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October 15, 2019

Rosemary Chiavetta, Secretary
Pennsylvania Public Utility Commission
P. O. Box 3265
Harrisburg, PA 17105-3265

VIA ELECTRONIC FILING

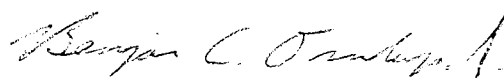
RE: Bridge structure where State Route 1025 crosses over a single track of Delaware and Hudson Railway Company, Inc. (264 293 K) in Nicholson Borough, Wyoming County / Docket No.: M-2013-2364201

**Investigation upon the Commission's own motion to determine the condition and disposition of six (6) existing structures carrying various highways above the grade of the tracks of the Canadian Pacific Railroad in Great Bend Township, New Milford Township, Brooklyn Township, Hop Bottom Borough, Lathrop Township, Susquehanna County and Benton Township, Lackawanna County
Docket No.: I-2015-2472242**

Dear Secretary Chiavetta:

Enclosed for the Commission's review and approval are Final Repair Plans of Norfolk Southern Railway Company ("Norfolk Southern") for the SR 1025, SR 2032, and SR 2041 crossings in the above-referenced consolidated matters. These Repair Plans are submitted pursuant to Ordering Paragraphs 7, 34, and 49 of the Commission Opinion and Order entered February 28, 2019, as modified by the Opinion and Order entered July 11, 2019. Copies of the Repair Plans are being sent to all parties of record for comments, if any, to the Commission within twenty (20) days of service hereof. Please let me know if you have any questions.

Sincerely yours,



Benjamin C. Dunlap, Jr.

/wlr

enclosures

cc w/ enc.: All Parties of Record
Julianne Freeman, Esquire
Kevin Hauschildt
Jonathan Hocker

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

| | |
|--|--|
| Bridge Structure where State Route 1025 crosses over a single track of Delaware and Hudson Railway Company, Inc (264 293 K) in Nicholson Borough, Wyoming County | : M-2013-2364201 : : ELECTRONICALLY FILED : : |
| Investigation upon the Commission's own motion to determine the condition and disposition of six (6) existing structures carrying various highways above the grade of the tracks of the Canadian Pacific Railroad in Great Bend Township, New Milford Township, Brooklyn Township, Hop Bottom Borough, Lathrop Township, Susquehanna County, and Benton Township, Lackawanna County | : I-2015-2472242 : : ELECTRONICALLY FILED : : : : : : : |

CERTIFICATE OF SERVICE

I hereby certify that I served one (1) copy of the foregoing document in the above-referenced matter, this day by electronic mail where indicated and by depositing the same in the United States mail, postage prepaid, in Harrisburg, Pennsylvania, addressed to:

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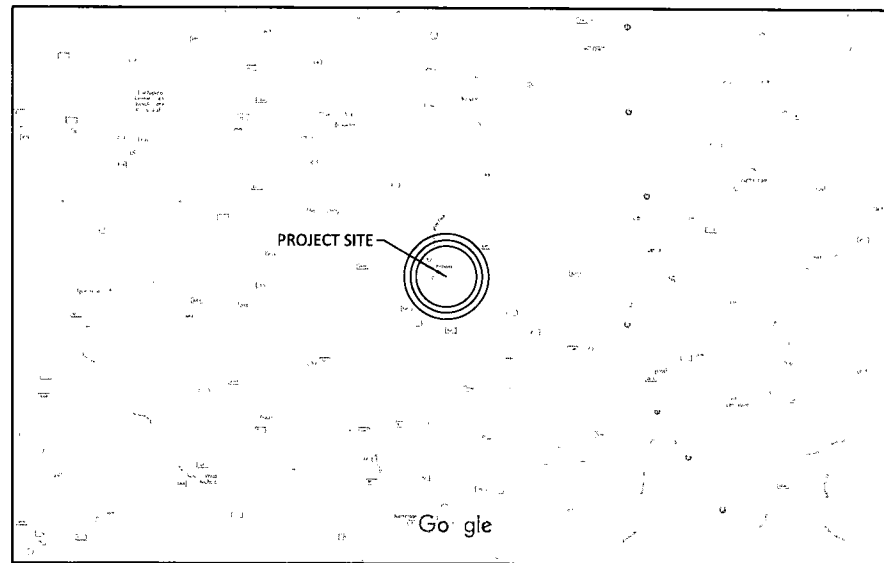
Michael J. Giangrieco, Esquire
Solicitor for Susquehanna County
PO Box 126
Montrose, PA 18801-0126
Via Email: judy@giangrieco.com


Wanda L. Rosado, Secretary to
Benjamin C. Dunlap Jr., Esquire

Date: October 15, 2019



HOP BOTTOM, PENNSYLVANIA
OVERPASS SR-2041 REPAIR



VICINITY MAP



| | | | |
|---|-----------------|--------------------------|---------------------|
| | | NORFOLK SOUTHERN RAILWAY | |
| NORTHERN REGION | HARRISBURG DIV. | | |
| OVERPASS SR-2041 | | | |
| HA LINE, HOP BOTTOM, PA | | | |
| BRIDGE REPAIRS | | | |
| OFFICE OF CHIEF ENGINEER - BRIDGES & STRUCTURES | | ATLANTA, GA. | |
| DRAWING TITLE: COVER SHEET | | | |
| DNW MCC | VAL SEC | MAP | MILE POST HA-647.50 |
| CHK DBC | FILE | DATE 08/25/2019 | |
| SHEET NUMBER 1 OF 10 | | DRAWING NUMBER HA-647.50 | |

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GENERAL NOTES

- CONSTRUCTION AND MATERIAL SPECIFICATIONS: CURRENT EDITION AMERICAN RAILWAY ENGINEERING & MAINTENANCE-OF-WAY "MANUAL FOR RAILWAY ENGINEERING", PENNSYLVANIA DEPARTMENT OF TRANSPORTATION STANDARDS FOR BRIDGE CONSTRUCTION CURRENT EDITION EXCEPT AS SUPERCEDED BY THESE PLANS, THE CONTRACT AND NORFOLK SOUTHERN SPECIFICATIONS.
- THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE FACT THAT, DUE TO THE NATURE OF RECONSTRUCTION PROJECTS, THE EXACT EXTENT OF RECONSTRUCTION WORK CANNOT ALWAYS BE ACCURATELY DETERMINED PRIOR TO COMMENCEMENT OF WORK. THESE CONTRACT DOCUMENTS HAVE BEEN PREPARED BASED ON FIELD INSPECTION AND OTHER INFORMATION AVAILABLE AT THE TIME. ACTUAL FIELD CONDITIONS MAY REQUIRE MODIFICATIONS TO CONSTRUCTION DETAILS AND WORK QUANTITIES. THE CONTRACTOR SHALL PERFORM THE WORK IN ACCORDANCE WITH FIELD CONDITIONS AS ORDERED BY THE ENGINEER.
- THE CONTRACTOR SHALL NOTE THAT ADDITIONAL WORK MAY BE REQUIRED AS THE CONTRACT PROGRESSES WHICH IS NOT SHOWN OR NOTED ON THE PLANS. THIS WORK SHALL BE PERFORMED BY THE CONTRACTOR AS ORDERED BY THE ENGINEER AND PAYMENT SHALL BE MADE AT THE UNIT BID PRICE FOR THE APPROPRIATE ITEMS. SEE SPECIFICATIONS WITHIN CONTRACT PROPOSAL.
- THE CONSTRUCTION OF THE PROJECT SHALL PROCEED IN A CONTINUOUS, SYSTEMATIC AND EXPEDITIOUS MANNER FROM BEGINNING TO COMPLETION. THE CONTRACTOR WILL BE REQUIRED TO PLACE SUFFICIENT EQUIPMENT, LABOR, ETC. ON THE PROJECT SO THAT THE WORK MAY PROGRESS IN ACCORDANCE WITH THE APPROVED CONSTRUCTION SCHEDULE.
- THE CONTRACTOR SHALL VISIT THE SITE BEFORE BIDDING TO FAMILIARIZE HIMSELF WITH THE PRESENT CONDITION AND TO JUDGE FOR HIMSELF, THE EXTENT AND NATURE OF THE WORK TO BE DONE UNDER THIS CONTRACT. NO EXTRA COMPENSATION WILL BE ALLOWED HIM BECAUSE OF HIS FAILURE TO INCLUDE IN THE CONTRACTOR'S BID, ALL ITEMS AND MATERIALS WHICH HE IS REQUIRED TO FURNISH IN ACCORDANCE WITH THE CONTRACT PLANS.
- DIMENSIONS OF THE EXISTING STRUCTURES SHOWN ON THESE PLANS ARE FOR GENERAL REFERENCE ONLY. THE CONTRACTOR SHALL TAKE ALL SUCH FIELD MEASUREMENTS AS ARE NECESSARY TO ASSURE PROPER CONSTRUCTION OF THE FINISH WORK.
- THERE SHALL BE NO CLAIM MADE BY THE CONTRACTOR AGAINST THE RAILROAD FOR WORK PERTAINING TO MODIFICATIONS AS MAY BE REQUIRED DUE TO ANY DIFFERENCE BETWEEN ACTUAL FIELD CONDITIONS AND THOSE SHOWN BY THE DETAILS AND DIMENSIONS IN THE CONTRACT PLANS OR THE RECORD DRAWINGS.
- THE CONTRACTOR IS ADVISED THAT ADDITIONAL "NOTES" WILL BE FOUND ON SUBSEQUENT SHEETS OF THE CONTRACT PLANS AND SUCH "NOTES" WHILE PERTAINING TO THE SPECIFIC DRAWINGS THEY ARE PLACED ON, ALSO SUPPLEMENT THE GENERAL NOTES LISTED HERE.
- THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR ALL DAMAGES TO THE EXISTING STRUCTURE, TRACK, UTILITIES OR ADJACENT PROPERTIES OR FACILITIES, CAUSED BY HIS OPERATIONS, WHICH ARE NOT INCLUDED AS PART OF THE INTENDED WORK. ANY DAMAGE TO THE EXISTING STRUCTURE OR ADJACENT PROPERTIES, SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR WITHOUT COST TO THE RAILROAD AND TO THE SATISFACTION OF THE ENGINEER.
- IF, DURING THE REPAIR OPERATIONS, ANY COMPONENTS OF THE BRIDGE THAT ARE NOT SCHEDULED TO BE REMOVED, SUCH AS ABUTMENT STEMS, WINGWALLS, GIRDERS OR BEARINGS ARE DAMAGED BY THE CONTRACTOR'S PERSONNEL OR EQUIPMENT, THEY SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE ENGINEER, AT NO COST TO THE RAILROAD.
- THE CONTRACTOR IS REQUIRED TO PROTECT HIS WORKERS AT ALL TIMES IN CONFORMANCE WITH ALL APPLICABLE OSHA REGULATIONS AND FRA BRIDGE WORKER SAFETY RULES.
- THE CONTRACTOR IS ADVISED THAT THERE IS NO ELECTRIC POWER DISTRIBUTION SYSTEM AVAILABLE AT THE BRIDGE FOR HIS USE.
- ALTERATION OF THE CONSTRUCTION PLANS AND STRUCTURAL DETAILS ARE NOT PERMITTED WITHOUT EXPRESS PERMISSION OF NORFOLK SOUTHERN'S CHIEF ENGINEER OF BRIDGES AND STRUCTURES.
- CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS TO COMPLETE THE WORK.
- ALL TRAFFIC CONTROL MEASURES NEEEDED TO COMPLETE WORK SHALL BE CONDUCTED IN ACCORDANCE WITH THE PENNSYLVANIA DEPARTMENT OF TRANSPORTATION SPECIFICATION AND ANY LOCAL CODES OR ORDINANCES THAT MAY APPLY.

DESIGN LOADING:

- ALL LOADS ARE PER AASHTO CURRENT EDITION.

DEMOLITION PLAN & ERECTION PLAN NOTES:

- THE CONTRACTOR IS REQUIRED TO SUBMIT PLANS FOR THE JACKING AND/OR SUPPORT OF THE EXISTING STRUCTURE IN ORDER TO PERFORM ALL NEEDED REPAIRS.
- THE CONTRACTOR SHALL DISPOSE OF ALL EXCAVATED & REMOVED SUBSTRUCTURE & FILL MATERIALS AND DEMOLISHED MATERIALS OFF-SITE IN A LEGAL MANNER UNLESS OTHERWISE DIRECTED BY N.S. REPRESENTATIVES IN THE FIELD.
- THE CONTRACTOR IS RESPONSIBLE FOR THE TRAFFIC CONTROL PLAN, AND THIS SHOULD BE INCLUDED IN THE BID PRICE FOR MOBILIZATION OF THE EXISTING STRUCTURE.

PROTECTION OF RAILROAD NOTES:

- WHERE APPLICABLE, OPERATIONS SHALL BE COORDINATED WITH THE RAILROAD SO AS NOT TO INTERFERE WITH THE CONTINUED OPERATIONS OF TRAINS. A RAILROAD FLAGMAN (SUPPLIED BY NORFOLK SOUTHERN) SHALL BE PRESENT FOR ANY AND ALL WORK ABOVE OR UNDEREATH THE BRIDGE ADJACENT TO THE TRACK.
- THE CONTRACTOR IS REQUIRED TO FULLY COOPERATE WITH THE NORFOLK SOUTHERN FLAGMAN AND/OR NORFOLK SOUTHERN REPRESENTATIVE & IMMEDIATELY REMOVE ALL EQUIPMENT & PERSONNEL WORKING NEAR THE TRACK WHEN DIRECTED AS SUCH BY THE FLAGMAN.

UTILITIES:

- THE CONTRACTOR SHALL BE AWARE OF THE OVERHEAD ELECTRIC AND UTILITY LINES ABOVE/UNDER AND PARALLEL TO THE EXISTING BRIDGE.

OTHER:

- THE WORK FOR THIS PROJECT SHALL BE IN ACCORDANCE WITH THE NORFOLK SOUTHERN STANDARD SPECIFICATIONS FOR MATERIALS AND CONSTRUCTION DATED JANUARY 2019, PENNSYLVANIA DEPARTMENT OF TRANSPORTATION STANDARDS FOR BRIDGE CONSTRUCTION, CURRENT EDITION AND ANY SPECIAL PROVISIONS PROVIDED HEREIN.
- NS WILL FURNISH A FLAGMAN AT NO COST TO THE CONTRACTOR. THE CONTRACTOR WILL COORDINATE ALL CONSTRUCTION ACTIVITIES WITH THE NS FLAGMAN.
- THE CONTRACTOR SHALL SUBMIT TO NS A PROPOSED CONSTRUCTION SCHEDULE PRIOR TO BEGINNING WORK AND WILL SCHEDULE A PRECONSTRUCTION MEETING ONCE A CONTRACT HAS BEEN AWARDED.
- THE CONTRACTOR IS RESPONSIBLE FOR THE INVESTIGATION, LOCATION, SUPPORT, PROTECTION, AND RESTORATION OF ALL EXISTING UTILITIES WHETHER SHOWN ON THESE PLANS OR NOT. IT IS BELIEVED THAT THEY ARE ESSENTIALLY CORRECT, BUT NS DOES NOT GUARANTEE THEIR ACCURACY OR COMPLETENESS. THE CONTRACTOR SHOULD VERIFY LOCATIONS WITH THE UTILITY COMPANIES NOT LESS THAN 72 HOURS BEFORE STARTING EXCAVATION ACTIVITIES.
- RAILROAD RIGHT OF WAY LINES, IF SHOWN, WERE OBTAINED FROM VALUATION MAPS. ALL RIGHT OF WAY AND PROPERTY LINES ARE SHOWN FOR INFORMATION PURPOSES ONLY AS THEY HAVE NOT BEEN VERIFIED IN THE FIELD.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ANY LOCAL CONSTRUCTION PERMITS THAT MAY BE REQUIRED FOR CONSTRUCTION OF THIS PROJECT.
- ANY SURVEYS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- THE CONTRACTOR SHALL OBTAIN ANY TEMPORARY CONSTRUCTION ENTRANCE AND/OR DRIVEWAY PERMITS FROM THE APPROPRIATE GOVERNING AGENCY.
- ON SITE AND GENERATED CONSTRUCTION DEBRIS IS TO BE DISPOSED OF AS NON-REGULATED SOLID WASTE IN COMPLIANCE WITH LOCAL REGULATIONS. IF SUSPECTED ENVIRONMENTAL PROBLEMS ARE ENCOUNTERED, CONTACT THE NS ENVIRONMENTAL PROTECTION DEPARTMENT TO ASSIST IN THEIR PROPER HANDLING AND REMOVAL.
- THE CONTRACTOR SHALL COORDINATE WITH NS SIGNALS DEPARTMENT FOR THE LOCATIONS OF SIGNAL WIRE WHETHER LIVE OR DEAD BEFORE ANY EXCAVATION WORK.
- ALL CONCRETE REPAIRS SHALL BE IN ACCORDANCE WITH PENNSYLVANIA DEPARTMENT OF TRANSPORTATION STANDARDS FOR BRIDGE CONSTRUCTION, CURRENT EDITION.

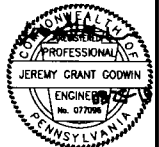
INDEX OF DRAWINGS

| DESCRIPTION | SHEET NO | REV. DATE |
|--|----------|-----------|
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| PROPOSED TYPE 2 CONCRETE REPAIR | 9 | |
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ESTIMATE OF QUANTITIES

| BID ITEM | DESCRIPTION | QTY | UNIT |
|----------|---|-----|------|
| 1. | MOBILIZATION | 1 | LS |
| 2. | NORTH SPANDREL WALL REPAIRS* (APPROX. 140 SF) | 1 | LS |
| 3. | SOUTH SPANDREL WALL REPAIRS* (APPROX. 170 SF) | 1 | LS |
| 4. | EAST ABUTMENT REPAIRS* (APPROX. 290 SF) | 1 | LS |
| 5. | WEST ABUTMENT REPAIRS* (APPROX. 290 SF) | 1 | LS |
| 6. | PERFORMANCE BOND | 1 | LS |
| 7. | PAYMENT BOND | 1 | LS |

*INCLUDES EXCAVATION, REMOVAL OF LOOSE CONCRETE, CONCRETE, EPOXY, REBAR, HAULING OFF ANY DEBRIS AND RESTORING THE SITE TO ITS ORIGINAL CONDITION.



NORFOLK SOUTHERN RAILWAY

NORTHERN REGION HARRISBURG DIV

OVERPASS SR-2041

HA LINE, HOP BOTTOM, PA

BRIDGE REPAIRS

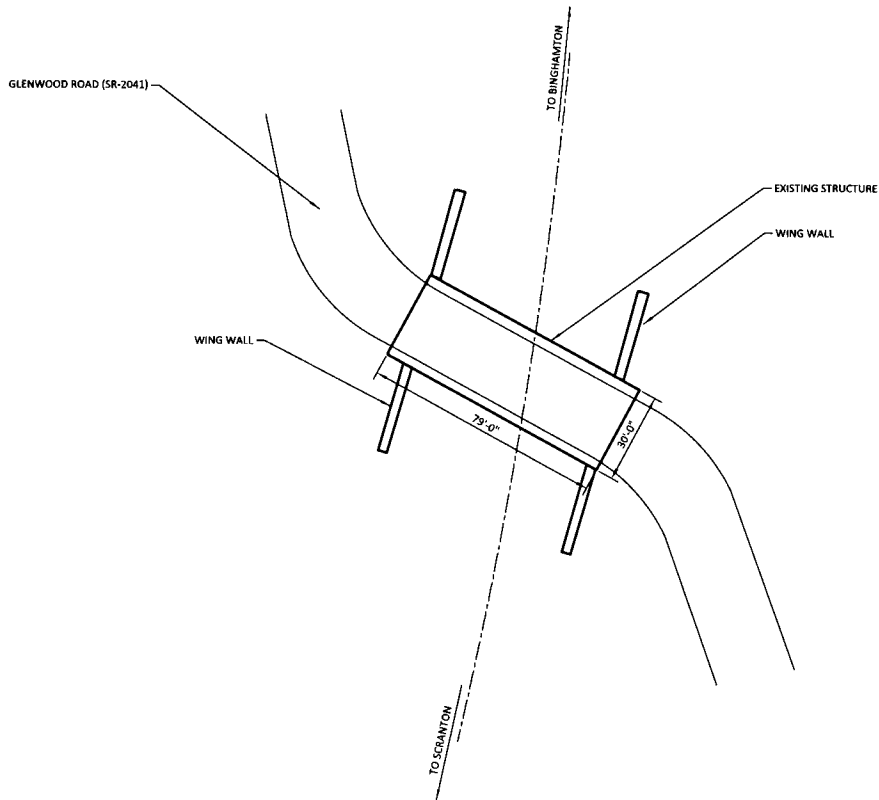
OFFICE OF CHIEF ENGINEER - BRIDGES & STRUCTURES ATLANTA, GA

DRAWING TITLE: **GENERAL NOTES & INDEX OF DRAWINGS**

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|--------------|---------|----------------|-----------|------------|
| CON MCC | VAL SEC | MAP | MILE POST | HA-647.50 |
| CHK DBG | FILE | | DATE | 08/25/2019 |
| SHEET NUMBER | 2 OF 10 | DRAWING NUMBER | HA-647.50 | |

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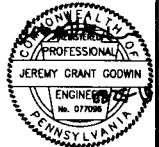
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 213 UPTOWN SQUARE
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 (p) 615.663.1142



- NOTES:
1. ALL SURVEY INFORMATION AND DIMENSIONS SHOWN OR REFERENCED IN THIS PLAN OR ATTACHED DOCUMENTS ARE BASED ON ENGINEERS SITE VISIT, PRELIMINARY SURVEY, RECORD DRAWINGS, GIS INFORMATION AND OTHER METHODS AS AVAILABLE TO THE ENGINEER AT THE TIME OF PUBLICATION. THIS DOCUMENT IN NO WAY GUARANTEES THE ACCURACY OR PRECISION OF THE ABOVE LISTED INFORMATION. THIS INFORMATION IS GIVEN AS FOR THE PURPOSE OF GENERAL REFERENCE.
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EXISTING PLAN

SCALE : 1" = 20'



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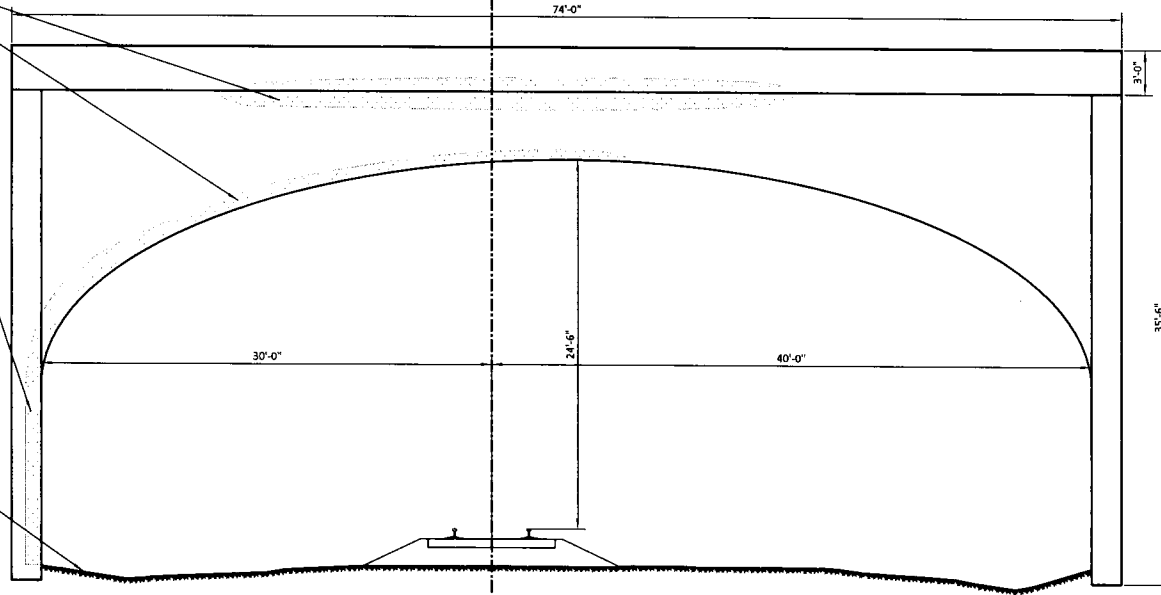
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| NS NORFOLK SOUTHERN | |
| NORTHERN REGION | HARRISBURG DIV. |
| OVERPASS SR-2041 | |
| HA LINE, HOP BOTTOM, PA | |
| BRIDGE REPAIRS | |
| OFFICE OF CHIEF ENGINEER - BRIDGES & STRUCTURES | ATLANTA, GA. |
| DRAWING TITLE: GENERAL SITE PLAN | |
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| DATE: 08/25/2019 | |
| SHEET NUMBER: 3 OF 9 | DRAWING NUMBER: HA-647.50 |
| MILE POST: HA-647.50 | |

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AREAS OF POOR CONCRETE TO BE REPAIRED USING METHODS SHOWN ON SHEET 8 THRU 10 AS APPLICABLE

GROUNDLINE

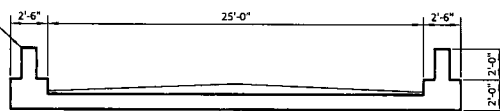
± HA MAINLINE



EXISTING NORTH ELEVATION

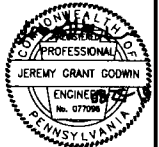
SCALE : 1/4" = 1'

CONCRETE PARAPET WALL



EXISTING ROAD CROSS-SECTION

SCALE : 1/4" = 1'



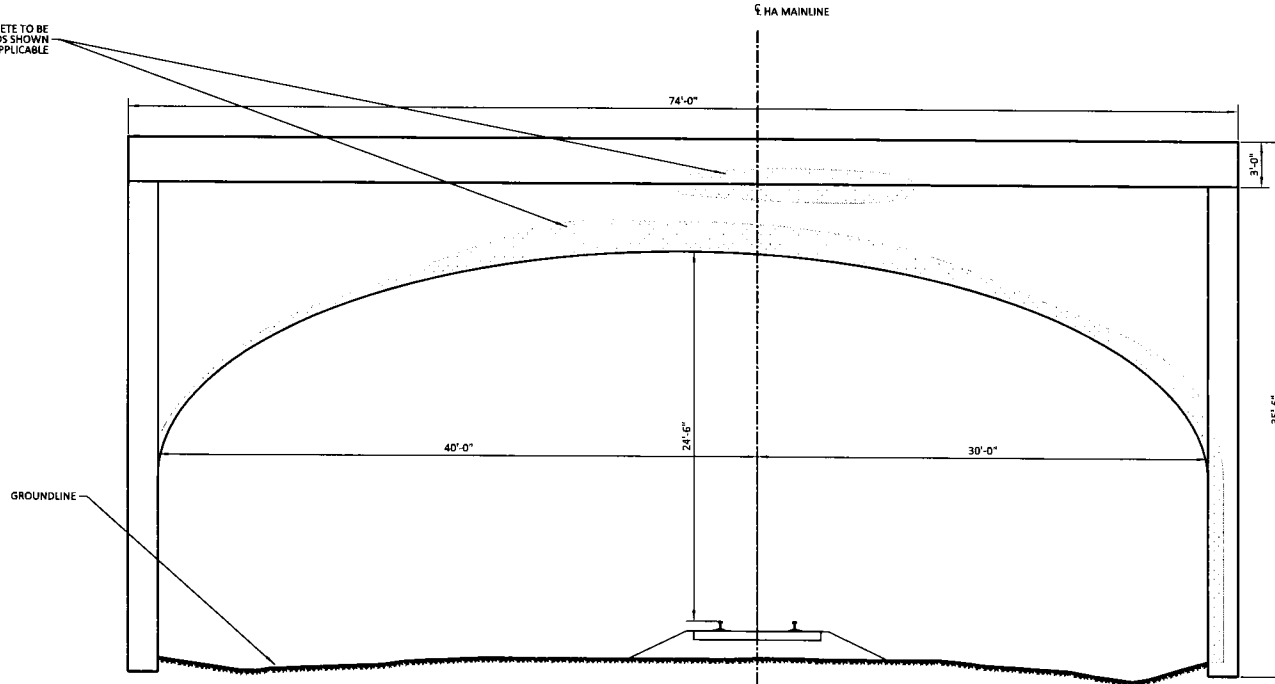
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| | | NORFOLK SOUTHERN RAILWAY | | HARRISBURG DIV. |
| | | NORTHERN REGION | | |
| OVERPASS SR-2041 HA LINE, HOP BOTTOM, PA BRIDGE REPAIRS | | | | |
| OFFICE OF CHIEF ENGINEER - BRIDGES & STRUCTURES | | | ATLANTA, GA. | |
| DRAWING TITLE: EXISTING NORTH ELEVATION & CROSS-SECTION | | | | |
| DWG: MCC | VAL: SEC | MAP | MILE POST HA-647.50 | |
| CHK: DBG | FILE | | DATE: 08/25/2019 | |
| SHEET NUMBER: 4 OF 10 | | DRAWING NUMBER: HA-647.50 | | |

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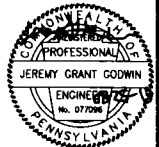
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AREAS OF POOR CONCRETE TO BE REPAIRED USING METHODS SHOWN ON SHEET 8 THRU 10 AS APPLICABLE



EXISTING SOUTH ELEVATION

SCALE : 1" = 1'



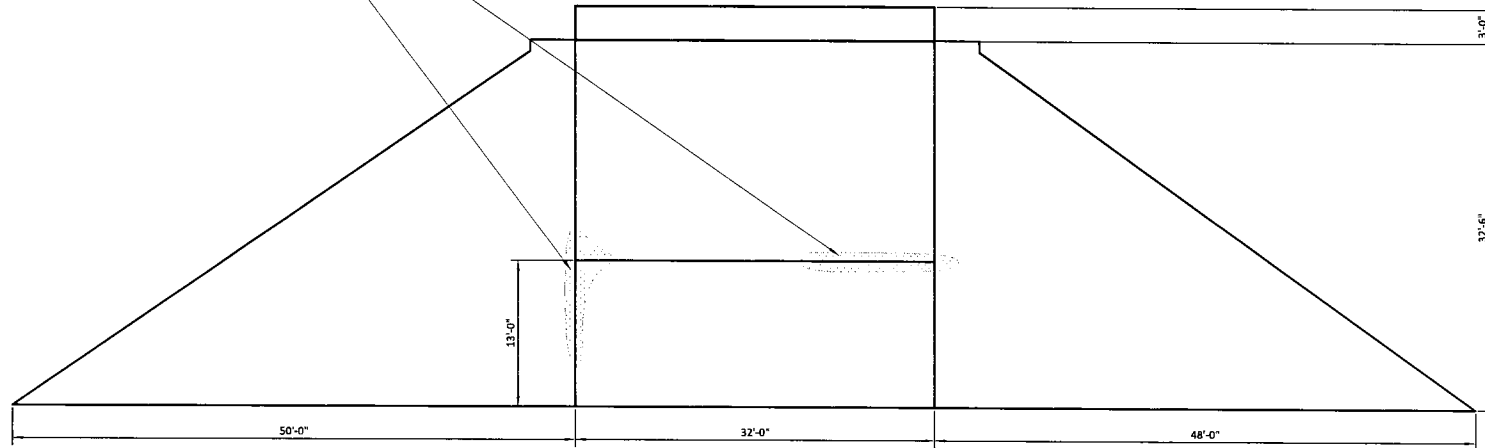
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| | | NORFOLK SOUTHERN RAILWAY | |
| | | NORTHERN REGION | HARRISBURG DIV |
| OVERPASS SR-2041 HA LINE, HOP BOTTOM, PA BRIDGE REPAIRS | | | |
| OFFICE OF CHIEF ENGINEER - BRIDGES & STRUCTURES | | ATLANTA, GA. | |
| DRAWING TITLE: EXISTING SOUTH ELEVATION | | | |
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| CHK DBG | FILE | DATE 08/25/2019 | |
| SHEET NUMBER 5 OF 10 | | DRAWING NUMBER HA-647.50 | |

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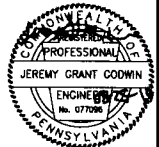
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AREAS OF POOR CONCRETE TO BE REPAIRED USING METHODS SHOWN ON SHEET 8 THRU 10 AS APPLICABLE



EXISTING WEST ABUTMENT ELEVATION

SCALE : $\frac{1}{8}'' = 1'$



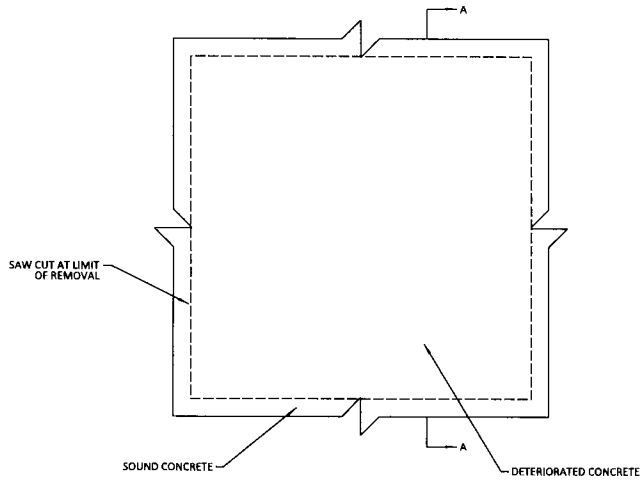
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| OFFICE OF CHIEF ENGINEER - BRIDGES & STRUCTURES | | ATLANTA, GA. | |
| DRAWING TITLE: WEST ABUTMENT ELEVATION | | | |
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| CHK DBG | FILE | DATE | 08/25/2019 |
| SHEET NUMBER 7 OF 10 | | DRAWING NUMBER HA-647.50 | |

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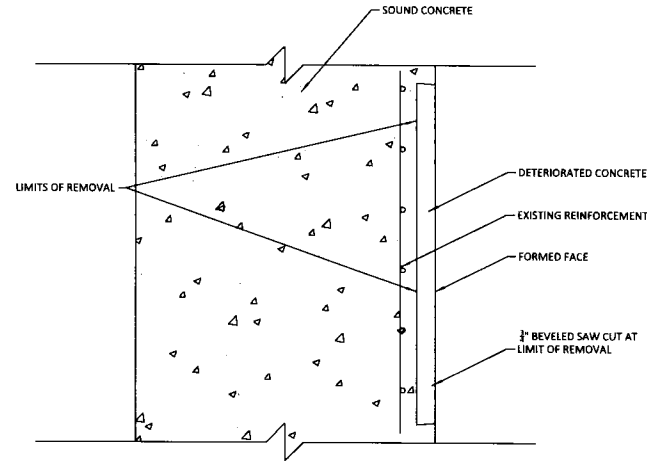
NOTES:

1. ALL REPAIRS SHALL BE MADE IN ACCORDANCE WITH PENNSYLVANIA DEPARTMENT OF TRANSPORTATION STANDARDS FOR BRIDGE CONSTRUCTION BC-783M
2. SQUARE OFF DETERIORATED CONCRETE TO SOUND CONCRETE WITH A SAWCUT OF 1/4" MAXIMUM.
3. REMOVE ALL LOOSE AND DELAMINATED CONCRETE TO PROVIDE A SOUND BOND BETWEEN EXISTING CONCRETE AND PATCHING MATERIAL.
4. APPLY A RAPID HARDENING CONCRETE PATCHING MATERIAL FROM A MANUFACTURER LISTED IN BULLETIN 15 UNDER MISCELLANEOUS POLYMER MODIFIED AND SPECIAL CEMENTS, MORTARS AND CONCRETES, IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.



ELEVATION VIEW (TYP)

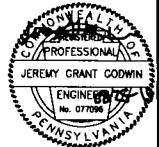
SCALE : NOT TO SCALE



SECTION A-A (TYP)

SCALE : NOT TO SCALE

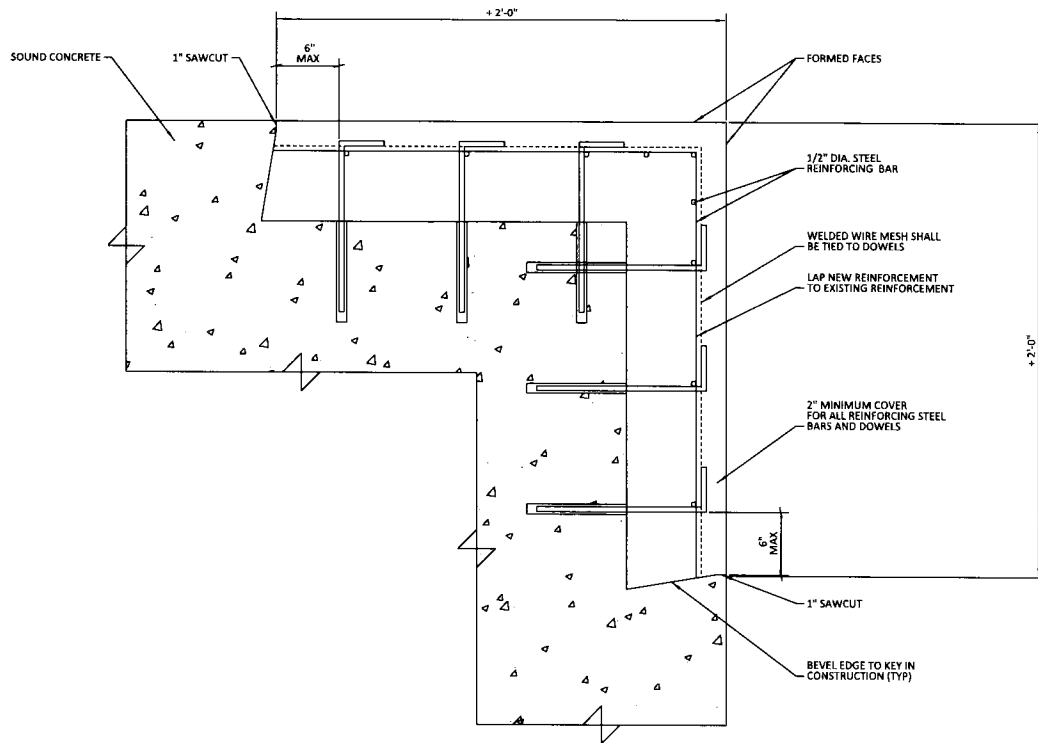
NOTE:
THIS REPAIR IS TO BE USED FOR REPAIRS ON UNDERSIDE OF DECK, ELEVATIONS AND REPAIRS TO PORTIONS OF DELAMINATED FACES OF ABUTMENTS UP TO 3/4" THICKNESS.



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|--|---------|--------------------------|---------------------|
| | | NORFOLK SOUTHERN RAILWAY | |
| | | NORTHERN REGION | HARRISBURG DIV |
| OVERPASS SR-2041 HA LINE, HOP BOTTOM, PA BRIDGE REPAIRS | | | |
| OFFICE OF CHIEF ENGINEER - BRIDGES & STRUCTURES | | ATLANTA, GA | |
| DRAWING TITLE: PROPOSED TYPE 1 CONCRETE REPAIR | | | |
| CON MCC | VAL SEC | MAP | MILE POST HA-647.50 |
| CHK DBG | FILE | | DATE 08/23/2019 |
| SHEET NUMBER 8 OF 10 | | DRAWING NUMBER HA-647.50 | |

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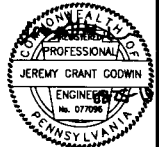
CORNER REPAIR DETAIL (TYP)

SCALE : NOT TO SCALE

NOTE:
THIS REPAIR IS TO BE USED FOR REPAIRS ON UNDERSIDE
OF DECK, ELEVATIONS AND REPAIRS TO PORTIONS OF DELAMINATED
FACES OF ABUTMENTS OVER 3/4" THICKNESS.

NOTES:

1. ALL REPAIRS SHALL BE MADE IN ACCORDANCE WITH PENNSYLVANIA DEPARTMENT OF TRANSPORTATION STANDARDS FOR BRIDGE CONSTRUCTION BC-783M.
2. SQUARE OFF DETERIORATED CONCRETE TO SOUND CONCRETE WITH A SAWCUT OF 3/4" MINIMUM TO 1" MAXIMUM BUT NOT TO THE DEPTH OF THE REINFORCEMENT STEEL. BACK BEVEL EDGE BEYOND SAWCUT.
3. USE HAND TOOLS TO REMOVE ALL LOOSE AND DELAMINATED CONCRETE THAT PROVIDES A SOUND BOND BETWEEN EXISTING CONCRETE AND NEW CONCRETE. PNEUMATIC HAMMERS WITH IMPACT RATINGS OF 30 FT/LB OR LESS MAY BE USED IF REQUIRED.
4. IF DETERIORATED CONCRETE EXTENDS BEYOND THE PRIMARY REINFORCEMENT, REMOVE THE CONCRETE TO AT LEAST 3/4" BEHIND THE REINFORCEMENT.
5. APPLY AN EPOXY BONDING COMPOUND BETWEEN THE EXISTING AND THE NEW CLASS AA CEMENT CONCRETE.
6. USE DOWELS ONLY WHEN W DIMENSION OF DETERIORATED CONCRETE IS GREATER THE 2'-0" AND NEW OR EXISTING REINFORCEMENT CANNOT ADEQUATELY BE DEVELOPED BY LAPPING WITH EXISTING REINFORCEMENT.
7. USE A PACHOMETER TO LOCATE EXISTING REINFORCEMENT WHEN DRILLING DOWEL HOLES TO AVOID DRILLING THRU EXISTING BARS.
8. AN APPROVED EPOXY ANCHORING SYSTEM IN 90° HOLES MAY REPLACE GROUT IN SLOPED HOLES. USE A 5" MINIMUM EMBEDMENT AND IN ACCORDANCE WITH THE MANUFACTURES INSTRUCTIONS.
9. A #4 DEFORMED REINFORCEMENT BENT "L" BAR MAY REPLACE THE 3/2" W DOWEL HOOK.
10. ALTERNATE WIRE MESH MAY BE SUBSTITUTED FOR 3X3-W10XW10, PROVIDED WIRE SPACING DOES NOT EXCEED 4" AND AN EQUIVALENT STEEL AREA IS PROVIDED, NEW REINFORCEMENT BARS MAY BE OMITTED IF WIRE MESH STEEL AREA EXCEEDS EXISTING REINFORCEMENT.
11. CLEAN EXISTING REINFORCEMENT BY MECHANICAL MEANS.
12. LAP EQUIVALENT NEW REINFORCEMENT TO THE EXISTING REINFORCEMENT AS DIRECTED.
13. REINFORCEMENT BARS TO BE EPOXY COATED.



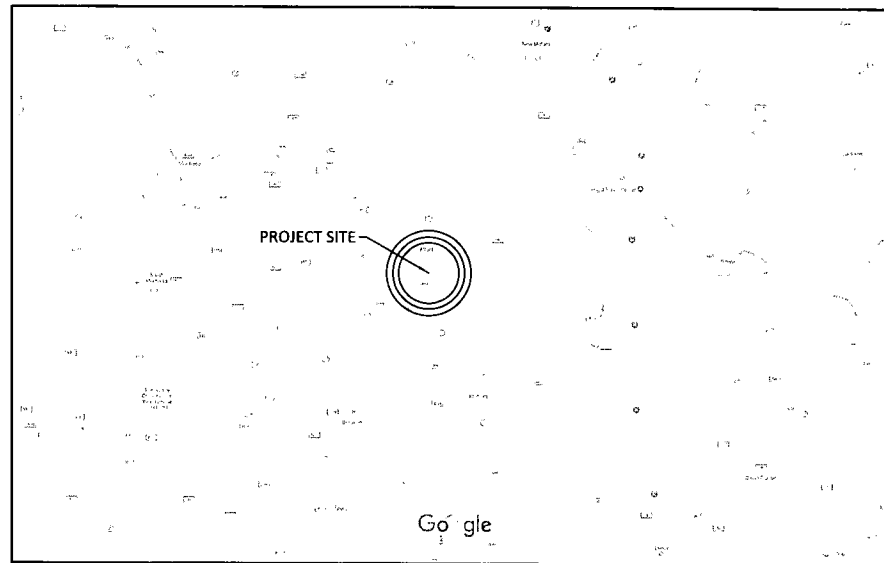
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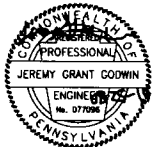
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|---|----------------|
| NS NORFOLK SOUTHERN | |
| NORTHERN REGION | HARRISBURG DIV |
| OVERPASS SR-2041 HA LINE, HOP BOTTOM, PA | |
| BRIDGE REPAIRS | |
| OFFICE OF CHIEF ENGINEER - BRIDGES & STRUCTURES | ATLANTA, GA. |
| DRAWING TITLE: PROPOSED CORNER CONCRETE REPAIR | |
| CON MCC | VAL SEC |
| CHK DBG | FILE |
| MILE POST | DATE |
| HA-647.50 | 08/23/2019 |
| SHEET NUMBER | DRAWING NUMBER |
| 10 OF 10 | HA-647.50 |



ALFORD, PENNSYLVANIA
OVERPASS SR-2032 REPAIR



VICINITY MAP



| | | | |
|---|---------|--------------------------|---------------------|
| | | NORFOLK SOUTHERN | |
| NORFOLK SOUTHERN RAILWAY | | HARRISBURG DIV. | |
| OVERPASS SR-2032 | | | |
| HA LINE, ALFORD, PA | | | |
| BRIDGE REPAIRS | | | |
| OFFICE OF CHIEF ENGINEER - BRIDGES & STRUCTURES | | ATLANTA, GA. | |
| DRAWING TITLE: COVER SHEET | | | |
| DGN MCC | VAL SEC | MAP | MILE POST HA-640.21 |
| CHK DBG | FILE | DATE | 08/25/2019 |
| SHEET NUMBER 1 OF 9 | | DRAWING NUMBER HA-640.21 | |

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GENERAL NOTES

- CONSTRUCTION AND MATERIAL SPECIFICATIONS: CURRENT EDITION AMERICAN RAILWAY ENGINEERING & MAINTENANCE-OF-WAY "MANUAL FOR RAILWAY ENGINEERING", PENNSYLVANIA DEPARTMENT OF TRANSPORTATION STANDARDS FOR BRIDGE CONSTRUCTION CURRENT EDITION EXCEPT AS SUPERCEDED BY THESE PLANS, THE CONTRACT AND NORFOLK SOUTHERN SPECIFICATIONS.
- THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE FACT THAT, DUE TO THE NATURE OF RECONSTRUCTION PROJECTS, THE EXACT EXTENT OF RECONSTRUCTION WORK CANNOT ALWAYS BE ACCURATELY DETERMINED PRIOR TO COMMENCEMENT OF WORK. THESE CONTRACT DOCUMENTS HAVE BEEN PREPARED BASED ON FIELD INSPECTION AND OTHER INFORMATION AVAILABLE AT THE TIME. ACTUAL FIELD CONDITIONS MAY REQUIRE MODIFICATIONS TO CONSTRUCTION DETAILS AND WORK QUANTITIES. THE CONTRACTOR SHALL PERFORM THE WORK IN ACCORDANCE WITH FIELD CONDITIONS AS ORDERED BY THE ENGINEER.
- THE CONTRACTOR SHALL NOTE THAT ADDITIONAL WORK MAY BE REQUIRED AS THE CONTRACT PROGRESSES WHICH IS NOT SHOWN OR NOTED ON THE PLANS. THIS WORK SHALL BE PERFORMED BY THE CONTRACTOR AS ORDERED BY THE ENGINEER AND PAYMENT SHALL BE MADE AT THE UNIT BID PRICE FOR THE APPROPRIATE ITEMS. SEE SPECIFICATIONS WITHIN CONTRACT PROPOSAL.
- THE CONSTRUCTION OF THE PROJECT SHALL PROCEED IN A CONTINUOUS, SYSTEMATIC AND EXPEDITIOUS MANNER FROM BEGINNING TO COMPLETION. THE CONTRACTOR WILL BE REQUIRED TO PLACE SUFFICIENT EQUIPMENT, LABOR, ETC. ON THE PROJECT SO THAT THE WORK MAY PROGRESS IN ACCORDANCE WITH THE APPROVED CONSTRUCTION SCHEDULE.
- THE CONTRACTOR SHALL VISIT THE SITE BEFORE BIDDING TO FAMILIARIZE HIMSELF WITH THE PRESENT CONDITION AND TO JUDGE FOR HIMSELF, THE EXTENT AND NATURE OF THE WORK TO BE DONE UNDER THIS CONTRACT. NO EXTRA COMPENSATION WILL BE ALLOWED HIM BECAUSE OF HIS FAILURE TO INCLUDE IN THE CONTRACTOR'S BID, ALL ITEMS AND MATERIALS WHICH HE IS REQUIRED TO FURNISH IN ACCORDANCE WITH THE CONTRACT PLANS.
- DIMENSIONS OF THE EXISTING STRUCTURES SHOWN ON THESE PLANS ARE FOR GENERAL REFERENCE ONLY. THE CONTRACTOR SHALL TAKE ALL SUCH FIELD MEASUREMENTS AS ARE NECESSARY TO ASSURE PROPER CONSTRUCTION OF THE FINISH WORK.
- THERE SHALL BE NO CLAIM MADE BY THE CONTRACTOR AGAINST THE RAILROAD FOR WORK PERTAINING TO MODIFICATIONS AS MAY BE REQUIRED DUE TO ANY DIFFERENCE BETWEEN ACTUAL FIELD CONDITIONS AND THOSE SHOWN BY THE DETAILS AND DIMENSIONS IN THE CONTRACT PLANS OR THE RECORD DRAWINGS.
- THE CONTRACTOR IS ADVISED THAT ADDITIONAL "NOTES" WILL BE FOUND ON SUBSEQUENT SHEETS OF THE CONTRACT PLANS AND SUCH "NOTES" WHILE PERTAINING TO THE SPECIFIC DRAWINGS THEY ARE PLACED ON, ALSO INCLUDING THE GENERAL NOTES LISTED HERE.
- THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR ALL DAMAGES TO THE EXISTING STRUCTURE, TRACK, UTILITIES OR ADJACENT PROPERTIES OR FACILITIES, CAUSED BY HIS OPERATIONS, WHICH ARE NOT INCLUDED AS PART OF THE INTENDED WORK. ANY DAMAGE TO THE EXISTING STRUCTURE OR ADJACENT PROPERTIES, SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR WITHOUT COST TO THE RAILROAD AND TO THE SATISFACTION OF THE ENGINEER.
- IF, DURING THE REPAIR OPERATIONS, ANY COMPONENTS OF THE BRIDGE THAT ARE NOT SCHEDULED TO BE REMOVED, SUCH AS ABUTMENT STEMS, WINGWALLS, GIRDERS OR BEARINGS ARE DAMAGED BY THE CONTRACTOR'S PERSONNEL OR EQUIPMENT, THEY SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE ENGINEER, AT NO COST TO THE RAILROAD.
- THE CONTRACTOR IS REQUIRED TO PROTECT HIS WORKERS AT ALL TIMES IN CONFORMANCE WITH ALL APPLICABLE OSHA REGULATIONS AND FRA BRIDGE WORKER SAFETY RULES.
- THE CONTRACTOR IS ADVISED THAT THERE IS NO ELECTRIC POWER DISTRIBUTION SYSTEM AVAILABLE AT THE BRIDGE FOR HIS USE.
- ALTERATION OF THE CONSTRUCTION PLANS AND STRUCTURAL DETAILS ARE NOT PERMITTED WITHOUT EXPRESS PERMISSION OF NORFOLK SOUTHERN'S CHIEF ENGINEER OF BRIDGES AND STRUCTURES.
- CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS TO COMPLETE THE WORK.
- ALL TRAFFIC CONTROL MEASURES NEEDED TO COMPLETE WORK SHALL BE CONDUCTED IN ACCORDANCE WITH THE PENNSYLVANIA DEPARTMENT OF TRANSPORTATION SPECIFICATION AND ANY LOCAL CODES OR ORDINANCES THAT MAY APPLY.

DESIGN LOADING:

- ALL LOADS ARE PER AASHTO CURRENT EDITION.

DEMOLITION PLAN & ERECTION PLAN NOTES:

- THE CONTRACTOR IS REQUIRED TO SUBMIT PLANS FOR THE JACKING AND/OR SUPPORT OF THE EXISTING STRUCTURE IN ORDER TO PERFORM ALL NEEDED REPAIRS.
- THE CONTRACTOR SHALL DISPOSE OF ALL EXCAVATED & REMOVED SUBSTRUCTURE & FILL MATERIALS AND DEMOLISHED MATERIALS OFF-SITE IN A LEGAL MANNER UNLESS OTHERWISE DIRECTED BY N.S. REPRESENTATIVES IN THE FIELD.
- THE CONTRACTOR IS RESPONSIBLE FOR THE TRAFFIC CONTROL PLAN, AND THIS SHOULD BE INCLUDED IN THE BID PRICE FOR MOBILIZATION OF THE EXISTING STRUCTURE.

PROTECTION OF RAILROAD NOTES:

- WHERE APPLICABLE, OPERATIONS SHALL BE COORDINATED WITH THE RAILROAD SO AS NOT TO INTERFERE WITH THE CONTINUED OPERATIONS OF TRAINS. A RAILROAD FLAGMAN (SUPPLIED BY NORFOLK SOUTHERN) SHALL BE PRESENT FOR ANY AND ALL WORK ABOVE OR UNDERNEATH THE BRIDGE ADJACENT TO THE TRACK.
- THE CONTRACTOR IS REQUIRED TO FULLY COOPERATE WITH THE NORFOLK SOUTHERN FLAGMAN AND/OR NORFOLK SOUTHERN REPRESENTATIVE & IMMEDIATELY REMOVE ALL EQUIPMENT & PERSONNEL WORKING NEAR THE TRACK WHEN DIRECTED AS SUCH BY THE FLAGMAN.

UTILITIES:

- THE CONTRACTOR SHALL BE AWARE OF THE OVERHEAD ELECTRIC AND UTILITY LINES ABOVE/UNDER AND PARALLEL TO THE EXISTING BRIDGE.

OTHER:

- THE WORK FOR THIS PROJECT SHALL BE IN ACCORDANCE WITH THE NORFOLK SOUTHERN STANDARD SPECIFICATIONS FOR MATERIALS AND CONSTRUCTION DATED JANUARY 2019, PENNSYLVANIA DEPARTMENT OF TRANSPORTATION STANDARDS FOR BRIDGE CONSTRUCTION, CURRENT EDITION AND ANY SPECIAL PROVISIONS PROVIDED HEREIN.
- NS WILL FURNISH A FLAGMAN AT NO COST TO THE CONTRACTOR. THE CONTRACTOR WILL COORDINATE ALL CONSTRUCTION ACTIVITIES WITH THE NS FLAGMAN.
- THE CONTRACTOR SHALL SUBMIT TO NS A PROPOSED CONSTRUCTION SCHEDULE PRIOR TO BEGINNING WORK AND WILL SCHEDULE A PRECONSTRUCTION MEETING ONCE A CONTRACT HAS BEEN AWARDED.
- THE CONTRACTOR IS RESPONSIBLE FOR THE INVESTIGATION, LOCATION, SUPPORT, PROTECTION, AND RESTORATION OF ALL EXISTING UTILITIES WHETHER SHOWN ON THESE PLANS OR NOT. IT IS BELIEVED THAT THEY ARE ESSENTIALLY CORRECT, BUT NS DOES NOT GUARANTEE THEIR ACCURACY OR COMPLETENESS. THE CONTRACTOR SHOULD VERIFY LOCATIONS WITH THE UTILITY COMPANIES NOT LESS THAN 72 HOURS BEFORE STARTING EXCAVATION ACTIVITIES.
- RAILROAD RIGHT OF WAY LINES, IF SHOWN, WERE OBTAINED FROM VALUATION MAPS. ALL RIGHT OF WAY AND PROPERTY LINES ARE SHOWN FOR INFORMATION PURPOSES ONLY AS THEY HAVE NOT BEEN VERIFIED IN THE FIELD.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ANY LOCAL CONSTRUCTION PERMITS THAT MAY BE REQUIRED FOR CONSTRUCTION OF THIS PROJECT.
- ANY SURVEYS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- THE CONTRACTOR SHALL OBTAIN ANY TEMPORARY CONSTRUCTION ENTRANCE AND/OR DRIVEWAY PERMITS FROM THE APPROPRIATE GOVERNING AGENCY.
- ON SITE AND GENERATED CONSTRUCTION DEBRIS IS TO BE DISPOSED OF AS NON-REGULATED SOLID WASTE IN COMPLIANCE WITHIN LOCAL REGULATIONS. IF SUSPECTED ENVIRONMENTAL PROBLEMS ARE ENCOUNTERED, CONTACT THE NS ENVIRONMENTAL PROTECTION DEPARTMENT TO ASSIST IN THEIR PROPER HANDLING AND REMOVAL.
- THE CONTRACTOR SHALL COORDINATE WITH NS SIGNALS DEPARTMENT FOR THE LOCATIONS OF SIGNAL WIRE WHETHER LIVE OR DEAD BEFORE ANY EXCAVATION WORK.
- ALL CONCRETE REPAIRS SHALL BE IN ACCORDANCE WITH PENNSYLVANIA DEPARTMENT OF TRANSPORTATION STANDARDS FOR BRIDGE CONSTRUCTION, CURRENT EDITION.

INDEX OF DRAWINGS

| DESCRIPTION | SHEET NO | REV DATE |
|--|----------|----------|
| COVER SHEET | 1 | |
| GENERAL NOTES & INDEX OF DRAWINGS | 1 | |
| GENERAL SITE PLAN | 3 | |
| EXISTING NORTH ELEVATION & CROSS-SECTION | 4 | |
| EXISTING SOUTH ELEVATION | 5 | |
| EAST & WEST ABUTMENT ELEVATION | 6 | |
| PROPOSED TYPE 1 CONCRETE REPAIR | 7 | |
| PROPOSED TYPE 2 CONCRETE REPAIR | 8 | |
| PROPOSED CORNER CONCRETE REPAIR | 9 | |

ESTIMATE OF QUANTITIES

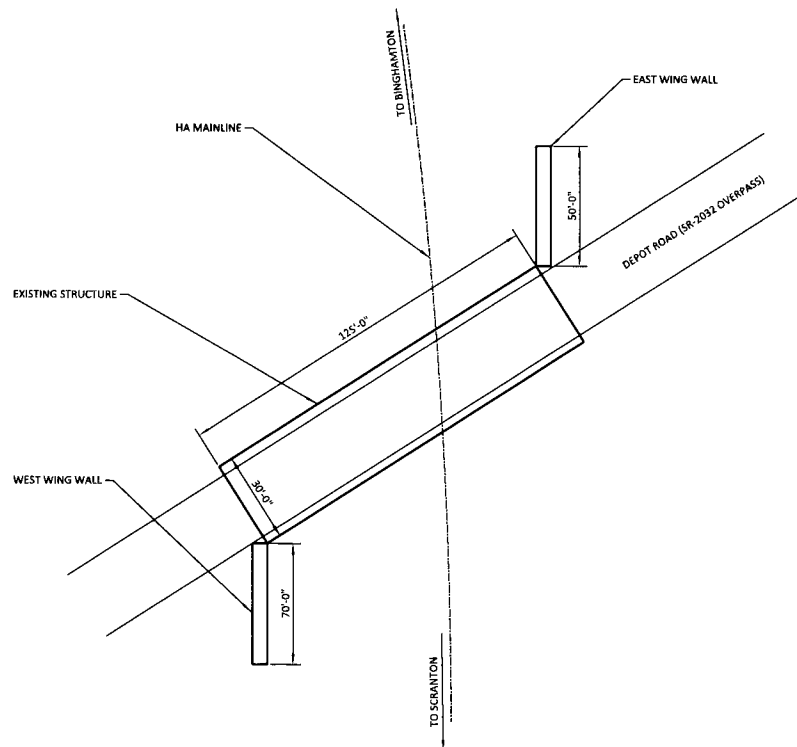
| BID ITEM | DESCRIPTION | QTY | UNIT |
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| 1. | MOBILIZATION | 1 | LS |
| 2. | NORTH SPANDREL WALL REPAIRS* (APPROX. 400 SF) | 1 | LS |
| 3. | SOUTH SPANDREL WALL REPAIRS* (APPROX. 650 SF) | 1 | LS |
| 4. | EAST ABUTMENT REPAIRS* (APPROX. 60 SF) | 1 | LS |
| 5. | WEST ABUTMENT REPAIRS* (APPROX. 75 SF) | 1 | LS |
| 6. | PERFORMANCE BOND | 1 | LS |
| 7. | PAYMENT BOND | 1 | LS |

*INCLUDES EXCAVATION, REMOVAL OF LOOSE CONCRETE, CONCRETE, EPOXY, REBAR, HAULING OFF ANY DEBRIS AND RESTORING THE SITE TO ITS ORIGINAL CONDITION.



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| | | NORFOLK SOUTHERN RAILWAY | |
| | | NORTHERN REGION | HARRISBURG DIV. |
| OVERPASS SR-2032 HA LINE, ALFORD, PA BRIDGE REPAIRS | | | |
| OFFICE OF CHIEF ENGINEER - BRIDGES & STRUCTURES | | ATLANTA, GA. | |
| DRAWING TITLE: GENERAL NOTES & INDEX OF DRAWINGS | | | |
| DNW MCC | VVL SEC | MAP | MILE POST HA-640.21 |
| CHK DBC | FILE | | DATE 08/25/2019 |
| SHEET NUMBER 2 OF 9 | | DRAWING NUMBER HA-640.21 | |

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2. THE CONTRACTOR SHALL MEASURE AND VERIFY ALL MEASUREMENTS NEEDED TO COMPLETE THE SCOPE OF WORK IN AN APPROVED AND CORRECT MANNER.

EXISTING PLAN

SCALE : 1" = 20'



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NS NORFOLK SOUTHERN
NORFOLK SOUTHERN RAILWAY
NORTHERN REGION HARRISBURG DIV

OVERPASS SR-2032
HA LINE, ALFORD, PA
BRIDGE REPAIRS

OFFICE OF CHIEF ENGINEER - BRIDGES & STRUCTURES ATLANTA, GA

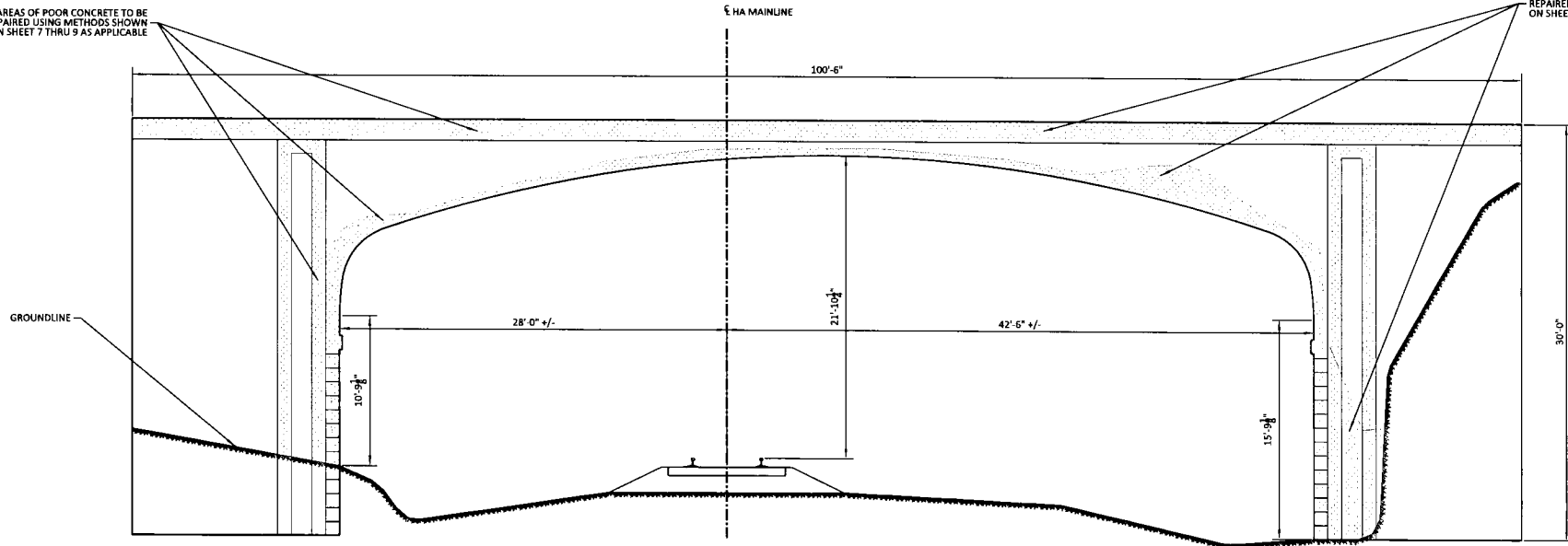
DRAWING TITLE: **GENERAL SITE PLAN**

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| CHK DBG | FILE | DATE | 08/25/2019 |
| SHEET NUMBER 3 OF 9 | | DRAWING NUMBER HA-640.21 | |

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AREAS OF POOR CONCRETE TO BE REPAIRED USING METHODS SHOWN ON SHEET 7 THRU 9 AS APPLICABLE

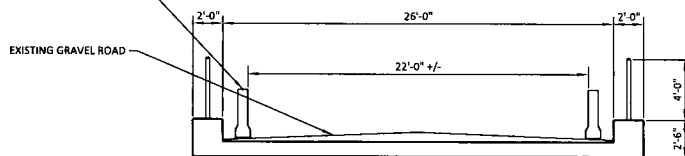
AREAS OF POOR CONCRETE TO BE REPAIRED USING METHODS SHOWN ON SHEET 7 THRU 9 AS APPLICABLE



EXISTING NORTH ELEVATION

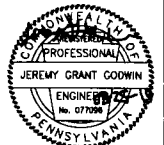
SCALE : 1/4" = 1'

JERSEY BARRIER WALL TO REMAIN



EXISTING ROAD CROSS-SECTION

SCALE : 1/4" = 1'



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| NS NORFOLK SOUTHERN | |
| NORTHERN REGION | HARRISBURG DIV |
| OVERPASS SR-2032 | |
| HA LINE, ALFORD, PA | |
| BRIDGE REPAIRS | |
| OFFICE OF CHIEF ENGINEER - BRIDGES & STRUCTURES | ATLANTA, GA. |
| DRAWING TITLE: EXISTING NORTH ELEVATION & CROSS-SECTION | |
| DRN MCC | VAL SEC MAP |
| CHK DBG | FILE |
| MILE POST HA-640.21 | DATE 08/25/2019 |
| SHEET NUMBER 4 OF 9 | DRAWING NUMBER HA-640.21 |

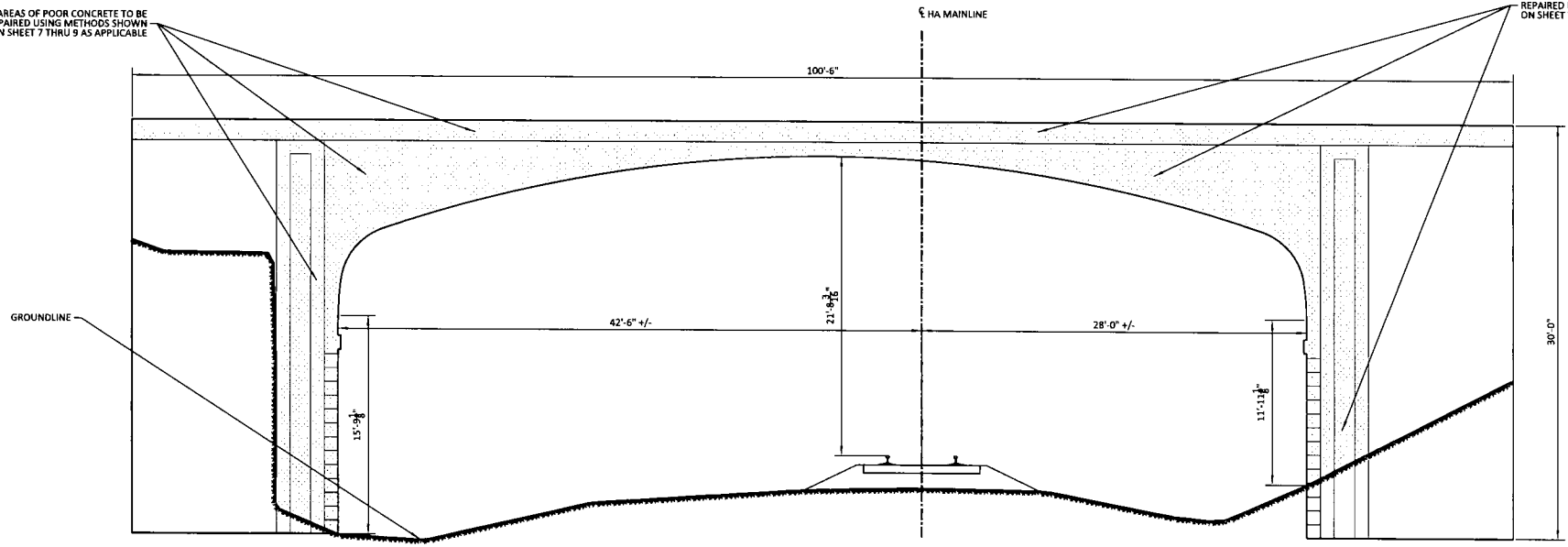
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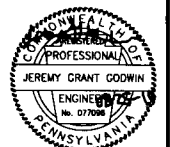
AREAS OF POOR CONCRETE TO BE REPAIRED USING METHODS SHOWN ON SHEET 7 THRU 9 AS APPLICABLE

AREAS OF POOR CONCRETE TO BE REPAIRED USING METHODS SHOWN ON SHEET 7 THRU 9 AS APPLICABLE



EXISTING NORTH ELEVATION

SCALE : 1/4" = 1'

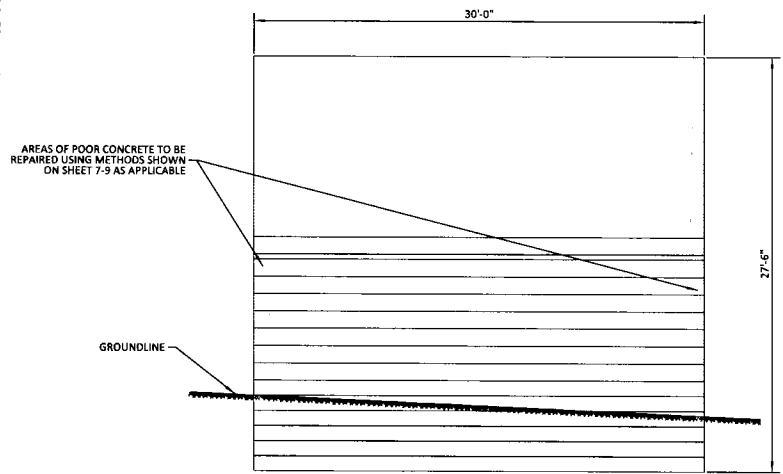


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| NORFOLK SOUTHERN | | | |
| NORFOLK SOUTHERN RAILWAY | | HARRISBURG DIV. | |
| OVERPASS SR-2032 | | | |
| HA LINE, ALFORD, PA | | | |
| BRIDGE REPAIRS | | | |
| OFFICE OF CHIEF ENGINEER - BRIDGES & STRUCTURES | | ATLANTA, GA. | |
| DRAWING TITLE: EXISTING SOUTH ELEVATION | | | |
| DNV MCC | VAL SEC | MAP | MILE POST HA-640.21 |
| CHK DBG | FILE | DATE | 08/25/2019 |
| SHEET NUMBER 5 OF 9 | | DRAWING NUMBER HA-640.21 | |

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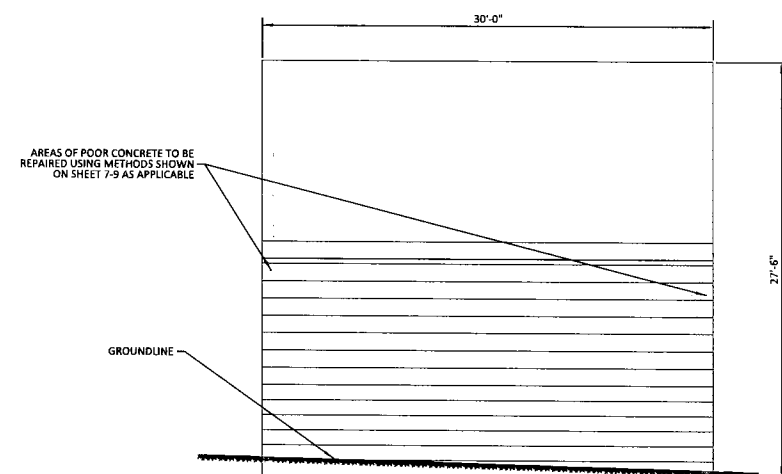
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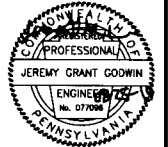
EXISTING EAST ABUTMENT ELEVATION

SCALE : $\frac{1}{4}'' = 1'$



EXISTING WEST ABUTMENT ELEVATION

SCALE : $\frac{1}{4}'' = 1'$



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NORFOLK SOUTHERN
NORFOLK SOUTHERN RAILWAY
NORTHERN REGION HARRISBURG DIV

OVERPASS SR-2032
HA LINE, ALFORD, PA
BRIDGE REPAIRS

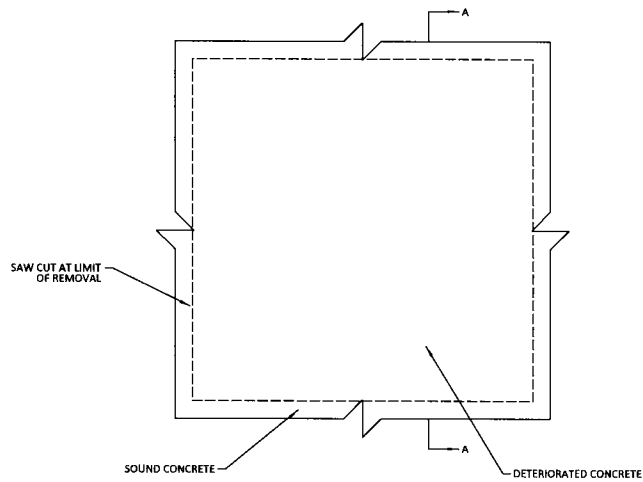
OFFICE OF CHIEF ENGINEER - BRIDGES & STRUCTURES ATLANTA, GA

DRAWING TITLE: EAST & WEST ABUTMENT ELEVATION

| | | | |
|---------------------|---------|--------------------------|---------------------|
| DOR MCC | VAL SEC | MAP | MILE POST HA-640.21 |
| CHK DBG | FILE | DATE | 08/25/2019 |
| SHEET NUMBER 6 OF 9 | | DRAWING NUMBER HA-640.21 | |

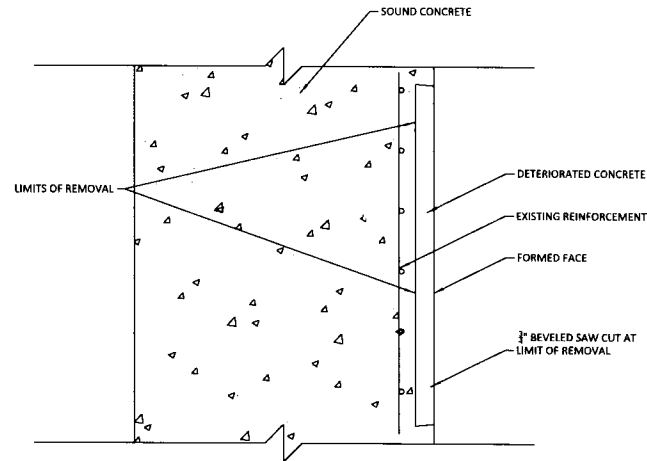
NOTES:

1. ALL REPAIRS SHALL BE MADE IN ACCORDANCE WITH PENNSYLVANIA DEPARTMENT OF TRANSPORTATION STANDARDS FOR BRIDGE CONSTRUCTION BC-783M
2. SQUARE OFF DETERIORATED CONCRETE TO SOUND CONCRETE WITH A SAWCUT OF $\frac{1}{8}$ " MAXIMUM.
3. REMOVE ALL LOOSE AND DELAMINATED CONCRETE TO PROVIDE A SOUND BOND BETWEEN EXISTING CONCRETE AND PATCHING MATERIAL.
4. APPLY A RAPID HARDENING CONCRETE PATCHING MATERIAL FROM A MANUFACTURER LISTED IN BULLETIN 1S UNDER MISCELLANEOUS POLYMER MODIFIED AND SPECIAL CEMENTS, MORTARS AND CONCRETES, IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.



ELEVATION VIEW (TYP)

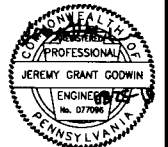
SCALE : NOT TO SCALE



SECTION A-A (TYP)

SCALE : NOT TO SCALE

NOTE:
THIS REPAIR IS TO BE USED FOR REPAIRS ON UNDERSIDE OF DECK, ELEVATIONS AND REPAIRS TO PORTIONS OF DELAMINATED FACES OF ABUTMENTS UP TO 3/4" THICKNESS.



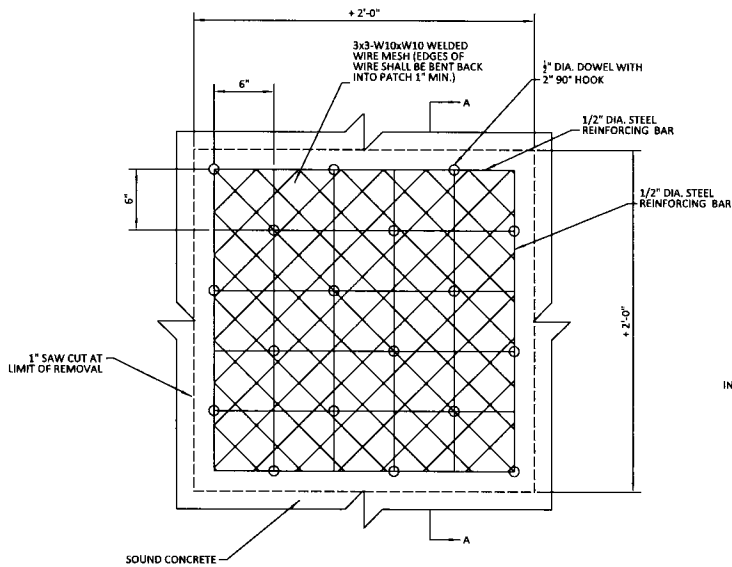
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|---|---------|--------------------------|---------------------|
| | | NORFOLK SOUTHERN RAILWAY | |
| | | NORTHERN REGION | HARRISBURG DIV |
| OVERPASS SR-2032 HA LINE, ALFORD, PA | | | |
| BRIDGE REPAIRS | | | |
| OFFICE OF CHIEF ENGINEER - BRIDGES & STRUCTURES | | ATLANTA, GA. | |
| DRAWING TITLE: PROPOSED TYPE 1 CONCRETE REPAIR | | | |
| DNH MCC | VAL SEC | MAP | MILE POST HA-640.21 |
| CHK DBG | FILE | DATE 08/25/2019 | |
| SHEET NUMBER 7 OF 9 | | DRAWING NUMBER HA-640.21 | |

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(p) 615.663.1142

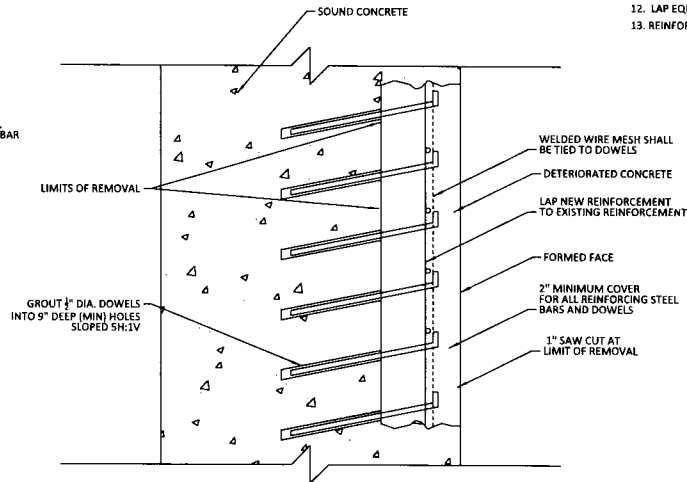
NOTES:

1. ALL REPAIRS SHALL BE MADE IN ACCORDANCE WITH PENNSYLVANIA DEPARTMENT OF TRANSPORTATION STANDARDS FOR BRIDGE CONSTRUCTION BC-783M.
2. SQUARE OFF DETERIORATED CONCRETE TO SOUND CONCRETE WITH A SAWCUT OF 3/4" MINIMUM TO 1" MAXIMUM BUT NOT TO THE DEPTH OF THE REINFORCEMENT STEEL. BACK BEVEL EDGE BEYOND SAWCUT.
3. USE HAND TOOLS TO REMOVE ALL LOOSE AND DELAMINATED CONCRETE THAT PROVIDES A SOUND BOND BETWEEN EXISTING CONCRETE AND NEW CONCRETE. PNEUMATIC HAMMERS WITH IMPACT RATINGS OF 30 FT/LB OR LESS MAY BE USED IF REQUIRED.
4. IF DETERIORATED CONCRETE EXTENDS BEYOND THE PRIMARY REINFORCEMENT, REMOVE THE CONCRETE TO AT LEAST 3/4" BEHIND THE REINFORCEMENT.
5. APPLY AN EPOXY BONDING COMPOUND BETWEEN THE EXISTING AND THE NEW CLASS AA CEMENT CONCRETE.
6. USE DOWELS ONLY WHEN W DIMENSION OF DETERIORATED CONCRETE IS GREATER THE 2'-0" AND NEW OR EXISTING REINFORCEMENT CANNOT ADEQUATELY BE DEVELOPED BY LAPPING WITH EXISTING REINFORCEMENT.
7. USE A PACHOMETER TO LOCATE EXISTING REINFORCEMENT WHEN DRILLING DOWEL HOLES TO AVOID DRILLING THRU EXISTING BARS.
8. AN APPROVED EPOXY ANCHORING SYSTEM IN 90° HOLES MAY REPLACE GROUT IN SLOPED HOLES. USE A 6" MINIMUM EMBEDMENT AND IN ACCORDANCE WITH THE MANUFACTURE'S INSTRUCTIONS.
9. A #4 DEFORMED REINFORCEMENT BENT "L" BAR MAY REPLACE THE 1/2" # DOWEL HOOK.
10. ALTERNATE WIRE MESH MAY BE SUBSTITUTED FOR 3X3-W10XW10, PROVIDED WIRE SPACING DOES NOT EXCEED 4" AND AN EQUIVALENT STEEL AREA IS PROVIDED, NEW REINFORCEMENT BARS MAY BE OMITTED IF WIRE MESH STEEL AREA EXCEEDS EXISTING REINFORCEMENT.
11. CLEAN EXISTING REINFORCEMENT BY MECHANICAL MEANS.
12. LAP EQUIVALENT NEW REINFORCEMENT TO THE EXISTING REINFORCEMENT AS DIRECTED.
13. REINFORCEMENT BARS TO BE EPOXY COATED.



ELEVATION VIEW (TYP)

SCALE : NOT TO SCALE



SECTION A-A (TYP)

SCALE : NOT TO SCALE

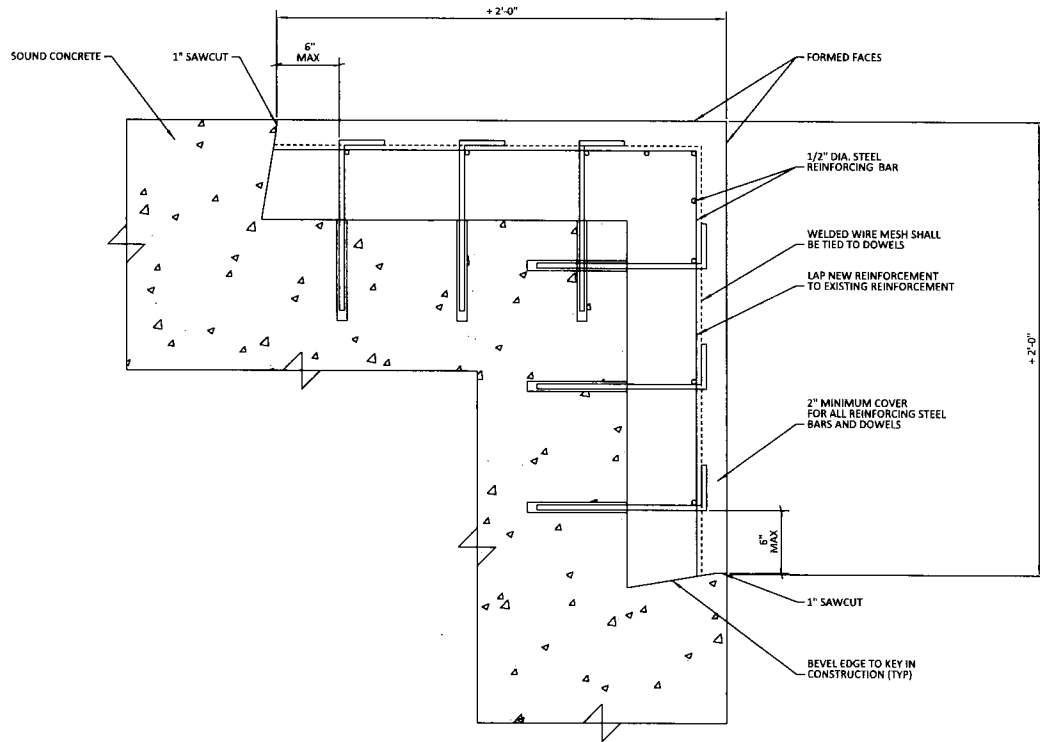
NOTE:
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|---|----------------|
| NS NORFOLK SOUTHERN | |
| NORTHERN REGION | HARRISBURG DIV |
| OVERPASS SR-2032 | |
| HA LINE, ALFORD, PA | |
| BRIDGE REPAIRS | |
| OFFICE OF CHIEF ENGINEER - BRIDGES & STRUCTURES ATLANTA, GA | |
| DRAWING TITLE: PROPOSED TYPE 2 CONCRETE REPAIR | |
| DOH MCC | VAL SEC MAP |
| CHK DBG | FILE |
| MILE POST HA-640.21 | |
| DATE 08/25/2019 | |
| SHEET NUMBER | DRAWING NUMBER |
| 8 OF 9 | HA-640.21 |

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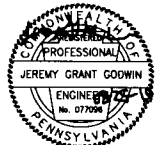
CORNER REPAIR DETAIL (TYP)

SCALE : NOT TO SCALE

NOTE:
THIS REPAIR IS TO BE USED FOR REPAIRS ON UNDERSIDE
OF DECK, ELEVATIONS AND REPAIRS TO PORTIONS OF DELAMINATED
FACES OF ABUTMENTS OVER 3/4" THICKNESS.

NOTES:

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2. SQUARE OFF DETERIORATED CONCRETE TO SOUND CONCRETE WITH A SAWCUT OF 3/4" MINIMUM TO 1" MAXIMUM BUT NOT TO THE DEPTH OF THE REINFORCEMENT STEEL. BACK BEVEL EDGE BEYOND SAWCUT.
3. USE HAND TOOLS TO REMOVE ALL LOOSE AND DELAMINATED CONCRETE THAT PROVIDES A SOUND BOND BETWEEN EXISTING CONCRETE AND NEW CONCRETE. PNEUMATIC HAMMERS WITH IMPACT RATINGS OF 30 FT/LB OR LESS MAY BE USED IF REQUIRED.
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6. USE DOWELS ONLY WHEN W DIMENSION OF DETERIORATED CONCRETE IS GREATER THE 2'-0" AND NEW OR EXISTING REINFORCEMENT CANNOT ADEQUATELY BE DEVELOPED BY LAPPING WITH EXISTING REINFORCEMENT.
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9. A #4 DEFORMED REINFORCEMENT BENT "L" BAR MAY REPLACE THE 1/2" Ø DOWEL HOOK.
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11. CLEAN EXISTING REINFORCEMENT BY MECHANICAL MEANS.
12. LAP EQUIVALENT NEW REINFORCEMENT TO THE EXISTING REINFORCEMENT AS DIRECTED.
13. REINFORCEMENT BARS TO BE EPOXY COATED.



| | | | |
|--|---------|--------------------------|---------------------|
| | | NORFOLK SOUTHERN RAILWAY | |
| | | NORTHERN REGION | HARRISBURG DIV |
| OVERPASS SR-2032 HA LINE, ALFORD, PA BRIDGE REPAIRS | | | |
| OFFICE OF CHIEF ENGINEER - BRIDGES & STRUCTURES | | ATLANTA, GA. | |
| DRAWING TITLE: PROPOSED CORNER CONCRETE REPAIR | | | |
| DRN MCC | VAL SEC | MAP | MPLE POST HA-640.21 |
| CHK DBG | FILE | | DATE 08/25/2019 |
| SHEET NUMBER 9 OF 9 | | DRAWING NUMBER HA-640.21 | |

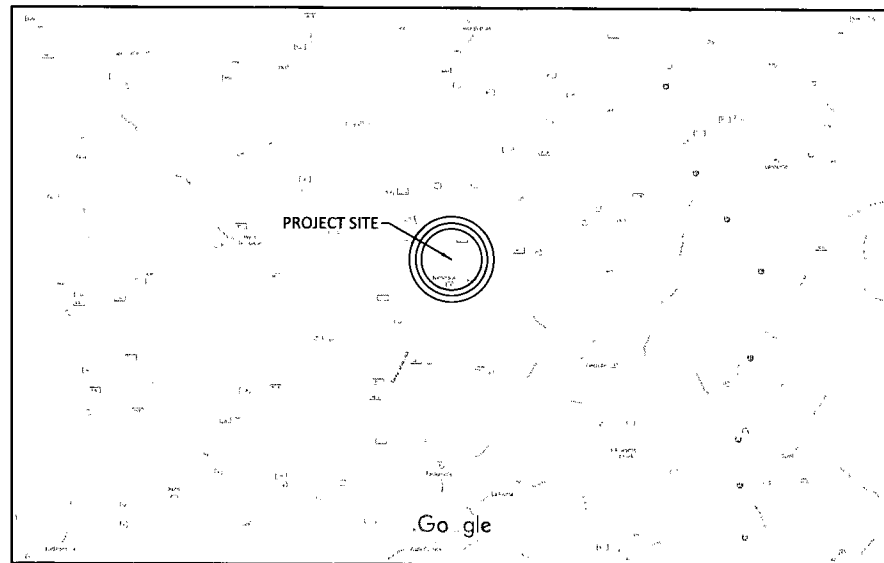
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SUSQUEHANNA COUNTY, PENNSYLVANIA



NICHOLSON, PENNSYLVANIA OVERPASS SR-1025 REPAIR



VICINITY MAP



| | | | |
|---|---------|-------------------------|---------------------|
| | | NORFOLK SOUTHERN | |
| NORFOLK SOUTHERN RAILWAY | | HARRISBURG DIV. | |
| OVERPASS SR-1025 | | | |
| HA LINE, NICHOLSON, PA | | | |
| BRIDGE REPAIRS | | | |
| OFFICE OF CHIEF ENGINEER - BRIDGES & STRUCTURES | | ATLANTA, GA. | |
| DRAWING TITLE: COVER SHEET | | | |
| DDW MCC | VAL SEC | MAP | MILE POST HA-652.69 |
| CHK DBG | FILE | DATE | 08/25/2019 |
| SHEET NUMBER | 1 OF 10 | DRAWING NUMBER | HA-652.69 |

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RAILROAD CONSULTANTS, PLLC
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(p) 615.663.1142

- CONSTRUCTION AND MATERIAL SPECIFICATIONS: CURRENT EDITION AMERICAN RAILWAY ENGINEERING & MAINTENANCE-OF-WAY "MANUAL FOR RAILWAY ENGINEERING", PENNSYLVANIA DEPARTMENT OF TRANSPORTATION STANDARDS FOR BRIDGE CONSTRUCTION CURRENT EDITION EXCEPT AS SUPERCEDED BY THESE PLANS, THE CONTRACT AND NORFOLK SOUTHERN SPECIFICATIONS.
- THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE FACT THAT, DUE TO THE NATURE OF RECONSTRUCTION PROJECTS, THE EXACT EXTENT OF RECONSTRUCTION WORK CANNOT ALWAYS BE ACCURATELY DETERMINED PRIOR TO COMMENCEMENT OF WORK. THESE CONTRACT DOCUMENTS HAVE BEEN PREPARED BASED ON FIELD INSPECTION AND OTHER INFORMATION AVAILABLE AT THE TIME. ACTUAL FIELD CONDITIONS MAY REQUIRE MODIFICATIONS TO CONSTRUCTION DETAILS AND WORK QUANTITIES. THE CONTRACTOR SHALL PERFORM THE WORK IN ACCORDANCE WITH FIELD CONDITIONS AS ORDERED BY THE ENGINEER.
- THE CONTRACTOR SHALL NOTE THAT ADDITIONAL WORK MAY BE REQUIRED AS THE CONTRACT PROGRESSES WHICH IS NOT SHOWN OR NOTED ON THE PLANS. THIS WORK SHALL BE PERFORMED BY THE CONTRACTOR AS ORDERED BY THE ENGINEER AND PAYMENT SHALL BE MADE AT THE UNIT BID PRICE FOR THE APPROPRIATE ITEMS, SEE SPECIFICATIONS WITHIN CONTRACT PROPOSAL.
- THE CONSTRUCTION OF THE PROJECT SHALL PROCEED IN A CONTINUOUS, SYSTEMATIC AND EXPEDITIOUS MANNER FROM BEGINNING TO COMPLETION. THE CONTRACTOR WILL BE REQUIRED TO PLACE SUFFICIENT EQUIPMENT, LABOR, ETC. ON THE PROJECT SO THAT THE WORK MAY PROGRESS IN ACCORDANCE WITH THE APPROVED CONSTRUCTION SCHEDULE.
- THE CONTRACTOR SHALL VISIT THE SITE BEFORE BIDDING TO FAMILIARIZE HIMSELF WITH THE PRESENT CONDITION AND TO JUDGE FOR HIMSELF, THE EXTENT AND NATURE OF THE WORK TO BE DONE UNDER THIS CONTRACT. NO EXTRA COMPENSATION WILL BE ALLOWED HIM BECAUSE OF HIS FAILURE TO INCLUDE IN THE CONTRACTOR'S BID, ALL ITEMS AND MATERIALS WHICH HE IS REQUIRED TO FURNISH IN ACCORDANCE WITH THE CONTRACT PLANS.
- DIMENSIONS OF THE EXISTING STRUCTURES SHOWN ON THESE PLANS ARE FOR GENERAL REFERENCE ONLY. THE CONTRACTOR SHALL TAKE ALL SUCH FIELD MEASUREMENTS AS ARE NECESSARY TO ASSURE PROPER CONSTRUCTION OF THE FINISH WORK.
- THERE SHALL BE NO CLAIM MADE BY THE CONTRACTOR AGAINST THE RAILROAD FOR WORK PERTAINING TO MODIFICATIONS AS MAY BE REQUIRED DUE TO ANY DIFFERENCE BETWEEN ACTUAL FIELD CONDITIONS AND THOSE SHOWN BY THE DETAILS AND DIMENSIONS IN THE CONTRACT PLANS OR THE RECORD DRAWINGS.
- THE CONTRACTOR IS ADVISED THAT ADDITIONAL "NOTES" WILL BE FOUND ON SUBSEQUENT SHEETS OF THE CONTRACT PLANS AND SUCH "NOTES" WHILE PERTAINING TO THE SPECIFIC DRAWINGS THEY ARE PLACED ON, ALSO SUPPLEMENT THE GENERAL NOTES LISTED HERE.
- THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR ALL DAMAGES TO THE EXISTING STRUCTURE, TRACK, UTILITIES OR ADJACENT PROPERTIES OR FACILITIES, CAUSED BY HIS OPERATIONS, WHICH ARE NOT INCLUDED AS PART OF THE INTENDED WORK. ANY DAMAGE TO THE EXISTING STRUCTURE OR ADJACENT PROPERTIES, SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR WITHOUT COST TO THE RAILROAD AND TO THE SATISFACTION OF THE ENGINEER.
- IF, DURING THE REPAIR OPERATIONS, ANY COMPONENTS OF THE BRIDGE THAT ARE NOT SCHEDULED TO BE REMOVED, SUCH AS ABUTMENT STEMS, WINGWALLS, GIRDERS OR BEARINGS ARE DAMAGED BY THE CONTRACTOR'S PERSONNEL OR EQUIPMENT, THEY SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE ENGINEER, AT NO COST TO THE RAILROAD.
- THE CONTRACTOR IS REQUIRED TO PROTECT HIS WORKERS AT ALL TIMES IN CONFORMANCE WITH ALL APPLICABLE OSHA REGULATIONS AND FRA BRIDGE WORKER SAFETY RULES.
- THE CONTRACTOR IS ADVISED THAT THERE IS NO ELECTRIC POWER DISTRIBUTION SYSTEM AVAILABLE AT THE BRIDGE FOR HIS USE.
- ALTERATION OF THE CONSTRUCTION PLANS AND STRUCTURAL DETAILS ARE NOT PERMITTED WITHOUT EXPRESS PERMISSION OF NORFOLK SOUTHERN'S CHIEF ENGINEER OF BRIDGES AND STRUCTURES.
- CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS TO COMPLETE THE WORK.
- ALL TRAFFIC CONTROL MEASURES NEEDED TO COMPLETE WORK SHALL BE CONDUCTED IN ACCORDANCE WITH THE PENNSYLVANIA DEPARTMENT OF TRANSPORTATION SPECIFICATION AND ANY LOCAL CODES OR ORDINANCES THAT MAY APPLY.

DESIGN LOADING:

- ALL LOADS ARE PER AASHTO CURRENT EDITION.

DEMOLITION PLAN & ERECTION PLAN NOTES:

- THE CONTRACTOR IS REQUIRED TO SUBMIT PLANS FOR THE JACKING AND/OR SUPPORT OF THE EXISTING STRUCTURE IN ORDER TO PERFORM ALL NEEDED REPAIRS.
- THE CONTRACTOR SHALL DISPOSE OF ALL EXCAVATED & REMOVED SUBSTRUCTURE & FILL MATERIALS AND DEMOLISHED MATERIALS OFF-SITE IN A LEGAL MANNER UNLESS OTHERWISE DIRECTED BY N.S. REPRESENTATIVES IN THE FIELD.
- THE CONTRACTOR IS RESPONSIBLE FOR THE TRAFFIC CONTROL PLAN, AND THIS SHOULD BE INCLUDED IN THE BID PRICE FOR MOBILIZATION OF THE EXISTING STRUCTURE.

PROTECTION OF RAILROAD NOTES:

- WHERE APPLICABLE, OPERATIONS SHALL BE COORDINATED WITH THE RAILROAD SO AS NOT TO INTERFERE WITH THE CONTINUED OPERATIONS OF TRAINS. A RAILROAD FLAGMAN (SUPPLIED BY NORFOLK SOUTHERN) SHALL BE PRESENT FOR ANY AND ALL WORK ABOVE OR UNDER/BEHIND THE BRIDGE ADJACENT TO THE TRACK.
- THE CONTRACTOR IS REQUIRED TO FULLY COOPERATE WITH THE NORFOLK SOUTHERN FLAGMAN AND/OR NORFOLK SOUTHERN REPRESENTATIVE & IMMEDIATELY REMOVE ALL EQUIPMENT & PERSONNEL WORKING NEAR THE TRACK WHEN DIRECTED AS SUCH BY THE FLAGMAN.

UTILITIES:

- THE CONTRACTOR SHALL BE AWARE OF THE OVERHEAD ELECTRIC AND UTILITY LINES ABOVE/UNDER AND PARALLEL TO THE EXISTING BRIDGE.

OTHER:

- THE WORK FOR THIS PROJECT SHALL BE IN ACCORDANCE WITH THE NORFOLK SOUTHERN STANDARD SPECIFICATIONS FOR MATERIALS AND CONSTRUCTION DATED JANUARY 2019, PENNSYLVANIA DEPARTMENT OF TRANSPORTATION STANDARDS FOR BRIDGE CONSTRUCTION, CURRENT EDITION AND ANY SPECIAL PROVISIONS PROVIDED HEREIN.
- NS WILL FURNISH A FLAGMAN AT NO COST TO THE CONTRACTOR. THE CONTRACTOR WILL COORDINATE ALL CONSTRUCTION ACTIVITIES WITH THE NS FLAGMAN.
- THE CONTRACTOR SHALL SUBMIT TO NS A PROPOSED CONSTRUCTION SCHEDULE PRIOR TO BEGINNING WORK AND WILL SCHEDULE A PRECONSTRUCTION MEETING ONCE A CONTRACT HAS BEEN AWARDED.
- THE CONTRACTOR IS RESPONSIBLE FOR THE INVESTIGATION, LOCATION, SUPPORT, PROTECTION, AND RESTORATION OF ALL EXISTING UTILITIES WHETHER SHOWN ON THESE PLANS OR NOT. IT IS BELIEVED THAT THEY ARE ESSENTIALLY CORRECT, BUT NS DOES NOT GUARANTEE THEIR ACCURACY OR COMPLETENESS. THE CONTRACTOR SHOULD VERIFY LOCATIONS WITH THE UTILITY COMPANIES NOT LESS THAN 72 HOURS BEFORE STARTING EXCAVATION ACTIVITIES.
- RAILROAD RIGHT OF WAY LINES, IF SHOWN, WERE OBTAINED FROM VALUATION MAPS. ALL RIGHT OF WAY AND PROPERTY LINES ARE SHOWN FOR INFORMATION PURPOSES ONLY AS THEY HAVE NOT BEEN VERIFIED IN THE FIELD.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ANY LOCAL CONSTRUCTION PERMITS THAT MAY BE REQUIRED FOR CONSTRUCTION OF THIS PROJECT.
- ANY SURVEYS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- THE CONTRACTOR SHALL OBTAIN ANY TEMPORARY CONSTRUCTION ENTRANCE AND/OR DRIVEWAY PERMITS FROM THE APPROPRIATE GOVERNING AGENCY.
- ON SITE AND GENERATED CONSTRUCTION DEBRIS IS TO BE DISPOSED OF AS NON-REGULATED SOLID WASTE IN COMPLIANCE WITH LOCAL REGULATIONS. IF SUSPECTED ENVIRONMENTAL PROBLEMS ARE ENCOUNTERED, CONTACT THE NS ENVIRONMENTAL PROTECTION DEPARTMENT TO ASSIST IN THEIR PROPER HANDLING AND REMOVAL.
- THE CONTRACTOR SHALL COORDINATE WITH NS SIGNALS DEPARTMENT FOR THE LOCATIONS OF SIGNAL WIRE WHETHER LIVE OR DEAD BEFORE ANY EXCAVATION WORK.
- ALL CONCRETE REPAIRS SHALL BE IN ACCORDANCE WITH PENNSYLVANIA DEPARTMENT OF TRANSPORTATION STANDARDS FOR BRIDGE CONSTRUCTION, CURRENT EDITION.

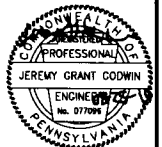
INDEX OF DRAWINGS

| DESCRIPTION | SHEET NO | REV. DATE |
|--|----------|-----------|
| COVER SHEET | 1 | |
| GENERAL NOTES & INDEX OF DRAWINGS | 2 | |
| GENERAL SITE PLAN | 3 | |
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| PROPOSED CORNER CONCRETE REPAIR | 9 | |
| PROPOSED PARAPET WALL DETAIL | 10 | |

ESTIMATE OF QUANTITIES

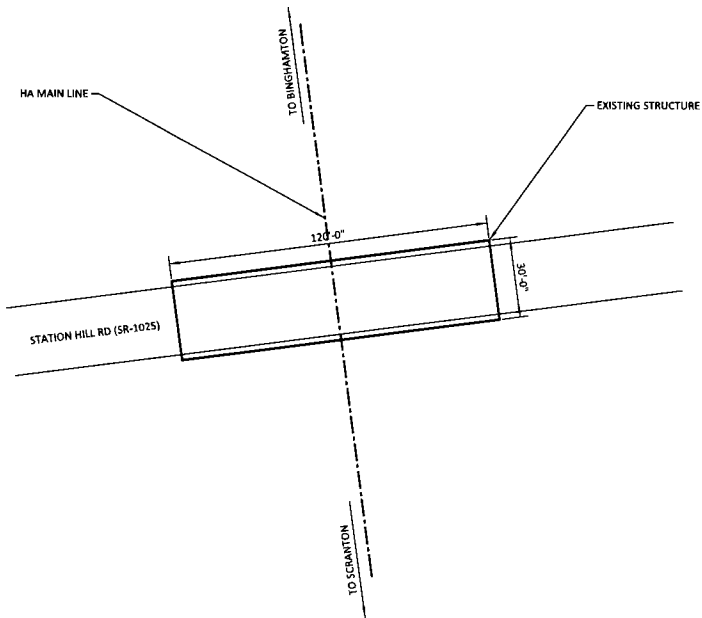
| BID ITEM | DESCRIPTION | QTY | UNIT |
|----------|---|-----|------|
| 1. | MOBILIZATION | 1 | LS |
| 2. | PROPOSED PARAPET WALL* | 240 | LF |
| 3. | NORTH SPANDREL WALL REPAIRS* (APPROX. 725 SF) | 1 | LS |
| 4. | SOUTH SPANDREL WALL REPAIRS* (APPROX. 725 SF) | 1 | LS |
| 5. | EAST ABUTMENT REPAIRS* (APPROX. 125 SF) | 1 | LS |
| 6. | WEST ABUTMENT REPAIRS* (APPROX. 125 SF) | 1 | LS |
| 7. | PERFORMANCE BOND | 1 | LS |
| 8. | PAYMENT BOND | 1 | LS |

*INCLUDES EXCAVATION, REMOVAL OF LOOSE CONCRETE, CONCRETE, EPOXY, REBAR, HAULING OFF ANY DEBRIS AND RESTORING THE SITE TO ITS ORIGINAL CONDITION.



| | | | |
|---|---------|--------------------------|----------------------|
| | | NORFOLK SOUTHERN RAILWAY | |
| | | NORTHERN REGION | HARRISBURG DIV. |
| OVERPASS SR-1025 HA LINE, NICHOLSON, PA BRIDGE REPAIRS | | | |
| OFFICE OF CHIEF ENGINEER - BRIDGES & STRUCTURES | | ATLANTA, GA. | |
| DRAWING TITLE: GENERAL NOTES & INDEX OF DRAWINGS | | | |
| DDR MCC | VAL SEC | MAP | SCALE POST HA-652.69 |
| CHK DBC | FILE | | DATE 08/25/2019 |
| SHEET NUMBER 2 OF 10 | | DRAWING NUMBER HA-652.69 | |

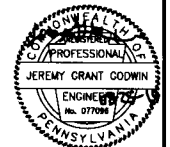
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| RAILROAD CONSULTANTS, PLLC 213 UPTOWN SQUARE MURFREESBORO, TN 37129 (p) 615.663.1142 | | | |



NOTES:
 1. ALL SURVEY INFORMATION AND DIMENSIONS SHOWN OR REFERENCED IN THIS PLAN OR ATTACHED DOCUMENTS ARE BASED ON ENGINEERS SITE VISIT, PRELIMINARY SURVEY, RECORD DRAWINGS, GIS INFORMATION AND OTHER METHODS AS AVAILABLE TO THE ENGINEER AT THE TIME OF PUBLICATION. THIS DOCUMENT IN NO WAY GUARANTEES THE ACCURACY OR PRECISION OF THE ABOVE LISTED INFORMATION. THIS INFORMATION IS GIVEN AS FOR THE PURPOSE OF GENERAL REFERENCE.
 2. THE CONTRACTOR SHALL MEASURE AND VERIFY ALL MEASUREMENTS NEEDED TO COMPLETE THE SCOPE OF WORK IN AN APPROVED AND CORRECT MANNER.

EXISTING PLAN

SCALE : 1" = 20'



| | |
|---|--------------------------|
| NORFOLK SOUTHERN | |
| NORFOLK SOUTHERN RAILWAY | NORFOLK SOUTHERN RAILWAY |
| NORTHERN REGION | HARRISBURG DIV |
| OVERPASS SR-1025 | |
| HA LINE, NICHOLSON, PA | |
| BRIDGE REPAIRS | |
| OFFICE OF CHIEF ENGINEER - BRIDGES & STRUCTURES | ATLANTA, GA. |
| DRAWING TITLE: GENERAL SITE PLAN | |
| DOOR MCC | VAL SEC MAP |
| CHK DBG | FILE |
| DATE 08/25/2019 | |
| SHEET NUMBER 3 OF 10 | DRAWING NUMBER HA-652.69 |

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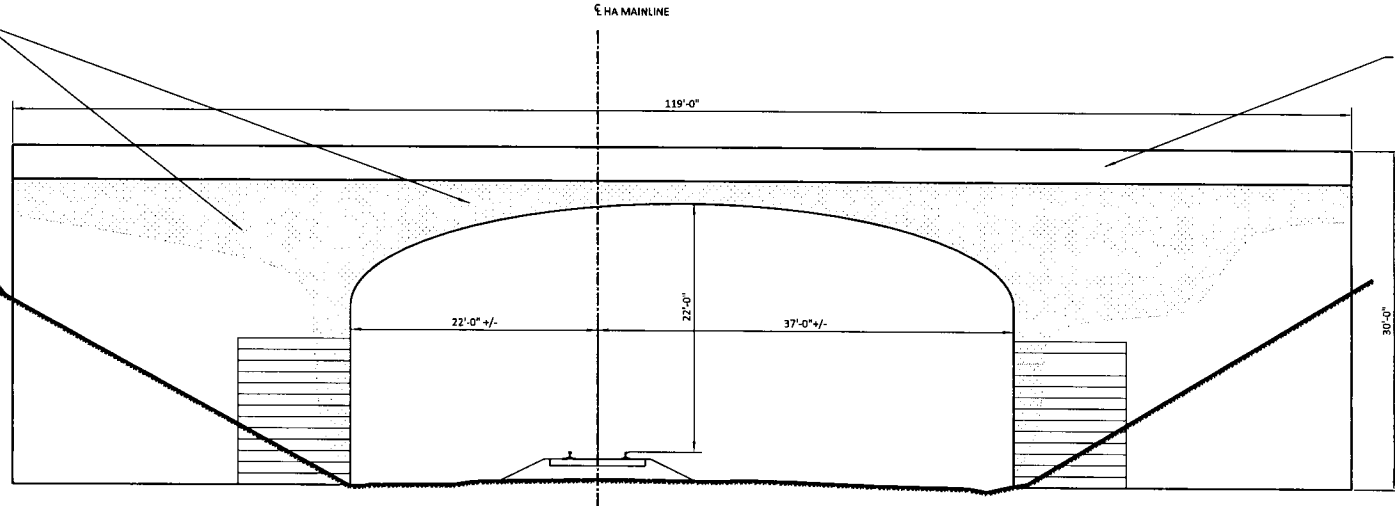
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AREAS OF POOR CONCRETE TO BE REPAIRED USING METHODS SHOWN ON SHEET 7 THRU 9 AS APPLICABLE

GROUNDLINE

HA MAINLINE

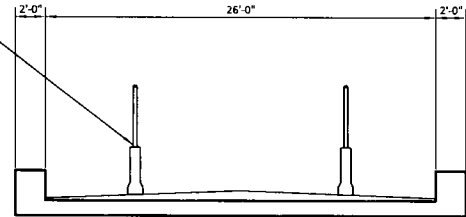
EXISTING PARAPET WALL IN POOR CONDITION TO BE REPLACED ACCORDING TO SHEET 10



EXISTING NORTH ELEVATION

SCALE : $\frac{1}{8}'' = 1'$

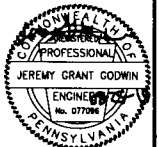
JERSEY BARRIER WALL AND FENCE IN PLACE UNTIL ALL REPAIRS ARE COMPLETE



EXISTING ROAD CROSS-SECTION

SCALE : $\frac{1}{4}'' = 1'$

POOR CONCRETE PARAPET WALL TO BE REPLACED



| | | | | |
|--|---------|---|---------------------|-----------------|
| | | NORFOLK SOUTHERN RAILWAY | | HARRISBURG DIV. |
| | | OVERPASS SR-1025 HA LINE, NICHOLSON, PA BRIDGE REPAIRS | | |
| OFFICE OF CHIEF ENGINEER - BRIDGES & STRUCTURES | | ATLANTA, GA. | | |
| DRAWING TITLE: EXISTING NORTH ELEVATION & CROSS-SECTION | | | | |
| DDN MCC | VAL SEC | MAP | MILE POST HA-652.69 | |
| CHN DBG | FILE | | DATE 08/25/2019 | |
| SHEET NUMBER 4 OF 10 | | DRAWING NUMBER HA-652.69 | | |

| REV | BY | DATE | DESCRIPTION |
|---|----|------|-------------|
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| RAILROAD CONSULTANTS, PLLC 213 UPTOWN SQUARE MURFREESBORO, TN 37129 (p) 615.663.1142 | | | |

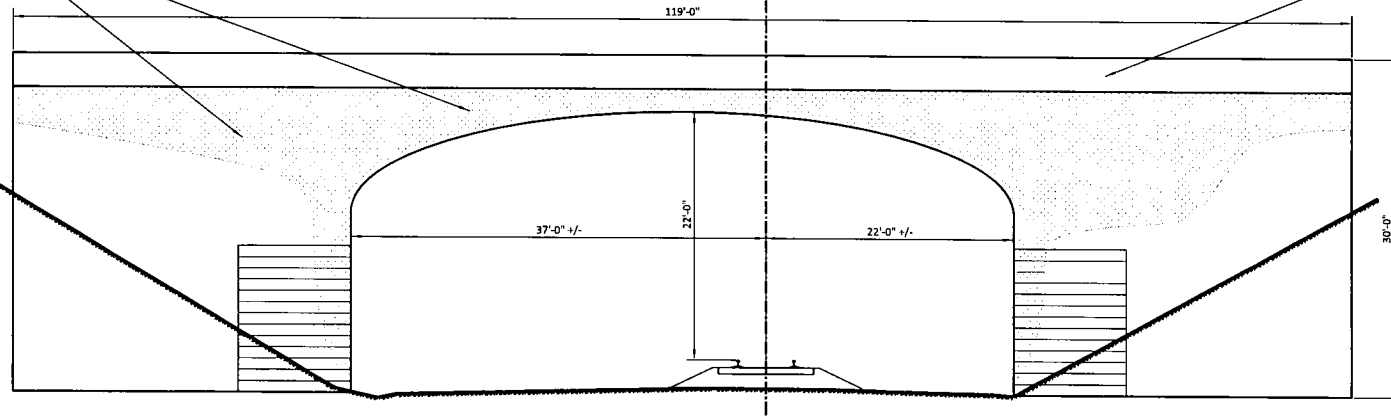
- NOTES:
1. ALL SURVEY INFORMATION AND DIMENSIONS SHOWN OR REFERENCED IN THIS PLAN OR ATTACHED DOCUMENTS ARE BASED ON ENGINEERS SITE VISIT, PRELIMINARY SURVEY, RECORD DRAWINGS, GIS INFORMATION AND OTHER METHODS AS AVAILABLE TO THE ENGINEER AT THE TIME OF PUBLICATION. THIS DOCUMENT IN NO WAY GUARANTEES THE ACCURACY OR PRECISION OF THE ABOVE LISTED INFORMATION. THIS INFORMATION IS GIVEN AS FOR THE PURPOSE OF GENERAL REFERENCE.
 2. THE CONTRACTOR SHALL MEASURE AND VERIFY ALL MEASUREMENTS NEEDED TO COMPLETE THE SCOPE OF WORK IN AN APPROVED AND CORRECT MANNER.

AREAS OF POOR CONCRETE TO BE REPAIRED USING METHODS SHOWN ON SHEET 7 THRU 9 AS APPLICABLE

GROUNDLINE

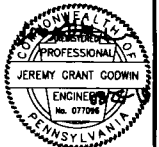
HA MAINLINE

EXISTING PARAPET WALL IN POOR CONDITION TO BE REPLACED ACCORDING TO SHEET 10



EXISTING SOUTH ELEVATION

SCALE : $\frac{1}{8}'' = 1'$

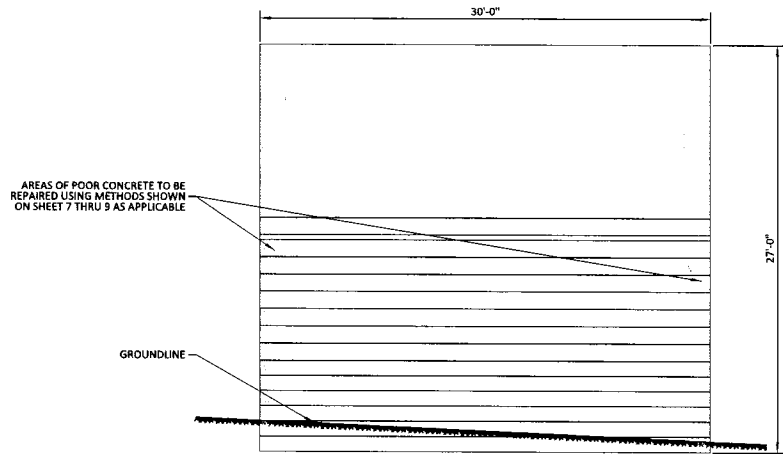


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|--|---------|--------------------------|--------------------------|-----------------|
| | | NORFOLK SOUTHERN RAILWAY | | HARRISBURG DIV. |
| | | NORTHERN REGION | | |
| OVERPASS SR-1025 HA LINE, MCHOLSON, PA BRIDGE REPAIRS | | | | |
| OFFICE OF CHIEF ENGINEER - BRIDGES & STRUCTURES | | | ATLANTA, GA. | |
| DRAWING TITLE: EXISTING SOUTH ELEVATION | | | | |
| DNW MCC | VAL SEC | MAP | MILE POST HA-652.69 | |
| CHK DBG | FILE | | DATE 08/25/2019 | |
| SHEET NUMBER 5 OF 10 | | | DRAWING NUMBER HA-652.69 | |

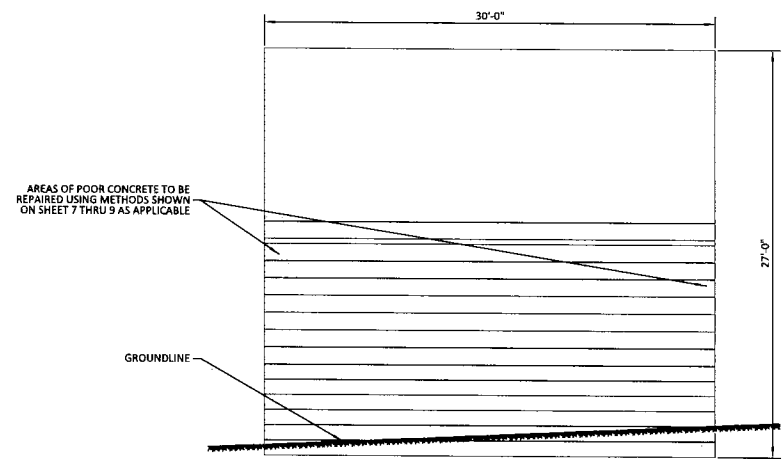
| REV | BY | DATE | DESCRIPTION |
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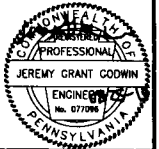
- NOTES:
1. ALL SURVEY INFORMATION AND DIMENSIONS SHOWN OR REFERENCED IN THIS PLAN OR ATTACHED DOCUMENTS ARE BASED ON ENGINEERS SITE VISIT, PRELIMINARY SURVEY, RECORD DRAWINGS, GIS INFORMATION AND OTHER METHODS AS AVAILABLE TO THE ENGINEER AT THE TIME OF PUBLICATION. THIS DOCUMENT IN NO WAY GUARANTEES THE ACCURACY OR PRECISION OF THE ABOVE LISTED INFORMATION. THIS INFORMATION IS GIVEN AS FOR THE PURPOSE OF GENERAL REFERENCE.
 2. THE CONTRACTOR SHALL MEASURE AND VERIFY ALL MEASUREMENTS NEEDED TO COMPLETE THE SCOPE OF WORK IN AN APPROVED AND CORRECT MANNER.



EXISTING EAST ABUTMENT ELEVATION



EXISTING WEST ABUTMENT ELEVATION



| REV | BY | DATE | DESCRIPTION |
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NS NORFOLK SOUTHERN
NORFOLK SOUTHERN RAILWAY
NORTHERN REGION HARRISBURG DIV

OVERPASS SR-1025
HA LINE, NICHOLSON, PA
BRIDGE REPAIRS

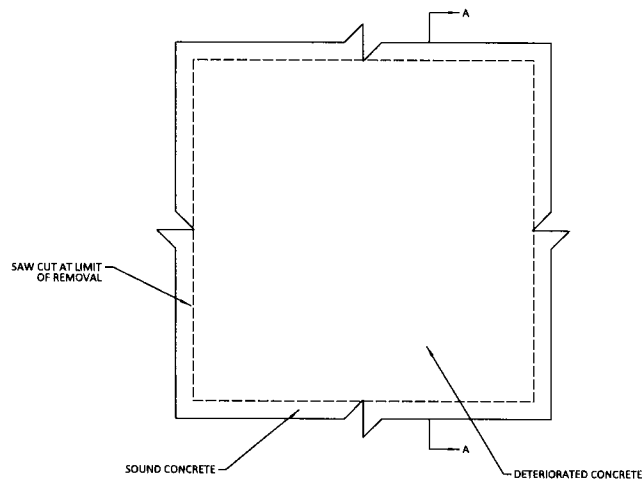
OFFICE OF CHIEF ENGINEER - BRIDGES & STRUCTURES ATLANTA, GA.

DRAWING TITLE: **EAST & WEST ABUTMENT ELEVATION**

| | | | |
|----------------------|---------|--------------------------|---------------------|
| DRN MCC | VAL SEC | MAP | MILE POST HA-652.69 |
| CHK DBG | FILE | DATE | 08/25/2019 |
| SHEET NUMBER 6 OF 10 | | DRAWING NUMBER HA-652.69 | |

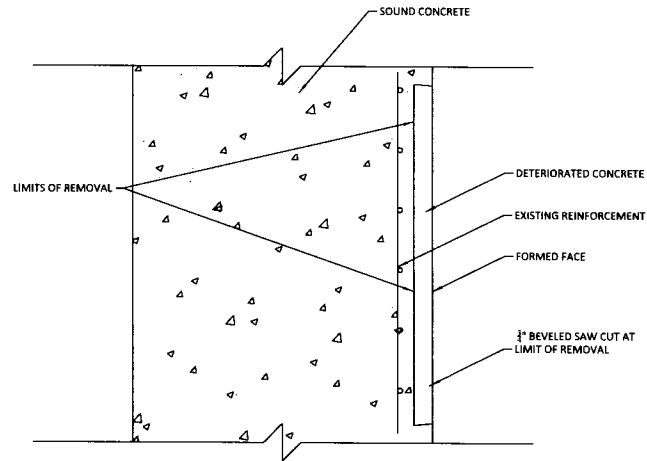
NOTES:

1. ALL REPAIRS SHALL BE MADE IN ACCORDANCE WITH PENNSYLVANIA DEPARTMENT OF TRANSPORTATION STANDARDS FOR BRIDGE CONSTRUCTION BC-783M
2. SQUARE OFF DETERIORATED CONCRETE TO SOUND CONCRETE WITH A SAWCUT OF $\frac{3}{8}$ " MAXIMUM.
3. REMOVE ALL LOOSE AND DELAMINATED CONCRETE TO PROVIDE A SOUND BOND BETWEEN EXISTING CONCRETE AND PATCHING MATERIAL.
4. APPLY A RAPID HARDENING CONCRETE PATCHING MATERIAL FROM A MANUFACTURER LISTED IN BULLETIN 15 UNDER MISCELLANEOUS POLYMER MODIFIED AND SPECIAL CEMENTS, MORTARS AND CONCRETES, IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.



ELEVATION VIEW (TYP)

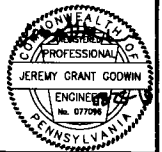
SCALE : NOT TO SCALE



SECTION A-A (TYP)

SCALE : NOT TO SCALE

NOTE:
THIS REPAIR IS TO BE USED FOR REPAIRS ON UNDERSIDE OF DECK, ELEVATIONS AND REPAIRS TO PORTIONS OF DELAMINATED FACES OF ABUTMENTS UP TO 3/4" THICKNESS.

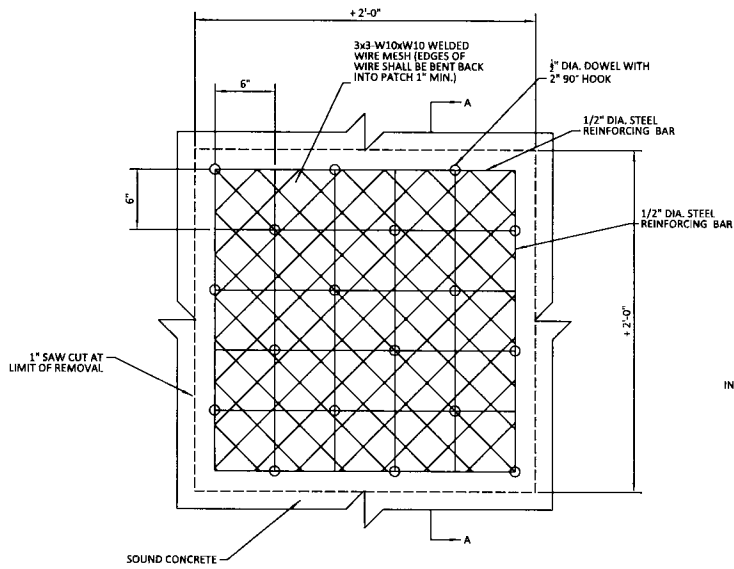


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|---|---------|--------------------------|---------------------|
| | | NORFOLK SOUTHERN RAILWAY | |
| | | NORTHERN REGION | HARRISBURG DIV. |
| OVERPASS SR-1025 HA LINE, NICHOLSON, PA BRIDGE REPAIRS | | | |
| OFFICE OF CHIEF ENGINEER - BRIDGES & STRUCTURES | | ATLANTA, GA. | |
| DRAWING TITLE: PROPOSED TYPE 1 CONCRETE REPAIR | | | |
| DNH MCC | V/L SEC | MAP | MILE POST HA-652.69 |
| CHK DBG | FILE | | DATE 08/25/2019 |
| SHEET NUMBER 7 OF 10 | | DRAWING NUMBER HA-652.69 | |

| REV | BY | DATE | DESCRIPTION |
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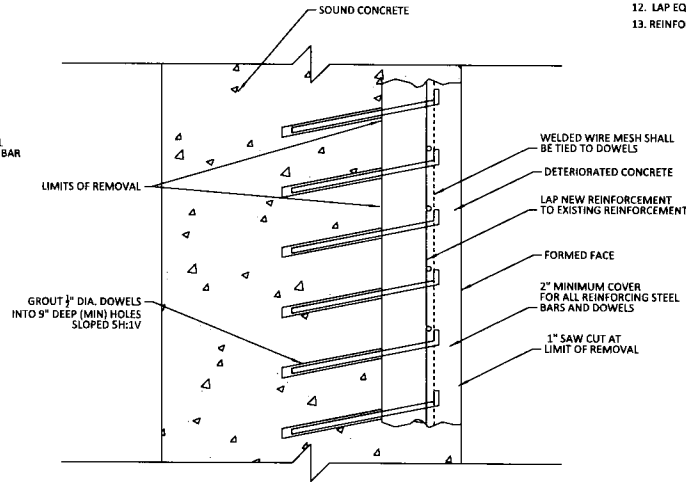
NOTES:

1. ALL REPAIRS SHALL BE MADE IN ACCORDANCE WITH PENNSYLVANIA DEPARTMENT OF TRANSPORTATION STANDARDS FOR BRIDGE CONSTRUCTION BC-783M.
2. SQUARE OFF DETERIORATED CONCRETE TO SOUND CONCRETE WITH A SAWCUT OF 3/4" MINIMUM TO 1" MAXIMUM BUT NOT TO THE DEPTH OF THE REINFORCEMENT STEEL. BACK BEVEL EDGE BEYOND SAWCUT.
3. USE HAND TOOLS TO REMOVE ALL LOOSE AND DELAMINATED CONCRETE THAT PROVIDES A SOUND BOND BETWEEN EXISTING CONCRETE AND NEW CONCRETE. PNEUMATIC HAMMERS WITH IMPACT RATINGS OF 30 FT/LB OR LESS MAY BE USED IF REQUIRED.
4. IF DETERIORATED CONCRETE EXTENDS BEYOND THE PRIMARY REINFORCEMENT, REMOVE THE CONCRETE TO AT LEAST 3/4" BEHIND THE REINFORCEMENT.
5. APPLY AN EPOXY BONDING COMPOUND BETWEEN THE EXISTING AND THE NEW CLASS AA CEMENT CONCRETE.
6. USE DOWELS ONLY WHEN W DIMENSION OF DETERIORATED CONCRETE IS GREATER THE 2'-0" AND NEW OR EXISTING REINFORCEMENT CANNOT ADEQUATELY BE DEVELOPED BY LAPPING WITH EXISTING REINFORCEMENT.
7. USE A PACHOMETER TO LOCATE EXISTING REINFORCEMENT WHEN DRILLING DOWEL HOLES TO AVOID DRILLING THRU EXISTING BARS.
8. AN APPROVED EPOXY ANCHORING SYSTEM IN 90° HOLES MAY REPLACE GROUT IN SLOPED HOLES. USE A 6" MINIMUM EMBEDMENT AND IN ACCORDANCE WITH THE MANUFACTURES' INSTRUCTIONS.
9. A #4 DEFORMED REINFORCEMENT BENT "L" BAR MAY REPLACE THE 1/2" # DOWEL HOOK.
10. ALTERNATE WIRE MESH MAY BE SUBSTITUTED FOR 3X3-W10XW10, PROVIDED WIRE SPACING DOES NOT EXCEED 4" AND AN EQUIVALENT STEEL AREA IS PROVIDED, NEW REINFORCEMENT BARS MAY BE OMITTED IF WIRE MESH STEEL AREA EXCEEDS EXISTING REINFORCEMENT.
11. CLEAN EXISTING REINFORCEMENT BY MECHANICAL MEANS.
12. LAP EQUIVALENT NEW REINFORCEMENT TO THE EXISTING REINFORCEMENT AS DIRECTED.
13. REINFORCEMENT BARS TO BE EPOXY COATED.



ELEVATION VIEW (TYP)

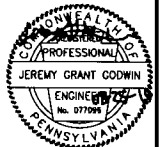
SCALE: NOT TO SCALE



SECTION A-A (TYP)

SCALE: NOT TO SCALE

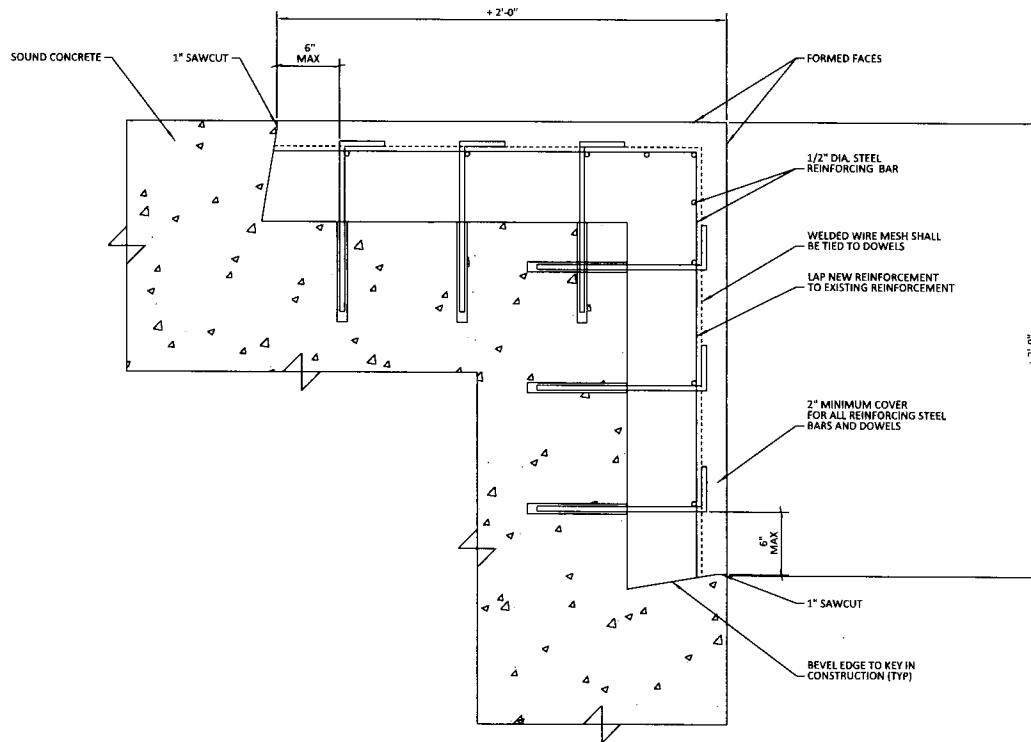
NOTE:
THIS REPAIR IS TO BE USED FOR REPAIRS ON UNDERSIDE OF DECK, ELEVATIONS AND REPAIRS TO PORTIONS OF DELAMINATED FACES OF ABUTMENTS OVER 3/4" THICKNESS.



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| | | NORFOLK SOUTHERN RAILWAY | |
| | | NORTHERN REGION | HARRISBURG DIV. |
| OVERPASS SR-1025 HA LINE, NICHOLSON, PA BRIDGE REPAIRS | | | |
| OFFICE OF CHIEF ENGINEER - BRIDGES & STRUCTURES | | ATLANTA, GA. | |
| DRAWING TITLE: PROPOSED TYPE 2 CONCRETE REPAIR | | | |
| DNW MCC | V.A. SEC | MAP | MILE POST HA-652.69 |
| CHK DBG | FILE | DATE | 08/25/2019 |
| SHEET NUMBER 8 OF 10 | | DRAWING NUMBER HA-652.69 | |

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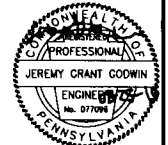
CORNER REPAIR DETAIL (TYP)

SCALE : NOT TO SCALE

NOTE:
THIS REPAIR IS TO BE USED FOR REPAIRS ON UNDERSIDE
OF DECK, ELEVATIONS AND REPAIRS TO PORTIONS OF DELAMINATED
FACES OF ABUTMENTS OVER 3/4" THICKNESS.

NOTES:

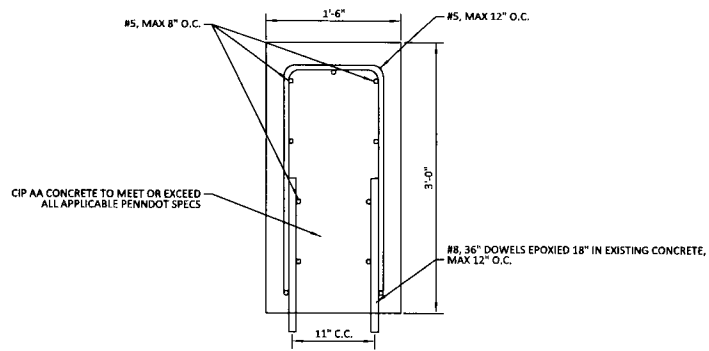
1. ALL REPAIRS SHALL BE MADE IN ACCORDANCE WITH PENNSYLVANIA DEPARTMENT OF TRANSPORTATION STANDARDS FOR BRIDGE CONSTRUCTION BC-783M.
2. SQUARE OFF DETERIORATED CONCRETE TO SOUND CONCRETE WITH A SAWCUT OF 3/4" MINIMUM TO 1" MAXIMUM BUT NOT TO THE DEPTH OF THE REINFORCEMENT STEEL. BACK BEVEL EDGE BEYOND SAWCUT.
3. USE HAND TOOLS TO REMOVE ALL LOOSE AND DELAMINATED CONCRETE THAT PROVIDES A SOUND BOND BETWEEN EXISTING CONCRETE AND NEW CONCRETE. PNEUMATIC HAMMERS WITH IMPACT RATINGS OF 30 FT/LB OR LESS MAY BE USED IF REQUIRED.
4. IF DETERIORATED CONCRETE EXTENDS BEYOND THE PRIMARY REINFORCEMENT, REMOVE THE CONCRETE TO AT LEAST 3/4" BEHIND THE REINFORCEMENT.
5. APPLY AN EPOXY BONDING COMPOUND BETWEEN THE EXISTING AND THE NEW CLASS AA CEMENT CONCRETE.
6. USE DOWELS ONLY WHEN W DIMENSION OF DETERIORATED CONCRETE IS GREATER THE 2'-0" AND NEW OR EXISTING REINFORCEMENT CANNOT ADEQUATELY BE DEVELOPED BY LAPPING WITH EXISTING REINFORCEMENT.
7. USE A PACHOMETER TO LOCATE EXISTING REINFORCEMENT WHEN DRILLING DOWEL HOLES TO AVOID DRILLING THRU EXISTING BARS.
8. AN APPROVED EPOXY ANCHORING SYSTEM IN 90° HOLES MAY REPLACE GROUT IN SLOPED HOLES. USE A 6" MINIMUM EMBEDMENT AND IN ACCORDANCE WITH THE MANUFACTURES INSTRUCTIONS.
9. A #4 DEFORMED REINFORCEMENT BENT "L" BAR MAY REPLACE THE 1/2" # DOWEL HOOK.
10. ALTERNATE WIRE MESH MAY BE SUBSTITUTED FOR 3X3-W10XW10, PROVIDED WIRE SPACING DOES NOT EXCEED 4" AND AN EQUIVALENT STEEL AREA IS PROVIDED, NEW REINFORCEMENT BARS MAY BE OMITTED IF WIRE MESH STEEL AREA EXCEEDS EXISTING REINFORCEMENT.
11. CLEAN EXISTING REINFORCEMENT BY MECHANICAL MEANS.
12. LAP EQUIVALENT NEW REINFORCEMENT TO THE EXISTING REINFORCEMENT AS DIRECTED.
13. REINFORCEMENT BARS TO BE EPOXY COATED.



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|---|-----------------|
| NORFOLK SOUTHERN | |
| NORFOLK SOUTHERN RAILWAY | |
| NORTHERN REGION | HARRISBURG DIV. |
| OVERPASS SR-1025 | |
| HA LINE, NICHOLSON, PA | |
| BRIDGE REPAIRS | |
| OFFICE OF CHIEF ENGINEER - BRIDGES & STRUCTURES | ATLANTA, GA. |
| DRAWING TITLE: PROPOSED CORNER CONCRETE REPAIR | |
| DGN MCC | V/L SEC |
| CHK DBG | FILE |
| SHEET NUMBER | DRAWING NUMBER |
| 9 OF 10 | HA-652.69 |
| DATE | 08/23/2019 |

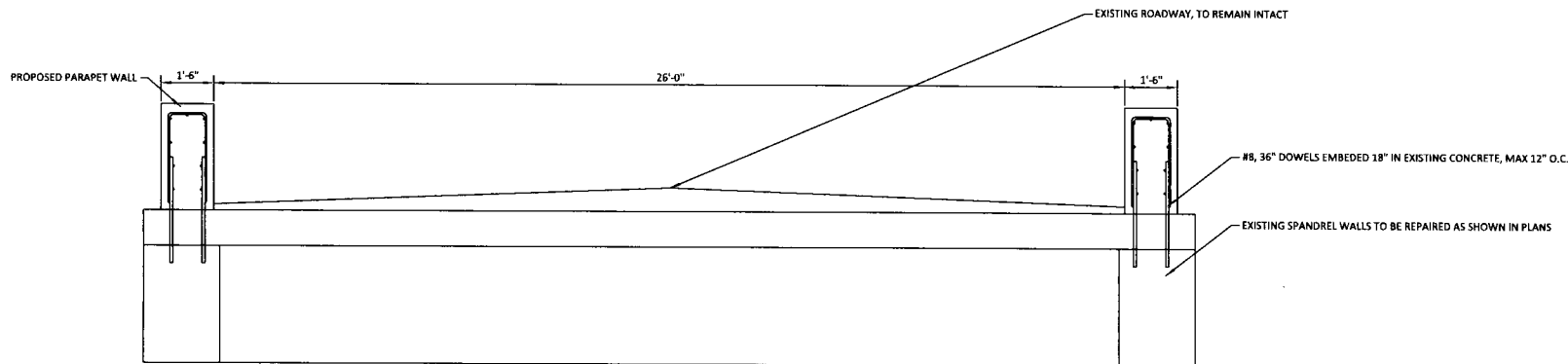


PROPOSED PARAPET WALL DETAIL

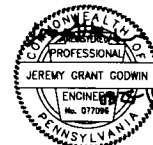
SCALE: 1/4" = 1'

NOTES:

1. ALL REPAIRS SHALL BE MADE IN ACCORDANCE WITH PENNSYLVANIA DEPARTMENT OF TRANSPORTATION STANDARDS FOR BRIDGE CONSTRUCTION BC-783M.
2. ALL CIP CONCRETE SHALL MEET OR EXCEED PENNDOT CLASS AA.
3. EXISTING PARAPET WALLS SHALL BE REMOVED BY METHODS TO KEEP EXISTING ROAD IN SERVICE AND NOT TO INTERFERE WITH RAILROAD OPERATIONS.
4. ONCE EXISTING PARAPET WALL IS REMOVED EXISTING SLAB CLEANED AND SPANDREL WALL IS TO BE REPAIRED ACCORDING TO THIS DOCUMENT AND THE ENGINEERS RECOMMENDATION.
5. ONCE SPANDREL WALL IS REPAIRED AND CURED 28 DAYS THE PROPOSED PARAPET WALLS SHALL BE CONSTRUCTED AS SHOWN IN THIS DOCUMENT.
6. TEMPORARY BARRIER WALL AND FENCING SHALL BE REMOVED BY CONTRACTOR ONCE PROPOSED PARAPET WALLS ARE CONSTRUCTED AND CURED FOR 28 DAYS.
7. EXISTING PAVEMENT IS NOT TO BE DAMAGED BY CONTRACTOR.
8. ALL CONCRETE REPAIRS SHALL BE MADE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE 318, CURRENT EDITION.



EXISTING PLAN



| | | | |
|---|-------------------------|--------------------------|-----------------|
| | | NORFOLK SOUTHERN RAILWAY | |
| | | NORTHERN REGION | HARRISBURG DIV |
| BRIDGE REPAIRS | | | |
| OFFICE OF CHIEF ENGINEER - BRIDGES & STRUCTURES | | ATLANTA, GA. | |
| DRAWING TITLE: PROPOSED PARAPET WALL DETAIL | | | |
| CHK: MCC | VAL. SEC. 9-B-04-74 MAP | 6301092 | MILE POST |
| CHK: DBG | FILE | BR0027263 | DATE 08/25/2019 |
| SHEET NUMBER | | 10 OF 10 | DRAWING NUMBER |

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