

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

F.A.P. SITE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
646	(122VB-R)BP	BUREAU	12	1
ILLINOIS			CONTRACT NO. 66H82	

INDEX OF SHEETS

- 1. COVER SHEET
- 2. GENERAL NOTES
- 3-4. SUMMARY OF QUANTITIES
- 5. TYPICAL SECTIONS
- 6. STAGING DETAILS
- 7. DETAILS
- 8-12. EXISTING STRUCTURE DETAILS

STANDARDS

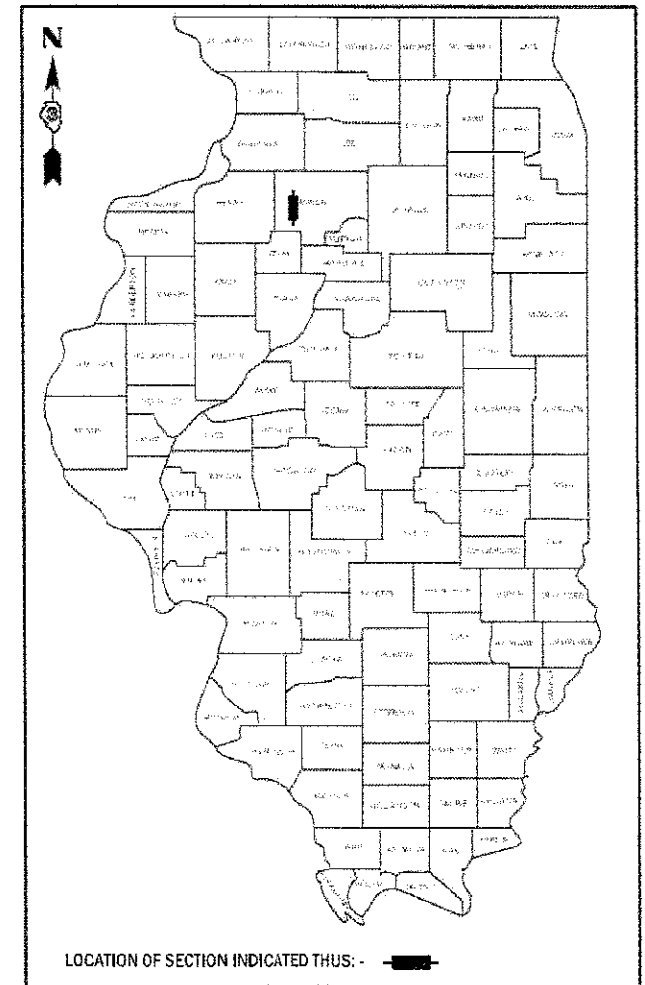
- 000001-06 STANDARD SYMBOLS, ABBREVIATIONS AND PATTERNS
- 001006 DECIMAL OF AN INCH AND OF A FOOT
- 701001-02 OFF-ROAD OPERATIONS 2L, 2W, MORE THAN 15' (4.5 m) AWAY
- 701006-05 OFF-ROAD OPERATIONS 2L, 2W, 15' (4.5 m) TO 24" (600 mm) FROM
- 701201-04 LANE CLOSURE, 2L, 2W, DAY ONLY, FOR SPEEDS \geq 45 MPH
- 701206-04 LANE CLOSURE, 2L, 2W, NIGHT ONLY, FOR SPEEDS \geq 45 MPH
- 701321-17 LANE CLOSURE, 2L, 2W, BRIDGE REPAIR WITH BARRIER
- 701901-07 TRAFFIC CONTROL DEVICES
- 704001-08 TEMPORARY CONCRETE BARRIER
- 701301-04 LANE CLOSURE, 2L, 2W, SHORT TIME OPERATIONS

PROPOSED
HIGHWAY PLANS

F.A.P. ROUTE 646 (IL 40)
SECTION (122VB-R)BP
PROJECT STP- ZWXQ(814)
BRIDGE PAINTING
BUREAU COUNTY

C-93-019-18

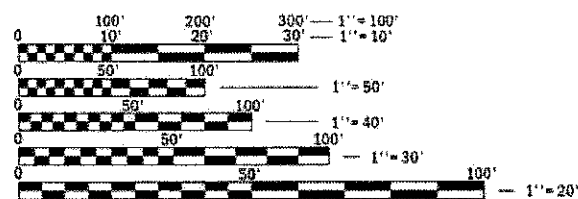
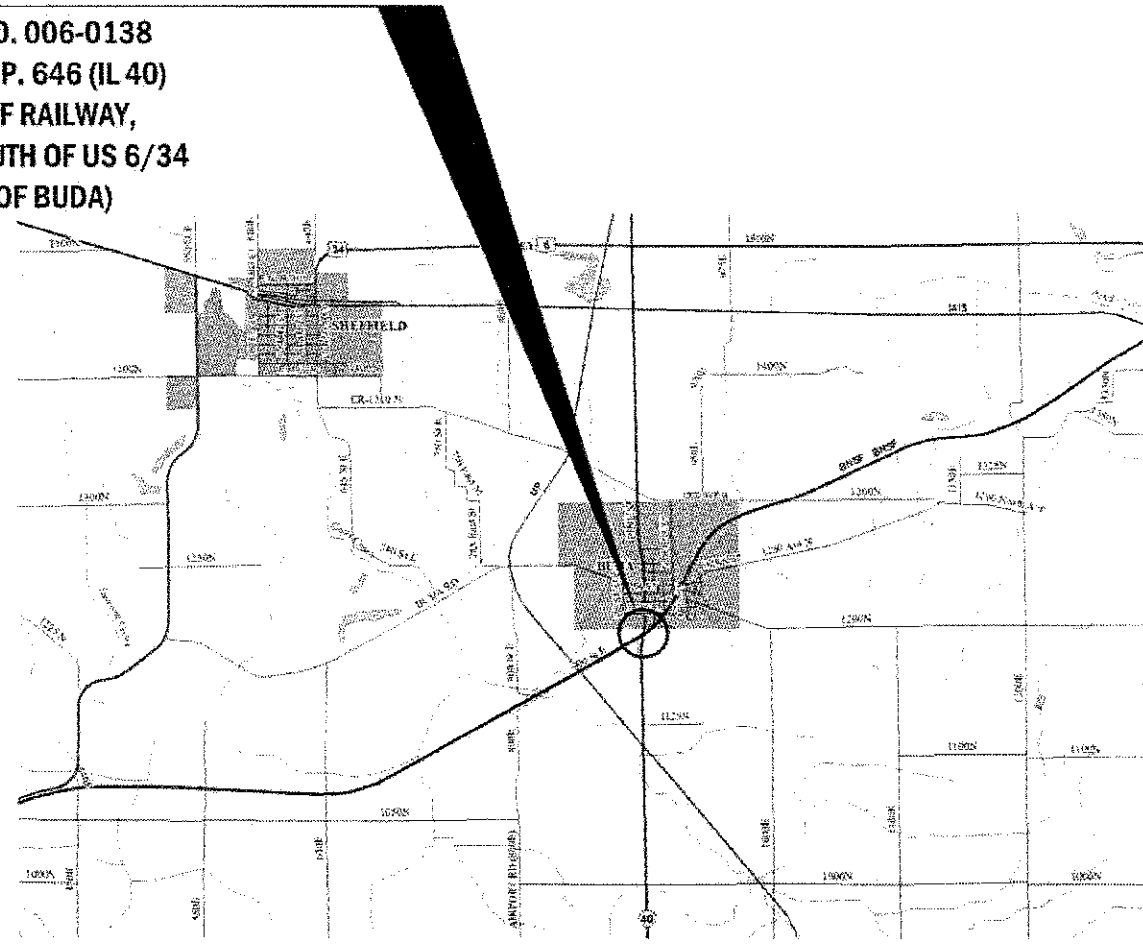
D-93-020-18



RURAL	
MINOR ARTERIAL	
F.A.P. 646 (IL 40)	
2015	
ADT	1400
P.V.	75.3%
S.U.	9.3%
M.U.	15.4%

PROJECT LOCATION

STRUCTURE NO. 006-0138
CARRYING F.A.P. 646 (IL 40)
OVER THE BNSF RAILWAY,
2.7 MILES SOUTH OF US 6/34
(SOUTH EDGE OF BUDA)



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

PROJECT ENGINEER: JOE KANNEL, P.E.
PROJECT MANAGER: RON WOODSHANK
DISTRICT 3 NO. (815) 434-6131
CONTRACT NO. 66H82

POINT LOCATION

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUBMITTED *Oct. 17 2017*
March
REGIONAL ENGINEER

Feb 2 2018
ENGINEER OF DESIGN AND ENVIRONMENT

Feb 2 2018
DIRECTOR OF PROGRAM DEVELOPMENT

PRINTED BY THE AUTHORITY
OF THE STATE OF ILLINOIS

CONSTR. CODE
B. P. O.
80% FED 20% STATE
BRIDGE
0047
S.N. 006-0138

CODE NO.	ITEM	UNIT	TOTAL QUANTITY	
20010501	CLEANING AND PAINTING STEEL BRIDGE No. 1	LSUM	1	1
67100100	MOBILIZATION	LSUM	1	1
70100405	TRAFFIC CONTROL AND PROTECTION, STANDARD 701321	EACH	1	1
70100450	TRAFFIC CONTROL AND PROTECTION, STANDARD 701201	LSUM	1	1
70100455	TRAFFIC CONTROL AND PROTECTION, STANDARD 701206	LSUM	1	1
70106500	TEMPORARY BRIDGE TRAFFIC SIGNALS	EACH	1	1
70106700	TEMPORARY RUMBLE STRIPS	EACH	2	2
70400100	TEMPORARY CONCRETE BARRIER	FOOT	425	425
70400200	RELOCATE TEMPORARY CONCRETE BARRIER	FOOT	120	120
70600250	IMPACT ATTENUATORS, TEMPORARY (NON- REDIRECTIVE), TEST LEVEL 3	EACH	2	2
70600350	IMPACT ATTENUATORS, RELOCATE (NON- REDIRECTIVE), TEST LEVEL 3	EACH	2	2
* 78009006	MODIFIED URETHANE PAVEMENT MARKING - LINE 6"	FOOT	200	200
X0327980	PAVEMENT MARKING REMOVAL - WATER BLASTING	SQ FT	100	100
Z0007101	CONTAINMENT AND DISPOSAL OF LEAD PAINT CLEANING RESIDUES NO. 1	LSUM	1	1

* SPECIALTY ITEM

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	DRAWN - TP	REVISED -
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PLOT DATE = 10/16/2017	DATE - 9/11/2017	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUMMARY OF QUANTITIES

SCALE: _____ SHEET 1 OF 2 SHEETS STA. _____ TO STA. _____

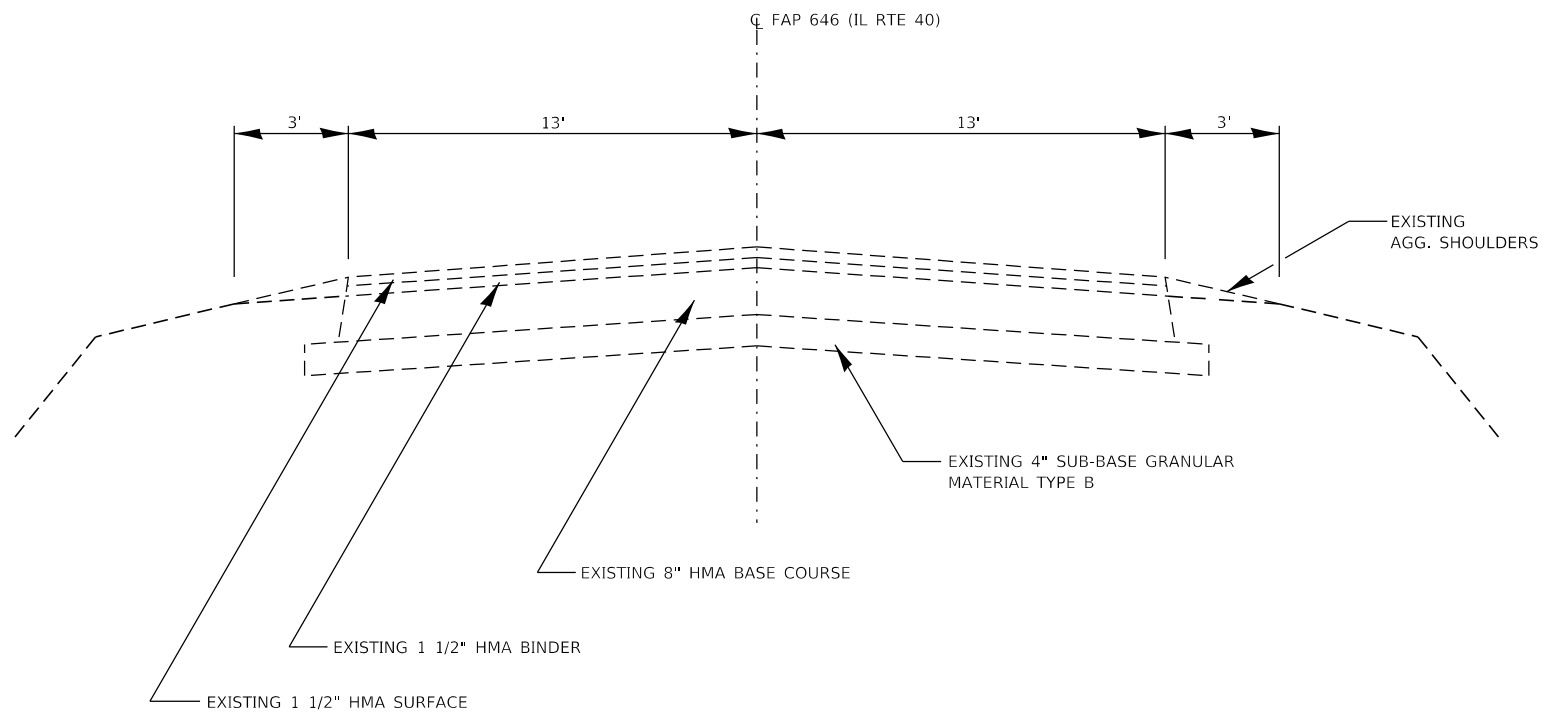
F.A.P. RTE. 646	SECTION (122VB-RJBP)	COUNTY BUREAU	TOTAL SHEETS 12	SHEET NO. 3
CONTRACT NO. 66H82				ILLINOIS FED. AID PROJECT

REV

CODE NO.	ITEM	UNIT	TOTAL QUANTITY	CONSTR. CODE	
				B. P. O.	S.N.
				80% FED 20% STATE BRIDGE	0047
					006-0138
Z0030850	TEMPORARY INFORMATION SIGNING	SQ FT	42		42
Z0048665	RAILROAD PROTECTIVE LIABILITY INSURANCE	LSUM	1		1

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PLOT SCALE = 100.0000' / in.	DRAWN - TP	REVISED -		646	(122VB-R)BP	BUREAU	12	4				
PLOT DATE = 10/16/2017	CHECKED - RW	REVISED -		SCALE: _____ SHEET 2 OF 2 SHEETS STA. _____ TO STA. _____				CONTRACT NO. 66H82				
DATE - 9/11/2017	DATE -	REVISED -		ILLINOIS FED. AID PROJECT								



TYPICAL SECTION

MODEL: Default
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	DRAWN - TP	REVISED - _____
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PLOT DATE = 10/6/2017	DATE - 9/11/2017	REVISED - _____

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

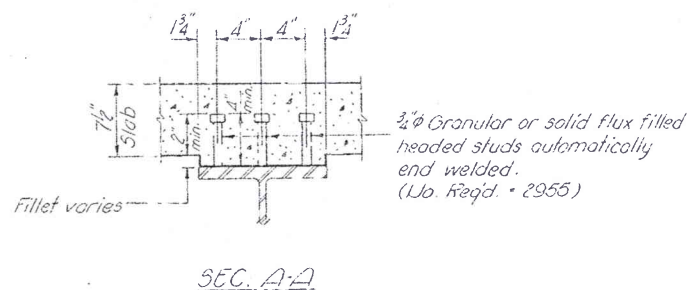
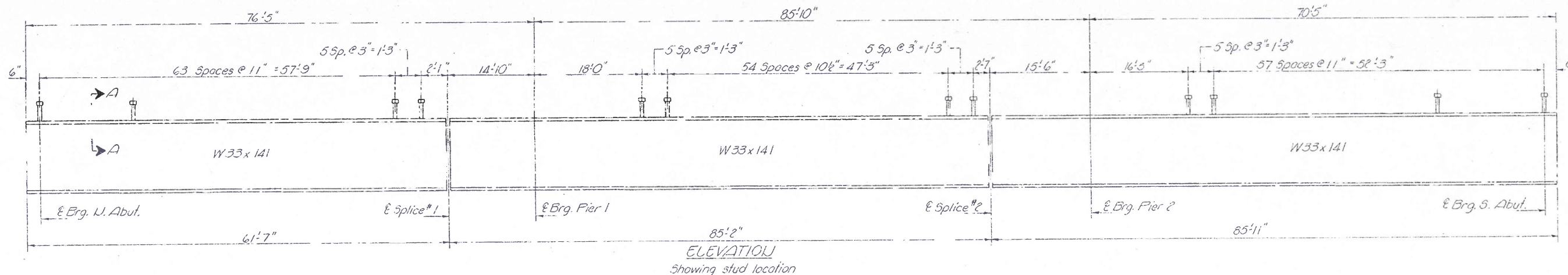
TYPICAL SECTIONS

SCALE: _____ SHEET 1 OF 1 SHEETS STA. _____ TO STA. _____

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
646	(122VB-R)BP	BUREAU	12	5
CONTRACT NO. 66H82				
ILLINOIS FED. AID PROJECT				

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	SHEET NO. 8 15 SHEETS
646	122VB	BUREAU	36	20	



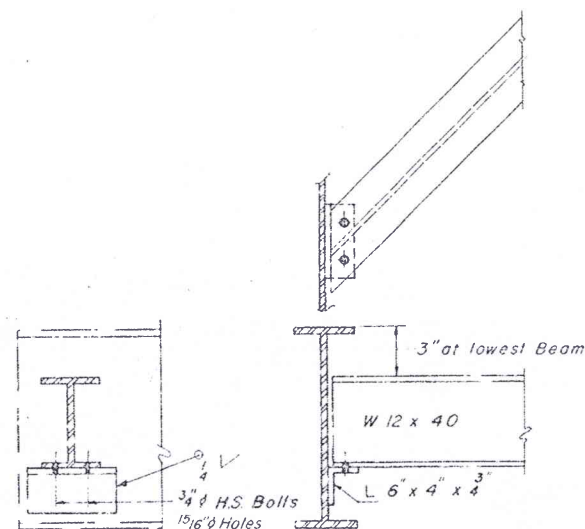
	0.4 Span 1	Pier 1	0.5 Span 2	Pier 2	0.6 Span 3
I_s (in ⁴)	7450	7450	7450	7450	7450
I_c (in ⁴)	18555		18555		18555
S_s (in ³)	448		448		448
S_c (in ³)	634.1		634.1		634.1
Z (in ³)		514		514	
ϕ (in)	.868	.868	.868	.868	.868
1.3 MR (k)	488.80	759.10	320.41	678.26	401.71
$f_s \phi$ (ksi)	13.09	17.72	8.58	15.83	10.76
$S \phi$ (k/in)	.346	.346	.346	.346	.346
1.3 MR ϕ (k)	220.96	237.30	187.36	216.37	181.73
1.5 $S \phi$ M & I (k)	1692.43	2996.19	1621.43	951.60	1550.08
Total (k)	2402.19	1992.59	2129.20	1846.23	2133.52
$f_s \phi$ + I (ksi)	36.21	28.80	34.23	27.27	32.77
f_s Total (ksi)	49.30	46.52	42.81	43.10	48.53
VR (k)	55.22		47.58		55.64

	U. Abut.	Pier 1	Pier 2	S. Abut.
1.3 (R ₂ + S ₂) (k)	47.35	142.31	134.86	42.95
1.3 (R ₃ + I) (k)	110.95	151.68	148.51	110.30
R Total (k)	158.30	293.99	283.37	153.25

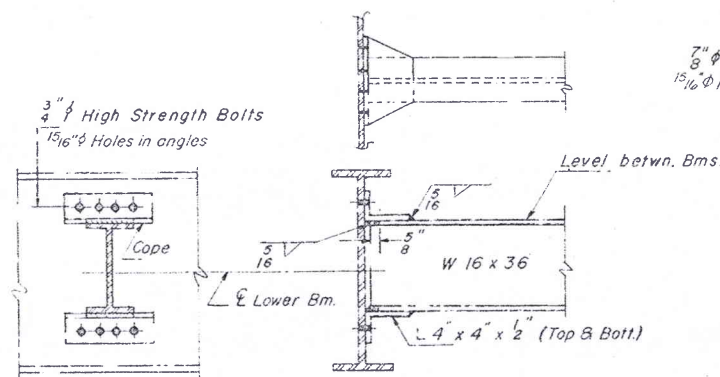
Beam #	U. Abut.	Splice #1	Pier 1	Splice #2	Pier 2	S. Abut.
1	787.11	787.00	786.91	786.46	786.32	785.58
2	787.24	787.10	787.01	786.55	786.38	785.61
3	787.36	787.19	787.08	786.59	786.42	785.62
4	787.24	787.04	786.93	786.41	786.23	785.39
5	787.10	786.88	786.76	786.21	786.02	785.15

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 $\frac{1}{2}$ impact shear range in span used to determine shear connector spacing.
 Z is the plastic modulus of the steel section used in computing f_s of the piers.

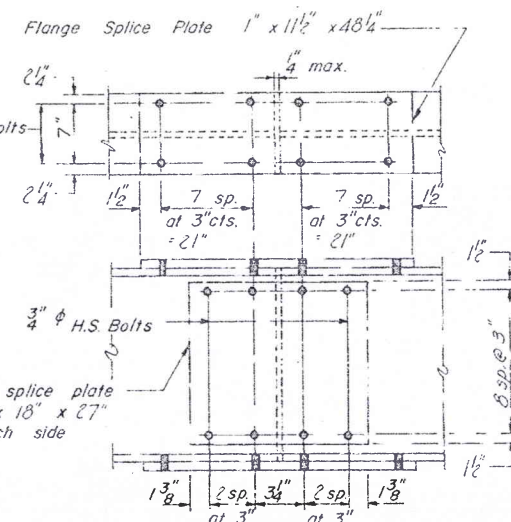
* For fabrication only



DIAPHRAGM D
3 Required



DIAPHRAGM D1
48 Required



SPLICE

Note: Hardened washers shall be required over 1 5/16" holes in angles.

Note: All bolts shall be AASHTO M164 (A325) Type 3 high strength bolts.

DESIGNED <i>Thomas E. Anderson</i>	EXAMINED <i>Carl E. Hummer</i>
CHECKED <i>Ralph E. Anderson</i>	PASSED
DRAWN	APPROVED
CHECKED <i>T.E.A.</i>	UNDER SECRETARY, CHIEF TRANSPORTATION ENGINEER

FOR INFORMATION ONLY

STRUCTURAL STEEL
F.A. RT. 646 SEC. 122VB-R
BUREAU COUNTY
STA. 165+04.56

MODEL: SMOULMAME
FILE NAME: c:\pwworkspace\projects\1052855103\1052855103\1052855103.dgn

I-2-D 4-15-73

USER NAME = pletschr	DESIGNED - TP	REVISED -
PLOT SCALE = 100.0000" / in.	DRAWN - TP	REVISED -
PLOT DATE = 9/26/2017	CHECKED - RW	REVISED -
	DATE - 9/11/2017	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

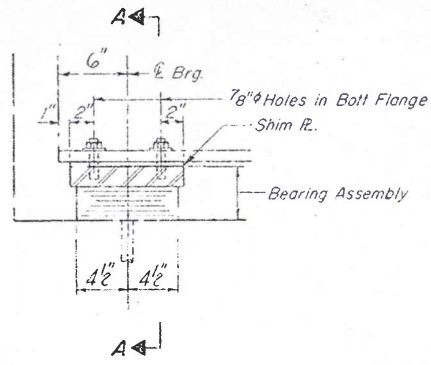
EXISTING STRUCTURE DETAILS
FOR INFORMATION ONLY

SCALE: SHEET 3 OF 5 SHEETS STA. TO STA.

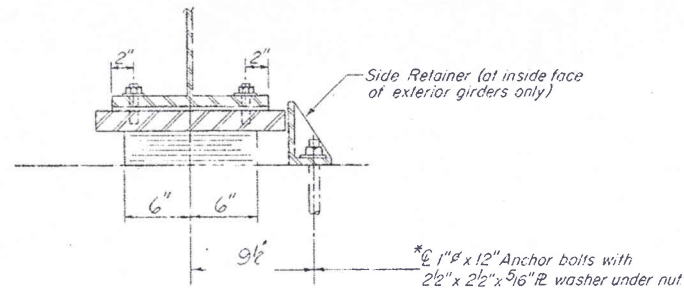
F.A.P. RTE	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
646	(122VB-R)BP	BUREAU	12	10
CONTRACT NO. 66H82				
ILLINOIS FED. AID PROJECT				

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

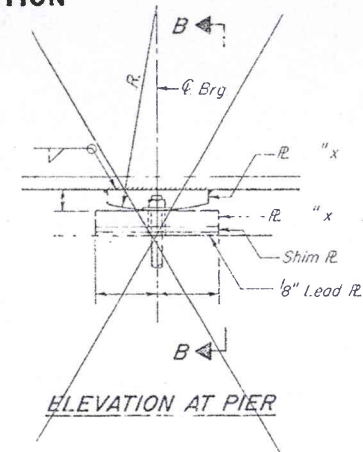
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122V-B	BUREAU	36	21	10
SHEETS				



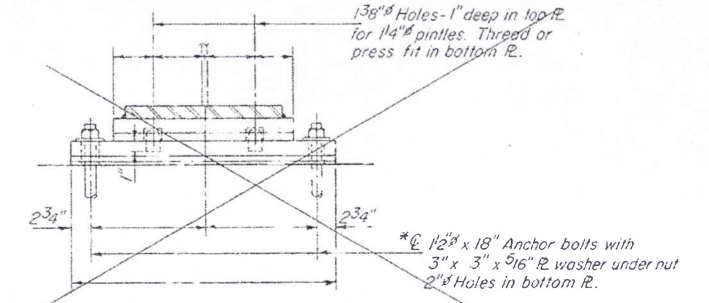
SECTION AT ABUT.



SECTION A-A



ELEVATION AT PIER

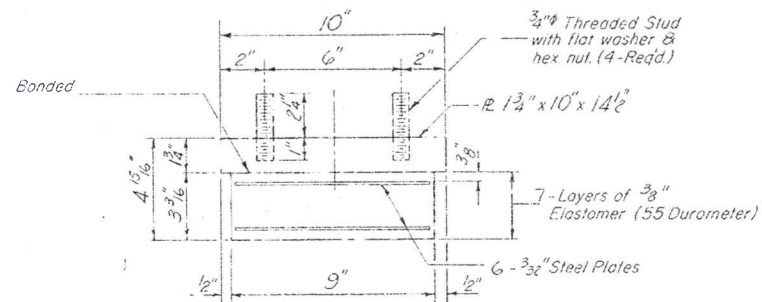


SECTION B-B

~~FIXED BEARING~~

TYPE I ELASTOMERIC EXP. BRG.
UO. ABUT.

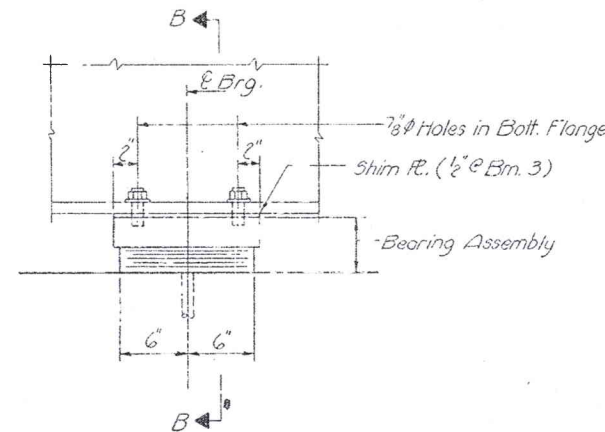
* Note: After girders have been erected holes of expansion bearings shall be drilled and anchor bolts grouted in place.



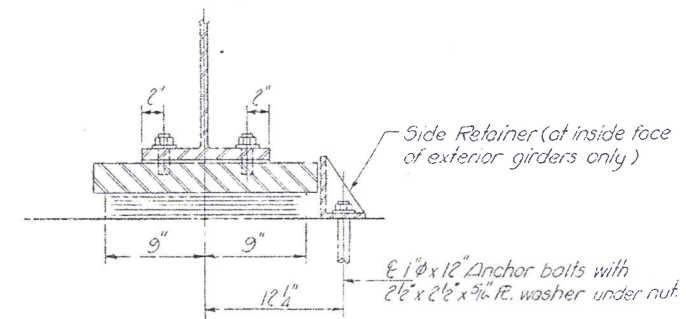
** BEARING ASSEMBLY
UO. ABUT.

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

Note: All plates and angles shall be AASTO M222 unpainted.

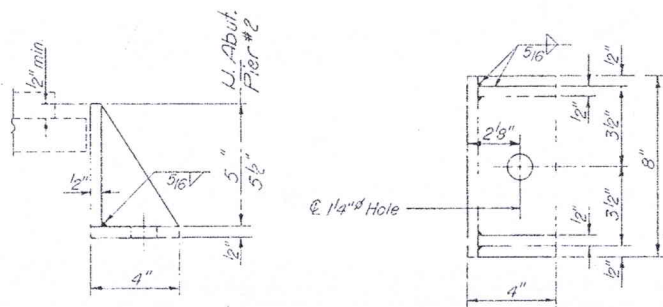


ELEVATION AT PIER

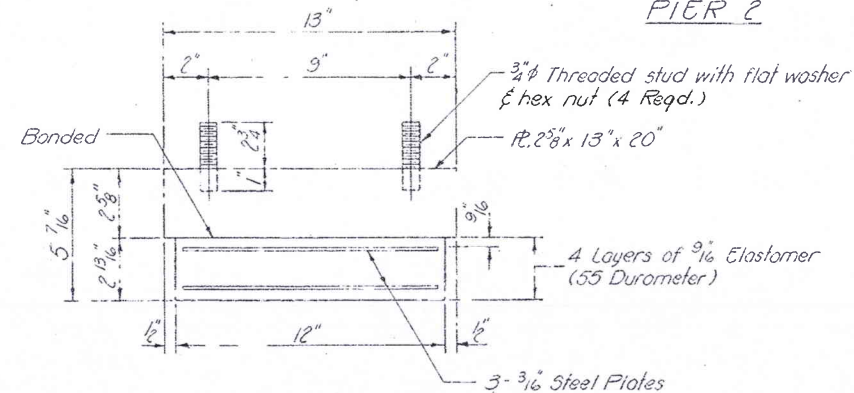


SECTION B-B

TYPE I ELASTOMERIC EXP. BRG.
PIER 2



SIDE RETAINER



** BEARING ASSEMBLY
PIER 2

DESIGNED	Thomas E. Haveran
CHECKED	Ralph E. Ambrose
DRAWN	J.D.
CHECKED	T.E.A.

EXAMINED	Oct 30 1950 Carl E. Thurman
PASSED	
APPROVED	
	DIRECTOR OF HIGHWAYS

FOR INFORMATION ONLY

BEARINGS
E.A. RT. 646 SEC. 122VB-R
BUREAU COUNTY
STA. 165+04.56

MODEL: SMOULMAMES
FILE NAME: c:\pwworking\dwg\p10052855103xxxxx-shl-details.dwg

I-2-EI 4-1-79

USER NAME = pletschr	DESIGNED - TP	REVISED -
PLOT SCALE = 100.0000' / in.	DRAWN - TP	REVISED -
PLOT DATE = 9/26/2017	CHECKED - RW	REVISED -
	DATE - 9/11/2017	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

EXISTING STRUCTURE DETAILS
FOR INFORMATION ONLY

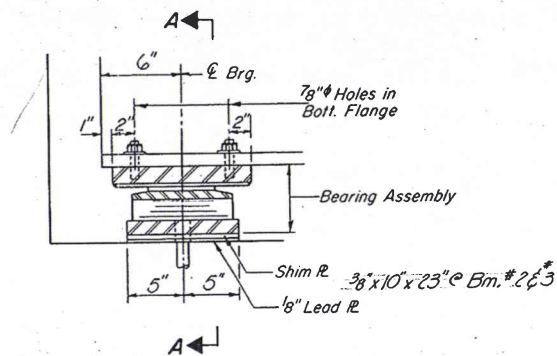
SCALE: _____ SHEET 4 OF 5 SHEETS STA. _____ TO STA. _____

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
646	(122VB-R)BP	BUREAU	12	11
CONTRACT NO. 66H82				
ILLINOIS FED. AID PROJECT				

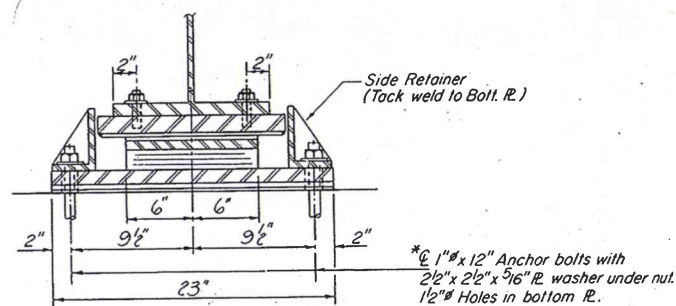
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
646	122VB	BUREAU	36	22
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT	

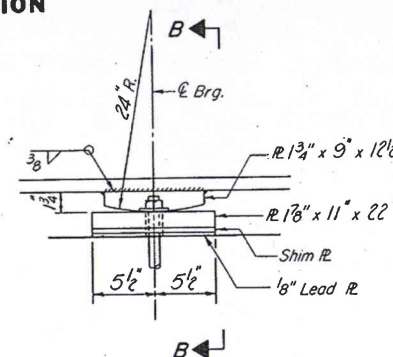
SHEET NO. 10
15 SHEETS



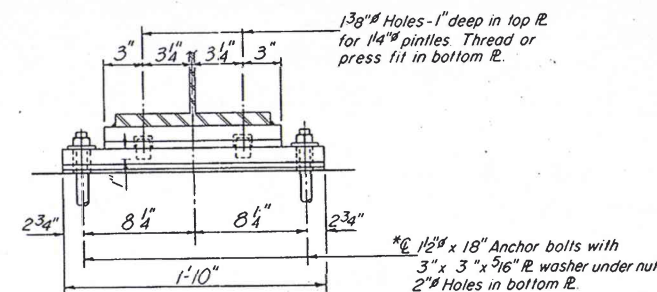
SECTION AT ABUT.



SECTION A-A



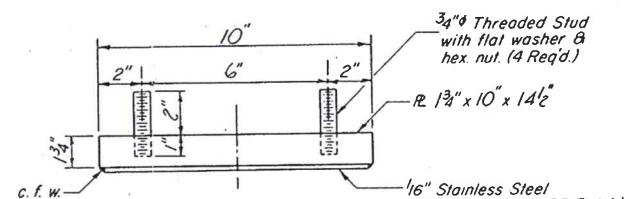
ELEVATION AT PIER



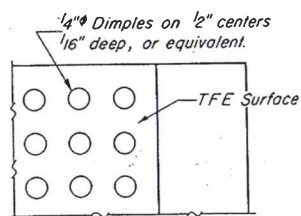
SECTION B-B

FIXED BEARING
PIER 1

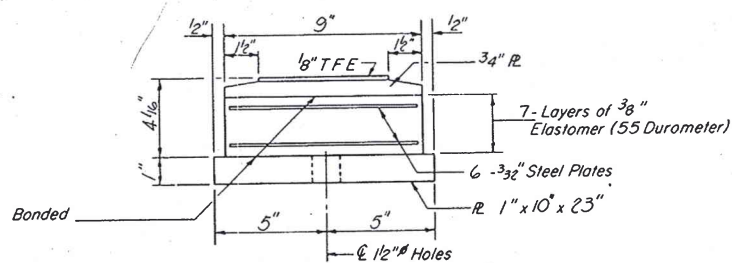
TYPE II TFE ELASTOMERIC EXP BRG.
50. ABUT.



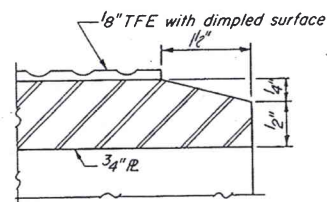
TOP BEARING ASSEMBLY



PLAN-TFE SURFACE

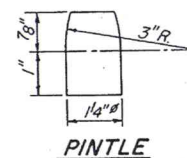


BOTTOM BEARING ASSEMBLY



SECTION THRU TFE

*Note: After girders have been erected holes of expansion bearings shall be drilled and anchor bolts grouted in place. Anchor bolts at fixed bearings may be built into the masonry.

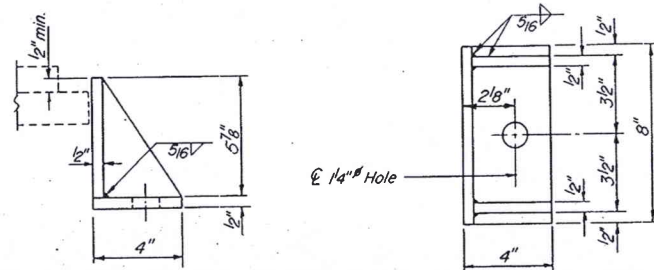


PINTLE

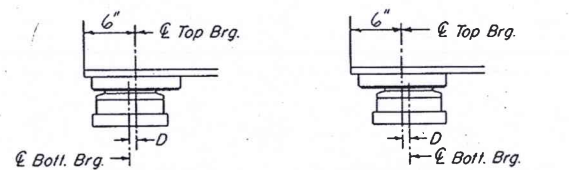
Note: The 1/8" TFE sheet shall be bonded directly to the top steel plate with a two-component, medium viscosity epoxy resin, conforming to the requirements of the Federal Specification MMM-A-134, Type I. The bond agent shall be applied on the full area of the contact surfaces.

Bonding of 1/8" TFE sheet during vulcanizing process will be permitted provided the process and method of adjusting assembly height is approved by the Engineer.

All plates and angles shall be AASHTO M222 unpainted.



SIDE RETAINER



SETTING ANCHOR BOLTS AT EXP BRG.

D = 1/8" per each 100' of expansion for every 15° temp. change from the normal temp. of 50°F.

FOR INFORMATION ONLY

BEARINGS
F.A. RT. 646 SEC. 122VB-R
BUREAU COUNTY
STA. 165+04.56

DESIGNED	Thomas E. Hansen
CHECKED	Ralph E. Anderson
J.D. DRAWN	
CHECKED	T.E.A.

Oct. 30 1980
EXAMINED Carl E. Hummer
PASSED
APPROVED
DIRECTOR OF HIGHWAYS

I-2-E2 4-1-79

USER NAME = pletschr	DESIGNED - TP	REVISED -
PLOT SCALE = 100.0000 / in.	DRAWN - TP	REVISED -
PLOT DATE = 9/26/2017	CHECKED - RW	REVISED -
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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

EXISTING STRUCTURE DETAILS
FOR INFORMATION ONLY

SCALE: _____ SHEET 5 OF 5 SHEETS STA. _____ TO STA. _____

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
646	(122VB-R)BP	BUREAU	12	12
ILLINOIS			FED. AID PROJECT	