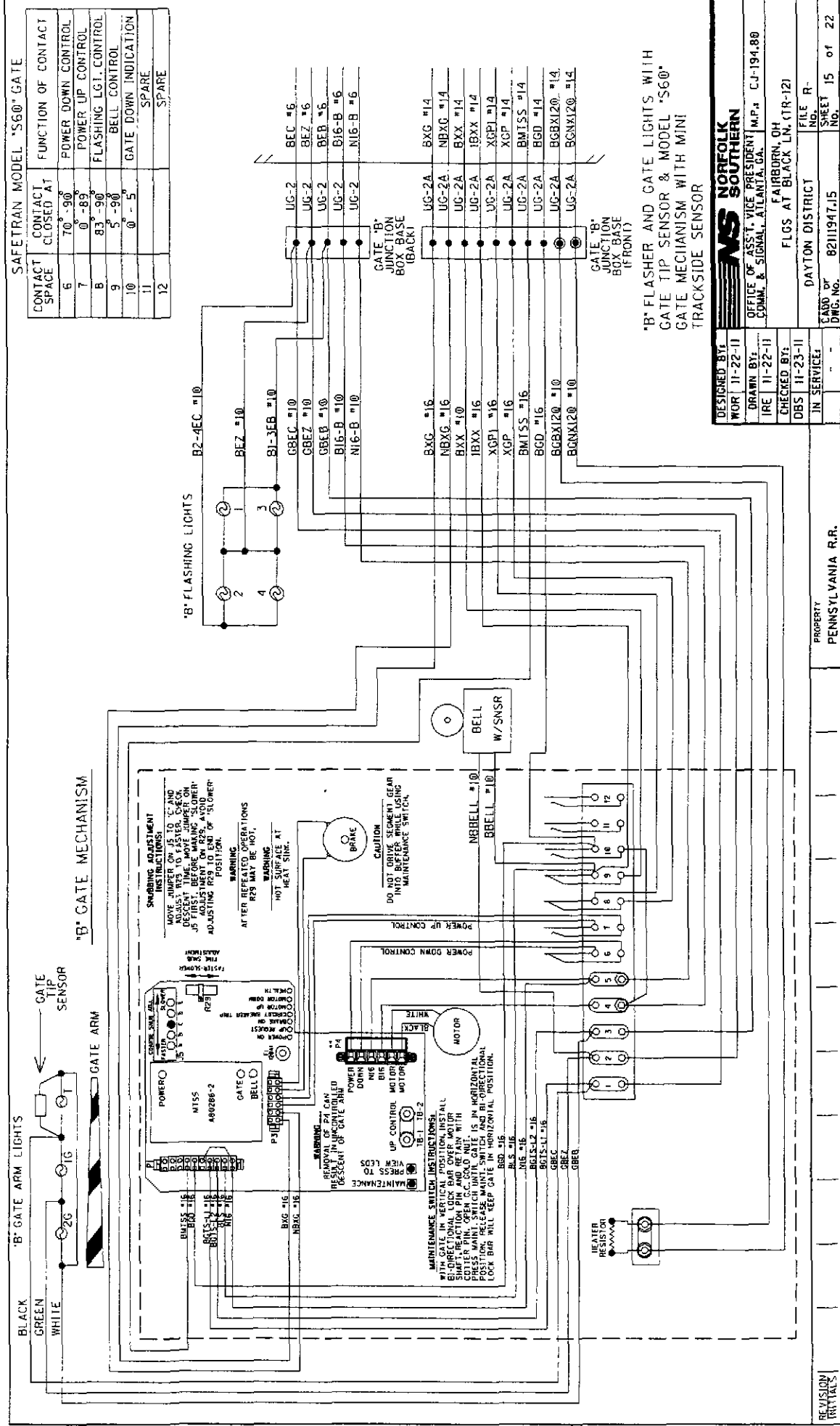


DESIGNED BY: **NS NORFOLK SOUTHERN**  
 WDR: 11-22-11  
 DRAWN BY: **NS NORFOLK SOUTHERN**  
 IRE: 11-22-11  
 CHECKED BY: **NS NORFOLK SOUTHERN**  
 DBS: 11-23-11  
 IN SERVICE: **NS NORFOLK SOUTHERN**  
 FILE NO.: **NS NORFOLK SOUTHERN**  
 DAYTON DISTRICT  
 CADW. NO.: 8211947J3  
 SHEET 13 of 22

PANEL "A2" CONNECTORS FOR SSCC-2 MODULE (A80405)  
 ILOD-2 (A80271) HOOK-UP

- 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 BELDEN WIRE CABLE "8461 OR EQUIVALENT.
  - \*\* = TEST LINKS MUST BE OPENED TEMPORARILY FOR NEW COLD START OF NEW OR REPLACEMENT SSCC MODULE AND CAN ONLY BE CLOSED IN SEQUENCE WITH MFR. INSTRUCTIONS: SECTION 8 OF THE GCP 40000 REFERENCE MANUAL.
  - ☆ = A80078 ECHOLON TERMINATION UNIT TO TERMINATE ECHOLON NETWORK.





"B" GATE ARM LIGHTS

| CONTACT SPACE | CONTACT CLOSED AT | FUNCTION OF CONTACT   |
|---------------|-------------------|-----------------------|
| 6             | 70° - 90°         | POWER DOWN CONTROL    |
| 7             | 0° - 85°          | POWER UP CONTROL      |
| 8             | 83° - 90°         | FLASHING LGT. CONTROL |
| 9             | 5° - 90°          | BELL CONTROL          |
| 10            | 0° - 5°           | GATE DOWN INDICATION  |
| 11            |                   | SPARE                 |
| 12            |                   | SPARE                 |

"B" FLASHING LIGHTS

| CONTACT SPACE | CONTACT CLOSED AT | FUNCTION OF CONTACT   |
|---------------|-------------------|-----------------------|
| 6             | 70° - 90°         | POWER DOWN CONTROL    |
| 7             | 0° - 85°          | POWER UP CONTROL      |
| 8             | 83° - 90°         | FLASHING LGT. CONTROL |
| 9             | 5° - 90°          | BELL CONTROL          |
| 10            | 0° - 5°           | GATE DOWN INDICATION  |
| 11            |                   | SPARE                 |
| 12            |                   | SPARE                 |

"B" GATE MECHANISM

| CONTACT SPACE | CONTACT CLOSED AT | FUNCTION OF CONTACT   |
|---------------|-------------------|-----------------------|
| 6             | 70° - 90°         | POWER DOWN CONTROL    |
| 7             | 0° - 85°          | POWER UP CONTROL      |
| 8             | 83° - 90°         | FLASHING LGT. CONTROL |
| 9             | 5° - 90°          | BELL CONTROL          |
| 10            | 0° - 5°           | GATE DOWN INDICATION  |
| 11            |                   | SPARE                 |
| 12            |                   | SPARE                 |

"B" FLASHER AND GATE LIGHTS WITH  
GATE TIP SENSOR & MODEL "S60"  
GATE MECHANISM WITH MINI  
TRACKSIDE SENSOR

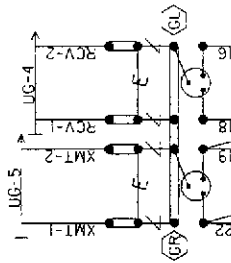
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DRAWN BY: 11-22-11  
CHECKED BY: 11-23-11  
IN SERVICE: - -

**NORFOLK SOUTHERN**  
OFFICE OF ASST. VICE PRESIDENT  
COMM. & SIGNAL, ATLANTA, GA.  
FAIRBORN, OH  
FLGS AT BLACK LN. (1R-12)  
DAYTON DISTRICT  
CADD No. 82111947J5  
SHEET 15 of 22

PROPERTY  
PENNSYLVANIA R.R.

REVISION  
INITIALS

"BB"



~~E~~ = Heavy Duty Equalizer (022700-1X)  
 Clear view  
 Z = Lightning Arrester (022585-1X)  
 (C) = LPC-10560-51

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

**NORFOLK  
SOUTHERN**

PROPERTY  
PENNSYLVANIA R.R.

PROPERTY  
PENNSYLVANIA R.R.

REAR VIEW OF LEFT TWO ROWS TERMINAL BOARD 1

"1A"

"1B"



(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.

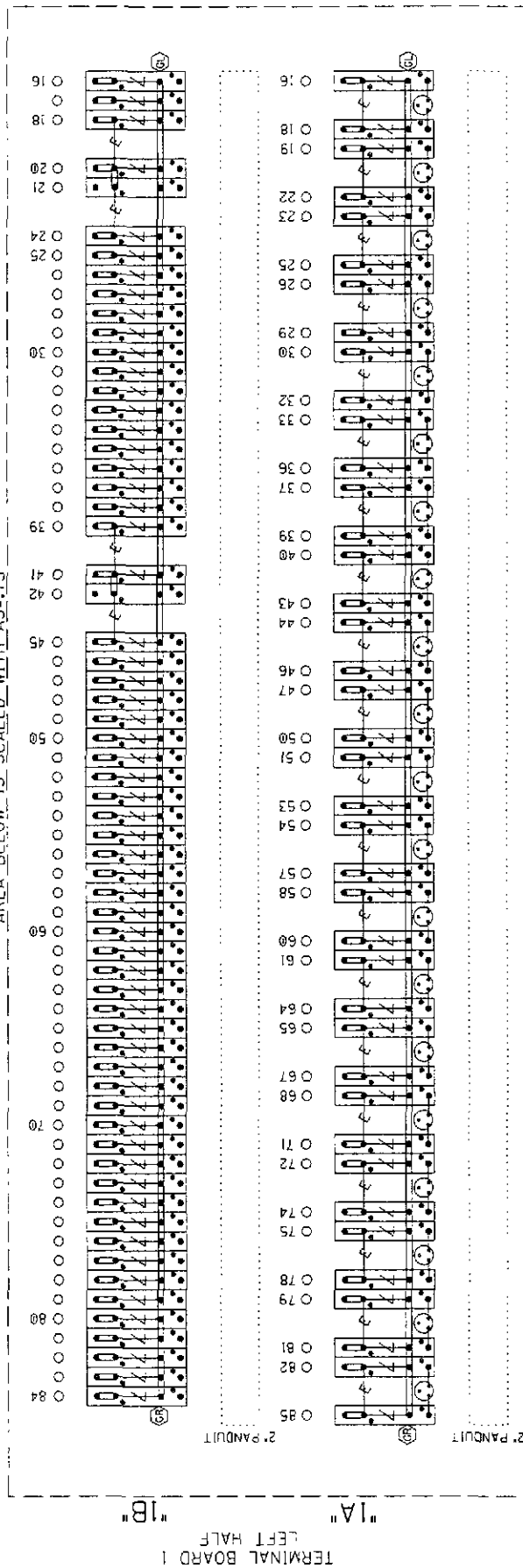
\* = CLOSED DURING WINTER MONTHS

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

|                               |  |                                                                                |  |
|-------------------------------|--|--------------------------------------------------------------------------------|--|
| DESIGNED BY:<br>WOR 11-22-11  |  | <b>NORFOLK SOUTHERN</b>                                                        |  |
| DRAWN BY:<br>JRE 11-22-11     |  | OFFICE OF ASST. VICE PRESIDENT<br>COMM. & SIGNAL, ATLANTA, GA. M.P.1 CJ-194.80 |  |
| CHECKED BY:<br>DBS 11-23-11   |  | FAIRBORN, OH<br>FLGS AT BLACK LN. (TR-12)                                      |  |
| IN SERVICE:                   |  | DAYTON DISTRICT                                                                |  |
| PROPERTY<br>PENNSYLVANIA R.R. |  | FILE R-<br>NO. 8211947.17                                                      |  |
| REVISION<br>INITIALS          |  | SHEET 17 of 22                                                                 |  |

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  
LEFT TWO ROWS

FARADAY SHIELD DETAIL - 1A & 1B

|                              |                                                                                                                                                                                                                                         |
|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DESIGNED BY:<br>WOR 11-22-11 | <b>NORFOLK SOUTHERN</b><br>OFFICE OF ASST. VICE PRESIDENT<br>COMM. & SIGNAL, ATLANTA, GA. M.P. CJ-194.80<br>FAIRBURN, OH<br>FLCS AT BLACK LN, (TR-12)<br>DAYTON DISTRICT<br>FILE R-<br>CADD or SHEET No. 8211947.18<br>DWS No. 18 of 22 |
| DRAWN BY:<br>IRE 11-22-11    |                                                                                                                                                                                                                                         |
| CHECKED BY:<br>DBS 11-23-11  |                                                                                                                                                                                                                                         |
| IN SERVICES:<br>-            |                                                                                                                                                                                                                                         |

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

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

= INDICATES PLACEMENT  
OF PANDUIT

PROPERTY  
PENNSYLVANIA R.R.

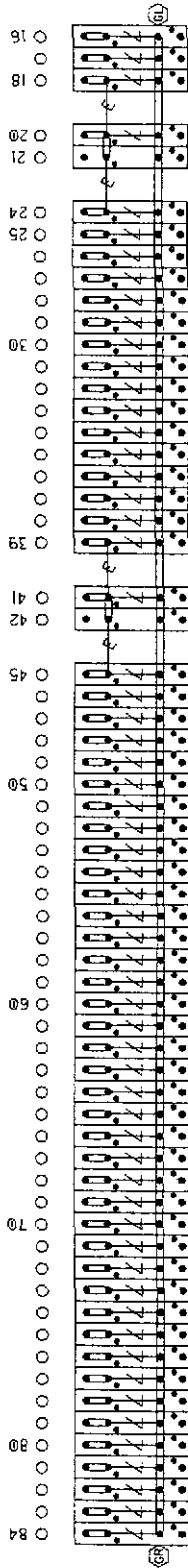
REVISION  
INITIALS



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



Heavy Duty Equalizer  
(022100-1X)

Clear view

Lightning Arrestor  
(022585-1X)

LPC-10560-51

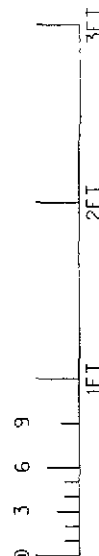
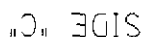
THIS SHEET IS FOR REFERENCE ONLY,  
TO REFLECT HOW THE FARADAY SHIELD  
IS PREDRILLED. ONLY INSTALL AND USE  
THE TERMINALS NEEDED.

INDICATES PLACEMENT  
OF PANDUIT

TERMINAL BOARD 1  
RIGHT ROW  
FARADAY SHIELD DETAIL - 1C

|                              |                                                                                                                                                                                                          |
|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DESIGNED BY:<br>WOR 11-22-11 | <b>NORFOLK SOUTHERN</b><br>OFFICE OF ASST. VICE PRESIDENT<br>COMM. & SIGNAL, ATLANTA, GA.<br>FAIRBORN, OH<br>FLGS AT BLACK LN. (TR-12)<br>DAYTON DISTRICT<br>FILE R-<br>NO. 8211947,19<br>SHEET 19 of 22 |
| DRAWN BY:<br>JRE 11-22-11    |                                                                                                                                                                                                          |
| CHECKED BY:<br>DGS 11-23-11  |                                                                                                                                                                                                          |
| IN SERVICE:                  |                                                                                                                                                                                                          |

PROPERTY  
PENNSYLVANIA R.R.



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



|                                                              |                 |
|--------------------------------------------------------------|-----------------|
| OFFICE OF ASS'T. VICE PRESIDENT<br>COMM. & SIGNAL ATLANTA CA | M.P.: CJ-194.B0 |
|--------------------------------------------------------------|-----------------|

COMM. & SIGNAL, ARLANJIA, VA. FAIRBORN, OH

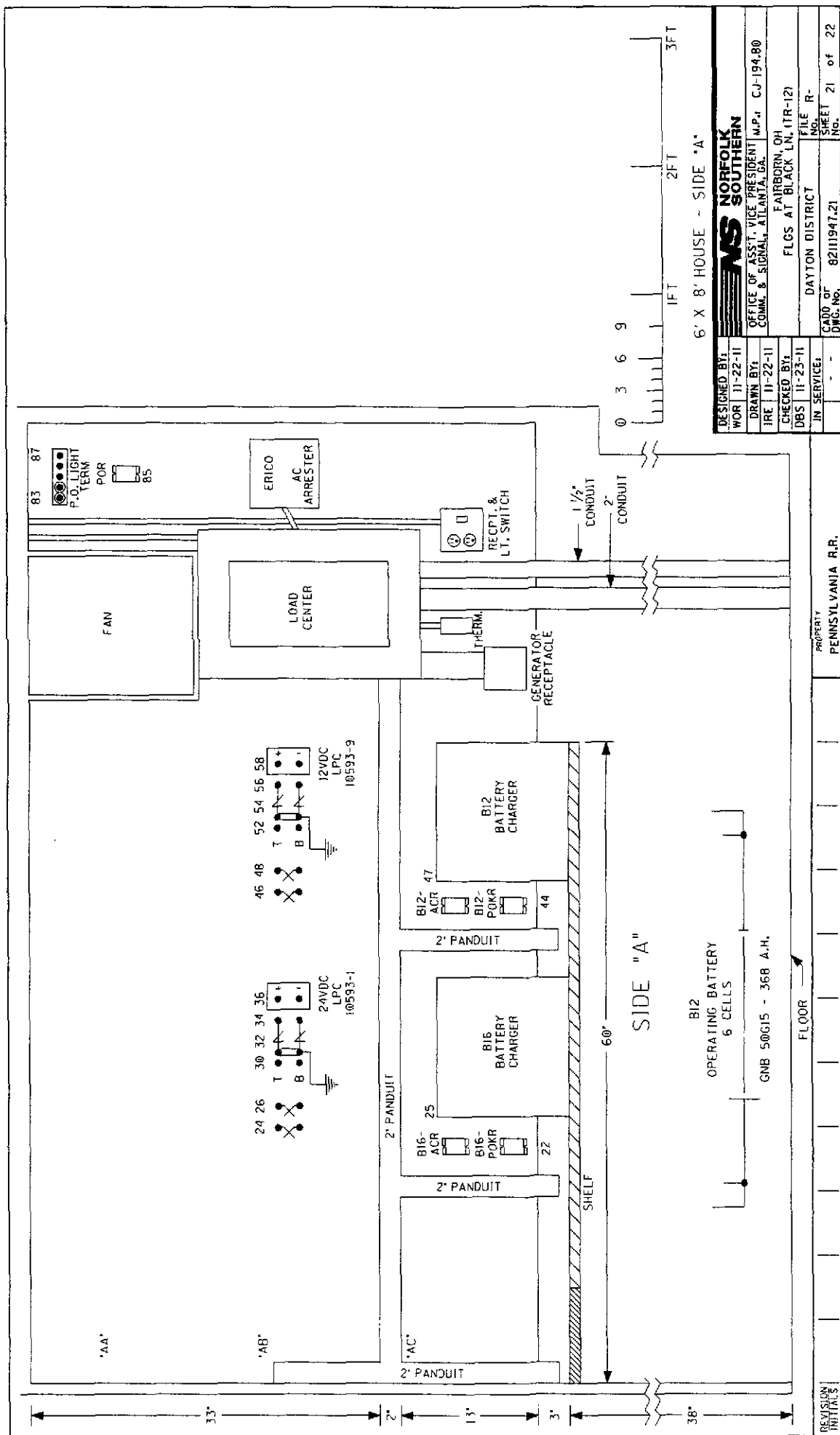
FAIRBORN, OH  
FLGS AT BLACK LN. (TR-12)

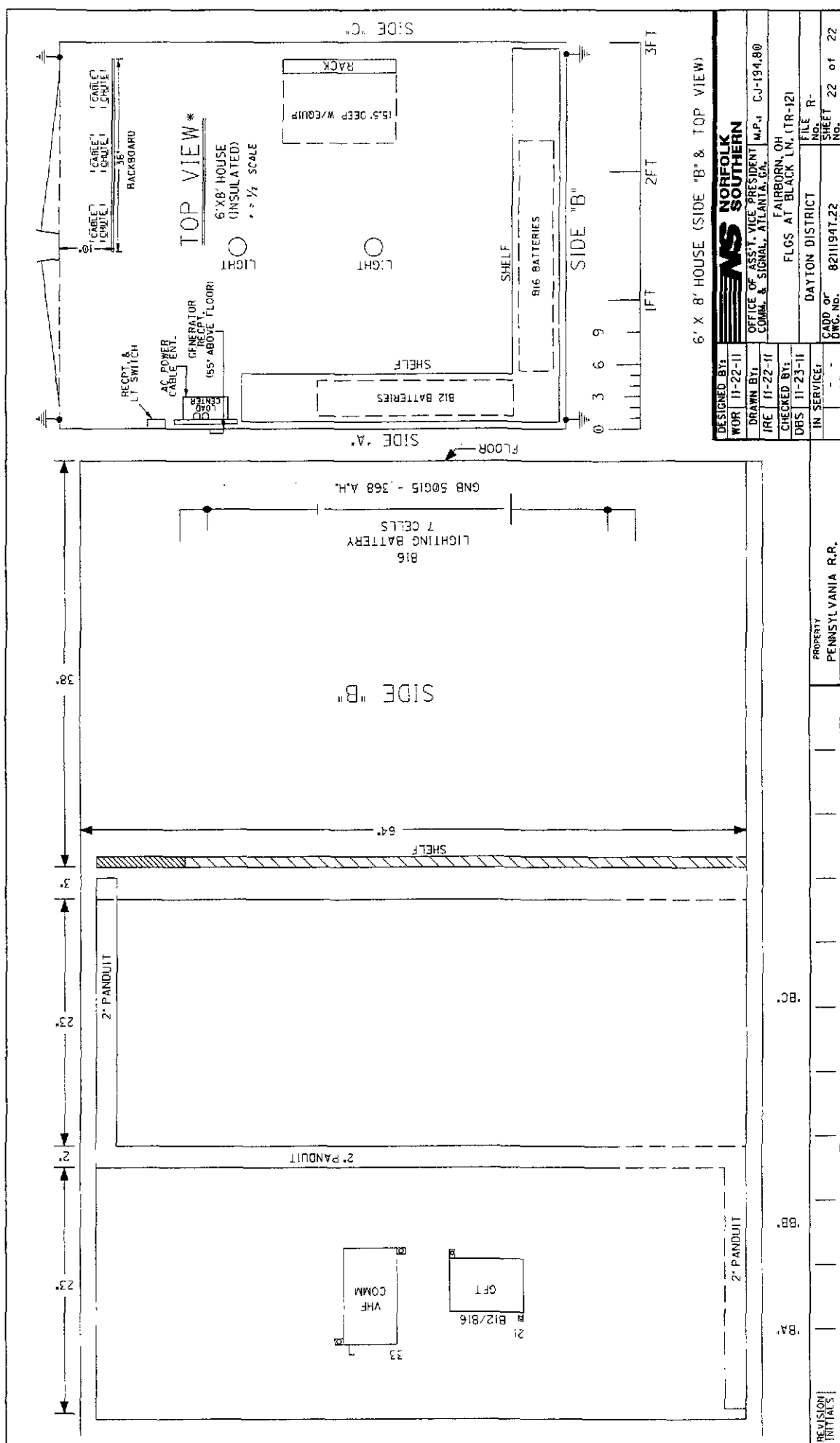
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|-----------------|---------|----|
| DAYTON DISTRICT | FILE NO | R- |
|-----------------|---------|----|

|                    |            |              |          |
|--------------------|------------|--------------|----------|
| ADD OF<br>W.C. No. | 8211947.20 | SHEET<br>No. | 20 of 22 |
|--------------------|------------|--------------|----------|

PROPERTY  
PENNSYLVANIA R.R.

REVISION  
INITIALS

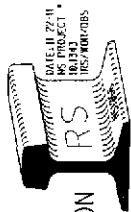
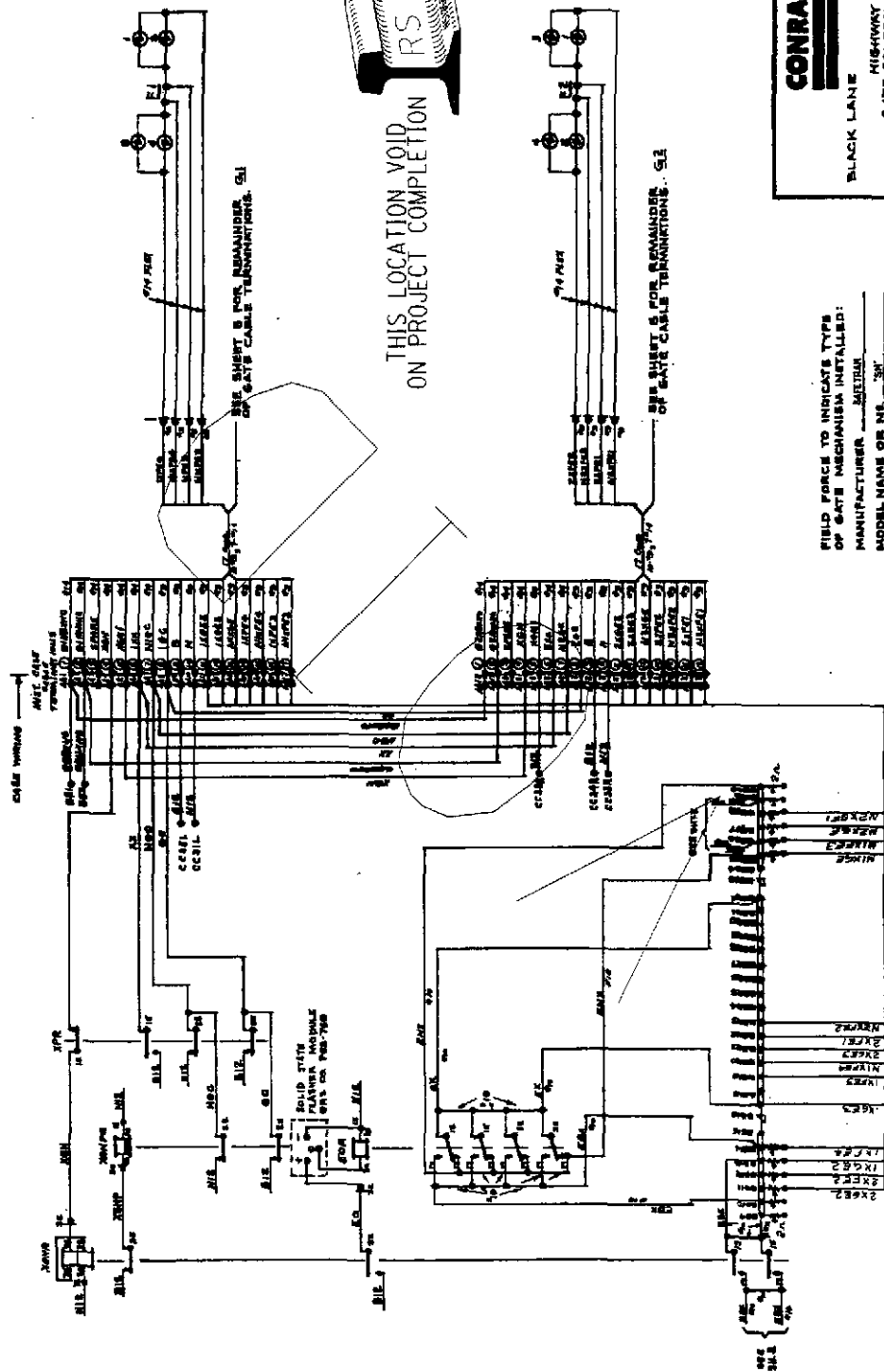












THIS LOCATION VOID  
ON PROJECT COMPLETION

SEE SHEET 8 FOR REMAINDER G1  
OF GATE CABLE TERMINATIONS.

SEE SHEET 8 FOR REMAINDER G1  
OF GATE CABLE TERMINATIONS.

FIELD FORCE TO INDICATE TYPE  
OF GATE MECHANISM INSTALLED:  
MANUFACTURER — METAL  
MODEL NAME OR NO. — 30  
NUMBER OF BELLS — 30  
(SEE SHEET 8 FOR TYPICAL MECHANISMS)



BLACK LANE FAIRBORN, OHIO  
HIGHWAY CROSSING  
GATE CONTROL, LIGHTING CIRCUITS  
AND CABLE TERMINATIONS

|                     |             |
|---------------------|-------------|
| ISSUE DATE: 7-24-47 | 8-2-11-1947 |
| REV. 2              | 11-21-70    |
| SHEET               | 4           |
| 1000-1000           | 5-1-41      |







TRANSFORMER  
AND DISTRIBUTION  
BOXES ARE SHOWN  
BEHIND SHELVES

LIGHTING  
TRANSFORMER  
SAFETYRAN  
ID1-S-300

EXIDE  
SPEC 12/20M

EXIDE  
SPEC 12/20M

FOR THIS LOCATION  
IT IS NOT RECOMMENDED  
THAT THE LIGHTS BE  
PLACED ON THE SHELVES

SAFETYRAN DUAL MOTION SENSOR  
MODEL 02B  
MAIN TRACK  
M.S. FREQUENCY 13.5 KHZ.  
ISLAND FREQUENCY 8.3 KHZ.

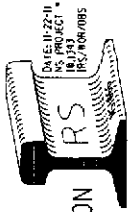
MASTER

98'

LEFT SHELVES

53'

RIGHT SHELVES



THIS LOCATION VOID  
ON PROJECT COMPLETION

BLACK LANE FAIRBORN, OHIO  
HIGHWAY CROSSING  
SIGNAL ARRANGEMENT

|                     |           |
|---------------------|-----------|
| ISSUE DATE: 7-24-91 | 8211-1947 |
| REV. 2 11-21-90     | SHEET 7   |

SCALE 1/8" = 1'

CT-1428 - WBE  
5-8-81



# INDEX

| SH. NO. | TITLE, NOTES, INDEX AND REVISIONS                     | REVISION NO. |   |   |   |   |   |   |
|---------|-------------------------------------------------------|--------------|---|---|---|---|---|---|
|         |                                                       | 1            | 2 | 3 | 4 | 5 | 6 | 7 |
| 1       | LOCATION PLAN                                         | ✓            | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 2       | POWER DISTRIBUTION                                    | ✓            | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 3       | HARMON HRP-1 CIRCUITS                                 | ✓            | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 4       | GATE CONTROL LIGHTING CIRCUITS AND CABLE TERMINATIONS | ✓            | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 5       | GATE MECHANISM TYPICALS                               | ✓            | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 6       | RELAY RACK AND CONNECTIONS - HOUSE LAYOUT             | ✓            | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 7       | RIGHT SIDE OF HOUSE                                   | ✓            | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 8       | LEFT SIDE OF HOUSE                                    | ✓            | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 9       | TERMINAL BOARD LAYOUT                                 | ✓            | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

## CONTENTS

## NOTES

- FOR MATERIAL REFERENCE SEE PLAN 5-1002
- \* DENOTES TWISTED PAIR
- GROUND IN ACCORDANCE WITH CS-9801-4

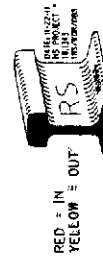
IN SERVICE \_\_\_\_\_ SIGNED \_\_\_\_\_ DATE \_\_\_\_\_

☐ SAE ENGINEERING COPY

☐ CONSTRUCTION OFFICE COPY

☐ RETURN TO CASE AFTER COMPLETION

☐ PROJECT ENGINEER COPY



## REVISIONS

|   |                                                                                          |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |
|---|------------------------------------------------------------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| 1 | NEW PLAN DRAWN ACCOUNT<br>WARNING DEVICES ADDED AT<br>HADDIX ROAD (CH331).               | NO DATE NO. 41681 | NO DATE NO. 41682 | NO DATE NO. 41683 | NO DATE NO. 41684 | NO DATE NO. 41685 | NO DATE NO. 41686 | NO DATE NO. 41687 | NO DATE NO. 41688 | NO DATE NO. 41689 | NO DATE NO. 41690 | NO DATE NO. 41691 | NO DATE NO. 41692 | NO DATE NO. 41693 | NO DATE NO. 41694 | NO DATE NO. 41695 | NO DATE NO. 41696 | NO DATE NO. 41697 | NO DATE NO. 41698 | NO DATE NO. 41699 | NO DATE NO. 41700 |
| 2 | PLAN REVISED ACCOUNT<br>WARNING DEVICES UPGRADED<br>AT SHIDER ROAD (CAJ 309L).           | NO DATE NO. 41682 | NO DATE NO. 41683 | NO DATE NO. 41684 | NO DATE NO. 41685 | NO DATE NO. 41686 | NO DATE NO. 41687 | NO DATE NO. 41688 | NO DATE NO. 41689 | NO DATE NO. 41690 | NO DATE NO. 41691 | NO DATE NO. 41692 | NO DATE NO. 41693 | NO DATE NO. 41694 | NO DATE NO. 41695 | NO DATE NO. 41696 | NO DATE NO. 41697 | NO DATE NO. 41698 | NO DATE NO. 41699 | NO DATE NO. 41700 |                   |
| 3 | PLAN REVISED ACCOUNT<br>OF ADDITION TO WARNING DEVICES<br>FOR BLACK LN (14-12) CROSSING. | NO DATE NO. 41683 | NO DATE NO. 41684 | NO DATE NO. 41685 | NO DATE NO. 41686 | NO DATE NO. 41687 | NO DATE NO. 41688 | NO DATE NO. 41689 | NO DATE NO. 41690 | NO DATE NO. 41691 | NO DATE NO. 41692 | NO DATE NO. 41693 | NO DATE NO. 41694 | NO DATE NO. 41695 | NO DATE NO. 41696 | NO DATE NO. 41697 | NO DATE NO. 41698 | NO DATE NO. 41699 | NO DATE NO. 41700 |                   |                   |

IN SERVICE

ART/DET \*22924G



INDIANAPOLIS DIVISION

FAIRBORN, OHIO

HADDIX ROAD (CH331)

TITLE, NOTES, INDEX AND REVISIONS

APPROVED: \_\_\_\_\_

PHILADELPHIA, PA.

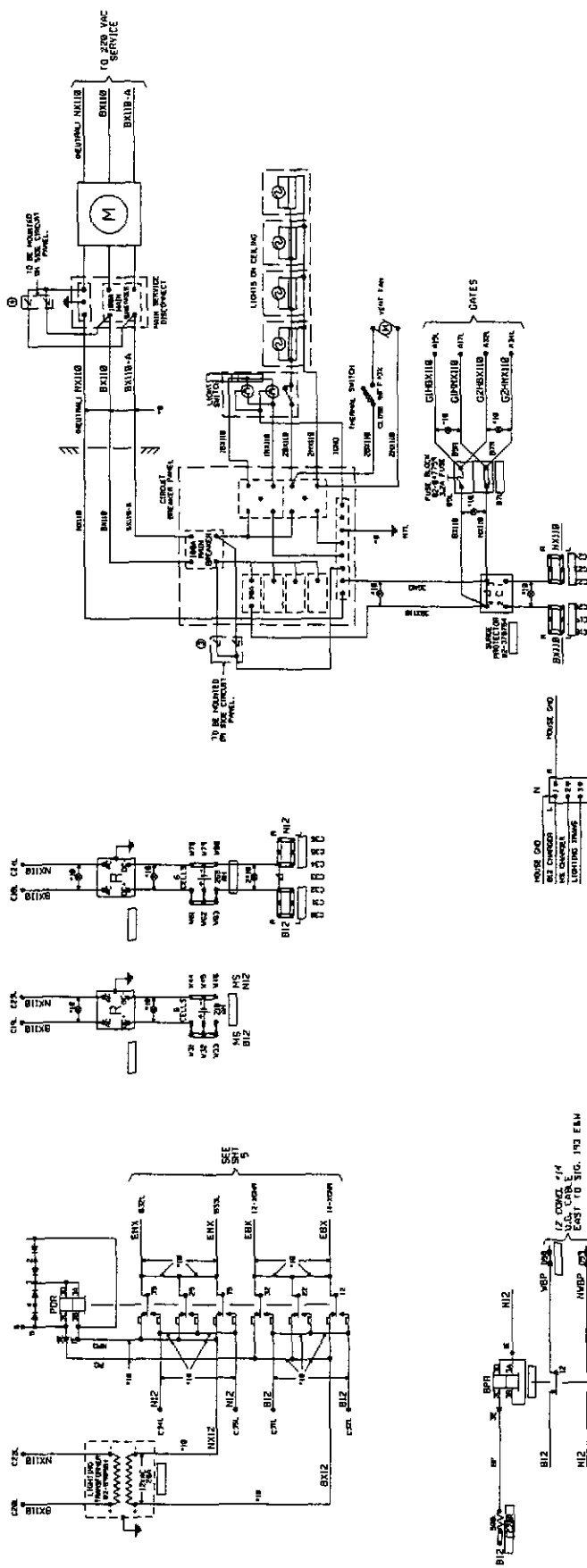
ISSUE DATE: MAY 18, 1990

REV. 2: 6-7-90

SHEET 1 OF 30

100% (100% APPROVED)





NO CHANGE

- NOTES:
- ① \* 200 AMP 240/120V 3-PHASE 4-WIRE SERVICE
  - ② \* 200 AMP 240/120V 3-PHASE 4-WIRE SERVICE
  - ③ \* 200 AMP 240/120V 3-PHASE 4-WIRE SERVICE
  - ④ \* 200 AMP 240/120V 3-PHASE 4-WIRE SERVICE
  - ⑤ \* 200 AMP 240/120V 3-PHASE 4-WIRE SERVICE
  - ⑥ \* 200 AMP 240/120V 3-PHASE 4-WIRE SERVICE
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  - ㊾ \* 200 AMP 240/120V 3-PHASE 4-WIRE SERVICE
  - ㊿ \* 200 AMP 240/120V 3-PHASE 4-WIRE SERVICE



FAIRBORN, OHIO

HIGHWAY CROSSING  
POWER DISTRIBUTION

|                          |        |         |
|--------------------------|--------|---------|
| ISSUE DATE: MAY 12, 1978 | 8-7-78 | SHEET 3 |
| REV. 2                   |        |         |

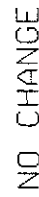
100-1014-100-000

THIS DRAWING IS THE PROPERTY OF THE COMPANY AND IS NOT TO BE REPRODUCED OR COPIED IN ANY MANNER WITHOUT THE WRITTEN PERMISSION OF THE COMPANY.

END OF SHEET







HIGHWAY CROSSING  
GATE CONTROL LIGHTING CIRCUITS  
AND CABLE TERMINATIONS

|             |              |        |   |     |   |           |       |
|-------------|--------------|--------|---|-----|---|-----------|-------|
| ISSUE DATE: | NOV 18, 1990 | 4-3-91 | 1 | ADJ | 1 | 5         | SHEET |
|             |              |        |   |     |   | 8211-1936 |       |

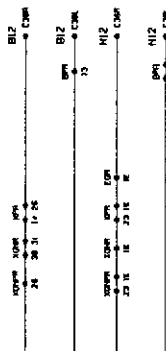
1103.101 2HXPM007.DEN

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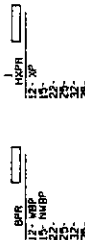


[illegible]

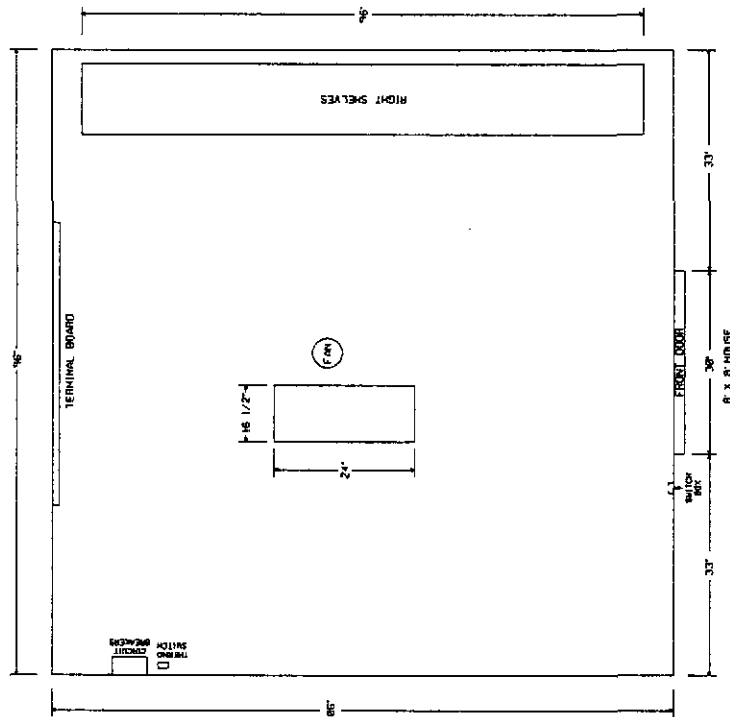
| PORT | 2 - E0X | 5 - ENX | 22 - E0X | 25 - ENX | 32 - E0X | 39 - ENX |
|------|---------|---------|----------|----------|----------|----------|
|      |         |         |          |          |          |          |



XPR  
12- XGN  
15- XX  
22- MGC  
28- GC  
32-  
35-



**DEFINITIONAL BOARD**



NO CHANGE



HANCOCK ROAD (CR 311) \_\_\_\_\_  
 FAIRBORN, OHIO

HIGHWAY CROSSING  
RELAY RACK AND CONNECTIONS  
HOUSE LAYOUT

0211-1936

ISSUE DATE: MAY 18, 1990

REV. 2

FD-350 (Rev. 5-22-64)

35704.5 x 8

**BYJ RCL**

NEW JERSEY DEPT. OF TREASURY

1. The first step in the process is to identify the problem or issue that needs to be addressed. This involves gathering information and understanding the context of the problem.

RIGHT SIDE OF HOUSE

HARMON HUP-1  
STANDBY  
218 HZ.

HARMON  
CONTROL THRESHOLD  
UNIT

HARMON HUP-1  
NORMAL  
218 HZ.



2

15

NO CHANGE



HADDON ROAD ICELOT

FAIRBORN, OHIO

HIGHWAY CURSING  
RIGHT SIDE OF HOUSE

8211-1936

6-7-58

MAY 18, 1958

REV. 2

SHEET 8

1958 DATE

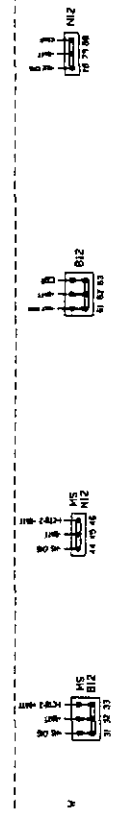
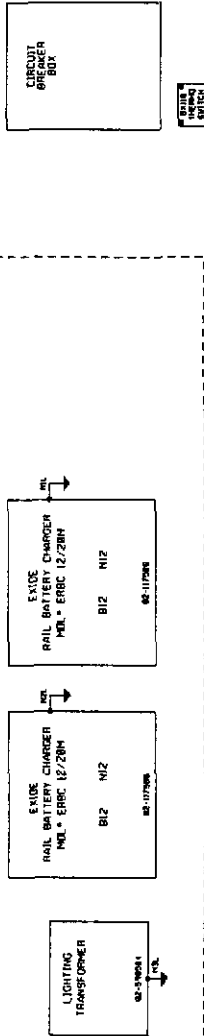
FLOOR

CSS CAD

11810131WPC.DGN

INTERVIEW OF A HISTORIC HOUSE IN THE DISTRICT OF FAIRBORN, OHIO (1958)

LEFT SIDE OF HOUSE



SPACE FOR BATTERIES

NO CHANGE

HAUDIX ROAD (03337)

FAIRBORN, OHIO

HIGHWAY CROSSING  
LEFT SIDE OF HOUSE

ISSUE DATE: MAY 18, 1978

REV. 1 4-3-78

SHEET 4

1180181MHPH0000N

FLOOR

ONE CAP





# OHIO RAIL DEVELOPMENT COMMISSION

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

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

October 24, 2013

Cayela J. Wimberly  
Administrator, Highway Grade Crossings  
Norfolk Southern Corporation  
1200 Peachtree Street, N.E., Box 123  
Atlanta, Georgia 30309

RE: Clark County, T.R. 198, Tecumseh Road, DOT No. 262 208 L, PID 88509,  
Mile Post: CJ 189.17, S&E Project No. 10.1339

Dear Ms. Wimberly:

The Norfolk Southern (NS) plan and estimate dated November 11, 2011, in the amount of \$218,813.00 for the referenced project has been reviewed and is acceptable. 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 \$164,109.75. 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 will furnish prior written notification of their scheduled date to start construction to George Martin, PUCO, Railroad Division.
2. NS's project foreman will furnish FAX or written notification five (5) working days prior to the date work will start at the project site to Tim Perkins, Ohio Rail Development Commission (ORDC), 1980 West Broad Street, Columbus, Ohio 43223, email [Tim.Perkins@dot.state.oh.us](mailto:Tim.Perkins@dot.state.oh.us) or FAX (614) 728-4520, (telephone number 614-644-0284), and to the Public Utilities Commission of Ohio at 180 East Broad Street, Columbus, Ohio 43215, email [George.martin@puc.state.oh.us](mailto:George.martin@puc.state.oh.us), (telephone number 614-752-9107). 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.
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.



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

phone: 614.644.0306

IMPROVING RAIL TODAY FOR TOMORROW'S ECONOMY

4. NS's project foremen will notify Tim Perkins 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 Encumbrance Estimate 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.
7. This installation will include any ancillary work to make the warning devices function as designed and meet MUCTD.

Thank you for your assistance with these matters.

Sincerely,

A handwritten signature in black ink, appearing to read "Tim Perkins". The signature is written in a cursive, flowing style.

Tim Perkins  
Project Manager





## Diagnostic Review Team Survey

Date: 6.7.10

### Location Data

|                                                                                    |                             |                                       |
|------------------------------------------------------------------------------------|-----------------------------|---------------------------------------|
| Street or Road Name: T.R. 148, TECHUMSEH ROAD                                      |                             | 523 517 W                             |
| Route/Road Number<br>(i.e. Twp., Co., SR or US) (Include SLM if State or US route) |                             | AAR-DOT No.: 262 208 L                |
| County: CLARK                                                                      | Township: MAD RIVER         | City:<br>(In or Near) VILLAGE OF ENON |
| Railroad Name: NORFOLK SOUTHERN                                                    | Railroad Division: DEARBORN | Branch/Line Name: CINCINNATI          |
| Nearest RR Timetable Station: ENON                                                 |                             | RR Milepost: 189.17                   |

### On-Site Review Team

(Include: Name - Organization - Phone Number)

1. TIM PERKINS ORDC 614.644.0284
2. KICK KAY NSC 404-529-1234
3. NED WEBER CLA Co ENG 937-521-1803
4. ROBERT P CROSER MTR NS 937-581-5255
5. DERRICK DRAKE NS 364-712-0220
6. DON O'CONNOR MRT Supervisor 937-605-7222
7. JOE CATANZARO Township Trustee 937-605-2449
8. JILL HENRY PUCCO 614-446-0435
- 9.

### Existing Traffic Control Devices

| Type of Warning Devices               | Installed?                              |                                        | Quantity/Comments |         |
|---------------------------------------|-----------------------------------------|----------------------------------------|-------------------|---------|
| Advance Warning Signs                 | <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                     | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            | 1                 |         |
| Crossbucks                            | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            | 3                 |         |
| Number of Tracks Signs                | <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No |                   |         |
| Inventory Tags                        | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            |                   |         |
| 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            | 3                 |         |
| Cantilever Flashing Lights            | <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No | Number:           | Length: |
| Side Lights                           | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            | 1                 |         |
| Automatic Gates                       | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            | Number: 2         | Length: |
| Bells                                 | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            | 1                 |         |
| 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 checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            |                   |         |
| Other                                 | <input type="checkbox"/> Yes            | <input 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                                                                                                                                                                         |                                                                                                                                                                                                                       |                                                          |
| Hazard Ranking                                                                                                                                                                                                        | Date Run:                                                                                                                                                                                                             |                                                          |
| <b>Railroad Data</b>                                                                                                                                                                                                  |                                                                                                                                                                                                                       |                                                          |
| Railroad Characteristics                                                                                                                                                                                              | Initial Information (from database)                                                                                                                                                                                   | Revised                                                  |
| Total trains per day                                                                                                                                                                                                  |                                                                                                                                                                                                                       |                                                          |
| < 1 per day                                                                                                                                                                                                           |                                                                                                                                                                                                                       |                                                          |
| Day thru trains                                                                                                                                                                                                       | 6                                                                                                                                                                                                                     |                                                          |
| Night thru trains                                                                                                                                                                                                     | 6                                                                                                                                                                                                                     |                                                          |
| Daytime switching movements                                                                                                                                                                                           | 3                                                                                                                                                                                                                     |                                                          |
| Nighttime switching movements                                                                                                                                                                                         | 3                                                                                                                                                                                                                     |                                                          |
| Total number of tracks                                                                                                                                                                                                | 2                                                                                                                                                                                                                     |                                                          |
| Number of main tracks                                                                                                                                                                                                 | 1                                                                                                                                                                                                                     |                                                          |
| Number of other tracks                                                                                                                                                                                                | 1                                                                                                                                                                                                                     |                                                          |
| Maximum train speed                                                                                                                                                                                                   | 50                                                                                                                                                                                                                    |                                                          |
| Typical train speed                                                                                                                                                                                                   | 45                                                                                                                                                                                                                    |                                                          |
| Amtrak                                                                                                                                                                                                                |                                                                                                                                                                                                                       |                                                          |
| If non-gated crossing, is clearing sight distance adequate in all quadrants? (See Table 1) <input type="checkbox"/> Yes <input type="checkbox"/> No                                                                   |                                                                                                                                                                                                                       |                                                          |
| If multiple tracks, can two trains occupy crossing at the same time? <input type="checkbox"/> Yes <input type="checkbox"/> No                                                                                         |                                                                                                                                                                                                                       |                                                          |
| Can one train block the motorists' view of another train at crossing? <input type="checkbox"/> Yes (Explain below) <input type="checkbox"/> No                                                                        |                                                                                                                                                                                                                       |                                                          |
| Are there other track(s) crossing this same roadway within 100 ft of this crossing? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                                                               |                                                                                                                                                                                                                       |                                                          |
| If yes, Crossing DOT # (if different) _____                                                                                                                                                                           |                                                                                                                                                                                                                       |                                                          |
| If yes, distance <u>60'</u> (take measurement between track centerlines at closest point along roadway)                                                                                                               |                                                                                                                                                                                                                       |                                                          |
| <b>Roadway Data</b>                                                                                                                                                                                                   |                                                                                                                                                                                                                       |                                                          |
| Local Highway Authority: <u>MAD RIVER TOWNSHIP</u>                                                                                                                                                                    |                                                                                                                                                                                                                       |                                                          |
| Roadway Characteristics                                                                                                                                                                                               | Initial Information (from database)                                                                                                                                                                                   | Revised                                                  |
| Average daily traffic                                                                                                                                                                                                 | 233 in 2006                                                                                                                                                                                                           |                                                          |
| Highway paved                                                                                                                                                                                                         | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                                                                                                                                                   | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| Roadway Surface: <input checked="" type="checkbox"/> Blacktop <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                                                                                                                                                                                                        |                                                                                                                                                                                                                       |                                                          |
| Vehicle Speed: <u>55</u> MPH                                                                                                                                                                                          |                                                                                                                                                                                                                       |                                                          |
| School Bus Operation: <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes <u>6</u> Amount                                                                                                             |                                                                                                                                                                                                                       |                                                          |
| Hazardous Materials Trucks: <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes _____ Amount                                                                                                          |                                                                                                                                                                                                                       |                                                          |
| Shoulders: <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes                                                                                                                                        |                                                                                                                                                                                                                       |                                                          |
| Is the shoulder surfaced? <input checked="" 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: ☐ No ☐ Yes

Is sidewalk present? ☒ No ☐ Yes

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

If yes,  
Distance \_\_\_\_\_

Is this intersection signalized? ☐ No ☐ Yes

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

Is it the consensus of the Diagnostic Review Team that this is a potential closure project? ☐ No ☐ Yes

Explain reasons:

### Type of Development

- ☐ Open Space ☐ Institutional
- ☐ Industrial ☐ Commercial
- ☒ Residential

Location of nearby schools:

### Utility Information

Is commercial power available? ☐ No ☒ Yes

Utility Provider (Company Name) OHIO EDISON

Phone Number \_\_\_\_\_

Nearest Available Power Source \_\_\_\_\_

What other utilities are present? \_\_\_\_\_

Is there potential utility conflict(s) ☐ Yes ☐ No ☐ Unknown

### Diagnostic Team Recommendations

|                                                           | Quadrants Needed |
|-----------------------------------------------------------|------------------|
| <input type="checkbox"/> Install/upgrade active devices   |                  |
| <input type="checkbox"/> Automatic Flashing Lights (AFLS) |                  |
| <input type="checkbox"/> AFLS / Cants                     |                  |
| <input checked="" type="checkbox"/> AFLS / Gates          |                  |
| <input type="checkbox"/> AFLS / Gates / Cants             |                  |
| <input type="checkbox"/> Upgrade circuitry                |                  |
| <input type="checkbox"/> Sidelights                       |                  |
| <input type="checkbox"/> Guardrail Needed                 |                  |
| <input type="checkbox"/> Install/Replace curb             |                  |
| <input type="checkbox"/> Other (define)                   |                  |

Comments: Complete upgrade

- ☐ Install/upgrade traffic signal preemption
- ☐ No improvements needed
- ☐ Other (define)

### Field Dimensions

Show North  
Direction

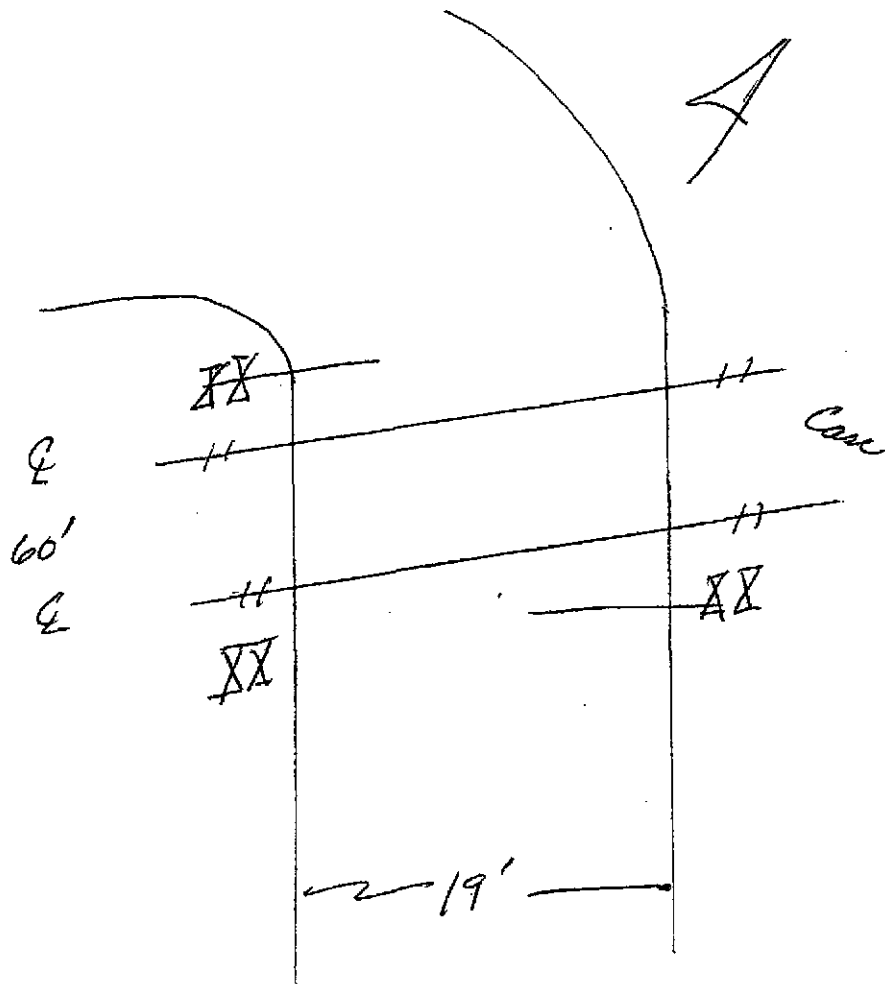
*Track as  
N*

Crossing Angle ☐ 0-29° ☐ 30-59° ☒ 60-90°

Measured in NE Quadrant?

Measurements by: JD

# Field Sketch



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

Sketch by: \_\_\_\_\_

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.



11-Nov-11

**Detailed Estimate for Grade Crossing Warning Devices**

City/State: MAD RIVER, OH

Road: TECUMSEH RD (TR 198)

MilePost: CJ-189.17

DOT/AAR: 262208L

State Proj. No.:

County: CLARK

S&amp;E Proj. No.: 10.1339

File Number: 061-10.623

Man Days: 112

| ***Purchases - Others***                                          |              |
|-------------------------------------------------------------------|--------------|
| Meals and Lodging:                                                | \$15,052.80  |
| Rental of Equipment:                                              | \$15,680.00  |
| (2 Trucks, 1 Backhoe w/ Trailer<br>and 1 Pipe-Pusher for 28 Days) |              |
| Construction Supervision Vehicle:                                 | \$2,801.95   |
| Purchases - Other Total:                                          | \$33,534.75  |
| ***Material And Additives***                                      |              |
| Material Cost:                                                    | \$88,442.00  |
| Sales and Use Tax:                                                | \$0.00       |
| Material Handling Freight:                                        | \$4,422.11   |
| Material Total:                                                   | \$92,864.11  |
| ***Labor And Additives***                                         |              |
| Labor Cost:                                                       | \$31,360.00  |
| (4 man crew at \$1,120.00 a day for: 28 days)                     |              |
| Payroll Tax & Overheads:                                          | \$41,658.62  |
| Preliminary Engineering:                                          | \$10,542.59  |
| Construction Supervision:                                         | \$8,852.93   |
| Labor Total:                                                      | \$92,414.14  |
| Project Cost:                                                     | \$218,813.00 |
| Scrap / Salvage Credit:                                           | \$0.00       |
| Project Total:                                                    | \$218,813.00 |

Estimated on: 11-Nov-11

Estimated by: ndr3j

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:                                                 | MAD RIVER            |
| Road:                                                 | TECUMSEH RD (TR 198) |
| Mile Post:                                            | CJ-189.17            |
| Drawing Number:                                       | 82111892             |
| State Project Number:                                 |                      |
| County:                                               | CLARK                |
| A A R Number:                                         | 262208L              |
| Project Number:                                       | 10.1339              |
| File Number:                                          | 061-10.623           |
| New File Number:                                      | CX0114355            |
| A F E Number:                                         | F33382               |
| Store Number:                                         | 09194                |
| Supervisor:                                           | D.R. DRAKE           |
| Tax Code:                                             |                      |
| Vendor to supply the following copies after pricing:  |                      |
| 1 Set - Material Management with original Invoice     |                      |
| 2 Sets - with plans shipped in car with material      |                      |
| 1 Set - S&E Gen. Supt. Construction w/copy of invoice |                      |



Location: MAD RIVER OH S&E Proj. No.: 10.1339 AFE No.: F33382 Drawing No.: 82111892  
Store No.: 09194 P.O.Number: Date Required: Date Shipped: Vendor: Xorail

| 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 | \$5.52         | \$16.56     | AAR/DOT NUMBER PLATE/DECAL, ORDER 3 PER PROJECT. 60 DAY LEAD TIME. SUPPLIED BY S'TRAN.                                                                                                                               |                  |                               |                            |                      |
| 1    | 165-006505-4  | EA | \$1,075.23     | \$1,075.23  | AC SERVICE, COMPLETE LESS METER BASE, ASSEMBLED ON 30' POLE                                                                                                                                                          |                  |                               |                            |                      |
| 5    | 670-119241-4  | EA | \$25.01        | \$125.05    | ARRESTOR, LIGHTNING HEAVY DUTY CLEAR VIEW SAFETRAN 022585-1X                                                                                                                                                         |                  |                               |                            |                      |
| 13   | 105-288384-4  | EA | \$276.34       | \$3,592.42  | BATTERY GNB 368AH MODEL 50G15 SINGLE CELL 2.25 VOLTS, FOR USE WITH CROSSINGS DESIGNED AFTER 09/09                                                                                                                    |                  |                               |                            |                      |
| 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                                                                                                                                                     |                  |                               |                            |                      |
| 350  | 465-939422-4  | LF | \$3.17         | \$1,109.50  | CABLE, UG 12 CONDUCTOR NO 14 AWG SOLID EACH CONDUCTOR WITH 5/64 IN INSULATION 10 MIL                                                                                                                                 |                  |                               |                            |                      |
| 800  | 465-292862-4  | LF | \$1.54         | \$1,232.00  | CABLE, UG 2-6 TWISTED, S-23 OKONITE 113-12-3933 SOLID TINNED CONDUCTOR                                                                                                                                               |                  |                               |                            |                      |
| 45   | 465-292929-4  | LF | \$4.64         | \$208.80    | CABLE, UG 5 COND. NO. 6 AWG SOLID COPPER CABLE TO MEET NS CORP. SPEC. FOR SIGNAL                                                                                                                                     |                  |                               |                            |                      |
| 350  | 465-791835-4  | FT | \$3.93         | \$1,375.50  | 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 | \$2.11         | \$253.20    | 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 | \$80.28        | \$321.12    | 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 | \$70.94        | \$283.76    | 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  |                  |                               |                            |                      |

APPROVED BY STATE APPROVED BY RAILROAD CAR NUMBER SEAL NUMBER

| Location: MAD RIVER |               |    | OH             | S&E Proj. No.: 10.1339 | AFE No.: F33382                                                                                                                                                                                                                          | Drawing No.: 82111892 |                               |                            |                      |
|---------------------|---------------|----|----------------|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-------------------------------|----------------------------|----------------------|
| Store No.: 09194    |               |    | P.O.Number:    |                        | Date Required:                                                                                                                                                                                                                           | Date Shipped:         | Vendor: Xorail                |                            |                      |
| 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                                                                                                                                             |                       |                               |                            |                      |
| 7                   | 670-760012-4  | EA | \$40.40        | \$282.80               | COVER, FOR 1 WAY FLASHING LIGHT ASSY. 18 OZ. BLACK VINYL COATED NYLON. === TO COVER 2 LAMPS ===                                                                                                                                          |                       |                               |                            |                      |
| 1                   | 670-986650-4  | EA | \$341.80       | \$341.80               | DISPOSAL, CONSTRUCTION DEBRIS AND CLEANING X'ING EQUIPMENT CONTAINER                                                                                                                                                                     |                       |                               |                            |                      |
| 2                   | 670-228165-4  | EA | \$12.25        | \$24.50                | EQUALIZER, SAFETRAN 022700-1X LESS BASE, MODERN NO. 700-1 SHUNT ARRESTER TRACK CIRCUITS CR 02-197950                                                                                                                                     |                       |                               |                            |                      |
| 1                   | 670-000004-4  | EA | \$700.00       | \$700.00               | FCC LICENSE FOR MONITOR/RADIO                                                                                                                                                                                                            |                       |                               |                            |                      |
| 4                   | 670-000003-4  | EA | \$255.85       | \$1,023.40             | FILL/STONE #57, QUANTITY IS BASED ON TRUCK LOAD PLUS DELIVERY COST                                                                                                                                                                       |                       |                               |                            |                      |
| 3                   | 670-015231-4  | EA | \$594.49       | \$1,783.47             | FOUNDATION, DIXIE, S-2 GATE 26"X26"X5'6" ASSEMBLED                                                                                                                                                                                       |                       |                               |                            |                      |
| 2                   | 670-257031-4  | EA | \$421.88       | \$843.76               | 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 | \$34,514.82    | \$34,514.82            | GCP4000 - 2 TRK (2TC) - REDUNDANT - 40/40 AMP WIRED RACK EQUIP. FOR 6X8 XING SHELTER, (INCL. 2 TRK CHASSIS A80465, 4 TRK MODS. A80418, 2-SSCC A80405, 2 CPU A80403, 1 SEAR A80410, 1 DISPLAY A80407, , 2-40 AMP CHARGERS) IPN: 003131-4X |                       |                               |                            |                      |
| 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 | \$336.04       | \$336.04               | KIT, HARDWARE SUPPLIES REQUIRED X'ING PCKAGES. WEB CONNECTORS FOR SHUNT(8EA) TAPE, AMPS,P'GUM PAINT,SLEEVES,TAGS,GLUE, 100 EA WHITE TAGS, JNE CAN BLUE MARKING PAINT ETC...                                                              |                       |                               |                            |                      |
| 1                   | 670-745798-4  | EA | \$676.56       | \$676.56               | LAMP ASSY, 4" GRD. MAST MTG. 1W IND. 20" BKGRD, FLX-12 W/BULB S'TRAN #042003-484XNS                                                                                                                                                      |                       |                               |                            |                      |
| 3                   | 670-764166-4  | EA | \$1,240.19     | \$3,720.57             | LAMP ASSY, 5" MAST MTG. 2W IND. 20" BKGRD, FLX-12 W/BULB S'TRAN #042003-487XNS                                                                                                                                                           |                       |                               |                            |                      |
| 6                   | 165-643547-4  | EA | \$5.75         | \$34.50                | LAMP, 18 WATT 10 VOLT S-11 SC BAY 18S11/1SC CLEAR RWY SIGNAL UJ-71463 GE                                                                                                                                                                 |                       |                               |                            |                      |
| 5                   | 670-440826-4  | EA | \$1.71         | \$8.55                 | LINK, SAFETRAN 024620-1X INSL TESTING COMP 1 IN CENTER SIGNAL CIRCUITS CR 02-286662                                                                                                                                                      |                       |                               |                            |                      |

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

Location: MAD RIVER OH S&E Proj. No.: 10.1839 AFE No.: F33382 Drawing No.: 82111892  
Store No.: 09194 P.O.Number: Date Required: Date Shipped: Vendor: Xorail

| Qty. | Class-Item-CD | UI | Price per Item | Total Price | Item Description                                                                                                                                                          | Quantity Shipped | Quantity Installed Date Quan. | Quantity Returned (Credit) | Special Instructions |
|------|---------------|----|----------------|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-------------------------------|----------------------------|----------------------|
| 4    | 255-590880-4  | EA | \$17.57        | \$70.28     | LOCK, AMERICAN LOCK MODEL H-10KA KEYPED ALIKE TO PRIVATE KEYWAY D456 AND STAMPED "NS SIG"                                                                                 |                  |                               |                            |                      |
| 1    | 610-150566-4  | EA | \$1,587.00     | \$1,587.00  | MAST, 5" ALUMINUM (0&90) RIGHT FOR LIGHT UNITS RIGHT OR LEFT W/DBL JCT. BOX BASE SAFETRAN #070519-47X                                                                     |                  |                               |                            |                      |
| 2    | 670-637778-4  | EA | \$1,265.30     | \$2,530.60  | MAST, 5" ALUMINUM 13'10" WITH DOUBLE JCT. BOX BASE. S'TRAN P# 070519-11AX                                                                                                 |                  |                               |                            |                      |
| 2    | 670-850933-4  | EA | \$3,925.06     | \$7,850.12  | MECHANISM, GATE MODEL S-60, WITH DEFROSTER AND MINI TRACKSIDE SENSOR S'TRAN # 0740007-X002B3                                                                              |                  |                               |                            |                      |
| 2    | 670-000001-4  | EA | \$726.23       | \$1,452.46  | MISC. EXPENSE, MATERIAL/FILL                                                                                                                                              |                  |                               |                            |                      |
| 3    | 670-001347-4  | EA | \$57.10        | \$171.30    | 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                                                                                          |                  |                               |                            |                      |
| 2    | 670-514605-4  | EA | \$11.11        | \$22.22     | 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 | \$39.71        | \$158.84    | REEL, CABLE DISPOSABLE FOR CROSSING SIGNAL PACKAGES                                                                                                                       |                  |                               |                            |                      |
| 2    | 670-790627-4  | EA | \$29.77        | \$59.54     | RESISTOR ADJUSTABLE 0.63 OHM MINIMUM RESIST 0.068-OHM, ITEM 248 S-500 SAFETRAN P/N 029602-1X                                                                              |                  |                               |                            |                      |
| 2    | 435-805560-4  | EA | \$2.83         | \$5.66      | 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-ILQD, 1-E-BELL, 2-GTS, 1-GFT, 1-VHFC, WITHOUT MITSS/SEAR UNIT                                                                             |                  |                               |                            |                      |
| 1    | 670-749325-4  | EA | \$226.97       | \$226.97    | SHELF, FOLDING, FOR LAPTOP USE IN FARADAY 6'X8 SHELTER, SAFETRAN 052852-128X                                                                                              |                  |                               |                            |                      |
| 1    | 670-755523-4  | EA | \$9,383.92     | \$9,383.92  | SHELTER, 6'X8' ALUMIN FARADAY W/CABLE CHUTES BEHIND TERMINAL BOARD, W/1EA EQUIPMENT RACK, W/GEN RECEPTICAL, BREAKER BOX GFI OUTLET FOR LAPTOP SHELF SAFETRAN 058400-68-85 |                  |                               |                            |                      |
| 1    | 670-471572-4  | EA | \$3.48         | \$3.48      | SHIELD, GROUND SERRMI P/N 61278 FOR GROUNDING A RH 4 POST<br>TERMINAL BLOCK DIRECTLY TO FARADAY SHIELD                                                                    |                  |                               |                            |                      |

APPROVED BY STATE APPROVED BY RAILROAD CAR NUMBER SEAL NUMBER

| Location: MAD RIVER |               |    | OH             | S&E Proj. No.: 10.1339 | AFE No.: F33382                                                                                              | Drawing No.: 82111892 | Vendor: Xorail                      |                               |                      |
|---------------------|---------------|----|----------------|------------------------|--------------------------------------------------------------------------------------------------------------|-----------------------|-------------------------------------|-------------------------------|----------------------|
| Store No.: 09194    |               |    | P.O.Number:    |                        | Date Required:                                                                                               | Date Shipped:         |                                     |                               |                      |
| Qty.                | Class-Item-CD | UI | Price per Item | Total Price            | Item Description                                                                                             | Quantity Shipped      | Quantity Installed<br>Date<br>Quan. | Quantity Returned<br>(Credit) | Special Instructions |
| 1                   | 670-472200-4  | EA | \$3.48         | \$3.48                 | SHIELD, GROUND SERRMI PART NO. 61278 FOR GROUNDING A. LH 4 POST<br>TERMINAL BLOCK DIRECTLY TO FARADAY SHIELD |                       |                                     |                               |                      |
| 4                   | 670-586967-4  | EA | \$41.70        | \$166.80               | SHUNT COVER W/LAG SCREWS, 19"X19", SERRMI #40271,<br>ORDER 1 PER SHUNT                                       |                       |                                     |                               |                      |
| 4                   | 670-652773-4  | EA | \$460.98       | \$1,843.92             | SHUNT, MULTI-FREQ. #62775-1543 SAFETRAN NARROW BAND                                                          |                       |                                     |                               |                      |
| 3                   | 670-393331-4  | EA | \$37.43        | \$112.29               | SIGN CROSSING MALFUNCTION ASSEMBLY FOR 4" AND 5"<br>MAST, SAFETRAN #T17215                                   |                       |                                     |                               |                      |
| 3                   | 670-016346-4  | EA | \$146.32       | \$438.96               | SIGN, X-BUCK, HI-INTENSIVE REFLECTIVE FRT. & BACK FOR<br>ALL STATES, SAFETRAN# 035200-91X                    |                       |                                     |                               |                      |
| 1                   | 670-330382-4  | RL | \$17.81        | \$17.81                | TAPE, THOR 3" DURATEC, ORANGE 1000' LENGTHS. "WARNING<br>STOP DIGGING"                                       |                       |                                     |                               |                      |
| 5                   | 670-478560-4  | EA | \$20.34        | \$101.70               | TERMINAL BLOCK, ERICO 4 POST P/N B2700A2C1WH<br>W/HARDWARE LESS LIGHTNING ARRESTOR                           |                       |                                     |                               |                      |

Total Material: \$88,442.19

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

| SH. NO. | CONTENTS                                 |
|---------|------------------------------------------|
| NX1     | INDEX SHEET                              |
| 1       | LAYOUT                                   |
| 2       | PROFILE                                  |
| 3       | CABLE PLAN                               |
| 4       | LOAD CENTER WIRING                       |
| 5       | B12 & B16 RECTIFIER & BATTERY HOOK-UP    |
| 6       | 4000 GCP 2-TK CHASSIS & MODULE LAYOUT    |
| 7       | 4000 GCP PROGRAMMING SETUP               |
| 8       | 4000 GCP PROGRAMMING SETUP               |
| 9       | CONNECTORS FOR TRACK MODULES             |
| 10      | CPU MODULE, SEAR III, GFT & VHF HOOK-UPS |
| 11      | SEAR III PROGRAMMING SETUP               |
| 12      | SSCC*1 MODULE, ILOD*1 HOOK-UP            |
| 13      | SSCC*2 MODULE, ILOD*2 HOOK-UP            |
| 14      | *A* FLASHER AND GATE LIGHTS              |
| 15      | *B* FLASHER AND GATE LIGHTS              |
| 16      | *D* FLASHER LIGHTS                       |
| 17      | BACKBOARD DETAIL - 1A & 1B               |
| 18      | REAR BACKBOARD DETAIL - 1A & 1B          |
| 19      | BACKBOARD DETAIL - 1C                    |
| 20      | FARADAY SHIELD DETAIL - 1A & 1B          |
| 21      | FARADAY SHIELD DETAIL - 1C               |
| 22      | 6'X8' HOUSE - SIDE "C"                   |
| 23      | 6'X8' HOUSE - SIDE "A"                   |
| 24      | 6'X8' HOUSE (SIDE B & TOP VIEW)          |

IN SERVICE \_\_\_\_\_ SIGNED \_\_\_\_\_ DATE \_\_\_\_\_

☐ S&E ENGINEERING COPY

☐ CONSTRUCTION OFFICE COPY

☐ RETURN TO S&E ENG. AFTER COMPLETION

☐ FIELD COPY

☐ RETURN TO CASE AFTER COMPLETION

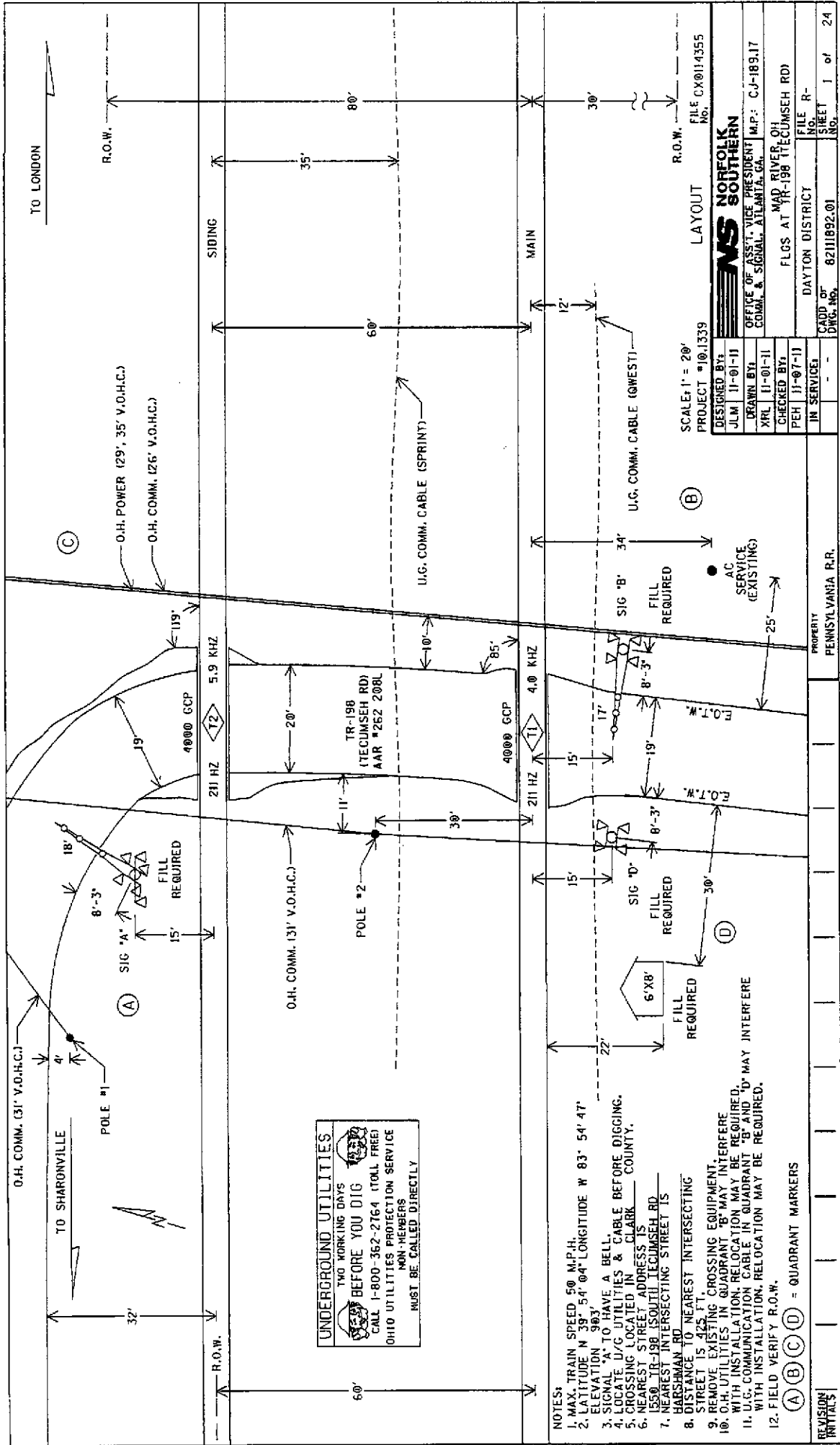
☐ PROJECT ENGINEER COPY

PROJECT #10,1339 INDEX SHEET 1 FILE CX014355

|                              |                                                                                                                                                                                                                                                                    |                  |
|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| DESIGNED BY:<br>JLM 11-01-11 |  <b>NORFOLK SOUTHERN</b><br>OFFICE OF ASST. VICE PRESIDENT<br>COMM. & SIGNAL, ATLANTA, GA.<br>MAD RIVER, OH<br>FLOCS AT TR-198 (ECCUMSEH RD)<br>DAYTON DISTRICT<br>82111892.NXI | FILE R-          |
| DRAWN BY:<br>XRL 11-01-11    |                                                                                                                                                                                                                                                                    | NO. SHEET 1 of 1 |
| CHECKED BY:<br>PEH 11-07-11  |                                                                                                                                                                                                                                                                    |                  |
| IN SERVICE:                  |                                                                                                                                                                                                                                                                    |                  |

PROPERTY  
PENNSYLVANIA R.R.

REVISION  
INITIALS



**UNDERGROUND UTILITIES**  
 TWO WORKING DAYS  
 BEFORE YOU DIG  
 CALL 1-800-362-2764 (TOLL FREE)  
 OHIO UTILITIES PROTECTION SERVICE  
 NON-MEMBERS  
 MUST BE CALLED DIRECTLY

- NOTES:**
1. MAX. TRAIN SPEED 50 M.P.H.
  2. LATITUDE N 38° 54' 04" LONGITUDE W 83° 54' 47" ELEVATION 983'
  3. SIGNAL "A" TO HAVE A BELL.
  4. LOCATE U/G UTILITIES & CABLE BEFORE DIGGING.
  5. CROSSING LOCATED IN CLARK COUNTY.
  6. NEAREST STREET ADDRESS IS 1550 TR-198 (SOUTH TECUMSEH RD)
  7. NEAREST INTERSECTING STREET IS HARSHMAN RD
  8. DISTANCE TO NEAREST INTERSECTING STREET IS 425 FT.
  9. REMOVE EXISTING CROSSING EQUIPMENT.
  10. O.H. UTILITIES IN QUADRANT "B" MAY INTERFERE WITH INSTALLATION. RELOCATION MAY BE REQUIRED.
  11. U.G. COMMUNICATION CABLE IN QUADRANT "B" AND "D" MAY INTERFERE WITH INSTALLATION. RELOCATION MAY BE REQUIRED.
  12. FIELD VERIFY R.O.W.

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

SCALE: 1" = 20'  
 PROJECT #10.1339  
 LAYOUT  
 FILE CX0114355

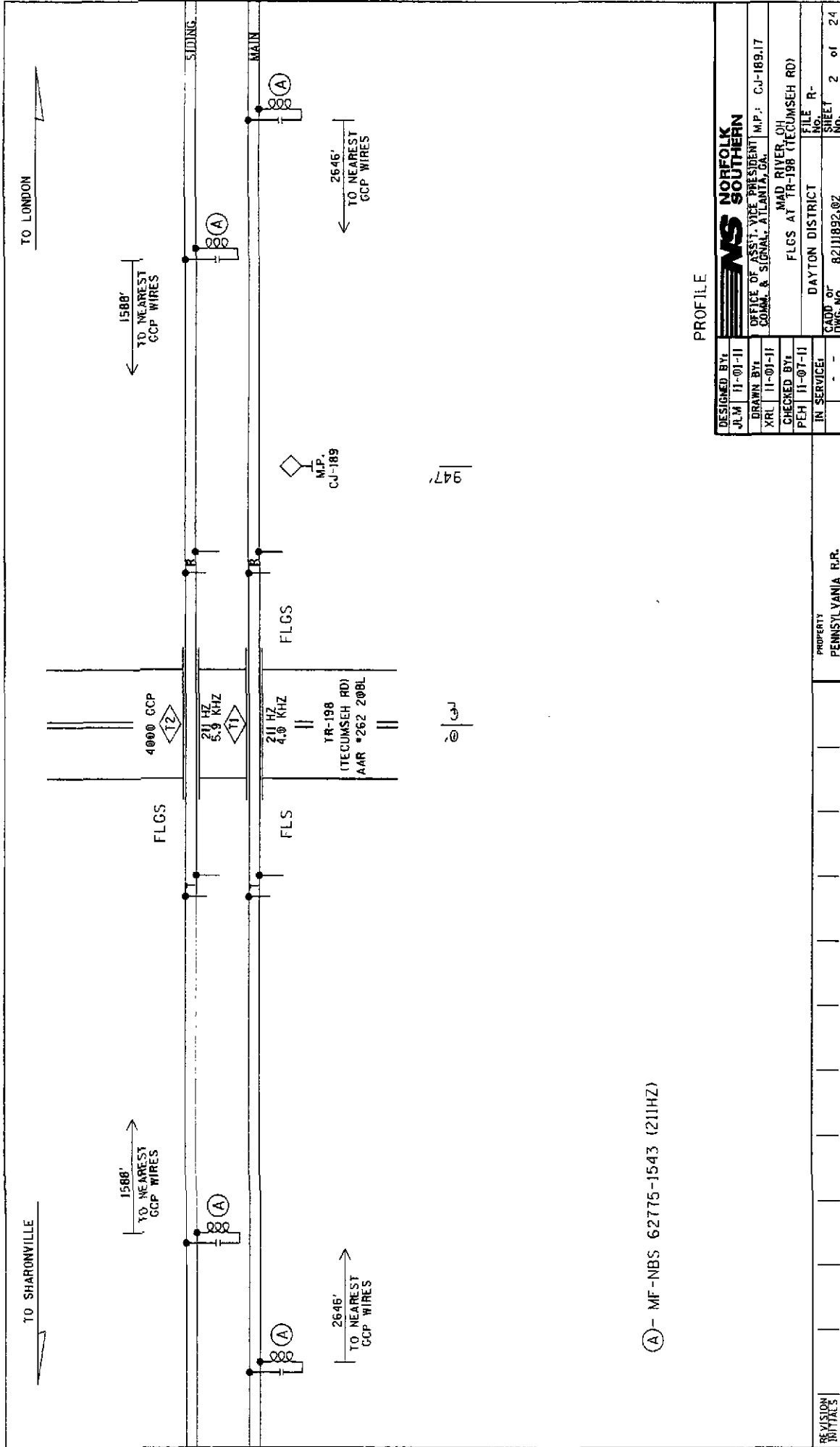
**NORFOLK SOUTHERN**  
 OFFICE OF ASST. VICE PRESIDENT  
 COMM. & SIGNAL, ATLANTA, GA. M.P.: CJ-189.17

|                             |                       |
|-----------------------------|-----------------------|
| DESIGNED BY<br>JLM 11-01-11 | FILE NO.<br>CX0114355 |
| DRAWN BY<br>XRL 11-01-11    | FILE NO.<br>CX0114355 |
| CHECKED BY<br>PEH 11-07-11  | FILE NO.<br>CX0114355 |
| IN SERVICE                  | FILE NO.<br>CX0114355 |

FLOS AT RR-198 (TECUMSEH RD)

|                 |                       |
|-----------------|-----------------------|
| DAYTON DISTRICT | FILE NO.<br>CX0114355 |
| NO. 82111892.01 | SHEET 1 of 24         |

PROPERTY  
 PENNSYLVANIA R.R.



(A) MF-NBS 62775-1543 (211HZ)

PROFILE

|             |                 |
|-------------|-----------------|
| DESIGNED BY | JLM 11-01-11    |
| DRAWN BY    | XRL 11-01-11    |
| CHECKED BY  | PEH 11-07-11    |
| IN SERVICE  | - -             |
| FILE NO.    | DAYTON DISTRICT |
| SHEET       | 2 of 24         |
| DATE        | 8/21/1892.02    |
| NO.         | 8211892.02      |

**NORFOLK SOUTHERN**

OFFICE OF ASST. VICE PRESIDENT M.P.: CJ-189.17  
COMM. & SIGNAL, ATLANTA, GA.

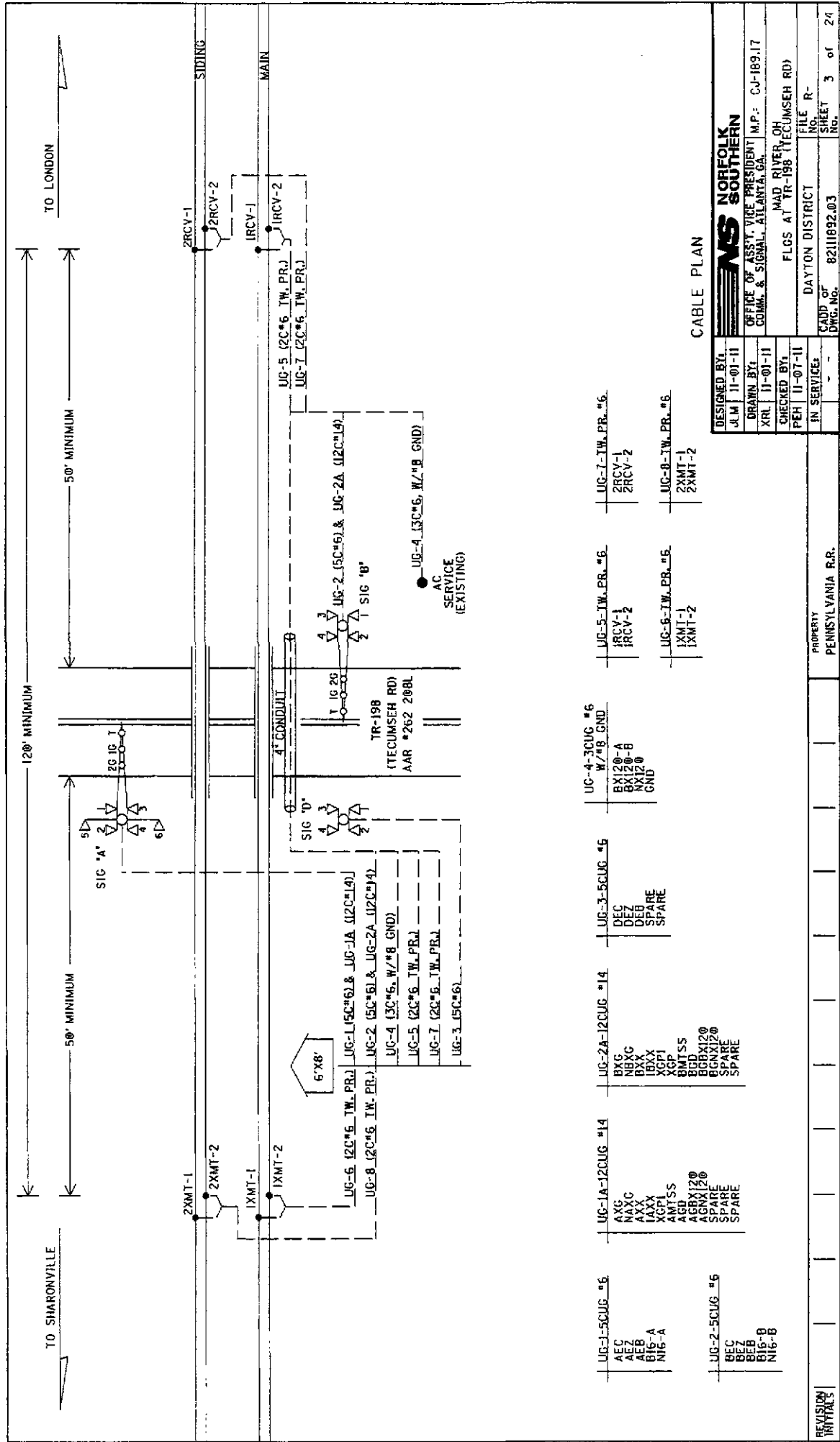
MAD RIVER OH  
FLGS AT TR-198 (TECUMSEH RD)

DAYTON DISTRICT

FILE NO. 8211892.02

PROPERTY  
PENNSYLVANIA R.R.

REVISION  
INITIALS



CABLE PLAN



|              |              |
|--------------|--------------|
| DESIGNED BY: | JLM 11-01-11 |
| DRAWN BY:    | XRL 11-01-11 |
| CHECKED BY:  | PEH 11-01-11 |
| IN SERVICE:  | - - -        |

OFFICE OF ASST. VICE PRESIDENT  
COMM. & SIGNAL, ATLANTA, GA.  
MAD RIVER, OH  
FLCS AT TR-198 (TECUMSEH RD)  
DAYTON DISTRICT  
ADD OF  
DWG. No. 82111892.03  
FILE R-  
SHEET 3 of 24

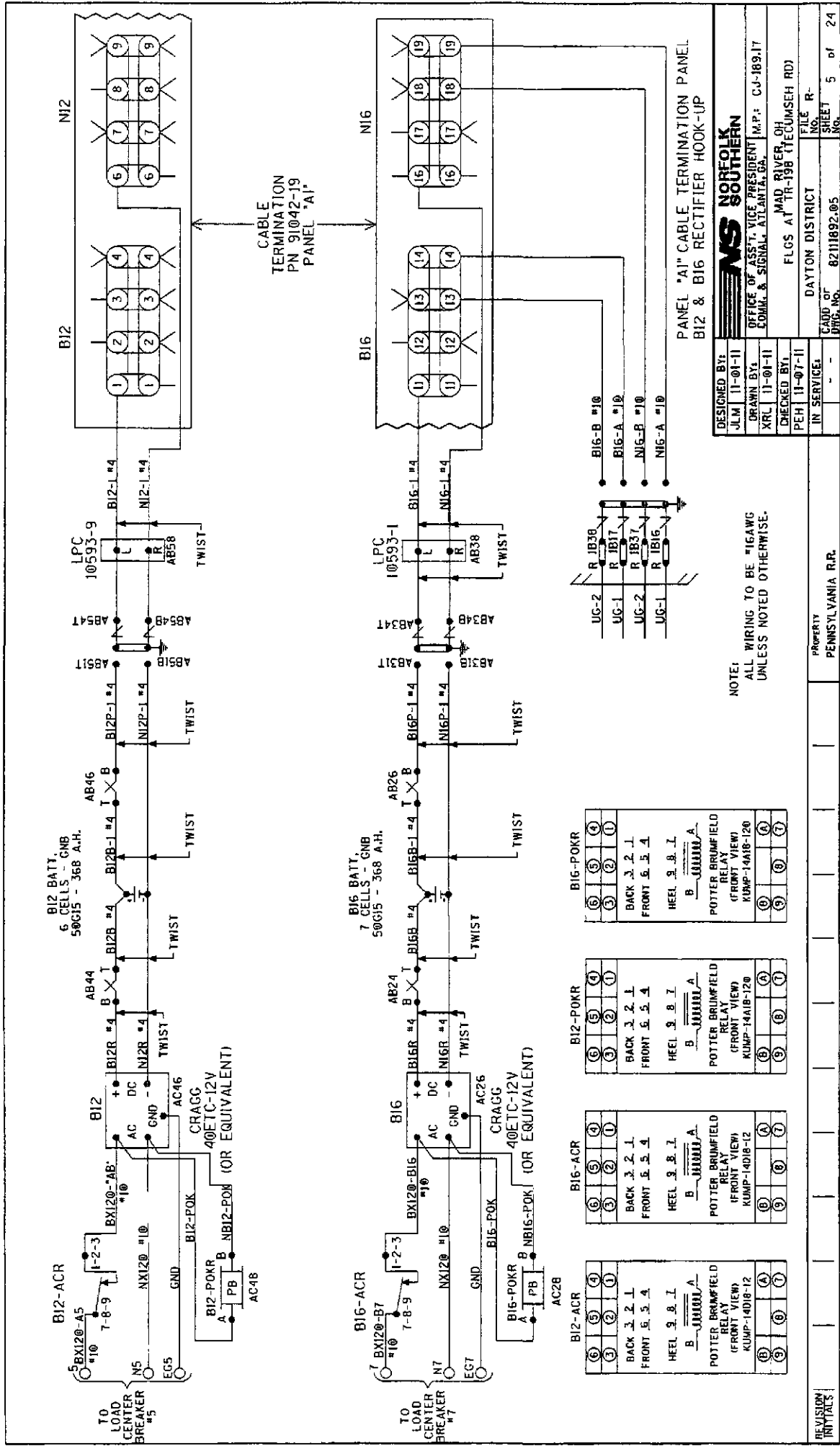
|                              |                                                                                            |                                     |                                    |                  |                  |                  |                  |
|------------------------------|--------------------------------------------------------------------------------------------|-------------------------------------|------------------------------------|------------------|------------------|------------------|------------------|
| UG-1-5CUG #6                 | UG-2A-12CUG #14                                                                            | UG-3-5CUG #6                        | UG-4-3CUG #6                       | UG-5-TW.PR.#6    | UG-6-TW.PR.#6    | UG-7-TW.PR.#6    | UG-8-TW.PR.#6    |
| AEC<br>AEB<br>B16-A<br>N16-A | AXC<br>NAXC<br>AXX<br>IAXX<br>XGPI<br>AMTSS<br>AGD<br>AGBX120<br>AGNA120<br>SPARE<br>SPARE | DEC<br>DEB<br>DEB<br>SPARE<br>SPARE | BX120-A<br>BX120-B<br>BX120<br>GND | 1RCV-1<br>1RCV-2 | 1XMT-1<br>1XMT-2 | 2RCV-1<br>2RCV-2 | 2XMT-1<br>2XMT-2 |

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PENNSYLVANIA R.R.

REVISION  
INITIALS







PANEL "A1" CABLE TERMINATION PANEL  
B12 & B16 RECTIFIER HOOK-UP

**NORFOLK SOUTHERN**

DESIGNED BY: JLM 11-01-11  
DRAWN BY: XRL 11-01-11  
CHECKED BY: PEH 11-07-11  
IN SERVICE: - - -

OFFICE OF ASST. VICE PRESIDENT  
COMM. & SIGNAL, ATLANTA, GA.  
MAD RIVER, OH  
FLGS AT TR-198 (TECUMSEH RD)

DAYTON DISTRICT  
FILE NO. 8211892-05  
SHEET 5 of 24

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

|                                                                                               |                                                             |                                                             |                                                             |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |
|-----------------------------------------------------------------------------------------------|-------------------------------------------------------------|-------------------------------------------------------------|-------------------------------------------------------------|---|---|---|-----------------------------------------------------------------------------------------------|---|---|---|---|---|---|-----------------------------------------------------------------------------------------------|---|---|---|---|---|---|-----------------------------------------------------------------------------------------------|---|---|---|---|---|---|
| BIG-ACR                                                                                       | BIG-POKR                                                    | BIG-POKR                                                    | BIG-POKR                                                    |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |
| <table><tr><td>6</td><td>5</td><td>4</td></tr><tr><td>3</td><td>2</td><td>1</td></tr></table> | 6                                                           | 5                                                           | 4                                                           | 3 | 2 | 1 | <table><tr><td>6</td><td>5</td><td>4</td></tr><tr><td>3</td><td>2</td><td>1</td></tr></table> | 6 | 5 | 4 | 3 | 2 | 1 | <table><tr><td>6</td><td>5</td><td>4</td></tr><tr><td>3</td><td>2</td><td>1</td></tr></table> | 6 | 5 | 4 | 3 | 2 | 1 | <table><tr><td>6</td><td>5</td><td>4</td></tr><tr><td>3</td><td>2</td><td>1</td></tr></table> | 6 | 5 | 4 | 3 | 2 | 1 |
| 6                                                                                             | 5                                                           | 4                                                           |                                                             |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |
| 3                                                                                             | 2                                                           | 1                                                           |                                                             |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |
| 6                                                                                             | 5                                                           | 4                                                           |                                                             |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |
| 3                                                                                             | 2                                                           | 1                                                           |                                                             |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |
| 6                                                                                             | 5                                                           | 4                                                           |                                                             |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |
| 3                                                                                             | 2                                                           | 1                                                           |                                                             |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |
| 6                                                                                             | 5                                                           | 4                                                           |                                                             |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |
| 3                                                                                             | 2                                                           | 1                                                           |                                                             |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |
| BACK 3 2 1                                                                                    | BACK 3 2 1                                                  | BACK 3 2 1                                                  | BACK 3 2 1                                                  |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |
| FRONT 5 4                                                                                     | FRONT 5 4                                                   | FRONT 5 4                                                   | FRONT 5 4                                                   |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |
| HEEL 3 2 1                                                                                    | HEEL 3 2 1                                                  | HEEL 3 2 1                                                  | HEEL 3 2 1                                                  |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |
| B <u>UUUUU</u> A                                                                              | B <u>UUUUU</u> A                                            | B <u>UUUUU</u> A                                            | B <u>UUUUU</u> A                                            |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |
| POTTER BRUMFIELD<br>RELAY<br>(FRONT VIEW)<br>KUMP-14D18-12                                    | POTTER BRUMFIELD<br>RELAY<br>(FRONT VIEW)<br>KUMP-14A18-120 | POTTER BRUMFIELD<br>RELAY<br>(FRONT VIEW)<br>KUMP-14A18-120 | POTTER BRUMFIELD<br>RELAY<br>(FRONT VIEW)<br>KUMP-14A18-120 |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |
| 6 5 4 3 2 1                                                                                   | 6 5 4 3 2 1                                                 | 6 5 4 3 2 1                                                 | 6 5 4 3 2 1                                                 |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |

PROPERTY  
PENNSYLVANIA R.R.

REVISION/INITIALS

# WARNING

REMOVAL OF THE SSCCIII MODULE WILL CAUSE THE GATES TO DROP BUT THE LIGHTS WILL NOT ACTIVATE

# CAUTION

ASSURE CORRECT POLARITY OF THE SSCCIII 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 RIO IN TRACK 2 SLOTS (M3 AND M6)

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

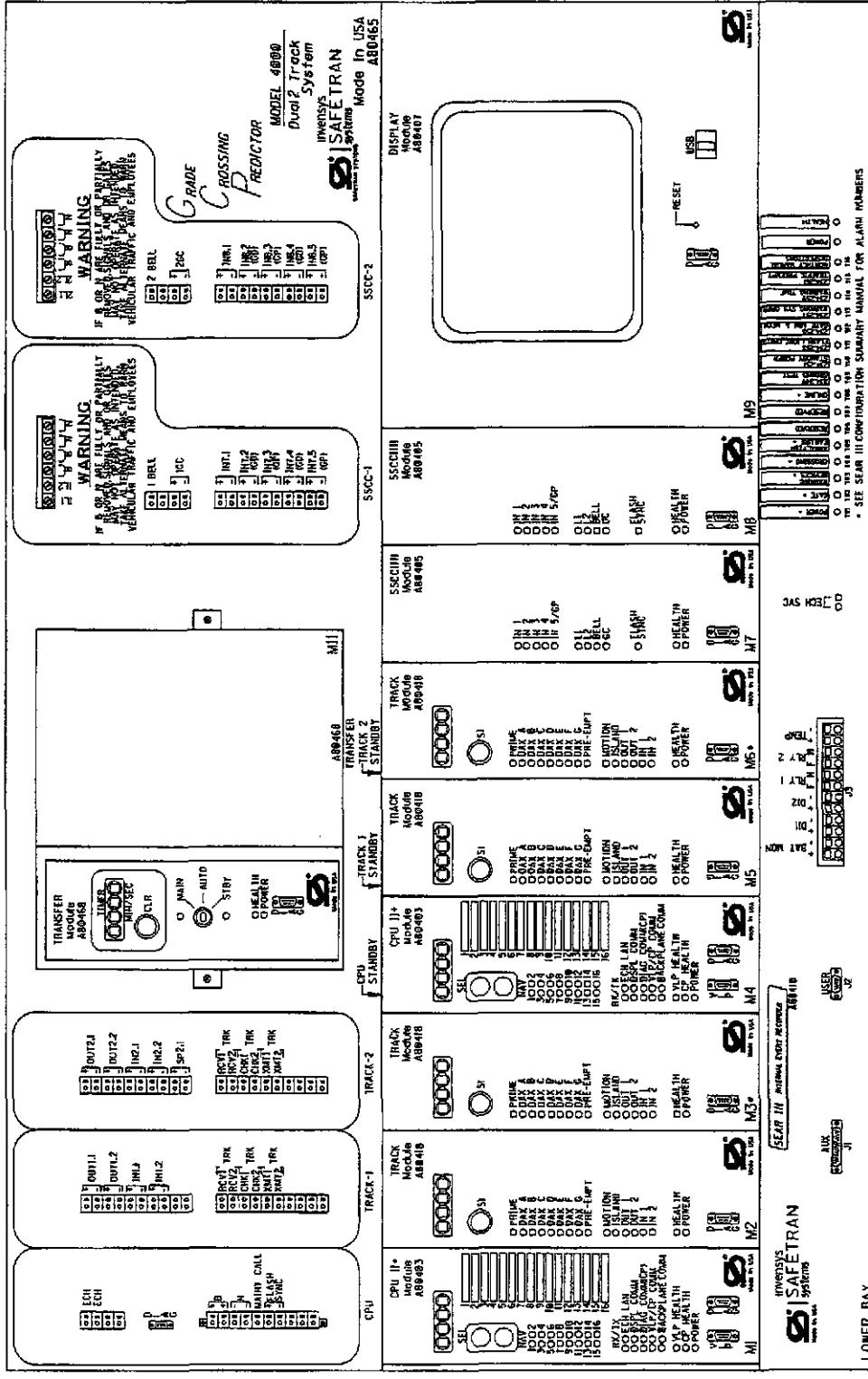
**NS NORFOLK SOUTHERN**

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

FLGS AT TR-198 (TECUMSEH RD)  
MAD RIVER, OH

DAYTON DISTRICT  
FILE R-

82111892.06  
SHEET 6 of 24



|              |                   |
|--------------|-------------------|
| DESIGNED BY: | JLM 11-01-11      |
| DRAWN BY:    | XRL 11-01-11      |
| CHECKED BY:  | PEH 11-01-11      |
| IN SERVICE:  | - -               |
| PROPERTY:    | PENNSYLVANIA R.R. |
| REVISION:    | INITIALS          |



Int.7 Sets = Not Used  
Int.7 Set by = Not Used  
Int.8 Sets = Not Used  
Int.8 Set by = Not Used

ADVANCED: Internal/0 3  
Int.9 Sets = Not Used  
Int.9 Set by = Not Used  
Int.10 Sets = Not Used  
Int.10 Set by = Not Used  
Int.11 Sets = Not Used  
Int.11 Set by = Not Used  
Int.12 Sets = Not Used  
Int.12 Set by = Not Used

ADVANCED: Internal/0 4  
Int.13 Sets = Not Used  
Int.13 Set by = Not Used  
Int.14 Sets = Not Used  
Int.14 Set by = Not Used  
Int.15 Sets = Not Used  
Int.15 Set by = Not Used  
Int.16 Sets = Not Used  
Int.16 Set by = Not Used

ADVANCED: site options  
Dowlght Savings = On  
Units = Standard  
Mount. Control IP Used = No  
Emergency Activate IP = No  
EZ/EX Lagging = Change  
EZ/EX Point Change = 3

SSCC  
Gates Used = Yes  
SSCC-1-2 GPs Coupled = Yes  
Min Activation = 0 sec  
Rmt Activation Cancel = 2 min  
Bellon Gate Rising = No  
Mute Bellon Gate Down = No  
SSCC-1 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 GDS = 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 CtrlUsed = 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 GDS = 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 CtrlUsed = 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  
SEAR Subnode = 3  
DI 1 = And Fit Tester 1  
DI 2 = Not Used  
Rly 1 = Ground Fault Test  
Rly 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

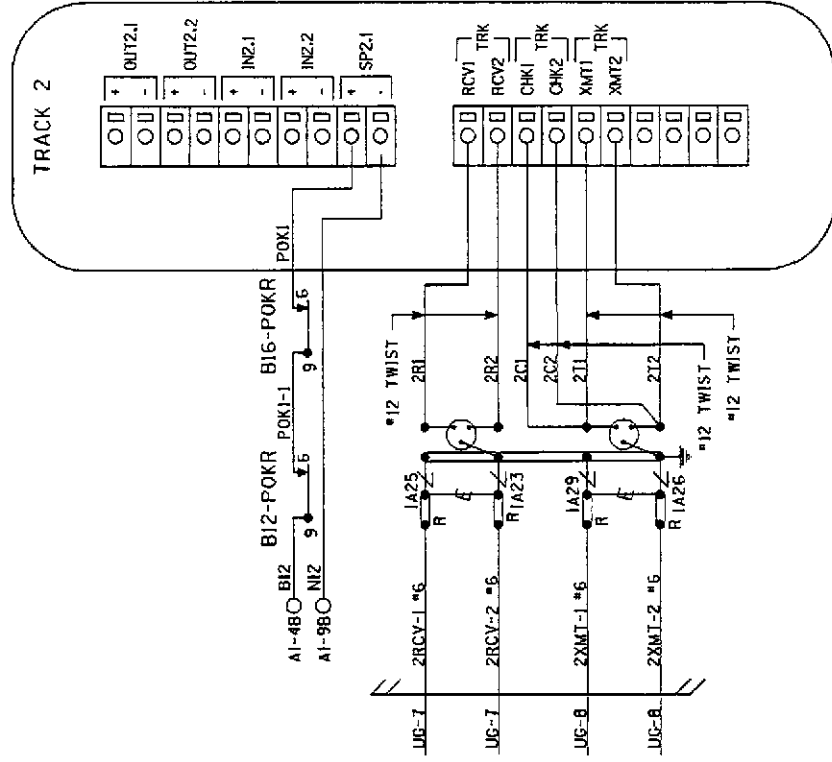
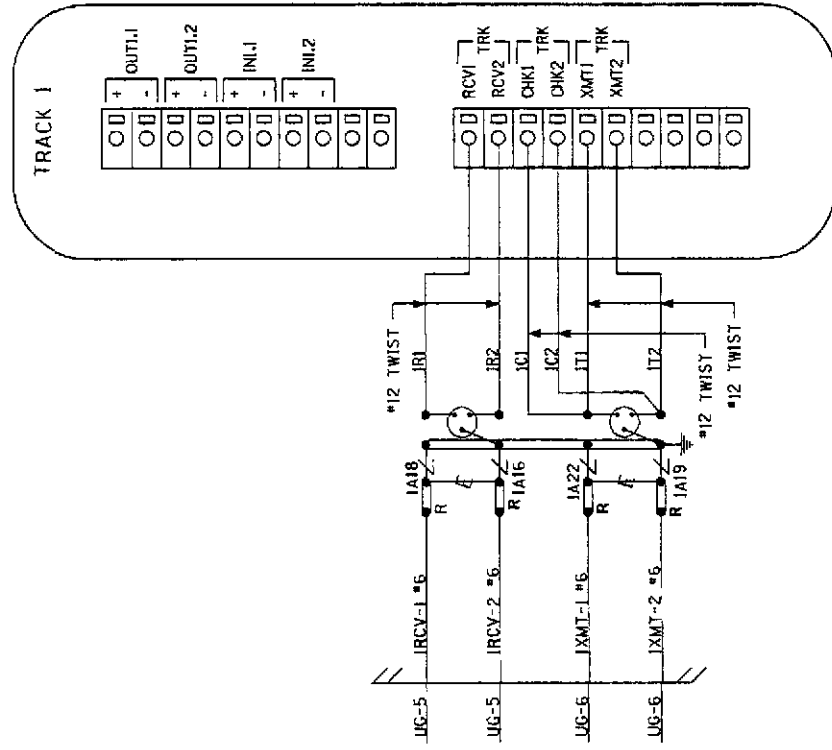
SEAR: Inputs slot 6  
IN 6.1 = Not Used  
IN 6.2 = Not Used

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: 82111892.poc

40000 GCP PROGRAMMING SETUP

|              |              |                                                                                     |                                |                |
|--------------|--------------|-------------------------------------------------------------------------------------|--------------------------------|----------------|
| DESIGNED BY: | JLM 11-01-11 |  | OFFICE OF ASST. VICE PRESIDENT | MAP: CJ-189.17 |
| DRAWN BY:    | XRL 11-01-11 |                                                                                     | COMM. & SIGNAL, ATLANTA, GA.   |                |
| CHECKED BY:  | PER 11-07-11 |                                                                                     | FLCS AT TR-130 (TCCUNSEH RD)   |                |
| IN SERVICE:  |              |                                                                                     | DAYTON DISTRICT                | FILE R-        |
|              |              |                                                                                     | CADD or                        | NO. 8 of 24    |
|              |              |                                                                                     | DATE: 82111892.08              |                |

PROPERTY  
PENNSYLVANIA R.R.



PANEL "A2" CONNECTORS FOR MODULES (A80418)

|                              |  |                              |  |                                                                |  |                 |  |
|------------------------------|--|------------------------------|--|----------------------------------------------------------------|--|-----------------|--|
| DESIGNED BY:<br>JLM 11-01-11 |  | NORFOLK SOUTHERN             |  | OFFICE OF ASST. VICE PRESIDENT<br>COMM. & SIGNAL, ATLANTA, GA. |  | M.P.: CJ-189.17 |  |
| DRAWN BY:<br>XRL 11-01-11    |  | MAD RIVER, OH                |  | FLCS A1 TR-158 (TECUMSEH RD)                                   |  | FILE R-         |  |
| CHECKED BY:<br>PEH 11-07-11  |  | DAYTON DISTRICT              |  | CAD OF<br>DWG. NO.                                             |  | SHEET 9 of 24   |  |
| IN SERVICE:                  |  | PROPERTY<br>PENNSYLVANIA RR. |  |                                                                |  |                 |  |



TO CONFIGURE SEAR III PRESS BLUE SETUP KEY.  
PRESS ENTER AFTER SELECTION HAS BEEN MADE.

| SITE SET UP PROCEDURE    |                           |
|--------------------------|---------------------------|
| FUNCTION                 | LED DISPLAY               |
| DATE/TIME                | YES                       |
| AUTOMATIC DST ADJUSTMENT | EST                       |
| TIME ZONE                | TR-198 (TECUMSEN RD)      |
| SITE NAME                | CJ-189.17                 |
| MILEPOST                 | 262208L                   |
| DOT #                    | CROSSING                  |
| TESTER TYPE              | MM-DD-YYYY                |
| DATE FORMAT              | FAHRENHEIT                |
| TEMP FORMAT              | 0                         |
| INDICATE HOLD (SEC)      | 60                        |
| INDICATE REFRESH (SEC)   | 7.550.234.061.003.16      |
| SITE ATCS                | NO COMMUNICATION          |
| SITE TYPE                | 2.550.00.0000             |
| OFFICE ATCS ADDRESS      | 7.RRR.LLL.GGG.XX.XX       |
| PRIMARY HOP ADDR         | 7.RRR.LLL.GGG.XX.XX       |
| BACKUP HOP ADDR 1        | 7.RRR.LLL.GGG.XX.XX       |
| BACKUP HOP ADDR 2        | 7.RRR.LLL.GGG.XX.XX       |
| POLL ID                  | 1                         |
| MODE                     | GEN/ATCS                  |
| WAMS XID                 | DISABLED                  |
| OFFICE COMM DEVICE       | MCM (ECHELON)             |
| RADIO ATCS ADDR          | 7.RRR.LLL.GGG.01.01       |
| PHONE #                  | {OFFICE NUMBER}           |
| INIT STRING              |                           |
| FIELD COMM               | NONE                      |
| USER PORT                | BAUD 57600, N, 8, 1, NONE |
| AUX PORT                 | BAUD 9600, N, 8, 1, NONE  |

|                                   |         |
|-----------------------------------|---------|
| VERIFY NUMBER OF BULBS: SENSOR #1 |         |
| CURR 1: LAMP SET UP               | 7 BULBS |
| CURR 2: LAMP SET UP               | 7 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?                 | NO                      |
| AND 7 USED AS XR?                 | NO                      |
| AND 8 USED AS XR?                 | NO                      |
| XR CONTROLLED BY FOREIGN RR       |                         |
| ENTRANCE GATES                    | 2                       |
| GATES CONTROLLED BY FOREIGN RR    |                         |
| GATE POSITION FAIL TIME (SECONDS) | 20                      |
| BATTERY BANKS                     | 2                       |
| BATTERY MON USED                  | YES                     |
| INTERNAL CROSSING CONTROLLERS     | 2                       |
| EXTERNAL CROSSING CONTROLLERS     | 0                       |
| VHF COMMUNICATOR                  | YES                     |
| DTMF ACTIVATION                   | YES                     |
| ACTIVATION CODE                   | 208                     |
| ACTIVATION TIMEOUT (SECONDS)      | 60                      |
| IL00 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                      |

PROPERTY  
PENNSYLVANIA R.R.

### CONTROL SYSTEM CONFIGURATION MENU QUESTIONS (CONT.)

|                           |                |
|---------------------------|----------------|
| BELL ON                   | GATES LOWERING |
| GFT'S                     | YES            |
| BATTERIES ON GFT1         | 2              |
| GATE TIP SENSORS          | YES            |
| RTU                       | NO             |
| VHF VOICE CHANNEL         | 2              |
| VHF DATA CHANNEL          | 2              |
| USE CELL MODEM            |                |
| NON-CRITICAL FEATURE      | NO             |
| FULL APPROACH MOVES ALARM | ACTIVATE       |

| PROGRAM MENU QUESTIONS | PROGRAM |
|------------------------|---------|
| EDIT DIGITAL INPUTS    | NO      |
| EDIT BATTERIES         | NO      |
| EDIT RELAYS            | NO      |
| EDIT INDICATOR LEDS    | NO      |
| EDIT TEST LEDS         | NO      |
| EDIT IL00 SENSORS      | NO      |
| EDIT VHF SETTINGS      | NO      |
| SPK/ATCS SUBMODE       | 16      |

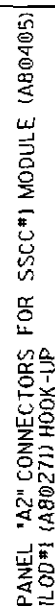
#### NOTES:

- \* = 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: | JLM 11-01-11 | <b>NORFOLK SOUTHERN</b><br>OFFICE OF ASST. VICE PRESIDENT<br>COMM. & SIGNALS, ATLANTA, GA.<br>M.P.: CJ-189.17<br>MAD RIVER, OH<br>FLOS AT TR-198 (TECUMSEN RD)<br>DAYTON DISTRICT<br>FILE R-<br>SHEET NO. 11 of 24 |
| DRAWN BY:    | XRL 11-01-11 |                                                                                                                                                                                                                    |
| CHECKED BY:  | PEH 11-07-11 |                                                                                                                                                                                                                    |
| IN SERVICE:  |              |                                                                                                                                                                                                                    |





• = ECHOLON CONNECTIONS NOT TO EXCEED 53' IN LENGTH AND TOTAL LENGTH NOT TO EXCEED 430' WITH A MAXIMUM OF 8 NODES. RECOMMEND USE BELDEN WIRE CABLE "8461" OR EQUIVALENT.

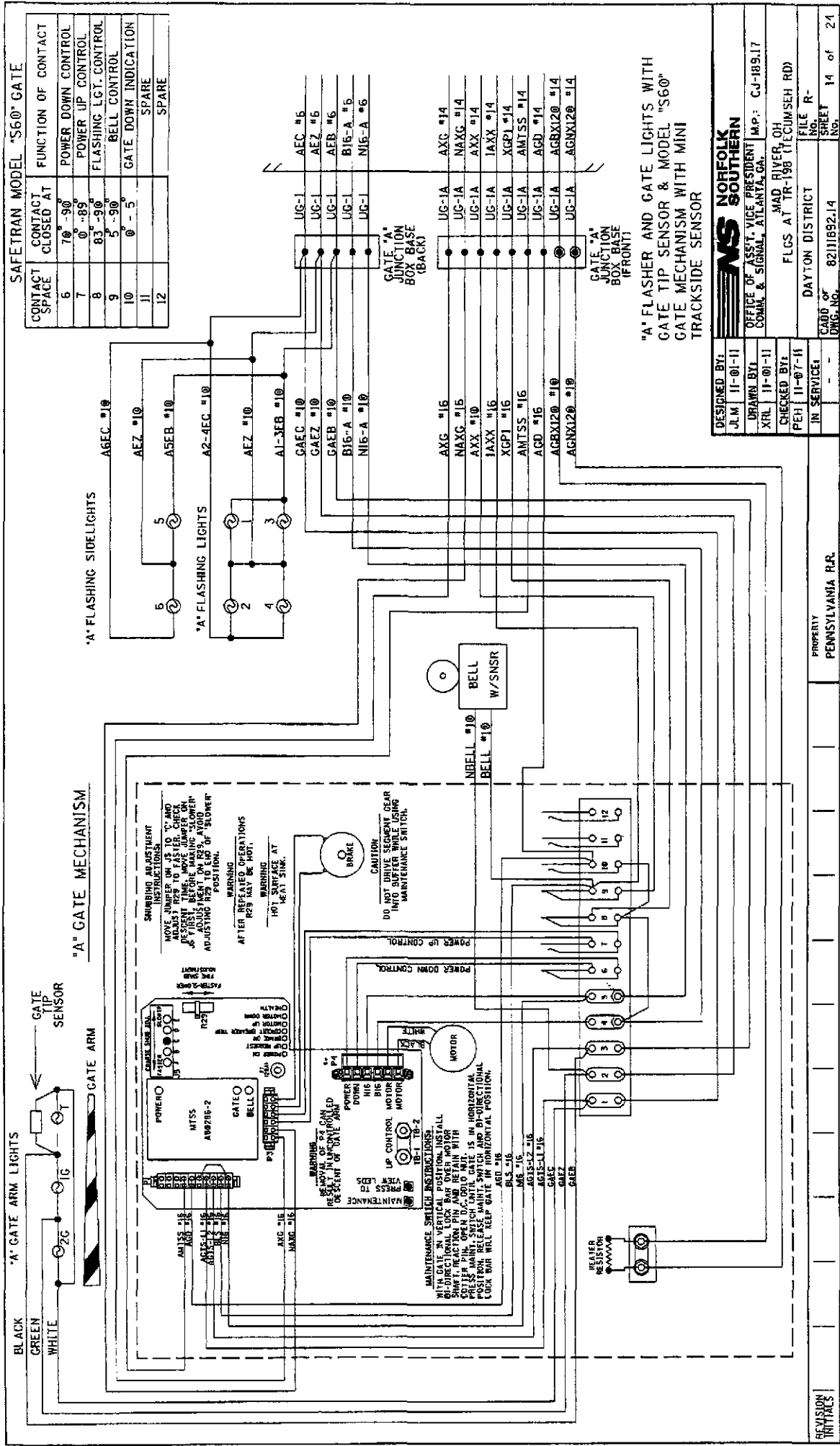
\*\*\* = TEST LINKS MUST BE OPENED TEMPORARILY FOR NEW COLD START OF NEW OR REPLACEMENT SSCC MODULE AND CAN ONLY BE CLOSED IN SEQUENCE WITH MFR. INSTRUCTIONS; SECTION 6 OF THE GCP 4000 REFERENCE MANUAL.

\*\*\*\*\* = RESISTORS TO BE INSTALLED TO LAMPS WITH SHORTEST CABLE RUN

|               |                                |                |
|---------------|--------------------------------|----------------|
| DESIGNED BY:  | NORFOLK SOUTHERN               |                |
| J.M. 11-01-11 |                                |                |
| DRAWN BY:     | OFFICE OF ASST. VICE PRESIDENT |                |
| XRL 11-01-11  | COMM. & SIGNAL, ATLANTA, GA.   |                |
| CHECKED BY:   | MAD RIVER, OH                  |                |
| PEH 11-07-11  | FLGS AT TR-198 (NCLUMSEH RD)   |                |
| IN SERVICE:   | DAYTON DISTRICT                | FILE R-        |
| "             | CARD OF CONC. AS               | NO.            |
| "             | 82111832.12                    | SHEET 12 of 24 |

[illegible]

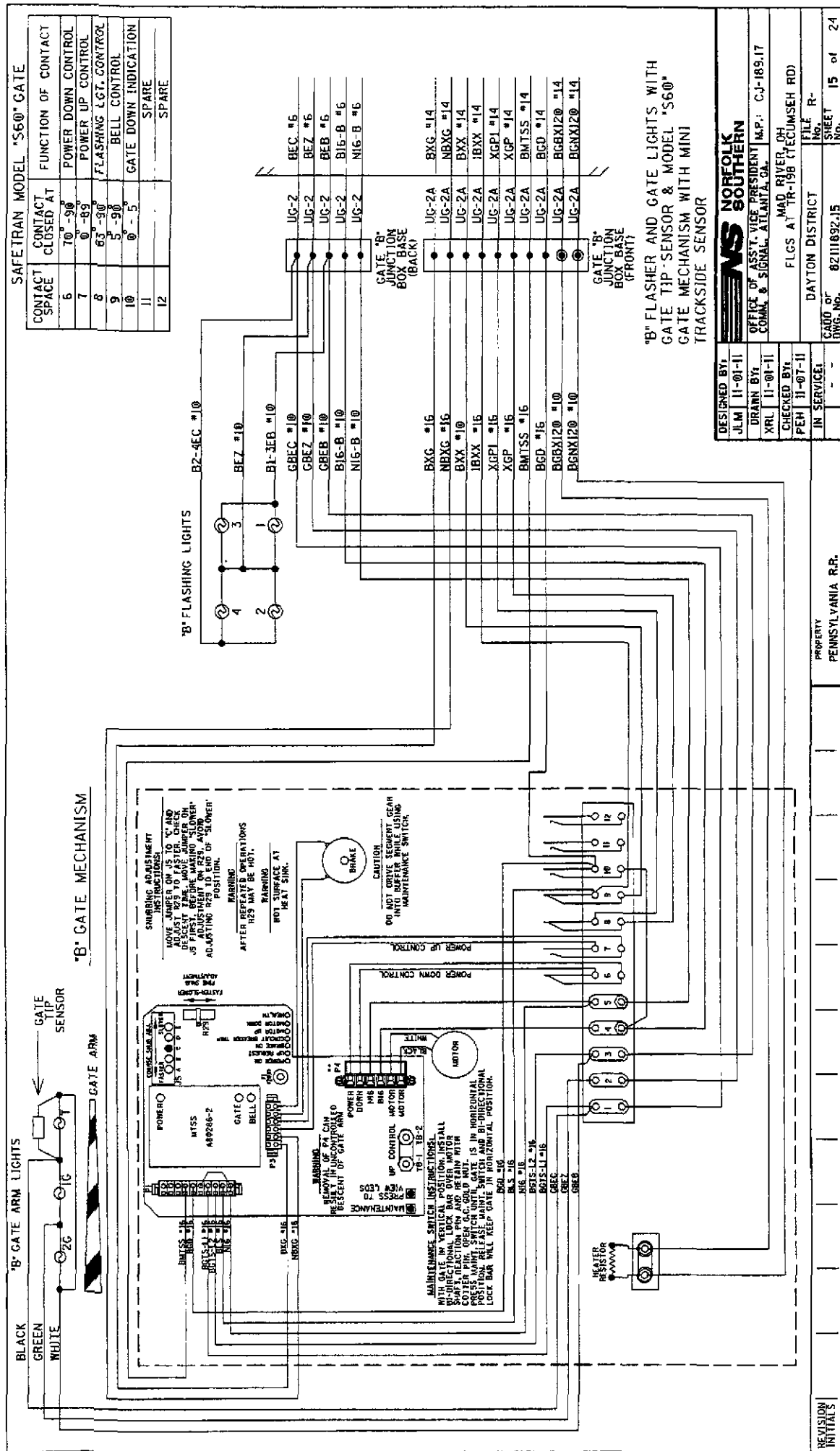




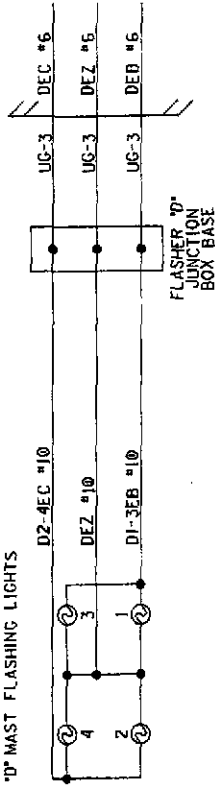
DESIGNED BY: JLM 11-01-11  
 DRAWN BY: XRL 11-01-11  
 CHECKED BY: PEH 11-07-11  
 IN SERVICE: -

**NORFOLK SOUTHERN**  
 OFFICE OF ASST. VICE PRESIDENT  
 COMM. & SIGNAL, ATLANTA, GA.  
 MAP: CJ-189.17  
 MAD RIVER, OH  
 FLGS AT TR-158 (TECUMSEH RD)  
 DAYTON DISTRICT  
 FILE NO. R-  
 82111892.14  
 SHEET 14 of 24

PROPERTY  
 PENNSYLVANIA R.R.



"D" MAST FLASHING LIGHTS



"D" FLASHER LIGHTS

|                    |              |                                                                                                                                                                                                                                                                                                                        |
|--------------------|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DESIGNED BY:       | JLM 11-01-11 |  <b>NORFOLK SOUTHERN</b><br>OFFICE OF ASST. VICE PRESIDENT<br>COMM. & SIGNAL, ATLANTA, GA.<br>M.P.: CJ-189.17<br>MAD RIVER OH<br>FLGS AT TR-198 (TECUMSEH RD)<br>DAYTON DISTRICT<br>FILE R-<br>6211892.16<br>8211892.16<br>16 of 24 |
| DRAWN BY:          | XRL 11-01-11 |                                                                                                                                                                                                                                                                                                                        |
| CHECKED BY:        | PEH 11-07-11 |                                                                                                                                                                                                                                                                                                                        |
| IN SERVICE:        | - -          |                                                                                                                                                                                                                                                                                                                        |
| PROPERTY           |              |                                                                                                                                                                                                                                                                                                                        |
| PENNYSYLVANIA R.R. |              |                                                                                                                                                                                                                                                                                                                        |
| REVISION           | INITIALS     |                                                                                                                                                                                                                                                                                                                        |

-E = Heavy Duty Equalizer  
(022700--1X)  
Clearview  
Z = Lightning Arrester  
(022565-1X)  
Q = LPC-10560-51

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

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

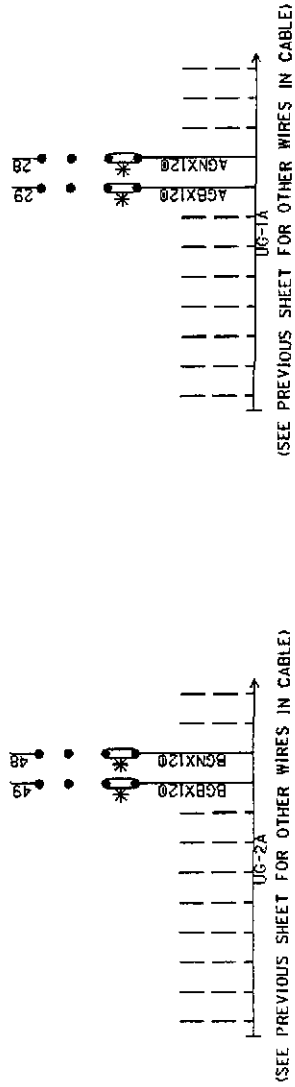
BACKBOARD DETAIL - 1A & 1B

[illegible]

REAR VIEW OF LEFT TWO ROWS TERMINAL BOARD 1

"1A"

"1B"



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:<br>J.M. 11-01-11 | <b>NS NORFOLK SOUTHERN</b>                                                       |                               |
| DRAWN BY:<br>XRL 11-01-11     | OFFICE OF ASS'T. VICE PRESIDENT M.P.: C.J-189.17<br>COMM. & SIGNAL, ATLANTA, GA. |                               |
| CHECKED BY:<br>PEH 11-07-11   | MAD RIVER, OH<br>FLGS AT TR-198 (TECUMSEH RD)                                    |                               |
| IN SERVICE:<br>- -            | DAYTON DISTRICT<br>CADD OF<br>ENG. NO. 82111892J18                               | FILE NO. R-<br>SHEET 18 of 24 |
| PROPERTY<br>PENNSYLVANIA R.R. |                                                                                  |                               |

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

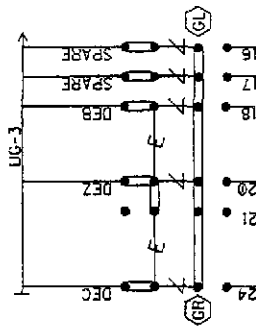
SEE FARADAY SHIELD DETAILS - 1A & 1B FOR HOW THIS PORTION OF THE FARADAY SHIELD IS PREDRILLED. ONLY INSTALL AND USE THE TERMINALS NEEDED.

*Heavy Duty Equivalents*  
 202700-1X

Clear view  
 Lightning Arrestor  
 (022585-1X)

GR = LPC-10560-51

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



*20-34  
 CP  
 11-11-11*

BACKBOARD DETAIL - 1C

|              |                 |
|--------------|-----------------|
| DESIGNED BY: | J.M. 11-01-11   |
| DRAWN BY:    | XRL 11-01-11    |
| CHECKED BY:  | PEH 11-07-11    |
| IN SERVICE:  | -               |
| FILE NO.:    | DAYTON DISTRICT |
| SHEET NO.:   | 8211892.19      |
| DATE:        | 19 01 24        |

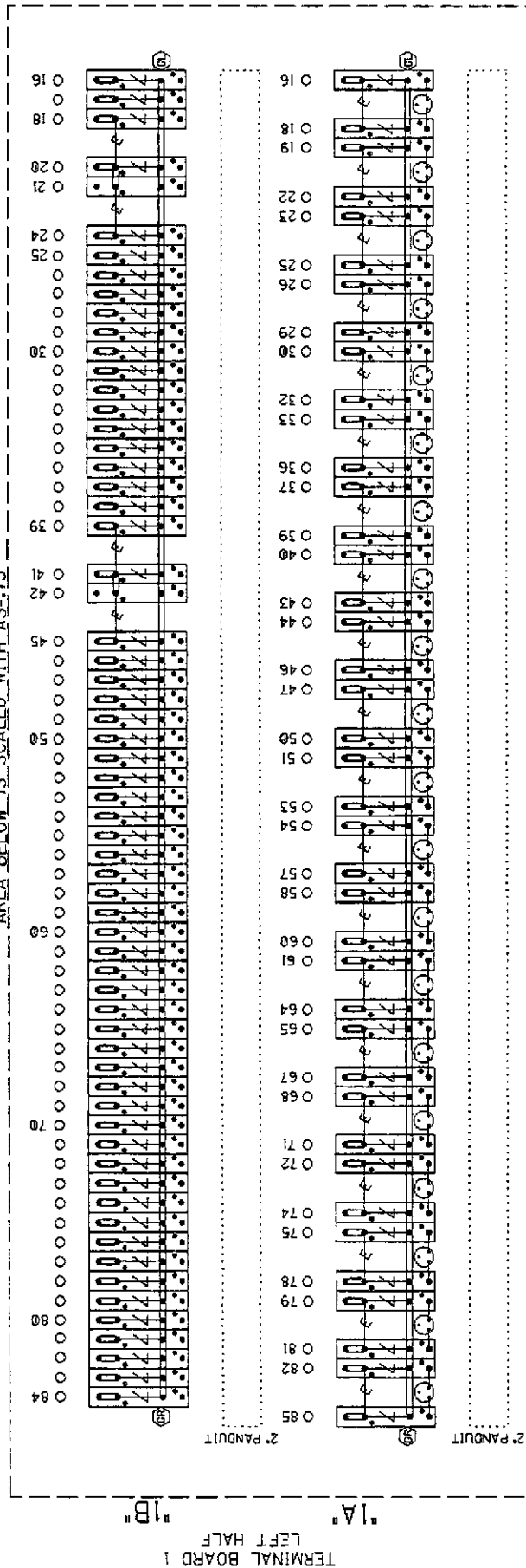
|                                |
|--------------------------------|
| NORFOLK SOUTHERN               |
| OFFICE OF ASST. VICE PRESIDENT |
| COMM. & SIGNAL, ATLANTA, GA.   |
| M.P.: CJ-189.17                |
| MAD RIVER, OH                  |
| FLCS AT 1R-198 (TECOMSEN RD)   |

PROPERTY  
 PENNSYLVANIA R.R.



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

AREA BELOW IS SCALED WITH AS=75



⊥ = Heavy Duty Equalizer  
(022100-IX)

Clearview

⊥ = Lightning Arrestor  
(022585-IX)

⊥ = LPC-10560-51

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

□ = INDICATES PLACEMENT  
OF PANDUIT

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

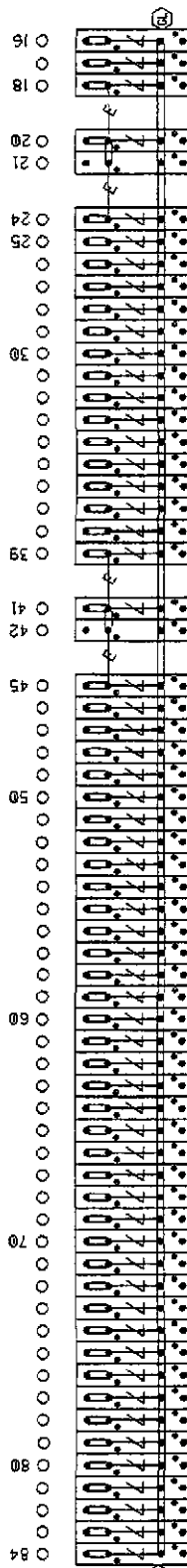
|                              |                                                                                                                                                                                                                        |
|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DESIGNED BY:<br>JLM 11-01-11 | <b>NORFOLK SOUTHERN</b><br>OFFICE OF ASST. VICE PRESIDENT<br>COMM. & SIGNAL, ATLANTA, GA.<br>MAD RIVER, OH<br>FLGS AT TR-198 (TECLAMSEH RD)<br>DAYTON DISTRICT<br>FILE NO. R-<br>CADD NO. 8211892.20<br>SHEET 20 of 24 |
| DRAWN BY:<br>XRL 11-01-11    |                                                                                                                                                                                                                        |
| CHECKED BY:<br>PCN 11-07-11  |                                                                                                                                                                                                                        |
| IN SERVICE:                  |                                                                                                                                                                                                                        |

PROPERTY  
PENNSYLVANIA RR.

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



⊖ = Heavy Duty Equalizer  
(027100-1X)  
Clear View  
⊖ = Lightning Arrestor  
(022585-1X)  
⊖ = LPC-10560-51

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

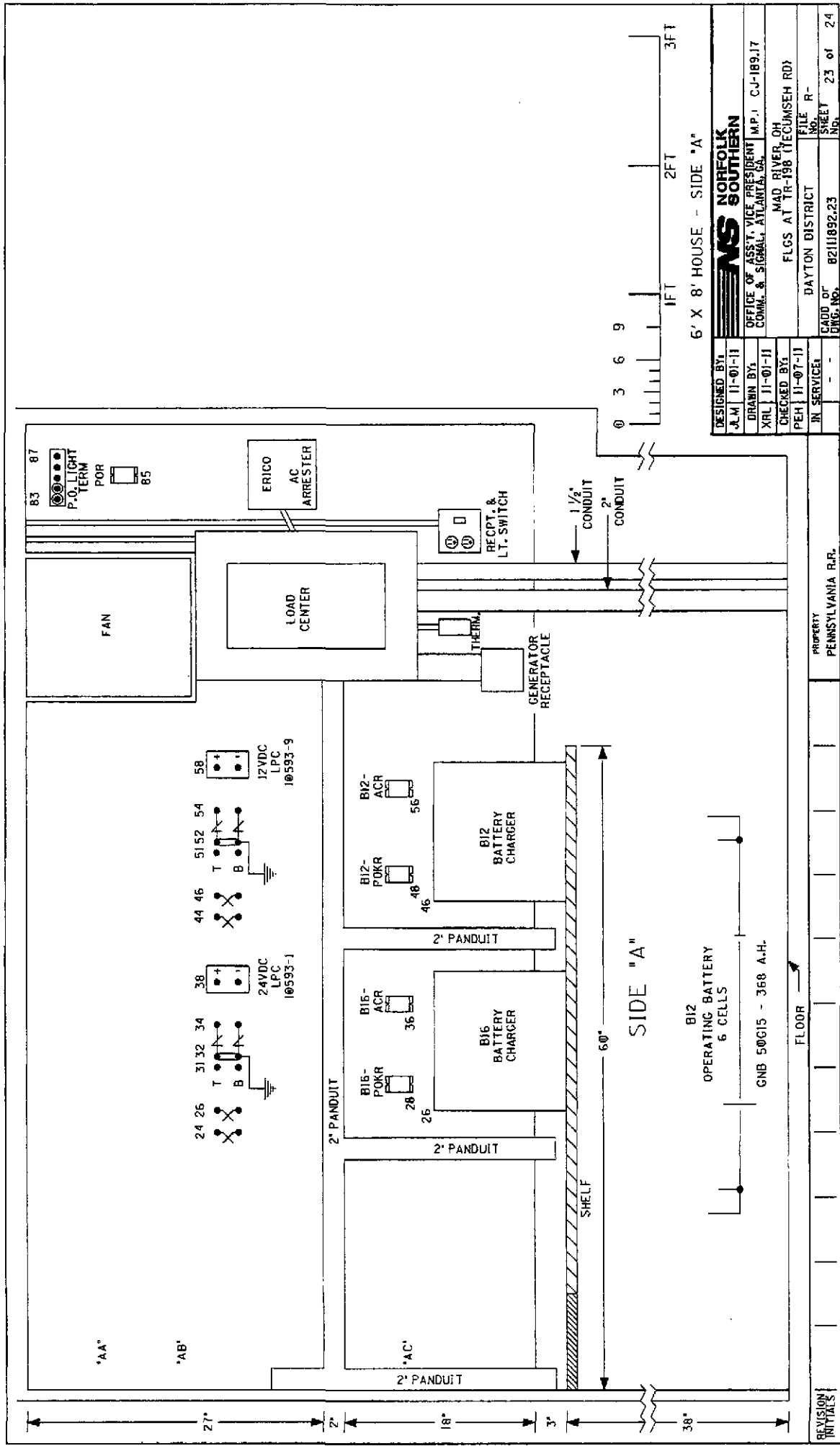
INDICATES PLACEMENT  
OF PANDUIT

TERMINAL BOARD 1  
RIGHT ROW  
FARADAY SHIELD DETAIL - 1C

|                                                                                |              |
|--------------------------------------------------------------------------------|--------------|
| DESIGNED BY:                                                                   | JLM 11-01-11 |
| DRAWN BY:                                                                      | XRL 11-01-11 |
| CHECKED BY:                                                                    | PEH 11-07-11 |
| IN SERVICE:                                                                    | - - -        |
|                                                                                |              |
| OFFICE OF ASST. VICE PRESIDENT<br>COMM. & SIGNAL, ATLANTA, GA. M.P.: CU-189.17 |              |
| MAD RIVER, OH<br>FLOS AT 18-198 (TECUMSEH RD)                                  |              |
| DAYTON DISTRICT                                                                | FILE R-      |
| CADD OR DWG. NO.                                                               | 8211892.21   |
| SHEET NO.                                                                      | 21 of 24     |

PROPERTY  
PENNSYLVANIA R.R.





|                              |                                                                |
|------------------------------|----------------------------------------------------------------|
| DESIGNED BY<br>J.M. 11-01-11 | NORFOLK SOUTHERN                                               |
| DRAWN BY<br>XRL 11-01-11     | OFFICE OF ASST. VICE PRESIDENT<br>COMM. & SIGNAL, ATLANTA, GA. |
| CHECKED BY<br>PEH 11-01-11   | MD RIVER, OH                                                   |
| IN SERVICE                   | FLGS AT TR-196 (TECUNSEH RD)                                   |
| FILE NO.                     | DAYTON DISTRICT                                                |
| SHEET NO.                    | 8211892.23                                                     |
| 23 of 24                     |                                                                |

PROPERTY  
PENNSYLVANIA R.R.

FLOOR

REVISION  
INITIALS





# OHIO RAIL DEVELOPMENT COMMISSION

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

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

October 24, 2013

Cayela J. Wimberly  
Administrator, Highway Grade Crossings  
Norfolk Southern Corporation  
1200 Peachtree Street, N.E., Box 123  
Atlanta, Georgia 30309

RE: Clark County, T.R. 95, Old Mill Road, DOT No. 523 515 H, PID 88509,  
Mile Post: CJ 186.97, S&E Project No. 10.1338

Dear Ms. Wimberly:

The Norfolk Southern (NS) plan and estimate dated July 16, 2013, in the amount of \$188,114.00 for the referenced project has been reviewed and is acceptable. 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 \$141,085.50. 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 will furnish prior written notification of their scheduled date to start construction to George Martin, PUCO, Railroad Division.
2. NS's project foreman will furnish FAX or written notification five (5) working days prior to the date work will start at the project site to Tim Perkins, Ohio Rail Development Commission (ORDC), 1980 West Broad Street, Columbus, Ohio 43223, email [Tim.Perkins@dot.state.oh.us](mailto:Tim.Perkins@dot.state.oh.us) or FAX (614) 728-4520, (telephone number 614-644-0284), and to the Public Utilities Commission of Ohio at 180 East Broad Street, Columbus, Ohio 43215, email [George.martin@puc.state.oh.us](mailto:George.martin@puc.state.oh.us), (telephone number 614-752-9107). 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.
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.



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

phone: 614.644.0306

IMPROVING RAIL TODAY FOR TOMORROW'S ECONOMY

4. NS's project foremen will notify Tim Perkins 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 Encumbrance Estimate 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.
7. This installation will include any ancillary work to make the warning devices function as designed and meet MUCTD.

Thank you for your assistance with these matters.

Sincerely,

A handwritten signature in black ink, appearing to read "Tim Perkins". The signature is written in a cursive, flowing style.

Tim Perkins  
Project Manager



## Diagnostic Review Team Survey

Date: 6-7-10

|                                                 |                             |                                    |  |
|-------------------------------------------------|-----------------------------|------------------------------------|--|
| <b>Location Data</b>                            |                             |                                    |  |
| Street or Road Name: TR 146, OLD MILL ROAD      |                             |                                    |  |
| Route/Road Number<br>(i.e. Twp., Co., SR or US) |                             | (include SLM if State or US route) |  |
| AAR-DOT No.: 523 515 H                          |                             |                                    |  |
| County: CLARK                                   | Township: MAD RIVER         | City:<br>(In or Near) SPRINGFIELD  |  |
| Railroad Name: NORFOLK SOUTHERN                 | Railroad Division: DEARBORN | Branch/Line Name: CINCINNATI       |  |
| Nearest RR<br>Timetable Station: SPRINGFIELD    |                             | RR Milepost: 186.97                |  |

### On-Site Review Team

(Include: Name - Organization - Phone Number)

1. TIM PERKINS ORDC 614-644-0284
2. GEORGE MARSHALL POCO 614-752-9107
3. NED WEBER CLA Co ENG 937 521 1803
4. Rick Ray NSC 404-529-1234
5. Derrick Drake NS 304-712-0220
6. ROBERT P COUSER NS 937-581-5255
7. JOE CATANZARO Trustee 937-605-2449
8. DAN O'CONNOR MRT Supervisor 937-605-1922
- 9.

### Existing Traffic Control Devices

| Type of Warning Devices               | Installed?                              |                                        | Quantity/Comments |
|---------------------------------------|-----------------------------------------|----------------------------------------|-------------------|
| Advance Warning Signs                 | <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                     | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            | 2                 |
| Crossbucks                            | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            | 2                 |
| Number of Tracks Signs                | <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No |                   |
| Inventory Tags                        | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            | UN READABLE       |
| 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 checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            | Number: 1 Length: |
| Side Lights                           | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            | 1                 |
| Automatic Gates                       | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            | Number: 2 Length: |
| Bells                                 | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            | 1                 |
| 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 checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            |                   |
| Other                                 | <input type="checkbox"/> Yes            | <input type="checkbox"/> No            |                   |

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



**Nu-Metrics Traffic Analyzer Study  
Computer Generated Summary Report  
City: SPRINGFIELD  
Street: OLD MILL SOUTH OF LOWER VALLEY**

A study of vehicle traffic was conducted with HI-STAR unit number 3660. The study was done in the SOUTH BOUND lane at OLD MILL SOUTH OF LOWER VALLEY in SPRINGFIELD, OH in CLARK county. The study began on Apr/19/06 at 11:00 AM and concluded on Apr/20/06 at 11:00 AM, lasting a total of 24.00 hours. Traffic statistics were recorded in 15 minute time periods. The total recorded volume showed 740 vehicles passed through the location with a peak volume of 25 on Apr/19/06 at [16:00-16:15] and a minimum volume of 0 on Apr/19/06 at [23:15-23:30]. The AADT count for this study was 718.

**SPEED**

Chart 1 lists the values of the speed bins and the total traffic volume for each bin. At least half the vehicles were traveling in the 20 - 25 MPH range or lower. The average speed for all classified vehicles was 22 MPH with 100.00% vehicles exceeding the posted speed of 0 MPH. The HI-STAR found 0.27 percent of the total vehicles were traveling in excess of 55 MPH. The mode speed for this traffic study was 20MPH and the 85th percentile was 26.87 MPH.

|              |                |                |                |                |                |                |                |                |                |                |                |                |                |               |  |  |  |  |  |
|--------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|---------------|--|--|--|--|--|
| <<br>to<br>9 | 10<br>to<br>14 | 15<br>to<br>19 | 20<br>to<br>24 | 25<br>to<br>29 | 30<br>to<br>34 | 35<br>to<br>39 | 40<br>to<br>44 | 45<br>to<br>49 | 50<br>to<br>54 | 55<br>to<br>59 | 60<br>to<br>64 | 65<br>to<br>69 | 70<br>to<br>74 | 75<br>to<br>> |  |  |  |  |  |
| 0            | 22             | 194            | 357            | 126            | 19             | 4              | 3              | 0              | 3              | 0              | 1              | 0              | 1              | 0             |  |  |  |  |  |

CHART 1

**CLASSIFICATION**

Chart 2 lists the values of the classification bins and the total traffic volume accumulated for each bin. Most of the vehicles classified during the study were Passenger Vehicles. The number of Passenger Vehicles in the study was 701 which represents 96 percent of the total classified vehicles. The number of Vans & Pickups in the study was 26 which represents 4 percent of the total classified vehicles. The number of Busses & Trucks in the study was 2 which represents 0 percent of the total classified vehicles. The number of Tractor Trailers in the study was 1 which represents 0 percent of the total classified vehicles.

|               |                |                |                |                |                |                |               |  |  |  |  |  |  |  |  |  |  |  |  |
|---------------|----------------|----------------|----------------|----------------|----------------|----------------|---------------|--|--|--|--|--|--|--|--|--|--|--|--|
| <<br>to<br>20 | 21<br>to<br>27 | 28<br>to<br>39 | 40<br>to<br>49 | 50<br>to<br>59 | 60<br>to<br>69 | 70<br>to<br>79 | 80<br>to<br>> |  |  |  |  |  |  |  |  |  |  |  |  |
| 701           | 17             | 9              | 2              | 1              | 0              | 0              | 0             |  |  |  |  |  |  |  |  |  |  |  |  |

CHART 2

**HEADWAY**

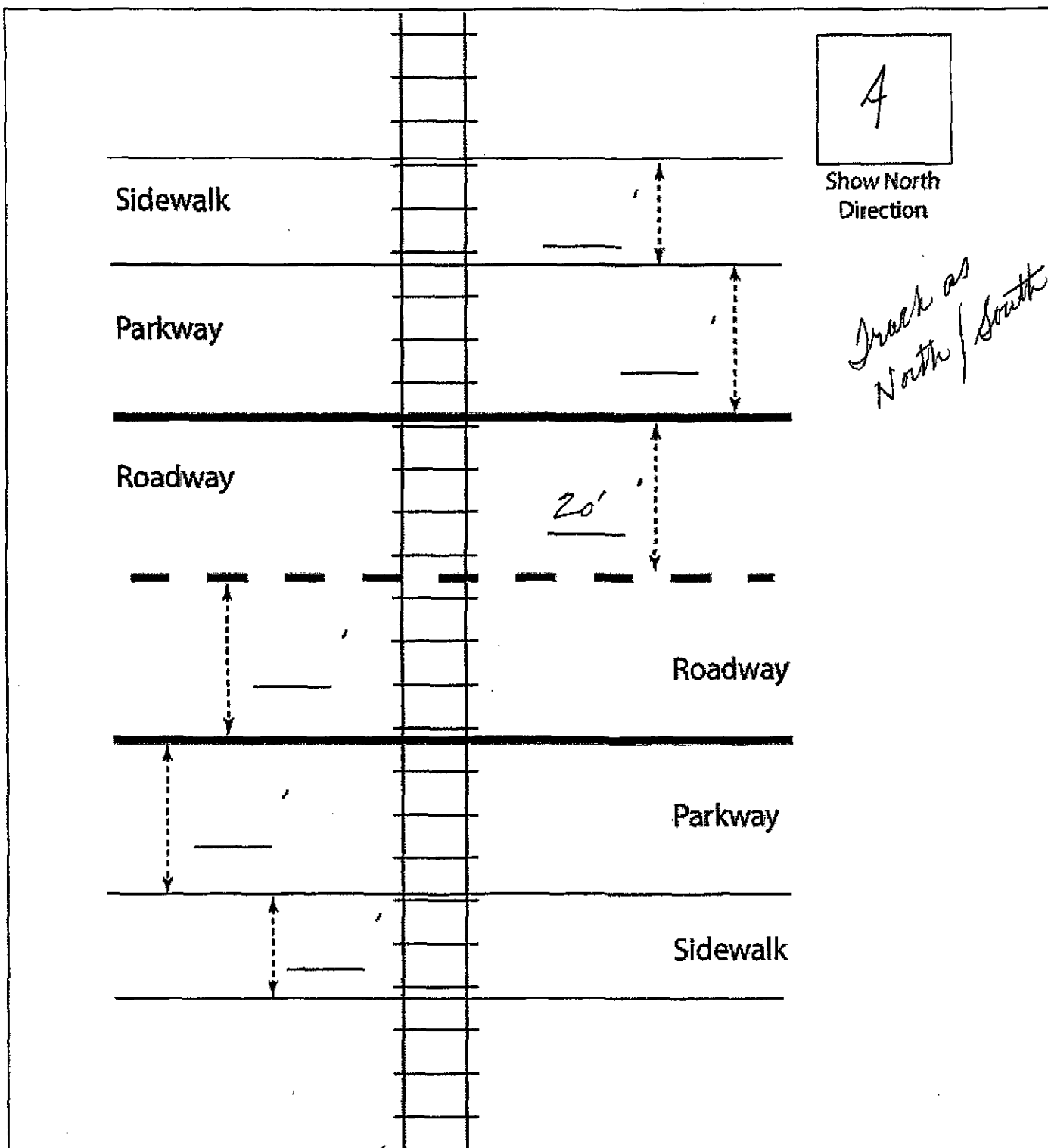
During the peak traffic period, on Apr/19/06 at [16:00-16:15] the average headway between vehicles was 34.615 seconds. During the slowest traffic period, on Apr/19/06 at [23:15-23:30] the average headway between vehicles was 900 seconds.

**WEATHER**

The roadway surface temperature over the period of the study varied between 52.00 and 107.00 degrees F. The HI-STAR determined that the roadway surface was Dry 100.00% of the time.

|                                                                                                                                                                                                                       | Initial Information (from database)                                                                                                                                                                                   | Revised                                                  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|
| Number & dates of crashes in previous 5 years                                                                                                                                                                         |                                                                                                                                                                                                                       |                                                          |
| Hazard Ranking                                                                                                                                                                                                        | Date Run:                                                                                                                                                                                                             |                                                          |
| <b>Railroad Data</b>                                                                                                                                                                                                  |                                                                                                                                                                                                                       |                                                          |
| Railroad Characteristics                                                                                                                                                                                              | Initial Information (from database)                                                                                                                                                                                   | Revised                                                  |
| Total trains per day                                                                                                                                                                                                  |                                                                                                                                                                                                                       |                                                          |
| < 1 per day                                                                                                                                                                                                           |                                                                                                                                                                                                                       |                                                          |
| Day thru trains                                                                                                                                                                                                       | 6                                                                                                                                                                                                                     |                                                          |
| Night thru trains                                                                                                                                                                                                     | 10                                                                                                                                                                                                                    |                                                          |
| Daytime switching movements                                                                                                                                                                                           | 2                                                                                                                                                                                                                     |                                                          |
| Nighttime switching movements                                                                                                                                                                                         | 0                                                                                                                                                                                                                     |                                                          |
| Total number of tracks                                                                                                                                                                                                | 1                                                                                                                                                                                                                     |                                                          |
| Number of main tracks                                                                                                                                                                                                 | 1                                                                                                                                                                                                                     |                                                          |
| Number of other tracks                                                                                                                                                                                                |                                                                                                                                                                                                                       |                                                          |
| Maximum train speed                                                                                                                                                                                                   | 50 30 in curve                                                                                                                                                                                                        |                                                          |
| Typical train speed                                                                                                                                                                                                   | 27                                                                                                                                                                                                                    |                                                          |
| Amtrak                                                                                                                                                                                                                |                                                                                                                                                                                                                       |                                                          |
| If non-gated crossing, is clearing sight distance adequate in all quadrants? (See Table 1) <input type="checkbox"/> Yes <input type="checkbox"/> No                                                                   |                                                                                                                                                                                                                       |                                                          |
| If multiple tracks, can two trains occupy crossing at the same time? <input type="checkbox"/> Yes <input type="checkbox"/> No                                                                                         |                                                                                                                                                                                                                       |                                                          |
| Can one train block the motorists' view of another train at crossing? <input type="checkbox"/> Yes (Explain below) <input type="checkbox"/> No                                                                        |                                                                                                                                                                                                                       |                                                          |
| Are there other track(s) crossing this same roadway within 100 ft of this crossing? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No                                                               |                                                                                                                                                                                                                       |                                                          |
| If yes, Crossing DOT # (if different) _____                                                                                                                                                                           |                                                                                                                                                                                                                       |                                                          |
| If yes, distance _____ (take measurement between track centerlines at closest point along roadway)                                                                                                                    |                                                                                                                                                                                                                       |                                                          |
| <b>Roadway Data</b>                                                                                                                                                                                                   |                                                                                                                                                                                                                       |                                                          |
| Local Highway Authority: <u>MAD RIVER TOWNSHIP</u>                                                                                                                                                                    |                                                                                                                                                                                                                       |                                                          |
| Roadway Characteristics                                                                                                                                                                                               | Initial Information (from database)                                                                                                                                                                                   | Revised                                                  |
| Average daily traffic                                                                                                                                                                                                 | 1495 in 2006                                                                                                                                                                                                          |                                                          |
| Highway paved                                                                                                                                                                                                         | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                                                                                                                                                   | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| Roadway Surface: <input checked="" type="checkbox"/> Blacktop <input type="checkbox"/> Gravel <input type="checkbox"/> Concrete <input type="checkbox"/> Other _____                                                  |                                                                                                                                                                                                                       |                                                          |
| Roadway width: <u>20</u> ft.                                                                                                                                                                                          |                                                                                                                                                                                                                       |                                                          |
| Number of highway lanes                                                                                                                                                                                               | 2                                                                                                                                                                                                                     |                                                          |
| Urban or Rural                                                                                                                                                                                                        |                                                                                                                                                                                                                       |                                                          |
| Vehicle Speed: <u>55</u> MPH                                                                                                                                                                                          |                                                                                                                                                                                                                       |                                                          |
| School Bus Operation: <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes <u>6</u> Amount                                                                                                             |                                                                                                                                                                                                                       |                                                          |
| Hazardous Materials Trucks: <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes _____ Amount                                                                                                          |                                                                                                                                                                                                                       |                                                          |
| Shoulders: <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes                                                                                                                                        |                                                                                                                                                                                                                       |                                                          |
| Is the shoulder surfaced? <input checked="" 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 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       |                                                                                                                    |
| If yes,<br>Distance _____                                                                                                                            |                                                                                                                    |
| Is this intersection signalized? <input type="checkbox"/> No <input type="checkbox"/> Yes                                                            |                                                                                                                    |
| Are the signals currently interconnected with the existing crossing warning devices? <input type="checkbox"/> No <input type="checkbox"/> Yes        |                                                                                                                    |
| Is it the consensus of the Diagnostic Review Team that this is a potential closure project? <input type="checkbox"/> No <input type="checkbox"/> Yes |                                                                                                                    |
| Explain reasons:                                                                                                                                     |                                                                                                                    |
| <b>Type of Development</b>                                                                                                                           |                                                                                                                    |
| <input type="checkbox"/> Open Space<br><input type="checkbox"/> Industrial<br><input checked="" type="checkbox"/> Residential                        | <input type="checkbox"/> Institutional<br><input type="checkbox"/> Commercial<br>Location of nearby schools: _____ |
| <b>Utility Information</b>                                                                                                                           |                                                                                                                    |
| Is commercial power available? <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes                                                   |                                                                                                                    |
| Utility Provider (Company Name) <u>OHIO EDISON</u>                                                                                                   | Phone Number _____                                                                                                 |
| Nearest Available Power Source _____                                                                                                                 |                                                                                                                    |
| What other utilities are present? _____                                                                                                              |                                                                                                                    |
| Is there potential utility conflict(s) <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown                     |                                                                                                                    |
| <b>Diagnostic Team Recommendations</b>                                                                                                               |                                                                                                                    |
|                                                                                                                                                      | Quadrants Needed                                                                                                   |
| <input type="checkbox"/> Install/upgrade active devices                                                                                              |                                                                                                                    |
| <input type="checkbox"/> Automatic Flashing Lights (AFLS)                                                                                            |                                                                                                                    |
| <input type="checkbox"/> AFLS / Cants                                                                                                                |                                                                                                                    |
| <input checked="" type="checkbox"/> AFLS / Gates                                                                                                     |                                                                                                                    |
| <input type="checkbox"/> AFLS / Gates / Cants                                                                                                        |                                                                                                                    |
| <input type="checkbox"/> Upgrade circuitry                                                                                                           |                                                                                                                    |
| <input type="checkbox"/> Sidelights                                                                                                                  |                                                                                                                    |
| <input type="checkbox"/> Guardrail Needed                                                                                                            |                                                                                                                    |
| <input type="checkbox"/> Install/Replace curb                                                                                                        |                                                                                                                    |
| <input type="checkbox"/> Other (define)                                                                                                              |                                                                                                                    |
| Comments: <i>additional flasher only in NW quad and remove cantilever</i>                                                                            |                                                                                                                    |
| <input type="checkbox"/> Install/upgrade traffic signal preemption                                                                                   |                                                                                                                    |
| <input type="checkbox"/> No improvements needed                                                                                                      |                                                                                                                    |
| <input type="checkbox"/> Other (define)                                                                                                              |                                                                                                                    |
| <b>Field Dimensions</b>                                                                                                                              |                                                                                                                    |



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

Measurements by: \_\_\_\_\_

## Field Sketch

Crossing Angle ☐ 0-29° ☐ 30-59° ☐ 60-90° Measured in \_\_\_\_\_ Quadrant?

Sketch by: \_\_\_\_\_

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.



16-Jul-13

**Detailed Estimate for Grade Crossing Warning Devices**

City/State: MAD RIVER, OH  
MilePost: CJ-186.97  
State Proj. No.:  
S&E Proj. No.: 10.1338  
Man Days: 115

Road: OLD MILL RD (TR 95)  
DOT/AAR: 523515H  
County: CLARK  
File Number:

| ***Purchases - Others***                                          |              |
|-------------------------------------------------------------------|--------------|
| Meals and Lodging:                                                | \$15,456.00  |
| Rental of Equipment:                                              | \$16,100.00  |
| (2 Trucks, 1 Backhoe w/ Traller<br>and 1 Pipe-Pusher for 23 Days) |              |
| Construction Supervision Vehicle:                                 | \$2,877.00   |
| Purchases - Other Total:                                          | \$34,433.00  |
| ***Material And Additives***                                      |              |
| Material Cost:                                                    | \$58,684.00  |
| Sales and Use Tax:                                                | \$0.00       |
| Material Handling Freight:                                        | \$2,934.20   |
| Material Total:                                                   | \$61,618.20  |
| ***Labor And Additives***                                         |              |
| Labor Cost:                                                       | \$32,200.00  |
| (5 man crew at \$1,400.00 a day for: 23 days)                     |              |
| Payroll Tax & Overheads:                                          | \$42,774.48  |
| Preliminary Engineering:                                          | \$7,997.79   |
| Construction Supervision:                                         | \$9,090.06   |
| Labor Total:                                                      | \$92,062.33  |
| Project Cost:                                                     | \$188,113.53 |
| Scrap / Salvage Credit:                                           | \$0.00       |
| Project Total:                                                    | \$188,114.00 |

Estimated on: 16-Jul-13

Estimated by: ndr3j

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:                                                                                                                                                                                                                  | MAD RIVER           |
| Road:                                                                                                                                                                                                                  | OLD MILL RD (TR 95) |
| Mile Post:                                                                                                                                                                                                             | CJ-186.97           |
| Drawing Number:                                                                                                                                                                                                        | 82111869            |
| State Project Number:                                                                                                                                                                                                  |                     |
| County:                                                                                                                                                                                                                | CLARK               |
| A A R Number:                                                                                                                                                                                                          | 523615H             |
| Project Number:                                                                                                                                                                                                        | 10.1338             |
| File Number:                                                                                                                                                                                                           |                     |
| New File Number:                                                                                                                                                                                                       | CX0124209           |
| WBS:                                                                                                                                                                                                                   | F-33381             |
| Store Number:                                                                                                                                                                                                          | 09177               |
| Supervisor:                                                                                                                                                                                                            | D.R. DRAKE          |
| Tax Code:                                                                                                                                                                                                              |                     |
| 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 |                     |



| Location: MAD RIVER |               |    | OH             | S&E Proj. No.: 10.1338 | A/E No.: F-33381                                                                                                                                                                                                     | Drawing No.: 82111869 |                               |                            |                      |
|---------------------|---------------|----|----------------|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-------------------------------|----------------------------|----------------------|
| Store No.: 09177    |               |    | P.O.Number:    |                        | Date Required:                                                                                                                                                                                                       | Date Shipped:         | Vendor: Xorail                |                            |                      |
| 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 | \$5.56         | \$16.65                | AAR/DOT NUMBER PLATE/DECAL, ORDER 3 PER PROJECT. 60 DAY LEAD TIME. SUPPLIED BY S'TRAN.                                                                                                                               |                       |                               |                            |                      |
| 2                   | 105-177256-4  | EA | \$101.04       | \$202.08               | BATTERY, TRAY 44" x 8.125", FOR USE WITH 7 CELLS 368AH BATTERIES, #170999-1                                                                                                                                          |                       |                               |                            |                      |
| 29                  | 105-288384-4  | EA | \$270.12       | \$7,833.48             | BATTERY,GNB 368AH MODEL 50G15 SINGLE CELL 2.25 VOLTS, FOR USE WITH CROSSINGS DESIGNED AFTER 09/09                                                                                                                    |                       |                               |                            |                      |
| 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                                                                                         |                       |                               |                            |                      |
| 400                 | 465-939422-4  | LF | \$2.92         | \$1,168.00             | CABLE, UG 12 CONDUCTOR NO 14 AWG SOLID EACH CONDUCTOR WITH 5/64 IN INSULATION 10 MIL                                                                                                                                 |                       |                               |                            |                      |
| 700                 | 465-292862-4  | LF | \$1.36         | \$952.00               | CABLE, UG 2-6 TWISTED, S-23 OKONITE 113-12-3933 SOLID TINNED CONDUCTOR                                                                                                                                               |                       |                               |                            |                      |
| 400                 | 465-292929-4  | LF | \$4.13         | \$1,652.00             | CABLE, UG 5 COND. NO. 6 AWG SOLID COPPER CABLE TO MEET NS CORP. SPEC. FOR SIGNAL                                                                                                                                     |                       |                               |                            |                      |
| 1                   | 670-155602-4  | EA | \$654.90       | \$654.90               | CHARGER, BATTERY CRAGG MODEL 40 ETC-12V 40 AMP TEMP COMPENSATED                                                                                                                                                      |                       |                               |                            |                      |
| 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 | \$78.69        | \$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 |                       |                               |                            |                      |
| 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                                                                                                                         |                       |                               |                            |                      |
| 6                   | 670-760012-4  | EA | \$12.33        | \$73.98                | COVER, FOR 1 WAY FLASHING LIGHT ASSY. 18 OZ. BLACK VINYL COATED NYLON. =====TO COVER 2 LAMPS=====                                                                                                                    |                       |                               |                            |                      |

APPROVED BY STATE

APPROVED BY RAILROAD

CAR NUMBER

SEAL NUMBER

Location: MAD RIVER OH S&E Proj. No.: 10.1338 AFE No.: F-33381 Drawing No.: 82111869  
Store No.: 09177 P.O. Number: Date Required: Date Shipped: Vendor: Xorail

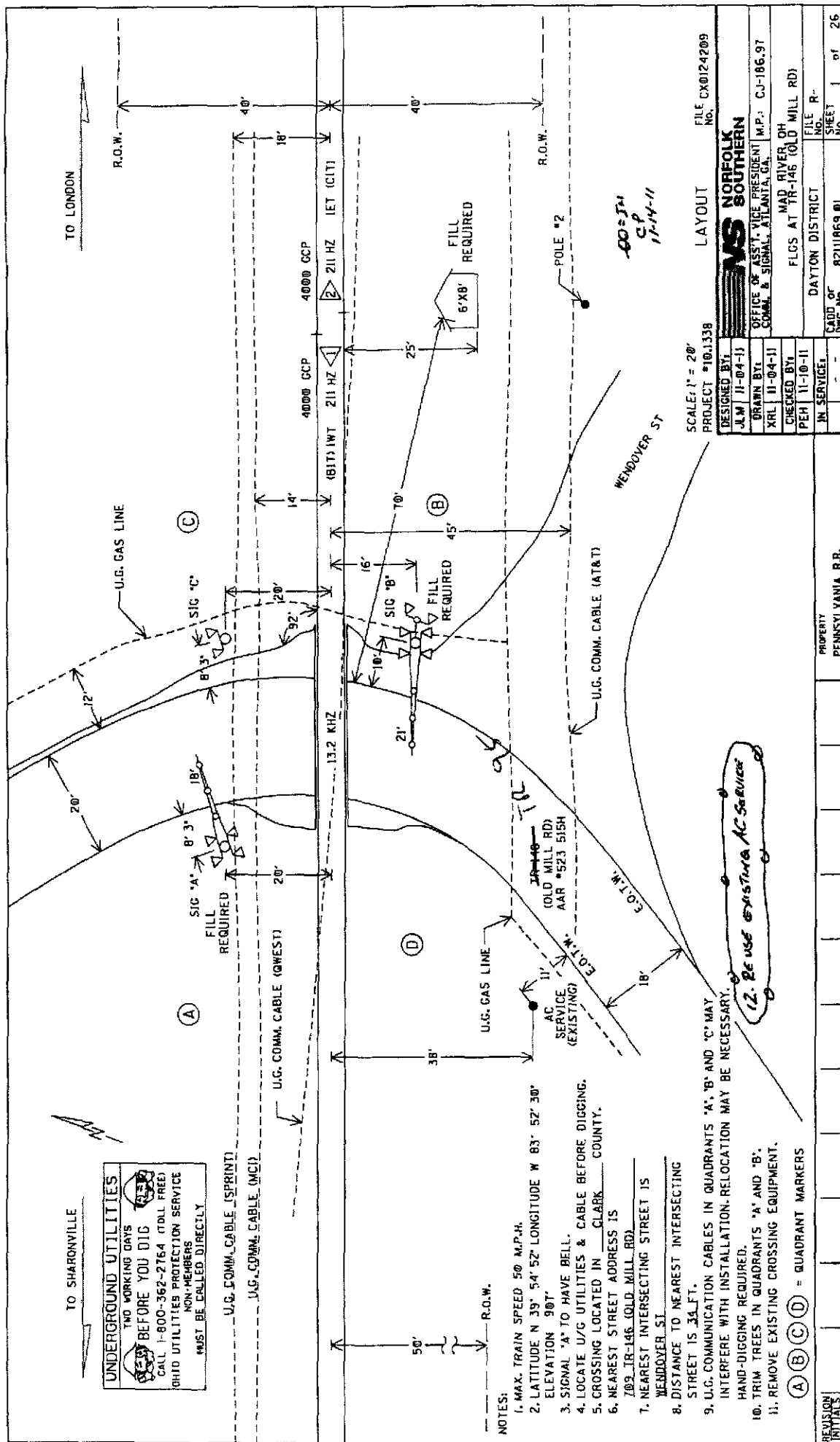
| Qty. | Class-Item-CD | UI | Price per Item | Total Price | Item Description                                                                                                                                                               | Quantity Shipped | Quantity Installed Date Quan. | Quantity Returned (Credit) | Special Instructions |
|------|---------------|----|----------------|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-------------------------------|----------------------------|----------------------|
| 1    | 670-986650-4  | EA | \$354.27       | \$354.27    | DISPOSAL, CONSTRUCTION DEBRIS AND CLEANING X'ING EQUIPMENT CONTAINER                                                                                                           |                  |                               |                            |                      |
| 5    | 670-000003-4  | EA | \$255.86       | \$1,279.25  | FILLSTONE #57, QUANTITY IS BASED ON TRUCK LOAD PLUS DELIVERY COST                                                                                                              |                  |                               |                            |                      |
| 3    | 670-015231-4  | EA | \$599.40       | \$1,798.20  | 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    | 670-123298-4  | EA | \$345.97       | \$345.97    | KIT, HARDWARE SUPPLIES REQUIRED X'ING PKAGES. WEB CONNECTORS FOR SHUNT(8EA) TAPE, AMPS, P'GUM PAINT, SLEEVES, TAGS, GLUE, 100 EA WHITE TAGS, JNE CAN BLUE MARKING PAINT ETC... |                  |                               |                            |                      |
| 1    | 670-745798-4  | EA | \$676.56       | \$676.56    | LAMP ASSY, 4" GRD. MAST MTG. 1W IND. 20" BKGRD, FLX-12 W/BULB S'TRAN #042003-484XNS                                                                                            |                  |                               |                            |                      |
| 1    | 670-757955-4  | EA | \$683.57       | \$683.57    | LAMP ASSY, 5" MAST MTG. 1W IND. 20" BKGRD, FRT LTS.FLX-12 W/BULB S'TRAN #042003-486XNS                                                                                         |                  |                               |                            |                      |
| 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                                                                                                 |                  |                               |                            |                      |
| 6    | 165-643547-4  | EA | \$5.92         | \$35.52     | LAMP, 18 WATT 10 VOLT S-11 SC BAY 18S11/1SC CLEAR RWY SIGNAL UJ-71463 GE                                                                                                       |                  |                               |                            |                      |
| 2    | 255-590880-4  | EA | \$16.72        | \$33.44     | LOCK, AMERICAN LOCK MODEL H-10KA KEYED ALIKE TO PRIVATE KEYWAY D456 AND STAMPED "NS SIG"                                                                                       |                  |                               |                            |                      |
| 1    | 610-150566-4  | EA | \$1,587.00     | \$1,587.00  | MAST, 5" ALUMINUM (0890) RIGHT FOR LIGHT UNITS RIGHT OR LEFT W/DBL JCT. BOX BASE SAFETRAN #070519-47X                                                                          |                  |                               |                            |                      |
| 2    | 670-637778-4  | EA | \$1,317.65     | \$2,635.30  | MAST, 5" ALUMINUM 13'10" W/TH DOUBLE JCT. BOX BASE S'TRAN P# 070519-11AX.                                                                                                      |                  |                               |                            |                      |
| 1    | 670-000985-4  | EA | \$312.09       | \$312.09    | MAST, SIDE LIGHT BRACKET F/5"MT. HARMON @225834-XXX, SAFETRAN 041442-26X,                                                                                                      |                  |                               |                            |                      |
| 2    | 670-850933-4  | EA | \$3,925.01     | \$7,850.02  | MECHANISM, GATE MODEL S-60, W/TH DEFROSTER AND MINI TRACKSIDE SENSOR S'TRAN # 0740007-X002B3                                                                                   |                  |                               |                            |                      |
| 2    | 670-000001-4  | EA | \$726.23       | \$1,452.46  | MISC. EXPENSE, MATERIAL/FILL                                                                                                                                                   |                  |                               |                            |                      |
| 1    | 000-000000-4  | EA | \$5,000.00     | \$5,000.00  | MISC. EXPENSE, UNDERGROUND BORING                                                                                                                                              |                  |                               |                            |                      |
| 4    | 670-700469-4  | EA | \$1,134.36     | \$4,537.44  | MODULE, MULTI FREQUENCY ISLAND SAFETRAN #80211 FOR 3000GCP                                                                                                                     |                  |                               |                            |                      |

APPROVED BY STATE APPROVED BY RAILROAD CAR NUMBER SEAL NUMBER

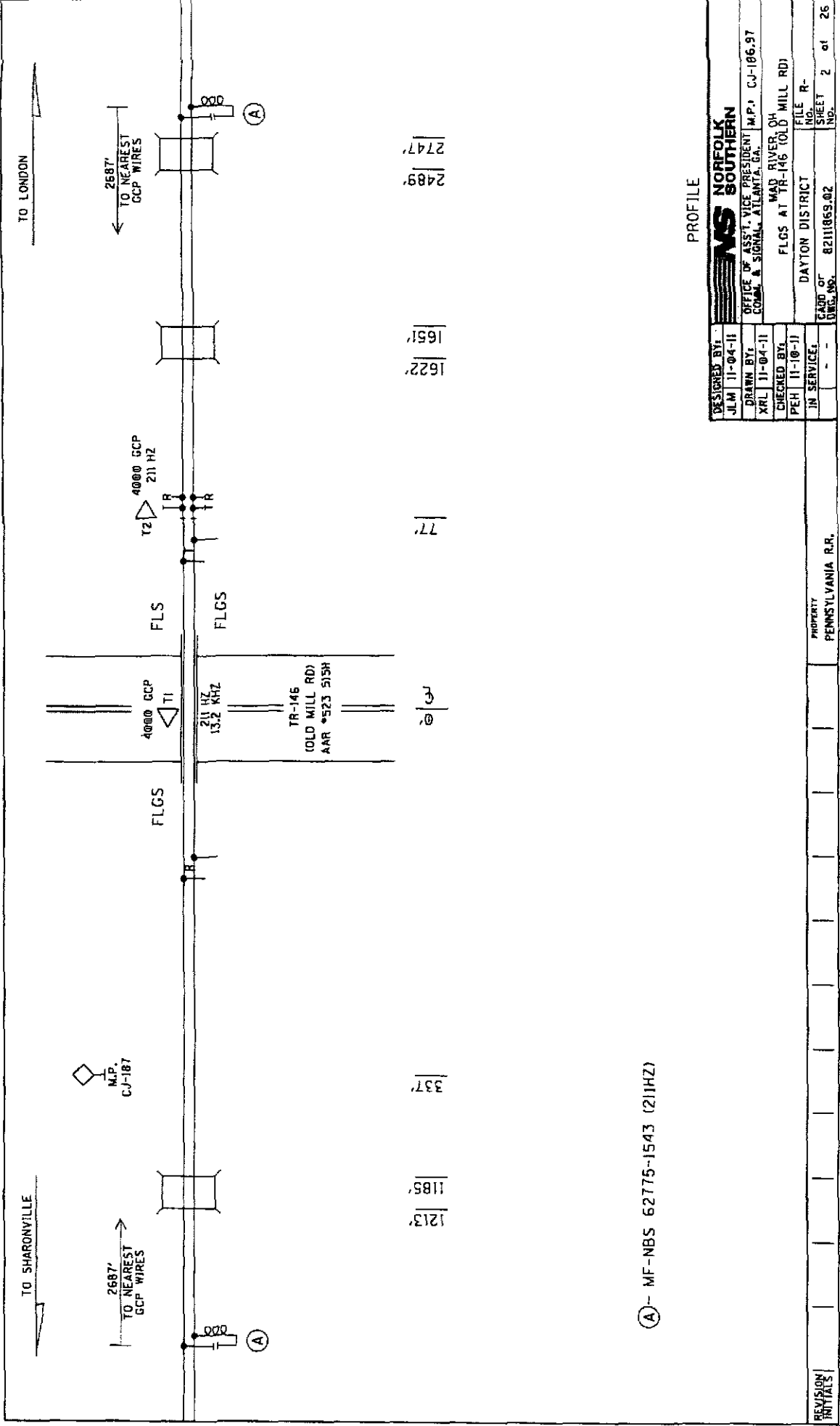
| Location: MAD RIVER |               |    | OH             | S&E Proj. No.: 10.1338 | A/E No.: F-33381                                                                       | Drawing No.: 82111869 | Vendor: Xorail                   |                            |                      |
|---------------------|---------------|----|----------------|------------------------|----------------------------------------------------------------------------------------|-----------------------|----------------------------------|----------------------------|----------------------|
| Store No.: 09177    |               |    | P.O. Number:   |                        | Date Required:                                                                         | Date Shipped:         |                                  |                            |                      |
| Qty.                | Class-Item-CD | UI | Price per Item | Total Price            | Item Description                                                                       | Quantity Shipped      | Quantity Installed Date<br>Quan. | Quantity Returned (Credit) | Special Instructions |
| 4                   | 670-014225-4  | EA | \$1,535.67     | \$6,142.68             | MODULE, PROCESSOR FOR 3000 GCP SAFETRAN #80214                                         |                       |                                  |                            |                      |
| 3                   | 670-001347-4  | EA | \$57.10        | \$171.30               | PACKAGE, HARDWARE SIGN 5 IN. MOUNTING, SERRMI A1250-5, HARMON @200965-000, OR          |                       |                                  |                            |                      |
| 1                   | 670-514605-4  | EA | \$11.11        | \$11.11                | PINNACLE, W-C SECT 1-11, 4"X 5" REF K1 110-8 OR SAFETRAN NO. @035045-503X              |                       |                                  |                            |                      |
| 1                   | 165-018451-4  | EA | \$211.35       | \$211.35               | PROTECTOR, 12VDC, AAR MOUNT LPC 10593-9 LIGHTNING PROTECTION CORP.                     |                       |                                  |                            |                      |
| 3                   | 465-002899-4  | EA | \$40.24        | \$120.72               | 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                                     |                       |                                  |                            |                      |
| 2                   | 670-586967-4  | EA | \$42.98        | \$85.96                | SHUNT COVER W/LAG SCREWS, 19"X19", SERRMI #40271, ORDER 1 PER SHUNT                    |                       |                                  |                            |                      |
| 1                   | 670-652773-4  | EA | \$460.98       | \$460.98               | SHUNT, MULTI-FREQ. #62775-1543 SAFETRAN NARROW BAND                                    |                       |                                  |                            |                      |
| 1                   | 670-645460-4  | EA | \$575.56       | \$575.56               | SHUNT, MULTI-FREQ. #62775-8621 SAFETRAN NARROW BAND                                    |                       |                                  |                            |                      |
| 3                   | 670-393331-4  | EA | \$37.43        | \$112.29               | SIGN CROSSING MALFUNCTION ASSEMBLY FOR 4" AND 5" MAST, SAFETRAN #T17215                |                       |                                  |                            |                      |
| 3                   | 670-016346-4  | EA | \$143.38       | \$430.14               | 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"                    |                       |                                  |                            |                      |

Total Material: \$58,683.93

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



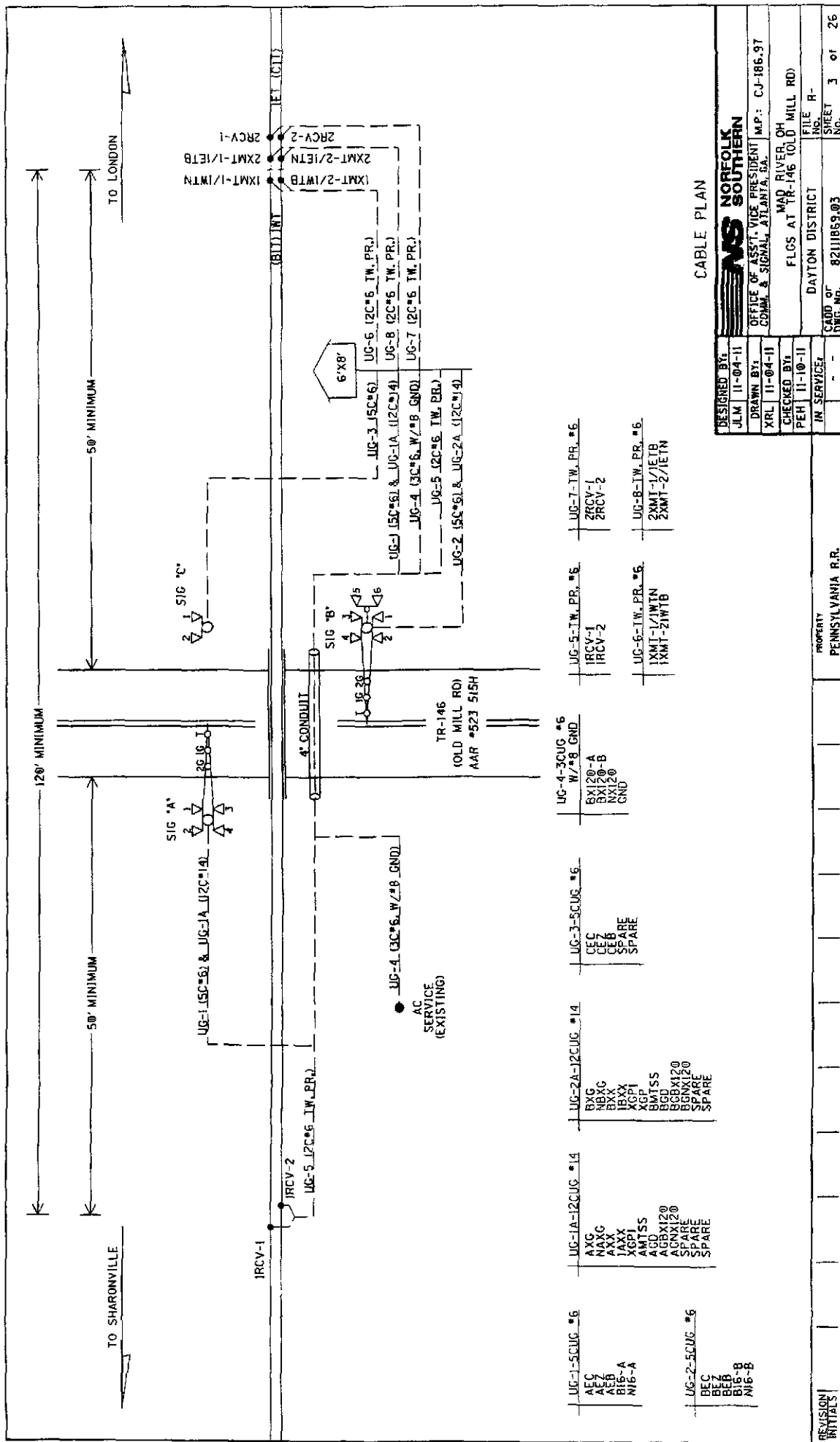
PROPERTY  
PENNSYLVANIA B.B.

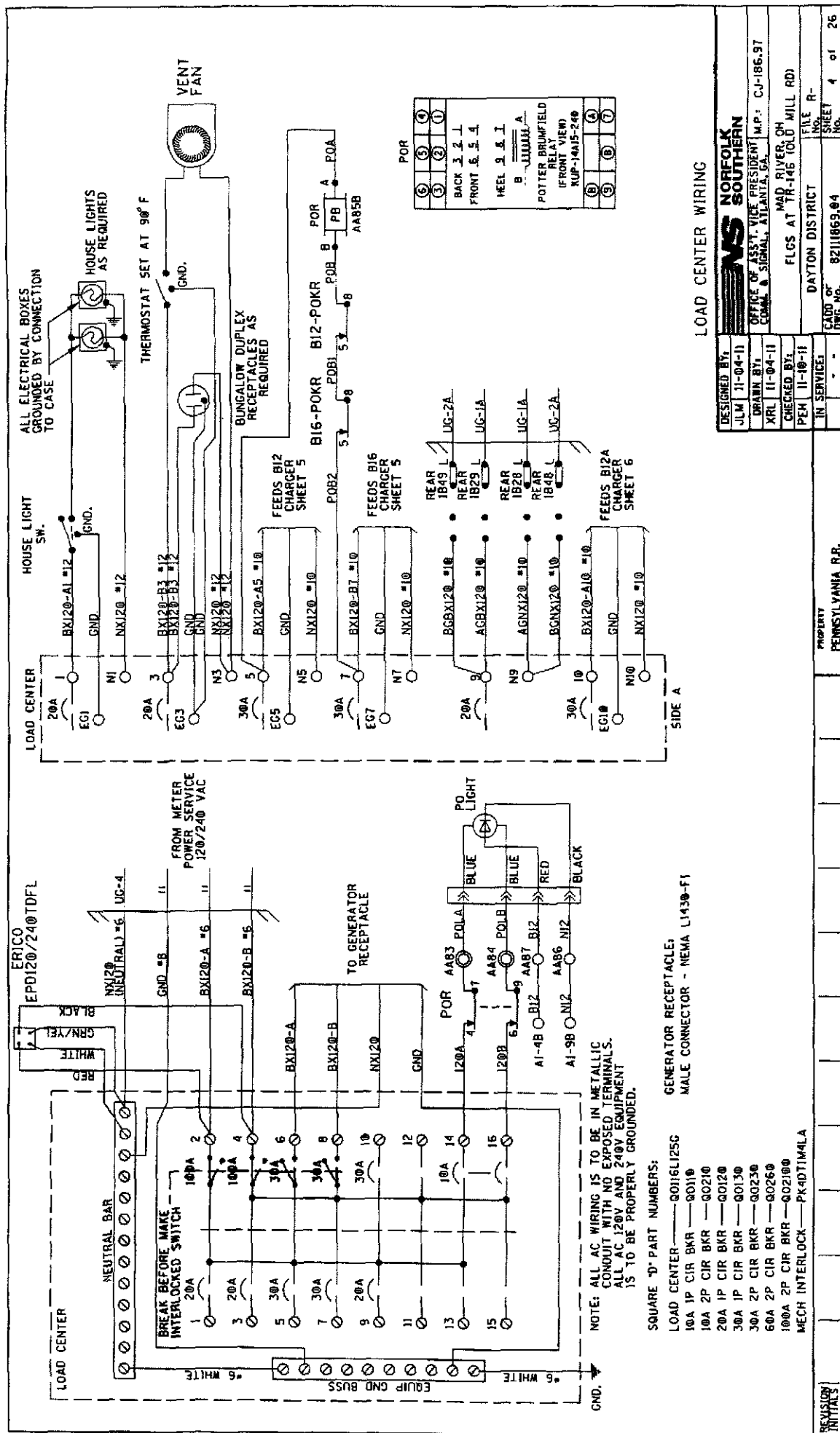


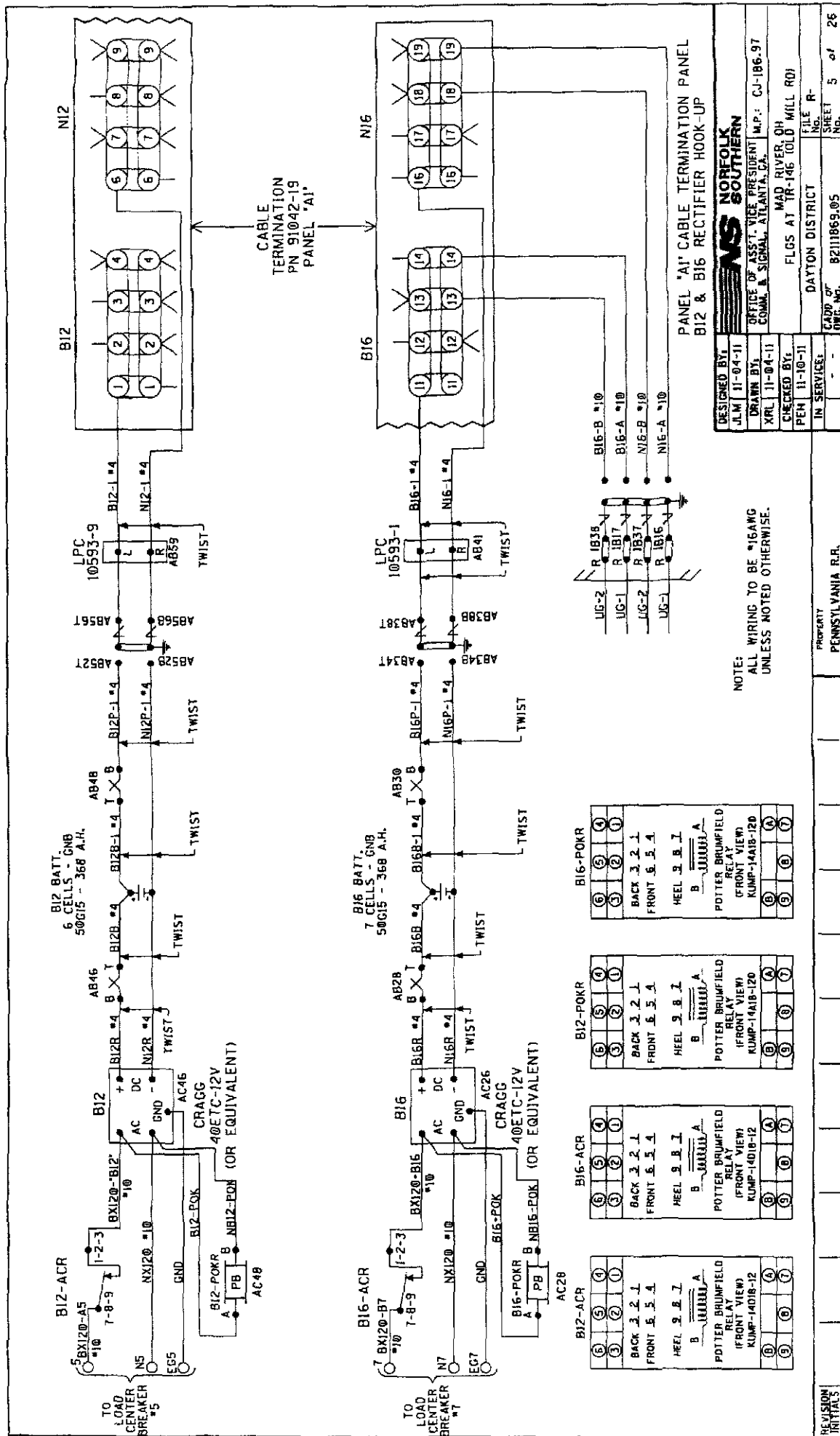
(A) - MF-NBS 62775-1543 (211HZ)

PROFILE

|                             |  |                                                            |  |
|-----------------------------|--|------------------------------------------------------------|--|
| DESIGNED BY: JLM 11-04-11   |  | NORFOLK SOUTHERN                                           |  |
| DRAWN BY: XRL 11-04-11      |  | OFFICE OF ASST. VICE PRESIDENT COMM. & SIGNAL ATLANTA, GA. |  |
| CHECKED BY: PEH 11-10-11    |  | MAD RIVER, OH                                              |  |
| IN SERVICE: - -             |  | FLGS AT TR-146 (OLD MILL RD)                               |  |
| PROPERTY: PENNSYLVANIA R.R. |  | DAYTON DISTRICT                                            |  |
| REVISION INITIALS           |  | CARD OF WORK NO. 8211069.02                                |  |
|                             |  | FILE NO.                                                   |  |
|                             |  | SHEET 2 of 26                                              |  |







NOTE:  
ALL WIRING TO BE \*16GANG  
UNLESS NOTED OTHERWISE.

|                                                                                               |                  |                  |                  |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |
|-----------------------------------------------------------------------------------------------|------------------|------------------|------------------|---|---|---|-----------------------------------------------------------------------------------------------|---|---|---|---|---|---|-----------------------------------------------------------------------------------------------|---|---|---|---|---|---|-----------------------------------------------------------------------------------------------|---|---|---|---|---|---|
| B12-ACR                                                                                       | B16-ACR          | B12-POKR         | B16-POKR         |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |
| <table><tr><td>6</td><td>5</td><td>4</td></tr><tr><td>3</td><td>2</td><td>1</td></tr></table> | 6                | 5                | 4                | 3 | 2 | 1 | <table><tr><td>6</td><td>5</td><td>4</td></tr><tr><td>3</td><td>2</td><td>1</td></tr></table> | 6 | 5 | 4 | 3 | 2 | 1 | <table><tr><td>6</td><td>5</td><td>4</td></tr><tr><td>3</td><td>2</td><td>1</td></tr></table> | 6 | 5 | 4 | 3 | 2 | 1 | <table><tr><td>6</td><td>5</td><td>4</td></tr><tr><td>3</td><td>2</td><td>1</td></tr></table> | 6 | 5 | 4 | 3 | 2 | 1 |
| 6                                                                                             | 5                | 4                |                  |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |
| 3                                                                                             | 2                | 1                |                  |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |
| 6                                                                                             | 5                | 4                |                  |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |
| 3                                                                                             | 2                | 1                |                  |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |
| 6                                                                                             | 5                | 4                |                  |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |
| 3                                                                                             | 2                | 1                |                  |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |
| 6                                                                                             | 5                | 4                |                  |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |
| 3                                                                                             | 2                | 1                |                  |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |
| BACK 3 2 1                                                                                    | BACK 3 2 1       | BACK 3 2 1       | BACK 3 2 1       |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |
| FRONT 5 5 4                                                                                   | FRONT 5 5 4      | FRONT 5 5 4      | FRONT 5 5 4      |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |
| HEEL 9 8 7                                                                                    | HEEL 9 8 7       | HEEL 9 8 7       | HEEL 9 8 7       |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |
| B <u>UUUUU</u> A                                                                              | B <u>UUUUU</u> A | B <u>UUUUU</u> A | B <u>UUUUU</u> A |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |
| POTTER BRUMFIELD                                                                              | POTTER BRUMFIELD | POTTER BRUMFIELD | POTTER BRUMFIELD |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |
| RELAY                                                                                         | RELAY            | RELAY            | RELAY            |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |
| (FRONT VIEW)                                                                                  | (FRONT VIEW)     | (FRONT VIEW)     | (FRONT VIEW)     |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |
| KUMP-14018-12                                                                                 | KUMP-14018-12    | KUMP-14A18-120   | KUMP-14A18-120   |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |
| <table><tr><td>6</td><td>5</td><td>4</td></tr><tr><td>3</td><td>2</td><td>1</td></tr></table> | 6                | 5                | 4                | 3 | 2 | 1 | <table><tr><td>6</td><td>5</td><td>4</td></tr><tr><td>3</td><td>2</td><td>1</td></tr></table> | 6 | 5 | 4 | 3 | 2 | 1 | <table><tr><td>6</td><td>5</td><td>4</td></tr><tr><td>3</td><td>2</td><td>1</td></tr></table> | 6 | 5 | 4 | 3 | 2 | 1 | <table><tr><td>6</td><td>5</td><td>4</td></tr><tr><td>3</td><td>2</td><td>1</td></tr></table> | 6 | 5 | 4 | 3 | 2 | 1 |
| 6                                                                                             | 5                | 4                |                  |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |
| 3                                                                                             | 2                | 1                |                  |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |
| 6                                                                                             | 5                | 4                |                  |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |
| 3                                                                                             | 2                | 1                |                  |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |
| 6                                                                                             | 5                | 4                |                  |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |
| 3                                                                                             | 2                | 1                |                  |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |
| 6                                                                                             | 5                | 4                |                  |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |
| 3                                                                                             | 2                | 1                |                  |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |                                                                                               |   |   |   |   |   |   |

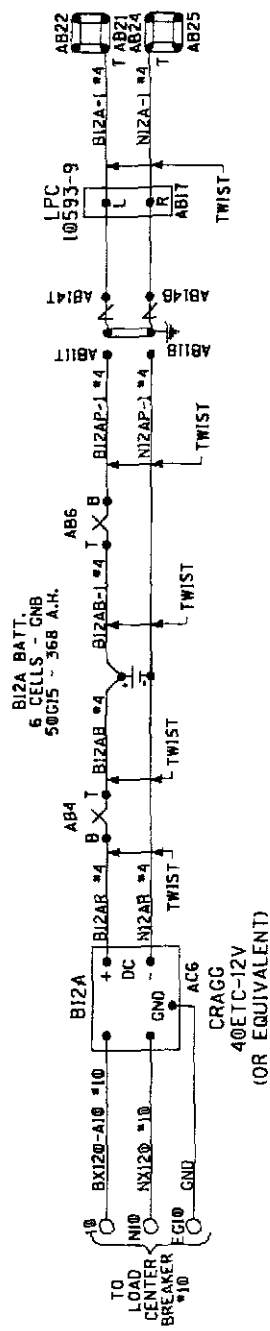
**NORFOLK SOUTHERN**  
OFFICE OF ASST. VICE PRESIDENT  
COMM. & SIGNAL, ATLANTA, GA.  
M.P.: CU-186.97  
MAD RIVER, OH  
FLGS AT TR-146 (OLD MILL RD)  
DAYTON DISTRICT  
FILE NO. R-  
CADD OF  
NO. 8211869-05  
SHEET 5 of 25

PANEL 'A1' CABLE TERMINATION PANEL  
B12 & B16 RECTIFIER HOOK-UP

PROPERTY  
PENNSYLVANIA R.R.

REVISION  
INITIALS





# B12A RECTIFIER HOOK-UP

|                  |                 |                                                                                                                                                              |
|------------------|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DESIGNED BY:     | JLM 11-04-11    | <b>NORFOLK SOUTHERN</b><br>OFFICE OF ASST. VICE PRESIDENT<br>COMM. & SIGNAL, ATLANTA, GA.<br>M.P.: CJ-186.97<br>MAD RIVER, OH<br>FLGS AT TR-146 TOLD MILL RD |
| DRAWN BY:        | XRL 11-04-11    |                                                                                                                                                              |
| CHECKED BY:      | PEH 11-10-11    |                                                                                                                                                              |
| IN SERVICE:      | - -             |                                                                                                                                                              |
| FILE NO.         | DAYTON DISTRICT | FILE NO.                                                                                                                                                     |
| CADD OR DWG. NO. | 8211869.06      | SHEET 6 of 26                                                                                                                                                |

PROPERTY  
PENNSYLVANIA R.R.

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

ASSURE CORRECT POLARITY  
OF THE 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)  
W/ CURRENT

NO JUMPER (HEATER DISABLED)  
HI CURRENT!  
••= MAIN AND STANDBY MAY USE R10 IN  
TRACK 2 SLOTS (M3 AND M6)

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

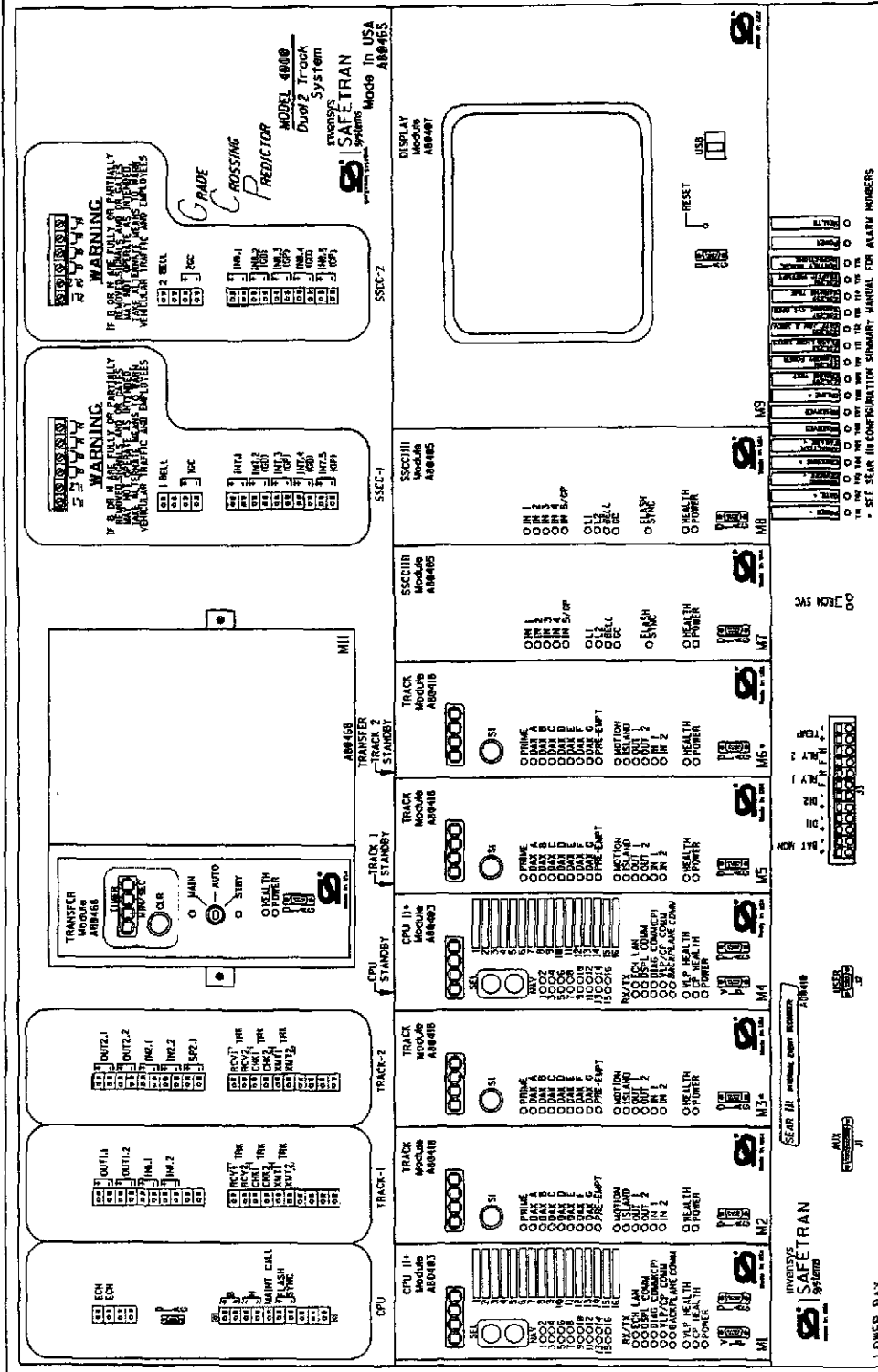
**NORFOLK  
SOUTHERN**

|                                                                 |                 |
|-----------------------------------------------------------------|-----------------|
| OFFICE OF ASS'T. VICE PRESIDENT<br>COMM. & SIGNAL, ATLANTA, GA. | M.P.: CJ-186.97 |
|-----------------------------------------------------------------|-----------------|

MAD RIVER, OH  
FLGS AT TR-146 (OLD W)

|              |                |
|--------------|----------------|
| TON DISTRICT | FILE R-<br>NO. |
|--------------|----------------|

|                     |             |              |         |
|---------------------|-------------|--------------|---------|
| CADD or<br>DWG. No. | 82111869.07 | SHEET<br>No. | 7 of 26 |
|---------------------|-------------|--------------|---------|



|              |     |          |
|--------------|-----|----------|
| DESIGNED BY: | JLM | 11-04-11 |
| DRAWN BY:    | XRL | 11-04-11 |
| CHECKED BY:  | PEH | 11-10-11 |
| IN SERVICE:  | -   | -        |

PROPERTY  
PENNSYLVANIA R.R.

REVISION  
INITIALS

# Program Report

Location and \$IN

DOT Number: 523515H  
Milepost Number: CJ-186.97  
Site Name: TR-146 (OLD MILL RD)

SIN: 755023406216

## MCF and Template Selection

MCF Name: CDP-16X-02-1.mcf  
MCF Revision: 021  
MCF CRC: 6076E435

Template = 1D,3 Uni pairs

## Check Numbers

Office Check No. 10T 4.6.01 2A710591  
Office Check Number: 2A710591  
Config. Check Number: 7F6AB020  
(Based on MCF Revision 021)

## Program

### BASIC: module configuration

Track 1 Slot = Track  
Track 2/RIO 1 Slot = Track  
Track 3 Slot = Not Used  
Track 4 Slot = Not Used  
Track 5/RIO 2 Slot = Not Used  
Track 6/RIO 3 Slot = Not Used  
SSCC-1 Slot = SSCC31  
SSCC-2 Slot = SSCC31  
SEAR Used = Yes

### BASIC: MS/GCP operation

Track 1: MS/GCP operation = Yes  
Track 2: MS/GCP operation = Yes  
BASIC: Island operation  
Track 1: Island Used = Internal  
Track 2: Island Used = No

### BASIC: preemption

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

## PREDICTORS: 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  
Track 1: Dax G Used = No

## PREDICTORS: 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  
Track 2: Dax G Used = No

## GCP: track 1

Track 1: GCP Freq Category = Standard  
Track 1: GCP Frequency = 211 Hz  
Track 1: Approach Distance = 2687 ft  
Track 1: Unl/Bid/Sim-Bid/Inl = Unidir/Inl  
Track 1: GCP Transmit Level = High  
Track 1: Island Connection = Isl  
Track 1: Computed Distance = 138 ft  
Track 1: Linearization Steps = 100

## GCP: 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  
Track 2: Dax G Used = No

## GCP: track 1 prime

Track 1: Prime Warning Time = 30 sec  
Track 1: Prime Offset Distance = 0 ft  
Track 1: Switch MS EZ Level = 10  
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/Pl Used = No  
Track 1: MS Sensitivity Level = 0  
Track 1: Compensation Level = 1300  
Track 1: Warn Time-Balast Comp = High  
Track 1: Low EX Adjustment = 39  
Track 1: Bidir Dax Passthru = No  
Track 1: False Act on Train Stop = No  
Track 1: EX Limiting Used = Yes

## GCP: track 2

Track 2: GCP Freq Category = Standard  
Track 2: GCP Frequency = 211 Hz  
Track 2: Approach Distance = 2687 ft  
Track 2: Unl/Bid/Sim-Bid/Inl = Unidir/Inl  
Track 2: GCP Transmit Level = High  
Track 2: Island Connection = Isl  
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 False Act Lvl = Normal  
Track 2: Outbound PS Timer = 20 sec  
Track 2: Trailing Switch Logic = On  
Track 2: Post Joint Detn Time = 15 sec  
Track 2: Adv Appr Predn = No  
Track 2: Cancel Pickup 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 EZ 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/Pl Used = No  
Track 2: MS Sensitivity Level = 0  
Track 2: Compensation Level = 1300  
Track 2: Warn Time-Balast Comp = Low  
Track 2: Low EX Adjustment = 39  
Track 2: Bidir Dax Passthru = No  
Track 2: False Act on Train Stop = No  
Track 2: EX Limiting Used = Yes

## ISLAND: track 1

Track 1: Isl Frequency = 13.2 kHz  
Track 1: Pickup Delay (2s +/-) = 0 sec  
Track 1: Isl Enable 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 1XR

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

## ADVANCED: out of service

OOS Control: Display-OOS ips  
OOS Timeout = 1 hr

## ADVANCED: out of service 2

T1 OOS Control = OOS Input 1  
T2 OOS Control = OOS Input 1

## ADVANCED: track wrap circuits

Wrap LOS Timer = 5 sec  
Track 1 Wrap Used = No  
Track 2 Wrap Used = No

## ADVANCED: trk 1 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 Thrus = 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 5 Set by = Not Used  
Int 6 Set by = Not Used  
Int 7 Set by = Not Used  
Int 8 Set by = Not Used  
Int 9 Set by = Not Used  
Int 10 Set by = Not Used

## 4000 GCP PROGRAMMING SETUP

|               |                 |
|---------------|-----------------|
| DESIGNED BY:  | WLM 11-04-11    |
| DRAWN BY:     | XRL 11-04-11    |
| CHECKED BY:   | PEH 11-10-11    |
| IN SERVICE:   | -               |
| FILE NO.:     | DAYTON DISTRICT |
| SHEET NO.:    | 82111969.08     |
| SHEET 8 of 26 |                 |

NORFOLK SOUTHERN

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

M.P.: CJ-186.97

MAD RIVER, OH

FLCS AT TR-146 (OLD MILL RD)

FILE R-

PROPERTY

PENNSYLVANIA R.R.

ADVANCED: Internal/0 3  
Int.9 Sets = Not Used  
Int.9 Set by = Not Used  
Int.10 Sets = Not Used  
Int.10 Set by = Not Used  
Int.11 Sets = Not Used  
Int.11 Set by = Not Used  
Int.12 Sets = Not Used  
Int.12 Set by = Not Used

ADVANCED: Internal/0 4  
Int.13 Sets = Not Used  
Int.13 Set by = Not Used  
Int.14 Sets = Not Used  
Int.14 Set by = Not Used  
Int.15 Sets = Not Used  
Int.15 Set by = Not Used  
Int.16 Sets = Not Used  
Int.16 Set by = Not Used

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

SSCC  
Gates Used = Yes  
SSCC1+2 GPs Coupled = Yes  
Min Activation = 0 sec  
Rmt Activation Cancel = 2 min  
Bell On Gate Rising = No  
Mute Bell 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 CtrlUsed = 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 CtrlUsed = No

OUTPUT: assignment page 1  
OUT 11 = Not Used  
OUT 12 = Not Used  
OUT 21 = Not Used  
OUT 22 = Not Used

INPUT: assignment page 1

IN 11 = Not Used  
IN 12 = Not Used  
IN 21 = Not Used  
IN 22 = Not Used

10: assignment SSCC  
OUT BC 1 = Gate Output 1  
OUT BC 2 = Gate Output 2  
IN 11 = Not Used  
IN 12 = Not Used

IN 13 = AND 1 XR Enable  
IN 14 = GP 1.1  
IN 15 = 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  
DI 1 = Gnd Fit Tester 1  
DI 2 = Not Used  
Rly 1 = Ground Fault Test  
Rly 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 8.2 = POK 2  
IN 8.3 = Not Used  
IN 8.4 = Not Used  
IN 8.5 = Not Used

SITE: programming  
Radio Subnode = 1  
Radio Password = Off  
Low Battery Enabled = Off  
Configuration Package File  
Filename: 8211869.pac

# 4000 CCP PROGRAMMING SETUP

|              |                    |
|--------------|--------------------|
| DESIGNED BY: | JLM 11-04-11       |
| DRAWN BY:    | XRL 11-04-11       |
| CHECKED BY:  | PEH 11-10-11       |
| IN SERVICE:  | - -                |
| FILE R-NO.   | DAYTON DISTRICT    |
| FILE R-NO.   | CARD OF 8211869.09 |
| SHEET        | 9 of 26            |



**NORFOLK SOUTHERN**  
OFFICE OF ASST. VICE PRESIDENT  
COMM. & SIGNAL, ATLANTA, GA.  
MAD RIVER, OH  
FLGS AT TR-146 (OLD MILL RD)

PROPERTY  
PENNSYLVANIA R.R.

REVISION  
INITIALS





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    |                           | LED DISPLAY |
|--------------------------|---------------------------|-------------|
| FUNCTION                 |                           |             |
| DATE/TIME                |                           |             |
| AUTOMATIC DST ADJUSTMENT | YES                       |             |
| TIME ZONE                | EST                       |             |
| SITE NAME                | TR-146 (OLD MILL RD)      |             |
| MILEPOST                 | CJ-186.97                 |             |
| DOT *                    | 523515H                   |             |
| TESTER TYPE              | CROSSING                  |             |
| DATE FORMAT              | MM-DD-YYYY                |             |
| TEMP FORMAT              | FAHRENHEIT                |             |
| INDICATE HOLD (SEC)      | 0                         |             |
| INDICATE REFRESH (SEC)   | 60                        |             |
| SITE ATCS                | 7.550.234.062.03.01       |             |
| SITE TYPE                | NO COMMUNICATION          |             |
| OFFICE ATCS ADDRESS      | 2.550.00.0000             |             |
| PRIMARY HOP ADDR         | 7.RRR.LLL.GGG.XX.XX       |             |
| BACKUP HOP ADDR 1        | 7.RRR.LLL.GGG.XX.XX       |             |
| BACKUP HOP ADDR 2        | 7.RRR.LLL.GGG.XX.XX       |             |
| POLL ID                  | 1                         |             |
| MODE                     | GEN/ATCS                  |             |
| WAMS XID                 | DISABLED                  |             |
| OFFICE COMM DEVICE       | MCM (ECHELON)             |             |
| RADIO ATCS ADDR          | 7.RRR.LLL.GGG.01.01       |             |
| PHONE *                  | (OFFICE NUMBER)           |             |
| INIT STRING              |                           |             |
| FIELD COMM               | NONE                      |             |
| USER PORT                | BAUD 57600, N, 8, 1, NONE |             |
| AUX PORT                 | BAUD 9600, N, 8, 1, NONE  |             |

| VERIFY NUMBER OF BULBS: SENSOR #1 |         |
|-----------------------------------|---------|
| CURR 1: LAMP SET UP               | 4 BULBS |
| CURR 2: LAMP SET UP               | 4 BULBS |

| VERIFY NUMBER OF BULBS: SENSOR #2 |         |
|-----------------------------------|---------|
| CURR 1: LAMP SET UP               | 6 BULBS |
| CURR 2: LAMP SET UP               | 6 BULBS |

| CONTROL SYSTEM CONFIGURATION MENU QUESTIONS |                  |        |
|---------------------------------------------|------------------|--------|
| THE QUESTION                                | SELECT FROM MENU | OPTION |
| RESET NAMES AND MODULES?                    | YES              |        |
| RAILROAD NUMBER                             | 550              |        |
| CROSSING CONFIGURATION                      | NORMAL           |        |
| AND 1 USED AS XR?                           | YES              |        |
| AND 2 USED AS XR?                           | NO               |        |
| AND 3 USED AS XR?                           | NO               |        |
| AND 4 USED AS XR?                           | NO               |        |
| AND 5 USED AS XR?                           | NO               |        |
| AND 6 USED AS XR?                           | NO               |        |
| AND 7 USED AS XR?                           | NO               |        |
| AND 8 USED AS XR?                           | NO               |        |
| XR CONTROLLED BY FOREIGN RR                 |                  |        |
| ENTRANCE GATES                              | 2                |        |
| GATES CONTROLLED BY FOREIGN RR              |                  |        |
| GATE POSITION FAIL TIME (SECONDS)           | 20               |        |
| BATTERY BANKS                               | 2                |        |
| BATTERY MON USED                            | YES              |        |
| INTERNAL CROSSING CONTROLLERS               | 2                |        |
| EXTERNAL CROSSING CONTROLLERS               | 0                |        |
| VHF COMMUNICATOR                            | YES              |        |
| DTMF ACTIVATION                             | YES              |        |
| ACTIVATION CODE                             | 515              |        |
| 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                                             |  | DATES LOWERING |
| GFT'S                                               |  | YES            |
| BATTERIES ON GFT1                                   |  | 2              |
| GATE TIP SENSORS                                    |  | YES            |
| RTU                                                 |  | NO             |
| VHF VOICE CHANNEL                                   |  | 2              |
| VHF DATA CHANNEL                                    |  | 2              |
| USE CELL MODEM                                      |  | NO             |
| NON-CRITICAL FEATURE                                |  |                |
| FULL APPROACH MOVES ALARM                           |  | ACTIVATE       |

| PROGRAM MENU QUESTIONS | PROGRAM |
|------------------------|---------|
| EDIT DIGITAL INPUTS    | NO      |
| EDIT BATTERIES         | NO      |
| EDIT RELAYS            | NO      |
| EDIT INDICATOR LEDS    | NO      |
| EDIT TEST LEDS         | NO      |
| EDIT ILOD SENSORS      | NO      |
| EDIT VHF SETTINGS      | NO      |
| CCP4L ATCS SUBMODE     | 15      |

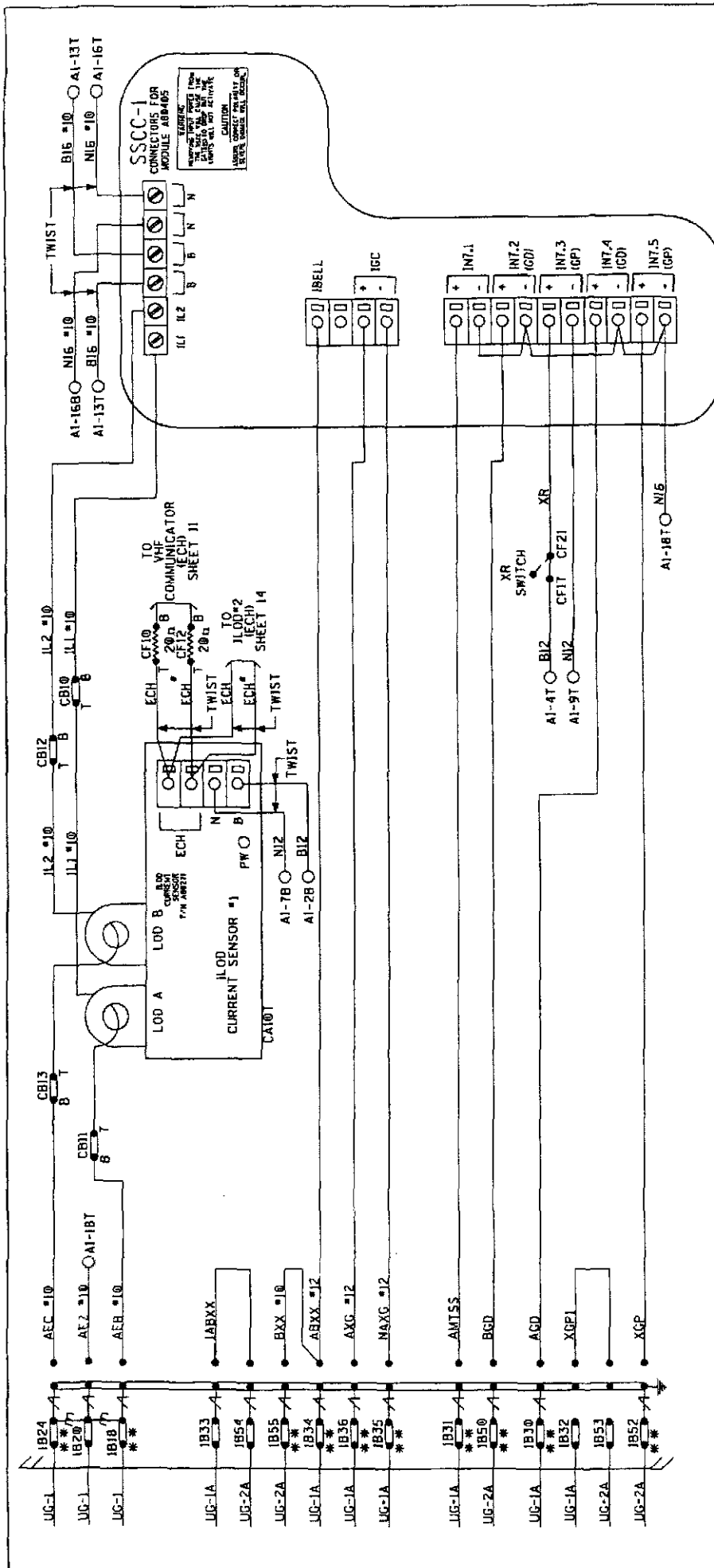
#### NOTES:

- \* = 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: | JLM 11-04-11 |  <b>NORFOLK SOUTHERN</b><br>OFFICE OF ASST. VICE PRESIDENT<br>COMM. & SIGNAL, ATLANTA, GA<br>M.P.: CJ-186.97<br>MAD RIVER, OH<br>FLOS AT TR-146 (OLD MILL RD)<br>DAYTON DISTRICT<br>FILE R-<br>NO. 8211869.12<br>SHEET 12 of 26 |
| DRAWN BY:    | XRL 11-04-11 |                                                                                                                                                                                                                                                                                                                    |
| CHECKED BY:  | PEH 11-10-11 |                                                                                                                                                                                                                                                                                                                    |
| IN SERVICE:  |              |                                                                                                                                                                                                                                                                                                                    |

PROPERTY OF  
PENNSYLVANIA R.R.



PANEL 'A2' CONNECTORS FOR SSCC#1 MODULE (A80405)  
ILOD#1 (A80271) HOOK-UP

|              |                 |
|--------------|-----------------|
| DESIGNED BY: | JCM 11-04-11    |
| DRAWN BY:    | XRL 11-04-11    |
| CHECKED BY:  | PEH 11-10-11    |
| IN SERVICE:  | - - -           |
| DATE OF      | 8211859.13      |
| FILE NO.     | DAYTON DISTRICT |
| FILE R-      | NO.             |
| SHEET        | 13 of 26        |

|          |                   |
|----------|-------------------|
| PROPERTY | PENNSYLVANIA R.R. |
| REVISION | INITIALS          |

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

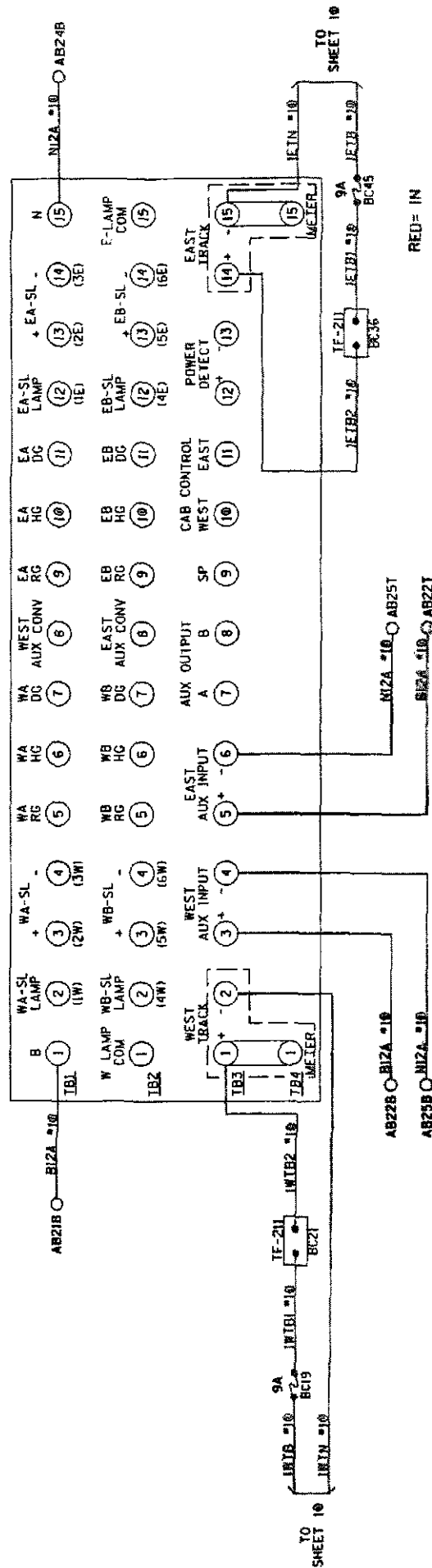
- \* = ECH-LOW CONNECTIONS NOT TO EXCEED 53" IN LENGTH AND TOTAL LENGTH NOT TO EXCEED 430" WITH A MAXIMUM OF 8 NODES, RECOMMEND USE BELDEN WIRE CABLE #B461 OR EQUIVALENT.
- \*\* = TEST LINKS MUST BE OPENED TEMPORARILY FOR NEW COLD START OF NEW OR REPLACEMENT SSCC MODULE AND CAN ONLY BE CLOSED IN SEQUENCE WITH MFR. INSTRUCTIONS; SECTION 8 OF THE GCP 4000 REFERENCE MANUAL.





# ELECTRO CODE 4/R REGENERATIVE REPEATER

ALL CODES RECEIVED FROM THE WEST TO BE REPEATED TO THE EAST AND ALL CODES RECEIVED FROM THE EAST TO BE REPEATED TO THE WEST.  
 ABSENCE OF AUX INPUT TO DISABLE ALL CODES FOR RESPECTIVE DIRECTIONS.



EC4 EQUIPMENT RELOCATED FROM OLD 8'X8' SHELTER AT OLD MILL RD.

RED= IN

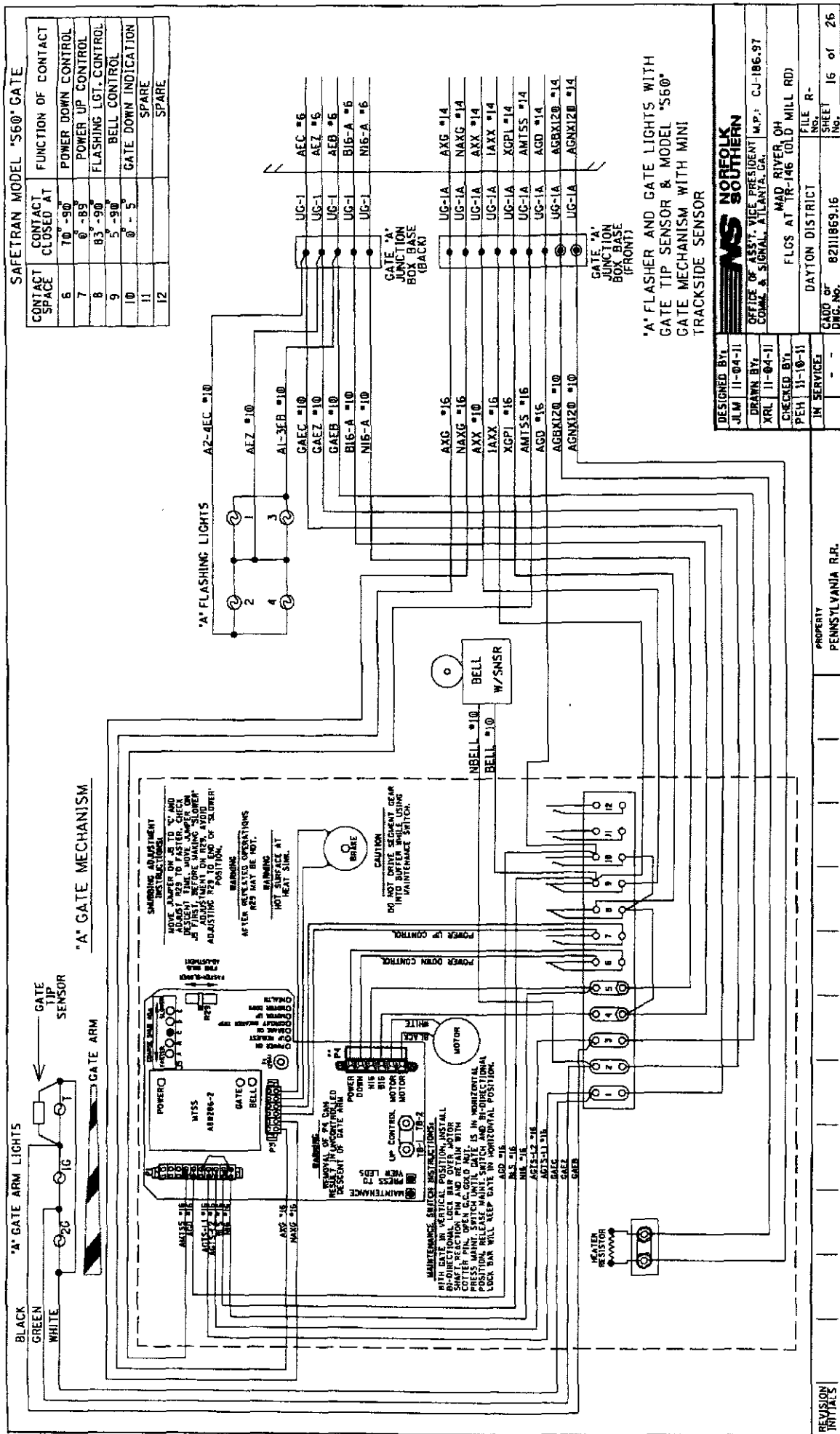
FOR THIS LOCATION  
 SET SWITCHES ON 215  
 MODULE AS FOLLOWS:  
 C1 - OPEN  
 C5 - OPEN  
 C1 - OPEN  
 C5 - CLOSED

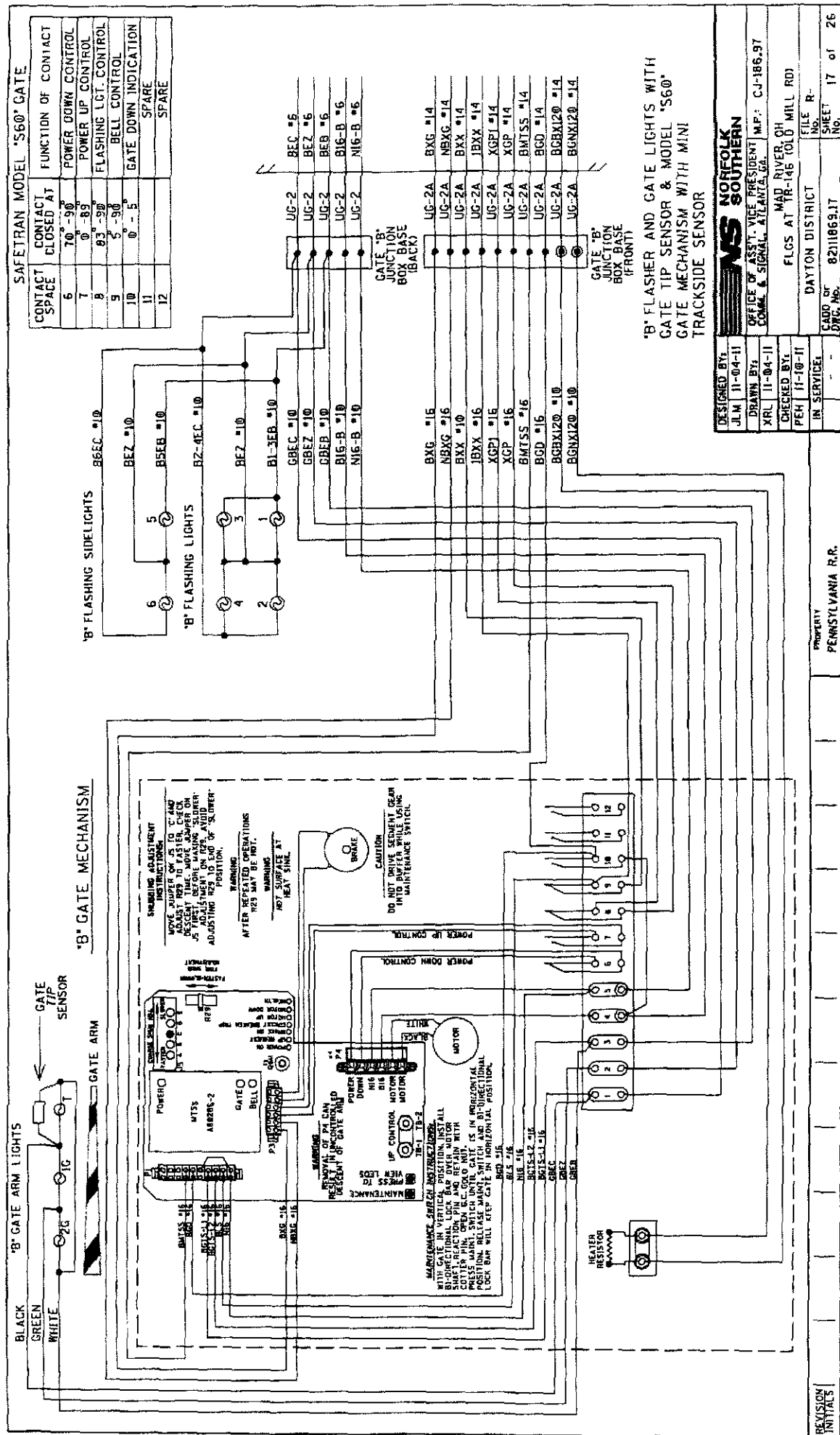
EC4/R UNIT

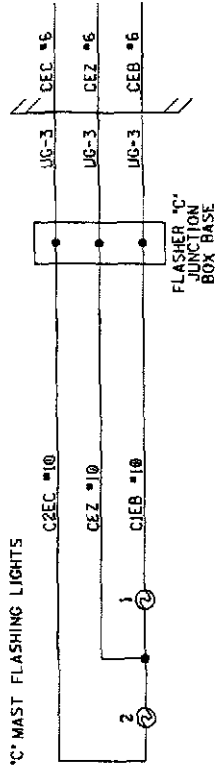
|              |                     |
|--------------|---------------------|
| DESIGNED BY: | JLM 11-04-11        |
| DRAWN BY:    | DRM 11-04-11        |
| CHECKED BY:  | PEH 11-10-11        |
| IN SERVICE:  | -                   |
| FILE NO.:    | DAYTON DISTRICT     |
| FILE R-:     | FILE NO. 8211869.15 |
| SHEET NO.:   | 15 of 26            |

|                                |                 |
|--------------------------------|-----------------|
| NORFOLK SOUTHERN               |                 |
| OFFICE OF ASST. VICE PRESIDENT | M.P.: CJ-186.97 |
| COMM. & SIGNAL, ATLANTA, GA.   |                 |
| MAD RIVER, OH                  |                 |
| FLGS AT TR-146 OLD MILL RD     |                 |

PROPERTY  
 PENNSYLVANIA R.R.



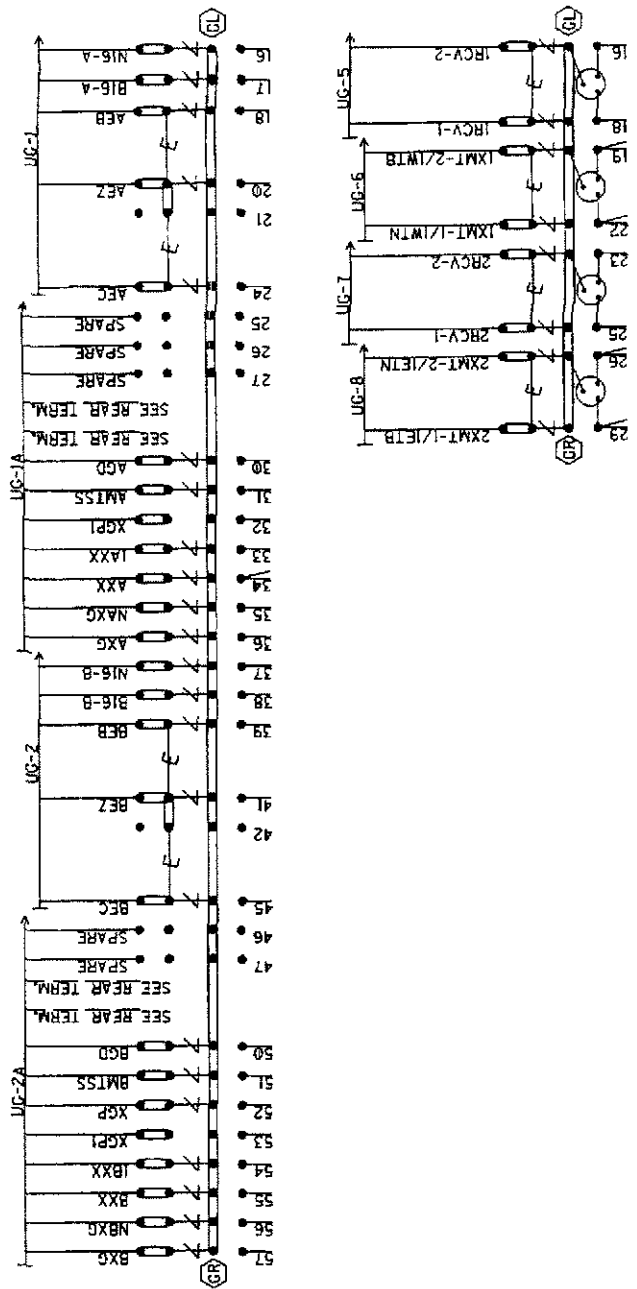




|                              |                                                                                                      |                                |
|------------------------------|------------------------------------------------------------------------------------------------------|--------------------------------|
| DESIGNED BY<br>J.M. 11-04-11 |  NORFOLK SOUTHERN |                                |
| DRAWN BY<br>XRL 11-04-11     | OFFICE OF ASST. VICE PRESIDENT<br>COMM. & SIGNAL, ATLANTA, GA.                                       | M.P.: CJ-186.97                |
| CHECKED BY<br>PEH 11-10-11   | FLOGS AT TR-146 GOLD MILL RD<br>MAD RIVER, OH                                                        | FILE NO.<br>R-                 |
| IN SERVICE<br>-- --          | DAYTON DISTRICT                                                                                      | SHEET No.<br>18 of 26          |
|                              |                                                                                                      | CAUD OR DWG. No.<br>8211869.18 |

|                              |                                                                                                      |                       |
|------------------------------|------------------------------------------------------------------------------------------------------|-----------------------|
| DESIGNED BY<br>J.M. 11-04-11 |  NORFOLK SOUTHERN |                       |
| DRAWN BY<br>XRL 11-04-11     | OFFICE OF ASST. VICE PRESIDENT<br>COMM. & SIGNAL, ATLANTA, GA.                                       | M.P.: CJ-186.97       |
| CHECKED BY<br>PEH 11-10-11   | FLOGS AT TR-146 GOLD MILL RD<br>MAD RIVER, OH                                                        | FILE NO.<br>R-        |
| IN SERVICE<br>-- --          | DAYTON DISTRICT                                                                                      | SHEET No.<br>18 of 26 |
|                              | CAUD OR DWG. No.                                                                                     | 8211869.18            |

PROPERTY  
PENNSYLVANIA R.R.



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

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

# BACKBOARD DETAIL - 1A & 1B

|                              |                                                                                                                                                                                                 |
|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DESIGNED BY:<br>JLM 11-04-11 | <p>OFFICE OF ASST. VICE PRESIDENT<br/>COMM. &amp; SIGNAL, ATLANTA, GA.<br/>M.P.: CJ-186.97<br/>FLCS AT TR-146 (OLD MILL RD)<br/>DAYTON DISTRICT<br/>FILE R-<br/>82111859.19<br/>82111859.19</p> |
| DRAWN BY:<br>XRL 11-04-11    |                                                                                                                                                                                                 |
| CHECKED BY:<br>PEH 11-10-11  |                                                                                                                                                                                                 |
| IN SERVICE:                  | <p>PROPERTY<br/>PENNSYLVANIA R.R.</p>                                                                                                                                                           |

REAR VIEW OF LEFT TWO ROWS TERMINAL BOARD 1

1A

1B



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:                                                   | JLM 11-04-11 | <b>NORFOLK SOUTHERN</b> |
| DRAWN BY:                                                      | XRL 11-04-11 |                         |
| CHECKED BY:                                                    | PEH 11-10-11 |                         |
| IN SERVICE:                                                    | - - -        |                         |
| OFFICE OF ASST. VICE PRESIDENT<br>COMM. & SIGNAL, ATLANTA, GA. |              |                         |
| MAD RIVER, OH<br>FLGS AT TR-146 (OLD MILL RD)                  |              |                         |
| DAYTON DISTRICT                                                |              |                         |
| FILE NO. R-                                                    |              |                         |
| Dwg. No. 8211869.20                                            |              |                         |
| SHEET 20 of 26                                                 |              |                         |

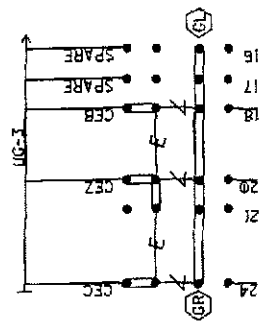
PROPERTY  
PENNSYLVANIA R.R.

REVISION  
INITIALS

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 -  
 CR - SERVIC PART NO. 61278  
 GL - SERVIC PART NO. 61278-1.



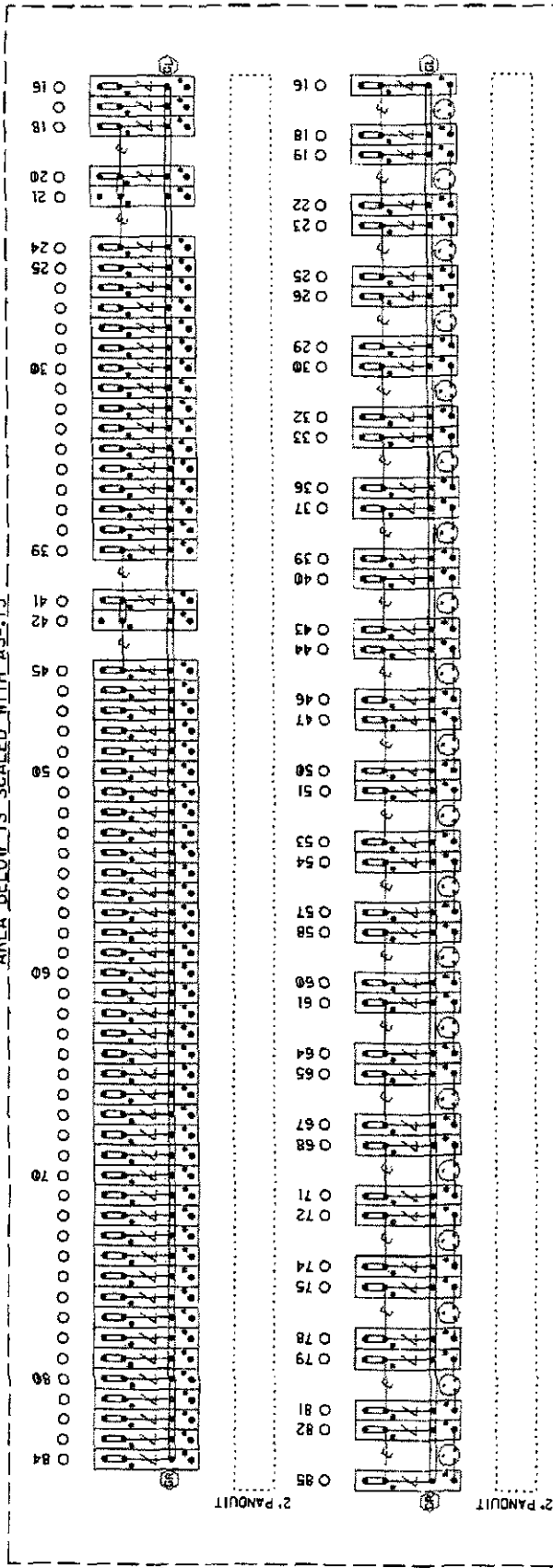
## BACKBOARD DETAIL - IC

|                                                                                                                                                                                                                                |  |  |  |  |  |  |  |  |  |                              |  |  |  |  |  |  |  |  |  |                                                                                                             |  |  |  |  |  |  |  |  |  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|--|--|--|--|--|------------------------------|--|--|--|--|--|--|--|--|--|-------------------------------------------------------------------------------------------------------------|--|--|--|--|--|--|--|--|--|
| FOR HOW THIS PORTION OF THE FARADAY SHIELD IS PREDRILLED, ONLY INSTALL AND USE THE TERMINALS NEEDED.                                                                                                                           |  |  |  |  |  |  |  |  |  | DESIGNED BY:<br>JLM 11-04-11 |  |  |  |  |  |  |  |  |  |  <b>NORFOLK SOUTHERN</b> |  |  |  |  |  |  |  |  |  |
| <div> = TERMINALS GROUNDED TO SHIELD.<br/>4 POST BLOCKS USE EITHER -<br/>GR - SERMMI PART NO. 6127B<br/>GL - SERMMI PART NO. 6127B-1.</div> |  |  |  |  |  |  |  |  |  | DRAWN BY:<br>XRL 11-04-11    |  |  |  |  |  |  |  |  |  | OFFICE OF ASST. VICE PRESIDENT<br>CONRA. & SIGNAL, ATLANTA, GA.                                             |  |  |  |  |  |  |  |  |  |
|                                                                                                                                                                                                                                |  |  |  |  |  |  |  |  |  | CHECKED BY:<br>PEH 11-10-11  |  |  |  |  |  |  |  |  |  | MAD RIVER, OH<br>FLOS AT TR-146 (OLD MILL RD)                                                               |  |  |  |  |  |  |  |  |  |
|                                                                                                                                                                                                                                |  |  |  |  |  |  |  |  |  | IN SERVICE:                  |  |  |  |  |  |  |  |  |  | DAYTON DISTRICT<br>FILE R-                                                                                  |  |  |  |  |  |  |  |  |  |
|                                                                                                                                                                                                                                |  |  |  |  |  |  |  |  |  | REVISION<br>PARTIALS         |  |  |  |  |  |  |  |  |  | CADD OF SHEET<br>Dwg. No. 82110893.21                                                                       |  |  |  |  |  |  |  |  |  |
| PROPERTY<br>PENNSYLVANIA R.R.                                                                                                                                                                                                  |  |  |  |  |  |  |  |  |  |                              |  |  |  |  |  |  |  |  |  |                                                                                                             |  |  |  |  |  |  |  |  |  |



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

AREA BELOW IS SCALED WITH AS-75



⚡ = Heavy Duty Equalizer  
(022700-1X)

⚡ = Lightning Arrestor  
(022585-1X)

⚡ = LPC-10560-51

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

□ = INDICATES PLACEMENT OF PANDUIT

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

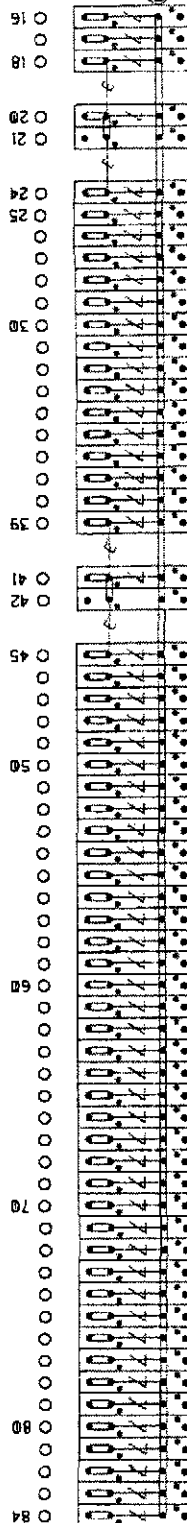
|                                                                                                                                                |  |               |
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| DESIGNED BY:<br>JLM 11-04-11                                                                                                                   |  | FILE NO.      |
| DRAWN BY:<br>XRL 11-04-11                                                                                                                      |  | NO. OF SHEETS |
| CHECKED BY:<br>PEH 11-10-11                                                                                                                    |  | 22 of 25      |
| IN SERVICE                                                                                                                                     |  |               |
| OFFICE OF ASST. VICE PRESIDENT<br>COMM. & SIGNAL, ATLANTA, GA. M.P.: CJ-106.97<br>FLCS AT TR-146 10LD MILL RD<br>DAYTON DISTRICT<br>8211865.22 |  |               |

PROPERTY  
PENNSYLVANIA R.R.

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

AREA BELOW IS SCALED WITH AS=75

TERMINAL BOARD 1  
RIGHT HALF



2" PANDUIT

⊥ = Heavy Duty Equalizer  
(022700-IX)

⌄ = Clear-view  
Lightning Arrester  
(022585-IX)

⊕ = LPC-10560-51

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

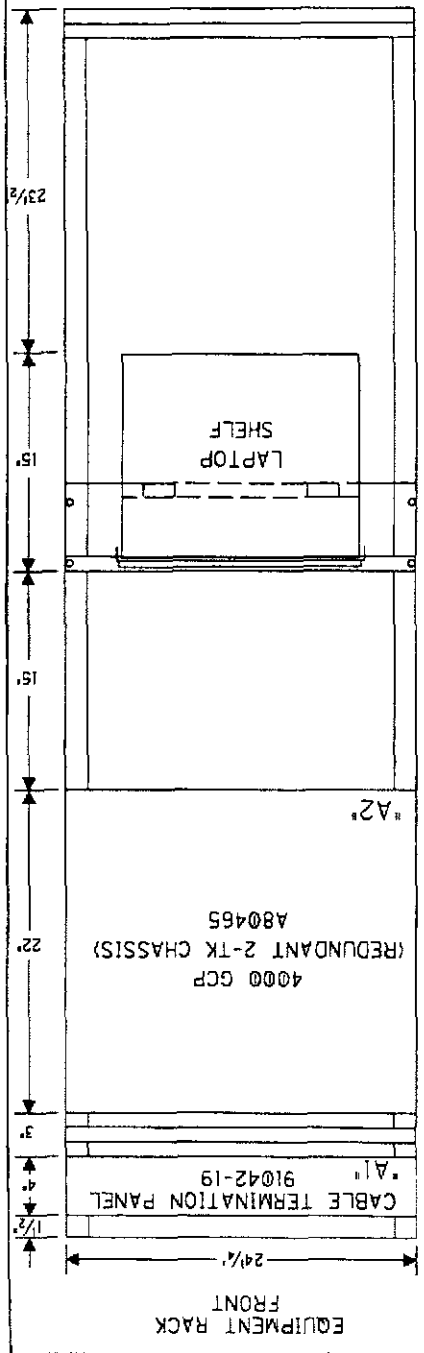
⊕ INDICATES PLACEMENT  
OF PANDUIT

TERMINAL BOARD 1  
RIGHT ROW  
FARADAY SHIELD DETAIL - 1C

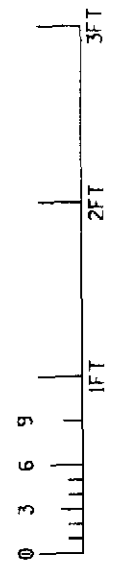
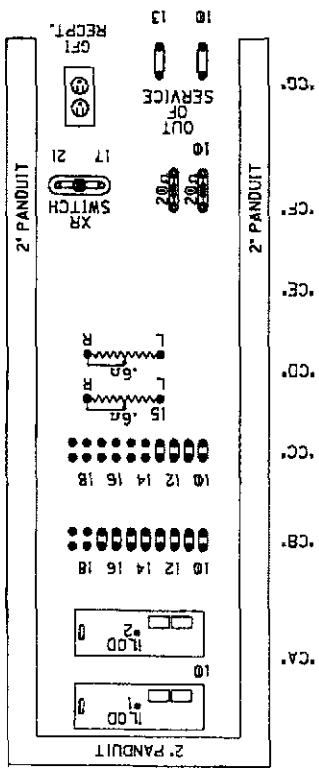
|                              |                                                                                                                                                                                                         |
|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DESIGNED BY:<br>JLM 11-04-11 | <b>NORFOLK SOUTHERN</b><br>OFFICE OF ASST. VICE PRESIDENT<br>COMM. & SIGNAL, ATLANTA, GA<br>MAD RIVER, OH<br>FLGS AT TR-146 TOLD MILL RD<br>DAYTON DISTRICT<br>CADD OF 8211869.23<br>SHEET NO. 23 of 26 |
| DRAWN BY:<br>XRL 11-04-11    |                                                                                                                                                                                                         |
| CHECKED BY:<br>PEN 11-10-11  |                                                                                                                                                                                                         |
| IN SERVICE:                  |                                                                                                                                                                                                         |

PROPERTY  
PENNSYLVANIA R.R.

REVISION  
INITIALS



SIDE "C"



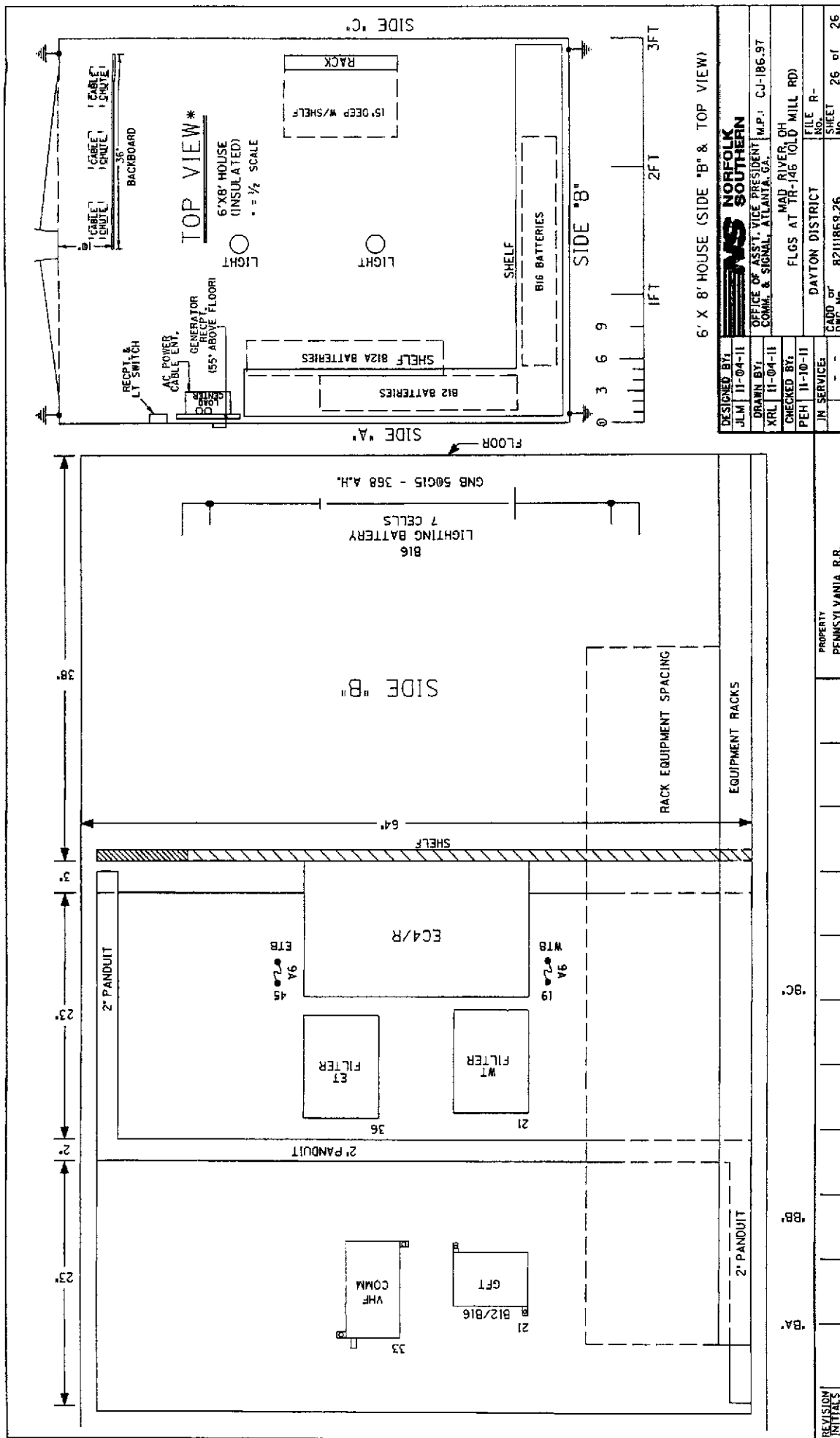
RACK PLACEMENT  
6' X 8' HOUSE - SIDE "C"

|              |              |                                                                                                                                                                                                                                       |
|--------------|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DESIGNED BY: | JLM 11-04-11 | <b>NORFOLK SOUTHERN</b><br>OFFICE OF ASST. VICE PRESIDENT<br>COMM. & SIGNAL, ATLANTA, GA.<br>M.P.: CJ-186.97<br>MAD RIVER, OH<br>FLGS AT TR-146 (OLD MILL RD)<br>DAYTON DISTRICT<br>FILE R-<br>CADW. No. 8211869.24<br>SHEET 24 of 26 |
| DRAWN BY:    | XRL 11-04-11 |                                                                                                                                                                                                                                       |
| CHECKED BY:  | PER 11-10-11 |                                                                                                                                                                                                                                       |
| IN SERVICE:  | -            |                                                                                                                                                                                                                                       |

PROPERTY  
PENNSYLVANIA R.R.

REVISION  
INITIALS







# OHIO RAIL DEVELOPMENT COMMISSION

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

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

October 24, 2013

Cayela J. Wimberly  
Administrator, Highway Grade Crossings  
Norfolk Southern Corporation  
1200 Peachtree Street, N.E., Box 123  
Atlanta, Georgia 30309

RE: Clark County, C.R. 331, Haddix Road, DOT No. 523 524 G, PID 88509,  
Mile Post: CJ 193.64, S&E Project No. 10.1342

Dear Ms. Wimberly:

The Norfolk Southern (NS) plan and estimate dated July 8, 2013, in the amount of \$170,223.00 for the referenced project has been reviewed and is acceptable. 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 \$127,667.25. 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 will furnish prior written notification of their scheduled date to start construction to George Martin, PUCO, Railroad Division.
2. NS's project foreman will furnish FAX or written notification five (5) working days prior to the date work will start at the project site to Tim Perkins, Ohio Rail Development Commission (ORDC), 1980 West Broad Street, Columbus, Ohio 43223, email [Tim.Perkins@dot.state.oh.us](mailto:Tim.Perkins@dot.state.oh.us) or FAX (614) 728-4520, (telephone number 614-644-0284), and to the Public Utilities Commission of Ohio at 180 East Broad Street, Columbus, Ohio 43215, email [George.martin@puc.state.oh.us](mailto:George.martin@puc.state.oh.us), (telephone number 614-752-9107). 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.
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.



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

phone: 614.644.0306

IMPROVING RAIL TODAY FOR TOMORROW'S ECONOMY

4. NS's project foremen will notify Tim Perkins 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 Encumbrance Estimate 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.
7. This installation will include any ancillary work to make the warning devices function as designed and meet MUCTD.

Thank you for your assistance with these matters.

Sincerely,

A handwritten signature in black ink, appearing to read "Tim Perkins". The signature is written in a cursive, flowing style.

Tim Perkins  
Project Manager



## Diagnostic Review Team Survey

Date: 6.8.10

### Location Data

|                                                 |                             |                                       |  |
|-------------------------------------------------|-----------------------------|---------------------------------------|--|
| Street or Road Name: CR 331, HADDIX ROAD        |                             |                                       |  |
| Route/Road Number<br>(i.e. Twp., Co., SR or US) |                             | (include SLM if State or US route)    |  |
| AAR-DOT No.: 523 524 G                          |                             |                                       |  |
| County: CLARK                                   | Township:                   | City:<br>(In or Near) VILLAGE OF ENON |  |
| Railroad Name: NORFOLK SOUTHERN                 | Railroad Division: DEARBORN | Branch/Line Name: CINCINNATI          |  |
| Nearest RR Timetable Station: FAIRBORN          |                             | RR Milepost: 193.64                   |  |

### On-Site Review Team

(Include: Name - Organization - Phone Number)

1. TIM PERKINS ORDC 614-644-0284
2. Rick Ray NSC 2104-529-1234
3. Derrick Brooks NS 304-712-0220
4. Jill Henning PLWD 614-416-0435
5. ROBERT COUSER MTR NS 937-581-5255
6. NED WEBER CLACO ENG 937-521-1803
- 7.
- 8.
- 9.

### Existing Traffic Control Devices

| Type of Warning Devices               | Installed?                              |                                        | Quantity/Comments |
|---------------------------------------|-----------------------------------------|----------------------------------------|-------------------|
| Advance Warning Signs                 | <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                     | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            | 2                 |
| Crossbucks                            | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            | 2                 |
| Number of Tracks Signs                | <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No |                   |
| 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 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 checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            | Number: 2 Length: |
| Bells                                 | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            | 1                 |
| 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 checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            |                   |
| Other                                 | <input type="checkbox"/> Yes            | <input type="checkbox"/> No            |                   |

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

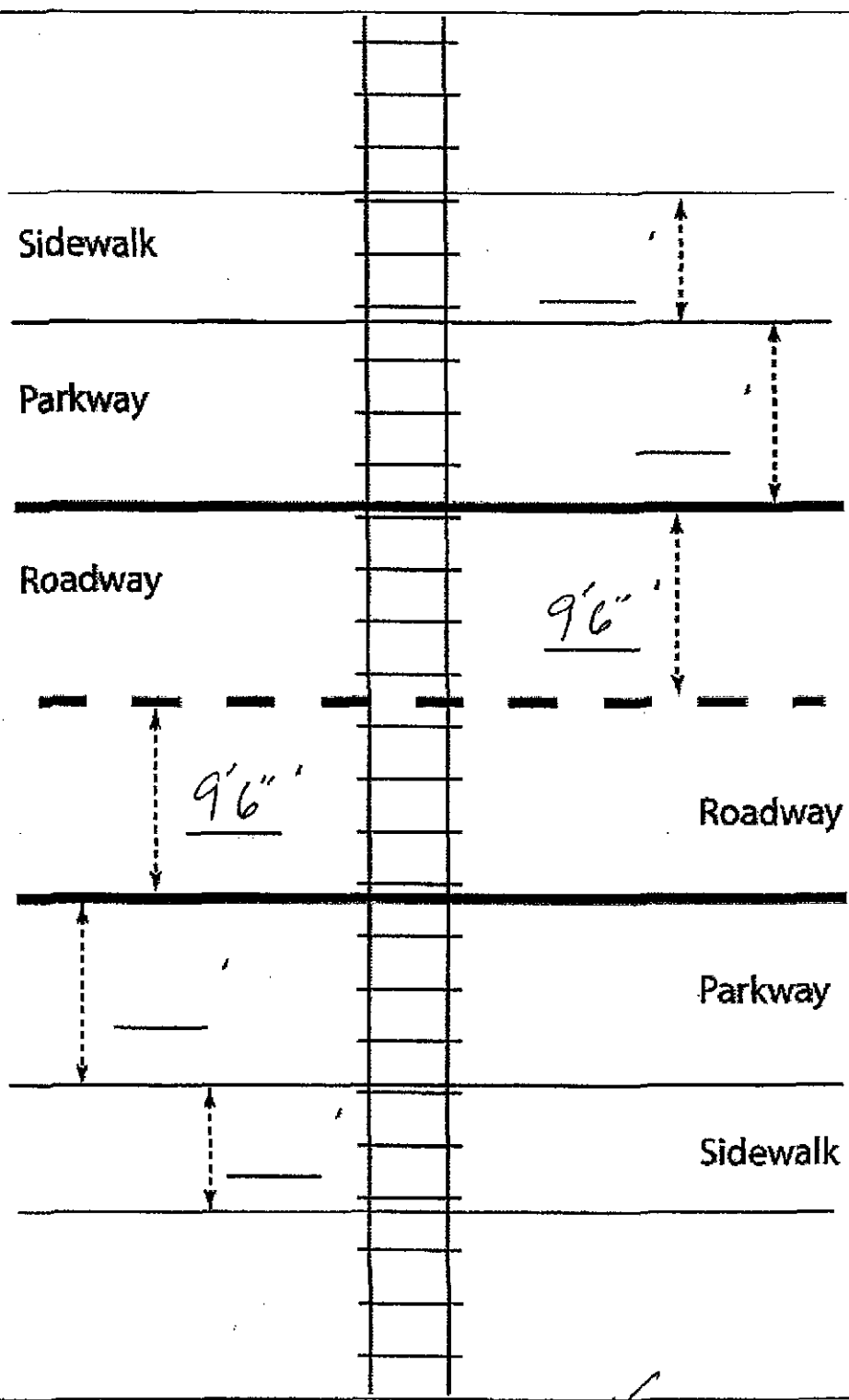


|                                                                                                                                                                                                                       | Initial Information (from database)                                                                                                                                                                                   | Revised                                                  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|
| Number & dates of crashes in previous 5 years                                                                                                                                                                         |                                                                                                                                                                                                                       |                                                          |
| Hazard Ranking                                                                                                                                                                                                        | Date Run:                                                                                                                                                                                                             |                                                          |
| <b>Railroad Data</b>                                                                                                                                                                                                  |                                                                                                                                                                                                                       |                                                          |
| Railroad Characteristics                                                                                                                                                                                              | Initial Information (from database)                                                                                                                                                                                   | Revised                                                  |
| Total trains per day                                                                                                                                                                                                  |                                                                                                                                                                                                                       |                                                          |
| < 1 per day                                                                                                                                                                                                           |                                                                                                                                                                                                                       |                                                          |
| Day thru trains                                                                                                                                                                                                       | 6                                                                                                                                                                                                                     |                                                          |
| Night thru trains                                                                                                                                                                                                     | 6                                                                                                                                                                                                                     |                                                          |
| Daytime switching movements                                                                                                                                                                                           | 3                                                                                                                                                                                                                     |                                                          |
| Nighttime switching movements                                                                                                                                                                                         | 3                                                                                                                                                                                                                     |                                                          |
| Total number of tracks                                                                                                                                                                                                | 1                                                                                                                                                                                                                     |                                                          |
| Number of main tracks                                                                                                                                                                                                 | 1                                                                                                                                                                                                                     |                                                          |
| Number of other tracks                                                                                                                                                                                                |                                                                                                                                                                                                                       |                                                          |
| Maximum train speed                                                                                                                                                                                                   | 50                                                                                                                                                                                                                    |                                                          |
| Typical train speed                                                                                                                                                                                                   | 43                                                                                                                                                                                                                    |                                                          |
| Amtrak                                                                                                                                                                                                                |                                                                                                                                                                                                                       |                                                          |
| If non-gated crossing, is clearing sight distance adequate in all quadrants? (See Table 1) <input type="checkbox"/> Yes <input type="checkbox"/> No                                                                   |                                                                                                                                                                                                                       |                                                          |
| If multiple tracks, can two trains occupy crossing at the same time? <input type="checkbox"/> Yes <input type="checkbox"/> No                                                                                         |                                                                                                                                                                                                                       |                                                          |
| Can one train block the motorists' view of another train at crossing? <input type="checkbox"/> Yes (Explain below) <input type="checkbox"/> No                                                                        |                                                                                                                                                                                                                       |                                                          |
| Are there other track(s) crossing this same roadway within 100 ft of this crossing? <input type="checkbox"/> Yes <input type="checkbox"/> No                                                                          |                                                                                                                                                                                                                       |                                                          |
| If yes, Crossing DOT # (if different) _____                                                                                                                                                                           |                                                                                                                                                                                                                       |                                                          |
| If yes, distance _____ (take measurement between track centerlines at closest point along roadway)                                                                                                                    |                                                                                                                                                                                                                       |                                                          |
| <b>Roadway Data</b>                                                                                                                                                                                                   |                                                                                                                                                                                                                       |                                                          |
| Local Highway Authority: <u>CLARK COUNTY</u>                                                                                                                                                                          |                                                                                                                                                                                                                       |                                                          |
| Roadway Characteristics                                                                                                                                                                                               | Initial Information (from database)                                                                                                                                                                                   | Revised                                                  |
| Average daily traffic                                                                                                                                                                                                 | 1309 in 2006                                                                                                                                                                                                          |                                                          |
| Highway paved                                                                                                                                                                                                         | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                                                                                                                                                   | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| Roadway Surface: <input checked="" type="checkbox"/> Blacktop <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                                                                                                                                                                                                        |                                                                                                                                                                                                                       |                                                          |
| Vehicle Speed: <u>55</u> MPH                                                                                                                                                                                          |                                                                                                                                                                                                                       |                                                          |
| School Bus Operation: <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes <u>6</u> Amount                                                                                                             |                                                                                                                                                                                                                       |                                                          |
| Hazardous Materials Trucks: <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes _____ Amount                                                                                                          |                                                                                                                                                                                                                       |                                                          |
| Shoulders: <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes                                                                                                                                        |                                                                                                                                                                                                                       |                                                          |
| Is the shoulder surfaced? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes                                                                                                                         |                                                                                                                                                                                                                       |                                                          |
| Is there existing guardrail along roadway in crossing vicinity? <input type="checkbox"/> No <input checked="" 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 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       |                                                                                                                    |
| If yes,<br>Distance _____                                                                                                                            |                                                                                                                    |
| Is this intersection signalized? <input type="checkbox"/> No <input type="checkbox"/> Yes                                                            |                                                                                                                    |
| Are the signals currently interconnected with the existing crossing warning devices? <input type="checkbox"/> No <input type="checkbox"/> Yes        |                                                                                                                    |
| Is it the consensus of the Diagnostic Review Team that this is a potential closure project? <input type="checkbox"/> No <input type="checkbox"/> Yes |                                                                                                                    |
| Explain reasons:                                                                                                                                     |                                                                                                                    |
| <b>Type of Development</b>                                                                                                                           |                                                                                                                    |
| <input type="checkbox"/> Open Space<br><input type="checkbox"/> Industrial<br><input type="checkbox"/> Residential                                   | <input type="checkbox"/> Institutional<br><input type="checkbox"/> Commercial<br>Location of nearby schools: _____ |
| <b>Utility Information</b>                                                                                                                           |                                                                                                                    |
| Is commercial power available? <input type="checkbox"/> No <input type="checkbox"/> Yes                                                              |                                                                                                                    |
| Utility Provider (Company Name) <u>OHIO EDISON</u>                                                                                                   | Phone Number _____                                                                                                 |
| Nearest Available Power Source _____                                                                                                                 |                                                                                                                    |
| What other utilities are present? _____                                                                                                              |                                                                                                                    |
| Is there potential utility conflict(s) <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown          |                                                                                                                    |
| <b>Diagnostic Team Recommendations</b>                                                                                                               |                                                                                                                    |
|                                                                                                                                                      | Quadrants Needed                                                                                                   |
| <input type="checkbox"/> Install/upgrade active devices                                                                                              |                                                                                                                    |
| <input type="checkbox"/> Automatic Flashing Lights (AFLS)                                                                                            |                                                                                                                    |
| <input type="checkbox"/> AFLS / Cants                                                                                                                |                                                                                                                    |
| <input checked="" type="checkbox"/> AFLS / Gates                                                                                                     |                                                                                                                    |
| <input type="checkbox"/> AFLS / Gates / Cants                                                                                                        |                                                                                                                    |
| <input type="checkbox"/> Upgrade circuitry                                                                                                           |                                                                                                                    |
| <input type="checkbox"/> Sidelights                                                                                                                  |                                                                                                                    |
| <input type="checkbox"/> Guardrail Needed                                                                                                            |                                                                                                                    |
| <input type="checkbox"/> Install/Replace curb                                                                                                        |                                                                                                                    |
| <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)                                                                                                              |                                                                                                                    |
| <b>Field Dimensions</b>                                                                                                                              |                                                                                                                    |

A

Show North  
Direction

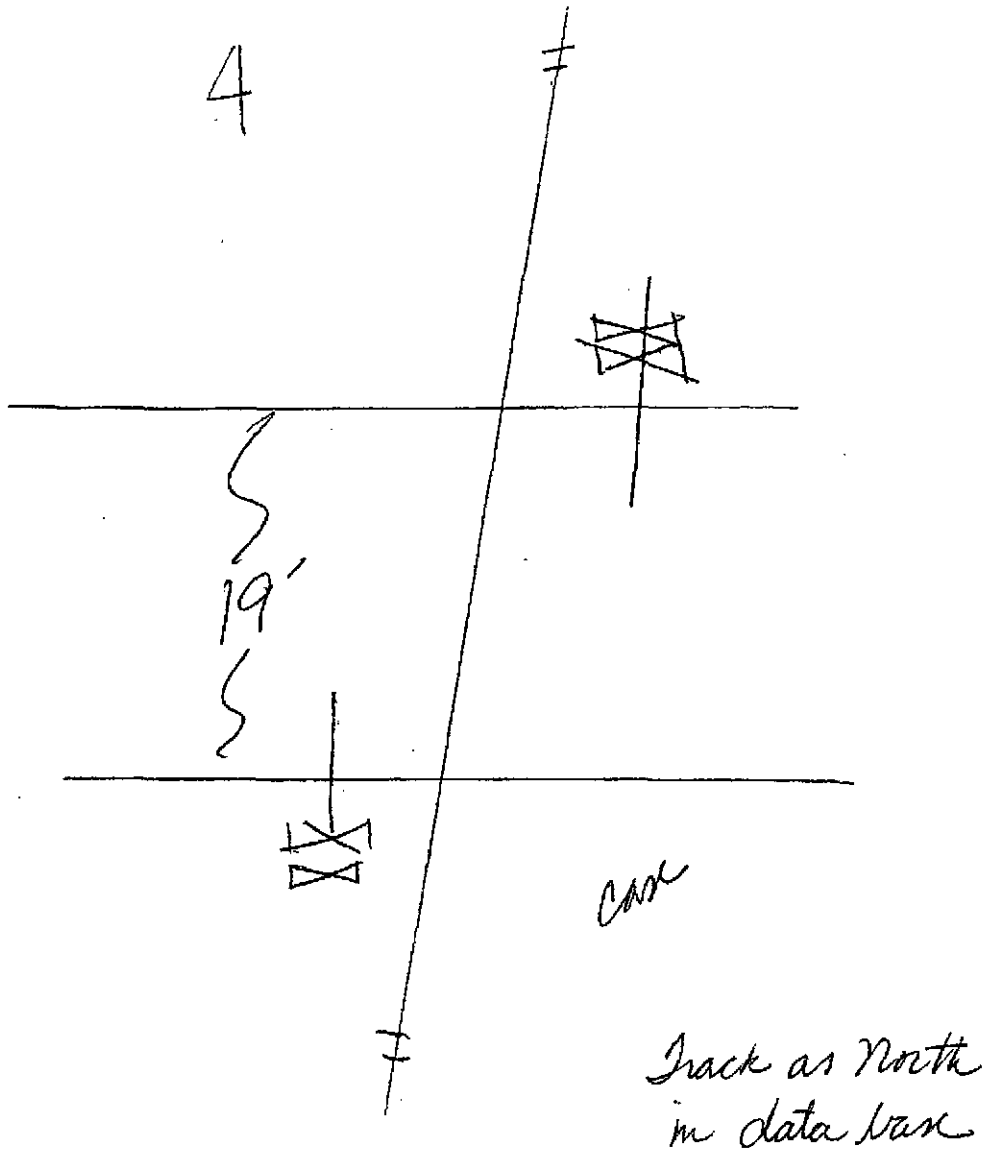


*Track as North  
in data base*

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

Measurements by: HL

Field Sketch



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

Sketch by: JP

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.



08-Jul-13

**Detailed Estimate for Grade Crossing Warning Devices**

City/State: ENON, OH  
MilePost: CJ-193.64  
State Proj. No.:  
S&E Proj. No.: 10.1342  
Man Days: 110

Road: HADDIX RD (CR 331)  
DOT/AAR: 523524G  
County: CLARK  
File Number:

| ***Purchases - Others***                                          |              |
|-------------------------------------------------------------------|--------------|
| Meals and Lodging:                                                | \$14,784.00  |
| Rental of Equipment:                                              | \$15,400.00  |
| (2 Trucks, 1 Backhoe w/ Trailer<br>and 1 Pipe-Pusher for 22 Days) |              |
| Construction Supervision Vehicle:                                 | \$2,751.92   |
| Purchases - Other Total:                                          | \$32,935.92  |
| ***Material And Additives***                                      |              |
| Material Cost:                                                    | \$47,599.00  |
| Sales and Use Tax:                                                | \$0.00       |
| Material Handling Freight:                                        | \$2,379.93   |
| Material Total:                                                   | \$49,978.93  |
| ***Labor And Additives***                                         |              |
| Labor Cost:                                                       | \$30,800.00  |
| (5 man crew at \$1,400.00 a day for: 22 days)                     |              |
| Payroll Tax & Overheads:                                          | \$40,914.72  |
| Preliminary Engineering:                                          | \$6,899.08   |
| Construction Supervision:                                         | \$8,694.84   |
| Labor Total:                                                      | \$87,308.64  |
| Project Cost:                                                     | \$170,223.49 |
| Scrap / Salvage Credit:                                           | \$0.00       |
| Project Total:                                                    | \$170,223.00 |

Estimated on: 08-Jul-13

Estimated by: ndr3j

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:                                                                                                                                                                                                                  | ENON               |
| Road:                                                                                                                                                                                                                  | HADDIX RD (CR 331) |
| Mile Post:                                                                                                                                                                                                             | CJ-193.64          |
| Drawing Number:                                                                                                                                                                                                        | 82111936           |
| State Project Number:                                                                                                                                                                                                  |                    |
| County:                                                                                                                                                                                                                | CLARK              |
| A A R Number:                                                                                                                                                                                                          | 523524G            |
| Project Number:                                                                                                                                                                                                        | 10.1342            |
| File Number:                                                                                                                                                                                                           |                    |
| New File Number:                                                                                                                                                                                                       | CX0124212          |
| WBS:                                                                                                                                                                                                                   | F-33385-27-1       |
| Store Number:                                                                                                                                                                                                          | 09181              |
| Supervisor:                                                                                                                                                                                                            | D.R. DRAKE         |
| Tax Code:                                                                                                                                                                                                              |                    |
| 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 |                    |

|                  |               |              |                        |                |                                                                                                                                                                                                                      |                  |                                       |                            |                      |
|------------------|---------------|--------------|------------------------|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|---------------------------------------|----------------------------|----------------------|
| Location: ENON   |               | OH           | S&E Proj. No.: 10.1342 |                | AFE No.: F-33385-27-1                                                                                                                                                                                                |                  | Drawing No.: 82111936                 |                            |                      |
| Store No.: 09181 |               | P.O. Number: |                        | Date Required: |                                                                                                                                                                                                                      | Date Shipped:    |                                       | Vendor: Xorail             |                      |
| Qty.             | Class-Item-CD | UI           | Price per Item         | Total Price    | Item Description                                                                                                                                                                                                     | Quantity Shipped | Quantity Installed Date<br>Quan. Date | 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                | 105-241230-4  | EA           | \$90.88                | \$90.88        | BATTERY, TRAY 38" x 8.125", FOR USE WITH 6 CELLS 368AH BATTERIES, #170999-2                                                                                                                                          |                  |                                       |                            |                      |
| 29               | 105-288384-4  | EA           | \$270.12               | \$7,833.48     | BATTERY, GNB 368AH MODEL 50G15 SINGLE CELL 2.25 VOLTS, FOR USE WITH CROSSINGS DESIGNED AFTER 09/09                                                                                                                   |                  |                                       |                            |                      |
| 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                                                                                         |                  |                                       |                            |                      |
| 350              | 465-939422-4  | LF           | \$2.92                 | \$1,022.00     | CABLE, UG 12 CONDUCTOR NO 14 AWG SOLID EACH CONDUCTOR WITH 5/64 IN INSULATION 10 MIL                                                                                                                                 |                  |                                       |                            |                      |
| 350              | 465-292862-4  | LF           | \$1.36                 | \$476.00       | CABLE, UG 2-6 TWISTED, S-23 OKONITE 113-12-3933 SOLID TINNED CONDUCTOR                                                                                                                                               |                  |                                       |                            |                      |
| 350              | 465-292929-4  | LF           | \$4.13                 | \$1,445.50     | CABLE, UG 5 COND. NO. 6 AWG SOLID COPPER CABLE TO MEET NS CORP. SPEC. FOR SIGNAL                                                                                                                                     |                  |                                       |                            |                      |
| 1                | 670-155602-4  | EA           | \$654.90               | \$654.90       | CHARGER, BATTERY CRAGG MODEL 40 ETC-12V 40 AMP TEMP COMPENSATED                                                                                                                                                      |                  |                                       |                            |                      |
| 100              | 165-544477-4  | FT           | \$2.61                 | \$261.00       | CONDUIT, 4"x10" PVC, SCHEDULE 80 BELL CONNECTOR AT ONE END, 1/2 PT. GLUE IN KIT 670-123298-4                                                                                                                         |                  |                                       |                            |                      |
| 2                | 670-664917-4  | EA           | \$90.11                | \$180.22       | 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 |                  |                                       |                            |                      |
| 2                | 670-632520-4  | EA           | \$79.69                | \$159.38       | 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 |                  |                                       |                            |                      |
| 2                | 670-793404-4  | EA           | \$1,159.00             | \$2,318.00     | COUNTERWEIGHT PKAGE, 17-24" GATE STRAN 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===                                                                                                                        |                  |                                       |                            |                      |

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



Location: ENON OH S&E Proj. No.: 10.1342 AFE No.: F-33385-27- Drawing No.: 82111936  
 Store No.: 09181 P.O. Number: Date Required: Date Shipped: Vendor: Xorail

| Qty. | Class-Item-CD | UI | Price per Item | Total Price | Item Description                                                                                                                                                                 | Quantity Shipped | Quantity Installed Date Quan. | Quantity Returned (Credit) | Special Instructions |
|------|---------------|----|----------------|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-------------------------------|----------------------------|----------------------|
| 1    | 670-986650-4  | EA | \$354.27       | \$354.27    | DISPOSAL, CONSTRUCTION DEBRIS AND CLEANING X'ING EQUIPMENT CONTAINER                                                                                                             |                  |                               |                            |                      |
| 5    | 670-000003-4  | EA | \$255.85       | \$1,279.25  | FILLSTONE #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 26"X26"X5'6" 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    | 670-123298-4  | EA | \$345.97       | \$345.97    | KIT, HARDWARE SUPPLIES REQUIRED X'ING PACKAGES, WEB CONNECTORS FOR SHUNT(8EA) TAPE, AMPS, P'GUM PAINT, SLEEVES, TAGS, GLUE, 100 EA WHITE TAGS, JNE CAN BLUE MARKING PAINT ETC... |                  |                               |                            |                      |
| 2    | 670-764186-4  | EA | \$1,240.19     | \$2,480.38  | LAMP ASSY, 5' MAST MTG, 2W IND, 20" BKGRD, FLX-12 W/BULB STRAN #042003-487XNS                                                                                                    |                  |                               |                            |                      |
| 6    | 165-643547-4  | EA | \$5.92         | \$35.52     | LAMP, 18 WATT 10 VOLT S-11 SC BAY 18S11/1SC CLEAR RWY SIGNAL UJ-71463 GE                                                                                                         |                  |                               |                            |                      |
| 4    | 255-590880-4  | EA | \$16.72        | \$66.88     | LOCK, AMERICAN LOCK MODEL H-10KA KEYS 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, STRAN P# 070519-11AX.                                                                                                        |                  |                               |                            |                      |
| 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                                                                                      |                  |                               |                            |                      |
| 2    | 670-000001-4  | EA | \$726.23       | \$1,452.46  | MISC. EXPENSE, MATERIAL/FILL                                                                                                                                                     |                  |                               |                            |                      |
| 1    | 000-000000-4  | EA | \$5,000.00     | \$5,000.00  | MISC. EXPENSE, UNDERGROUND BORING                                                                                                                                                |                  |                               |                            |                      |
| 2    | 670-700469-4  | EA | \$1,134.36     | \$2,268.72  | MODULE, MULTI FREQUENCY ISLAND SAFETRAN #80211 FOR 3000GCP                                                                                                                       |                  |                               |                            |                      |
| 2    | 670-014225-4  | EA | \$1,535.67     | \$3,071.34  | MODULE, PROCESSOR FOR 3000 GCP SAFETRAN #80214                                                                                                                                   |                  |                               |                            |                      |
| 2    | 670-001347-4  | EA | \$57.10        | \$114.20    | PACKAGE, HARDWARE SIGN 5 IN. MOUNTING, SERRMI A1250-5, HARMON @200965-000, OR                                                                                                    |                  |                               |                            |                      |
| 1    | 670-514605-4  | EA | \$111.11       | \$111.11    | PINNACLE, W-C SECT 1-11, 4" & 5" REF K1 110-8 OR SAFETRAN NO. @035045-503X                                                                                                       |                  |                               |                            |                      |
| 3    | 465-002899-4  | EA | \$40.24        | \$120.72    | REEL, CABLE DISPOSABLE FOR CROSSING SIGNAL PACKAGES                                                                                                                              |                  |                               |                            |                      |

APPROVED BY STATE APPROVED BY RAILROAD CAR NUMBER SEAL NUMBER

|                  |               |             |                        |                       |                                                                                        |                  |                                     |                               |                      |
|------------------|---------------|-------------|------------------------|-----------------------|----------------------------------------------------------------------------------------|------------------|-------------------------------------|-------------------------------|----------------------|
| Location: ENON   |               | OH          | S&E Proj. No.: 10.1342 | A/E No.: F-33386-27-1 | Drawing No.: 82111936                                                                  |                  |                                     |                               |                      |
| Store No.: 09181 |               | P.O.Number: |                        | Date Required:        | Date Shipped:                                                                          | Vendor: Xorail   |                                     |                               |                      |
| Qty.             | Class-Item-CD | UI          | Price per Item         | Total Price           | Item Description                                                                       | Quantity Shipped | Quantity Installed<br>Date<br>Quan. | Quantity Returned<br>(Credit) | Special Instructions |
| 2                | 435-805560-4  | EA          | \$2.78                 | \$5.56                | SAND, 25LB BAG FOR CABLE ENTRANCE INTO THE SHELTER                                     |                  |                                     |                               |                      |
| 2                | 670-586967-4  | EA          | \$42.98                | \$85.96               | SHUNT COVER W/LAG SCREWS, 19"X19", SERRMI #40271, ORDER 1 PER SHUNT                    |                  |                                     |                               |                      |
| 2                | 670-662773-4  | EA          | \$460.98               | \$921.96              | SHUNT, MULTI-FREQ. #62775-1543 SAFETRAN NARROW BAND                                    |                  |                                     |                               |                      |
| 2                | 670-393331-4  | EA          | \$37.43                | \$74.86               | SIGN CROSSING MALFUNCTION ASSEMBLY FOR 4" AND 5" MAST, SAFETRAN #T17215                |                  |                                     |                               |                      |
| 2                | 670-016346-4  | 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"                    |                  |                                     |                               |                      |

Total Material: \$47,598.69

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

| SH. NO. | CONTENTS                                 |
|---------|------------------------------------------|
| NXI     | INDEX SHEET                              |
| 1       | LAYOUT                                   |
| 2       | PROFILE                                  |
| 3       | CABLE PLAN                               |
| 4       | LOAD CENTER WIRING                       |
| 5       | B12 & B16 RECTIFIER & BATTERY HOOK-UP    |
| 6       | 4000 GCP 2-TK CHASSIS & MODULE LAYOUT    |
| 7       | 4000 GCP PROGRAMMING SETUP               |
| 8       | CONNECTORS FOR TRACK MODULES             |
| 9       | CPU MODULE, SEAR III, GFT & VHF HOOK-UPS |
| 10      | SEAR III PROGRAMMING SETUP               |
| 11      | SSCC*1 MODULE, IL0D*1 HOOK-UP            |
| 12      | SSCC*2 MODULE, IL0D*2 HOOK-UP            |
| 13      | *A* FLASHER AND GATE LIGHTS              |
| 14      | *B" FLASHER AND GATE LIGHTS              |
| 15      | BACKBOARD DETAIL - 1A & 1B               |
| 16      | REAR BACKBOARD DETAIL - 1A & 1B          |
| 17      | FARADAY SHIELD DETAIL - 1A & 1B          |
| 18      | FARADAY SHIELD DETAIL - 1C               |
| 19      | 6'X8' HOUSE SIDE C LAYOUT                |
| 20      | 6'X8' HOUSE SIDE A LAYOUT                |
| 21      | 6'X8' HOUSE SIDE B & TOP VIEW LAYOUT     |

IN SERVICE \_\_\_\_\_ SIGNED \_\_\_\_\_ DATE \_\_\_\_\_

☐ S&E ENGINEERING COPY

☐ CONSTRUCTION OFFICE COPY

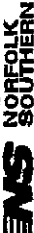
☐ RETURN TO S&E ENG. AFTER COMPLETION

☐ FIELD COPY

☐ RETURN TO CASE AFTER COMPLETION

☐ PROJECT ENGINEER COPY

PROJECT #10,1342 INDEX SHEET 1 FILE Cx0124212

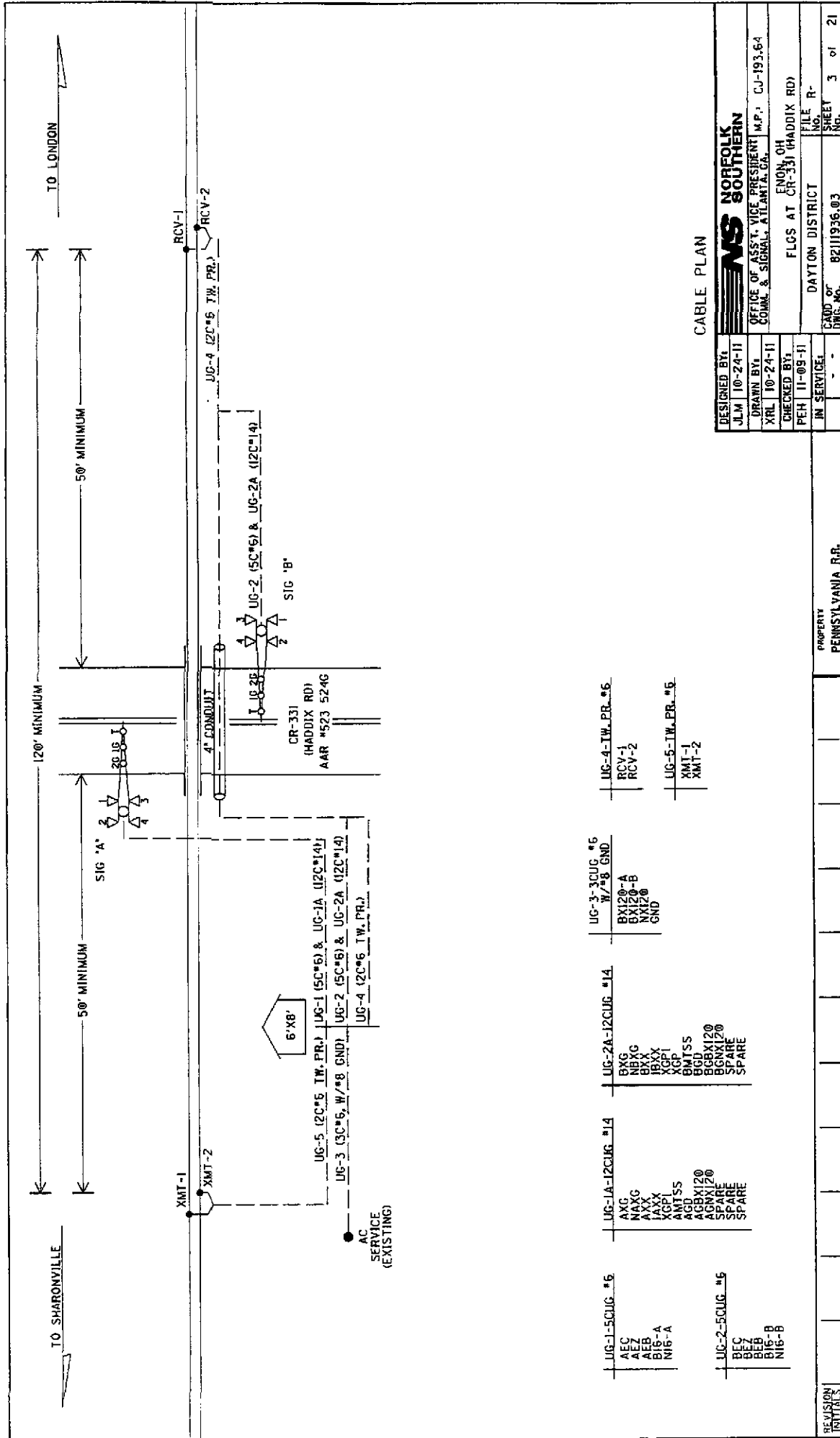
|                              |                                                                                                                                                                                                                                                                                                              |
|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DESIGNED BY:<br>JLM 10-24-11 |  <b>NORFOLK SOUTHERN</b><br>OFFICE OF ASST. VICE PRESIDENT<br>COMM. & SIGNAL, ATLANTA, GA<br>M.P.: C-J-193.64<br>ENON, OH<br>FLGS AT CR-31 (HAODIX RD)<br>DAYTON DISTRICT<br>CARD OF DNG. NO. 8211936.NXI<br>SHEET 1 of 1 |
| DRAWN BY:<br>XRL 10-24-11    |                                                                                                                                                                                                                                                                                                              |
| CHECKED BY:<br>PEH 11-09-11  |                                                                                                                                                                                                                                                                                                              |
| IN SERVICE                   |                                                                                                                                                                                                                                                                                                              |

REVISION INITIALS

PROPERTY PENNSYLVANIA R.R.







CABLE PLAN

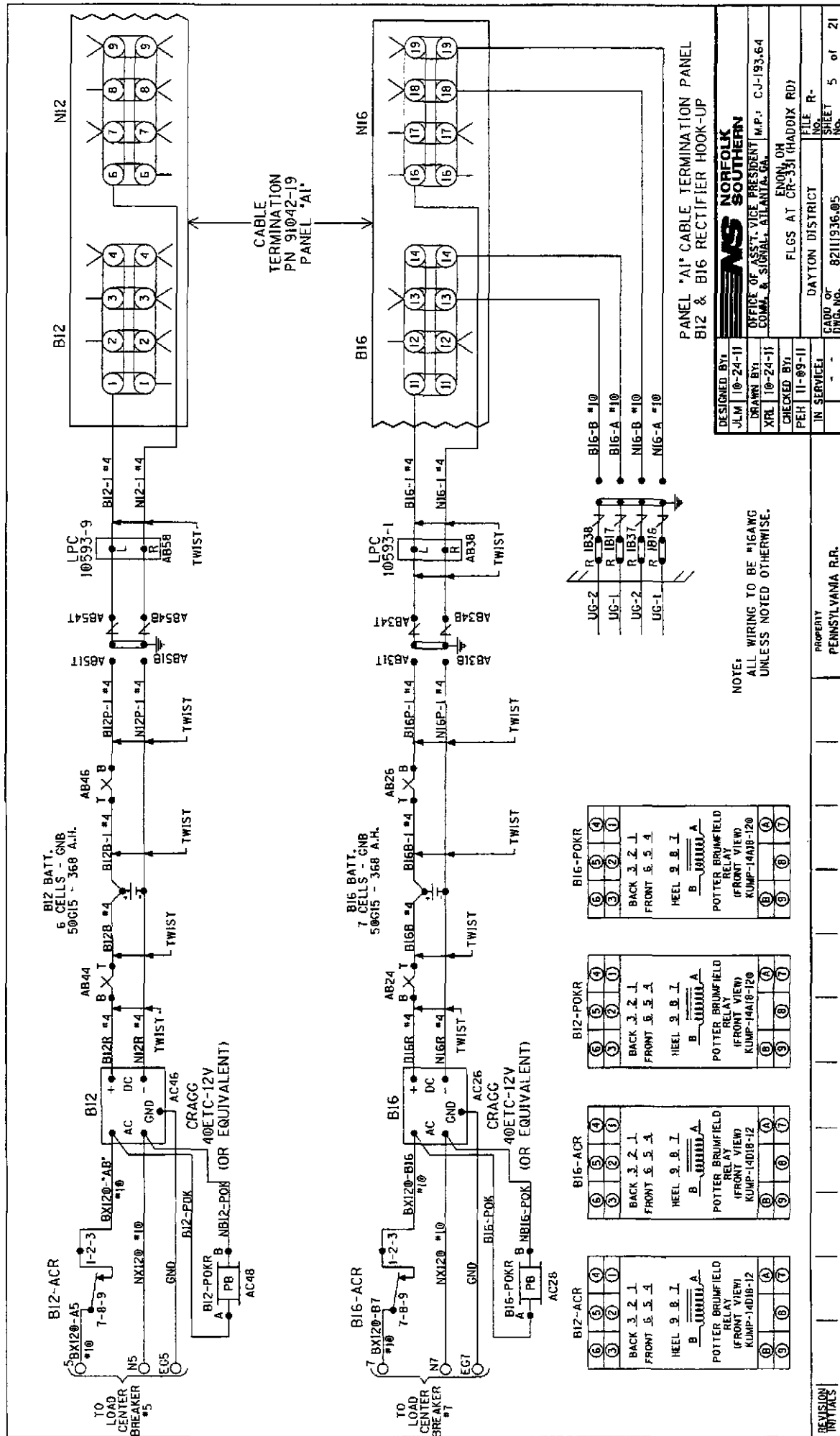
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|-------------------------------------------------------------|-----------------|-----------------------------|
| DESIGNED BY:                                                | JLM 10-24-11    | <br><b>NORFOLK SOUTHERN</b> |
| DRAWN BY:                                                   | XRL 10-24-11    |                             |
| CHECKED BY:                                                 | PEH 11-09-11    |                             |
| IN SERVICE:                                                 | - - -           |                             |
| OFFICE OF ASST. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA. | ENON, OH        | FILE NO.                    |
| FLGS AT CR-331 (HADDIX RD)                                  | DAYTON DISTRICT | SHEET 3 of 21               |
| CADD OR DWS No.                                             | 82111936.03     |                             |

|                                     |                                                                          |                                                                                            |                                   |                                 |
|-------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|-----------------------------------|---------------------------------|
| UG-1-5CUG #5                        | UG-1A-12CUG #14                                                          | UG-2A-12CUG #14                                                                            | UG-3-3CUG #6<br>W/#8 GND          | UG-4-TW-PR #6<br>RCV-1<br>RCV-2 |
| AEC<br>AEB<br>AEX<br>B16-A<br>N16-A | AXG<br>NXXG<br>AAXX<br>XGPT<br>AGD<br>AGB120<br>AGN120<br>SPARE<br>SPARE | BXG<br>NXXG<br>IBXX<br>XGPT<br>XGP<br>BMTSS<br>BGD<br>BGBX120<br>BGNX120<br>SPARE<br>SPARE | BX120-A<br>BX120-B<br>N120<br>GND | UG-5-TW-PR #6<br>XMT-1<br>XMT-2 |
| UG-2-5CUG #5                        |                                                                          |                                                                                            |                                   |                                 |
| BEC<br>BEB<br>B16-B<br>N16-B        |                                                                          |                                                                                            |                                   |                                 |

PROPERTY  
PENNSYLVANIA R.R.

REVISION  
INITIALS

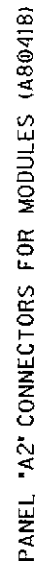








|                                 |  |                                            |  |                                   |  |                              |  |
|---------------------------------|--|--------------------------------------------|--|-----------------------------------|--|------------------------------|--|
| Program Report                  |  | ADVANCED: MS restart                       |  | ADVANCED: site options            |  | IN 8.1 = Not Used            |  |
| Location and SIN                |  | MS/GCP Restart Used = No                   |  | Daylight Savings = On             |  | IN 8.2 = Out of Service IP 1 |  |
| DOT Number 5235246              |  | ADVANCED: out of service                   |  | Units = Standard                  |  | IN 8.3 = Not Used            |  |
| Milepost Number CJ-193.64       |  | 005 Control = Display+005 IP#              |  | Maint Callpt IP Used = No         |  | IN 8.4 = Not Used            |  |
| Site Name: CR-331 (HADDIX RD)   |  | 005 Timeout = Yes                          |  | Emergency Activation IP = No      |  | IN 8.5 = Not Used            |  |
| SIN 755023405816                |  | 005 Timeout = 1 hrs                        |  | EZ/EX Logging = Change            |  | SEAR Subnode = 3             |  |
| MCF and Template Selection      |  | ADVANCED: out of service 2                 |  | EZ/EX Point Change = 3            |  | DI 1 = Out of Service 1      |  |
| MCF Name: GCP-16X-02-1.mcf      |  | T1 005 Control = 005 Input 1               |  | SSCC                              |  | DI 2 = Not Used              |  |
| MCF Revision: 021               |  | ADVANCED: track wrap circuits              |  | Gates Used = Yes                  |  | Riv 1 = Ground Fault Test    |  |
| MCF CRC: 6076E435               |  | Wrap LOS Timer = 5 sec                     |  | SSCC+2 GPs Coupled = Yes          |  | Riv 2 = AC Control           |  |
| Template = 1A16 Trk B1          |  | Track 1 Wrap Used = No                     |  | Min Activation = 0 sec            |  | SEAR Inputs                  |  |
| Check Numbers                   |  | ADVANCED: trk 1 overrides                  |  | Rmt Activation Cancel = 2 min     |  | SP 2.1 = POK 1               |  |
| Office Check No. 07512AA9       |  | Track 1: All Predictors Override Used = No |  | Bell On Gate Rising = No          |  | SP 3.1 = Not Used            |  |
| Office Check Number: 07512AA9   |  | OR 1 Used = No                             |  | Mute Bell On Gate Down = No       |  | SP 4.1 = Not Used            |  |
| Config. Check Number: 0851773A  |  | OR 2 Used = No                             |  | SSCCV Controller Used = No        |  | SP 5.1 = Not Used            |  |
| (Based on MCF Revision 021)     |  | OR 3 Used = No                             |  | SSCCV Controller Used = No        |  | SP 6.1 = Not Used            |  |
| Program                         |  | OR 4 Used = No                             |  | SSCC: 1 Activation = AND 1 XR     |  | SEAR slot 1-4 Inputs         |  |
| BASIC: module configuration     |  | ADVANCED: Internal/0 1                     |  | SSCC-1 Gate Delay = 4 sec         |  | IN 1.1 = Not Used            |  |
| Track 1 Slot 1 = Track Not Used |  | Pass Thru = No                             |  | SSCC-1 Number of GPs = 1          |  | IN 1.2 = Not Used            |  |
| Track 2 Slot 1 = Not Used       |  | Int 1 Sets = Not Used                      |  | SSCC-1 Number of GPs = 2          |  | IN 2.1 = Not Used            |  |
| Track 3 Slot 1 = Not Used       |  | Int 2 Sets = Not Used                      |  | SSCC-1 Flash Rate = 40            |  | IN 2.2 = Not Used            |  |
| Track 4 Slot 1 = Not Used       |  | Int 3 Sets = Not Used                      |  | SSCC-1 Low Battery Detection = No |  | IN 2.3 = Not Used            |  |
| Track 5 Slot 1 = Not Used       |  | Int 4 Sets = Not Used                      |  | SSCC-1 Flash Sync = master        |  | IN 3.1 = Not Used            |  |
| Track 6 Slot 1 = Not Used       |  | Int 5 Sets = Not Used                      |  | SSCC-1 Invert Gate Output = No    |  | IN 3.2 = Not Used            |  |
| Track 7 Slot 1 = Not Used       |  | Int 6 Sets = Not Used                      |  | SSCC-1 Lamp Neutral Test = On     |  | IN 4.1 = Not Used            |  |
| Track 8 Slot 1 = Not Used       |  | Int 7 Sets = Not Used                      |  | SSCC-1 Xng Ctrl Used = No         |  | IN 4.2 = Not Used            |  |
| Track 9 Slot 1 = Not Used       |  | Int 8 Sets = Not Used                      |  | SSCC: 2                           |  | SEAR Inputs slot 5           |  |
| Track 10 Slot 1 = Not Used      |  | ADVANCED: Internal/0 2                     |  | SSCC-2 Activation = AND 1 XR      |  | IN 5.1 = Not Used            |  |
| Track 11 Slot 1 = Not Used      |  | Int 9 Sets = Not Used                      |  | SSCC-2 Gate Delay = 4 sec         |  | IN 5.2 = Not Used            |  |
| Track 12 Slot 1 = Not Used      |  | Int 10 Sets = Not Used                     |  | SSCC-2 Number of GPs = 0          |  | SEAR Inputs slot 6           |  |
| Track 13 Slot 1 = Not Used      |  | Int 11 Sets = Not Used                     |  | SSCC-2 Number of GPs = 0          |  | IN 6.1 = Not Used            |  |
| Track 14 Slot 1 = Not Used      |  | Int 12 Sets = Not Used                     |  | SSCC-2 Flash Rate = 40            |  | IN 6.2 = Not Used            |  |
| Track 15 Slot 1 = Not Used      |  | Int 13 Sets = Not Used                     |  | SSCC-2 Low Battery Detection = No |  | SEAR slot 7-8 Inputs         |  |
| Track 16 Slot 1 = Not Used      |  | Int 14 Sets = Not Used                     |  | SSCC-2 Flash Sync = slave         |  | IN 7.1 = TSS 1               |  |
| Track 17 Slot 1 = Not Used      |  | Int 15 Sets = Not Used                     |  | SSCC-2 Invert Gate Output = No    |  | IN 8.1 = POK 2               |  |
| Track 18 Slot 1 = Not Used      |  | Int 16 Sets = Not Used                     |  | SSCC-2 Lamp Neutral Test = On     |  | IN 8.2 = Not Used            |  |
| Track 19 Slot 1 = Not Used      |  | Int 17 Sets = Not Used                     |  | Aux-2 Xng Ctrl Used = No          |  | IN 8.3 = Not Used            |  |
| Track 20 Slot 1 = Not Used      |  | Int 18 Sets = Not Used                     |  | OUTPUT: assignment page 1         |  | IN 8.4 = Not Used            |  |
| Track 21 Slot 1 = Not Used      |  | Int 19 Sets = Not Used                     |  | OUT 1.1 = Not Used                |  | IN 8.5 = Not Used            |  |
| Track 22 Slot 1 = Not Used      |  | Int 20 Sets = Not Used                     |  | OUT 1.2 = Not Used                |  | SITE programming             |  |
| Track 23 Slot 1 = Not Used      |  | Int 21 Sets = Not Used                     |  | IMPUT: assignment page 1          |  | Radio Subnode = 1            |  |
| Track 24 Slot 1 = Not Used      |  | Int 22 Sets = Not Used                     |  | IN 1.1 = Not Used                 |  | Field Password = Off         |  |
| Track 25 Slot 1 = Not Used      |  | Int 23 Sets = Not Used                     |  | IN 1.2 = Not Used                 |  | Low Battery Enabled = Off    |  |
| Track 26 Slot 1 = Not Used      |  | Int 24 Sets = Not Used                     |  | IO: assignment SSCC               |  | Configuration Package File   |  |
| Track 27 Slot 1 = Not Used      |  | Int 25 Sets = Not Used                     |  | OUT GC 1 = Gate Output 1          |  | Filename: 82111936.poc       |  |
| Track 28 Slot 1 = Not Used      |  | Int 26 Sets = Not Used                     |  | OUT GC 2 = Gate Output 2          |  |                              |  |
| Track 29 Slot 1 = Not Used      |  | Int 27 Sets = Not Used                     |  | IN 7.1 = Not Used                 |  |                              |  |
| Track 30 Slot 1 = Not Used      |  | Int 28 Sets = Not Used                     |  | IN 7.2 = GD 1.2                   |  |                              |  |
| Track 31 Slot 1 = Not Used      |  | Int 29 Sets = Not Used                     |  | IN 7.3 = AND 1 XR Enable          |  |                              |  |
| Track 32 Slot 1 = Not Used      |  | Int 30 Sets = Not Used                     |  | IN 7.4 = GP 1.1                   |  |                              |  |
| Track 33 Slot 1 = Not Used      |  | Int 31 Sets = Not Used                     |  | IN 7.5 = GP 1.1                   |  |                              |  |
| Track 34 Slot 1 = Not Used      |  | Int 32 Sets = Not Used                     |  |                                   |  |                              |  |
| Track 35 Slot 1 = Not Used      |  | Int 33 Sets = Not Used                     |  |                                   |  |                              |  |
| Track 36 Slot 1 = Not Used      |  | Int 34 Sets = Not Used                     |  |                                   |  |                              |  |
| Track 37 Slot 1 = Not Used      |  | Int 35 Sets = Not Used                     |  |                                   |  |                              |  |
| Track 38 Slot 1 = Not Used      |  | Int 36 Sets = Not Used                     |  |                                   |  |                              |  |
| Track 39 Slot 1 = Not Used      |  | Int 37 Sets = Not Used                     |  |                                   |  |                              |  |
| Track 40 Slot 1 = Not Used      |  | Int 38 Sets = Not Used                     |  |                                   |  |                              |  |
| Track 41 Slot 1 = Not Used      |  | Int 39 Sets = Not Used                     |  |                                   |  |                              |  |
| Track 42 Slot 1 = Not Used      |  | Int 40 Sets = Not Used                     |  |                                   |  |                              |  |
| Track 43 Slot 1 = Not Used      |  | Int 41 Sets = Not Used                     |  |                                   |  |                              |  |
| Track 44 Slot 1 = Not Used      |  | Int 42 Sets = Not Used                     |  |                                   |  |                              |  |
| Track 45 Slot 1 = Not Used      |  | Int 43 Sets = Not Used                     |  |                                   |  |                              |  |
| Track 46 Slot 1 = Not Used      |  | Int 44 Sets = Not Used                     |  |                                   |  |                              |  |
| Track 47 Slot 1 = Not Used      |  | Int 45 Sets = Not Used                     |  |                                   |  |                              |  |
| Track 48 Slot 1 = Not Used      |  | Int 46 Sets = Not Used                     |  |                                   |  |                              |  |
| Track 49 Slot 1 = Not Used      |  | Int 47 Sets = Not Used                     |  |                                   |  |                              |  |
| Track 50 Slot 1 = Not Used      |  | Int 48 Sets = Not Used                     |  |                                   |  |                              |  |
| Track 51 Slot 1 = Not Used      |  | Int 49 Sets = Not Used                     |  |                                   |  |                              |  |
| Track 52 Slot 1 = Not Used      |  | Int 50 Sets = Not Used                     |  |                                   |  |                              |  |
| Track 53 Slot 1 = Not Used      |  | Int 51 Sets = Not Used                     |  |                                   |  |                              |  |
| Track 54 Slot 1 = Not Used      |  | Int 52 Sets = Not Used                     |  |                                   |  |                              |  |
| Track 55 Slot 1 = Not Used      |  | Int 53 Sets = Not Used                     |  |                                   |  |                              |  |
| Track 56 Slot 1 = Not Used      |  | Int 54 Sets = Not Used                     |  |                                   |  |                              |  |
| Track 57 Slot 1 = Not Used      |  | Int 55 Sets = Not Used                     |  |                                   |  |                              |  |
| Track 58 Slot 1 = Not Used      |  | Int 56 Sets = Not Used                     |  |                                   |  |                              |  |
| Track 59 Slot 1 = Not Used      |  | Int 57 Sets = Not Used                     |  |                                   |  |                              |  |
| Track 60 Slot 1 = Not Used      |  | Int 58 Sets = Not Used                     |  |                                   |  |                              |  |
| Track 61 Slot 1 = Not Used      |  | Int 59 Sets = Not Used                     |  |                                   |  |                              |  |
| Track 62 Slot 1 = Not Used      |  | Int 60 Sets = Not Used                     |  |                                   |  |                              |  |
| Track 63 Slot 1 = Not Used      |  | Int 61 Sets = Not Used                     |  |                                   |  |                              |  |
| Track 64 Slot 1 = Not Used      |  | Int 62 Sets = Not Used                     |  |                                   |  |                              |  |
| Track 65 Slot 1 = Not Used      |  | Int 63 Sets = Not Used                     |  |                                   |  |                              |  |
| Track 66 Slot 1 = Not Used      |  | Int 64 Sets = Not Used                     |  |                                   |  |                              |  |
| Track 67 Slot 1 = Not Used      |  | Int 65 Sets = Not Used                     |  |                                   |  |                              |  |
| Track 68 Slot 1 = Not Used      |  | Int 66 Sets = Not Used                     |  |                                   |  |                              |  |
| Track 69 Slot 1 = Not Used      |  | Int 67 Sets = Not Used                     |  |                                   |  |                              |  |
| Track 70 Slot 1 = Not Used      |  | Int 68 Sets = Not Used                     |  |                                   |  |                              |  |
| Track 71 Slot 1 = Not Used      |  | Int 69 Sets = Not Used                     |  |                                   |  |                              |  |
| Track 72 Slot 1 = Not Used      |  | Int 70 Sets = Not Used                     |  |                                   |  |                              |  |
| Track 73 Slot 1 = Not Used      |  | Int 71 Sets = Not Used                     |  |                                   |  |                              |  |
| Track 74 Slot 1 = Not Used      |  | Int 72 Sets = Not Used                     |  |                                   |  |                              |  |
| Track 75 Slot 1 = Not Used      |  | Int 73 Sets = Not Used                     |  |                                   |  |                              |  |
| Track 76 Slot 1 = Not Used      |  | Int 74 Sets = Not Used                     |  |                                   |  |                              |  |
| Track 77 Slot 1 = Not Used      |  | Int 75 Sets = Not Used                     |  |                                   |  |                              |  |
| Track 78 Slot 1 = Not Used      |  | Int 76 Sets = Not Used                     |  |                                   |  |                              |  |
| Track 79 Slot 1 = Not Used      |  | Int 77 Sets = Not Used                     |  |                                   |  |                              |  |
| Track 80 Slot 1 = Not Used      |  | Int 78 Sets = Not Used                     |  |                                   |  |                              |  |
| Track 81 Slot 1 = Not Used      |  | Int 79 Sets = Not Used                     |  |                                   |  |                              |  |
| Track 82 Slot 1 = Not Used      |  | Int 80 Sets = Not Used                     |  |                                   |  |                              |  |
| Track 83 Slot 1 = Not Used      |  | Int 81 Sets = Not Used                     |  |                                   |  |                              |  |
| Track 84 Slot 1 = Not Used      |  | Int 82 Sets = Not Used                     |  |                                   |  |                              |  |
| Track 85 Slot 1 = Not Used      |  | Int 83 Sets = Not Used                     |  |                                   |  |                              |  |
| Track 86 Slot 1 = Not Used      |  | Int 84 Sets = Not Used                     |  |                                   |  |                              |  |
| Track 87 Slot 1 = Not Used      |  | Int 85 Sets = Not Used                     |  |                                   |  |                              |  |
| Track 88 Slot 1 = Not Used      |  | Int 86 Sets = Not Used                     |  |                                   |  |                              |  |
| Track 89 Slot 1 = Not Used      |  | Int 87 Sets = Not Used                     |  |                                   |  |                              |  |
| Track 90 Slot 1 = Not Used      |  | Int 88 Sets = Not Used                     |  |                                   |  |                              |  |
| Track 91 Slot 1 = Not Used      |  | Int 89 Sets = Not Used                     |  |                                   |  |                              |  |
| Track 92 Slot 1 = Not Used      |  | Int 90 Sets = Not Used                     |  |                                   |  |                              |  |
| Track 93 Slot 1 = Not Used      |  | Int 91 Sets = Not Used                     |  |                                   |  |                              |  |
| Track 94 Slot 1 = Not Used      |  | Int 92 Sets = Not Used                     |  |                                   |  |                              |  |
| Track 95 Slot 1 = Not Used      |  | Int 93 Sets = Not Used                     |  |                                   |  |                              |  |
| Track 96 Slot 1 = Not Used      |  | Int 94 Sets = Not Used                     |  |                                   |  |                              |  |
| Track 97 Slot 1 = Not Used      |  | Int 95 Sets = Not Used                     |  |                                   |  |                              |  |
| Track 98 Slot 1 = Not Used      |  | Int 96 Sets = Not Used                     |  |                                   |  |                              |  |
| Track 99 Slot 1 = Not Used      |  | Int 97 Sets = Not Used                     |  |                                   |  |                              |  |
| Track 100 Slot 1 = Not Used     |  | Int 98 Sets = Not Used                     |  |                                   |  |                              |  |
| Track 101 Slot 1 = Not Used     |  | Int 99 Sets = Not Used                     |  |                                   |  |                              |  |
| Track 102 Slot 1 = Not Used     |  | Int 100 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 103 Slot 1 = Not Used     |  | Int 101 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 104 Slot 1 = Not Used     |  | Int 102 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 105 Slot 1 = Not Used     |  | Int 103 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 106 Slot 1 = Not Used     |  | Int 104 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 107 Slot 1 = Not Used     |  | Int 105 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 108 Slot 1 = Not Used     |  | Int 106 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 109 Slot 1 = Not Used     |  | Int 107 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 110 Slot 1 = Not Used     |  | Int 108 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 111 Slot 1 = Not Used     |  | Int 109 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 112 Slot 1 = Not Used     |  | Int 110 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 113 Slot 1 = Not Used     |  | Int 111 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 114 Slot 1 = Not Used     |  | Int 112 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 115 Slot 1 = Not Used     |  | Int 113 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 116 Slot 1 = Not Used     |  | Int 114 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 117 Slot 1 = Not Used     |  | Int 115 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 118 Slot 1 = Not Used     |  | Int 116 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 119 Slot 1 = Not Used     |  | Int 117 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 120 Slot 1 = Not Used     |  | Int 118 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 121 Slot 1 = Not Used     |  | Int 119 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 122 Slot 1 = Not Used     |  | Int 120 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 123 Slot 1 = Not Used     |  | Int 121 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 124 Slot 1 = Not Used     |  | Int 122 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 125 Slot 1 = Not Used     |  | Int 123 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 126 Slot 1 = Not Used     |  | Int 124 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 127 Slot 1 = Not Used     |  | Int 125 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 128 Slot 1 = Not Used     |  | Int 126 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 129 Slot 1 = Not Used     |  | Int 127 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 130 Slot 1 = Not Used     |  | Int 128 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 131 Slot 1 = Not Used     |  | Int 129 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 132 Slot 1 = Not Used     |  | Int 130 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 133 Slot 1 = Not Used     |  | Int 131 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 134 Slot 1 = Not Used     |  | Int 132 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 135 Slot 1 = Not Used     |  | Int 133 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 136 Slot 1 = Not Used     |  | Int 134 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 137 Slot 1 = Not Used     |  | Int 135 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 138 Slot 1 = Not Used     |  | Int 136 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 139 Slot 1 = Not Used     |  | Int 137 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 140 Slot 1 = Not Used     |  | Int 138 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 141 Slot 1 = Not Used     |  | Int 139 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 142 Slot 1 = Not Used     |  | Int 140 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 143 Slot 1 = Not Used     |  | Int 141 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 144 Slot 1 = Not Used     |  | Int 142 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 145 Slot 1 = Not Used     |  | Int 143 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 146 Slot 1 = Not Used     |  | Int 144 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 147 Slot 1 = Not Used     |  | Int 145 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 148 Slot 1 = Not Used     |  | Int 146 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 149 Slot 1 = Not Used     |  | Int 147 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 150 Slot 1 = Not Used     |  | Int 148 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 151 Slot 1 = Not Used     |  | Int 149 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 152 Slot 1 = Not Used     |  | Int 150 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 153 Slot 1 = Not Used     |  | Int 151 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 154 Slot 1 = Not Used     |  | Int 152 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 155 Slot 1 = Not Used     |  | Int 153 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 156 Slot 1 = Not Used     |  | Int 154 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 157 Slot 1 = Not Used     |  | Int 155 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 158 Slot 1 = Not Used     |  | Int 156 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 159 Slot 1 = Not Used     |  | Int 157 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 160 Slot 1 = Not Used     |  | Int 158 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 161 Slot 1 = Not Used     |  | Int 159 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 162 Slot 1 = Not Used     |  | Int 160 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 163 Slot 1 = Not Used     |  | Int 161 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 164 Slot 1 = Not Used     |  | Int 162 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 165 Slot 1 = Not Used     |  | Int 163 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 166 Slot 1 = Not Used     |  | Int 164 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 167 Slot 1 = Not Used     |  | Int 165 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 168 Slot 1 = Not Used     |  | Int 166 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 169 Slot 1 = Not Used     |  | Int 167 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 170 Slot 1 = Not Used     |  | Int 168 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 171 Slot 1 = Not Used     |  | Int 169 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 172 Slot 1 = Not Used     |  | Int 170 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 173 Slot 1 = Not Used     |  | Int 171 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 174 Slot 1 = Not Used     |  | Int 172 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 175 Slot 1 = Not Used     |  | Int 173 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 176 Slot 1 = Not Used     |  | Int 174 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 177 Slot 1 = Not Used     |  | Int 175 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 178 Slot 1 = Not Used     |  | Int 176 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 179 Slot 1 = Not Used     |  | Int 177 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 180 Slot 1 = Not Used     |  | Int 178 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 181 Slot 1 = Not Used     |  | Int 179 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 182 Slot 1 = Not Used     |  | Int 180 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 183 Slot 1 = Not Used     |  | Int 181 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 184 Slot 1 = Not Used     |  | Int 182 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 185 Slot 1 = Not Used     |  | Int 183 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 186 Slot 1 = Not Used     |  | Int 184 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 187 Slot 1 = Not Used     |  | Int 185 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 188 Slot 1 = Not Used     |  | Int 186 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 189 Slot 1 = Not Used     |  | Int 187 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 190 Slot 1 = Not Used     |  | Int 188 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 191 Slot 1 = Not Used     |  | Int 189 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 192 Slot 1 = Not Used     |  | Int 190 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 193 Slot 1 = Not Used     |  | Int 191 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 194 Slot 1 = Not Used     |  | Int 192 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 195 Slot 1 = Not Used     |  | Int 193 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 196 Slot 1 = Not Used     |  | Int 194 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 197 Slot 1 = Not Used     |  | Int 195 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 198 Slot 1 = Not Used     |  | Int 196 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 199 Slot 1 = Not Used     |  | Int 197 Sets = Not Used                    |  |                                   |  |                              |  |
| Track 200 Slot 1 = Not Used     |  | Int 198 Sets = Not Used                    |  |                                   |  |                              |  |
|                                 |  |                                            |  |                                   |  |                              |  |



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

|              |                                                                                                             |            |       |
|--------------|-------------------------------------------------------------------------------------------------------------|------------|-------|
| DESIGNED BY: |  <b>NORFOLK SOUTHERN</b> |            |       |
| JUL 10-24-11 |                                                                                                             |            |       |
| DRAWN BY:    | OFFICE OF ASST. VICE PRESIDENT<br>COMM. & SIGNAL, ATLANTA, GA.                                              |            |       |
| XRL 10-24-11 | M.P.: C.J-193.64                                                                                            |            |       |
| CHECKED BY:  | ENGL, OH                                                                                                    |            |       |
| PEH 11-09-11 | FLOS AT CR-33 (HADDIX RD)                                                                                   |            |       |
| IN SERVICE:  | DAYTON DISTRICT                                                                                             |            |       |
|              | FILE NO.                                                                                                    | R-         |       |
|              | SHEET NO.                                                                                                   | 8          | of 21 |
|              | CADD OR DWG. NO.                                                                                            | 8211936.08 |       |

[illegible]



ALL WIRING TO BE "IGANG  
UNLESS NOTED OTHERWISE.

\* = ECHELON CONNECTIONS, NOT TO EXCEED 53' IN LENGTH AND TOTAL LENGTH NOT TO EXCEED 430', WITH A MAXIMUM OF 8 NODES, RECOMMEND USE BELDEN WIRE CABLE #8451 OR EQUIVALENT.

\* = CONNECT "E. GND 1" AND "E. GND 2" TO INDEPENDENT GROUND POINTS ON SIDE A AND SIDE B.

☆ = AB0078 ECHOLON TERMINATION  
UNIT TO TERMINATE ECHOLON  
NETWORK.

PANEL "A2" CONNECTORS FOR CPU MODULE (A80403)  
PANEL "A2" SEAR III (A80410), GFT (A80297-2) AND  
VME (A80276) HOOK-UPS

|              |              |  |                                                                                                                                                                                                                                                                                                            |
|--------------|--------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DESIGNED BY: | JLM 10-24-11 |  |  <b>NORFOLK SOUTHERN</b><br>OFFICE OF ASST. VICE PRESIDENT<br>COMM. & SIGNAL, ATLANTA, GA.<br>M.P.: CJ-193.64<br>ENCL. OH<br>FLS at CR-331 (HADDAD RD)<br>DAYTON DISTRICT<br>FILE R-<br>NO. 8211936.09<br>SHEET 9 of 21 |
| DRAWN BY:    | XRL 10-24-11 |  |                                                                                                                                                                                                                                                                                                            |
| CHECKED BY:  | PEH 11-09-11 |  |                                                                                                                                                                                                                                                                                                            |
| IN SERVICE:  |              |  |                                                                                                                                                                                                                                                                                                            |
|              |              |  |                                                                                                                                                                                                                                                                                                            |

[illegible]

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

| SITE SET UP PROCEDURE    |                           |
|--------------------------|---------------------------|
| FUNCTION                 | LED DISPLAY               |
| DATE/TIME                |                           |
| AUTOMATIC DST ADJUSTMENT | YES                       |
| TIME ZONE                | EST                       |
| SITE NAME                | CR-331 (HADDIX RD)        |
| MILEPOST                 | CJ-193.64                 |
| DOT #                    | 523524G                   |
| TESTER TYPE              | CROSSING                  |
| DATE FORMAT              | MM-DD-YYYY                |
| TEMP FORMAT              | FAHRENHEIT                |
| INDICATE HOLD (SEC)      | 0                         |
| INDICATE REFRESH (SEC)   | 60                        |
| SITE ATCS                | 7.550.234.058.03.01       |
| SITE TYPE                | NO COMMUNICATION          |
| OFFICE ATCS ADDRESS      | 2.550.00.0000             |
| PRIMARY HOP ADDR         | 7.RRR.LLL.GGG.XX.XX       |
| BACKUP HOP ADDR 1        | 7.RRR.LLL.GGG.XX.XX       |
| BACKUP HOP ADDR 2        | 7.RRR.LLL.GGG.XX.XX       |
| POLL ID                  | 1                         |
| MODE                     | GEN/ATCS                  |
| WAMS XID                 | DISABLED                  |
| OFFICE COMM DEVICE       | MCM (ECHELON)             |
| RADIO ATCS ADDR          | 7.RRR.LLL.GGG.01.01       |
| PHONE #                  | (OFFICE NUMBER)           |
| INIT STRING              |                           |
| FIELD COMM               | NONE                      |
| USER PORT                | BAUD 57600, N, 8, 1, NONE |
| AUX PORT                 | BAUD 9600, N, 8, 1, NONE  |

|                                   |         |
|-----------------------------------|---------|
| VERIFY NUMBER OF BULBS: SENSOR #1 |         |
| CURR 1: LAMP SET UP               | 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?                           | NO                      |  |
| AND 7 USED AS XR?                           | NO                      |  |
| AND 8 USED AS XR?                           | NO                      |  |
| XR CONTROLLED BY FOREIGN RR                 |                         |  |
| ENTRANCE GATES                              | 2                       |  |
| GATES CONTROLLED BY FOREIGN RR              |                         |  |
| GATE POSITION FAIL TIME (SECONDS)           | 20                      |  |
| BATTERY BANKS                               | 2                       |  |
| BATTERY MON USED                            | YES                     |  |
| INTERNAL CROSSING CONTROLLERS               | 2                       |  |
| EXTERNAL CROSSING CONTROLLERS               | 0                       |  |
| VHF COMMUNICATOR                            | YES                     |  |
| DTMF ACTIVATION                             | YES                     |  |
| ACTIVATION CODE                             | 524                     |  |
| ACTIVATION TIMEOUT (SECONDS)                | 60                      |  |
| ILOD MODULES                                | 2                       |  |
| ANY LED BULBS USED                          | NO                      |  |
| AUTO INSPECTIONS                            | NO                      |  |
| BELL SENSORS                                | 1                       |  |
| BELL SENSOR TSS1                            | YES                     |  |
| BELL SENSOR TSS2                            | NO                      |  |
| BELL SENSOR TSS3                            | NO                      |  |
| BELL SENSOR TSS4                            | NO                      |  |
| BELL SENSOR TSS5                            | NO                      |  |
| BELL SENSOR TSS6                            | NO                      |  |
| BELL SENSOR TSS7                            | NO                      |  |
| BELL SENSOR TSS8                            | NO                      |  |

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

| PROGRAM MENU QUESTIONS | PROGRAM |
|------------------------|---------|
| EDIT DIGITAL INPUTS    | NO      |
| EDIT BATTERIES         | NO      |
| EDIT RELAYS            | NO      |
| EDIT INDICATOR LEDS    | NO      |
| EDIT TEST LEDS         | NO      |
| EDIT ILOD SENSORS      | NO      |
| EDIT VHF SETTINGS      | NO      |
| CCP4K ATCS SUBNODE     | 16      |

#### NOTES:

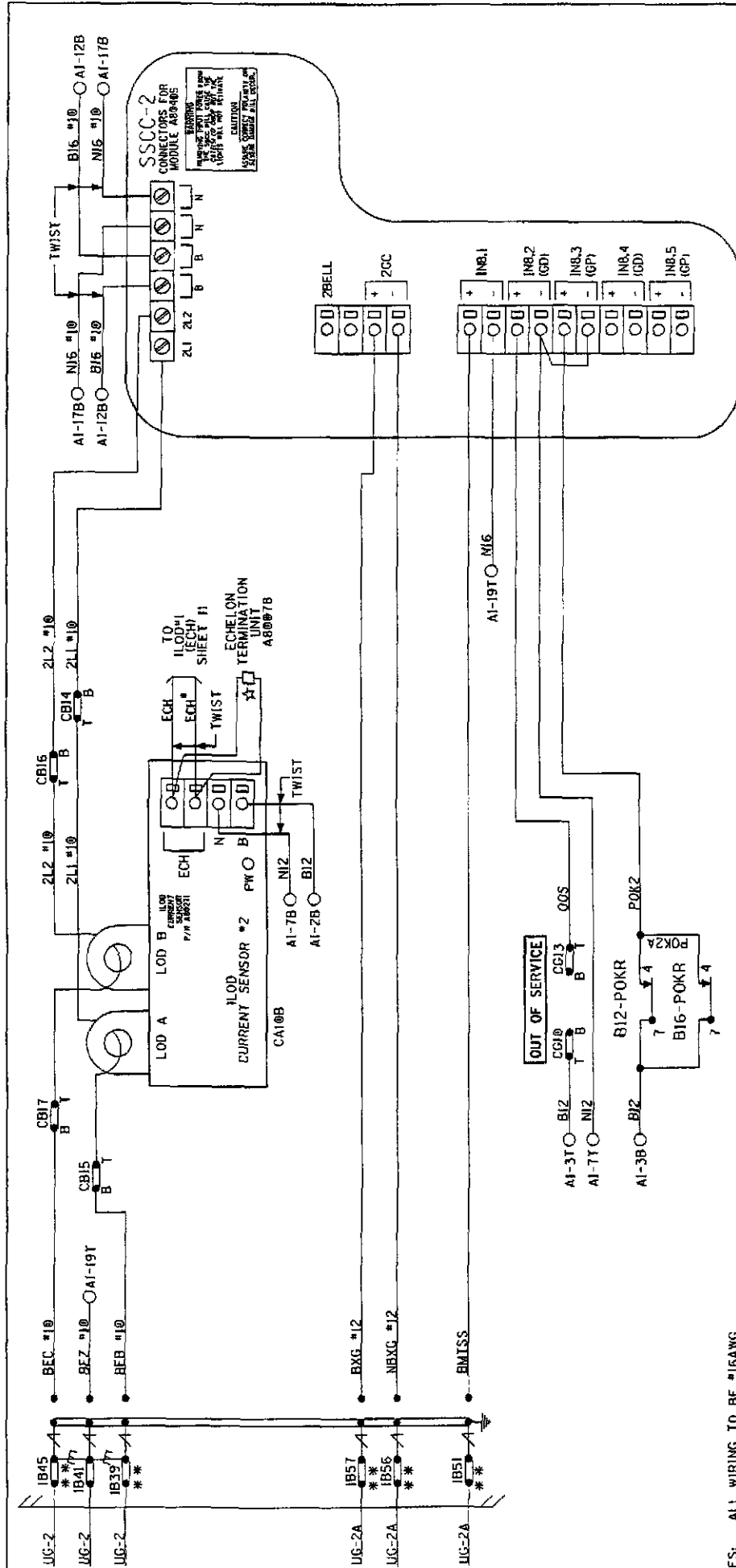
- \* = DISPLAYED IF CROSSING CONFIGURATION IS SPLIT GATE
- \*\* = OPTIONS: IF BELL SENSOR = 0, THEN BELL FIELDS ARE NOT USED.
- \*\*\* = IF SITE TYPE = NO COMMUNICATION, THEN THESE OPTIONS ARE NOT DISPLAYED
- \*\*\*\* = THESE SETTINGS SHOULD BE LEFT AT THE DEFAULT SETTING.
- \*\*\*\*\* = USE LAST 3 NUMBERS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

#### SEAR III PROGRAMMING SETUP

|                              |                                                                                                                                                                                                                                                   |
|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DESIGNED BY:<br>JLM 10-24-11 | <br>OFFICE OF ASST. VICE PRESIDENT<br>COMM. & SIGNAL, ATLANTA, GA. M.P.: CJ-193.64<br>ENRON, OH<br>FLCS AT CR-331 (HADDIX RD)<br>DAYTON DISTRICT<br>8211936.10 |
| DRAWN BY:<br>XRL 10-24-11    |                                                                                                                                                                                                                                                   |
| CHECKED BY:<br>PEH 11-09-11  |                                                                                                                                                                                                                                                   |
| IN SERVICE:                  |                                                                                                                                                                                                                                                   |
| FILE NO. R-10                | SHEET 10 of 21                                                                                                                                                                                                                                    |

PROPERTY  
PENNSYLVANIA R.R.





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 BELDEN WIRE CABLE #8461 OR EQUIVALENT.

\*\* = TEST LINKS MUST BE OPENED TEMPORARILY FOR NEW COLD START OF NEW OR REPLACEMENT SSCC MODULE AND CAN ONLY BE CLOSED IN SEQUENCE WITH MFR. INSTRUCTIONS, SECTION 8 OF THE GCP 4000 REFERENCE MANUAL.

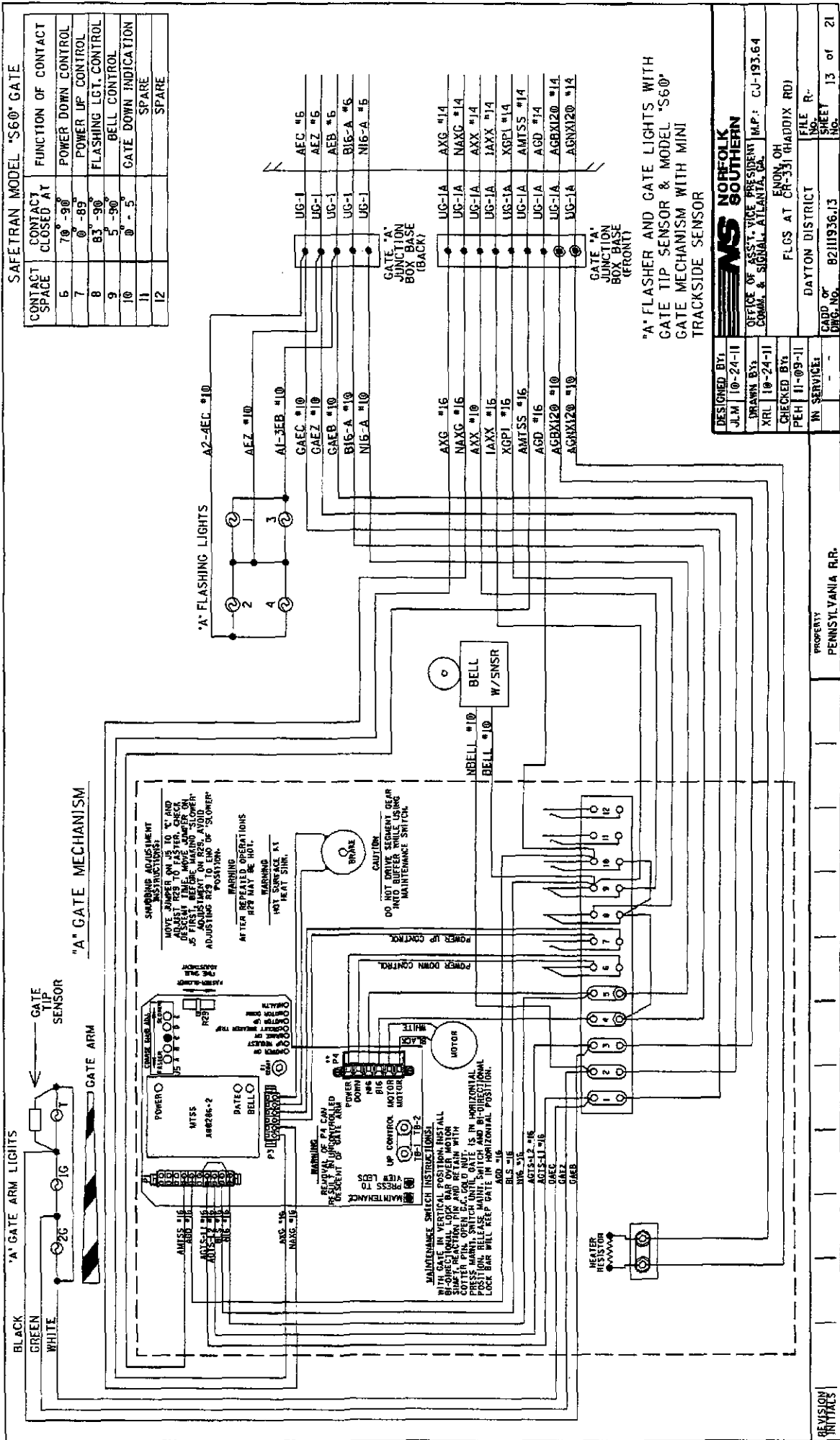
☆ = A80078 ECHOLON TERMINATION UNIT TO TERMINATE ECHOLON NETWORK.

PANEL "A2" CONNECTORS FOR SSCC#2 MODULE (A80405)  
PANEL "A3" IL0D\*2 (A80271) HOOK-UP

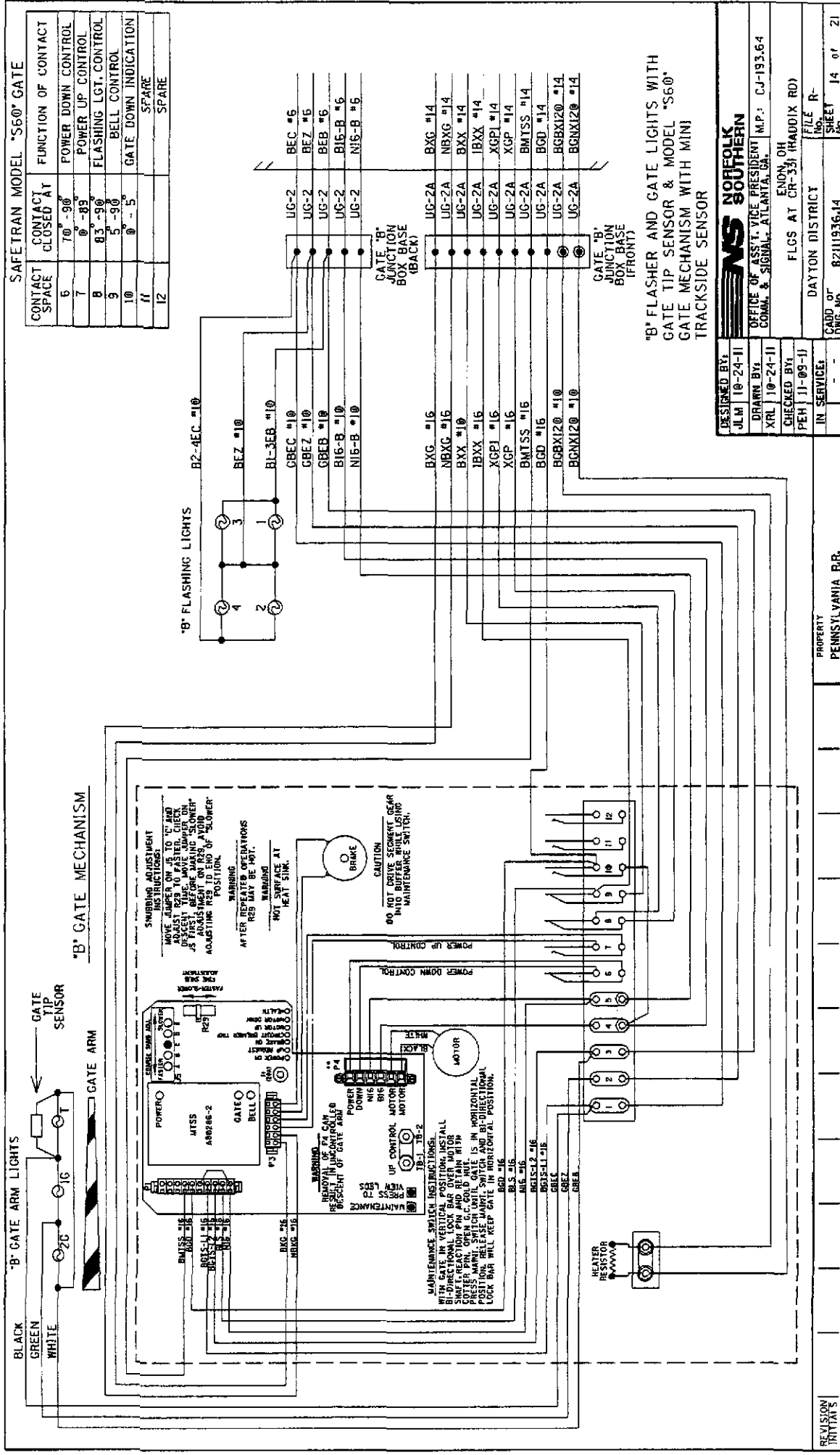
|                                 |                             |
|---------------------------------|-----------------------------|
| DESIGNED BY:                    | JLM 10-24-11                |
| DRAWN BY:                       | XRL 10-24-11                |
| CHECKED BY:                     | PEH 11-09-11                |
| IN SERVICE:                     | -                           |
| FILE NO.                        | 82111936.12                 |
| FILE R-NO.                      | 12 of 21                    |
| DAYTON DISTRICT                 | ENON, OH                    |
| FLGS AT CR-33                   | (HADDIX RD)                 |
| OFFICE OF ASS'T. VICE PRESIDENT | COMM. & SIGNAL, ATLANTA, GA |
| M.P.                            | CJ-193.64                   |
| NS                              | NORFOLK SOUTHERN            |

PROPERTY  
PENNSYLVANIA R.R.

REVISION  
INITIALS







SAFETRAN MODEL "S60" GATE

| CONTACT SPACE | CONTACT CLOSED AT | FUNCTION OF CONTACT   |
|---------------|-------------------|-----------------------|
| 6             | 70° - 90°         | POWER UP CONTROL      |
| 7             | 0° - 85°          | POWER DOWN CONTROL    |
| 8             | 83° - 90°         | FLASHING LGT. CONTROL |
| 9             | 5° - 90°          | BELL CONTROL          |
| 10            | 0° - 5°           | GATE DOWN INDICATION  |
| 11            |                   | SPARE                 |
| 12            |                   | SPARE                 |

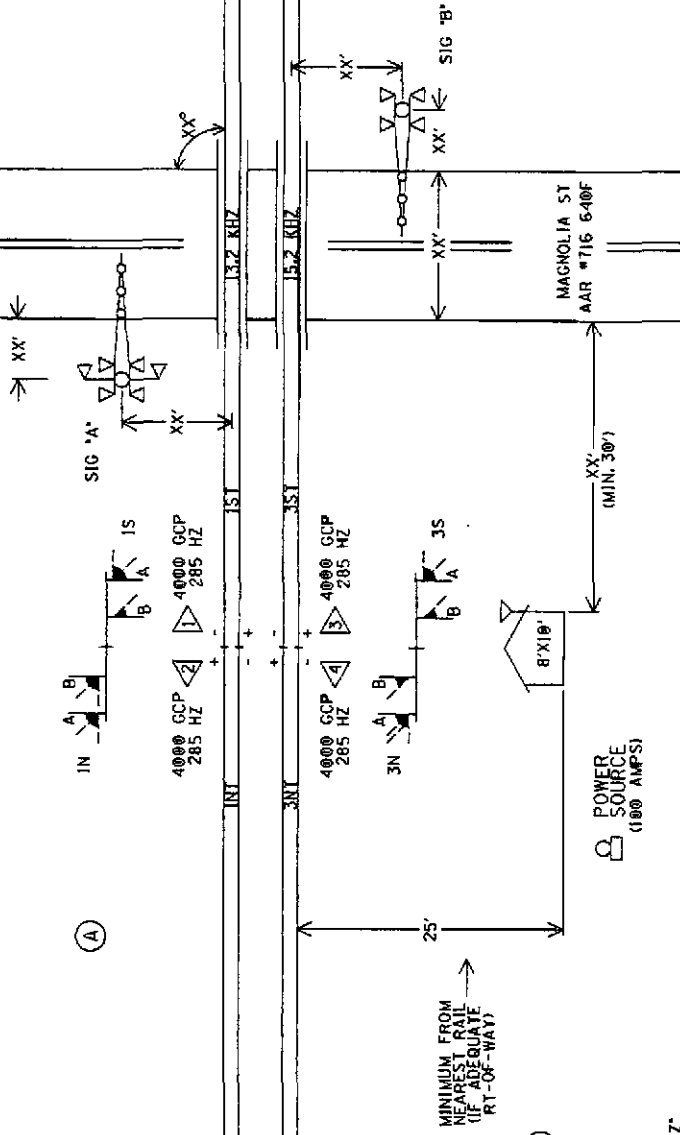
"B" FLASHER AND GATE LIGHTS WITH  
GATE TIP SENSOR & MODEL "S60"  
GATE MECHANISM WITH MINI  
TRACKSIDE SENSOR

|                                                                |              |
|----------------------------------------------------------------|--------------|
| DESIGNED BY:                                                   | JLM 10-24-11 |
| DRAWN BY:                                                      | XRL 10-24-11 |
| CHECKED BY:                                                    | PEW 11-09-11 |
| IN SERVICES:                                                   |              |
| PROPERTY<br>PENNSYLVANIA R.R.                                  |              |
| REVISION<br>INITIALS                                           |              |
| CADD or<br>DWG. No. 82111936.14                                |              |
| DAYTON DISTRICT                                                |              |
| FLGS AT CR-351 (HAUDIX RD)                                     |              |
| ENON, OH                                                       |              |
| OFFICE OF ASS'T. VICE PRESIDENT<br>COMM. & SIGNAL, ATLANTA, GA |              |
| M.P.: CJ-193.64                                                |              |
| FILE R-                                                        |              |
| SHEET 14 of 21                                                 |              |

TO CHARLOTTE  
NORTH

# MAGNOLIA

TO GREENVILLE  
SOUTH



## NOTES:

1. MAX. TRAIN SPEED 50 M.P.H.
2. LATITUDE N XX' YY' ZZ' LONGITUDE W XX' YY' ZZ' ELEVATION XXXX'
3. SIGNAL 'A' TO HAVE BELL.
4. LOCATE U/G UTILITIES & CABLE BEFORE DIGGING.
5. CROSSING LOCATED IN \_\_\_\_\_ COUNTY.
6. NEAREST STREET ADDRESS IS \_\_\_\_\_

7. NEAREST INTERSECTING STREET IS \_\_\_\_\_

8. DISTANCE TO NEAREST INTERSECTING STREET IS XXXX FT.

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

CODE 5 ALSO USED FOR APPROACH LIGHTING  
IN 8' 3N SIGNAL IN POWER OFF CONDITION.

XX = FIELD PROVIDE DISTANCE

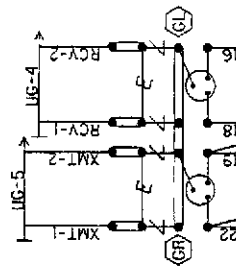
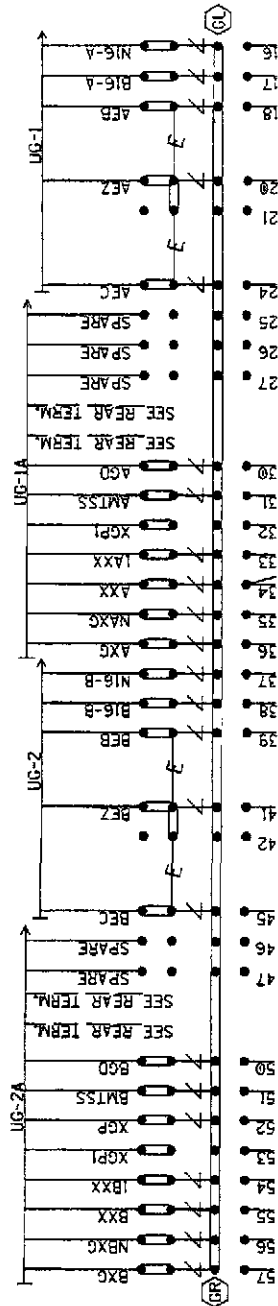
## OUTSIDE PLAN

|             |                      |          |                            |
|-------------|----------------------|----------|----------------------------|
| DESIGNED BY | HR                   | 03-92-11 | <b>NS</b> NORFOLK SOUTHERN |
| DRAWN BY    | XRL                  | 03-02-11 |                            |
| CHECKED BY  | GFS                  | 08-18-11 |                            |
| IN SERVICE  |                      |          |                            |
| FILE NO.    | CHARLOTTE DISTRICT   | R-3074   |                            |
| SHEET NO.   | CADD NO. 3A45249B.01 |          |                            |

PROPERTY  
NORFOLK SOUTHERN RAILWAY CO.

1 of 45

LEFT TWO ROWS TERMINAL BOARD 1



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

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

⎓ = Heavy Duty Equalizer (022700-1X)  
 ⎓ = Clearview Lightning Arrestor (022585-1X)  
 ⎓ = LPC-10560-51

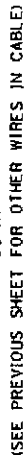
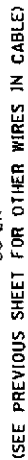
⎓ = TERMINALS GROUNDED TO SHIELD. 4 POST BLOCKS USE EITHER - GR - SERMMI PART NO. 61278 GL - SERMMI PART NO. 61278-1.

BACKBOARD DETAIL - 1A & 1B

|                             |                                                                                |
|-----------------------------|--------------------------------------------------------------------------------|
| DESIGNED BY<br>JLM 10-24-11 | <b>NORFOLK SOUTHERN</b>                                                        |
| DRAWN BY<br>XRL 10-24-11    | OFFICE OF ASST. VICE PRESIDENT M.P.: CJ-193.64<br>COMM. & SIGNAL, ATLANTA, GA. |
| CHECKED BY<br>PEH 11-09-11  | ENON, OH<br>FLCS AT CR-351 (HADDIX RD)                                         |
| IN SERVICE                  | DAYTON DISTRICT                                                                |
| FILE NO.                    | 82111936.15                                                                    |
| SHEET NO.                   | 15 of 21                                                                       |

PROPERTY  
PENNSYLVANIA R.R.

• **VI**



**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**

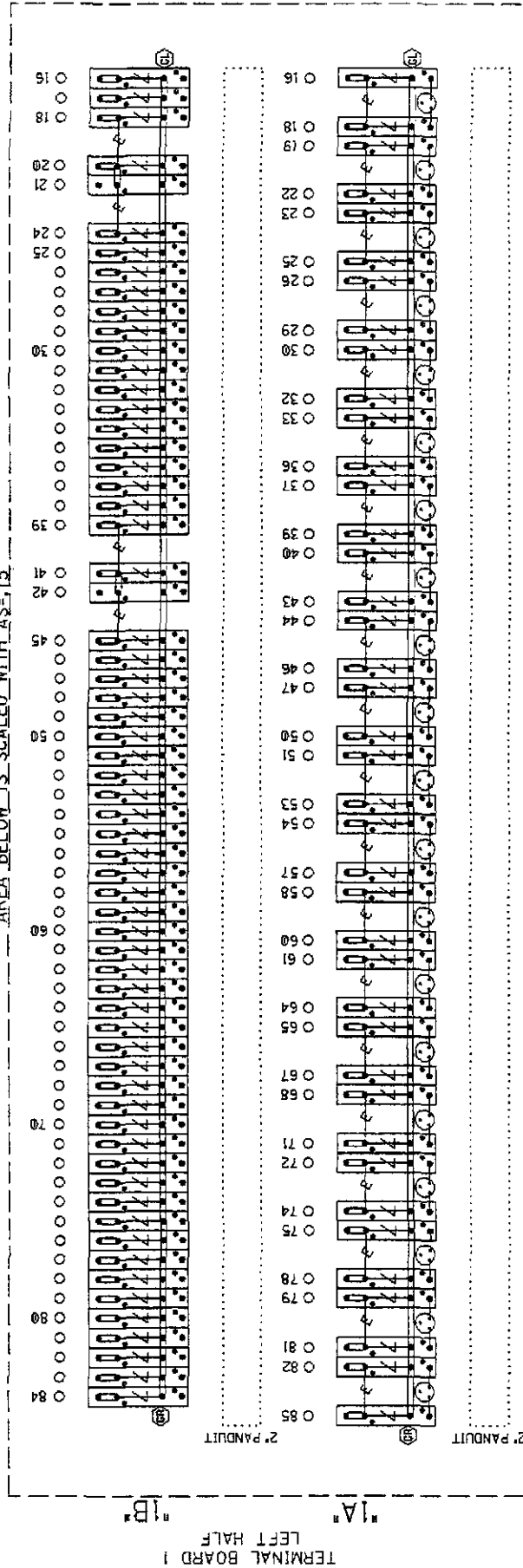
REAR OF FARADAY BACKBOARD  
REAR BACKBOARD DETAIL - 1A & 1B

|              |              |  |                                                                                                                                                                                                                                                                                                 |
|--------------|--------------|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DESIGNED BY: | JUL 18-24-11 |  |  <b>NORFOLK SOUTHERN</b><br>OFFICE OF ASST. VICE PRESIDENT<br>COMM & SIGNAL, ATLANTA, GA<br>ENCL. 04<br>FLOS AT CR-331 (HADDIX RD)<br>DAYTON DISTRICT<br>FILE R-<br>NO. 82119136.16<br>CDD OF SHEET 16 of 21 |
| DRAWN BY:    | XRL 18-24-11 |  |                                                                                                                                                                                                                                                                                                 |
| CHECKED BY:  | PEN 11-09-11 |  |                                                                                                                                                                                                                                                                                                 |
| IN SERVICE:  |              |  |                                                                                                                                                                                                                                                                                                 |
|              |              |  |                                                                                                                                                                                                                                                                                                 |

[illegible]

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

AREA BELOW IS SCALED WITH AS=75



Heavy Duty Equalizer  
(022700-IX)

Clearview  
(022585-IX)

Lightning Arrester  
(022585-IX)

LPC-10560-51

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

INDICATES PLACEMENT  
OF PANDUIT

TERMINAL BOARD 1  
LEFT TWO ROWS

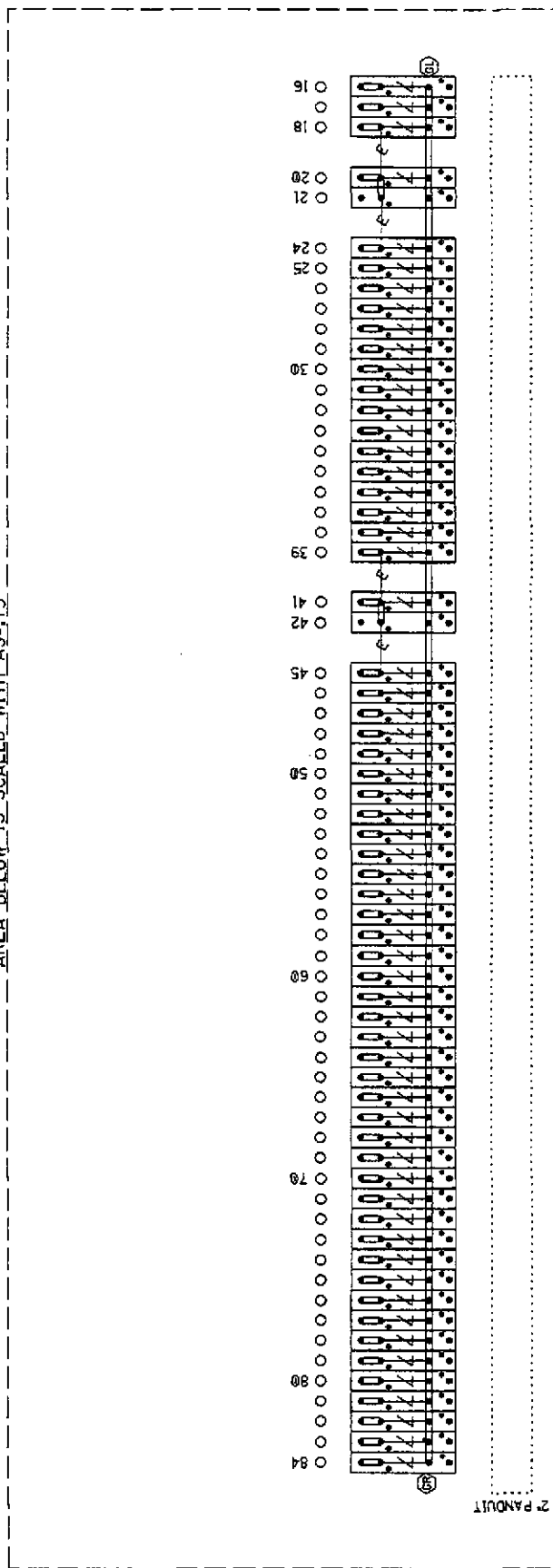
FARADAY SHIELD DETAIL - 1A & 1B

|                              |                                                                                                                                                                                                                               |
|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DESIGNED BY:<br>JLM 10-24-11 | <b>NORFOLK SOUTHERN</b><br>OFFICE OF ASST. VICE PRESIDENT<br>COMM. & SIGNAL, ATLANTA, GA. MP: CJ-193.64<br>ENON, OH<br>FLGS AT CR-331 (HADDIX RD)<br>DAYTON DISTRICT<br>FILE NO. R-<br>SHEET 17 of 21<br>CADW. NO. 8211936-17 |
| DRAWN BY:<br>XRL 10-24-11    |                                                                                                                                                                                                                               |
| CHECKED BY:<br>PEH 11-09-11  |                                                                                                                                                                                                                               |
| IN SERVICE:                  |                                                                                                                                                                                                                               |

PROPERTY  
PENNSYLVANIA R.R.

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

AREA BELOW IS SCALED WITH AS=75



TERMINAL BOARD 1  
RIGHT HALF

⊥ = Heavy Duty Equalizer  
(022700-IX)

⌄ = Clearview  
Lightning Arrestor  
(022585-IX)

⊙ = LPC-10560-51

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

□ = INDICATES PLACEMENT  
OF PANDUIT

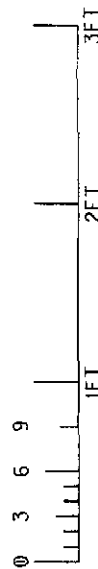
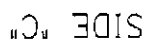
TERMINAL BOARD 1  
RIGHT ROW  
FARADAY SHIELD DETAIL - 1C

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

|                                                             |                         |
|-------------------------------------------------------------|-------------------------|
| DESIGNED BY:<br>JLM 10-24-11                                | <b>NORFOLK SOUTHERN</b> |
| DRAWN BY:<br>XRL 10-24-11                                   |                         |
| CHECKED BY:<br>PEH 11-09-11                                 |                         |
| OFFICE OF ASST. VICE PRESIDENT<br>COMM & SIGNAL ATLANTA, GA |                         |
| FLOS AT CR-331 (HADDIX RD)                                  |                         |
| DAYTON DISTRICT                                             |                         |
| FILE NO. 8211935.18                                         |                         |
| SHEET 18 of 21                                              |                         |

PROPERTY  
PENNSYLVANIA R.R.

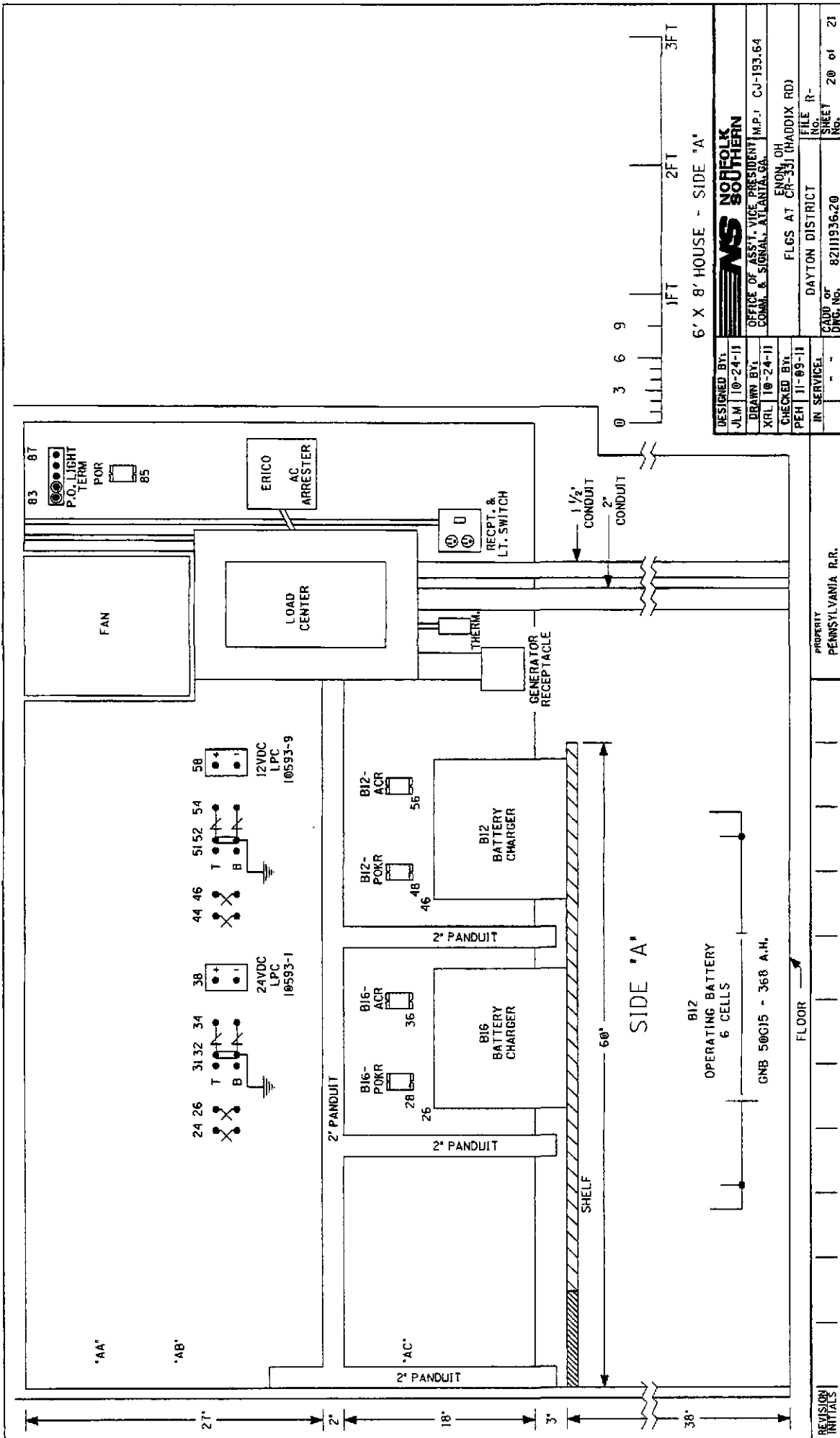
REVISION  
INITIALS



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

|                 |              |                                                                                                                                                                                                    |
|-----------------|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DESIGNED BY:    | JLM 10-24-11 |  <b>NORFOLK SOUTHERN</b><br>OFFICE OF ASST. VICE PRESIDENT<br>COMM. & STRG. ATLANTA, GA.<br>J.M.P.: C.J.-193,64 |
| DRAWN BY:       | DRM 10-24-11 |                                                                                                                                                                                                    |
| CHECKED BY:     | PER 11-09-11 |                                                                                                                                                                                                    |
| IN SERVICE:     |              |                                                                                                                                                                                                    |
| DAYTON DISTRICT |              | ENCL. OH<br>FLOS AT CR-33 (HADDIX RD)<br>FILE NO. R-<br>SHEET 19 of 21<br>CADW. NO. 8211936.19<br>DWG. NO.                                                                                         |

[illegible]



6' X 8' HOUSE - SIDE 'A'

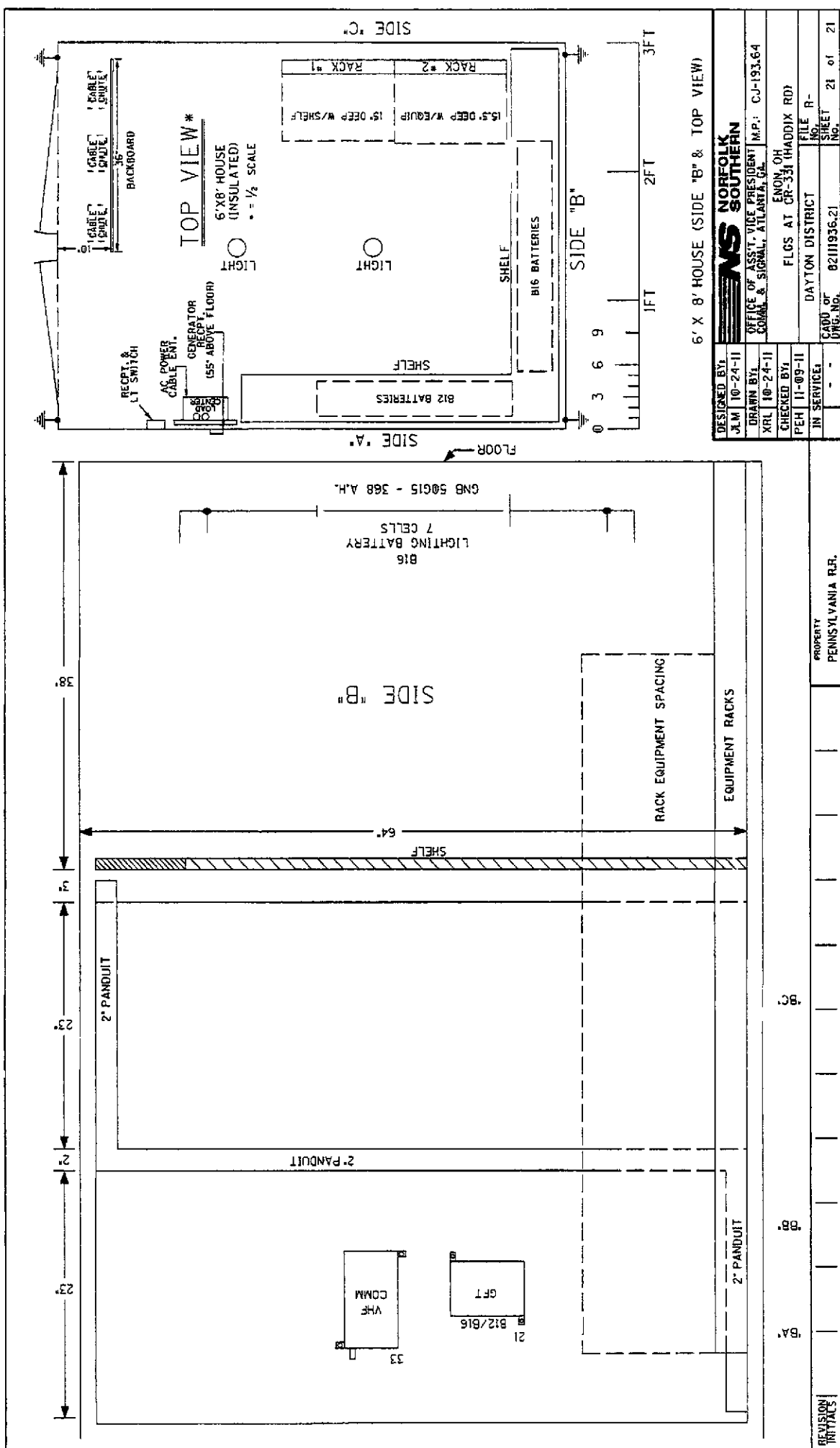
**NS NORFOLK SOUTHERN**

|              |                                                  |
|--------------|--------------------------------------------------|
| DESIGNED BY: | JLM 10-24-11                                     |
| DRAWN BY:    | OFFICE OF ASS'T. VICE PRESIDENT M.P.J. CJ-193.64 |
| CHECKED BY:  | COMM. & SIGNAL, ATLANTA, GA.                     |
| FILE NO.     | FLCS AT ENON, OH                                 |
| IN SERVICE:  | DAYTON DISTRICT                                  |
| DATE OF      | 8211936.20                                       |
| DRG. NO.     | 8211936.20                                       |
| SHEET        | 20 of 21                                         |

PROPERTY  
PENNSYLVANIA R.R.

REVISION  
INITIALS







# OHIO RAIL DEVELOPMENT COMMISSION

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

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

October 24, 2013

Cayela J. Wimberly  
Administrator, Highway Grade Crossings  
Norfolk Southern Corporation  
1200 Peachtree Street, N.E., Box 123  
Atlanta, Georgia 30309

RE: Clark County, T.R. 151, Snider Road, DOT No. 523 522 T, PID 88509,  
Mile Post: CJ 193, S&E Project No. 10.1341

Dear Ms. Wimberly:

The Norfolk Southern (NS) plan and estimate dated July 17, 2013, in the amount of \$171,987.00 for the referenced project has been reviewed and is acceptable. 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 \$128,990.25. 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 will furnish prior written notification of their scheduled date to start construction to George Martin, PUCO, Railroad Division.
2. NS's project foreman will furnish FAX or written notification five (5) working days prior to the date work will start at the project site to Tim Perkins, Ohio Rail Development Commission (ORDC), 1980 West Broad Street, Columbus, Ohio 43223, email [Tim.Perkins@dot.state.oh.us](mailto:Tim.Perkins@dot.state.oh.us) or FAX (614) 728-4520, (telephone number 614-644-0284), and to the Public Utilities Commission of Ohio at 180 East Broad Street, Columbus, Ohio 43215, email [George.martin@puc.state.oh.us](mailto:George.martin@puc.state.oh.us), (telephone number 614-752-9107). 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.
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.



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

phone: 614.644.0306

IMPROVING RAIL TODAY FOR TOMORROW'S ECONOMY

[Type text]

4. NS's project foremen will notify Tim Perkins 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 Encumbrance Estimate 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.
7. This installation will include any ancillary work to make the warning devices function as designed and meet MUCTD.

Thank you for your assistance with these matters.

Sincerely,

A handwritten signature in cursive script that reads "Tim Perkins".

Tim Perkins  
Project Manager



AAR#: 523 522T

Ohio Rail Development Commission  
1980 W. Broad Street, 2nd Floor  
Columbus, OH 43223

## Diagnostic Review Team Survey

Date: 6-8-10

| Location Data                                   |                     |                                       |                                        |
|-------------------------------------------------|---------------------|---------------------------------------|----------------------------------------|
| Street or Road Name: TR 151, SNIDER ROAD        |                     |                                       |                                        |
| Route/Road Number<br>(i.e. Twp., Co., SR or US) |                     | AAR-DOT No.: 262 213 H                |                                        |
| County: CLARK                                   | Township: MAD RIVER | City:<br>(In or Near) VILLAGE OF ENON |                                        |
| Railroad Name: NORFOLK SOUTHERN                 |                     | Railroad Division: DEARBORN           | Branch/Line Name: CINCINNATI 262-213-H |
| Nearest RR<br>Timetable Station: ENON           |                     | RR Milepost:                          |                                        |

### On-Site Review Team

(Include: Name - Organization - Phone Number)

- |    |               |                 |              |
|----|---------------|-----------------|--------------|
| 1. | TIM PERKINS   | ORDC            | 614-644-0284 |
| 2. | Derrick Drake | NS              | 304-712-0220 |
| 3. | GEORGE MARTIN | PUCO            | 614-752-9107 |
| 4. | ROBERT COUSER | NS              | 937-581-5255 |
| 5. | Rich Ray      | NSC             | 404-529-1234 |
| 6. | Don O'Connor  | MRT Supervisor  | 937-605-1922 |
| 7. | Kathy Estep   | MRTWP           | 937-864-7714 |
| 8. | Michael Black | GRAND VALLEY SD | 937-684-0599 |
| 9. |               |                 |              |

### Existing Traffic Control Devices

| Type of Warning Devices               | Installed?                              |                                        | Quantity/Comments |
|---------------------------------------|-----------------------------------------|----------------------------------------|-------------------|
| Advance Warning Signs                 | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            | 1                 |
| '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                     | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            | 2                 |
| Crossbucks                            | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            | 2                 |
| Number of Tracks Signs                | <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No |                   |
| 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 checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            | Number: 2 Length: |
| Bells                                 | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            | 1                 |
| 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 checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            |                   |
| Other                                 | <input type="checkbox"/> Yes            | <input 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                                                                                                                                                                         |                                                                                                                                                                                                                       |                                                          |
| Hazard Ranking                                                                                                                                                                                                        | Date Run:                                                                                                                                                                                                             |                                                          |
| <b>Railroad Data</b>                                                                                                                                                                                                  |                                                                                                                                                                                                                       |                                                          |
| Railroad Characteristics                                                                                                                                                                                              | Initial Information (from database)                                                                                                                                                                                   | Revised                                                  |
| Total trains per day                                                                                                                                                                                                  |                                                                                                                                                                                                                       |                                                          |
| < 1 per day                                                                                                                                                                                                           |                                                                                                                                                                                                                       |                                                          |
| Day thru trains                                                                                                                                                                                                       | 8                                                                                                                                                                                                                     |                                                          |
| Night thru trains                                                                                                                                                                                                     | 10                                                                                                                                                                                                                    |                                                          |
| Daytime switching movements                                                                                                                                                                                           | 2                                                                                                                                                                                                                     |                                                          |
| Nighttime switching movements                                                                                                                                                                                         | 0                                                                                                                                                                                                                     |                                                          |
| Total number of tracks                                                                                                                                                                                                | 1                                                                                                                                                                                                                     |                                                          |
| Number of main tracks                                                                                                                                                                                                 | 1                                                                                                                                                                                                                     |                                                          |
| Number of other tracks                                                                                                                                                                                                | 1                                                                                                                                                                                                                     |                                                          |
| Maximum train speed                                                                                                                                                                                                   | 50                                                                                                                                                                                                                    |                                                          |
| Typical train speed                                                                                                                                                                                                   | 45                                                                                                                                                                                                                    |                                                          |
| Amtrak                                                                                                                                                                                                                |                                                                                                                                                                                                                       |                                                          |
| If non-gated crossing, is clearing sight distance adequate in all quadrants? (See Table 1) <input type="checkbox"/> Yes <input type="checkbox"/> No                                                                   |                                                                                                                                                                                                                       |                                                          |
| If multiple tracks, can two trains occupy crossing at the same time? <input type="checkbox"/> Yes <input type="checkbox"/> No                                                                                         |                                                                                                                                                                                                                       |                                                          |
| Can one train block the motorists' view of another train at crossing? <input type="checkbox"/> Yes (Explain below) <input type="checkbox"/> No                                                                        |                                                                                                                                                                                                                       |                                                          |
| Are there other track(s) crossing this same roadway within 100 ft of this crossing? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No                                                               |                                                                                                                                                                                                                       |                                                          |
| If yes, Crossing DOT #(if different) _____                                                                                                                                                                            |                                                                                                                                                                                                                       |                                                          |
| If yes, distance _____ (take measurement between track centerlines at closest point along roadway)                                                                                                                    |                                                                                                                                                                                                                       |                                                          |
| <b>Roadway Data</b>                                                                                                                                                                                                   |                                                                                                                                                                                                                       |                                                          |
| Local Highway Authority: <u>MAD RIVER TOWNSHIP</u>                                                                                                                                                                    |                                                                                                                                                                                                                       |                                                          |
| Roadway Characteristics                                                                                                                                                                                               | Initial Information (from database)                                                                                                                                                                                   | Revised                                                  |
| Average daily traffic                                                                                                                                                                                                 | 1172 in 2006                                                                                                                                                                                                          |                                                          |
| Highway paved                                                                                                                                                                                                         | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                                                                                                                                                   | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| Roadway Surface: <input checked="" type="checkbox"/> Blacktop <input type="checkbox"/> Gravel <input type="checkbox"/> Concrete <input type="checkbox"/> Other _____                                                  |                                                                                                                                                                                                                       |                                                          |
| Roadway width: <u>24</u> ft.                                                                                                                                                                                          |                                                                                                                                                                                                                       |                                                          |
| Number of highway lanes                                                                                                                                                                                               | 2                                                                                                                                                                                                                     |                                                          |
| Urban or Rural                                                                                                                                                                                                        |                                                                                                                                                                                                                       |                                                          |
| Vehicle Speed: <u>55</u> MPH                                                                                                                                                                                          |                                                                                                                                                                                                                       |                                                          |
| School Bus Operation: <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes <u>1</u> Amount                                                                                                             |                                                                                                                                                                                                                       |                                                          |
| Hazardous Materials Trucks: <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes _____ Amount                                                                                                          |                                                                                                                                                                                                                       |                                                          |
| Shoulders: <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes                                                                                                                                        |                                                                                                                                                                                                                       |                                                          |
| Is the shoulder surfaced? <input type="checkbox"/> No <input checked="" 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       |                                                                                                                    |
| If yes,<br>Distance _____                                                                                                                            |                                                                                                                    |
| Is this intersection signalized? <input type="checkbox"/> No <input type="checkbox"/> Yes                                                            |                                                                                                                    |
| Are the signals currently interconnected with the existing crossing warning devices? <input type="checkbox"/> No <input type="checkbox"/> Yes        |                                                                                                                    |
| Is it the consensus of the Diagnostic Review Team that this is a potential closure project? <input type="checkbox"/> No <input type="checkbox"/> Yes |                                                                                                                    |
| Explain reasons: _____                                                                                                                               |                                                                                                                    |
| <b>Type of Development</b>                                                                                                                           |                                                                                                                    |
| <input checked="" type="checkbox"/> Open Space<br><input type="checkbox"/> Industrial<br><input type="checkbox"/> Residential                        | <input type="checkbox"/> Institutional<br><input type="checkbox"/> Commercial<br>Location of nearby schools: _____ |
| <b>Utility Information</b>                                                                                                                           |                                                                                                                    |
| Is commercial power available? <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes                                                   |                                                                                                                    |
| Utility Provider (Company Name) <u>OHIO EDISON</u>                                                                                                   | Phone Number _____                                                                                                 |
| Nearest Available Power Source _____                                                                                                                 |                                                                                                                    |
| What other utilities are present? _____                                                                                                              |                                                                                                                    |
| Is there potential utility conflict(s) <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown                     |                                                                                                                    |
| <b>Diagnostic Team Recommendations</b>                                                                                                               |                                                                                                                    |
|                                                                                                                                                      | Quadrants Needed                                                                                                   |
| <input type="checkbox"/> Install/upgrade active devices                                                                                              |                                                                                                                    |
| <input type="checkbox"/> Automatic Flashing Lights (AFLS)                                                                                            |                                                                                                                    |
| <input type="checkbox"/> AFLS / Cants                                                                                                                |                                                                                                                    |
| <input type="checkbox"/> AFLS / Gates                                                                                                                |                                                                                                                    |
| <input checked="" type="checkbox"/> AFLS / Gates / Cants                                                                                             |                                                                                                                    |
| <input type="checkbox"/> Upgrade circuitry                                                                                                           |                                                                                                                    |
| <input type="checkbox"/> Sidelights                                                                                                                  |                                                                                                                    |
| <input type="checkbox"/> Guardrail Needed                                                                                                            |                                                                                                                    |
| <input type="checkbox"/> Install/Replace curb                                                                                                        |                                                                                                                    |
| <input type="checkbox"/> Other (define)                                                                                                              |                                                                                                                    |
| Comments: <u>Cantilever in N.W. quad. S.E gate will be per.</u>                                                                                      |                                                                                                                    |
| <input type="checkbox"/> Install/upgrade traffic signal preemption                                                                                   |                                                                                                                    |
| <input type="checkbox"/> No improvements needed                                                                                                      |                                                                                                                    |
| <input type="checkbox"/> Other (define)                                                                                                              |                                                                                                                    |
| <b>Field Dimensions</b>                                                                                                                              |                                                                                                                    |

# Field Sketch

4

*base*

*RR  
Signal 193W  
R*

*Case*

XX

XX

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

Sketch by: *AL*

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.





17-Jul-13

**Detailed Estimate for Grade Crossing Warning Devices**

City/State: ENON, OH  
MilePost: CJ-193  
State Proj. No.:  
S&E Proj. No.: 10.1341  
Man Days: 110

Road: SNIDER RD (TR 151)  
DOT/AAR: 523522T  
County: CLARK  
File Number:

| ***Purchases - Others***                                          |              |
|-------------------------------------------------------------------|--------------|
| Meals and Lodging:                                                | \$14,784.00  |
| Rental of Equipment:                                              | \$15,400.00  |
| (2 Trucks, 1 Backhoe w/ Trailer<br>and 1 Pipe-Pusher for 22 Days) |              |
| Construction Supervision Vehicle:                                 | \$2,751.92   |
| Purchases - Other Total:                                          | \$32,935.92  |
| ***Material And Additives***                                      |              |
| Material Cost:                                                    | \$49,149.00  |
| Sales and Use Tax:                                                | \$0.00       |
| Material Handling Freight:                                        | \$2,457.47   |
| Material Total:                                                   | \$51,606.47  |
| ***Labor And Additives***                                         |              |
| Labor Cost:                                                       | \$30,800.00  |
| (5 man crew at \$1,400.00 a day for: 22 days)                     |              |
| Payroll Tax & Overheads:                                          | \$40,914.72  |
| Preliminary Engineering:                                          | \$7,035.55   |
| Construction Supervision:                                         | \$8,694.84   |
| Labor Total:                                                      | \$87,445.11  |
| Project Cost:                                                     | \$171,987.50 |
| Scrap / Salvage Credit:                                           | \$0.00       |
| Project Total:                                                    | \$171,987.00 |

Estimated on: 17-Jul-13

Estimated by: ndr3j

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:                                                 | ENON               |
| Road:                                                 | SNIDER RD (TR 151) |
| Mile Post:                                            | CJ-193             |
| Drawing Number:                                       | 82111930           |
| State Project Number:                                 |                    |
| County:                                               | CLARK              |
| A A R Number:                                         | 523522T            |
| Project Number:                                       | 10.1341            |
| File Number:                                          |                    |
| New File Number:                                      | CX0124211          |
| WBS:                                                  | F-33384-27-1       |
| Store Number:                                         | 09180              |
| Supervisor:                                           | D.R. DRAKE         |
| Tax Code:                                             |                    |
| Vendor to supply the following copies after pricing:  |                    |
| 1 Set - Material Management with original Invoice     |                    |
| 2 Sets - with plans shipped in car with material      |                    |
| 1 Set - S&E Gen. Supt. Construction w/copy of invoice |                    |

|                  |               |              |                        |                |                                                                                                                                                                                                                      |                  |                               |                            |                      |
|------------------|---------------|--------------|------------------------|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-------------------------------|----------------------------|----------------------|
| Location: ENON   |               | OH           | S&E Proj. No.: 10.1341 |                | AFE No.: F-33384-27- Drawing No.: 82111930                                                                                                                                                                           |                  |                               |                            |                      |
| Store No.: 09180 |               | P.O. Number: |                        | Date Required: |                                                                                                                                                                                                                      | Date Shipped:    |                               | Vendor: Xorail             |                      |
| 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 S'TRAN.                                                                                                                               |                  |                               |                            |                      |
| 3                | 105-241230-4  | EA           | \$90.88                | \$272.64       | BATTERY, TRAY 38" x 8.125", FOR USE WITH 6 CELLS 368AH BATTERIES, #170999-2                                                                                                                                          |                  |                               |                            |                      |
| 38               | 105-288384-4  | EA           | \$270.12               | \$10,264.56    | BATTERY,GNB 368AH MODEL 50G15 SINGLE CELL 2.25 VOLTS, FOR USE WITH CROSSINGS DESIGNED AFTER 09/09                                                                                                                    |                  |                               |                            |                      |
| 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                                                                                         |                  |                               |                            |                      |
| 350              | 465-939422-4  | LF           | \$2.92                 | \$1,022.00     | CABLE, UG 12 CONDUCTOR NO 14 AWG SOLID EACH CONDUCTOR WITH 5/64 IN INSULATION 10 MIL                                                                                                                                 |                  |                               |                            |                      |
| 600              | 465-292862-4  | LF           | \$1.36                 | \$816.00       | CABLE, UG 2-6 TWISTED, S-23 OKONITE 113-12-3933 SOLID TINNED CONDUCTOR                                                                                                                                               |                  |                               |                            |                      |
| 350              | 465-292929-4  | LF           | \$4.13                 | \$1,445.50     | CABLE, UG 5 COND. NO. 6 AWG SOLID COPPER CABLE TO MEET NS CORP. SPEC. FOR SIGNAL                                                                                                                                     |                  |                               |                            |                      |
| 1                | 670-155602-4  | EA           | \$654.90               | \$654.90       | CHARGER, BATTERY CRAGG MODEL 40 ETC-12V 40 AMP TEMP COMPENSATED                                                                                                                                                      |                  |                               |                            |                      |
| 100              | 165-544477-4  | FT           | \$2.61                 | \$261.00       | CONDUIT, 4"x10" PVC, SCHEDULE 80 BELL CONNECTOR AT ONE END, 1/2 PT. GLUE IN KIT 670-123298-4                                                                                                                         |                  |                               |                            |                      |
| 4                | 670-864917-4  | 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  |                  |                               |                            |                      |
| 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===                                                                                                                        |                  |                               |                            |                      |

APPROVED BY STATE

CAR NUMBER

SEAL NUMBER

| Qty. | Class-Item-CD | UI | Price per Item | Total Price | Item Description                                                                                                                                                                 | Quantity Shipped | Quantity Installed Date Quan. | Quantity Returned (Credit) | Special Instructions |
|------|---------------|----|----------------|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-------------------------------|----------------------------|----------------------|
| 1    | 670-986650-4  | EA | \$354.27       | \$354.27    | DISPOSAL, CONSTRUCTION DEBRIS AND CLEANING X'ING EQUIPMENT CONTAINER                                                                                                             |                  |                               |                            |                      |
| 4    | 670-000003-4  | EA | \$255.85       | \$1,023.40  | 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 26"X26"X5'6" 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    | 670-123298-4  | 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, JNE CAN BLUE MARKING PAINT ETC... |                  |                               |                            |                      |
| 2    | 670-764168-4  | EA | \$1,240.19     | \$2,480.38  | LAMP ASSY, 5" MAST MTG. 2W IND. 20" BKGRD, FLX-12 W/BULB STRAN #042003-487XNS                                                                                                    |                  |                               |                            |                      |
| 6    | 165-643547-4  | EA | \$5.92         | \$35.52     | LAMP, 18 WATT 10 VOLT S-11 SC BAY 18S11/1SC CLEAR RWY SIGNAL UJ-71463 GE                                                                                                         |                  |                               |                            |                      |
| 2    | 255-590880-4  | EA | \$16.72        | \$33.44     | LOCK, AMERICAN LOCK MODEL H-10KA KEYED 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. STRAN P# 070519-11AX.                                                                                                        |                  |                               |                            |                      |
| 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    | 000-000000-4  | EA | \$5,000.00     | \$5,000.00  | MISC. EXPENSE, UNDERGROUND BORING                                                                                                                                                |                  |                               |                            |                      |
| 2    | 670-700469-4  | EA | \$1,134.36     | \$2,268.72  | MODULE, MULTI FREQUENCY ISLAND SAFETRAN #80211 FOR 3000GCP                                                                                                                       |                  |                               |                            |                      |
| 2    | 670-014225-4  | EA | \$1,535.67     | \$3,071.34  | MODULE, PROCESSOR FOR 3000 GCP SAFETRAN #80214                                                                                                                                   |                  |                               |                            |                      |
| 2    | 670-001347-4  | EA | \$57.10        | \$114.20    | PACKAGE, HARDWARE SIGN 5 IN. MOUNTING, SERRMI A1250-5, HARMON @200965-000, OR                                                                                                    |                  |                               |                            |                      |
| 1    | 670-514605-4  | EA | \$11.11        | \$11.11     | PINNACLE, W-C SECT 1-11, 4"X 5" REF K1 110-8 OR SAFETRAN NO. @035045-503X                                                                                                        |                  |                               |                            |                      |
| 3    | 465-002899-4  | EA | \$40.24        | \$120.72    | 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                                                                                                                               |                  |                               |                            |                      |

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

| Location: ENON   |               | OH          | S&E Proj. No.: 10.1341 | AFE No.: F-33384-27-<br>1 | Drawing No.: 82111930                                                                     |                  |                                     |                               |                      |
|------------------|---------------|-------------|------------------------|---------------------------|-------------------------------------------------------------------------------------------|------------------|-------------------------------------|-------------------------------|----------------------|
| Store No.: 09180 |               | P.O.Number: |                        | Date Required:            | Date Shipped:                                                                             |                  |                                     |                               |                      |
|                  |               |             |                        | Vendor: Xorail            |                                                                                           |                  |                                     |                               |                      |
| Qty.             | Class-Item-CD | UI          | Price per Item         | Total Price               | Item Description                                                                          | Quantity Shipped | Quantity Installed<br>Date<br>Quan. | Quantity Returned<br>(Credit) | Special Instructions |
| 2                | 670-586967-4  | EA          | \$42.98                | \$85.96                   | SHUNT COVER W/LAG SCREWS, 19"X19", SERRMI #40271,<br>ORDER 1 PER SHUNT                    |                  |                                     |                               |                      |
| 2                | 670-652773-4  | EA          | \$460.98               | \$921.96                  | SHUNT, MULTI-FREQ. #62775-1543 SAFETRAN NARROW BAND                                       |                  |                                     |                               |                      |
| 2                | 670-393331-4  | EA          | \$37.43                | \$74.86                   | SIGN CROSSING MALFUNCTION ASSEMBLY FOR 4" AND 5"<br>MAST, SAFETRAN #T17215                |                  |                                     |                               |                      |
| 2                | 670-016346-4  | EA          | \$143.38               | \$286.76                  | SIGN, X-BUCK, HI-INTENSIVE REFLECTIVE FRT. & BACK FOR<br>ALL STATES, SAFETRAN# 035200-91X |                  |                                     |                               |                      |
| 1                | 670-330382-4  | RL          | \$18.06                | \$18.06                   | TAPE, THOR 3" DURATEC, ORANGE 1000' LENGTHS. "WARNING<br>STOP DIGGING"                    |                  |                                     |                               |                      |

Total Material: \$49,149.38

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

| SH. NO. | CONTENTS                                     |
|---------|----------------------------------------------|
| NXI     | INDEX SHEET                                  |
| 1       | LAYOUT                                       |
| 2       | PROFILE                                      |
| 3       | CABLE PLAN                                   |
| 4       | LOAD CENTER WIRING                           |
| 5       | B12 & B16 RECTIFIER HOOK-UP                  |
| 6       | B12A RECTIFIER HOOK-UP                       |
| 7       | 4000 GCP 2-TK CHASSIS & MODULE LAYOUT        |
| 8       | 4000 GCP PROGRAMMING SETUP                   |
| 9       | 4000 GCP PROGRAMMING SETUP                   |
| 10      | CONNECTORS FOR MODULES (A80418)              |
| 11      | CPU MODULE, SEAR III, GFT & VHF HOOK-UPS     |
| 12      | SEAR III PROGRAMMING SETUP                   |
| 13      | CONNECTORS FOR SSCC*1 MODULE, IL0D*1 HOOK-UP |
| 14      | CONNECTORS FOR SSCC*2 MODULE, IL0D*2 HOOK-UP |
| 15      | EC4/R UNIT                                   |
| 16      | "A" CANTILEVER FLASHER AND GATE LIGHTS       |
| 17      | "B" FLASHER AND GATE LIGHTS                  |
| 18      | BACKBOARD DETAIL 1A & 1B                     |
| 19      | REAR BACKBOARD DETAIL 1A & 1B                |
| 20      | FARADAY SHIELD DETAIL 1A & 1B                |
| 21      | FARADAY SHIELD DETAIL 1C                     |
| 22      | 6'X8' HOUSE SIDE "C"                         |
| 23      | 6'X8' HOUSE SIDE "A"                         |
| 24      | 6'X8' HOUSE (SIDE "B" & TOP VIEW)            |

|                          |                                     |      |
|--------------------------|-------------------------------------|------|
| IN SERVICE               | SIGNED                              | DATE |
| <input type="checkbox"/> | S&E ENGINEERING COPY                |      |
| <input type="checkbox"/> | CONSTRUCTION OFFICE COPY            |      |
| <input type="checkbox"/> | RETURN TO S&E ENG. AFTER COMPLETION |      |
| <input type="checkbox"/> | FIELD COPY                          |      |
| <input type="checkbox"/> | RETURN TO CASE AFTER COMPLETION     |      |
| <input type="checkbox"/> | PROJECT ENGINEER COPY               |      |

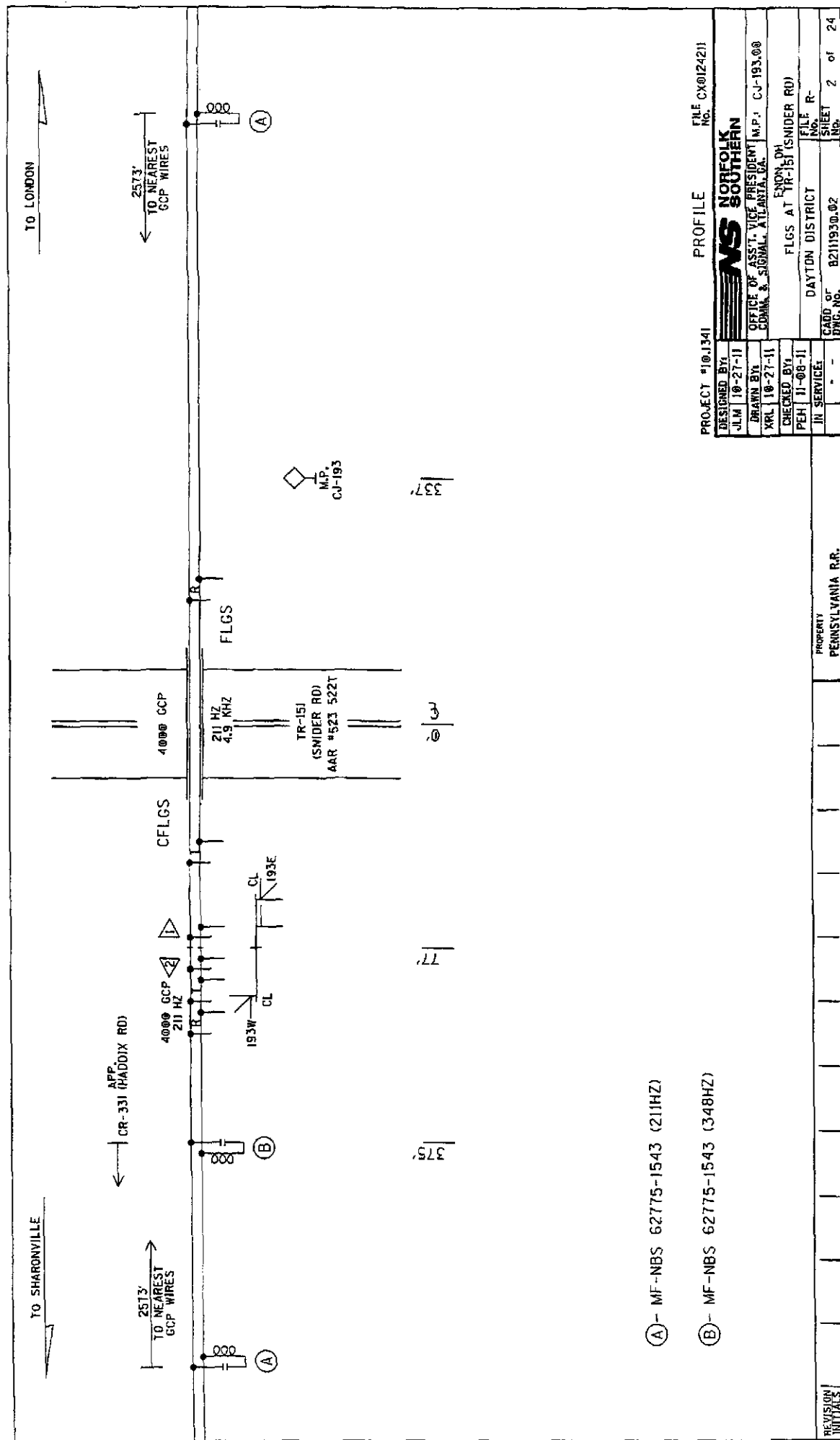
PROJECT #101341 INDEX SHEET 1 FILE C:\012421\

|                              |                                                                                                                                                                               |                                          |
|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|
| DESIGNED BY:<br>JLM 10-27-11 |  <b>NORFOLK SOUTHERN</b><br>OFFICE OF ASST. VICE PRESIDENT<br>COMM. & SIGNAL, ATLANTA, GA. | FILE NO.<br>C-J-193.00                   |
| DRAWN BY:<br>XRL 10-27-11    |                                                                                                                                                                               | ENGIN. NO.<br>FLCS AT YR-151 (SNIDER RD) |
| CHECKED BY:<br>PEH 11-08-11  |                                                                                                                                                                               | DAYTON DISTRICT                          |
| IN SERVICE                   |                                                                                                                                                                               | FILE NO.<br>82111930-NXI                 |

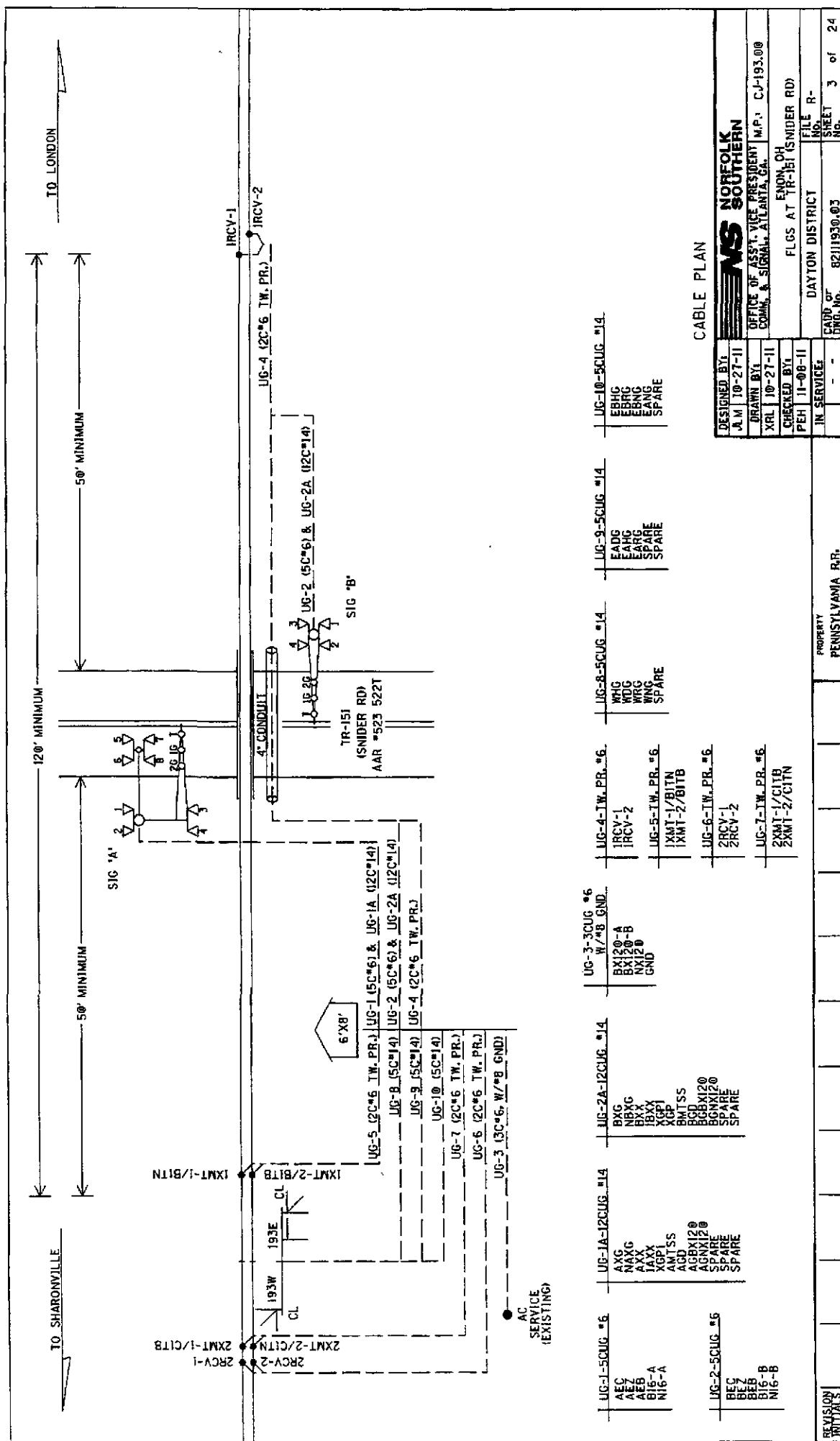
PROPERTY  
PENNSYLVANIA R.R.

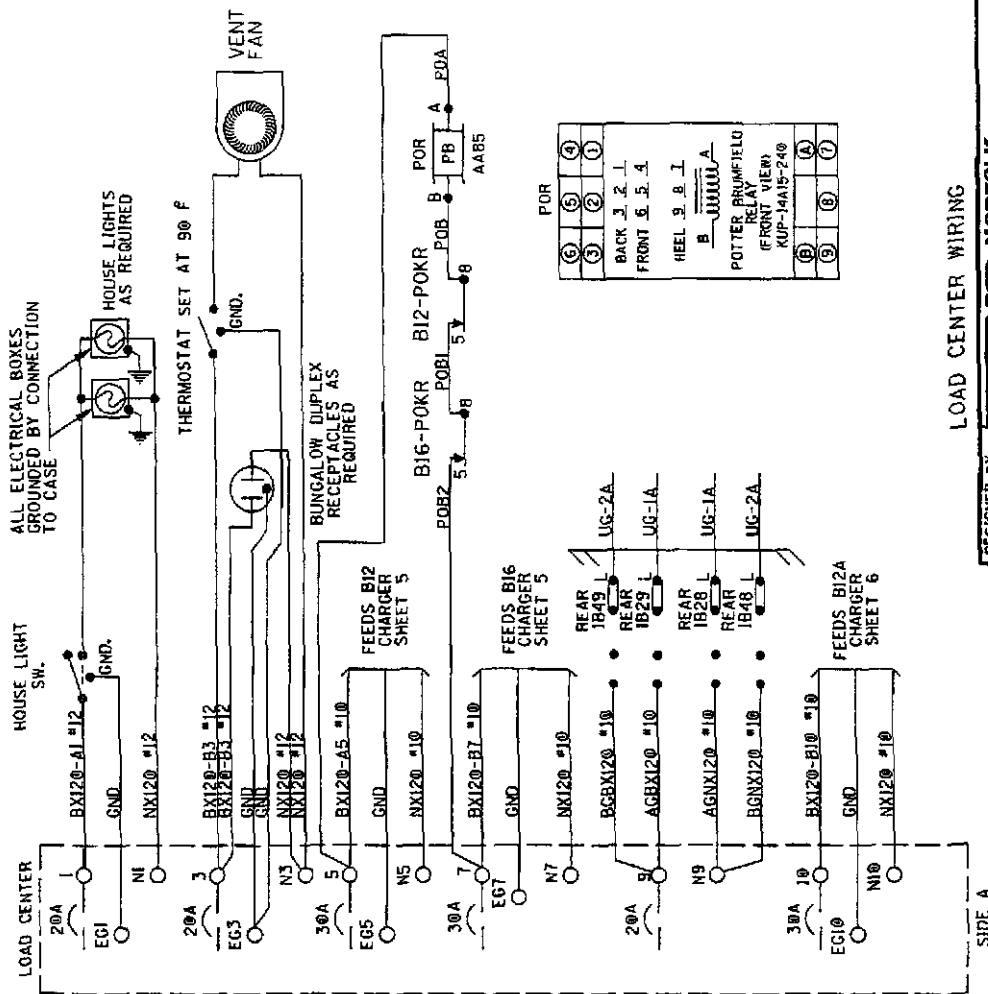
REVISION  
INITIALS











NOTE: ALL AC WIRING IS TO BE IN METALLIC CONDUIT WITH NO EXPOSED TERMINALS.  
ALL AC 120V AND 240V EQUIPMENT IS TO BE PROPERLY GROUNDED.

SQUARE "D" PART NUMBERS:

GENERATOR RECEPTACLE:  
MALE CONNECTOR - NEMA L1430-F1

**VS** NORFOLK SOUTHERN

OFFICE OF ASS'T. VICE PRESIDENT M.P.: C3-193.00

COMM. & SIGNAL, ATLANTA, GA

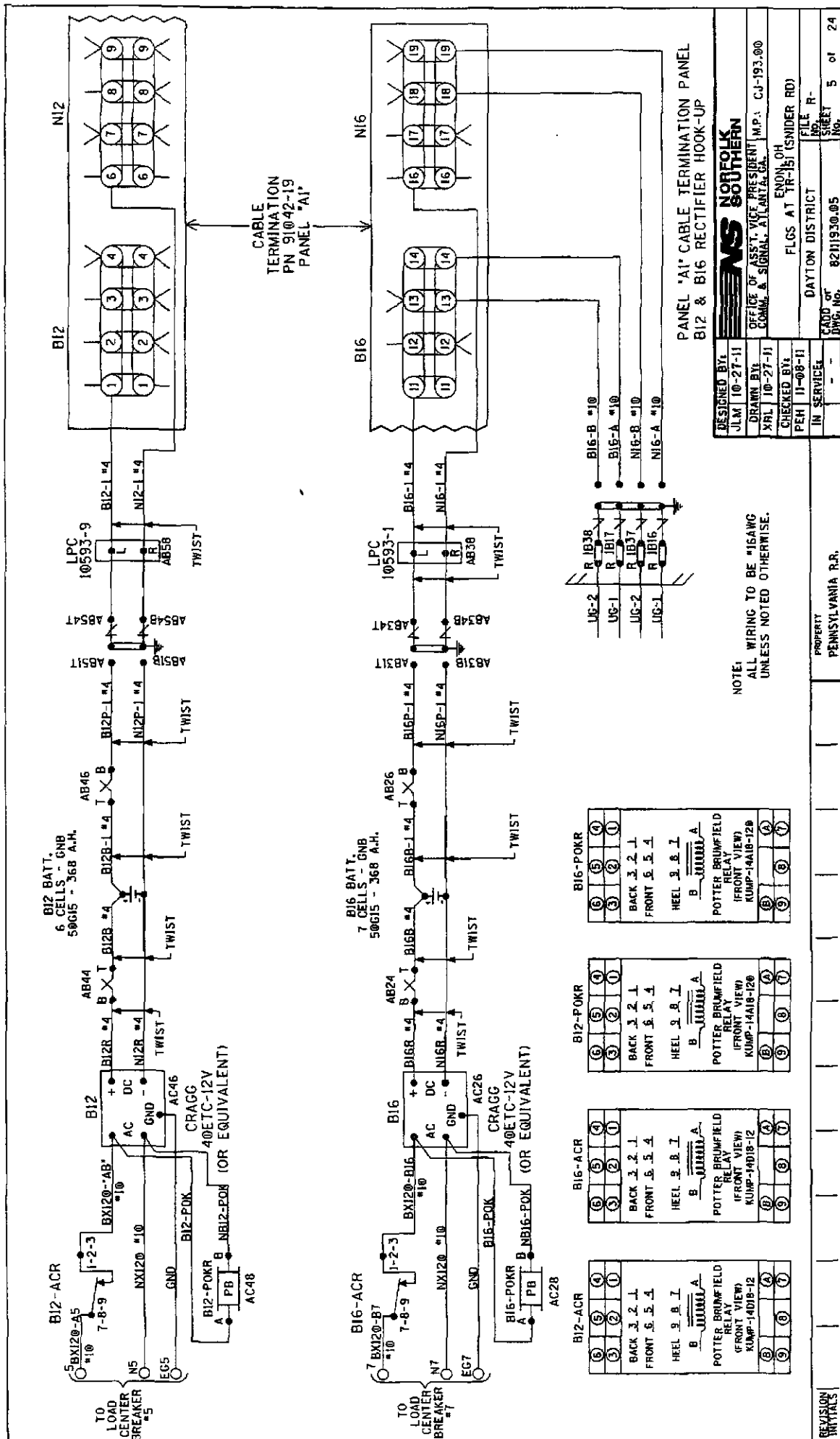
ENON, OH  
FICC AT TP-161 SNIDER RDI

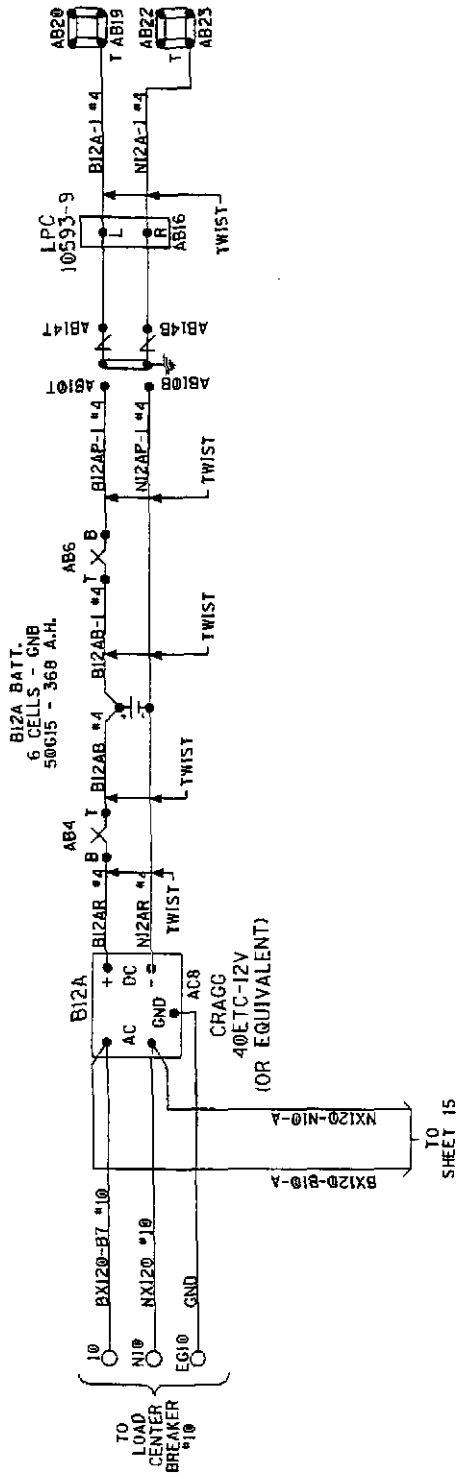
PLUG AT 1R-13) BRIDEN NOR

|                 |          |
|-----------------|----------|
| DAYTON DISTRICT | FILE NO. |
|-----------------|----------|

CADD or  
DWG No. 82111930.04  
SHEET No. 4

DATE OF DEATH





PANEL "A1" CABLE TERMINATION PANEL  
B12 RECTIFIER HOOK-UP

|             |                 |
|-------------|-----------------|
| DESIGNED BY | JLM 10-27-11    |
| DRAWN BY    | XRL 10-27-11    |
| CHECKED BY  | PEH 11-08-11    |
| IN SERVICE  | - -             |
| FILE NO.    | DAYTON DISTRICT |
| NO.         | 8211930.06      |
| SHEET       | 6 of 24         |

|          |                   |
|----------|-------------------|
| PROPERTY | PENNSYLVANIA R.R. |
| NO.      | 8211930.06        |
| SHEET    | 6 of 24           |

**NORFOLK SOUTHERN**

OFFICE OF ASST. VICE PRESIDENT  
COMM. & SIGNAL, ATLANTA, GA. M.P.: C-J-193.00

ENDN, OH  
FLGS AT TR-151 (SNIDER RD)





ADVANCED site options  
Daylight Savings = On  
Units = Standard  
Mount Callout IP Used = No  
Emergency Activate IP = No  
EZ/EX Logging = Change  
EZ/EX Point Change = 3

SSCC  
Gates Used = Yes  
SSCC1+2 GPs Coupled = Yes  
Min Activation = 0 sec  
Rmt Activation Cancel = 2 min  
BellOn Gate Rising = No  
Mute BellOn Gate Down = No  
SSCCIV Controller Used = No

SSCC1  
SSCC1-1 Activation = AND 1 XR  
SSCC1-1 Gate Delay = 4 sec  
SSCC1-1 Number of GPs = 1  
SSCC1-1 Number of GPs = 2  
SSCC1-1 Flash Rate = 40  
SSCC1-1 Low Battery Detection = No  
SSCC1-1 Flash Sync = Master  
SSCC1-1 Invert Gate Output = No  
SSCC1-1 Lamp Neutral Test = On  
Aux-1 Xng Ctrl Used = No

SSCC2  
SSCC2-2 Activation = AND 1 XR  
SSCC2-2 Gate Delay = 4 sec  
SSCC2-2 Number of GPs = 0  
SSCC2-2 Number of GPs = 0  
SSCC2-2 Flash Rate = 40  
SSCC2-2 Low Battery Detection = No  
SSCC2-2 Flash Sync = Slave  
SSCC2-2 Invert Gate Output = No  
SSCC2-2 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  
DI 1 = Gnd Flt 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 7.2 = TSS 2  
IN 8.1 = POK 1  
IN 8.2 = POK 2  
IN 8.3 = Not Used  
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: 8211930.ppc

4000 GCP PROGRAMMING SETUP

|              |                                |          |
|--------------|--------------------------------|----------|
| DESIGNED BY: | JLM                            | 10-27-11 |
| DRAWN BY:    |                                |          |
| CHECKED BY:  | XRL                            | 10-27-11 |
| IN SERVICE:  | PEH                            | 11-08-11 |
| FILE NO.     | NORFOLK SOUTHERN               |          |
| DATE         | OFFICE OF ASST. VICE PRESIDENT |          |
| NO.          | COMM. & SIGNAL, ATLANTA, GA.   |          |
| FILE NO.     | ENDON, OH                      |          |
| NO.          | FLGS AT TR-151 (SNIDER RD)     |          |
| FILE NO.     | DAYTON DISTRICT                |          |
| NO.          | CAND OR 8211930.09             |          |
| NO.          | SHEET 9 of 24                  |          |

PROPERTY  
PENNSYLVANIA R.R.