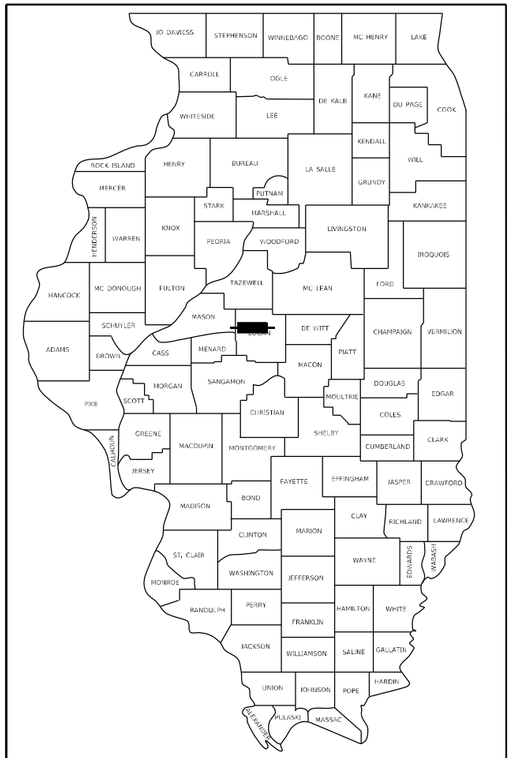
01-20-2023 LETTING ITEM 018

| F.A.I. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| 155 | (54-10HB-1)BP | LOGAN | 7 | 1 |
| | ILLINOIS | CONTRACT NO. 72067 | | |

# STATE OF ILLINOIS
# DEPARTMENT OF TRANSPORTATION

D-96-074-22




LOCATION OF SECTION INDICATED THUS: –

FOR INDEX OF SHEETS, SEE SHEET NO. 2

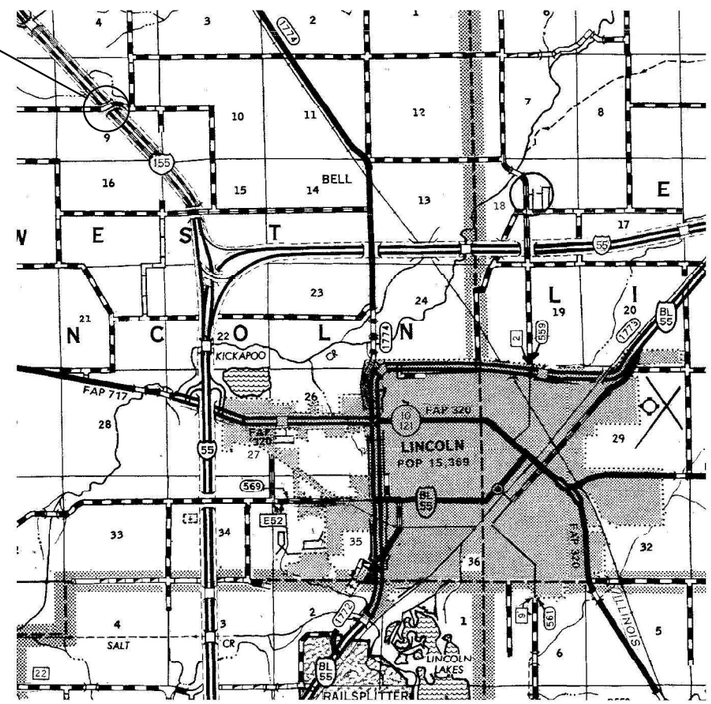
# PROPOSED
# HIGHWAY PLANS

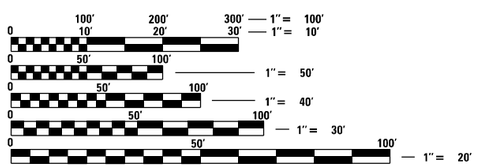
## FAI ROUTE 155 (I–155)
## SECTION (54–10HB–1)BP
## PROJECT NHPP–V5ID(863)
## BRIDGE PAINTING
## LOGAN COUNTY

C–96–018–23

N

PROJECT LOCATION
SN 054-0072
TR 79 OVER I-155
1.9 MI N 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

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUBMITTED October 19 20 22
REGIONAL ENGINEER

December 9, 2022
ENGINEER OF DESIGN AND ENVIRONMENT

December 9, 2022
DIRECTOR OF HIGHWAYS PROJECT IMPLEMENTATION

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

GROSS LENGTH = 269 FT. = 0.05 MILE
NET LENGTH = 269 FT. = 0.05 MILE

PRINTED BY THE AUTHORITY
OF THE STATE OF ILLINOIS

CONTRACT NO. 72067

INDEX OF SHEETS


1 COVER SHEET
2 INDEX, STANDARDS, GENERAL NOTES, & SIGNATURES
3 SUMMARY OF QUANTITIES
4-7 EXISTING BRIDGE PLANS, SN 054-0072


HIGHWAY STANDARDS

000001-08
001006
701101-05
701106-02
701400-11
701402-12
701901-08
704001-08
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 WITHOLD PAYMENT UNTIL SATISFACTORY CLEANUP IS ACHIEVED.*

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

EXAMINED October 18 20 22
ENGINEER OF OPERATIONS

EXAMINED October 17 20 22
ENGINEER OF PROJECT IMPLEMENTATION

EXAMINED October 17 20 22
ENGINEER OF PROGRAM DEVELOPMENT

MODEL: Default
FILE NAME: S:\Bridge\Bridgeplans_CAD\72067 - 0540072 paint.dlonsheet.dgn

| | | | |
|---|---|---|---|
| USER NAME = Brandon.Dudley | DESIGNED - | REVISED - | |
| | DRAWN - | REVISED - | |
| PLOT SCALE = 100.0000 ' / in. | CHECKED - | REVISED - | |
| PLOT DATE = 10/18/2022 | DATE - | REVISED - | |

**STATE OF ILLINOIS**
**DEPARTMENT OF TRANSPORTATION**

**INDEX OF SHEETS, STANDARDS, GENERAL NOTES, & SIGNATURES**

SCALE: SHEET OF SHEETS STA. TO STA.

| F.A.I. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| 155 | (54-10HB-1)BP | LOGAN | 7 | 2 |
| | | CONTRACT NO. 72067 | | |
| | ILLINOIS | FED. AID PROJECT | | |

| 0-01376-6003 |
|---|
| NHPP 90/10 |
| SN 054-0072 |
| 0047-RURAL |
| LOGAN |

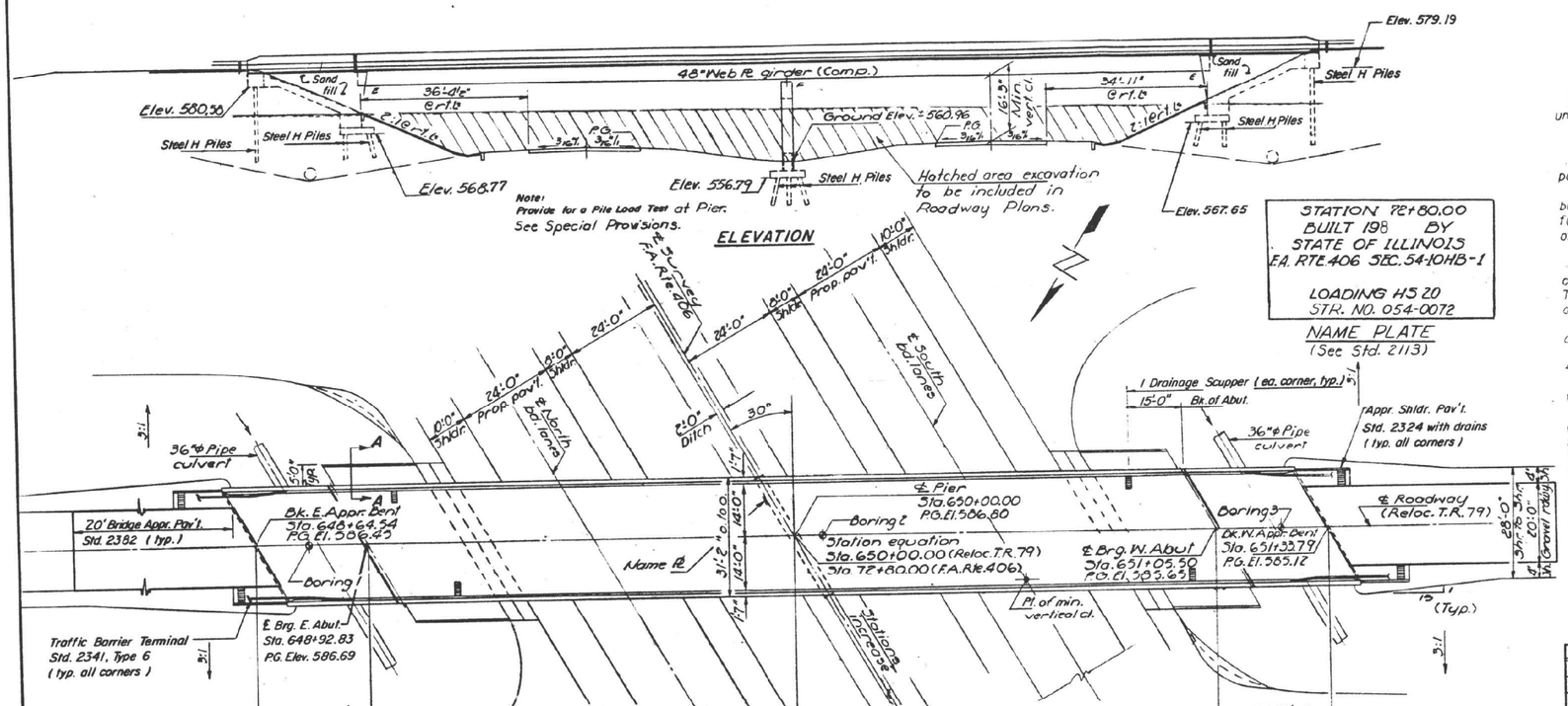
| CODE NO. | ITEM | UNIT | TOTAL QUANTITY | |
|---|---|---|---|---|
| 67100100 | MOBILIZATION | L SUM | 1 | 1 |
| 70100207 | TRAFFIC CONTROL AND PROTECTION, STANDARD 701402 | EACH | 2 | 2 |
| 70107025 | CHANGEABLE MESSAGE SIGN | CAL DA | 30 | 30 |
| 70400100 | TEMPORARY CONCRETE BARRIER | FOOT | 600 | 600 |
| 70400200 | RELOCATE TEMPORARY CONCRETE BARRIER | FOOT | 600 | 600 |
| 70600260 | IMPACT ATTENUATORS, TEMPORARY (FULLY REDIRECTIVE, NARROW), TEST LEVEL 3 | EACH | 2 | 2 |
| 70600332 | IMPACT ATTENUATORS, RELOCATE (FULLY REDIRECTIVE, NARROW), TEST LEVEL 3 | EACH | 2 | 2 |
| X5060601 | CONTAINMENT AND DISPOSAL OF NON-LEAD PAINT CLEANING RESIDUES NO. 1 | L SUM | 1 | 1 |
| Z0010501 | CLEANING AND PAINTING STEEL BRIDGE NO. 1 | L SUM | 1 | 1 |

| ROUTE NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| A.B.L. F.A. 406 | 54-10HB-1 | Logan | 46 | 16 |
| PED. ROAD DIST. NO. 7 | ILLINOIS | FED. AID PROJECT- | | |

SHEET NO. 1
15 SHEETS

B.M.- T.B.M. #14-A, chiseled square on S.E. corner of West headwall 164' rt. Sta. 635+46 El. 564.37

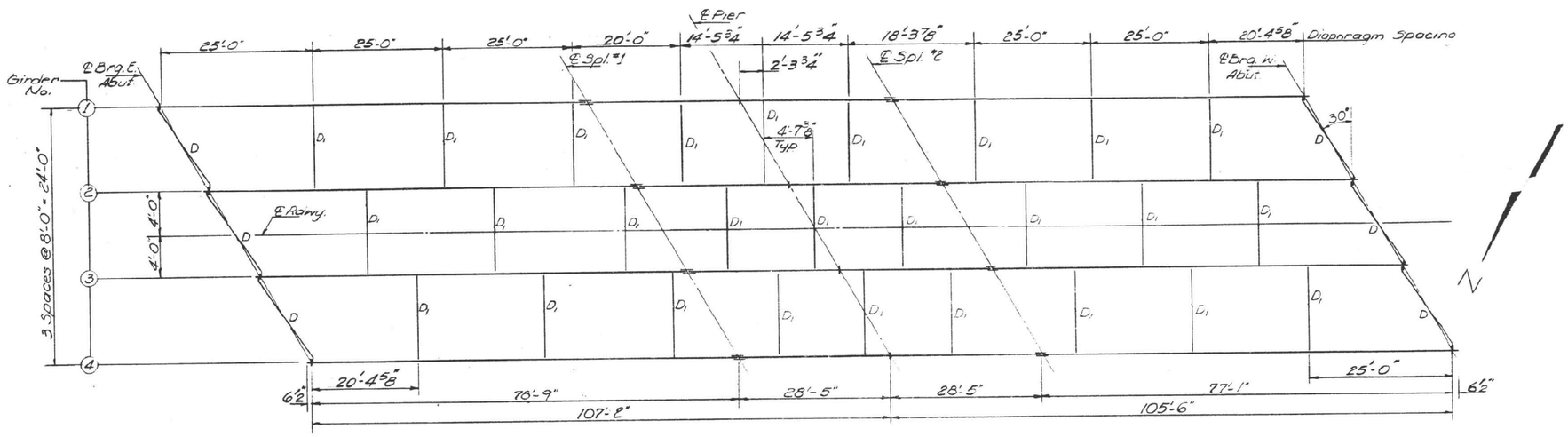
# STATE OF ILLINOIS
# DEPARTMENT OF TRANSPORTATION


Elev. 579.19
48" Web Pl. girder (Comp.)
℄ Sand fill
36'-11" Grt. ℄
34'-11" Grt. ℄
16.5" Min. vert. cl.
Elev. 580.50
Steel H Piles
Ground Elev. = 560.96
P.G. 3/16"
Elev. 568.77
Elev. 556.79
Hatched area excavation to be included in Roadway Plans.
Elev. 567.65
Note: Provide for a Pile Load Test at Pier. See Special Provisions.
ELEVATION
STATION 72+80.00
BUILT 198 BY
STATE OF ILLINOIS
F.A. RTE. 406 SEC. 54-10HB-1
LOADING HS 20
STR. NO. 054-0072
NAME PLATE
(See Std. 2113)
℄ Survey F.A. Rte. 406
24'-0" Prop. pav't.
10'-0" Shldr.
℄ South bound lanes
℄ North bound lanes
2'-0" Ditch
30°
1 Drainage Scupper (ea. corner, typ.)
15'-0"
Bk. of Abut.
Appr. Shldr. Pav't. Std. 2324 with drains (typ. all corners)
36" ϕ Pipe culvert
20' Bridge Appr. Pav't. Std. 2382 (typ.)
Bk. E. Appr. Bent Sta. 648+64.54 P.G. El. 586.43
Boring 1
℄ Pier Sta. 650+00.00 P.G. El. 586.80
Boring 2
Station equation Sta. 650+00.00 (Reloc. T.R. 79) Sta. 72+80.00 (F.A. Rte. 406)
Name Pl.
℄ Brg. W. Abut Sta. 651+05.50 P.G. El. 585.65
Boring 3
Bk. W. Appr. Bent Sta. 651+33.79 P.G. El. 585.12
℄ Roadway (Reloc. T.R. 79)
28'-0"
20'-0"
3½" Grav. rdwy.
Pl. of min. vertical cl.
Traffic Barrier Terminal Std. 2341, Type 6 (typ. all corners)
℄ Brg. E. Abut Sta. 648+92.83 P.G. Elev. 586.69
3:1
28'-3½"
107'-2"
105'-6"
269'-5" bk. to bk. Appr. bents
PLAN
Prop. Struct. Range 3W 3rd P.M.
Sec. 5
Sec. 8
Sec. 4
Sec. 9
Sec. 17
Sec. 20
Sec. 21
Sec. 28
Sec. 29
Sec. 32
Sec. 33
Sec. 36
Sec. 1
Sec. 12
Sec. 13
Sec. 24
Sec. 25
Sec. 36
Sec. 31
Sec. 30
Sec. 19
Sec. 18
Sec. 7
Sec. 6
Sec. 5
Sec. 4
Sec. 3
Sec. 2

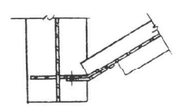
| ROUTE NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| F.A. 406 | 54-10 HB-1 | LOGAN | 46 | 24 |
| FED. ROAD DIST. NO. 7 | ILLINOIS | FED. AID PROJECT | | |

SHEET NO. 9 / 15 SHEETS

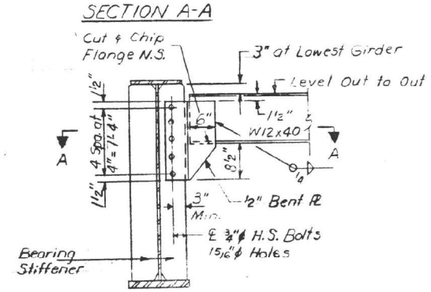
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



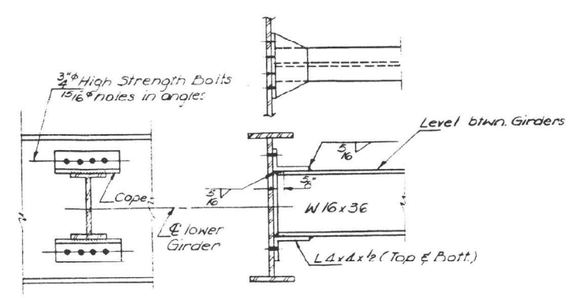

PLAN



SECTION A-A




DIAPHRAGM D
6 Required




DIAPHRAGM D1
27 Required

Note: Hardened washers shall be required over 15/16"ϕ holes in angles (2 washers per bolt.)

| | |
|---|---|
| DESIGNED | Dan J. Duffy |
| CHECKED | Kirk J. Smith |
| DRAWN | L.H. |
| CHECKED | DLG KJS |

Oct 23 19 96

EXAMINED — Troy D. Kaufman, ENGINEER OF BRIDGE DESIGN
PASSED — Dennis J. Ridlen, ENGINEER OF BRIDGES AND STRUCTURES
APPROVED — DIRECTOR OF HIGHWAYS

FRAMING PLAN
F.A. RTE. 406 SEC. 54-10HB-1
LOGAN COUNTY
STA. 72+80.00

MODEL: Default
FILE NAME: S:\Bridges\Bridge\dgns CAD\72067 - 0540072 paint\alonsheet.dgn

| | | |
|---|---|---|
| USER NAME = Brandon.Dudley | DESIGNED - | REVISED - |
| | DRAWN - | REVISED - |
| PLOT SCALE = 100.0000 ' / in. | CHECKED - | REVISED - |
| PLOT DATE = 10/18/2022 | DATE - | REVISED - |

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

EXISTING BRIDGE PLANS, SN 054-0072
(FOR INFORMATION ONLY)

SCALE: | SHEET OF SHEETS | STA. TO STA.

| F.A.I. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| 155 | (54-10HB-1)BP | LOGAN | 7 | 5 |
| | | CONTRACT NO. 72067 | | |
| | ILLINOIS | FED. AID PROJECT | | |

STATE OF ILLINOIS
**DEPARTMENT OF TRANSPORTATION**

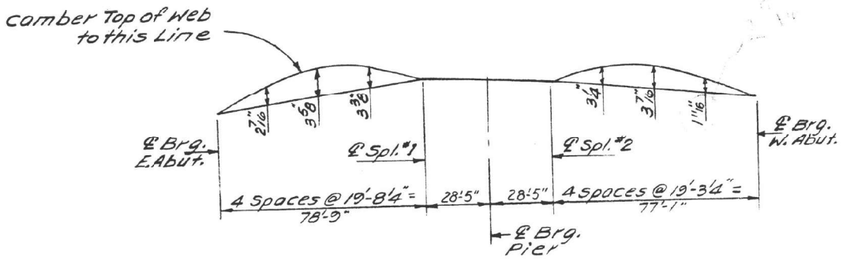
| ROUTE NO. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| 406 | 54-10 HB-1 | LOGAN | 46 | 25 |
| FED. ROAD DIST. NO. 7 | ILLINOIS | FED. A.ID PROJECT | | |

SHEET NO. 10
15 SHEETS

## TOP OF WEB ELEVATION

| Location | Girder 1 | Girder 2 | Girder 3 | Girder 4 |
|---|---|---|---|---|
| ℄ Brg. E. Abutment | 585.70 | 585.86 | 585.89 | 585.79 |
| ℄ Splice #1 | 585.88 | 586.00 | 585.99 | 585.85 |
| ℄ Brg. Pier | 585.76 | 585.86 | 585.84 | 585.68 |
| ℄ Splice #2 | 585.63 | 585.72 | 585.68 | 585.51 |
| ℄ Brg. W. Abutment | 584.82 | 584.87 | 584.80 | 584.58 |

For Fabrication only, does not include dead load deflection




## CAMBER DIAGRAM

## INTERIOR GIRDER MOMENT TABLE

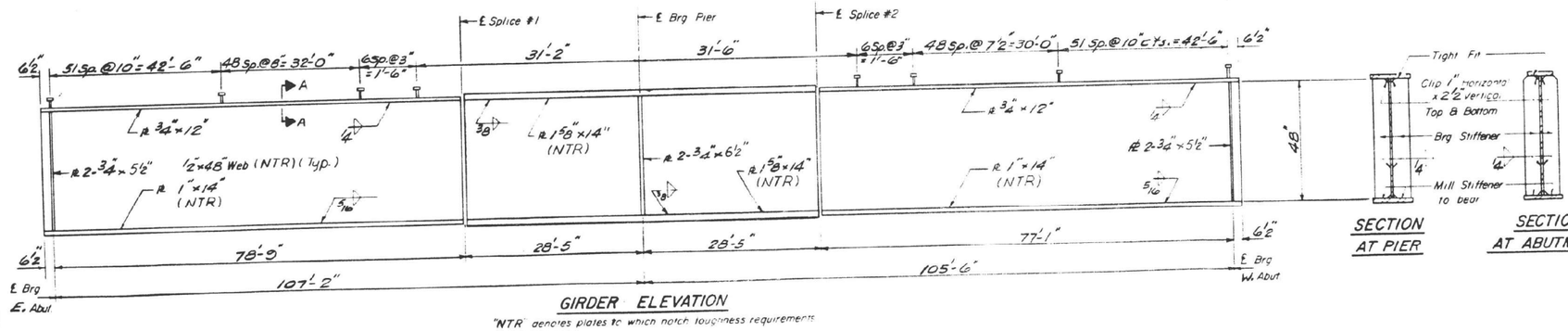
| | 0.4 Sp. 1 | Pier | .6 Span 2 |
|---|---|---|---|
| Is (in.4) | 18035 | 32630 | 18035 |
| Ic (in.4) | 46861 | | 46861 |
| Ss (in.3) | 806 | 1273 | 806 |
| Sc (in.3) | 1142 | | 1142 |
| ℄ (K/') | .967 | 1.372 | .967 |
| M℄ ('K) | 681 | 1628 | 640 |
| S℄ (K/') | .405 | | .405 |
| Ms℄ ('K) | 352 | 514 | 335 |
| M℄ ('K) | 398 | 830 | 981 |
| M Imp. ('K) | 215 | 179 | 213 |
| $S_3$ (M℄+I) ('K) | 2022 | 1682 | 1990 |
| Mo ('K) | 3972 | 4971 | 3854 |
| * Mu ('K) | 4404 | 5310 | 4404 |
| fs ℄ non-comp (K.S.I.) | 10.1 | 15.3 | 9.5 |
| fs ℄ (Comp) (K.S.I.) | 3.7 | 3.8 | 3.5 |
| fs $S_3$ (℄+I) (K.S.I.) | 21.2 | — | 20.9 |
| fs (Overload) (K.S.I.) | 35.0 | 31.5 | 33.9 |
| fs (Total) (K.S.I.) | 45.5 | 41.0 | 44.1 |
| VR (K) | 62.1 | | 62.3 |

## INTERIOR GIRDER REACTION TABLE

| | E. Abut. | Pier | W. Abut. |
|---|---|---|---|
| R℄ (K) | 36.6 | 133.4 | 35.6 |
| R℄ (K) | 46.9 | 51.6 | 46.8 |
| Imp. (K) | 10.1 | 11.2 | 10.2 |
| R Total (K) | 93.6 | 196.2 | 92.6 |

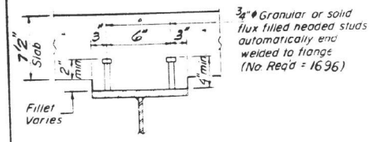
*Mu = Moment capacity for Braced non-Compact section computed according to AASHTO 10.48.2 & 10.50.1
Mo (Applied Moment) = 1.3[M℄ + Ms℄ + $S_3$(M℄ + I)]

Is and Ss are the moment of inertia and section modulus of the steel section used in computing fs (Total and Overload).
Ic and Sc are the moment of inertia and section modulus of the composite section used in computing fs (Total and Overload).
VR is the maximum ℄ + impact shear range in span.
fs (Total) is the sum of the stresses due to 1.3[Ms℄ + Ms℄ + $S_3$(M℄ + I)]
fs (Overload) is the sum of the stresses due to M℄ + Ms℄ + $S_3$(M℄ + I)
M℄ - Moment due to dead loads on non-composite section.
Ms℄ - Moment due to dead loads on composite section.
M℄ - Moment due to live load on non-Composite or Composite section.
I - Live load impact.




## GIRDER ELEVATION

"NTR" denotes plates to which notch toughness requirements are applicable



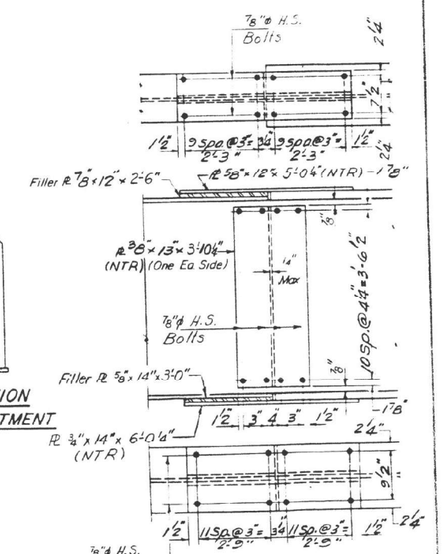

## SECTION A-A




## SECTION AT PIER



## SECTION AT ABUTMENT




## FIELD SPLICE DETAIL
SPLICE #1 & #2

Note: All flanges, webs, bearing stiffeners and splice plate materials shall be AASHTO M-223, Grade 50.
All other structural steel shall be AASHTO M-183.

| | | | |
|---|---|---|---|
| DESIGNED | Daniel J. Hoffer | EXAMINED | Greg J. Kasper — ENGINEER OF BRIDGE DESIGN |
| CHECKED | Timothy J. Daugherty | PASSED | James T. Hopkins — ENGINEER OF BRIDGE DESIGN |
| DRAWN | LH | APPROVED | DIRECTOR OF HIGHWAYS |
| CHECKED | DLG | | |

Oct. 23 1986

G-1 4-1-79

STRUCTURAL STEEL
F.A. RTE. 406 SEC. 54-10HB-1
LOGAN COUNTY
STA. 72+80.00

| | | | |
|---|---|---|---|
| USER NAME = Brandon.Dudley | DESIGNED - | REVISED - | |
| | DRAWN - | REVISED - | |
| PLOT SCALE = 100.0000 ' / in. | CHECKED - | REVISED - | |
| PLOT DATE = 10/18/2022 | DATE - | REVISED - | |

**STATE OF ILLINOIS**
**DEPARTMENT OF TRANSPORTATION**

**EXISTING BRIDGE PLANS, SN 054-0072**
**(FOR INFORMATION ONLY)**

SCALE: SHEET OF SHEETS STA. TO STA.

| F.A.I. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| 155 | (54-10HB-1)BP | LOGAN | 7 | 6 |
| | | CONTRACT NO. 72067 | | |
| | | ILLINOIS | FED. AID PROJECT | |

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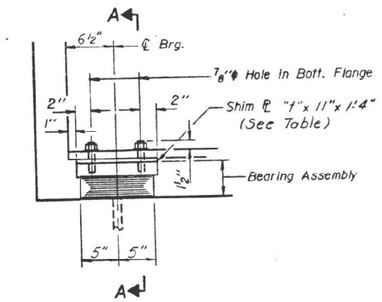
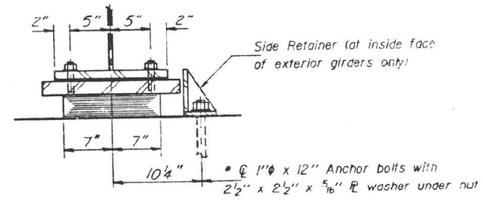
| ROUTE NO. | SECTION | COUNTY | TOT. SHEETS | SHEET NO. |
|---|---|---|---|---|
| F.A.S. 406 | 54-10 HB-1 | LOGAN | 46 | 26 |
| FED. ROAD DIST. NO. 7 | ILLINOIS | FED. AID PROJECT - | | |

SHEET NO. 11
15 SHEETS

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

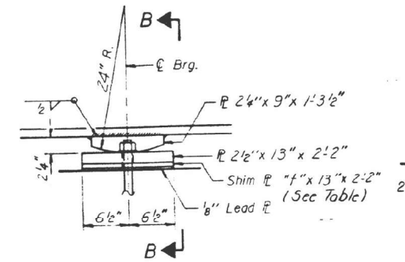



ELEVATION AT ABUT.

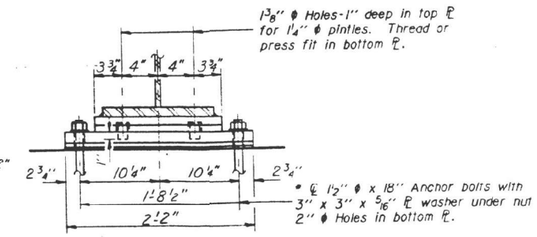



SECTION A-A

TYPE I ELASTOMERIC EXP. BRG.



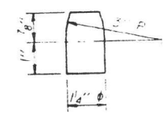

ELEVATION AT PIER



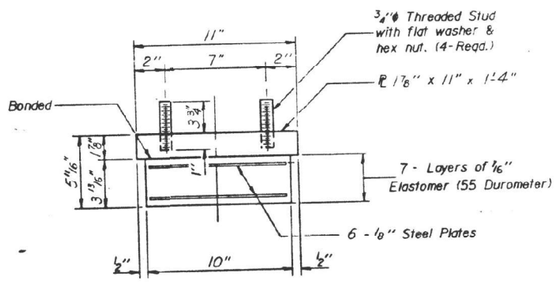

SECTION B-B

FIXED BEARING

* Notes: Anchor bolts at fixed bearings may be built into the masonry.
See sht #15 of 15 for Anchor Bolt installation.




PINTLE

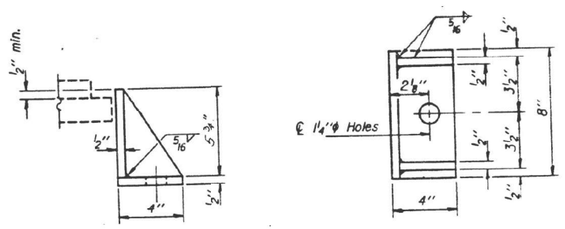



BEARING ASSEMBLY

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

TABLE OF "f" DIMENSIONS

| Beam No. | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| E. Abut. | — | — | 7/16" | — |
| Pier | — | ¼" | — | — |
| W. Abut. | ¼" | 15/16" | — | — |




SIDE RETAINER

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

BILL OF MATERIAL

| Item | Unit | Total |
|---|---|---|
| Elastomeric Bearing Assembly Type I | Each | 8 |

| | |
|---|---|
| DESIGNED | Dwight Graiff |
| CHECKED | Kirby J. Naughton |
| DRAWN | R. Doty |
| CHECKED | DLG KSD |

Oct. 23 1986
EXAMINED Gray D. Kaspar
ENGINEER OF BRIDGE DESIGN
PASSED James T. Kapsman
ENGINEER OF BRIDGES AND STRUCTURES
APPROVED
DIRECTOR OF HIGHWAYS

I-2-E1 12-1-83

BEARING DETAILS
F.A. RT. 406 SEC. 54-10HB-1
LOGAN COUNTY
STA. 72+80.00

MODEL: Default
FILE NAME: S:\Bridges\Bridgeplans_CAD\72067 - 0540072 plan\alsnsheet.dgn

| | | | |
|---|---|---|---|
| USER NAME = Brandon.Dudley | DESIGNED - | REVISED - | |
| | DRAWN - | REVISED - | |
| PLOT SCALE = 100.0000 ' / in. | CHECKED - | REVISED - | |
| PLOT DATE = 10/18/2022 | DATE - | REVISED - | |

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

EXISTING BRIDGE PLANS, SN 054-0072
(FOR INFORMATION ONLY)

SCALE: SHEET OF SHEETS STA. TO STA.

| F.A.I. RTE. | SECTION | COUNTY | TOTAL SHEETS | SHEET NO. |
|---|---|---|---|---|
| 155 | (54-10HB-1)BP | LOGAN | 7 | 7 |
| | | CONTRACT NO. 72067 | | |
| | ILLINOIS | FED. AID PROJECT | | |