V3 Companies
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Woodridge, IL 60517
630.724.9200 phone
630.724.9202 fax
www.v3co.com

FOR INDEX OF SHEETS, SEE SHEET NO. 2

11-7-08 Letting, Item 087

| F.A.P. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| 324 | 23B (1&2)F | MCHENRY | 17 | 1 |
| FED. ROAD DIST. NO. | ILLINOIS | CONTRACT NO. 60E54 | | |

D-91-087-05

# STATE OF ILLINOIS
# DEPARTMENT OF TRANSPORTATION
# DIVISION OF HIGHWAYS

# PROPOSED HIGHWAY PLANS

## FAP ROUTE 324 (ILLINOIS ROUTE 23)
## BEAM AND BEARING FABRICATION

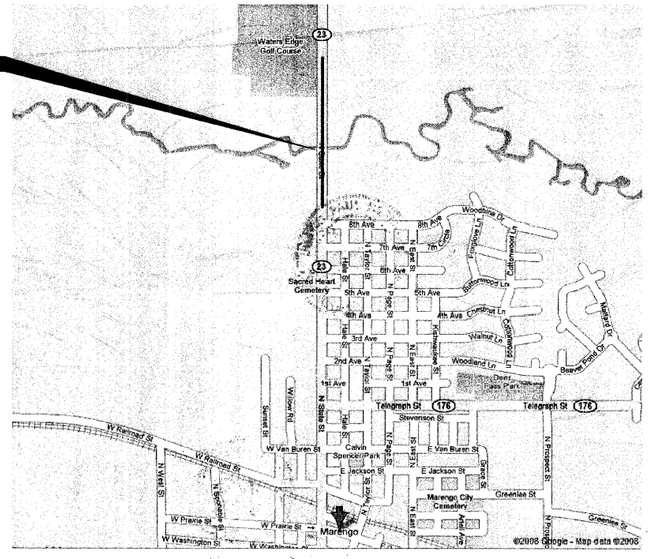
## SECTION: 23B (1&2)F
## PROJECT NO.: BRF-0324(018)

## MCHENRY COUNTY
## C-91-467-08

PROJECT LOCATED IN:
CITY OF MARENGO

MARENGO TOWNSHIP

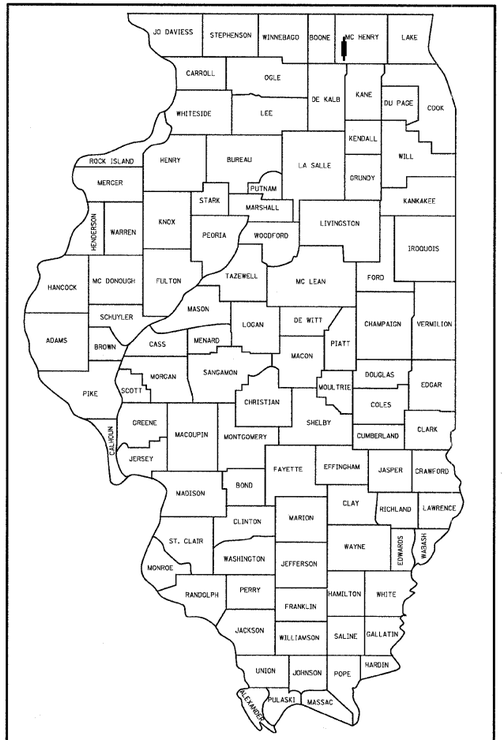
IL 23 OVER KISHWAUKEE RIVER
S. N. 056-0010



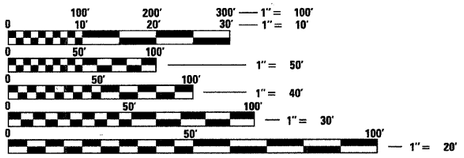

R 5 E

T 44 N

LOCATION MAP




LOCATION OF SECTION INDICATED THUS: –




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 EXCAVATION
1-800-892-0123
OR 811

## CONTRACT NO. 60E54

DISTRICT ONE - DESIGN PROJECT MANAGER: ISAAC KWARTENG (847) 705-4230


July 3, 2008
David Heslinga
DAVID P. HESLINGA
ILLINOIS REGISTERED PROFESSIONAL ENGINEER
NO. 062-036274
EXPIRATION DATE: 11-30-2008


JULY 03, 2008
David L Smoot
DAVID L. SMOOT
ILLINOIS LICENSED STRUCTURAL ENGINEER
NO. 081-005861
EXPIRATION DATE: 11-30-2007

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

SUBMITTED July 9, 2008
Diane M. O'Keefe
DISTRICT ENGINEER

August 15, 2008
Eric E. Harm
Interim ENGINEER OF DESIGN AND ENVIRONMENT

August 15, 2008
Christine M. Reed
DIRECTOR OF HIGHWAYS, CHIEF ENGINEER

## PRINTED BY THE AUTHORITY OF THE STATE OF ILLINOIS

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| ROUTE NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| F.A.P. 324 | 23B (I&2)F | McHENRY | 17 | 2 |
| FED. ROAD DIST. NO. 7 | | ILLINOIS | FED. AID PROJECT- | |

Contract # 60E54

# STATE OF ILLINOIS
# DEPARTMENT OF TRANSPORTATION

## INDEX OF SHEETS



* These drawings included in fabrication contract for information only.

## GENERAL NOTES

1. For structural steel notes, see Sheet 15 of 17.
2. Fasteners shall be AASHTO M164 Type 1, mechanically galvanized bolts. Bolts $\frac{7}{8}$ in. dia., holes $\frac{15}{16}$ in. dia., unless otherwise noted.
3. Calculated weight of Structural Steel = 468.200 pounds (Gr. 50). 22.370 pounds (Gr. 36).
4. Bearing seat surfaces shall be constructed or adjusted to the designated elevations within a tolerance of $\frac{1}{8}$ in. (0.01 ft.). Adjustment shall be made either by grinding the surface or by shimming the bearings.
5. The Organic Zinc Rich Primer / Epoxy / Urethane Paint System shall be used for painting of new structural steel except where otherwise noted. The entire system shall be shop applied, with the exception that masked off connection surfaces, field installed fasteners and damaged areas shall be touched up in the field. The color of the final finish coat for all interior steel surfaces shall be Gray, Munsell No. 5B 7/1. The color of the final finish coat for the exterior and bottom flange of the fascia beams shall be Blue, Munsell No. 10B 3/6. See Special Provision for "Cleaning and Painting New Metal Structures".

## SUMMARY OF QUANTITIES

URBAN SFTY-2A 80% FED. 20% STATE

| Code No. | Item | Unit | Total |
|---|---|---|---|
| 50500205 | Furnishing Structural Steel | L Sum | 1 |
| 50500455 | Storage of Structural Steel | Cal Day | 60 |

| | |
|---|---|
| DESIGNED | CJB |
| CHECKED | PWO |
| DRAWN | DRP |
| CHECKED | PJM |


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BEAM AND BEARING FABRICATION

INDEX OF SHEETS, GENERAL NOTES & SUMMARY OF QUANTITIES

ILL. ROUTE 23 OVER
KISHWAUKEE RIVER
F.A.P. RT. 324 - SEC. 23B (I&2)F
MCHENRY COUNTY
STATION 69+02.50
STRUCTURE NO. 056-0001

Bench Mark: BM #1 Square cut in top of wingwall SW corner of bridge S.N. 056-0009. Elevation 802.58
BM # 2 USGS Disk set in top of wingwall at NW corner of Bridge S.N. 056-0010. Elevation 802.33

Existing Siructure: S.N. 056-0010 was rebuilt and widened in 1974 as F.A. Route 24 Section 23BR1. The original structure was built in 1925 as Route 23 Section 23. The structure consists of 3 simple spans using PPC box beams with closed abutments and solid piers. The back-to-back abutments is 159'-2½" and the out-to-out deck is 45'-6". Existing structure to be removed and replaced. Traffic will be detoured during construction.

No Salvage

# STATE OF ILLINOIS
# DEPARTMENT OF TRANSPORTATION

| ROUTE NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| F.A.P. 324 | 23B (I&2)F | McHENRY | 17 | 3 |
| FED. ROAD DIST. NO. 7 | ILLINOIS | FED. AID PROJECT- | | |

SHEET NO.
SHEETS

Contract # 60E54

## INDEX OF SHEETS



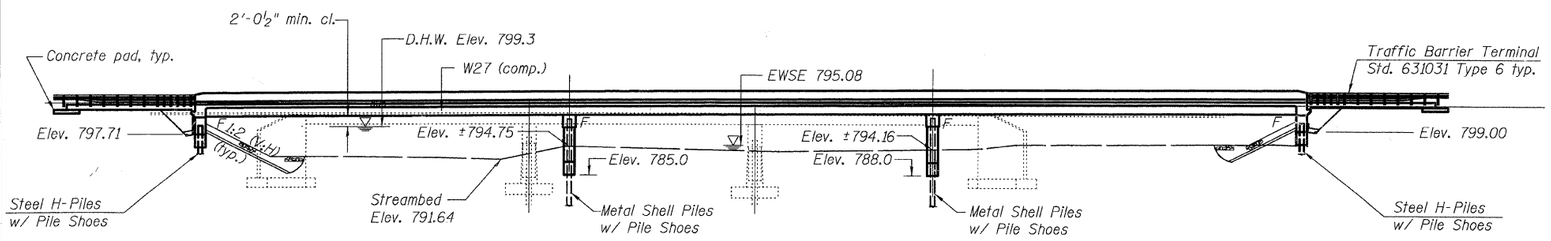
## WATERWAY INFORMATION

Drainage Area = 174.5 $mi^2$
Exist. Low Grade Elev. 800.30 @ Sta. 81+00
Prop. Low Grade Elev. 803.60 @ Sta. 81+00

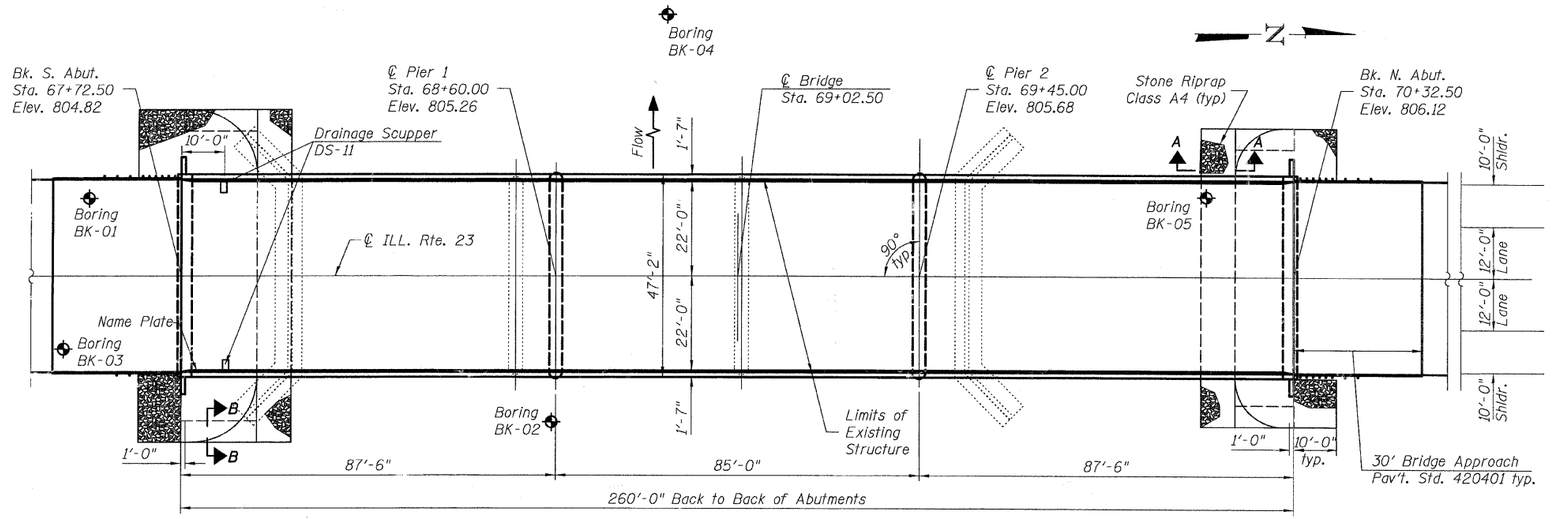
| Flood | Freq. Yr. | Structure | Q C.F.S. Exist. | Q C.F.S. Prop. | Opening SqFt. Exist. | Opening SqFt. Prop. | Nat. H.W.E. | Head - Ft. Exist. | Head - Ft. Prop. | Headwater El. Exist. | Headwater El. Prop. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Design | 10 | Main Channel | 3441 | 2559 | 767.0 | 1057.0 | | | | | |
| | | Overflow 1 | 1874 | 2133 | 389.2 | 304.9 | | | | | |
| | | Overflow 2 | n/a | 623 | n/a | 95.5 | | | | | |
| | | Total | 5315 | 5315 | 1156.2 | 1457.4 | 798.61 | 1.13 | 0.70 | 799.74 | 799.31 |
| | 50 | Main Channel | 4951 | 4328 | 875.0 | 1228.3 | | | | | |
| | | Overflow 1 | 2679 | 2453 | 429.9 | 330.8 | | | | | |
| | | Overflow 2 | 17* | 866 | n/a | 130.1 | | | | | |
| | | Total | 7647 | 7647 | 1304.9 | 1689.2 | 799.33 | 1.39 | 0.77 | 800.72 | 800.10 |
| Base | 100 | Main Channel | 5858 | 5015 | 914.0 | 1287.4 | | | | | |
| | | Overflow 1 | 2546 | 2582 | 442.6 | 340.2 | | | | | |
| | | Overflow 2 | 177* | 983 | n/a | 142.6 | | | | | |
| | | Total | 8581 | 8581 | 1356.6 | 1770.2 | 799.59 | 1.71 | 0.80 | 801.32 | 800.39 |
| Max. Calc. | 500 | Main Channel | 6944 | 6824 | 995.0 | 1402.5 | | | | | |
| | | Overflow 1 | 3076 | 2676 | 469.1 | 359.6 | | | | | |
| | | Overflow 2 | 699* | 1219 | n/a | 168.5 | | | | | |
| | | Total | 10719 | 10719 | 1464.1 | 1930.7 | 800.13 | 2.03 | 0.87 | 802.16 | 801.00 |

10 year velocity through existing bridge (main channel)= 3.76 fps
10 year velocity through proposed bridge (main channel) = 2.12 fps

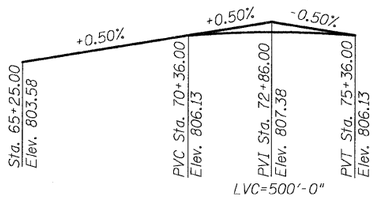
Notes:
1. * Indicates flow over the road in existing condition.
2. A 2 foot berm/wall will be built at the upstream side of Overflow 2 structure, to maintain existing drainage patterns.
3. Overflow 1 is the 3-cell box culvert in the overflow channel, Overflow 2 is the 4-cell box culvert north of Overflow 1.




## ELEVATION




## PLAN




## PROFILE GRADE
(along ℄ IL 23)

| | |
|---|---|
| DESIGNED | CJB |
| CHECKED | PWO |
| DRAWN | DRP |
| CHECKED | PJM |

## LOADING HL-93

Allow 50#/sq. ft. for future wearing surface.

## SEISMIC DATA

Seismic Performance Zone (SPZ) = 1
Bedrock Acceleration Coefficient (A) = 0.034g
Site Coefficient (S) = 1.0

## DESIGN SCOUR ELEVATION TABLE

| Design Scour Elevation (ft.) | S. Abut. | Pier 1 | Pier 2 | N. Abut. |
|---|---|---|---|---|
| | 795 | 785 | 788 | 796 |

## DESIGN SPECIFICATIONS

2007 AASHTO LRFD Bridge Design Specifications

## DESIGN STRESSES

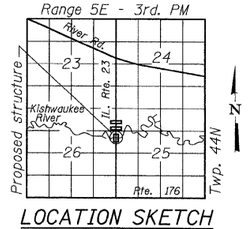
FIELD UNITS
$f'_c$ = 3,500 psi
$f_y$ = 60,000 psi (reinforcement)
$f_y$ = 50,000 psi (M270 Grade 50)

Note:
See sheet 2 of 26 for Section A-A and B-B.
Undrerwater Strucuture Excavation Protection
L1 is at Pier 1 and L2 is at Pier 2.

LICENSED STRUCTURAL ENGINEER
DAVID L. SMOOT
081-005861
ST. CHARLES
ILLINOIS
STATE OF ILLINOIS

APPROVED
FOR STRUCTURAL ADEQUACY ONLY
Robert C. Anderson
ENGINEER OF BRIDGES AND STRUCTURES

JULY 03, 2008
David L. Smoot
DAVID L. SMOOT
ILLINOIS LICENSED STRUCTURAL ENGINEER
NO. 081-005861
EXPIRATION DATE: 11-30-2008




## LOCATION SKETCH

## GENERAL PLAN

ILL. ROUTE 23 OVER
KISHWAUKEE RIVER
F.A.P. RT. 324 - SEC. 23B (I&2)F
MCHENRY COUNTY
STATION 69+02.50
STRUCTURE NO. 056-0001


V3 Companies of Illinois Ltd.
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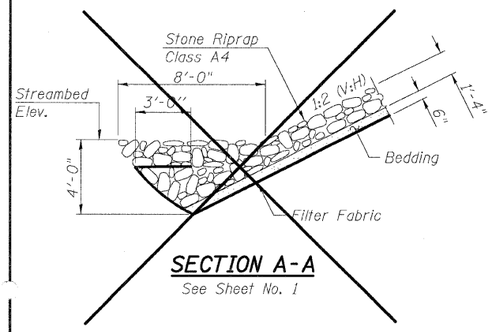
# STATE OF ILLINOIS
# DEPARTMENT OF TRANSPORTATION

| ROUTE NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| F.A.P. 324 | 23B (1&2)F | McHENRY | 17 | 4 |
| FED. ROAD DIST. NO. 7 | ILLINOIS | FED. AID PROJECT- | | |

SHEET NO.

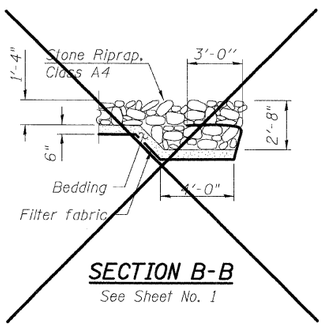
SHEETS

Contract # 60E54



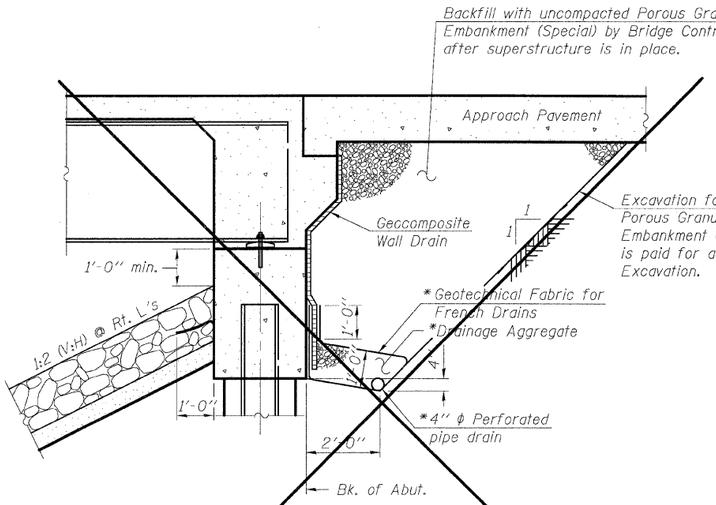

## SECTION A-A

See Sheet No. 1




## SECTION B-B

See Sheet No. 1




## SECTION THRU INTEGRAL ABUTMENT

(Horiz. dim. @ Rt. L's)

* Included in the cost of Pipe Underdrains for Structures.

Note:
All drainage system components shall extend to 2'-0" from the end of each wingwall except an outlet pipe shall extend until intersecting with the side slopes. The pipes shall drain into concrete headwalls. (See Article 601.05 of the Standard Specifications and Highway Standard 601101).

## GENERAL NOTES

1. Fasteners shall be AASHTO M164 Type 1, mechanically galvanized bolts. Bolts $\frac{7}{8}$ in. dia., holes $\frac{15}{16}$ in. dia., unless otherwise noted.
2. Calculated weight of Structural Steel = 468,200 pounds (Gr. 50), 22,370 pounds (Gr. 36).
3. No field welding is permitted except as specified in the contract documents.
4. Reinforcement bars shall conform to the requirements of ASTM A 706 Gr 60 (IL Modified). See Special Provisions.
5. Reinforcement bars designated (E) shall be epoxy coated.
6. If the Contractor elects to use cantilever forming brackets on the exterior beams or girders, the brackets shall be placed at the same locations as required for the hardwood blocks in Article 503.06(b) of the Standard Specifications. If additional cantilever forming brackets are required, hardwood blocking shall be wedged between the exterior and first interior beam at each of these additional bracket locations.
7. Bearing seat surfaces shall be constructed or adjusted to the designated elevations within a tolerance of $\frac{1}{8}$ in. (0.01 ft.). Adjustment shall be made either by grinding the surface or by shimming the bearings.
8. The Organic Zinc Rich Primer / Epoxy / Urethane Paint System shall be used for painting of new structural steel except where otherwise noted. The entire system shall be shop applied, with the exception that masked off connection surfaces, field installed fasteners and damaged areas shall be touched up in the field. The color of the final finish coat for all interior steel surfaces shall be Gray, Munsell No. 5B 7/1. The color of the final finish coat for the exterior and bottom flange of the fascia beams shall be Blue, Munsell No. 10B 3/6. See Special Provision for "Cleaning and Painting New Metal Structures".
9. Layout of the slope protection system may be varied to suit ground conditions in the field as directed by the Engineer.
10. The Contractor shall drive test piles to 110% of the nominal required bearing specified in production locations at substructures specified or approved by the Engineer before ordering the remainder of piles.
11. The Contractor shall limit the pile hammer size selected considering the relatively high soil strengths indicated in the borings and avoid overdriving the piles beyond their normal required bearing to prevent pile damage duiring driving.

## TOTAL BILL OF MATERIAL

| Item | Unit | Super | Sub | Total |
|---|---|---|---|---|
| Removal of Existing Structures | Each | — | — | 1 |
| Bar Splicers | Each | 90 | — | 90 |
| Concrete Superstructure | Cu. Yd. | 409.2 | — | 409.2 |
| Concrete Structure | Cu. Yd. | — | 146.9 | 146.9 |
| Reinforcement Bars, Epoxy Coated | Pound | 91,540 | 12,390 | 103,930 |
| Drainage Scuppers, DS-11 | Each | 2 | — | 2 |
| Furnishing and Erecting Structural Steel | L. Sum | 1 | — | 1 |
| Test Pile Metal Shells | Each | — | 2 | 2 |
| Furnishing Metal Shell Piles, 12" x 0.250" | Foot | — | 1386 | 1386 |
| Test Pile Steel HP12x53 | Each | — | 2 | 2 |
| Furnish Steel Piles HP12x53 | Foot | — | 1375 | 1375 |
| Driving Piles | Foot | — | 2761 | 2761 |
| Pile Shoes | Each | — | 54 | 54 |
| Protective Coat | Sq. Yd. | 1782.2 | — | 1782 |
| Bridge Deck Grooving | Sq. Yd. | 1213 | — | 1213 |
| Structure Excavation | Cu. Yd. | — | 467 | 467 |
| Porous Granular Embankment, Special | Cu. Yd. | — | 115 | 115 |
| Filter Fabric | Sq. Yd. | — | 555 | 555 |
| Stone Riprap, Class A4 | Sq. Yd. | — | 447 | 447 |
| Name Plates | Each | 1 | — | 1 |
| Stud Shear Connectors | Each | 6968 | — | 8112 |
| Underwater Structure Excavation Protection L1 | Each | — | 1 | 1 |
| Underwater Structure Excavation Protection L2 | Each | — | 1 | 1 |
| Concrete Encasement | Cu. Yd. | — | 24.8 | 24.8 |
| Geocomposite Wall Drain | Sq. Yd. | — | 67 | 67 |
| Pipe Underdrains for Structures 4" | Foot | — | 121 | 121 |
| Anchor Bolts, 1" | Each | — | 64 | 64 |
| Asbestos Bearing Pad Removal | Each | 120 | — | 120 |

| | | | | |
|---|---|---|---|---|
| Furnishing Structural Steel | L Sum | 1 | — | 1 |
| Storage of Structural Steel | Cal Day | — | — | 60 |

STATION 69+02.5
BUILT 200 BY
STATE OF ILLINOIS
F.A.P. RT. 324 SEC. 23BR-1
LOADING H-93
STR. NO. 056-0001

## LETTERING FOR NAME PLATE

See Plan View on sheet 1 of 26.
& Std 515001 for name plate location

| | |
|---|---|
| DESIGNED | CJB |
| CHECKED | PWO |
| DRAWN | DRP |
| CHECKED | PJM |


V3 Companies of Illinois Ltd.
7325 Janes Avenue
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## GENERAL DATA

ILL. ROUTE 23 OVER
KISHWAUKEE RIVER
F.A.P. RT. 324 - SEC. 23B (1&2)F
MCHENRY COUNTY
STATION 69+02.50
STRUCTURE NO. 056-0001

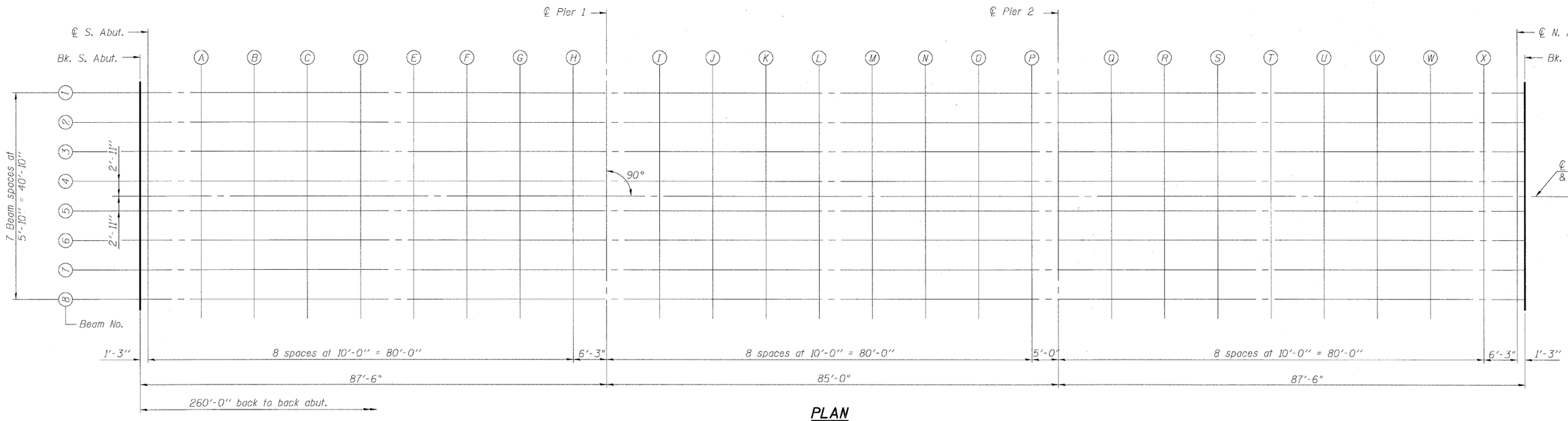
# STATE OF ILLINOIS
# DEPARTMENT OF TRANSPORTATION

| ROUTE NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| F.A.P. 324 | 23B (1&2)F | McHENRY | 17 | 5 |
| FED. ROAD DIST. NO. 7 | | ILLINOIS | FED. AID PROJECT- | |

SHEET NO.

SHEETS

Contract # 60E54




PLAN

FOR INFORMATION ONLY
NOT PART OF THIS CONTRACT

| | |
|---|---|
| DESIGNED | CJB |
| CHECKED | PWO |
| DRAWN | DRP |
| CHECKED | PJM |


V3 Companies of Illinois Ltd.
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Woodridge, IL 60517
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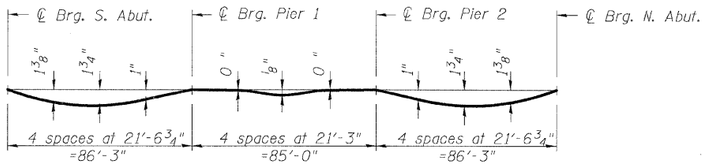
TOP OF SLAB ELEVATIONS

ILL. ROUTE 23 OVER
KISHWAUKEE RIVER
F.A.P. RT. 324 - SEC. 23B (1&2)F
MCHENRY COUNTY
STATION 69+02.50
STRUCTURE NO. 056-0001




## DEAD LOAD DEFLECTION DIAGRAM

(Includes weight of concrete only.)

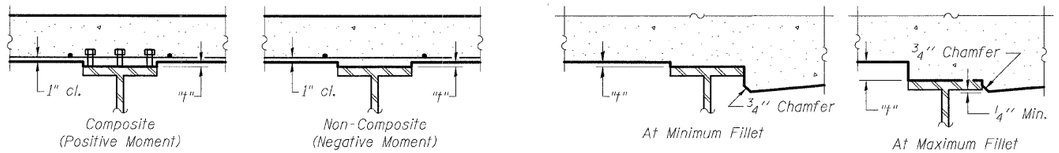
Note:
The above deflections are not to be used in the field if the engineer is working from the grade elevations adjusted for dead load deflections as shown.

# STATE OF ILLINOIS
# DEPARTMENT OF TRANSPORTATION

| ROUTE NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| F.A.P. 324 | 23B (I&2)F | McHENRY | 17 | 6 |
| FED. ROAD DIST. NO. 7 | ILLINOIS | FED. AID PROJECT- | | |

SHEET NO.
SHEETS

Contract # 60E54




## INTERIOR BEAMS

## EXTERIOR BEAMS

To determine "t": After all structural steel has been erected, elevations of the top flanges of the beams shall be taken at intervals shown. These elevations subtracted from the "Theoretical Grade Elevations Adjusted for Dead Load Deflection" shown, minus slab thickness, equals the fillet heights "t" above top flange of beams.

## FILLET HEIGHTS

### BEAM 1

| Location | Station | Offset | Theoretical Grade Elevations | Theoretical Grade Elevations Adjusted For Dead Load Deflection |
|---|---|---|---|---|
| Bk. S. Abut. | 67+72.50 | -20.42 | 804.46 | 804.46 |
| ℄ S. Abut. | 67+73.75 | -20.42 | 804.46 | 804.46 |
| A | 67+83.75 | -20.42 | 804.51 | 804.57 |
| B | 67+93.75 | -20.42 | 804.56 | 804.67 |
| C | 68+03.75 | -20.42 | 804.61 | 804.75 |
| D | 68+13.75 | -20.42 | 804.66 | 804.81 |
| E | 68+23.75 | -20.42 | 804.71 | 804.84 |
| F | 68+33.75 | -20.42 | 804.76 | 804.86 |
| G | 68+43.75 | -20.42 | 804.81 | 804.87 |
| H | 68+53.75 | -20.42 | 804.86 | 804.88 |
| ℄ Pier 1 | 68+60.00 | -20.42 | 804.89 | 804.89 |
| I | 68+70.00 | -20.42 | 804.94 | 804.93 |
| J | 68+80.00 | -20.42 | 804.99 | 804.99 |
| K | 68+90.00 | -20.42 | 805.04 | 805.04 |
| L | 69+00.00 | -20.42 | 805.09 | 805.10 |
| M | 69+10.00 | -20.42 | 805.14 | 805.15 |
| N | 69+20.00 | -20.42 | 805.19 | 805.19 |
| O | 69+30.00 | -20.42 | 805.24 | 805.23 |
| P | 69+40.00 | -20.42 | 805.29 | 805.28 |
| ℄ Pier 2 | 69+45.00 | -20.42 | 805.32 | 805.32 |
| Q | 69+55.00 | -20.42 | 805.37 | 805.40 |
| R | 69+65.00 | -20.42 | 805.42 | 805.49 |
| S | 69+75.00 | -20.42 | 805.47 | 805.58 |
| T | 69+85.00 | -20.42 | 805.52 | 805.66 |
| U | 69+95.00 | -20.42 | 805.57 | 805.71 |
| V | 70+05.00 | -20.42 | 805.62 | 805.75 |
| W | 70+15.00 | -20.42 | 805.67 | 805.76 |
| X | 70+25.00 | -20.42 | 805.72 | 805.76 |
| ℄ N. Abut. | 70+31.25 | -20.42 | 805.75 | 805.75 |
| Bk. N. Abut. | 70+32.50 | -20.42 | 805.75 | 805.75 |

### BEAM 2

| Location | Station | Offset | Theoretical Grade Elevations | Theoretical Grade Elevations Adjusted For Dead Load Deflection |
|---|---|---|---|---|
| Bk. S. Abut. | 67+72.50 | -14.58 | 804.58 | 804.58 |
| ℄ S. Abut. | 67+73.75 | -14.58 | 804.58 | 804.58 |
| A | 67+83.75 | -14.58 | 804.63 | 804.69 |
| B | 67+93.75 | -14.58 | 804.68 | 804.79 |
| C | 68+03.75 | -14.58 | 804.73 | 804.87 |
| D | 68+13.75 | -14.58 | 804.78 | 804.93 |
| E | 68+23.75 | -14.58 | 804.83 | 804.96 |
| F | 68+33.75 | -14.58 | 804.88 | 804.98 |
| G | 68+43.75 | -14.58 | 804.93 | 804.99 |
| H | 68+53.75 | -14.58 | 804.98 | 805.00 |
| ℄ Pier 1 | 68+60.00 | -14.58 | 805.01 | 805.01 |
| I | 68+70.00 | -14.58 | 805.06 | 805.05 |
| J | 68+80.00 | -14.58 | 805.11 | 805.11 |
| K | 68+90.00 | -14.58 | 805.16 | 805.16 |
| L | 69+00.00 | -14.58 | 805.21 | 805.22 |
| M | 69+10.00 | -14.58 | 805.26 | 805.27 |
| N | 69+20.00 | -14.58 | 805.31 | 805.31 |
| O | 69+30.00 | -14.58 | 805.36 | 805.35 |
| P | 69+40.00 | -14.58 | 805.41 | 805.40 |
| ℄ Pier 2 | 69+45.00 | -14.58 | 805.44 | 805.44 |
| Q | 69+55.00 | -14.58 | 805.49 | 805.52 |
| R | 69+65.00 | -14.58 | 805.54 | 805.61 |
| S | 69+75.00 | -14.58 | 805.59 | 805.70 |
| T | 69+85.00 | -14.58 | 805.64 | 805.78 |
| U | 69+95.00 | -14.58 | 805.69 | 805.83 |
| V | 70+05.00 | -14.58 | 805.74 | 805.87 |
| W | 70+15.00 | -14.58 | 805.79 | 805.88 |
| X | 70+25.00 | -14.58 | 805.84 | 805.88 |
| ℄ N. Abut. | 70+31.25 | -14.58 | 805.87 | 805.87 |
| Bk. N. Abut. | 70+32.50 | -14.58 | 805.87 | 805.87 |

### BEAM 3

| Location | Station | Offset | Theoretical Grade Elevations | Theoretical Grade Elevations Adjusted For Dead Load Deflection |
|---|---|---|---|---|
| Bk. S. Abut. | 67+72.50 | -8.75 | 804.68 | 804.68 |
| ℄ S. Abut. | 67+73.75 | -8.75 | 804.68 | 804.68 |
| A | 67+83.75 | -8.75 | 804.73 | 804.79 |
| B | 67+93.75 | -8.75 | 804.78 | 804.89 |
| C | 68+03.75 | -8.75 | 804.83 | 804.97 |
| D | 68+13.75 | -8.75 | 804.88 | 805.03 |
| E | 68+23.75 | -8.75 | 804.93 | 805.06 |
| F | 68+33.75 | -8.75 | 804.98 | 805.08 |
| G | 68+43.75 | -8.75 | 805.03 | 805.09 |
| H | 68+53.75 | -8.75 | 805.08 | 805.10 |
| ℄ Pier 1 | 68+60.00 | -8.75 | 805.11 | 805.11 |
| I | 68+70.00 | -8.75 | 805.16 | 805.15 |
| J | 68+80.00 | -8.75 | 805.21 | 805.21 |
| K | 68+90.00 | -8.75 | 805.26 | 805.26 |
| L | 69+00.00 | -8.75 | 805.31 | 805.32 |
| M | 69+10.00 | -8.75 | 805.36 | 805.37 |
| N | 69+20.00 | -8.75 | 805.41 | 805.41 |
| O | 69+30.00 | -8.75 | 805.46 | 805.45 |
| P | 69+40.00 | -8.75 | 805.51 | 805.50 |
| ℄ Pier 2 | 69+45.00 | -8.75 | 805.54 | 805.54 |
| Q | 69+55.00 | -8.75 | 805.59 | 805.62 |
| R | 69+65.00 | -8.75 | 805.64 | 805.71 |
| S | 69+75.00 | -8.75 | 805.69 | 805.80 |
| T | 69+85.00 | -8.75 | 805.74 | 805.88 |
| U | 69+95.00 | -8.75 | 805.79 | 805.93 |
| V | 70+05.00 | -8.75 | 805.84 | 805.97 |
| W | 70+15.00 | -8.75 | 805.89 | 805.98 |
| X | 70+25.00 | -8.75 | 805.94 | 805.98 |
| ℄ N. Abut. | 70+31.25 | -8.75 | 805.97 | 805.97 |
| Bk. N. Abut. | 70+32.50 | -8.75 | 805.97 | 805.97 |

| | |
|---|---|
| DESIGNED | CJB |
| CHECKED | PWO |
| DRAWN | DRP |
| CHECKED | PJM |

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V3 Companies of Illinois Ltd.
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TOP OF SLAB ELEVATIONS

ILL. ROUTE 23 OVER
KISHWAUKEE RIVER
F.A.P. RT. 324 - SEC. 23B (I&2)F
MCHENRY COUNTY
STATION 69+02.50
STRUCTURE NO. 056-0001

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

| ROUTE NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| F.A.P. 324 | 23B (1&2)F | McHENRY | 17 | 7 |
| FED. ROAD DIST. NO. 7 | ILLINOIS | FED. AID PROJECT- | | |

SHEET NO.
SHEETS

Contract # 60E54

## BEAM 4

| Location | Station | Offset | Theoretical Grade Elevations | Theoretical Grade Elevations Adjusted For Dead Load Deflection |
|---|---|---|---|---|
| Bk. S. Abut. | 67+72.50 | -2.92 | 804.77 | 804.77 |
| ℄ S. Abut. | 67+73.75 | -2.92 | 804.77 | 804.77 |
| A | 67+83.75 | -2.92 | 804.82 | 804.88 |
| B | 67+93.75 | -2.92 | 804.87 | 804.98 |
| C | 68+03.75 | -2.92 | 804.92 | 805.06 |
| D | 68+13.75 | -2.92 | 804.97 | 805.12 |
| E | 68+23.75 | -2.92 | 805.02 | 805.15 |
| F | 68+33.75 | -2.92 | 805.07 | 805.17 |
| G | 68+43.75 | -2.92 | 805.12 | 805.18 |
| H | 68+53.75 | -2.92 | 805.17 | 805.19 |
| ℄ Pier 1 | 68+60.00 | -2.92 | 805.20 | 805.20 |
| I | 68+70.00 | -2.92 | 805.25 | 805.24 |
| J | 68+80.00 | -2.92 | 805.30 | 805.30 |
| K | 68+90.00 | -2.92 | 805.35 | 805.35 |
| L | 69+00.00 | -2.92 | 805.40 | 805.41 |
| M | 69+10.00 | -2.92 | 805.45 | 805.46 |
| N | 69+20.00 | -2.92 | 805.50 | 805.50 |
| O | 69+30.00 | -2.92 | 805.55 | 805.54 |
| P | 69+40.00 | -2.92 | 805.60 | 805.59 |
| ℄ Pier 2 | 69+45.00 | -2.92 | 805.63 | 805.63 |
| Q | 69+55.00 | -2.92 | 805.68 | 805.71 |
| R | 69+65.00 | -2.92 | 805.73 | 805.80 |
| S | 69+75.00 | -2.92 | 805.78 | 805.89 |
| T | 69+85.00 | -2.92 | 805.83 | 805.97 |
| U | 69+95.00 | -2.92 | 805.88 | 806.02 |
| V | 70+05.00 | -2.92 | 805.93 | 806.06 |
| W | 70+15.00 | -2.92 | 805.98 | 806.07 |
| X | 70+25.00 | -2.92 | 806.03 | 806.07 |
| ℄ N. Abut. | 70+31.25 | -2.92 | 806.06 | 806.06 |
| Bk. N. Abut. | 70+32.50 | -2.92 | 806.06 | 806.06 |

## BEAM 5

| Location | Station | Offset | Theoretical Grade Elevations | Theoretical Grade Elevations Adjusted For Dead Load Deflection |
|---|---|---|---|---|
| Bk. S. Abut. | 67+72.50 | 2.92 | 804.77 | 804.77 |
| ℄ S. Abut. | 67+73.75 | 2.92 | 804.77 | 804.77 |
| A | 67+83.75 | 2.92 | 804.82 | 804.88 |
| B | 67+93.75 | 2.92 | 804.87 | 804.98 |
| C | 68+03.75 | 2.92 | 804.92 | 805.06 |
| D | 68+13.75 | 2.92 | 804.97 | 805.12 |
| E | 68+23.75 | 2.92 | 805.02 | 805.15 |
| F | 68+33.75 | 2.92 | 805.07 | 805.17 |
| G | 68+43.75 | 2.92 | 805.12 | 805.18 |
| H | 68+53.75 | 2.92 | 805.17 | 805.19 |
| ℄ Pier 1 | 68+60.00 | 2.92 | 805.20 | 805.20 |
| I | 68+70.00 | 2.92 | 805.25 | 805.24 |
| J | 68+80.00 | 2.92 | 805.30 | 805.30 |
| K | 68+90.00 | 2.92 | 805.35 | 805.35 |
| L | 69+00.00 | 2.92 | 805.40 | 805.41 |
| M | 69+10.00 | 2.92 | 805.45 | 805.46 |
| N | 69+20.00 | 2.92 | 805.50 | 805.50 |
| O | 69+30.00 | 2.92 | 805.55 | 805.54 |
| P | 69+40.00 | 2.92 | 805.60 | 805.59 |
| ℄ Pier 2 | 69+45.00 | 2.92 | 805.63 | 805.63 |
| Q | 69+55.00 | 2.92 | 805.68 | 805.71 |
| R | 69+65.00 | 2.92 | 805.73 | 805.80 |
| S | 69+75.00 | 2.92 | 805.78 | 805.89 |
| T | 69+85.00 | 2.92 | 805.83 | 805.97 |
| U | 69+95.00 | 2.92 | 805.88 | 806.02 |
| V | 70+05.00 | 2.92 | 805.93 | 806.06 |
| W | 70+15.00 | 2.92 | 805.98 | 806.07 |
| X | 70+25.00 | 2.92 | 806.03 | 806.07 |
| ℄ N. Abut. | 70+31.25 | 2.92 | 806.06 | 806.06 |
| Bk. N. Abut. | 70+32.50 | 2.92 | 806.06 | 806.06 |

## BEAM 6

| Location | Station | Offset | Theoretical Grade Elevations | Theoretical Grade Elevations Adjusted For Dead Load Deflection |
|---|---|---|---|---|
| Bk. S. Abut. | 67+72.50 | 8.75 | 804.68 | 804.68 |
| ℄ S. Abut. | 67+73.75 | 8.75 | 804.68 | 804.68 |
| A | 67+83.75 | 8.75 | 804.73 | 804.79 |
| B | 67+93.75 | 8.75 | 804.78 | 804.89 |
| C | 68+03.75 | 8.75 | 804.83 | 804.97 |
| D | 68+13.75 | 8.75 | 804.88 | 805.03 |
| E | 68+23.75 | 8.75 | 804.93 | 805.06 |
| F | 68+33.75 | 8.75 | 804.98 | 805.08 |
| G | 68+43.75 | 8.75 | 805.03 | 805.09 |
| H | 68+53.75 | 8.75 | 805.08 | 805.10 |
| ℄ Pier 1 | 68+60.00 | 8.75 | 805.11 | 805.11 |
| I | 68+70.00 | 8.75 | 805.16 | 805.15 |
| J | 68+80.00 | 8.75 | 805.21 | 805.21 |
| K | 68+90.00 | 8.75 | 805.26 | 805.26 |
| L | 69+00.00 | 8.75 | 805.31 | 805.32 |
| M | 69+10.00 | 8.75 | 805.36 | 805.37 |
| N | 69+20.00 | 8.75 | 805.41 | 805.41 |
| O | 69+30.00 | 8.75 | 805.46 | 805.45 |
| P | 69+40.00 | 8.75 | 805.51 | 805.50 |
| ℄ Pier 2 | 69+45.00 | 8.75 | 805.54 | 805.54 |
| Q | 69+55.00 | 8.75 | 805.59 | 805.62 |
| R | 69+65.00 | 8.75 | 805.64 | 805.71 |
| S | 69+75.00 | 8.75 | 805.69 | 805.80 |
| T | 69+85.00 | 8.75 | 805.74 | 805.88 |
| U | 69+95.00 | 8.75 | 805.79 | 805.93 |
| V | 70+05.00 | 8.75 | 805.84 | 805.97 |
| W | 70+15.00 | 8.75 | 805.89 | 805.98 |
| X | 70+25.00 | 8.75 | 805.94 | 805.98 |
| ℄ N. Abut. | 70+31.25 | 8.75 | 805.97 | 805.97 |
| Bk. N. Abut. | 70+32.50 | 8.75 | 805.97 | 805.97 |

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| | |
|---|---|
| DESIGNED | CJB |
| CHECKED | PWO |
| DRAWN | DRP |
| CHECKED | PJM |

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STRUCTURE NO. 056-0001

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

| ROUTE NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| F.A.P. 324 | 23B (1&2)F | McHENRY | 17 | 8 |
| FED. ROAD DIST. NO. 7 | | ILLINOIS | FED. AID PROJECT- | |

SHEET NO.
SHEETS

Contract # 60E54

## BEAM 7

| Location | Station | Offset | Theoretical Grade Elevations | Theoretical Grade Elevations Adjusted For Dead Load Deflection |
|---|---|---|---|---|
| Bk. S. Abut. | 67+72.50 | 14.58 | 804.58 | 804.58 |
| ℄ S. Abut. | 67+73.75 | 14.58 | 804.58 | 804.58 |
| A | 67+83.75 | 14.58 | 804.63 | 804.69 |
| B | 67+93.75 | 14.58 | 804.68 | 804.79 |
| C | 68+03.75 | 14.58 | 804.73 | 804.87 |
| D | 68+13.75 | 14.58 | 804.78 | 804.93 |
| E | 68+23.75 | 14.58 | 804.83 | 804.96 |
| F | 68+33.75 | 14.58 | 804.88 | 804.98 |
| G | 68+43.75 | 14.58 | 804.93 | 804.99 |
| H | 68+53.75 | 14.58 | 804.98 | 805.00 |
| ℄ Pier 1 | 68+60.00 | 14.58 | 805.01 | 805.01 |
| I | 68+70.00 | 14.58 | 805.06 | 805.05 |
| J | 68+80.00 | 14.58 | 805.11 | 805.11 |
| K | 68+90.00 | 14.58 | 805.16 | 805.16 |
| L | 69+00.00 | 14.58 | 805.21 | 805.22 |
| M | 69+10.00 | 14.58 | 805.26 | 805.27 |
| N | 69+20.00 | 14.58 | 805.31 | 805.31 |
| O | 69+30.00 | 14.58 | 805.36 | 805.35 |
| P | 69+40.00 | 14.58 | 805.41 | 805.40 |
| ℄ Pier 2 | 69+45.00 | 14.58 | 805.44 | 805.44 |
| Q | 69+55.00 | 14.58 | 805.49 | 805.52 |
| R | 69+65.00 | 14.58 | 805.54 | 805.61 |
| S | 69+75.00 | 14.58 | 805.59 | 805.70 |
| T | 69+85.00 | 14.58 | 805.64 | 805.78 |
| U | 69+95.00 | 14.58 | 805.69 | 805.83 |
| V | 70+05.00 | 14.58 | 805.74 | 805.87 |
| W | 70+15.00 | 14.58 | 805.79 | 805.88 |
| X | 70+25.00 | 14.58 | 805.84 | 805.88 |
| ℄ N. Abut. | 70+31.25 | 14.58 | 805.87 | 805.87 |
| Bk. N. Abut. | 70+32.50 | 14.58 | 805.87 | 805.87 |

## BEAM 8

| Location | Station | Offset | Theoretical Grade Elevations | Theoretical Grade Elevations Adjusted For Dead Load Deflection |
|---|---|---|---|---|
| Bk. S. Abut. | 67+72.50 | 20.42 | 804.46 | 804.46 |
| ℄ S. Abut. | 67+73.75 | 20.42 | 804.46 | 804.46 |
| A | 67+83.75 | 20.42 | 804.51 | 804.57 |
| B | 67+93.75 | 20.42 | 804.56 | 804.67 |
| C | 68+03.75 | 20.42 | 804.61 | 804.75 |
| D | 68+13.75 | 20.42 | 804.66 | 804.81 |
| E | 68+23.75 | 20.42 | 804.71 | 804.84 |
| F | 68+33.75 | 20.42 | 804.76 | 804.86 |
| G | 68+43.75 | 20.42 | 804.81 | 804.87 |
| H | 68+53.75 | 20.42 | 804.86 | 804.88 |
| ℄ Pier 1 | 68+60.00 | 20.42 | 804.89 | 804.89 |
| I | 68+70.00 | 20.42 | 804.94 | 804.93 |
| J | 68+80.00 | 20.42 | 804.99 | 804.99 |
| K | 68+90.00 | 20.42 | 805.04 | 805.04 |
| L | 69+00.00 | 20.42 | 805.09 | 805.10 |
| M | 69+10.00 | 20.42 | 805.14 | 805.15 |
| N | 69+20.00 | 20.42 | 805.19 | 805.19 |
| O | 69+30.00 | 20.42 | 805.24 | 805.23 |
| P | 69+40.00 | 20.42 | 805.29 | 805.28 |
| ℄ Pier 2 | 69+45.00 | 20.42 | 805.32 | 805.32 |
| Q | 69+55.00 | 20.42 | 805.37 | 805.40 |
| R | 69+65.00 | 20.42 | 805.42 | 805.49 |
| S | 69+75.00 | 20.42 | 805.47 | 805.58 |
| T | 69+85.00 | 20.42 | 805.52 | 805.66 |
| U | 69+95.00 | 20.42 | 805.57 | 805.71 |
| V | 70+05.00 | 20.42 | 805.62 | 805.75 |
| W | 70+15.00 | 20.42 | 805.67 | 805.76 |
| X | 70+25.00 | 20.42 | 805.72 | 805.76 |
| ℄ N. Abut. | 70+31.25 | 20.42 | 805.75 | 805.75 |
| Bk. N. Abut. | 70+32.50 | 20.42 | 805.75 | 805.75 |

## CENTERLINE OF ROADWAY AND P.G.

| Location | Station | Offset | Theoretical Grade Elevations | Theoretical Grade Elevations Adjusted For Dead Load Deflection |
|---|---|---|---|---|
| Bk. S. Abut. | 67+72.50 | 0.00 | 804.82 | 804.82 |
| ℄ S. Abut. | 67+73.75 | 0.00 | 804.82 | 804.82 |
| A | 67+83.75 | 0.00 | 804.87 | 804.93 |
| B | 67+93.75 | 0.00 | 804.92 | 805.03 |
| C | 68+03.75 | 0.00 | 804.97 | 805.11 |
| D | 68+13.75 | 0.00 | 805.02 | 805.17 |
| E | 68+23.75 | 0.00 | 805.07 | 805.20 |
| F | 68+33.75 | 0.00 | 805.12 | 805.22 |
| G | 68+43.75 | 0.00 | 805.17 | 805.23 |
| H | 68+53.75 | 0.00 | 805.22 | 805.24 |
| ℄ Pier 1 | 68+60.00 | 0.00 | 805.25 | 805.25 |
| I | 68+70.00 | 0.00 | 805.30 | 805.29 |
| J | 68+80.00 | 0.00 | 805.35 | 805.35 |
| K | 68+90.00 | 0.00 | 805.40 | 805.40 |
| L | 69+00.00 | 0.00 | 805.45 | 805.46 |
| M | 69+10.00 | 0.00 | 805.50 | 805.51 |
| N | 69+20.00 | 0.00 | 805.55 | 805.55 |
| O | 69+30.00 | 0.00 | 805.60 | 805.59 |
| P | 69+40.00 | 0.00 | 805.65 | 805.64 |
| ℄ Pier 2 | 69+45.00 | 0.00 | 805.68 | 805.68 |
| Q | 69+55.00 | 0.00 | 805.73 | 805.76 |
| R | 69+65.00 | 0.00 | 805.78 | 805.85 |
| S | 69+75.00 | 0.00 | 805.83 | 805.94 |
| T | 69+85.00 | 0.00 | 805.88 | 806.02 |
| U | 69+95.00 | 0.00 | 805.93 | 806.07 |
| V | 70+05.00 | 0.00 | 805.98 | 806.11 |
| W | 70+15.00 | 0.00 | 806.03 | 806.12 |
| X | 70+25.00 | 0.00 | 806.08 | 806.12 |
| ℄ N. Abut. | 70+31.25 | 0.00 | 806.12 | 806.12 |
| Bk. N. Abut. | 70+32.50 | 0.00 | 806.12 | 806.12 |

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NOT PART OF THIS CONTRACT

| | |
|---|---|
| DESIGNED | CJB |
| CHECKED | PWO |
| DRAWN | DRP |
| CHECKED | PJM |

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TOP OF SLAB ELEVATIONS

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MCHENRY COUNTY
STATION 69+02.50
STRUCTURE NO. 056-0001

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

| ROUTE NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| F.A.P. 324 | 23B (1&2)F | McHENRY | 17 | 9 |
| FED. ROAD DIST. NO. 7 | ILLINOIS | FED. AID PROJECT- | | |

SHEET NO.
SHEETS

Contract # 60E54

## WEST CURB LINE

| Location | Station | Offset | Theoretical Grade Elevations |
|---|---|---|---|
| End S. Appr. Pav't. | 67+42.50 | -22.42 | 804.27 |
| A | 67+52.50 | -22.42 | 804.32 |
| B | 67+62.50 | -22.42 | 804.37 |
| Bk. S. Abut. | 67+72.50 | -22.42 | 804.42 |

## WEST EDGE OF PAVEMENT

| Location | Station | Offset | Theoretical Grade Elevations |
|---|---|---|---|
| End S. Appr. Pav't. | 67+42.50 | -12.00 | 804.49 |
| A | 67+52.50 | -12.00 | 804.54 |
| B | 67+62.50 | -12.00 | 804.58 |
| Bk. S. Abut. | 67+72.50 | -12.00 | 804.63 |

## ℄ ROADWAY & PG

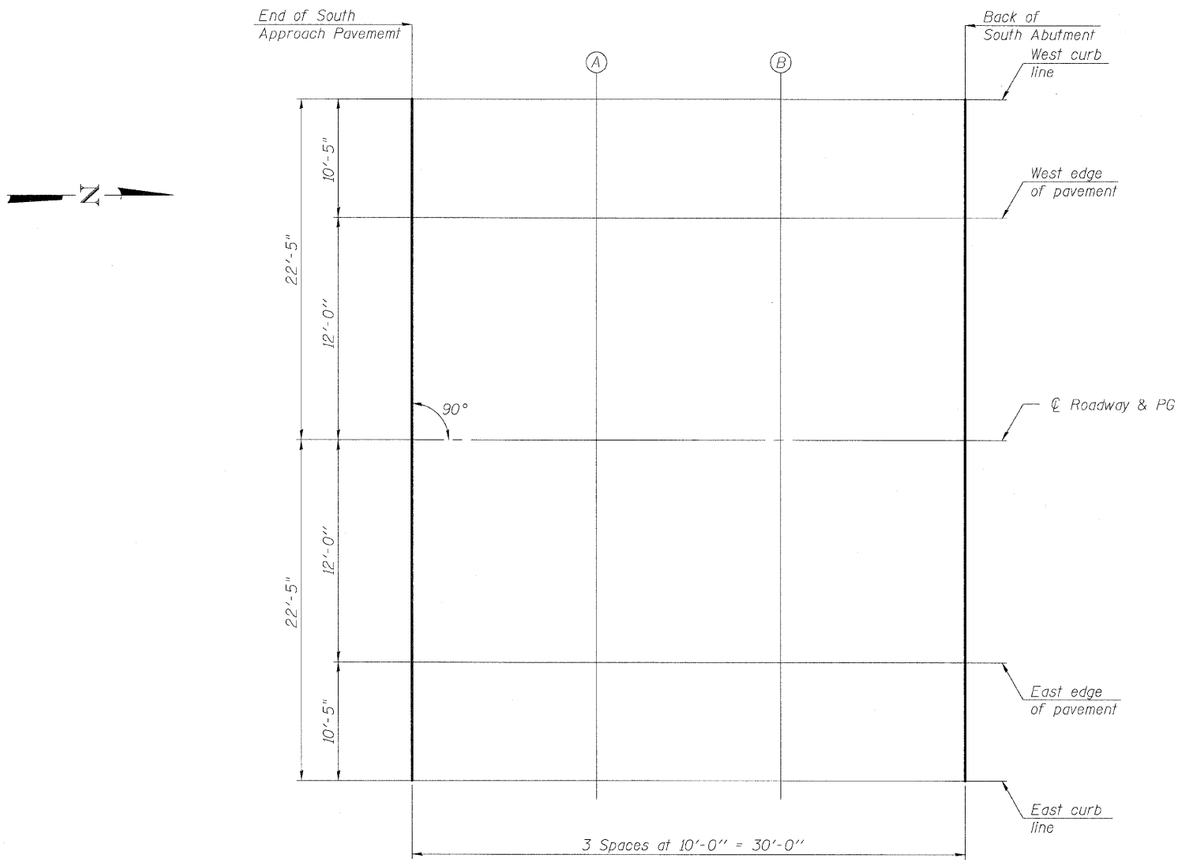
| Location | Station | Offset | Theoretical Grade Elevations |
|---|---|---|---|
| End S. Appr. Pav't. | 67+42.50 | 0.00 | 804.67 |
| A | 67+52.50 | 0.00 | 804.72 |
| B | 67+62.50 | 0.00 | 804.77 |
| Bk. S. Abut. | 67+72.50 | 0.00 | 804.82 |

## EAST EDGE OF PAVEMENT

| Location | Station | Offset | Theoretical Grade Elevations |
|---|---|---|---|
| End S. Appr. Pav't. | 67+42.50 | 12.00 | 804.49 |
| A | 67+52.50 | 12.00 | 804.54 |
| B | 67+62.50 | 12.00 | 804.58 |
| Bk. S. Abut. | 67+72.50 | 12.00 | 804.63 |

## EAST CURB LINE

| Location | Station | Offset | Theoretical Grade Elevations |
|---|---|---|---|
| End S. Appr. Pav't. | 67+42.50 | 22.42 | 804.27 |
| A | 67+52.50 | 22.42 | 804.32 |
| B | 67+62.50 | 22.42 | 804.37 |
| Bk. S. Abut. | 67+72.50 | 22.42 | 804.42 |




PLAN

FOR INFORMATION ONLY
NOT PART OF THIS CONTRACT

| | |
|---|---|
| DESIGNED | CJB |
| CHECKED | PWO |
| DRAWN | DRP |
| CHECKED | PJM |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TOP OF SOUTH APPROACH SLAB ELEVATIONS

ILL. ROUTE 23 OVER
KISHWAUKEE RIVER
F.A.P. RT. 324 - SEC. 23B (1&2)F
MCHENRY COUNTY
STATION 69+02.50
STRUCTURE NO. 056-0001

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

| ROUTE NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| F.A.P. 324 | 23B (1&2)F | McHENRY | 17 | 10 |
| FED. ROAD DIST. NO. 7 | ILLINOIS | FED. AID PROJECT- | | |

SHEET NO.
SHEETS

Contract # 60E54

## WEST CURB LINE

| Location | Station | Offset | Theoretical Grade Elevations |
|---|---|---|---|
| End N. Appr. Pav't. | 70+62.50 | -22.42 | 805.86 |
| A | 70+52.50 | -22.42 | 805.81 |
| B | 70+42.50 | -22.42 | 805.76 |
| Bk. N. Abut. | 70+32.50 | -22.42 | 805.71 |

## WEST EDGE OF PAVEMENT

| Location | Station | Offset | Theoretical Grade Elevations |
|---|---|---|---|
| End N. Appr. Pav't. | 70+62.50 | -12.00 | 806.08 |
| A | 70+52.50 | -12.00 | 806.03 |
| B | 70+42.50 | -12.00 | 805.97 |
| Bk. N. Abut. | 70+32.50 | -12.00 | 805.92 |

## ℄ ROADWAY & PG

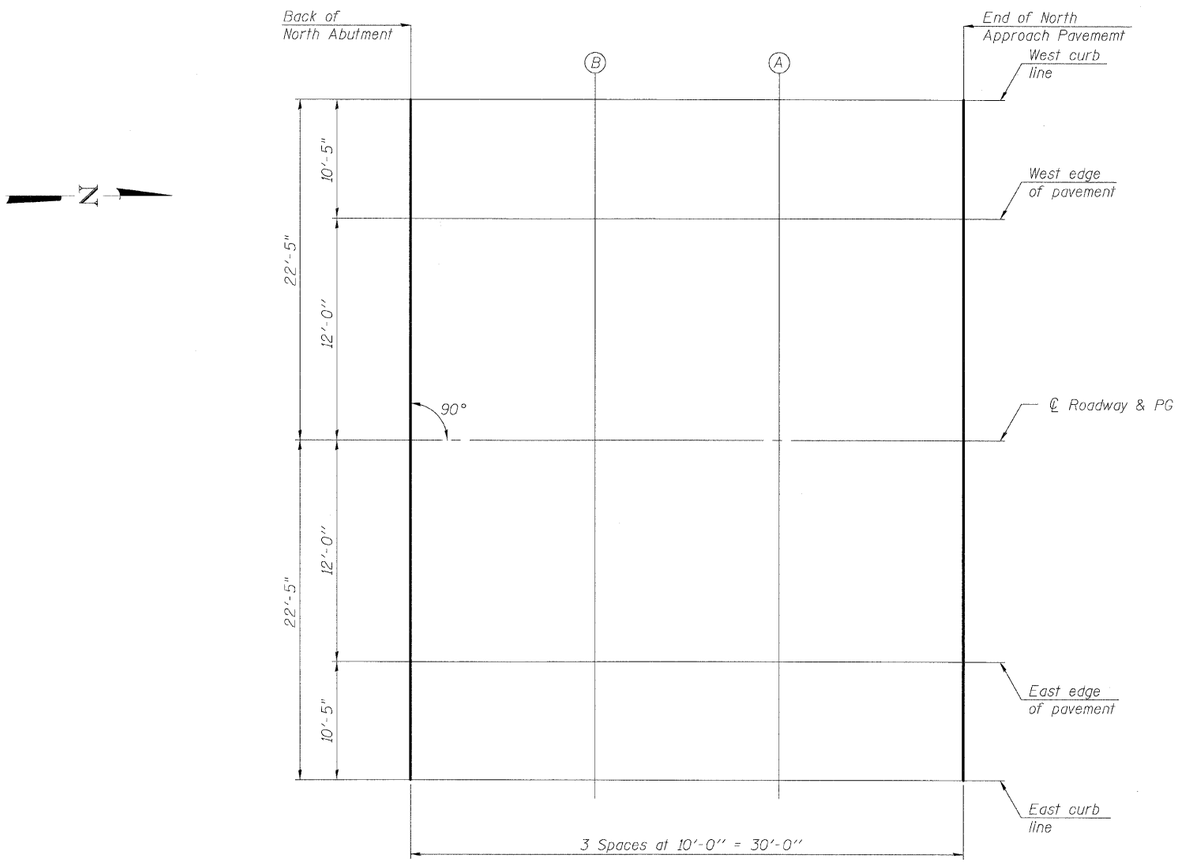
| Location | Station | Offset | Theoretical Grade Elevations |
|---|---|---|---|
| End N. Appr. Pav't. | 70+62.50 | 0.00 | 806.26 |
| A | 70+52.50 | 0.00 | 806.21 |
| B | 70+42.50 | 0.00 | 806.16 |
| Bk. N. Abut. | 70+32.50 | 0.00 | 806.12 |

## EAST EDGE OF PAVEMENT

| Location | Station | Offset | Theoretical Grade Elevations |
|---|---|---|---|
| End N. Appr. Pav't. | 70+62.50 | 12.00 | 806.08 |
| A | 70+52.50 | 12.00 | 806.03 |
| B | 70+42.50 | 12.00 | 805.97 |
| Bk. N. Abut. | 70+32.50 | 12.00 | 805.92 |

## EAST CURB LINE

| Location | Station | Offset | Theoretical Grade Elevations |
|---|---|---|---|
| End N. Appr. Pav't. | 70+62.50 | 22.42 | 805.86 |
| A | 70+52.50 | 22.42 | 805.81 |
| B | 70+42.50 | 22.42 | 805.76 |
| Bk. N. Abut. | 70+32.50 | 22.42 | 805.71 |




PLAN

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| | |
|---|---|
| DESIGNED | CJB |
| CHECKED | PWO |
| DRAWN | DRP |
| CHECKED | PJM |

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TOP OF NORTH APPROACH SLAB ELEVATIONS

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KISHWAUKEE RIVER
F.A.P. RT. 324 - SEC. 23B (1&2)F
MCHENRY COUNTY
STATION 69+02.50
STRUCTURE NO. 056-0001

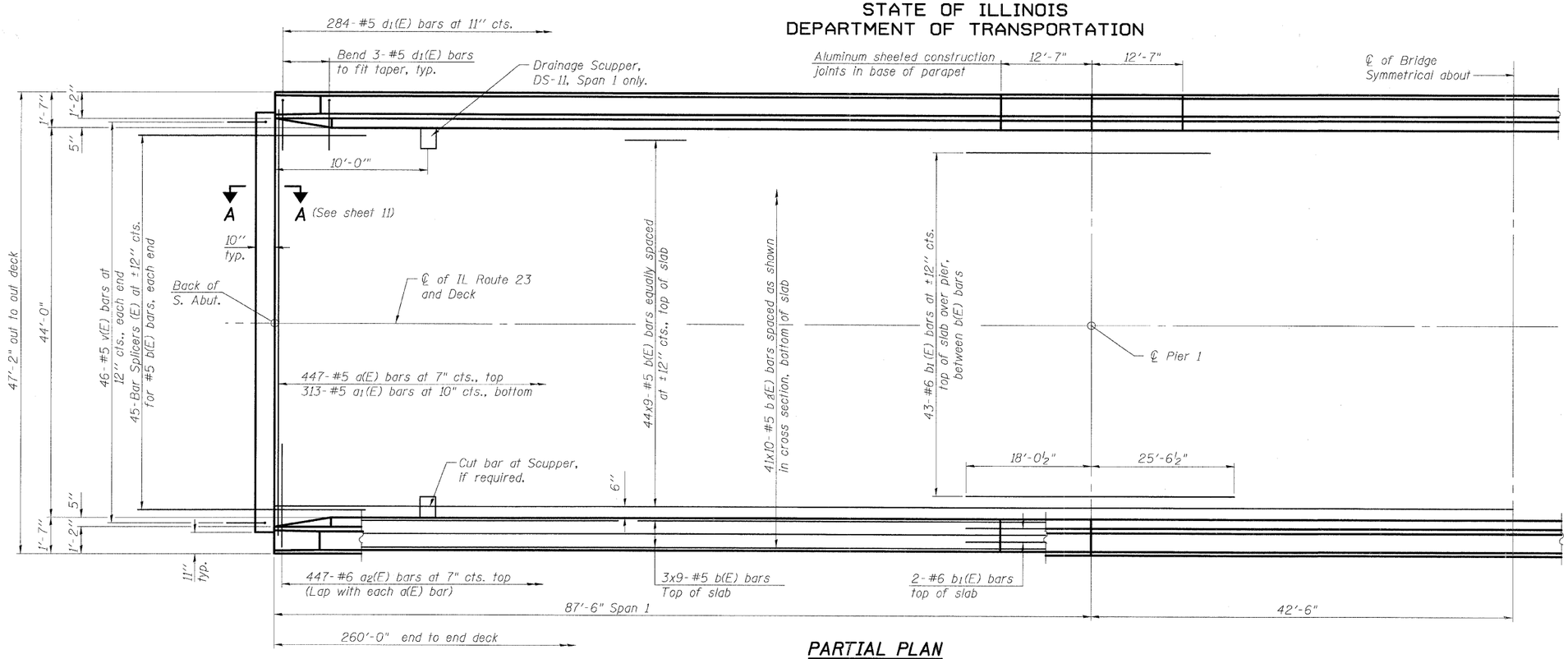
# STATE OF ILLINOIS
# DEPARTMENT OF TRANSPORTATION

| ROUTE NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| F.A.P. 324 | 23B (1&2)F | McHENRY | 17 | 11 |
| FED. ROAD DIST. NO. 7 | ILLINOIS | FED. AID PROJECT- | | |

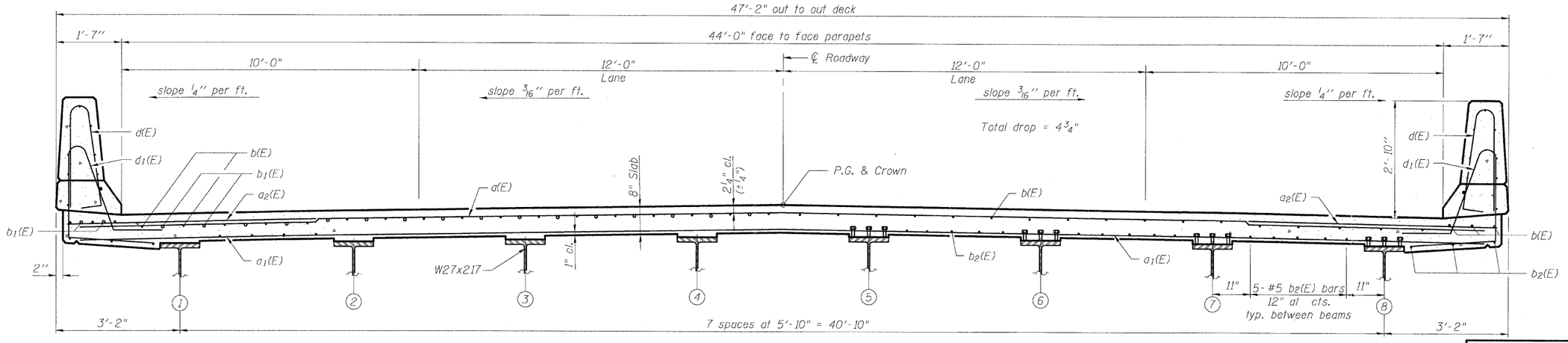
SHEET NO.

SHEETS

Contract # 60E54




## PARTIAL PLAN




## MIN. BAR LAP

(slab)
#5 bar = 1'-8"

NEAR PIER

NEAR MIDSPAN

## CROSS SECTION

(Looking North)

Notes:
See Sheet 10 of 26 for superstructure details and Bill of Material.

Bars indicated thus 44 x 9-#5 etc. indicates 44 lines of bars with 9 lengths per line.

See Sheet 10 of 26 for parapet reinforcement.

| | |
|---|---|
| DESIGNED | CJB |
| CHECKED | PWO |
| DRAWN | DRP |
| CHECKED | PJM |

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SUPERSTRUCTURE
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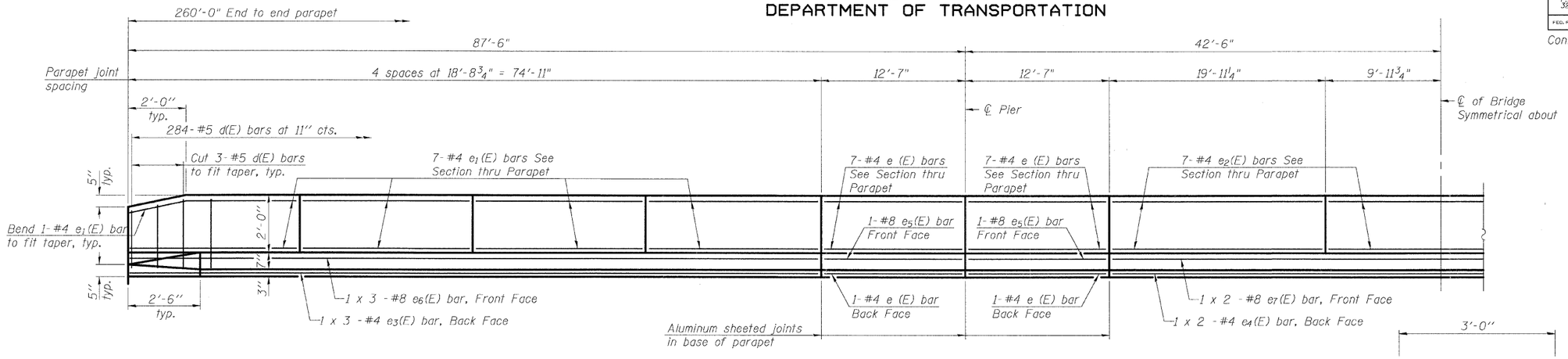
F.A.P. RT. 324 - SEC. 23B (1&2)F
MCHENRY COUNTY
STATION 69+02.50
STRUCTURE NO. 056-0001

# STATE OF ILLINOIS
# DEPARTMENT OF TRANSPORTATION

| ROUTE NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| F.A.P. 324 | 238 (1&2)F | McHENRY | 17 | 12 |
| FED. ROAD DIST. NO. 7 | ILLINOIS | FED. AID PROJECT- | | |

SHEET NO.
SHEETS

Contract # 60E54

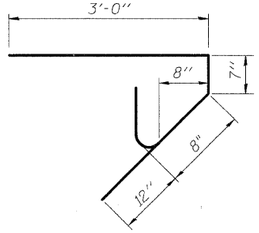



## INSIDE ELEVATION OF PARAPET

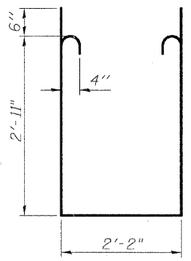
## SUPERSTRUCTURE BILL OF MATERIAL

| Bar | No. | Size | Length | Shape |
|---|---|---|---|---|
| a(E) | 447 | #5 | 46'-6" | |
| a1(E) | 313 | #5 | 45'-10" | |
| a2(E) | 894 | #6 | 6'-0" | |
| a3(E) | 16 | #5 | 1'-6" | |
| | | | | |
| b(E) | 450 | #5 | 30'-4" | |
| b1(E) | 94 | #6 | 43'-7" | |
| b2(E) | 410 | #5 | 27'-5" | |
| | | | | |
| d(E) | 568 | #5 | 5'-7" | |
| d1(E) | 568 | #5 | 7'-9" | |
| | | | | |
| e(E) | 64 | #4 | 12'-3" | |
| e1(E) | 112 | #4 | 18'-5" | |
| e2(E) | 42 | #4 | 19'-7" | |
| e3(E) | 12 | #4 | 25'-11" | |
| e4(E) | 4 | #4 | 30'-6" | |
| e5(E) | 8 | #8 | 12'-3" | |
| e6(E) | 12 | #8 | 27'-11" | |
| e7(E) | 4 | #8 | 31'-11" | |
| | | | | |
| m(E) | 4 | #6 | 45'-0" | |
| m1(E) | 6 | #6 | 46'-10" | |
| m2(E) | 8 | #6 | 24'-6" | |
| m3(E) | 14 | #6 | 5'-6" | |
| m4(E) | 4 | #6 | 2'-10" | |
| | | | | |
| s(E) | 96 | #5 | 5'-3" | |
| s1(E) | 82 | #4 | 9'-0" | |
| | | | | |
| v(E) | 92 | #5 | 3'-4" | |
| | | | | |
| | | | | |
| Reinforcement Bars, Epoxy Coated | | Pound | 91,540 | |
| Concrete Superstructure | | Cu. Yds. | 409.2 | |

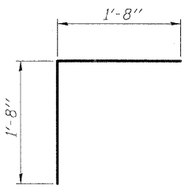
Bars indicated thus 1 x 3-#4 etc. indicates 1 line of bars with 3 lengths per line.




BAR s(E)



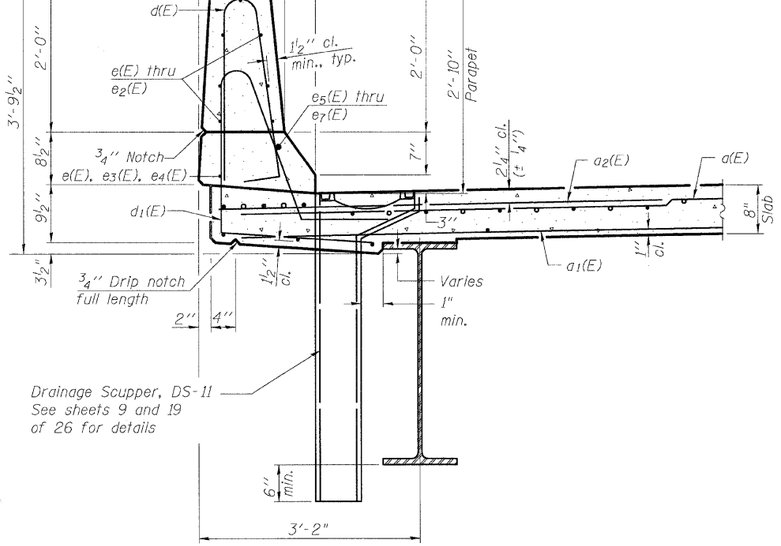

BAR s1(E)



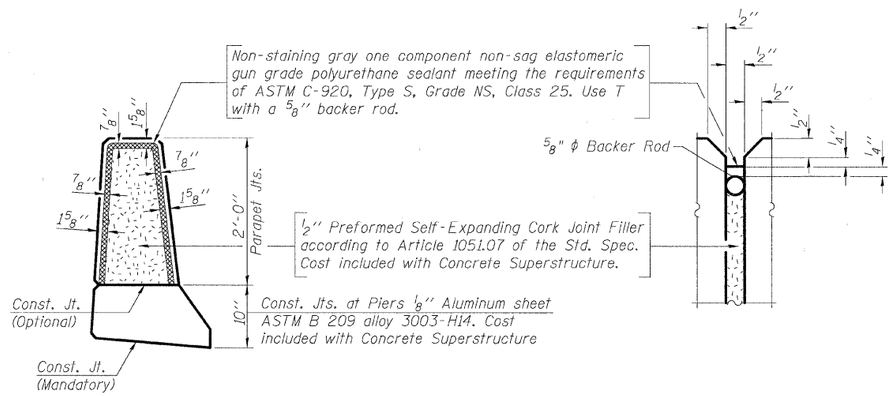

BAR v(E)

## MINIMUM BAR LAP
(Parapet)
#4 bar = 1'-4"
#8 bar = 3'-5"

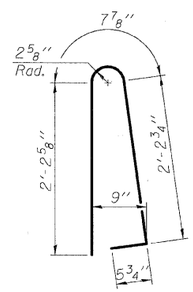
## MIN. BAR LAP
(Parapet)
#4 bar = 1'-8"
#8 bar = 4'-6"



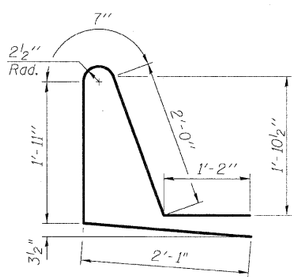

## SECTION THRU PARAPET



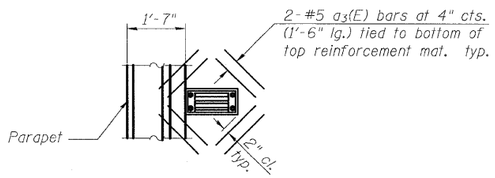

## PARAPET JOINT DETAILS




BAR d(E)




BAR d1(E)




## PARTIAL PLAN AT SCUPPER

Note:
Cut longitudinal reinforcement to clear drainage scuppers.

| | |
|---|---|
| DESIGNED | CJB |
| CHECKED | PWO |
| DRAWN | DRP |
| CHECKED | PJM |

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SUPERSTRUCTURE

ILL. ROUTE 23 OVER
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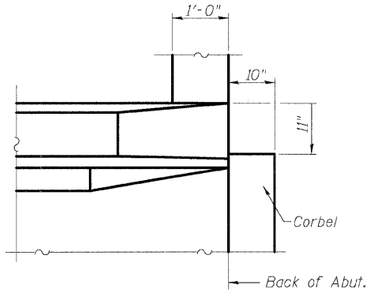
MCHENRY COUNTY
STATION 69+02.50
STRUCTURE NO. 056-0001

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

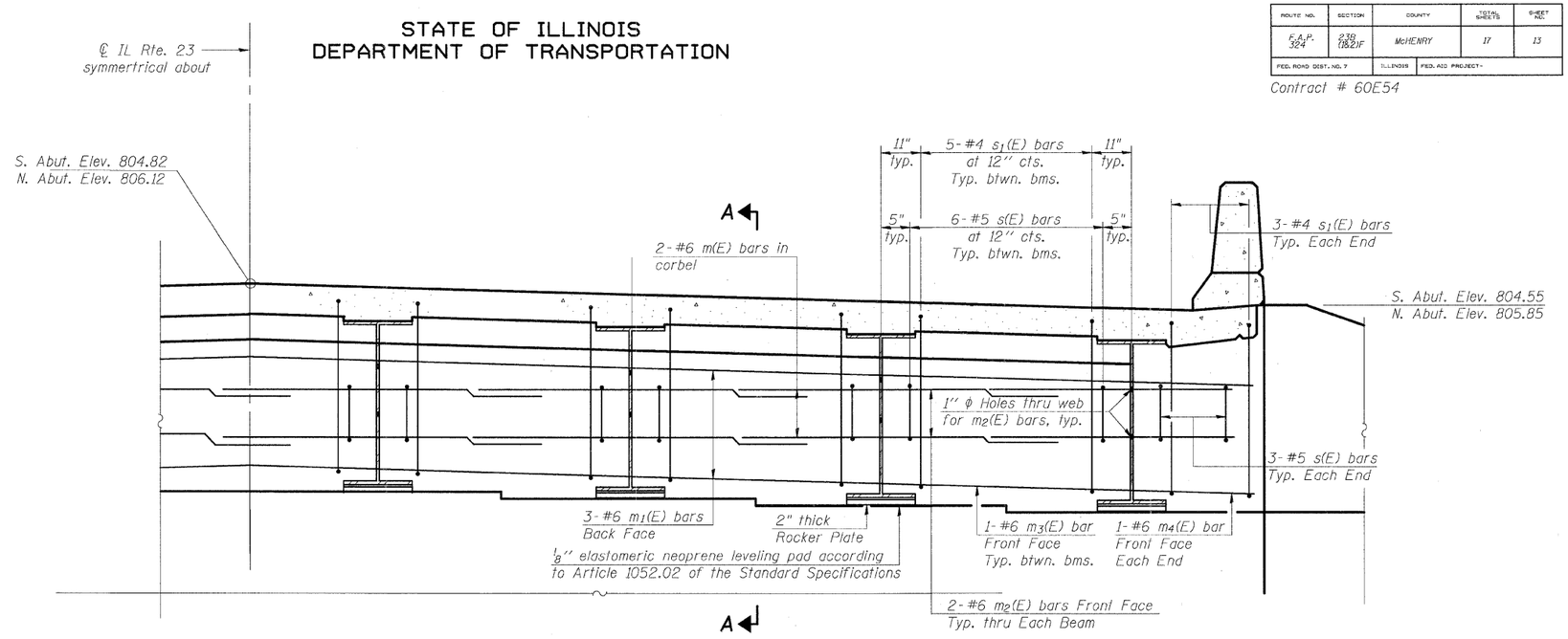
| ROUTE NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| F.A.P. 324 | 23B (1&2)F | McHENRY | 17 | 13 |
| FED. ROAD DIST. NO. 7 | ILLINOIS | FED. AID PROJECT- | | |

SHEET NO.
SHEETS

Contract # 60E54




**PLAN VIEW**
(Corbel Notch for Traffic Barrier)

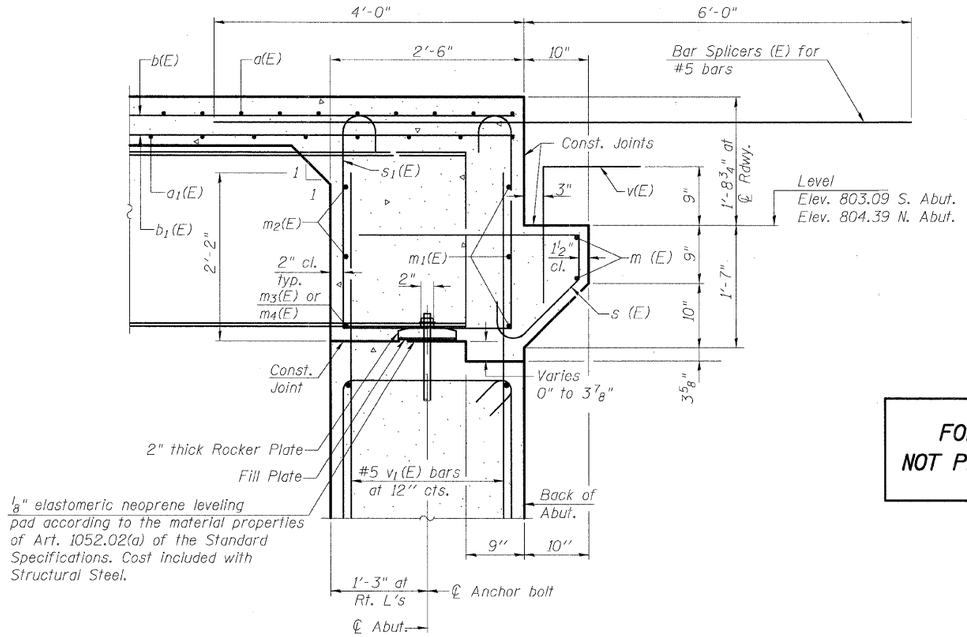



**DIAPHRAGM ELEVATION AT ABUTMENT**

**MIN. BAR LAP**
(Diaphragm)
#6 bar = 2'-7"

Notes:
Reinforcement bars in diaphragm are billed with superstructure on sheet 10 of 26 .
Concrete in diaphragm is included with Concrete Superstructure on sheet 10 of 26.
For details of bars s(E) & $s_1$(E) see sheet 10 of 26.
The s(E) and $s_1$(E) bars shall be placed parallel to the beams. Spacing for these bars shall be at right angles to the beams.

**MIN. BAR LAP**
#6 bar = 2'-9"




**SECTION A-A**
Dimensions at right angles to abutment, except as shown.

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| | |
|---|---|
| DESIGNED | CJB |
| CHECKED | PWO |
| DRAWN | DRP |
| CHECKED | PJM |


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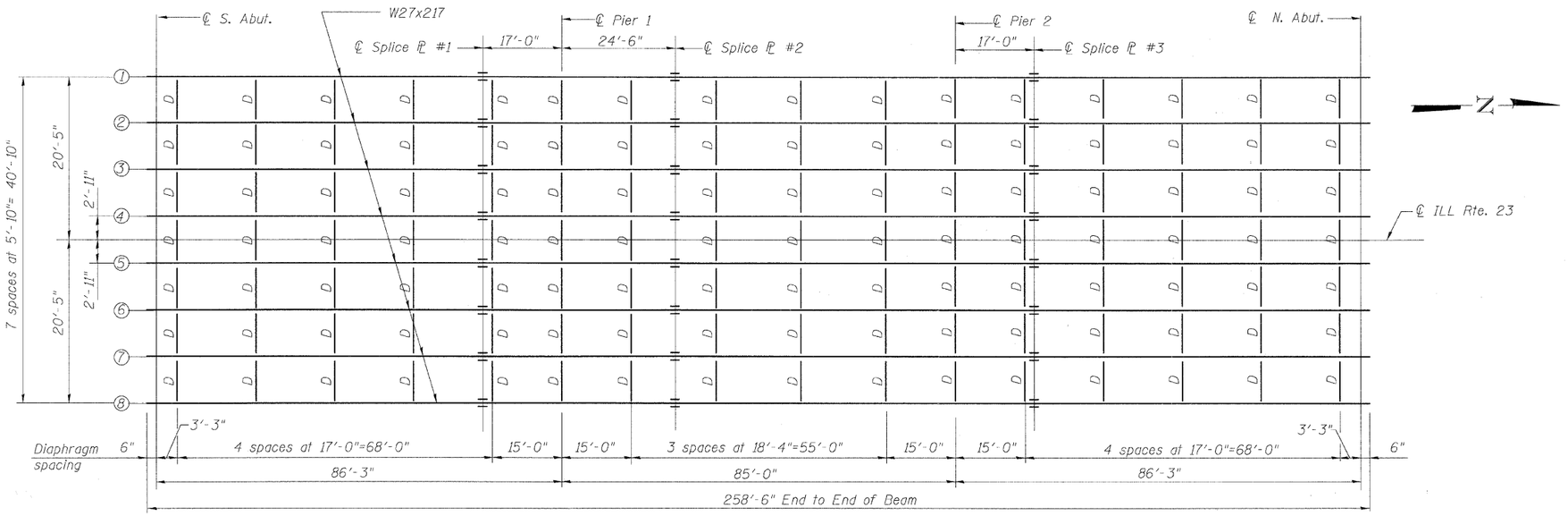
# STATE OF ILLINOIS
# DEPARTMENT OF TRANSPORTATION

| ROUTE NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| F.A.P. 324 | 23B (1&2)F | MCHENRY | 17 | 14 |
| FED. ROAD DIST. NO. 7 | ILLINOIS | FED. AID PROJECT- | | |

SHEET NO.
SHEETS

Contract # 60E54




## FRAMING PLAN

| INTERIOR GIRDER MOMENT TABLE | | | | |
|---|---|---|---|---|
| | | 0.4 Sp. 1 or 0.6 Sp. 3 | Piers | 0.5 Sp. 2 |
| $I_s$ | ($in^4$) | 8,910 | 8,910 | 8,910 |
| $I_c(n)$ | ($in^4$) | 20,915 | 8,910 | 20,915 |
| $I_c(3n)$ | ($in^4$) | 14,847 | 8,910 | 14,847 |
| $S_s$ | ($in^3$) | 627 | 627 | 627 |
| $S_c(n)$ | ($in^3$) | 881 | 627 | 881 |
| $S_c(3n)$ | ($in^3$) | 783 | 627 | 783 |
| DC1 | (k/') | 0.844 | 0.844 | 0.844 |
| $M_{DC1}$ | ('k) | 506 | 620 | 142 |
| DC2 | (k/') | 0.113 | 0.113 | 0.113 |
| $M_{DC2}$ | ('k) | 71 | 74 | 28 |
| DW | (k/') | 0.275 | 0.275 | 0.275 |
| $M_{DW}$ | ('k) | 174 | 180 | 68 |
| $M_{L+Imp}$ | ('k) | 1,015 | 711 | 787 |
| $M_u$(Strength I) | ('k) | 2,758 | 2,381 | 1,693 |
| $\phi_f M_n$, $\phi_f M_{nc}$ | ('k) | 3,880 | — | 3,880 |
| $f_s$ DC1 | (ksi) | 9.68 | 11.87 | 2.72 |
| $f_s$ DC2 | (ksi) | 1.09 | 1.42 | 0.43 |
| $f_s$ DW | (ksi) | 2.67 | 3.45 | 1.04 |
| $f_s$ 1.3(L+I) | (ksi) | 17.97 | 17.69 | 13.94 |
| $f_s$ (Service II) | (ksi) | 31.41 | 34.43 | 18.13 |
| $f_s$ (Total)(Strength I) | (ksi) | — | 45.61 | — |
| $V_f$ | (k) | 20.11 | — | 17.14 |

| INTERIOR GIRDER REACTION TABLE HL93 Loading | | | |
|---|---|---|---|
| | | Abut. | Pier |
| $R_{DC1}$ | (k) | 29.99 | 79.45 |
| $R_{DC2}$ | (k) | 4.02 | 10.53 |
| $R_{DW}$ | (k) | 9.78 | 25.63 |
| $R_{L+Imp}$ | (k) | 71.92 | 109.54 |
| $R_{Total}$ | (k) | 115.71 | 225.15 |

| BEARING SEAT ELEVATIONS (For Information Only) | | | | |
|---|---|---|---|---|
| Beam \ Loc. | ℄ S. Abut. | ℄ Pier 1 | ℄ Pier 2 | ℄ N. Abut. |
| Beam No.1 | 801.21 | 801.54 | 801.96 | 802.50 |
| Beam No.2 | 801.33 | 801.66 | 802.08 | 802.62 |
| Beam No.3 | 801.44 | 801.77 | 802.19 | 802.73 |
| Beam No.4 | 801.53 | 801.86 | 802.28 | 802.82 |
| Beam No.5 | 801.53 | 801.86 | 802.28 | 802.82 |
| Beam No.6 | 801.44 | 801.77 | 802.19 | 802.73 |
| Beam No.7 | 801.33 | 801.66 | 802.08 | 802.62 |
| Beam No.8 | 801.21 | 801.54 | 801.96 | 802.50 |

| TOP OF BEAM ELEVATIONS (For Fabrication Only) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Beam \ Loc. | ℄ S. Abut. | ℄ Pier 1 | ℄ Pier 2 | ℄ N. Abut. | ℄ Splice No.1 | ℄ Splice No.2 | ℄ Splice No.3 |
| Beam No.1 | 803.75 | 804.19 | 804.61 | 805.04 | 804.10 | 804.31 | 804.70 |
| Beam No.2 | 803.88 | 804.31 | 804.73 | 805.16 | 804.22 | 804.43 | 804.82 |
| Beam No.3 | 803.98 | 804.42 | 804.84 | 805.27 | 804.33 | 804.54 | 804.93 |
| Beam No.4 | 804.07 | 804.51 | 804.93 | 805.36 | 804.42 | 804.63 | 805.02 |
| Beam No.5 | 804.07 | 804.51 | 804.93 | 805.36 | 804.42 | 804.63 | 805.02 |
| Beam No.6 | 803.98 | 804.42 | 804.84 | 805.27 | 804.33 | 804.54 | 804.93 |
| Beam No.7 | 803.88 | 804.31 | 804.73 | 805.16 | 804.22 | 804.43 | 804.82 |
| Beam No.8 | 803.75 | 804.19 | 804.61 | 805.04 | 804.10 | 804.31 | 804.70 |

$I_s$, $S_s$: Non-composite moment of inertia and section modulus of the steel section used for computing $f_s$ (Total-Strength I, and Service II) due to non-composite dead loads ($in.^4$ and $in.^3$).

$I_c(n)$, $S_c(n)$: Composite moment of inertia and section modulus of the steel and deck based upon the modular ratio, "n", used for computing $f_s$ (Total-Strength I, and Service II) due to short-term composite live loads ($in.^4$ and $in.^3$).

$I_c(3n)$, $S_c(3n)$: Composite moment of inertia and section modulus of the steel and deck based upon 3 times the modular ratio, "3n", used for computing $f_s$ (Total-Strength I, and Service II) due to long-term composite (superimposed) dead loads ($in.^4$ and $in.^3$).

DC1: Un-factored non-composite dead load (kips/ft.).

$M_{DC1}$: Un-factored moment due to non-composite dead load (kip-ft.).

DC2: Un-factored long-term composite (superimposed excluding future wearing surface) dead load (kips/ft.).

$M_{DC2}$: Un-factored moment due to long-term composite (superimposed excluding future wearing surface) dead load (kip-ft.).

DW: Un-factored long-term composite (superimposed future wearing surface only) dead load (kips/ft.).

$M_{DW}$: Un-factored moment due to long-term composite (superimposed future wearing surface only) dead load (kip-ft.).

$M_{L+Imp}$: Un-factored live load moment plus dynamic load allowance (impact) (kip-ft.).

$M_u$ (Strength I): Factored design moment (kip-ft.).
$1.25\,(M_{DC1} + M_{DC2}) + 1.5\,M_{DW} + 1.75\,M_{L+Imp}$

$\phi_f M_n$: Compact composite positive moment capacity computed according to Article 6.10.7.1 (kip-ft.).

$\phi_f M_{nc}$: Compact non-composite negative moment capacity computed according to Article A6.1.1 (kip-ft.).

$f_s$ (Service II): Sum of stresses as computed from the moments below (ksi).
$M_{DC1} + M_{DC2} + M_{DW} + 1.3\,M_{L+Imp}$

$f_s$ (Total)(Strength I): Sum of stresses as computed from the moments below on non-compact section (ksi).
$1.25\,(M_{DC1} + M_{DC2}) + 1.5\,M_{DW} + 1.75\,M_{L+Imp}$

$V_f$: Factored shear range computed according to Article 6.10.10.

| | |
|---|---|
| DESIGNED | W.L.A |
| CHECKED | C.J.B |
| DRAWN | D.R.P |
| CHECKED | P.J.M |

Note:

All cross frames or diaphragms shall be installed as steel is erected and secured with erection pins and bolts except as otherwise noted. Individual cross frames or diaphragms at supports may be temporarily disconnected to install bearing anchor rods.


V3 Companies of Illinois Ltd.
7325 Janes Avenue
Woodridge, IL 60517
630.724.9200 phone
630.724.9202 fax
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**FRAMING PLAN**

**ILL. ROUTE 23 OVER KISHWAUKEE RIVER**
**F.A.P. RT. 324 - SEC. 23B (1&2)F**
**MCHENRY COUNTY**
**STATION 69+02.50**
**STRUCTURE NO. 056-0001**

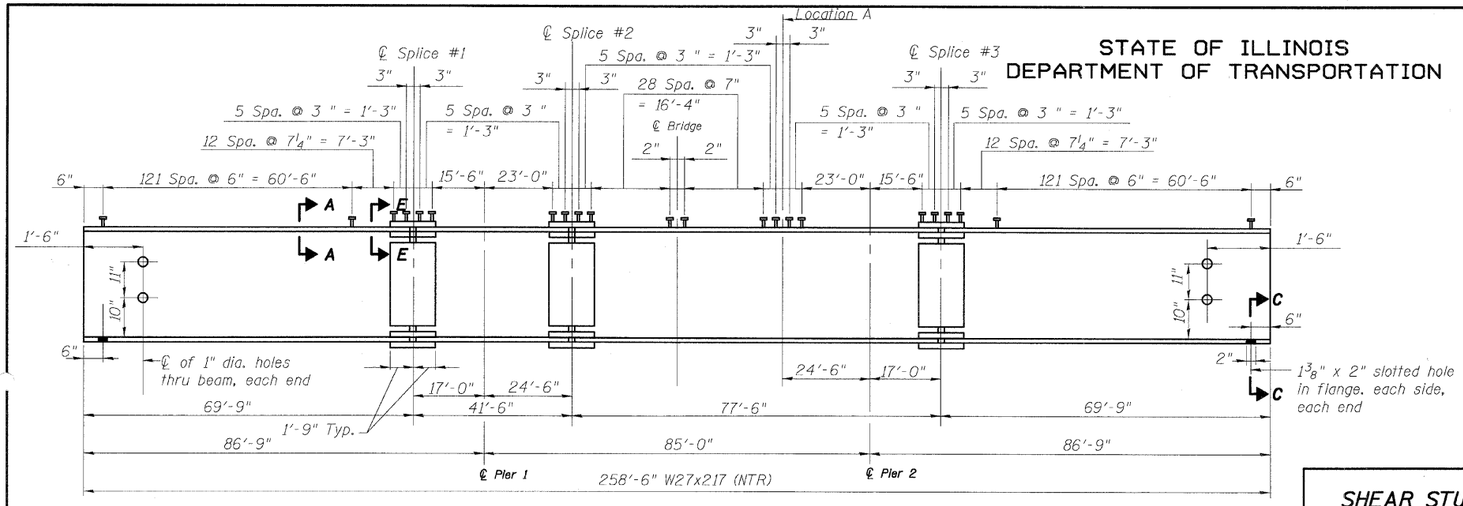
# STATE OF ILLINOIS
# DEPARTMENT OF TRANSPORTATION

| ROUTE NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| F.A.P. 324 | 23B (1&2)F | MCHENRY | 17 | 15 |
| FED. ROAD DIST. NO. 7 | ILLINOIS | FED. AID PROJECT- | | |

SHEET NO.

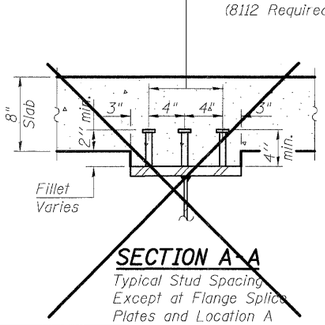
SHEETS

Contract # 60E54

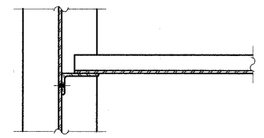



## BEAM ELEVATION
Looking West

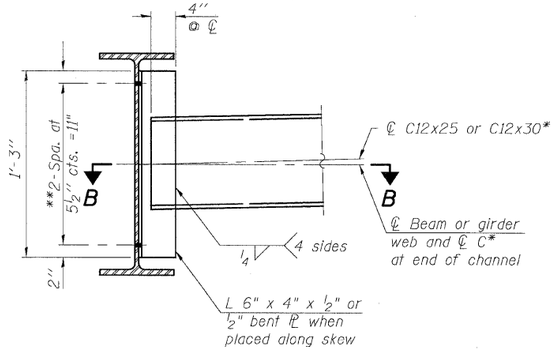
SHEAR STUDS ARE NOT PART OF THIS CONTRACT




## SECTION A-A
Typical Stud Spacing Except at Flange Splice Plates and Location A



## SECTION B-B

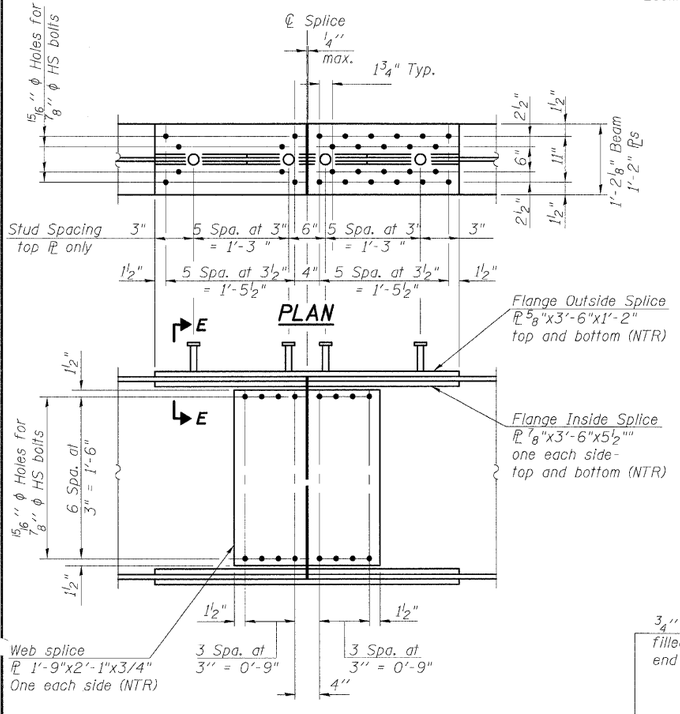



## INTERIOR DIAPHRAGM D

Note:
Two hardened washers required for each set of oversized holes.

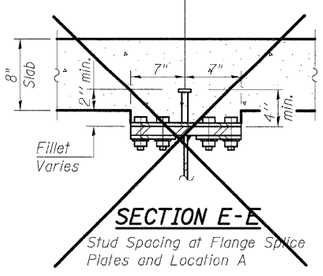
* Alternate channels are permitted to facilitate material acquisition. Calculated weight of structural steel is based on the lighter section.

** ¾" ϕ HS bolts, ¹⁵⁄₁₆" ϕ holes

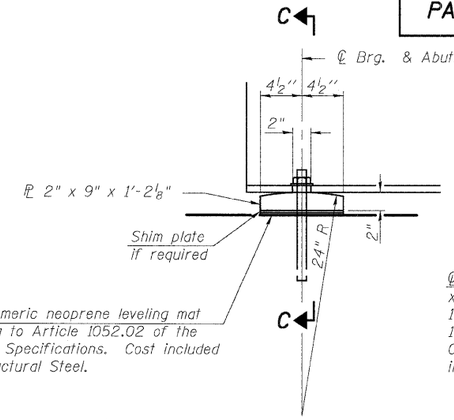



## ELEVATION

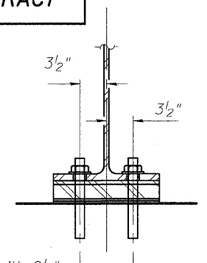
## SPLICE DETAIL
(24-Required)




## SECTION E-E
Stud Spacing at Flange Splice Plates and Location A

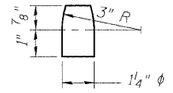



## ELEVATION AT ABUTMENT

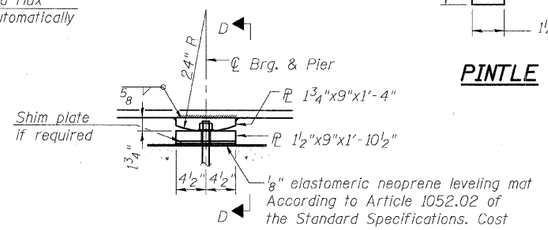



## SECTION C-C

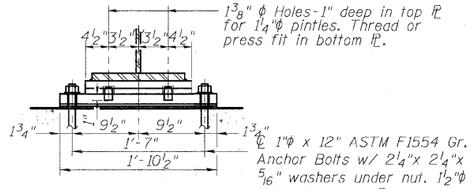
## FIXED BEARING AT ABUTMENTS




## PINTLE




## ELEVATION AT PIER




## SECTION D-D

## FIXED BEARING AT PIERS

NOTES:

Furnishing fixed steel bearings including shim plates and neoprene mat shall be included with the item "Furnishing Structural Steel"

Load carrying components designated "NTR" shall conform to the Supplemental Requirements for Notch Toughness, Zone 2.

All beams, splice plates and fixed bearing plates are M270 Grade 50.

All diaphragms and angles connecting diaphragms to beams are M270 Grade 36.

HS splice bolts shall be ⅞" ϕ AASHTO M164/ ASTM A325

Two ⅛" adjusting shims shall be provided for each bearing in addition to all other plates or shims and placed as shown on bearing details.

| | |
|---|---|
| DESIGNED | WLA |
| CHECKED | CJB |
| DRAWN | DRP |
| CHECKED | PJM |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## FRAMING DETAILS

ILL. ROUTE 23 OVER
KISHWAUKEE RIVER
F.A.P. RT. 324 - SEC. 23B (1&2)F
MCHENRY COUNTY
STATION 69+02.50
STRUCTURE NO. 056-0001

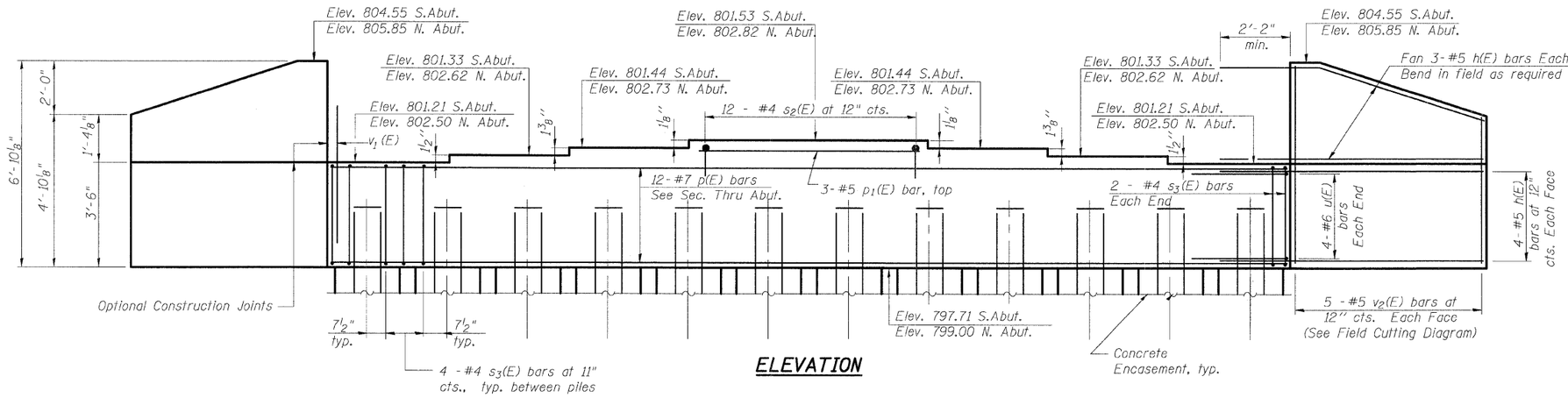
Notes: Pour steps monolithically with cap.
Space reinforcement in cap to miss Anchor Bolts.

# STATE OF ILLINOIS
# DEPARTMENT OF TRANSPORTATION

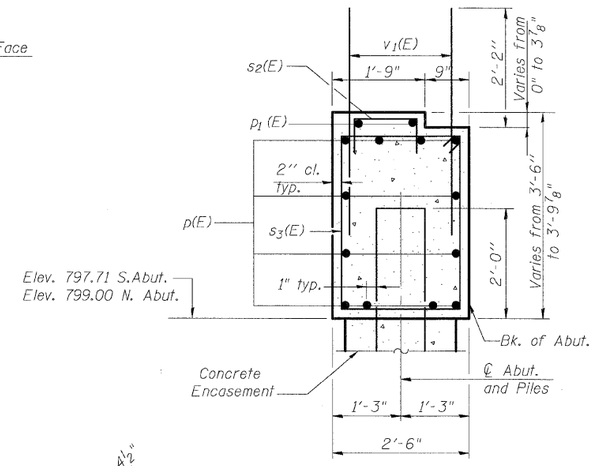
| ROUTE NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| F.A.P. 324 | 23B (1&2)F | McHENRY | 17 | 16 |
| FED. ROAD DIST. NO. 7 | ILLINOIS | FED. AID PROJECT- | | |

SHEET NO.
SHEETS

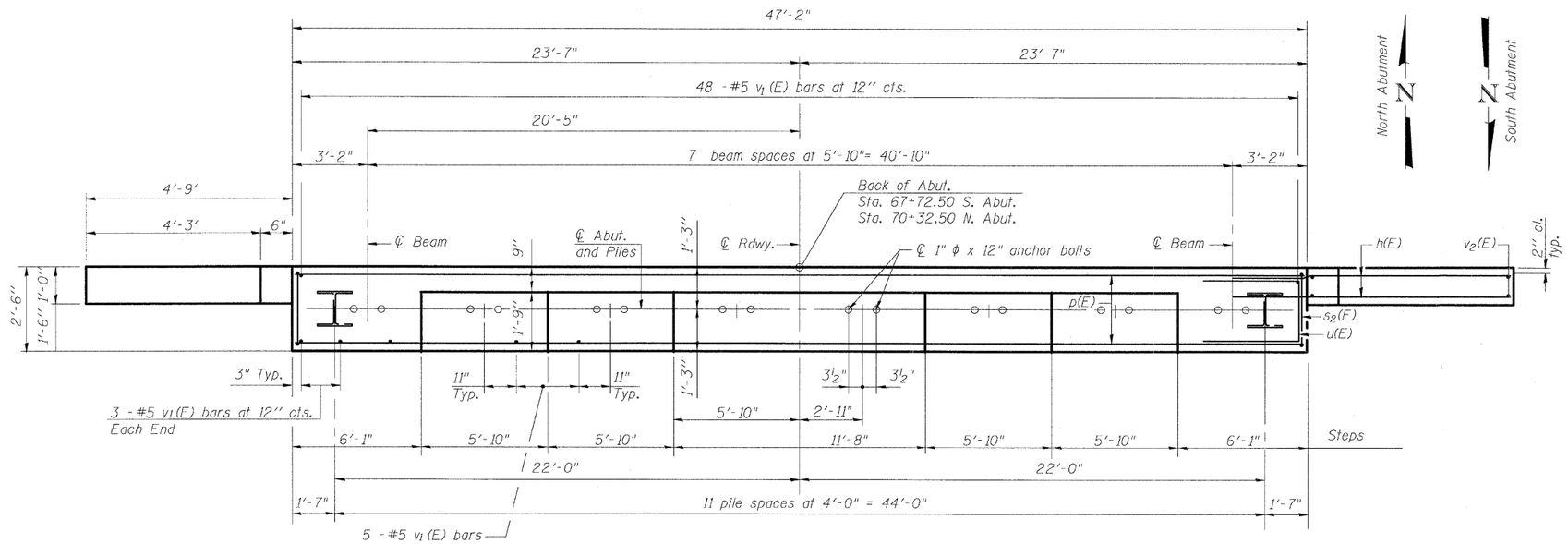
Contract # 60E54




## ELEVATION



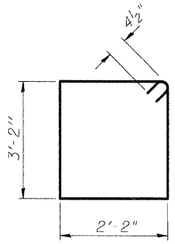

## SEC. THRU ABUT.



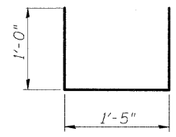

## PLAN

North Abutment

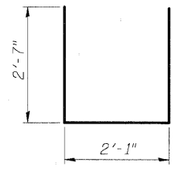
South Abutment




## BAR s3(E)




## BAR s2(E)




## BAR u(E)

## BILL OF MATERIAL

(South & North Abutment)

| Bar | No. | Size | Length | Shape |
|---|---|---|---|---|
| h(E) | 56 | #5 | 7'-1" | —— |
| p(E) | 24 | #7 | 46'-10" | —— |
| p1(E) | 6 | #5 | 11'-4" | —— |
| s2(E) | 24 | #4 | 3'-5" | □ |
| s3(E) | 96 | #4 | 11'-5" | □ |
| u(E) | 16 | #6 | 7'-3" | ▭ |
| v1(E) | 178 | #5 | 4'-4" | —— |
| v2(E) | 20 | #5 | 11'-5" | —— |
| Structure Excavation | | Cu. Yd. | 272.6 | |
| Concrete Structures | | Cu. Yd. | 35.6 | |
| Reinforcement Bars, Epoxy Coated | | Pound | 4,780 | |
| Furnishing Steel Piles HP 12x53 | | Foot | 1375 | |
| Driving Piles | | Foot | 1375 | |
| Test Pile Steel HP12x53 | | Each | 2 | |
| Concrete Encasement | | Cu. Yd. | 8.4 | |
| Pile Shoes | | Each | 24 | |

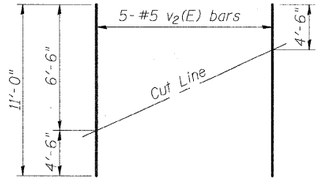
For details of piles and Concrete Encasement, see sheet 17 of 26.

## PILE DATA

| | |
|---|---|
| DESIGNED | CJB |
| CHECKED | PWO |
| DRAWN | DRP |
| CHECKED | PJM |

South Abutment
Type: Steel HP12x53 with pile shoes
Nominal Required Bearing: 240 kips
Factored Resistance Available: 120 kips
Est. Length: 60'
No. Production Piles: 11
No. Test Piles: 1

North Abutment
Type: Steel HP12x53 with pile shoes
Nominal Required Bearing: 240 kips
Factored Resistance Available: 120 kips
Est. Length: 65'
No. Production Piles: 11
No. Test Piles: 1




## FIELD CUTTING DIAGRAM

Order v2(E) full length. Cut as shown and use remainder of bars in opposite face.

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## ABUTMENTS

ILL. ROUTE 23 OVER
KISHWAUKEE RIVER
F.A.P. RT. 324 - SEC. 23B (1&2)F
MCHENRY COUNTY
STATION 69+02.50
STRUCTURE NO. 056-0001

Notes:
Space reinforcement in cap to miss anchor bolts.
Pour steps monolithically with cap.
For details of piles, see sheet 16 of 26.

P1 = Pier 1, P2 = Pier 2

## PILE DATA

Pier 1
Type: Metal Shell- 12" dia.x0.25 in. walls with pile shoes
Nominal Required Bearing: 355 kips
Factored Resistance Available: 178 kips
Est. Length: 49'
No. Production Piles: 14
No. Test Piles: 1

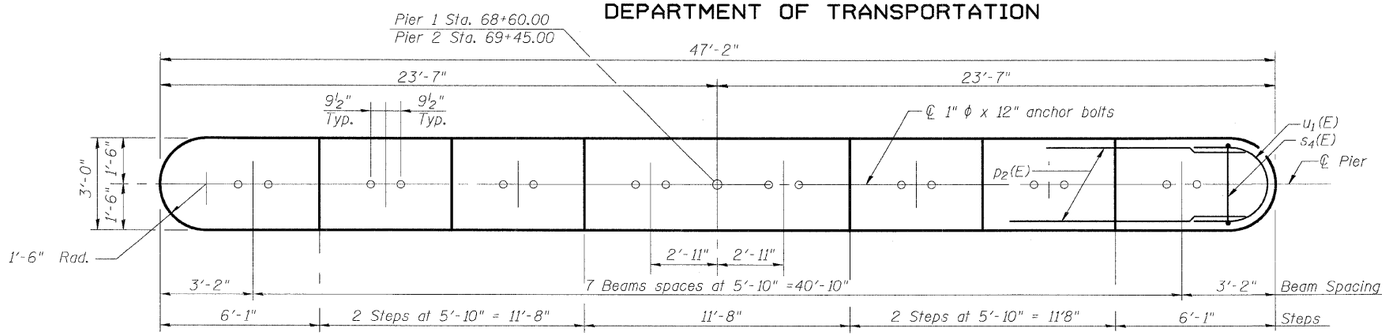
Pier 2
Type: Metal Shell- 12" dia.x0.25 in. walls with pile shoes
Nominal Required Bearing: 355 kips
Factored Resistance Available: 178 kips
Est. Length: 50'
No. Production Piles: 14
No. Test Piles: 1

# STATE OF ILLINOIS
# DEPARTMENT OF TRANSPORTATION

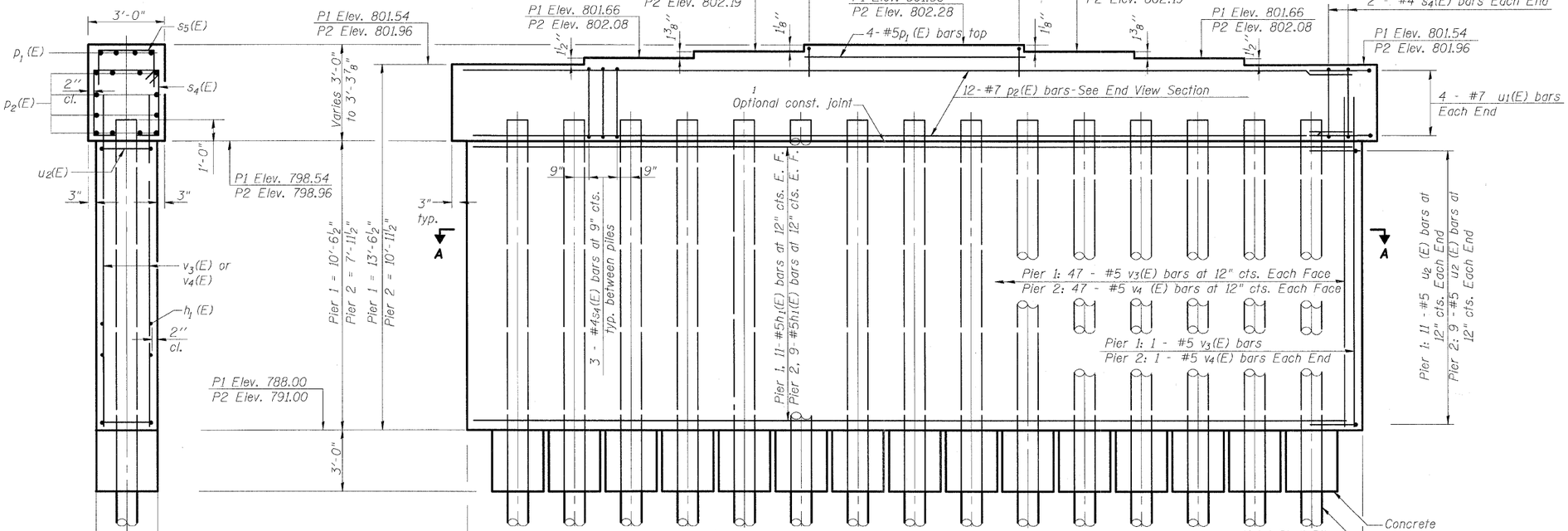
| ROUTE NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| F.A.P. 324 | 23B (1&2)F | McHENRY | 17 | 17 |
| FED. ROAD DIST. NO. 7 | ILLINOIS | FED. AID PROJECT- | | |

SHEET NO.
SHEETS

Contract # 60E54

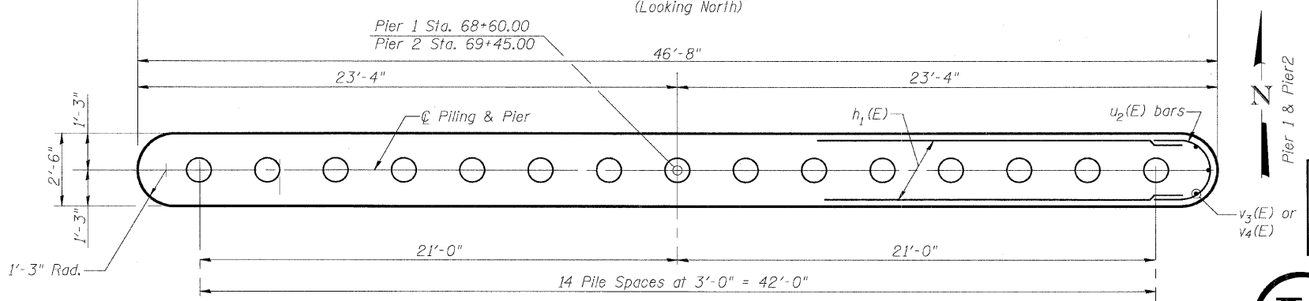



## TOP PLAN

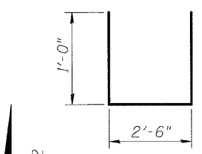



## END VIEW

## ELEVATION
(Looking North)



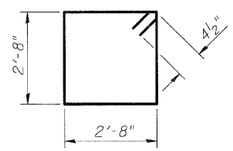

## SECTION A-A



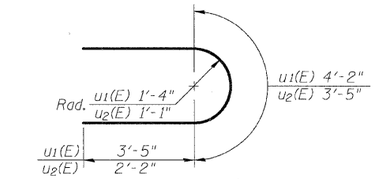




## BAR $s_5$(E)




## BAR $s_4$(E)




## BARS $u_1$(E) & $u_2$(E)

## BILL OF MATERIAL
(Pier 1 & Pier 2)

| Bar | No. | Size | Length | Shape |
|---|---|---|---|---|
| $h_1$(E) | 40 | #5 | 44'-2" | —— |
| | | | | |
| $p_1$(E) | 8 | #5 | 11'-4" | —— |
| $p_2$(E) | 24 | #7 | 43'-10" | —— |
| | | | | |
| $s_4$(E) | 92 | #4 | 11'-5" | □ |
| $s_5$(E) | 24 | #4 | 4'-6" | ⊓ |
| | | | | |
| $u_1$(E) | 16 | #7 | 11'-0" | ⊃ |
| $u_2$(E) | 40 | #5 | 7'-9" | ⊃ |
| | | | | |
| $v_3$(E) | 96 | #5 | 11'-8" | —— |
| $v_4$(E) | 96 | #5 | 9'-0" | —— |
| | | | | |
| Structure Excavation | | Cu. Yd. | 194.0 | |
| Concrete Structures | | Cu. Yd. | 111.3 | |
| Reinforcement Bars, Epoxy Coated | | Pound | 7,610 | |
| Furnishing Metal Shell Piles, 12"x0.250" | | Foot | 1386 | |
| Driving Piles | | Foot | 1386 | |
| Test Pile Metal Shells | | Each | 2 | |
| Concrete Encasement | | Cu. Yd. | 16.4 | |
| Pile shoes | | Each | 30 | |

| | |
|---|---|
| DESIGNED | CJB |
| CHECKED | PWO |
| DRAWN | DRP |
| CHECKED | PJM |

F-MS 9-3-07

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NOT PART OF
THIS CONTRACT


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PIERS

ILL. ROUTE 23 OVER
KISHWAUKEE RIVER
F.A.P. RT. 324 - SEC. 23B (1&2)F
MCHENRY COUNTY
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