

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

| F.A.I. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|-------------|-----------------|----------|--------------------|-----------|
| 72A | (84-10-1HB-1)BP | SANGAMON | 7 | 1 |
| | | ILLINOIS | CONTRACT NO. 72618 | |

FOR INDEX OF SHEETS, SEE SHEET NO. 2

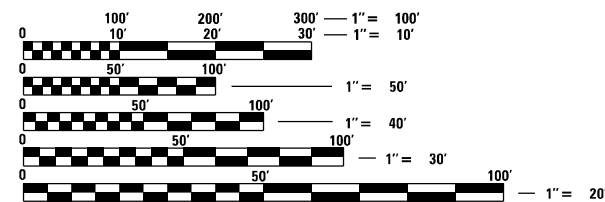
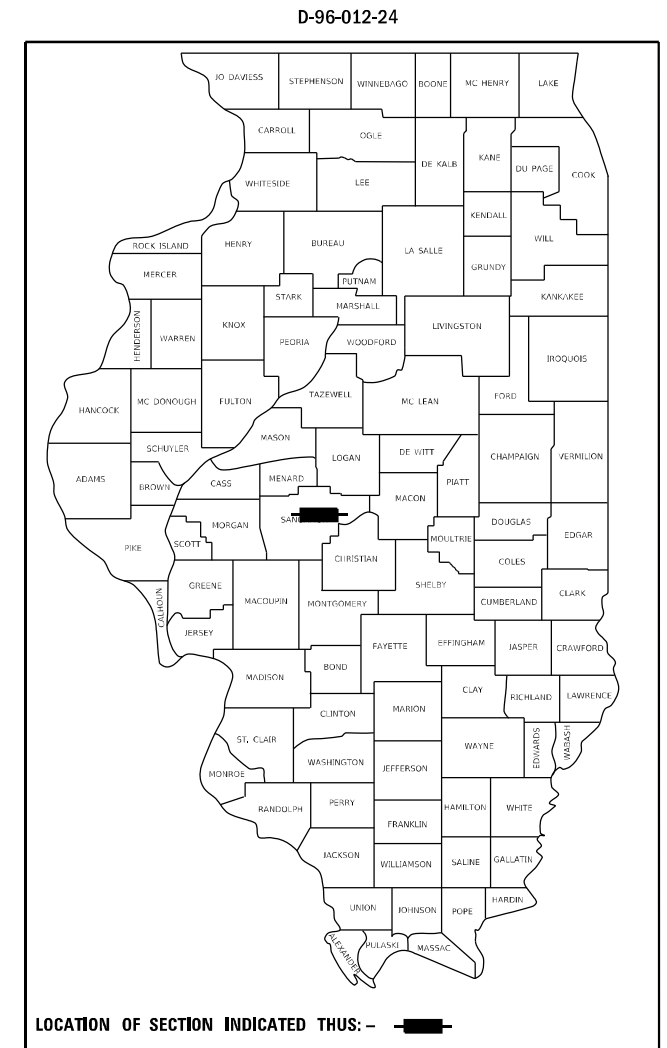
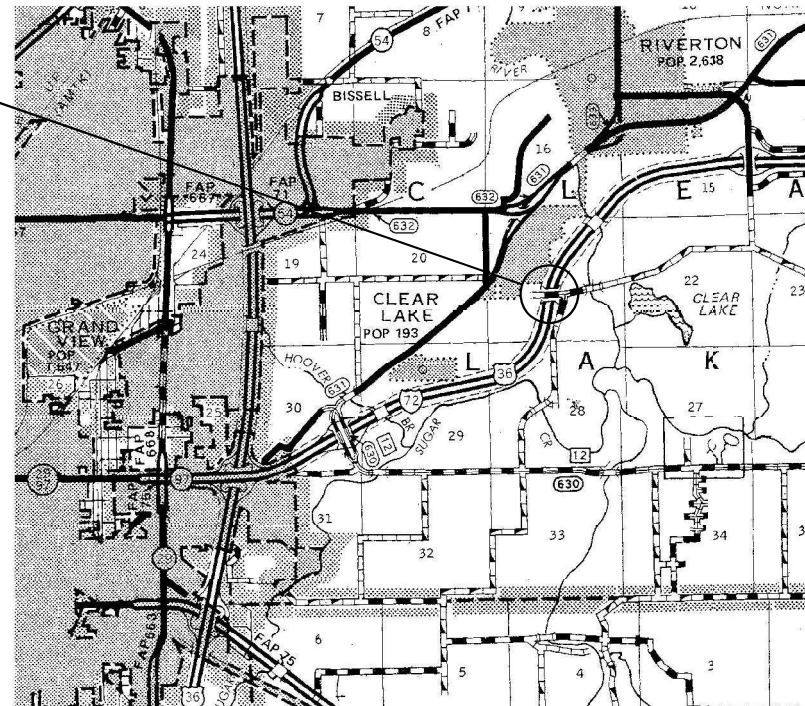
PROPOSED HIGHWAY PLANS

FAI ROUTE 72A (I-72)
SECTION (84-10-1HB-1)BP
PROJECT NHPP-FQFK(907)
BRIDGE PAINTING
SANGAMON COUNTY

C-96-028-24



PROJECT LOCATION
SN 084-0151
OAK CREST RD OVER I-72
2.9 MI E I-55



FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD ENGINEERING SCALES, REDUCED SIZED PLANS WILL NOT CONFORM TO STANDARD SCALES. IN MAKING MEASUREMENTS ON REDUCED PLANS, THE ABOVE SCALES MAY BE USED.

J.U.L.I.E.
JOINT UTILITY LOCATION INFORMATION FOR EXCAVATORS
1-800-892-0123
OR 811

BRIDGE MAINTENANCE ENGINEER: BRANDON DUDLEY - (217) 785-9290

GROSS LENGTH = X.XX FT. = X.XX MILE
NET LENGTH = X.XX FT. = X.XX MILE

CONTRACT NO. 72618

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUBMITTED December 11, 20 23

[Signature]
REGIONAL ENGINEER

February 2, 2024
[Signature]
ENGINEER OF DESIGN AND ENVIRONMENT

February 2, 2024
[Signature]
DIRECTOR OF HIGHWAYS PROJECT IMPLEMENTATION

PRINTED BY THE AUTHORITY
OF THE STATE OF ILLINOIS

HIGHWAY STANDARDS

INDEX OF SHEETS

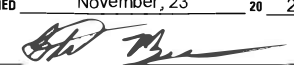
- 1 COVER SHEET
- 2 INDEX, STANDARDS, GENERAL NOTES, & SIGNATURES
- 3 SUMMARY OF QUANTITIES
- 4-7 EXISTING BRIDGE PLANS, SN 084-0151

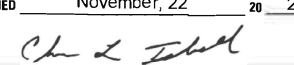
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- 701101-05
- 701106-02
- 701400-12
- 701402-12
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- 782006-01

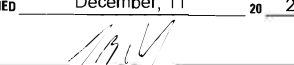
GENERAL NOTES:

1. WORK SHALL CONSIST OF BLASTING AND PAINTING STRUCTURAL STEEL AT LOCATIONS DESCRIBED IN THE SPECIAL PROVISIONS. CLEANING AND PAINTING OF THE EXISTING STRUCTURAL STEEL SHALL BE AS SPECIFIED IN THE SPECIAL PROVISIONS FOR "CLEANING AND PAINTING EXISTING STEEL STRUCTURES". ALL AREAS TO BE PAINTED SHALL BE CLEANED PER NEAR WHITE BLAST CLEANING PER SSPC SP 10. ALL EXISTING STEEL CLEANED SHALL BE PAINTED ACCORDING TO THE REQUIREMENTS OF PAINT SYSTEM 1 - OZ/E/U. THE COLOR OF THE FINAL FINISH COATS SHALL BE AS DESCRIBED IN THE SPECIAL PROVISIONS.
2. THE USE OF AIR MONITORS WILL BE REQUIRED AT LOCATIONS AS CALLED OUT IN THE SPECIAL PROVISIONS.
3. THE SSPC-QP-1 AND SSPC-QP2 PAINTING CONTRACTOR CERTIFICATIONS WILL BE REQUIRED.
4. CARE SHALL BE TAKEN NOT TO DAMAGE RUBBER BEARING OR JOINT COMPONENTS DURING BLASTING AND CLEANING OPERATIONS. ANY DAMAGE TO THESE COMPONENTS SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE. RUBBER COMPONENTS SHALL NOT BE PAINTED.
5. UPON COMPLETION OF PAINTING OPERATIONS, THE CONTRACTOR SHALL REMOVE ALL DEBRIS FROM PIER OR ABUTMENT CAPS UPON WHICH PAINTING OPERATIONS TOOK PLACE. FINAL CLEANUP SHALL BE CONSIDERED INCIDENTAL TO THE PAINT PAY ITEM FOR THE RESPECTIVE LOCATION. THE ENGINEER SHALL HAVE THE RIGHT TO WITHHOLD PAYMENT UNTIL SATISFACTORY CLEANUP IS ACHIEVED.

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
DISTRICT 6**

EXAMINED November, 23 2023

 ENGINEER OF OPERATIONS

EXAMINED November, 22 2023

 ENGINEER OF PROJECT IMPLEMENTATION

EXAMINED December, 11 2023

 ENGINEER OF PROGRAM DEVELOPMENT

REV. - MS

MODEL: Default
FILE NAME: S:\Highways\Bridges\Plans_CAD\72618 - 0840151\main\planindex.dgn

| | | | | | | | | | | | |
|--|------------------------------|------------|-----------|---|--|-----------------------------|-----------------|----------|-----------------|--------------|--|
| | USER NAME = Brandon.Dudley | DESIGNED - | REVISED - | STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION | INDEX OF SHEETS, STANDARDS, GENERAL NOTES, & SIGNATURES | F.A.I. RTE: | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. | |
| | | DRAWN - | REVISED - | | | 72A | (84-10-1HB-1)BP | SANGAMON | 7 | 2 | |
| | PLOT SCALE = 100.0000' / in. | CHECKED - | REVISED - | | | CONTRACT NO. 72618 | | | | | |
| | PLOT DATE = 12/11/2023 | DATE - | REVISED - | | | ILLINOIS FED. AID PROJECT | | | | | |
| | | | | SCALE: | | | | | | | |
| | | | | SHEET OF SHEETS STA. TO STA. | | | | | | | |

Existing Structure: S.N. 084-0151 was originally built under FAI 72, Section (84-10-1HB-1) in 1974. It is a two-span, steel continuous structure with vaulted approaches. The structure length is 264'-3" back-to-back approach bents and the width is 36'-0" out-to-out. The two steel span lengths are 110'-0" and 118'-3" respectively moving up-station. The approach spans are each 18'-0". In 1998, the expansion joints and overlay were removed and replaced.

Structure to be repaired using staged construction. Silicone Joints will be replaced. One lane to remain open during construction.

GENERAL NOTES

PART "B" SHEET 82 OF 136

No field welding is permitted except as specified in the contract documents.

Reinforcement bars designated (E) shall be epoxy coated.

Prior to pouring the new concrete deck, all heavy or loose rust, loose mill scale, and other loose or potentially detrimental foreign material shall be removed from the surfaces in contact with concrete. Tightly adhered paint may remain unless otherwise noted. Removal shall be accomplished by methods that will not damage the steel and the cost will be included in the pay item covering removal of the existing concrete.

As directed by the Engineer, existing construction accessories welded to the top flange of beams and girders shall be removed. The weld areas shall be ground flush and inspected for cracks using magnetic particle testing (MT) or dye penetrant testing (PT) by qualified personnel approved by the Engineer.

Any cracks that cannot be removed by grinding 1/4 inch deep shall be identified and reported to the Bureau of Bridges and Structures for further disposition. The cost of removing welded accessories, grinding and inspecting weld areas and grinding cracks will be paid for according to Article 109.04 of the Standard Specifications.

Plan dimensions and details relative to existing plans are subject to nominal construction variations. The Contractor shall field verify existing dimensions and details affecting new construction and make necessary approved adjustments prior to construction or ordering of materials. Such variations shall not be cause for additional compensation for a change in scope of the work, however, the Contractor will be paid for the quantity actually furnished at the unit price bid for the work.

Cleaning and field painting of structural steel shall be done under a separate painting contract.

The existing structural steel coating contains lead. The Contractor shall take appropriate precautions to deal with the presence of lead on this project.

TOTAL BILL OF MATERIAL

| ITEM | UNIT | SUPER | SUB | TOTAL |
|--|---------|-------|-----|-------|
| Concrete Removal | Cu. Yd. | 5.4 | - | 5.4 |
| Protective Shield | Sq. Yd. | 313 | - | 313 |
| Concrete Superstructure | Cu. Yd. | 5.4 | - | 5.4 |
| Protective Coat | Sq. Yd. | 26.0 | - | 26.0 |
| Reinforcement Bars, Epoxy Coated | Pound | 1,330 | - | 1,330 |
| Bar Splicers | Each | 20 | - | 20 |
| Preformed Joint Strip Seal | Foot | 72 | - | 72 |
| Deck Slab Repair (Full Depth, Type I) | Sq. Yd. | 20 | - | 20 |
| Deck Slab Repair (Full Depth, Type II) | Sq. Yd. | 10 | - | 10 |
| Deck Slab Repair (Partial) | Sq. Yd. | 50 | - | 50 |

* Apply on top and inside surfaces of new Concrete only.

DESIGN STRESSES

FIELD UNITS (NEW)

f_c = 3,500 psi
f_y = 60,000 psi (Reinforcement)

FIELD UNITS (EXISTING)

f_c = 1,400 psi (Substructure)
f_c = 1,200 psi (Deck slab)
f_s = 20,000 psi (Reinforcement)
f_s = 27,000 psi (Steel)

INDEX OF SHEETS

- General Plan & Elevation
- Staging Typical
- Deck Joint Repairs (1 of 2)
- Deck Joint Repairs (2 of 2)
- Preformed Joint Strip Seal
- Deck Patching Plan
- Bar Splicer/Mechanical Splicer Details
- Temporary Concrete Barrier

DESIGN SPECIFICATIONS

(New Construction)
2002 AASHTO "Standard Specifications for Highway Bridges"

EXISTING LOADING HS 20-44

Allow 25#/sq. ft. for future wearing surface.

GENERAL PLAN & ELEVATION

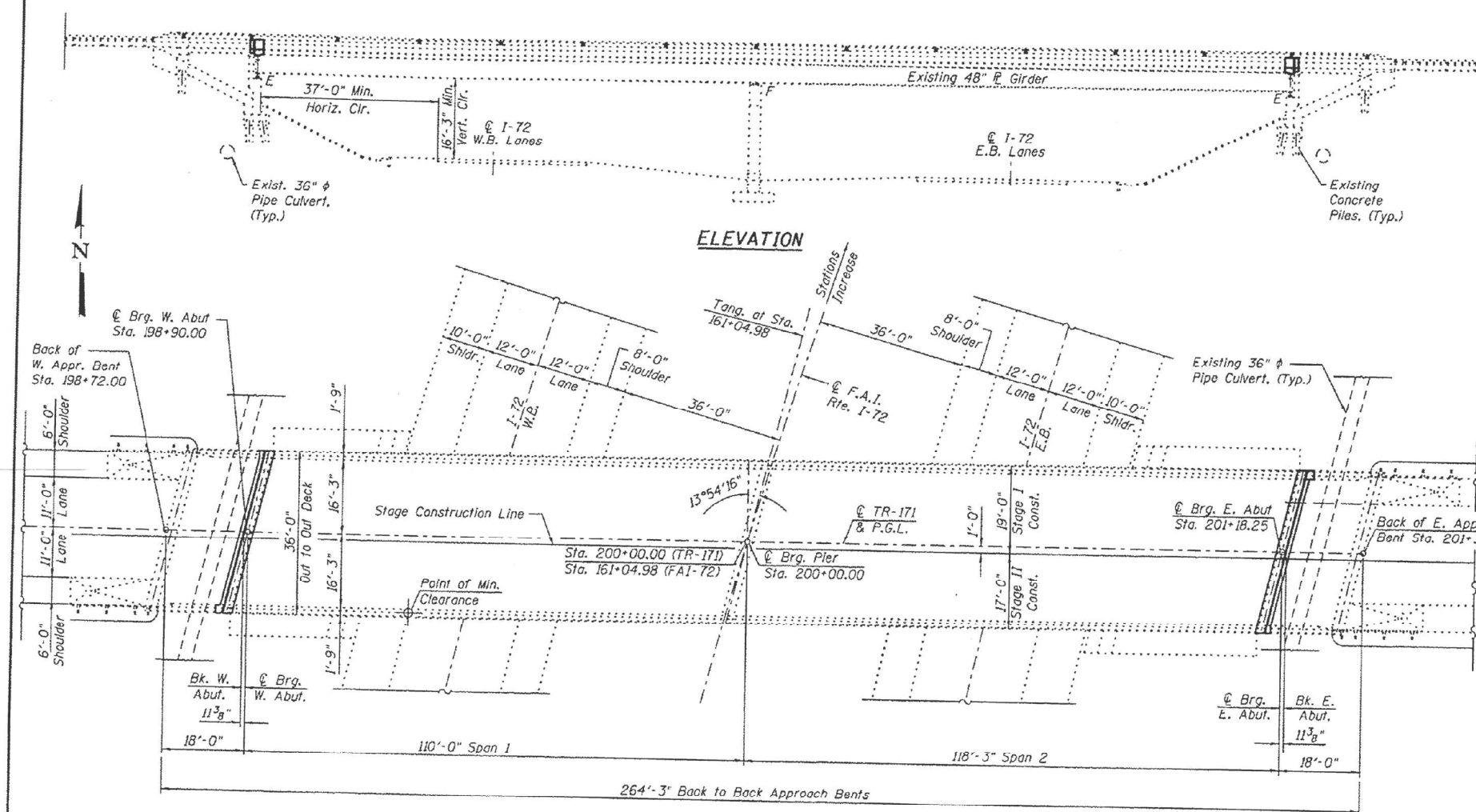
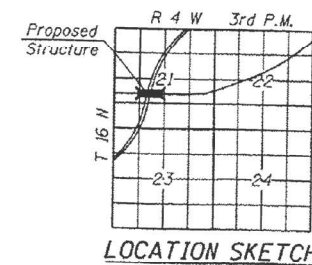
TR-171 OVER F.A.I. RTE. 72

SECTION (84-10-1.2) RS-3

SANGAMON COUNTY

STATION 200+00.00

STRUCTURE NO. 084-0151



PLAN



Michael T. Haley 9-5-13
Date

Michael T. Haley
Licensed Structural Engineer
State of Illinois No. 81-5991
Expires 11/30/2014

| FILE NAME | USER NAME | DESIGNED | REVISIONS |
|----------------------------|-----------|----------|-----------|
| Oak Crest Rd over I-72.dgn | SAL | SAL | - |
| | MTH | MTH | - |
| | TJM | TJM | - |
| | MTH | MTH | - |

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL PLAN AND ELEVATION
OAK CREST RD. (TR-171) OVER F.A.I.-72 - S.N. 084-0151

| F.A.I. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|-------------|-----------------|----------|--------------|-----------|
| 72 | (84-10-1.2)RS-3 | SANGAMON | 134 | 140 |

| SCALE: | SHEET | OF | SHEETS | STA. | TO | STA. | ILLINOIS | FED. AID PROJECT |
|--------|-------|----|--------|------|----|------|----------|------------------|
| | | | | | | | | |

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

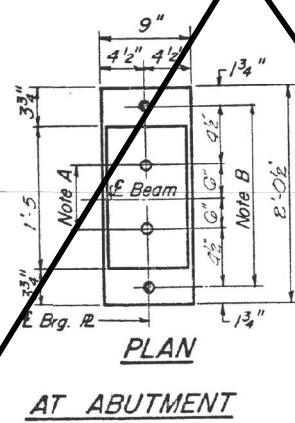
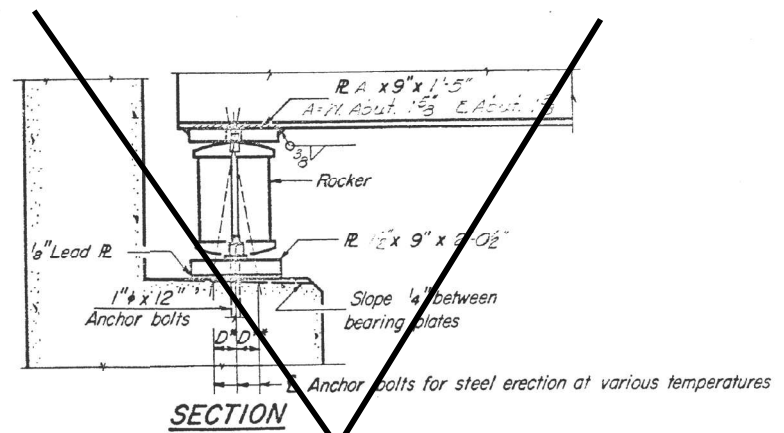
EXISTING PLANS, SN 084-0151
(FOR INFORMATION ONLY)

| F.A.I. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|-------------|-----------------|----------|--------------|-----------|
| 72A | (84-10-1HB-1)BP | SANGAMON | 7 | 4 |

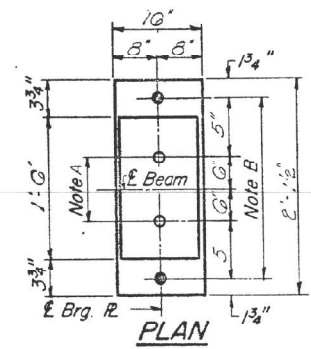
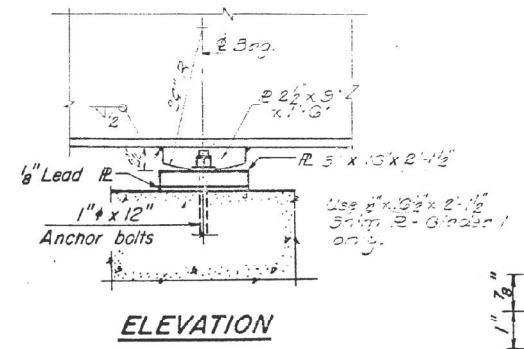
CONTRACT NO. 72C90

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

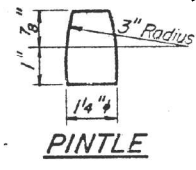
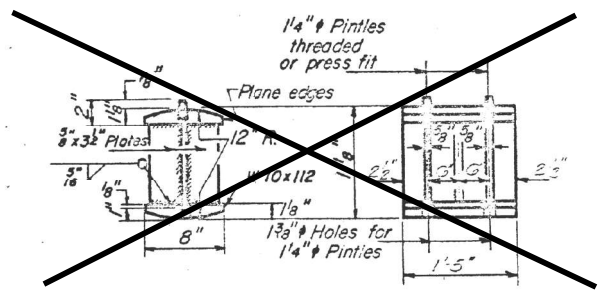
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|-----------|---------|----------|--------------|-----------|-----------|
| ROUTE NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. | SHEET NO. |
| 72A | 1B | SANGAMON | 54 | 24 | 13 SHEETS |



NOTE A
1 3/8" Holes - 1" deep in top R.
for pintles. Thread or press fit
pintles into bottom R.



NOTE B
1 1/2" Holes for 1" anchor bolts.
16 x 2 1/2 x 2 1/2" R. Washers
under nut.



NOTES ON SETTING OF ANCHOR BOLTS AT EXP. BRGS.

- a) D* (Side of brg. away from fixed brg.)
D* = 1/8" per each 100' of expansion for every 15° fall below the normal temp. of 50°F.
- D** (Side of brg. toward fixed brg.)
D** = 1/8" per each 100' of expansion for every 15° rise above the normal temp. of 50°F.
- b) After beams have been erected and dimensions D* or D** determined, holes shall be drilled and anchor bolts shall be grouted in place. All fixed anchor bolts may be built into the masonry.

MOMENT TABLE - Composite 2 Span (Composite in Positive Moment Areas Only)

| | 0.4 Sp. 1 | Pier | 0.3 Sp. 2 |
|-----------------------------------|-----------|--------|-----------|
| I _s (in ⁴) | 18,157 | 45,000 | 22,923 |
| I _c (in ⁴) | 18,000 | | 55,187 |
| S _s (in ³) | 725 | 1,753 | 1,007 |
| S _c (in ³) | 1,127 | | 15,977 |
| Q | 5.5 | 1.53 | 9.93 |
| M _e (K) | 2.1 | 22.33 | 3.53 |
| F _s (KSI) | 5.7 | 3.3 | 10.5 |
| S ₂ (in ³) | 0.125 | | 0.253 |
| M _s (K) | 0.5 | | 5.1 |
| M _e (K) | 95.0 | 9.1 | 125.7 |
| M _{imp} (K) | 20.0 | 19.0 | 2.3 |
| TOTAL (K) | 157.1 | 110.1 | 130.3 |
| F _s (KSI) | 16.6 | 7.6 | 10.5 |
| F _s TOTAL (KSI) | 22.3 | 20.1 | 20.5 |
| VR (K) | 55.0 | | 55.3 |

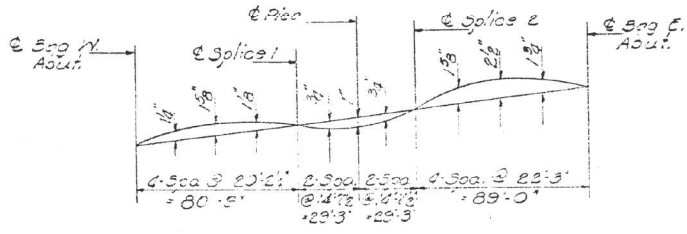
REACTION TABLE - INTERIOR GIRDER REACTION TABLE

| | 1st Span | Pier | 2nd Span |
|------------------------|----------|-------|----------|
| R _e (K) | 20.0 | 210.3 | 20.5 |
| R _i (K) | 20.0 | 20.1 | 22.3 |
| Imp. (K) | 5.5 | 16.5 | 9.2 |
| R _{total} (K) | 110.0 | 311.9 | 119.1 |

I_s and S_s are the moment of inertia and section modulus of the steel section.
I_c and S_c are the moment of inertia and section modulus of the composite section used in computing F_s.
VR is the maximum 1/4" impact shear range in span used to determine shear connector spacing.

TOP OF WEB ELEVATIONS

| Span | 1 | 2 | 3 | 4 | 5 |
|-------------------|---------|---------|---------|---------|---------|
| 1st Brg. to Abut. | 577.813 | 577.813 | 577.813 | 577.787 | 577.852 |
| 2nd Splice 1 | 577.873 | 578.100 | 578.219 | 578.095 | 577.952 |
| 3rd Splice 2 | 578.011 | 578.381 | 578.150 | 578.125 | 577.994 |
| 4th Splice 2 | 578.200 | 578.533 | 578.445 | 578.325 | 578.160 |
| 5th Brg. to Abut. | 578.501 | 578.483 | 578.026 | 578.422 | 578.559 |



BEARING DETAILS
F.A.I. RT. 72 SEC. 84-11B
SANGAMON COUNTY
STA. 16+70.93

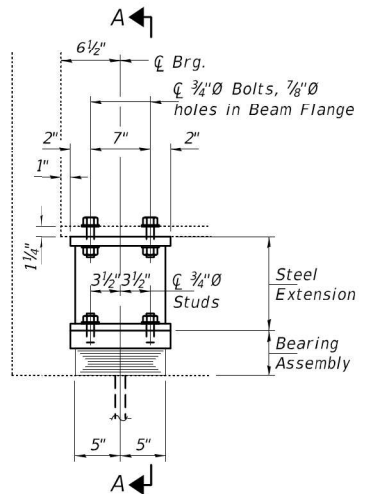
DESIGNED: R. Mathew
CHECKED: James P. Ruel
J. SCHNEIDER
DRAWN: P.G. Barnett
CHECKED: JNP

EXAMINED: [Signature]
PASSED: W.G. Baumgartner
PROVED: Richard H. Gitterman

June 14 1972

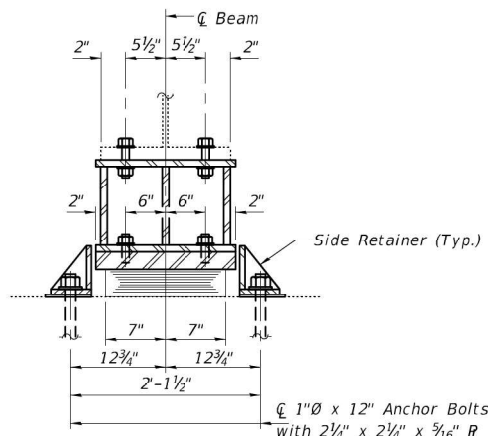
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ELEVATION AT BOTH ABUTMENT'S

TYPE I ELASTOMERIC EXP. BRG.



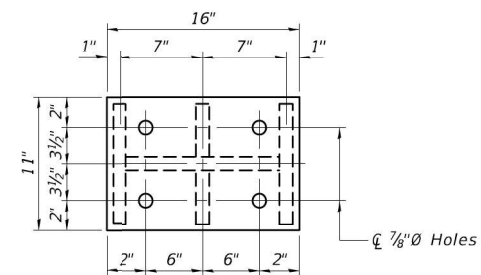
SECTION A-A

1"Ø x 12" Anchor Bolts with 2 1/4" x 2 1/4" x 5/16" R washer under nut.

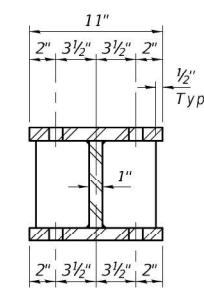
BEAM REACTIONS

| | | | | | |
|----------------|-----|----------|------|----------|-------|
| R _P | (K) | W. Abut. | 56.6 | E. Abut. | 65.4 |
| R _L | (K) | | 44 | | 44.5 |
| Imp. | (K) | | 9.4 | | 9.2 |
| R (Total) | (K) | | 110 | | 119.1 |

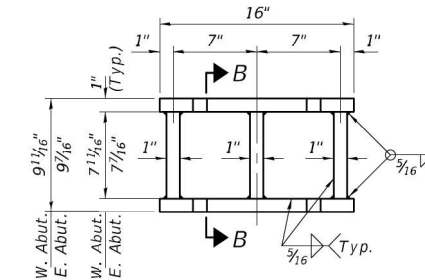
Notes:
 Diaphragm removal and installation may be required to facilitate drilling holes. Cost included with Furnishing and Erecting Structural Steel.
 New steel extensions, shim plates and connection bolts are included with Furnishing and Erecting Structural Steel.
 Prior to ordering any material, the Contractor shall verify in the field all bearing height and shim thickness dimensions. Adjustment must account for deck heave due to pack rust (if present).
 Min. jack capacity = 26 Tons.
 Anchor bolts shall be ASTM F1554 all-thread (or an Engineer-approved alternate material) of the grade(s) and diameter(s) specified. ASTM A307 Grade C anchor bolts may be used in lieu of ASTM F1554 Grade 36 (F_y=36ksi). The corresponding specified grade of AASHTO M314 anchor bolts may be used in lieu of ASTM F1554.
 Drilled and set anchor bolts shall be installed according to Article 521.06 of the Standard Specifications.
 Cost of Side retainers and Stainless Steel plates shall be included in the cost of Elastomeric Bearing Assembly, Type I.



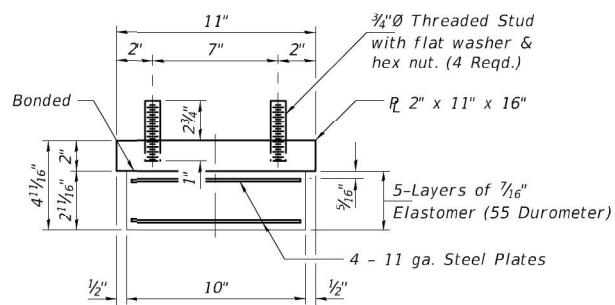
PLAN TOP AND BOTTOM PLATE



SECTION B-B

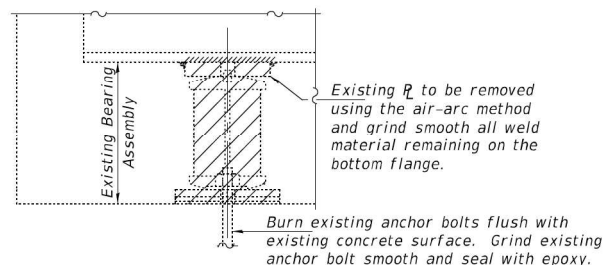


STEEL EXTENSION DETAIL



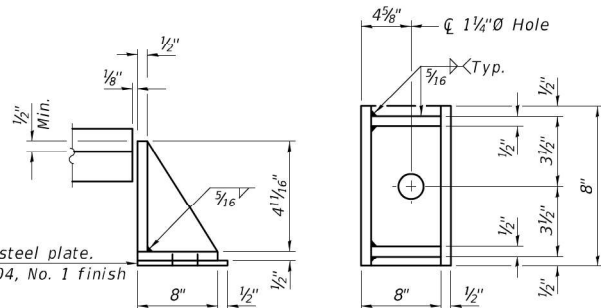
BEARING ASSEMBLY

Note:
 Shim plates shall not be placed under Bearing Assembly.



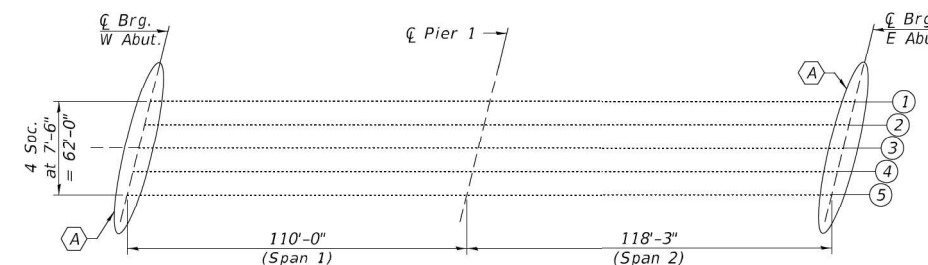
EXISTING BEARING REMOVAL DETAIL

Cost included with Jack and Remove Existing Bearings.



SIDE RETAINER

Equivalent rolled angle with stiffeners will be allowed in lieu of welded plates.



PARTIAL FRAMING PLAN

(A) - Bearing Removal and Replacement.

BILL OF MATERIAL NORTH ABUTMENT

| Item | Unit | Total |
|--|-------|-------|
| Elastomeric Bearing Assembly, Type I | Each | 10 |
| Jack and Remove Existing Bearings | Each | 10 |
| Furnishing and Erecting Structural Steel | Pound | 1960 |
| Anchor Bolts, 1"Ø | Each | 20 |



EXPIRES 11-30-2022

| | | |
|-----------------------------|------------------------------------|----------------------|
| DESIGNED - Victor H. Veliz | EXAMINED | DATE - JUNE 21, 2022 |
| CHECKED - Steven M. Ryan | ENGINEER OF STRUCTURAL SERVICES | |
| DRAWN - Venkat Ramana Reddy | PASSED | REVISED - |
| CHECKED - VHV SMR | ENGINEER OF BRIDGES AND STRUCTURES | REVISED - |

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

BEARING DETAILS - BOTH ABUTMENTS
 OAK CREST (TR 171) OVER I-72
 SN 084-0151

| | | | | |
|---------------------------|------------------------------|----------|--------------|-----------|
| F.A.I. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
| 72,72A | (84-9-2)IB, 84-10-1)IB-1)BRR | SANGAMON | 7 | 7 |
| CONTRACT NO. 72016 | | | | |
| ILLINOIS FED. AID PROJECT | | | | |

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| | | |
|------------------------------|------------|-----------|
| USER NAME = Brandon.Dudley | DESIGNED - | REVISED - |
| | DRAWN - | REVISED - |
| PLOT SCALE = 100,0000' / in. | CHECKED - | REVISED - |
| PLOT DATE = 12/11/2023 | DATE - | REVISED - |

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION

EXISTING PLANS, SN 084-0151
 (FOR INFORMATION ONLY)

SCALE: SHEET OF SHEETS STA. TO STA.

| | | | | |
|---------------------------|-----------------|----------|--------------|-----------|
| F.A.I. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
| 72A | (84-10-1)B-1)BP | SANGAMON | 7 | 7 |
| CONTRACT NO. 72016 | | | | |
| ILLINOIS FED. AID PROJECT | | | | |