

FILE

**Public Utilities  
Commission of Ohio**

# Memo

**To:** Docketing Division  
**From:** George Martin, Grade Crossing Planner, Rail Division  
**Re:** In the matter of the authorization of the Columbus & Ohio River Railroad to install an active grade crossing warning device in Licking County  
**Date:** June 6, 2013

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The Ohio Rail Development Commission (ORDC) has authorized funding for the Columbus & Ohio River Railroad (CUOH) to install **mast-mounted flashing lights and roadway gates** in Licking County, City of Newark, 30<sup>th</sup> Street, DOT# 151798D. The project is being done in conjunction with a city repaving project and the removal of one set of tracks.

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

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

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

A suggested case coding and heading would be:

PUCO Case No. 13- 1341 -RR-FED In the matter of the authorization of the Columbus & Ohio River Railroad to install an active grade warning device in Licking County

C: Legal Department

Please serve the following parties of record.

RECEIVED-DOCKETING DIV  
2013 JUN -6 PM 3:48  
PUCO

Ms Cathy Stout

Ohio Rail Development Commission

1980 W Broad St, Mailstop # 3140

Columbus, Oh 43223

Mr Chris Layman

Ohio Central Railroad System

47849 Papermill Rd

Coshocton, Oh 43812

Mr Douglas Morgan

ODOT District 5

9600 Jacksontown Rd

Jacksontown, Oh 43030

Mr Tim Kelley

City Engineer

40 W Main St

Newark, Oh 43055

AEP

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

**TO:** George Martin, Rail Division, PUCO  
**FROM:** Cathy Stout, Manager, Safety Section, ORDC  
**BY:** Joe Reinhardt, Project Manager, ORDC  
**SUBJECT:** Licking County, 30<sup>th</sup> Street, CUOH  
DOT 151798D, PID 94001  
**DATE:** June 3, 2013

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ORDC

~~The Public Utilities Commission of Ohio (PUCO)~~ established a diagnostic survey at the subject location on 30th Street. The Ohio Rail Development Commission (ORDC) attended the review. The Diagnostic Team recommended the improvement of warning devices to flashing lights and roadway gates. Copies of the diagnostic review form and the plan and estimate are attached.

PE has already been provided by the railroad. ORDC approves the site plans and estimates as provided. Please issue a construction-only order for the project outlined above. This 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:** George Martin, PUCO  
ORDC Project Manager (file)

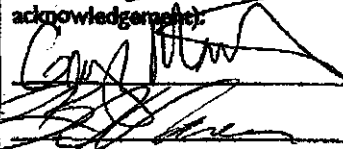
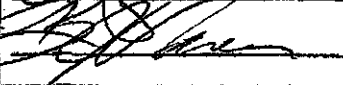
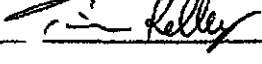


## Diagnostic Review Team Survey

Date: 7/10/12

| Location Data                                                                  |                                         |                                        |                   |
|--------------------------------------------------------------------------------|-----------------------------------------|----------------------------------------|-------------------|
| Street or Road Name: 30 <sup>th</sup> Street                                   |                                         |                                        |                   |
| Route/Road Number<br>(i.e. Twp., Co., SR or US)                                |                                         | (Include SLM if State or US route)     |                   |
| AAR-DOT No.: 151798D                                                           |                                         |                                        |                   |
| County: Licking                                                                | Township:                               | City:<br>(In or Near)                  | Newark            |
| Railroad Name: Columbus & Ohio River Railroad                                  | Railroad Division: OH                   | Branch/Line Name:                      |                   |
| Nearest RR Timetable Station: Heath                                            | RR Milepost: 106.23                     |                                        |                   |
| On-Site Review Team                                                            |                                         |                                        |                   |
| (Include: Name - Organization - Phone Number)                                  |                                         |                                        |                   |
| 1. Matt Hill - Licking County - 740-670-5191 <i>Matt Hill</i>                  |                                         |                                        |                   |
| 2. Dan Birrell - GWRR - 740-295-4122 <i>DAN BIRRELL</i>                        |                                         |                                        |                   |
| 3. <del>Matt Hill</del> - LCATS/Licking County - 740-670-5191 <i>J. Newton</i> |                                         |                                        |                   |
| 4. George Martin - PUCO - 614-203-4714 <i>GEORGE MARTIN</i>                    |                                         |                                        |                   |
| 5. <i>Paul Dando</i> - ORDC - 614-374-9298                                     |                                         |                                        |                   |
| 6. <i>BJ Valenzuela</i> - CITY OF NEWARK - (740) 670-7739                      |                                         |                                        |                   |
| 7. <i>Tim Kelley</i> - City of Newark - 740 670 7724                           |                                         |                                        |                   |
| 8. <i>Doug Morgan</i> - ODOT District 5 - 740-323-5122                         |                                         |                                        |                   |
| 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 - Fair          |
| '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 Fair            |
| Crossbucks                                                                     | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            | 2                 |
| Number of Tracks Signs                                                         | <input checked="" type="checkbox"/> Yes | <input 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            |                   |
| Candlebar Flashing Lights                                                      | <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No | Number: Length:   |
| Side Lights                                                                    | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            |                   |
| Automatic Gates                                                                | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            | Number: 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 checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            |                   |
| Is crossing flagged by train crew?                                             | <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No |                   |
| Other                                                                          | <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No |                   |
| Safety Data (Obtain crash reports, if possible, prior to review)               |                                         |                                        |                   |

|                                                                                                                                                                                                                       | Initial Information (from database)                                                                                                                                                                                   | Revised                                                             |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|
| Number & dates of crashes in previous 5 years                                                                                                                                                                         | 0                                                                                                                                                                                                                     |                                                                     |
| Hazard Ranking                                                                                                                                                                                                        | 422                                                                                                                                                                                                                   | Date Run: 7/5/12                                                    |
| <b>Railroad Data</b>                                                                                                                                                                                                  |                                                                                                                                                                                                                       |                                                                     |
| Railroad Characteristics                                                                                                                                                                                              | Initial Information (from database)                                                                                                                                                                                   | Revised                                                             |
| Total trains per day                                                                                                                                                                                                  | 18                                                                                                                                                                                                                    | 8                                                                   |
| < 1 per day                                                                                                                                                                                                           |                                                                                                                                                                                                                       |                                                                     |
| Day thru trains                                                                                                                                                                                                       | 8                                                                                                                                                                                                                     | 6                                                                   |
| Night thru trains                                                                                                                                                                                                     | 2                                                                                                                                                                                                                     | 2                                                                   |
| Daytime switching movements                                                                                                                                                                                           | 6                                                                                                                                                                                                                     | NO                                                                  |
| Nighttime switching movements                                                                                                                                                                                         | 2                                                                                                                                                                                                                     | NO                                                                  |
| Total number of tracks                                                                                                                                                                                                | 2                                                                                                                                                                                                                     | 1                                                                   |
| Number of main tracks                                                                                                                                                                                                 | 2                                                                                                                                                                                                                     | 1                                                                   |
| Number of other tracks                                                                                                                                                                                                |                                                                                                                                                                                                                       |                                                                     |
| Maximum train speed                                                                                                                                                                                                   | 40                                                                                                                                                                                                                    | 30                                                                  |
| Typical train speed                                                                                                                                                                                                   |                                                                                                                                                                                                                       | 25-30                                                               |
| Antrak                                                                                                                                                                                                                |                                                                                                                                                                                                                       | NO                                                                  |
| If non-gated crossing, is clearing sight distance adequate in all quadrants? (See Table 1) <input type="checkbox"/> Yes <input type="checkbox"/> No <i>gates</i>                                                      |                                                                                                                                                                                                                       |                                                                     |
| If multiple tracks, can two trains occupy crossing at the same time? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <i>2 Tracks - Track</i>                                                      |                                                                                                                                                                                                                       |                                                                     |
| Can one train block the motorists' view of another train at crossing? <input type="checkbox"/> Yes (Explain below) <input checked="" type="checkbox"/> No <i>is cut</i>                                               |                                                                                                                                                                                                                       |                                                                     |
| 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:                                                                                                                                                                                              |                                                                                                                                                                                                                       | City of Newark                                                      |
| Roadway Characteristics                                                                                                                                                                                               | Initial Information (from database)                                                                                                                                                                                   | Revised                                                             |
| Average daily traffic                                                                                                                                                                                                 | 19524 (2005)                                                                                                                                                                                                          | 19000 +                                                             |
| Highway paved                                                                                                                                                                                                         | XX Yes <input type="checkbox"/> No                                                                                                                                                                                    | <input checked="" 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: <i>26</i> ft.                                                                                                                                                                                          |                                                                                                                                                                                                                       |                                                                     |
| Number of highway lanes                                                                                                                                                                                               | 2                                                                                                                                                                                                                     | 2                                                                   |
| Urban or Rural                                                                                                                                                                                                        | Urban                                                                                                                                                                                                                 | Urban                                                               |
| Vehicle Speed: <i>35</i> MPH                                                                                                                                                                                          |                                                                                                                                                                                                                       |                                                                     |
| School Bus Operation: <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes <i>12</i> Amount <i>6 more</i> <i>6 after a</i>                                                                             |                                                                                                                                                                                                                       |                                                                     |
| Hazardous Materials Trucks: <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes <i>3</i> 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 type="checkbox"/> No <input checked="" type="checkbox"/> Yes <u>Some what - Old - Broken up</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                            |
| Is there a nearby intersection that could cause queuing over the crossing? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                            |
| If yes, <u>Well's Ave is a left hand east of crossing</u><br>Distance _____ <u>No Left Turn</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                            |
| Is this intersection signalized? <input type="checkbox"/> No <input type="checkbox"/> Yes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                            |
| Are the signals currently interconnected with the existing crossing warning devices? <input checked="" 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 checked="" type="checkbox"/> Commercial<br>Location of nearby schools: <u>1/2 mile - Heath Elem</u>       |
| <b>Utility Information</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                            |
| Is commercial power available? <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                            |
| Utility Provider (Company Name) <u>AEP</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Phone Number _____                                                                                                                                         |
| Nearest Available Power Source <u>@ Crossing</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                            |
| What other utilities are present? <u>Fiber Parre to RR - Storm Sewer</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                            |
| Is there potential utility conflict(s) <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Unknown                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                            |
| <b>Diagnostic Team Recommendations</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                            |
| <input checked="" type="checkbox"/> Install/upgrade active devices<br><input type="checkbox"/> Automatic Flashing Lights (AFLS)<br><input type="checkbox"/> AFLS / Cants<br><input checked="" type="checkbox"/> AFLS / Gates<br><input type="checkbox"/> AFLS / Gates / Cants<br><input type="checkbox"/> Upgrade circuitry<br><input type="checkbox"/> Sidelights<br><input type="checkbox"/> Guardrail Needed<br><input type="checkbox"/> Install/Replace curb<br><input type="checkbox"/> Other (define)                                                                             | <b>Quadrants Needed</b><br><u>Bungabow in SE Quad</u><br><u>Curb &amp; Walks as per</u><br><u>ODOT &amp; Newark</u><br><u>1 Set of Track to be Removed</u> |
| Comments: <u>upgrade crossing with the timing of City of Newark's repaving project (Spring of 2013)</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                            |
| <input type="checkbox"/> Install/upgrade traffic signal preemption<br><input type="checkbox"/> No improvements needed<br><input type="checkbox"/> Other (define)                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                            |
| Acknowledgement of Recommendations (each entity represented at the diagnostic must have at least one signature acknowledged):<br><div style="display: flex; justify-content: space-between; align-items: flex-start;"> <div style="width: 45%;"> <br/>  </div> <div style="width: 45%;"> <u>Tim Kelley</u><br/>  </div> </div> |                                                                                                                                                            |

## Potential Red Flags / Project Challenges

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

NO

Crossing Consolidation or Closure:

NO

Real Estate or ROW:

City = Varies See att property map  
RR = 100 + see attached property map (in file)

Culverts / Drainage / Ballast Conditions:

No

Roadway and/or Sidewalks:

See attached Construction plan

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

Overlapping

Environmental:

No

Other:

LIC 30<sup>th</sup> St. #151798D

5.

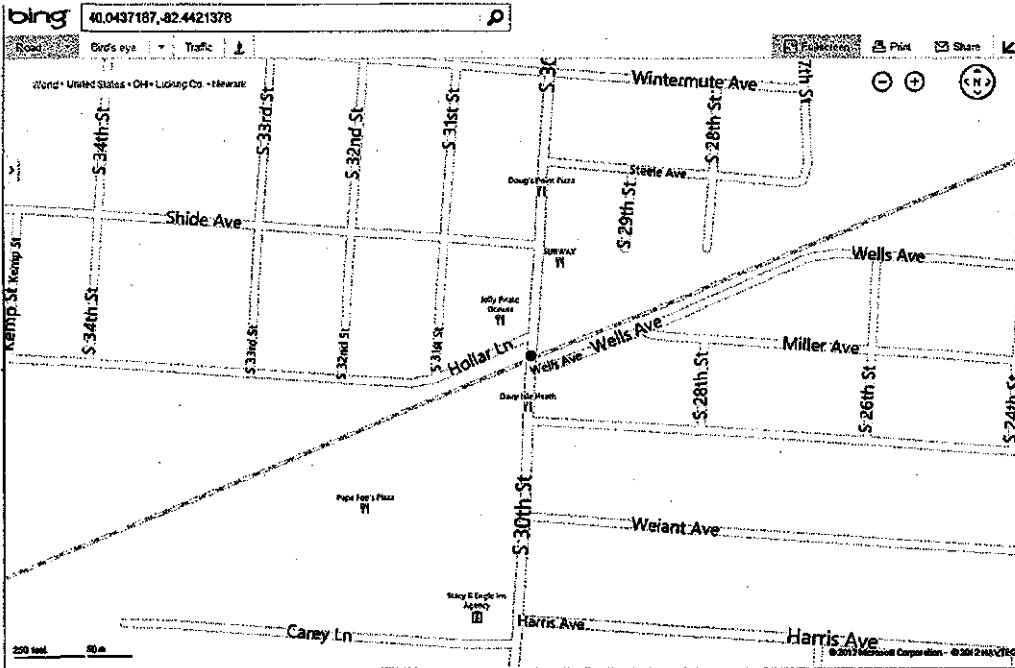


TABLE 1

## 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)

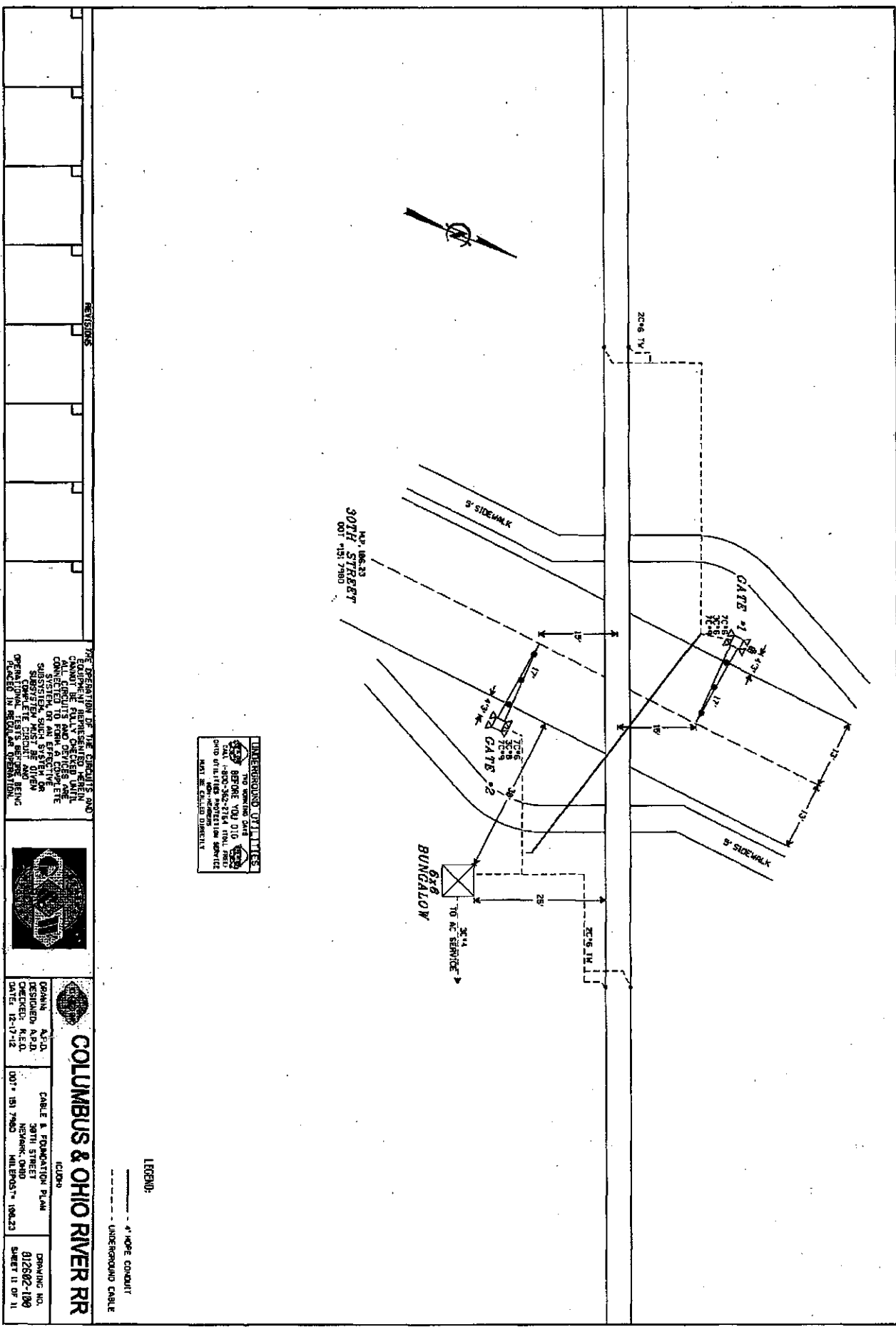
## Notes:

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.





**UNDERGROUND UTILITIES**  
 NO WORKING SHOWN  
 BEFORE YOU DIG  
 CALL 1-800-362-7134 (TOLL FREE)  
 OHIO UTILITIES INFORMATION SERVICE  
 MUST BE CALLED DIRECTLY

LEGEND:  
 — 4" HOPE CONDUIT  
 - - - - - UNDERGROUND CABLE

|                                     |                      |                                  |                        |
|-------------------------------------|----------------------|----------------------------------|------------------------|
| <b>COLUMBUS &amp; OHIO RIVER RR</b> |                      |                                  |                        |
| DESIGNED: A.E.D.                    | DATE: 12-17-12       | PROJECT: CABLE & FOUNDATION PLAN | DRAWING NO. 012502-100 |
| CHECKED: A.E.D.                     | DATE: 12-17-12       | PROJECT: 30TH STREET             | SHEET 11 OF 11         |
| DATE: 12-17-12                      | PROJECT: 30TH STREET | PROJECT: 30TH STREET             | PROJECT: 30TH STREET   |

Approved As To Signal Layout.  
 Guy J. Lane 4/15/13

**Reinhardt, Joe**

---

**From:** Lowe, Ryan  
**Sent:** Thursday, April 11, 2013 1:16 PM  
**To:** Reinhardt, Joe  
**Cc:** Stout, Catherine  
**Subject:** RE: Cost estimate for signals at 30th St. Newark

Joe & Cathy,

Looks good, go ahead and authorize, I will sign and seal when I'm next down.

Thanks,

Ryan Lowe, P.E.  
Ohio Department of Transportation  
Office of Traffic Engineering - ITS and Signals Section  
1980 West Broad Street  
Columbus, OH 43223  
Mail Stop: 5160  
Phone: (614) 387-3174

---

**From:** Reinhardt, Joe  
**Sent:** Thursday, April 11, 2013 10:06 AM  
**To:** Lowe, Ryan  
**Cc:** Stout, Catherine  
**Subject:** FW: Cost estimate for signals at 30th St. Newark

PE is needing to be approved.

---

**From:** Daniel Birrell [mailto:dbirrell@gwrr.com]  
**Sent:** Tuesday, April 09, 2013 8:32 AM  
**To:** Reinhardt, Joe; Martin, George  
**Subject:** Cost estimate for signals at 30th St. Newark

Please see attached information

Safest regards,

Daniel R. Birrell  
Supv C&S OHCR  
740 295 4122

## Reinhardt, Joe

---

**From:** Reinhardt, Joe  
**Sent:** Thursday, April 11, 2013 10:06 AM  
**To:** Lowe, Ryan  
**Cc:** Stout, Catherine  
**Subject:** FW: Cost estimate for signals at 30th St. Newark  
**Attachments:** 30th Street estimate.docx; 2012-020441 Columbus and Ohio River Railroad-30th St Material List (3).pdf; 812602-100\_Submittal- DRAWINGS.pdf; LIC 30th St 151798D.pdf

PE is needing to be approved.

---

**From:** Daniel Birrell [mailto:dbirrell@gwrr.com]  
**Sent:** Tuesday, April 09, 2013 8:32 AM  
**To:** Reinhardt, Joe; Martin, George  
**Subject:** Cost estimate for signals at 30th St. Newark

Please see attached information

Safest regards,

Daniel R. Birrell  
Supv C&S OHCR  
740 295 4122

### **30<sup>th</sup> Street estimate**

|                                                  |                     |
|--------------------------------------------------|---------------------|
| <b>Armond Cassil Railroad Construction, Inc.</b> | <b>\$116,601.00</b> |
| <b>Security camera monitoring system</b>         | <b>\$2,957.90</b>   |
| <b>Coshocton Electric power service</b>          | <b>\$1,950.00</b>   |
| <b>Total</b>                                     | <b>\$121,508.90</b> |

**MATERIAL LIST**

| <b>Location/Description</b>    | <b>QTY</b> |    | <b>GETSGS-PN</b> |
|--------------------------------|------------|----|------------------|
| <b>30th St</b>                 |            |    |                  |
| <b>House Material</b>          |            |    |                  |
| HSE 6X6 AL S/L SKR101 L/EPD/KY | 1          | EA | 028633-020       |
| PROTECTOR SURGE 120/240V W/IND | 1          | EA | 010132-005       |
| ASSY HXP-3R FNL W/IDK/RSI/RMM  | 1          | EA | 250811-2201      |
| ASSY MDSA-1                    | 1          | EA | 250204-001C      |
| ASSY XLC TOP LEVEL             | 2          | EA | 250991-000       |
| ASSY PLUGBOARD XLC             | 2          | EA | 251071-100       |
| ASSY VLG 2 INPUTS 12S DLY DRV  | 1          | EA | 250948-020       |
| ASSY BASE VLG W/RL DR          | 1          | EA | 251071-010       |
| CHARGER ERBC 12/20 W/10' TC    | 1          | EA | 017122-000       |
| CHARGER ERBC 12/40 W/10' TC    | 1          | EA | 017122-001       |
| MONITOR LOW VOLT BATT 12V DBL  | 1          | EA | 017225-005       |
| XFMR 115-230VPRI/16VCT 5A 80VA | 1          | EA | 016206-105       |
| RLY DPDT 12VDC 5A OCT          | 1          | EA | 007192-032       |
| SCKT RLY 8-PIN OCT SCREW PNLMT | 1          | EA | 132246-001       |
| ASSEMBLY, 4 POST TERMINALBLOCK | 34         | EA | 203032-000       |
| ASSY AGA-1                     | 38         | EA | 202216-001       |
| ASSY AGE-1                     | 2          | EA | 202217-000       |
| RLY B 500 OHM NEUT 6FB HD      | 1          | EA | 007062-580       |
| RLY B1 PLBD KIT NO FLAG CONT   | 1          | EA | 007062-003       |
| KIT RLY FL E-POST MOD W/S STUD | 1          | EA | 005634-000       |
| NUT INSULATED HARMON           | 24         | EA | 013986-000       |
| TEST LINK W/PLT & INSUL        | 76         | EA | 032257-002       |
| TEST LINK 2.375" CNTR FL INSUL | 1          | EA | 032258-003       |
| LABEL RK PNL-MAINTAINER TST SW | 1          | EA | 125372-000       |
| WIRE 16AWG/19 TC EPR/PVC BLU   | 450        | FT | 012092-002       |
| WIRE 10AWG/19 TC EPR/PVC BLU   | 550        | FT | 012092-000       |
| WIRE 6AWG/19THHN BLK           | 120        | FT | 012253-000       |
| WIRE 6AWG/19 THHN RED          | 120        | FT | 012253-003       |
| WIRE 6AWG/19 THHN GRN          | 40         | FT | 012253-002       |
| CABLE RAW 3/14AWG PWR 300V     | 9          | FT | 012690-010       |
| CONN PLUG L6-15 250V 15A 2P3W  | 2          | EA | 132286-001       |
| ASSY 2WAY TERM BLK W/AAR HARD  | 7          | EA | 202810-000       |
| ASSY TERM STRIP DBL POST 12    | 8          | EA | 250094-300       |
| GROUND POST P5-162             | 4          | EA | 113047-000       |
| ASSY LIGHT PO EXT-GEMS         | 1          | EA | 201744-001       |
| KIT SM PRTS GENERIC            | 1          | EA | 180394-XXX       |
| LABEL, DANGER 240 V, 1.75 X 2. | 1          | EA | SQS109           |
| THERMOSTAT SPDT REMOTE BULB 8A | 1          | EA | 009186-004       |
| ASSY SINGLE ROW TERM 12 POST   | 1          | EA | 250084-212       |
| <b>Field Material</b>          |            |    |                  |
| FND SIGNAL 32 X 32 X 60        | 2          | EA | 17190-4          |
| KIT FOUNDATION LEVEL BOLT      | 8          | EA | 180554-000       |
| GATE ASSY 3597-131R CTWT 16-32 | 2          | EA | 076037-038       |
| HEATER GATE MECH 115VAC WCH    | 2          | EA | 017155-006       |
| BRACKET CONVERSION W/CAST ADPT | 2          | EA | 1082-01          |
| HIGH WIND BKT W/5"HDW LINCOLN  | 2          | EA | 54-55981         |
| GATE ARM 16-24' AL/FG UHI LED  | 2          | EA | 076045-015       |
| DIODE GATEARM TIP LIGHT REC    | 2          | EA | 076045-300       |
| LENS LED FLASHING 12" RED      | 8          | EA | 180572-006       |
| SIGN XING S-F HI 5"MTG SIG/GAT | 4          | EA | 60007-05         |
| BELL ELECTRONIC CROSSING 4/5"  | 1          | EA | 6147-01          |
| PINNACLE 5" MACHINED W/SETSCRW | 1          | EA | 54-11305         |

# MATERAL LIST

|                                |     |    |               |
|--------------------------------|-----|----|---------------|
| CABLE UG 3 COND #4 AWG         | 100 | FT | 5192-02       |
| CABLE UG 7 COND #6 AWG SOLID   | 250 | FT | 1077-02       |
| CABLE UG 3 COND #6 AWG SOLID   | 250 | FT | 1013-02       |
| CABLE UG 7 COND #9 AWG SOLID   | 250 | FT | 1080-02       |
| WIRE UG TRK #6 AWG DUPLEX      | 275 | FT | 1094-02       |
| TAPE MARKER BURIED RR CABLE    | 1   | EA | 029989-000    |
| BATTERY VLG-350 1-CELL         | 9   | EA | 017314-001-30 |
| BATTERY VLG-255 1-CELL         | 10  | EA | 017314-000-30 |
| WIRE #6 SOFT BARE COPPER       | 125 | FT | 1436-01       |
| ROD 3/4 X 8 NON-SECT COP GRD   | 4   | EA | 1132-01       |
| CADWELD ONESHOT 3/4" NX TYPE   | 4   | EA | 005755-008    |
| BOND STRAND 8-STR 3/16" TINNED | 125 | FT | 4133-01       |
| BOOTLEG BOND W/COUPLER KIT     | 16  | EA | 3522-01       |
| TAPE ELECTRICAL 3M #33+ 3/4"   | 3   | RL | 1190-01       |
| TAPE ELECTRICAL 3M #130-C      | 3   | RL | 1321-01       |
| COMPOUND INSULATING ELECTRICAL | 1   | EA | 4123-01       |
| HOSE RUBBER 3/4"               | 60  | EA | 005360-015    |
| STAPLE GROUND WIRE 1-1/16"X3"  | 12  | EA | 113005-000    |
| TIE CABLE .184 X 7.31" HIG TEM | 20  | EA | 4125-01       |
| CABLE TIE 14-1/2L NAT          | 20  | EA | 005019-022    |
| LUG RNG 1/4" 12-10AWG INS BLK  | 55  | EA | 032114-008    |
| WIRE DIESEL 10AWG 2000 VOLTS   | 375 | FT | 2125-01       |
| WIRE DIESEL 6AWG 600V          | 50  | FT | 012033-001    |
| LUG RNG 1/4" 6AWG AMP ONLY     | 50  | EA | 032063-005    |
| STAPLE COPPERWELD 3/8 X 1-3/4  | 75  | EA | 1148-01       |
| GREASE RUST PREVENTIVE NO OXID | 1   | EA | 1906-01       |
| SLEEVE NICO 3/16"-#6 AWG REDUC | 6   | EA | 1145-01       |
| CLIP TRACK WIRE RETAINER       | 16  | EA | 1118-01       |
| COMPOUND DUCT SEAL 5 LB PLUG   | 3   | PK | 1179-01       |
| PADLOCK SIGNAL CASE            | 5   | EA | 013043-000    |
| Sign, ENS                      | 2   | EA | SIGN-ENS      |
| SIGN HDW F/5"MAST RIBBED XING  | 2   | EA | 60-11330-05   |
| Field Cable Tag Kit            | 1   | EA | FIELD-TAG     |
| TRAY BATT 12X24 POLYETHYLENE   | 4   | EA | 040231-000    |





\* FIELD ADJUSTMENT TO BE MADE ACCORDING TO THE ABOVE INSTRUCTIONS MANUALLY

## HXP-3R ADJUSTMENTS

| NO. | ADJUSTMENT NAME | TRACK 1 |
|-----|-----------------|---------|
| 1   | APP. LENGTH     | 1284'   |
| 2   | WARNING TIME    | 38 SEC. |
| 3   | LJA             | "       |
| 4   | TC              | "       |
| 5   | MO. RESTART     | "       |

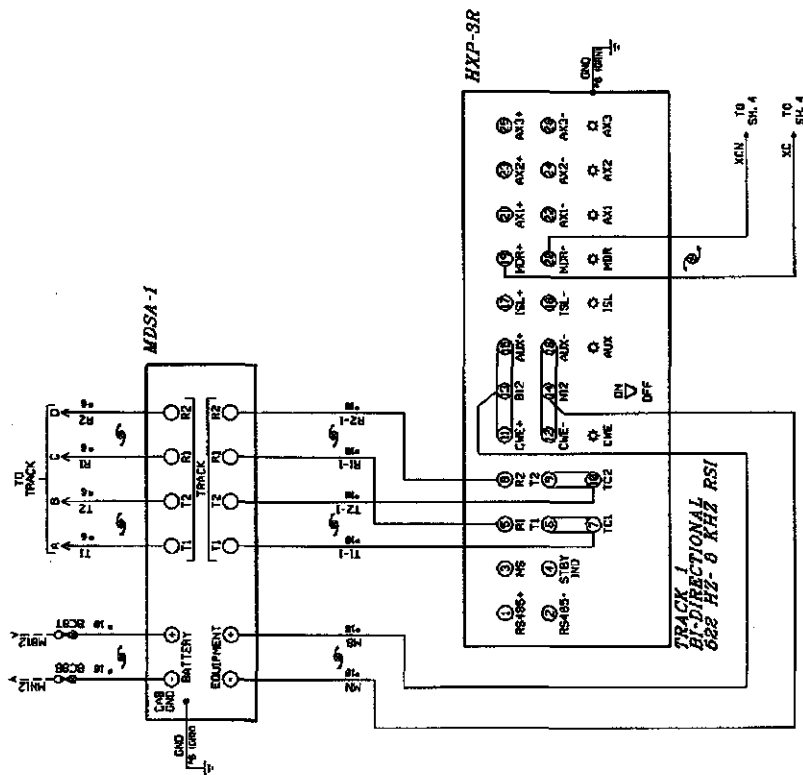
### OPTION ADJUSTMENTS

| NO. | ABBREVIATION | TRACK 1 |
|-----|--------------|---------|
| 1   | TK-ENA       | LP      |
| 2   | TK F0        | B22 TH  |
| 3   | C/H F0       | C       |
| 4   | MM-B         | b. 1B1  |
| 5   | WHS-C        |         |
| 6   | CHWT         | b. 1B2  |
| 7   | CHWT         | b. 1B3  |
| 8   | 1-L-OS       | b. 1B4  |
| 9   | 1-L-OS       | b. 1B5  |
| 10  | 1-L-OS       | b. 1B6  |
| 11  | 1-L-OS       | b. 1B7  |
| 12  | 1-L-OS       | b. 1B8  |
| 13  | 1-L-OS       | b. 1B9  |
| 14  | 1-L-OS       | b. 1B10 |
| 15  | 1-L-OS       | b. 1B11 |
| 16  | 1-L-OS       | b. 1B12 |
| 17  | 1-L-OS       | b. 1B13 |
| 18  | 1-L-OS       | b. 1B14 |
| 19  | 1-L-OS       | b. 1B15 |
| 20  | 1-L-OS       | b. 1B16 |
| 21  | 1-L-OS       | b. 1B17 |
| 22  | 1-L-OS       | b. 1B18 |
| 23  | 1-L-OS       | b. 1B19 |
| 24  | 1-L-OS       | b. 1B20 |
| 25  | 1-L-OS       | b. 1B21 |
| 26  | 1-L-OS       | b. 1B22 |
| 27  | 1-L-OS       | b. 1B23 |
| 28  | 1-L-OS       | b. 1B24 |
| 29  | 1-L-OS       | b. 1B25 |
| 30  | 1-L-OS       | b. 1B26 |
| 31  | 1-L-OS       | b. 1B27 |
| 32  | 1-L-OS       | b. 1B28 |
| 33  | 1-L-OS       | b. 1B29 |
| 34  | 1-L-OS       | b. 1B30 |
| 35  | 1-L-OS       | b. 1B31 |
| 36  | 1-L-OS       | b. 1B32 |
| 37  | 1-L-OS       | b. 1B33 |
| 38  | 1-L-OS       | b. 1B34 |
| 39  | 1-L-OS       | b. 1B35 |
| 40  | 1-L-OS       | b. 1B36 |
| 41  | 1-L-OS       | b. 1B37 |
| 42  | 1-L-OS       | b. 1B38 |
| 43  | 1-L-OS       | b. 1B39 |
| 44  | 1-L-OS       | b. 1B40 |
| 45  | 1-L-OS       | b. 1B41 |
| 46  | 1-L-OS       | b. 1B42 |
| 47  | 1-L-OS       | b. 1B43 |
| 48  | 1-L-OS       | b. 1B44 |
| 49  | 1-L-OS       | b. 1B45 |
| 50  | 1-L-OS       | b. 1B46 |
| 51  | 1-L-OS       | b. 1B47 |
| 52  | 1-L-OS       | b. 1B48 |
| 53  | 1-L-OS       | b. 1B49 |
| 54  | 1-L-OS       | b. 1B50 |
| 55  | 1-L-OS       | b. 1B51 |
| 56  | 1-L-OS       | b. 1B52 |
| 57  | 1-L-OS       | b. 1B53 |
| 58  | 1-L-OS       | b. 1B54 |
| 59  | 1-L-OS       | b. 1B55 |
| 60  | 1-L-OS       | b. 1B56 |
| 61  | 1-L-OS       | b. 1B57 |
| 62  | 1-L-OS       | b. 1B58 |
| 63  | 1-L-OS       | b. 1B59 |
| 64  | 1-L-OS       | b. 1B60 |
| 65  | 1-L-OS       | b. 1B61 |
| 66  | 1-L-OS       | b. 1B62 |
| 67  | 1-L-OS       | b. 1B63 |
| 68  | 1-L-OS       | b. 1B64 |
| 69  | 1-L-OS       | b. 1B65 |
| 70  | 1-L-OS       | b. 1B66 |
| 71  | 1-L-OS       | b. 1B67 |
| 72  | 1-L-OS       | b. 1B68 |
| 73  | 1-L-OS       | b. 1B69 |
| 74  | 1-L-OS       | b. 1B70 |
| 75  | 1-L-OS       | b. 1B71 |
| 76  | 1-L-OS       | b. 1B72 |
| 77  | 1-L-OS       | b. 1B73 |
| 78  | 1-L-OS       | b. 1B74 |
| 79  | 1-L-OS       | b. 1B75 |
| 80  | 1-L-OS       | b. 1B76 |
| 81  | 1-L-OS       | b. 1B77 |
| 82  | 1-L-OS       | b. 1B78 |
| 83  | 1-L-OS       | b. 1B79 |
| 84  | 1-L-OS       | b. 1B80 |
| 85  | 1-L-OS       | b. 1B81 |
| 86  | 1-L-OS       | b. 1B82 |
| 87  | 1-L-OS       | b. 1B83 |
| 88  | 1-L-OS       | b. 1B84 |
| 89  | 1-L-OS       | b. 1B85 |
| 90  | 1-L-OS       | b. 1B86 |
| 91  | 1-L-OS       | b. 1B87 |
| 92  | 1-L-OS       | b. 1B88 |
| 93  | 1-L-OS       | b. 1B89 |
| 94  | 1-L-OS       | b. 1B90 |
| 95  | 1-L-OS       | b. 1B91 |
| 96  | 1-L-OS       | b. 1B92 |
| 97  | 1-L-OS       | b. 1B93 |
| 98  | 1-L-OS       | b. 1B94 |
| 99  | 1-L-OS       | b. 1B95 |
| 100 | 1-L-OS       | b. 1B96 |

## CIRCUIT BOARD INFORMATION

|                          |          |
|--------------------------|----------|
| SWITCH OR JUMPER         | TRACK 1  |
| RES FAULT JUMPER         | 1        |
| RES LOS JUMPER           | 1        |
| TLN V1 JUMPER            | PINS 1-2 |
| TLN W2 JUMPER            | PINS 1-2 |
| TLN W3 JUMPER            | PINS 2-3 |
| TLN MINUTE TIMEOUT       | 5 MIN    |
| RTD CV/NO                | CM       |
| TLN STANDBY/ACT/ALARM/MS | ALARM    |

**NOTE: DL = DEFAULT LEVEL**

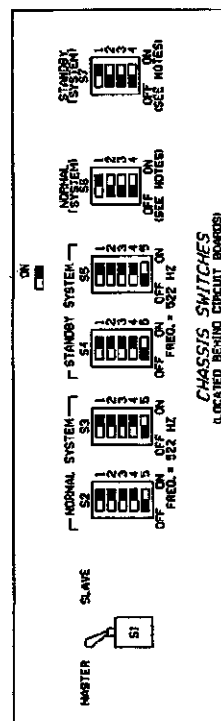


5. WITH ACTUATOR 1 IN ON POSITION AND ACTUATOR 2 IN OFF POSITION, NORMAL

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

3) ACTUATOR 3 IS NOT USED AND MUST BE SET TO OFF.

4) ACTUATOR 4 SELECTS NORMAL MUX TABLE WHEN SET TO OFF AND ALTERNATE MUX TABLE WHEN SET TO ON.



CHASSIS SWITCHES

THE OPERATION OF THE CIRCUITS AND EQUIPMENT REPRESENTED HEREIN CANNOT BE FULLY CHECKED UNTIL ALL CIRCUITS AND DEVICES ARE CONNECTED TO FORM A COMPLETE SYSTEM OR AN EFFECTIVE SUBSYSTEM. SUCH SYSTEM OR SUBSYSTEM MUST BE GIVEN COMPLETE CIRCUIT AND OPERATIONAL TESTS BEFORE BEING PLACED IN REGULAR OPERATION.



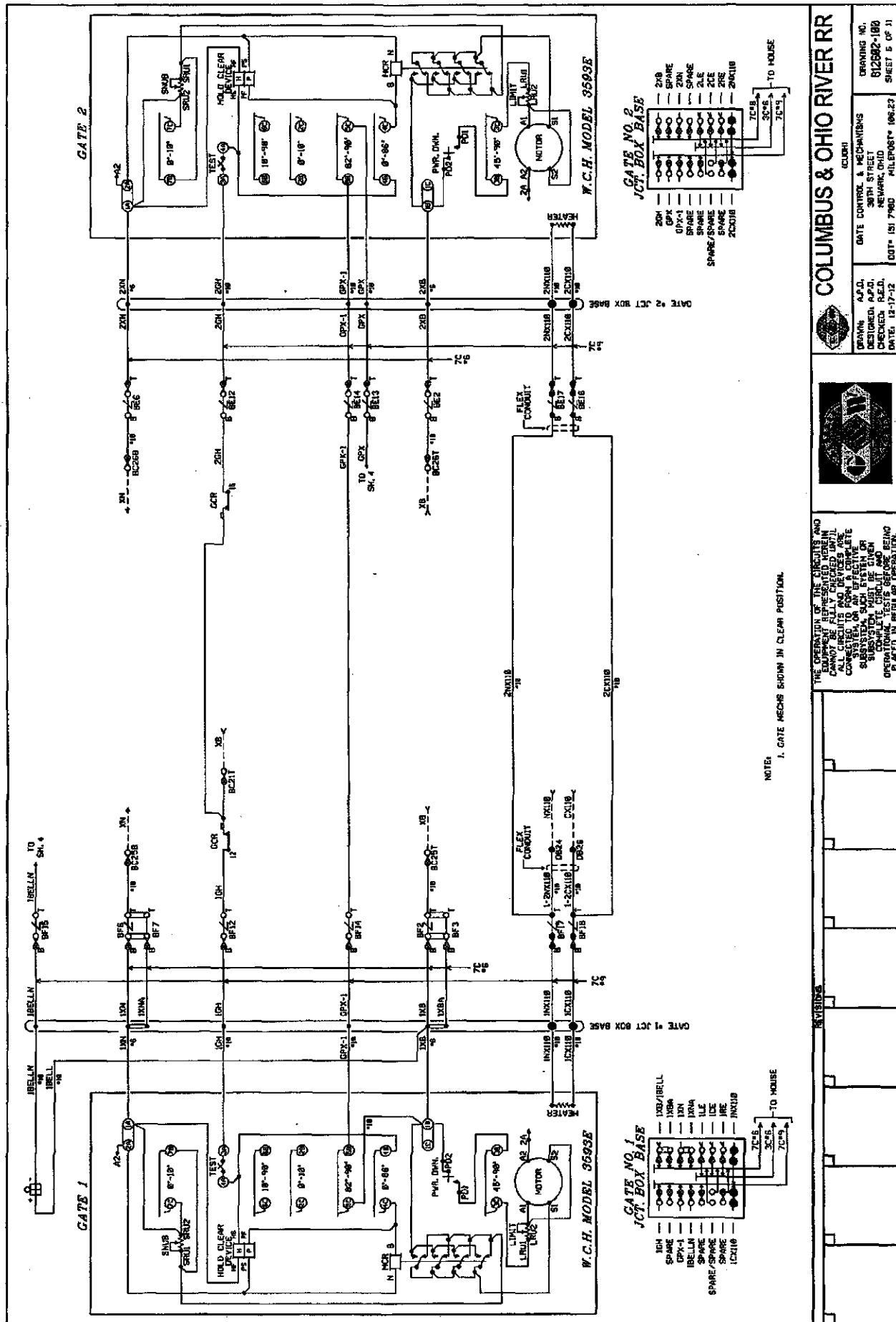
**COLUMBUS & OHIO RIVER RR**

|                                            |                                                                                  |                                                                      |
|--------------------------------------------|----------------------------------------------------------------------------------|----------------------------------------------------------------------|
| DRAWING NO.<br>812682-100<br>SHEET 3 OF 31 | HYP-3R CIRCUITS<br>30TH STREET<br>NEWARK, OHIO<br>QOT# 151 7980 MILEPOST# 186.23 | DRAWING A.P.O.<br>DESIGNED A.P.O.<br>CHECKED R.E.D.<br>DATE 12-17-12 |
|--------------------------------------------|----------------------------------------------------------------------------------|----------------------------------------------------------------------|

CHECKED: R.E.J.  
DATE: 12-17-12  
007\* 151 7980 NEWARK, NJ 07102 MILEPOST: 186.23







**COLUMBUS & OHIO RIVER RR**

CLUB

DESIGNED BY: A.P.C.  
CHECKED BY: J.C.H.  
DATE: 12-17-12

GATE CONTROL & MECHANISMS

DRAWING NO. 612502-100

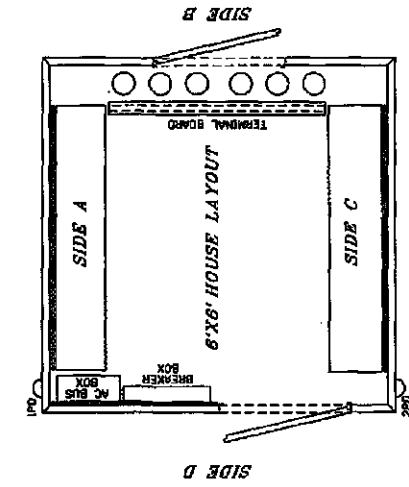
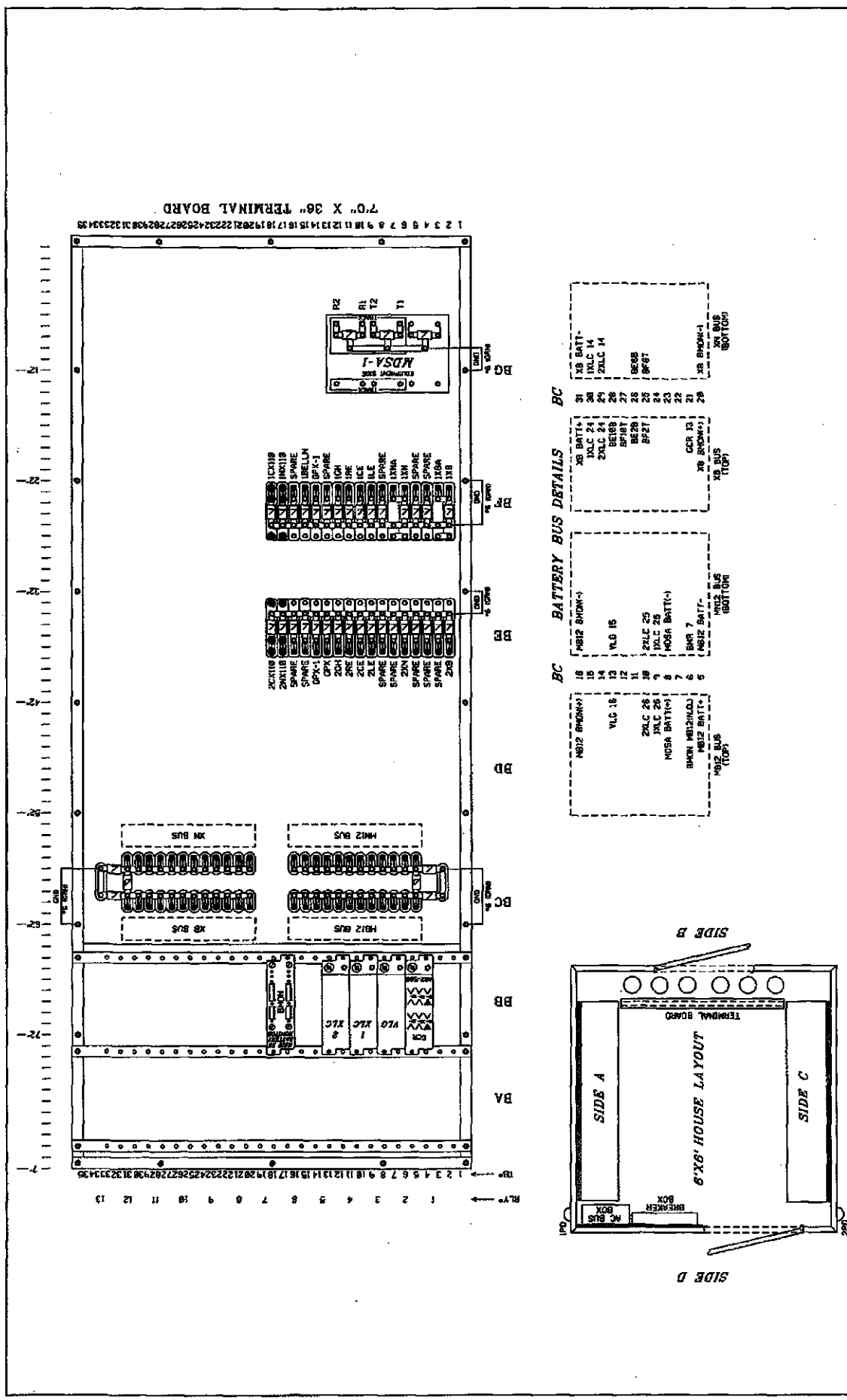
REVISIONS

DATE: 12-17-12

BY: J.C.H.

DATE: 12-17-12





**COLUMBUS & OHIO RIVER RR**

TERMINAL BOARD

30TH STREET

NEAR RR, OHIO

DATE: 12-17-12

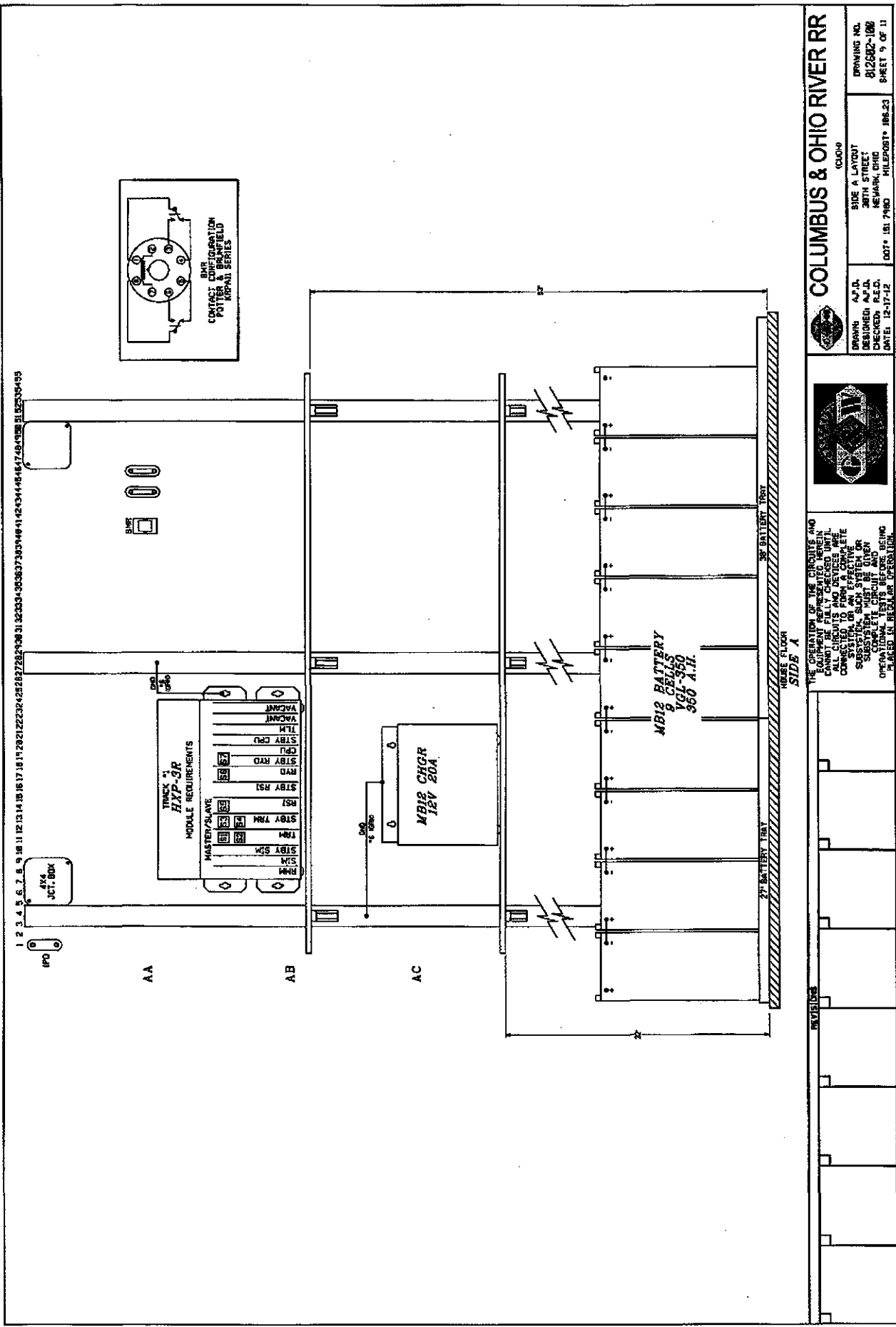
DESIGNED BY: J.M.C.

CHECKED BY: J.M.C.

DRAWING NO. 812502-100

SHEET 8 OF 11

THE OPERATION OF THE CIRCUITS AND EQUIPMENT HEREIN IS BASED UPON THE ASSUMPTION THAT ALL CIRCUITS AND DEVICES ARE CONNECTED TO FORM A COMPLETE SYSTEM AND THAT THE SUBSYSTEM MUST BE GIVEN OPERATIONAL TESTS BEFORE BEING PLACED IN REGULAR OPERATION.



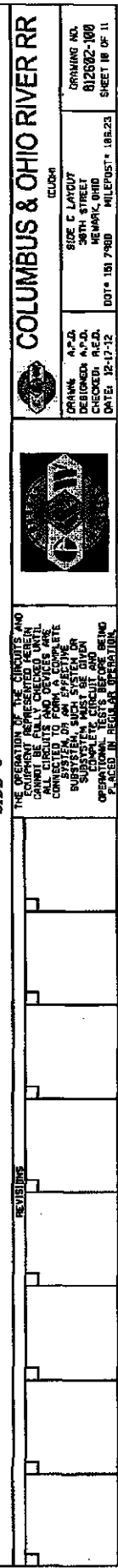
**COLUMBUS & OHIO RIVER RR**

**PROJECT NO.** 812582-100  
**DRAWING NO.** 812582-100  
**DATE** 12-17-12  
**DESIGNED BY** A.J.D.  
**CHECKED BY** R.E.D.  
**DATE** 12-17-12  
**FILEPOST** 186.23  
**SHEET** 9 OF 11



**REVISIONS**

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